

CHAPTER 6

INFRASTRUCTURE IMPROVEMENTS



Infrastructure Improvements

A. Introduction

The Specific Plan area requires an extensive and well-planned infrastructure system that is to be designed and installed at the expense of the property owners and developers of the property. The water, sewer, storm drainage and utility systems are to be designed to serve development within North City and connect, where appropriate, to the regional/local systems.

The purpose of this chapter is to summarize the conditions existing as of the adoption of this Specific Plan and the major recommended infrastructure features for the North City Specific Plan area. The infrastructure recommendations are based on: 1) the location of the recommended backbone roads as described Chapter 5 (Circulation and Streetscape Improvements of this Plan) and 2) the existing conditions of the area. The existing infrastructure, hydrology analysis and seismic hazards are described in the JMC² reports “*Infrastructure Analysis and Hydrology Study*” (September 2007, Updated April 2008), and “*Addendum to Infrastructure Analysis and Hydrology Study*” (October 2008), listed in Appendix B and provided under separate cover.

B. Sustainability

A primary goal of the North City Specific Plan is to provide for sustainably-designed infrastructure in new development. Several of the goals and policies in Chapter 3 discuss specific objectives related to water efficiency, storm water retention, and use of reclaimed water. As such, the development of both public and private infrastructure should strive to use state-of-the-art technologies to support these objectives.

In order to conserve precious water resources, an area-wide reclaimed water system would be desirable; however, the Coachella Valley Water District (CVWD) has no current plans for installing such a system. Prior to planning for development, developers should check with CVWD about the possibility of installing separate reclaimed water lines for a potential future system. In addition, all development should use reclaimed runoff water from its site for on-site landscape irrigation, water features, etc.

Additionally, there are several wind generators in North City that are owned and operated by independent power producers. While Southern California Edison (SCE) has the option of purchasing energy from them,



independent power producers cannot directly provide power to end users. Large-scale private developers are encouraged to consider wind generators and solar panels to generate on-site electricity.

C. Water System

I. Existing Conditions

The Coachella Valley Water District (CVWD) is the water provider for the North City area (the Desert Water Agency provides water to the southern portion of the City). The existing water supply for Cathedral City is generated from well sites and pumping plants located south of Interstate 10 (I-10). In addition, two existing 65-foot diameter water reservoirs, each with a capacity of 5 million gallons, are located west of Varner Road in the center of the Specific Plan area (Figure 6-1). These reservoirs provide back up water sources in the event that the well sites and pumping plants cannot generate enough water for daily use. Water transmission lines from these water reservoirs are located along Varner Road and Date Palm Drive, carrying water southerly across I-10 into Cathedral City.

A future water reservoir is planned to serve the Rio Vista Village community of Cathedral City. According to the Water Improvement Plan Tract – 28639 (approved on 6-23-2005), this new water reservoir will be located in the Flat Top Mountain area, directly north of Landau Boulevard (Figure 6-1). According to CVWD in early 2009, this project is on hold for an indeterminate period. Future water system design in the North City should take this into consideration. If there is sufficient capacity, new development could potentially tap into this reservoir.

2. Recommendations

Figure 6-1 illustrates the recommended preliminary layout of the transmission lines and locations of the water reservoirs for the Specific Plan area¹. The water reservoir size required to serve the Specific Plan area is approximately 50 million gallons, which was calculated by using CVWD's formula. Edom Hill is the highest point of the entire Specific Plan area; therefore, the water tanks should be located on Edom Hill. Two major transmission backbone lines are recommended for the water system:

- (1) To serve the Edom Hill-Light Industrial District – A 30"-36" ductile iron pipe (DIP) running from the proposed water reservoir along Edom Hill Road to Varner Road, then southeast along Varner Road to Date Palm Drive, then south to Valley Center Boulevard

¹ Based on the conceptual nature of the proposed infrastructure systems, the designs are preliminary and conceptual. The water purveyor (CVWD) will ultimately decide the final layout, sizes, and installation time lines of the water supply backbone. This will occur once the actual number of units and/or buildings in the different development areas is provided.





Figure 6-1: Existing and Recommended Wet Utilities for the Specific Plan Area

- Specific Plan Area
- City Boundary
- Future Road (approximate alignment)
- Existing Water Main
- Existing Sewer Main
- Future 24" DIP Water Main
- Recommended Water
- Recommended Sewer
- Recommended Storm Drain
- Recommended Storm Water Detention Basin



North City Specific Plan



Chapter 6: Infrastructure Improvements

and connecting to the other major transmission lines running along proposed Valley Center Boulevard.

- (2) To serve all new development along I-10 – A 30”-36” DIP starting from Palm Drive and running along proposed Valley Center Boulevard all the way to the eastern limit of the Specific Plan area.

Depending on the location and amount of new development, new pumping plants and well sites are recommended to be constructed in North City. However, pumping plants need to be located 0.75 miles away from a mountain base area. As most of the proposed development areas are not far removed from relatively high elevations (Flat Top Mountain and Edom Hill), using existing pressure zones on the south side of I-10 may be a more feasible solution. In this case, installation of a booster station in North City is recommended to pump water from the existing pumping plants and well sites that are located south of I-10 to new development in North City.

CVWD has a development design checklist for new domestic water systems. These are guidelines for developers to follow and provide a basis to properly estimate sizes of the new water system and assess the entire domestic water supply infrastructure. New development shall be in compliance with this checklist. In addition, the City uses the County of Riverside Underground Utility Location Standards for water main trenching. New development shall be in compliance with these standards.

D. Sewer System

I. Existing Conditions

CVWD is the sewer system provider for Cathedral City. A sewer system does not currently exist in North City. The closest sewer system is south of I-10. Per the CVWD Master Plan, a new sewer system will be installed to the southeast of the Specific Plan area that will direct the flow on the north side of the I-10 freeway to the Thousand Palms area. As a result of this improvement, the Specific Plan’s sewer system should be able to direct all flows to this new sewer system without having to upgrade the existing sewer system in the southern portion of Cathedral City.

CVWD is updating their water and sewer master plan, which includes the North City area. Per CVWD, as of spring 2009 this update is in draft form and not available for public review. However, the following recommendations are based upon direction from CVWD in accordance with the ongoing update.



2. Recommendations

Figure 6-1 illustrates the recommended preliminary layout of sewer lines for the Specific Plan area². Two major sewer transmission backbone lines are recommended to serve the entire Specific Plan area, both of which are gravity systems:

- (1) To serve the Edom Hill-Light Industrial District – A 24” vitrified clay pipe³ (VCP) starting from the northwest tip of the proposed light industrial area running along and under Edom Hill Road, turning south and running along Varner Road to Date Palm Drive, then along Date Palm Drive to the intersection of Date Palm Drive and Valley Center Boulevard. For every 300 feet of pipe, there should be a maintenance manhole.
- (2) To serve all new development along I-10 – A 24” VCP major transmission line along proposed Valley Center Boulevard starting from Palm Drive all the way to the eastern limit of the Specific Plan area and connecting to a future sewer line directing the flow to the Thousand Palms area.

CVWD has a development design checklist for wastewater (sanitary sewer) systems for new development, which are guidelines for developers to follow. The checklist provides a basis to properly estimate, size, and assess all proposed sewer system infrastructure. New development shall be in compliance with this checklist, as well as consistent with the updated CVWD Master Plan discussed previously. In addition, the City uses the County of Riverside Underground Utility Location Standards for sewer main trenching. New development shall be in compliance with these standards.

E. Storm Drain System

I. Existing Conditions

There is currently no storm drain infrastructure within the Specific Plan area. CVWD will own and maintain future storm drain systems.

Storm water currently flows into two major watersheds running through the Specific Plan area: 1) the Morongo Wash watershed (in the western portion of the Specific Plan area), which flows through three culverts underneath the I-10 corridor to the Whitewater Wash; and 2) the Long

² Based on the conceptual nature of the proposed infrastructure systems, the designs are preliminary and conceptual. The sewer purveyor (CVWD) would ultimately decide the final layout, sizes, and installation time lines of the sewer system backbone. This would occur once the actual number of units and/or buildings in the different development areas is provided.

³ Size of pipe is recommended by CVWD per the Preliminary Draft CVWD Master Plan, Spring 2009.



Chapter 6: Infrastructure Improvements

Canyon/Willow Hole watershed (running between Flat Top Mountain and Edom Hill) that continues its runoff to the Thousand Palms area. Portions of the Specific Plan area (southeast corner) are categorized as Flood Zone A⁴ and Flood Zone X⁵ by the Federal Emergency Management Agency (FEMA)⁶.

There are currently two major flood control projects in the planning stages in the vicinity of the Specific Plan area: 1) The Morongo Creek Project by CVWD, which will construct a flood control channel along the Morongo Creek Stormwater Channel from Verona Road to I-10. The projected completion of the design phase of this project is Spring 2010. 2) The Thousand Palms Flood Control Project by U.S. Army Corps of Engineers, which will protect the Thousand Palms area from flooding. The projected completion of the design phase of this project is September 2009.

2. Recommendations

Figure 6-1 illustrates the recommended preliminary layout of the storm drain system⁷. Since over half of the Specific Plan area land is within the Multiple Species Habitat Conservation Plan (MSHCP) Conservation Area, no sediments should be displaced. Therefore, a concrete channel is not feasible and a vegetated swale or other water-perforated material shall be used for the channels.

Two major channels are recommended to carry the runoff to a detention system or to the Whitewater Wash:

- (1) One drainage channel should be constructed traversing the western portion of the Specific Plan area to collect storm water from the Morongo Wash watershed. This channel, along with a storm water detention basin built south of the I-10 freeway, would collect and slow the flow rate of some runoff in this area. The balance of surface runoff would continue to flow underneath the I-10 and along the Whitewater Wash. This proposed detention system will need to be coordinated and reviewed by CVWD.
- (2) The other channel should be constructed along the narrow gap between Flat Top Mountain and Edom Hill, collecting water from the Long Canyon/Willow Hole watershed. This channel would work to direct storm water downstream to the Thousand Palms Canyon watershed.

⁴ Areas of 1% annual chance flood (100-year flood), the flood that has a 1% chance of being equaled or exceeded in any given year with no base flood elevation determined.

⁵ Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from 1% annual chance flood.

⁶ Per Flood Insurance Rate Map (FIRM), revised August 28, 2008, included in "Addendum to Infrastructure Analysis and Hydrology Study", (October 2008), listed in Appendix B and provided under separate cover.

⁷ CVWD and Riverside County almost evenly split jurisdiction in the North City Specific Plan area (Figure 6-2). The final layout of the storm drain system will need to be approved by both CVWD and the Riverside Country Flood Control District.



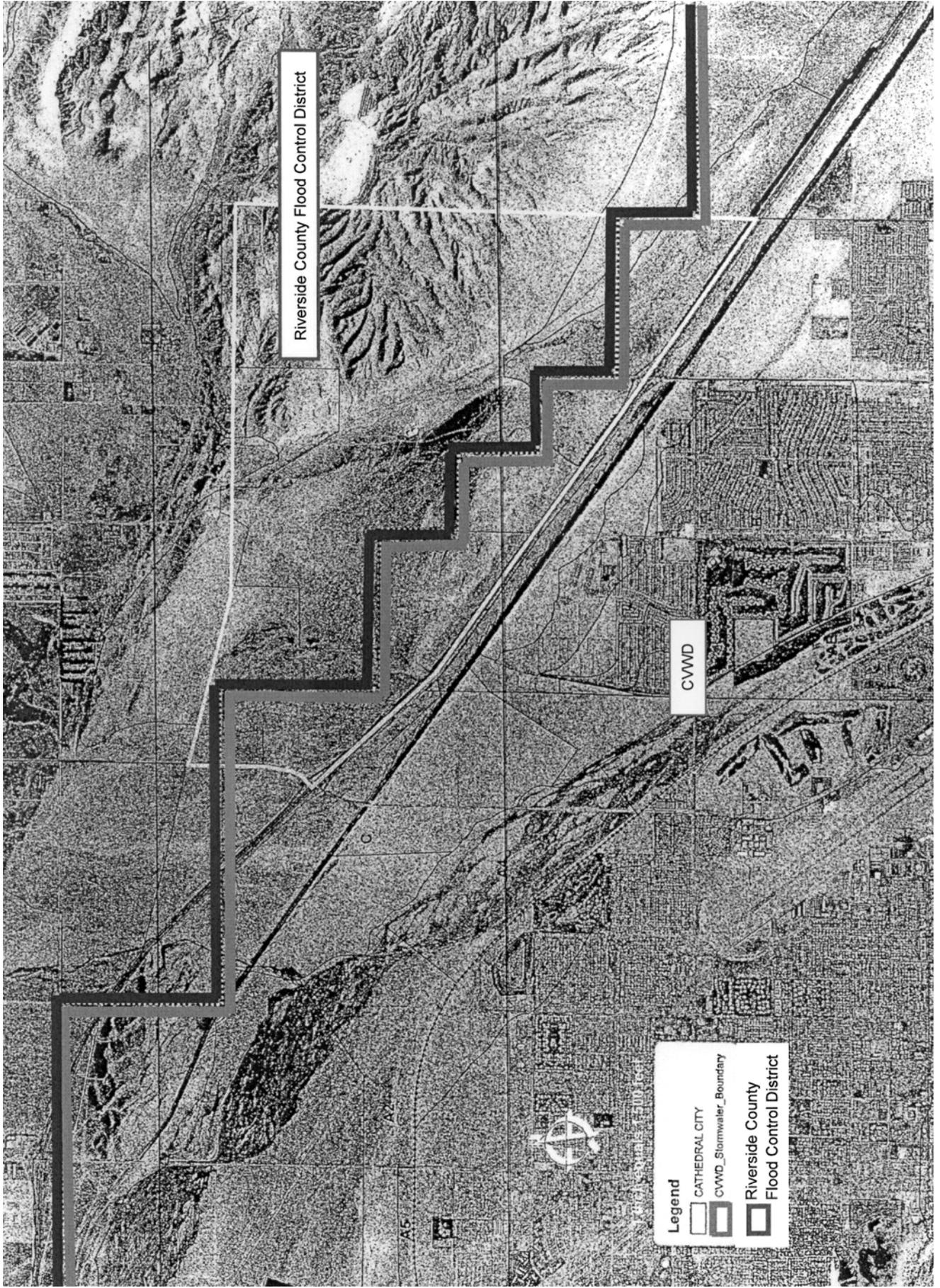


Figure 6-2: Storm Drainage System Jurisdictions

Chapter 6: Infrastructure Improvements

Two major storm drain system backbone lines are recommended:

- (1) To serve the Edom Hill-Light Industrial District – A 60” reinforced concrete pipe⁸ (RCP) that will carry storm water away from Edom Hill and into the Long Canyon/Willow Hole channel. This storm drain RCP line should run along and under Edom Hill road, until its intersection with Varner Road, then southeast on Varner Road to the intersection with Date Palm Drive, then south to Valley Center Boulevard. There should be a maintenance manhole every 300 feet.
- (2) To serve all new development along I-10 – A 60” RCP starting from Palm Drive, running along the proposed Valley Center Boulevard all the way to the eastern limits of the Specific Plan area. This storm drain line would help in carrying storm water away from all new development along I-10 and into the drainage channels.

The City uses the County of Riverside Underground Utility Location Standards for storm drainage trenching. New development shall be in compliance with these standards. In addition, new development shall follow National Pollutant Discharge Elimination System (NPDES) standards and Water Quality Management Plan (WQMP) standards.

F. Electrical System

I. Existing Conditions

Southern California Edison (SCE) is the electricity provider for North City, and currently serves Cathedral City south of I-10. There is an existing high voltage transmission line (220k Volts), within a 300-foot wide SCE easement, running diagonally across the Specific Plan area parallel to I-10. Lower distribution overhead lines are also running along side the high voltage transmission line, along Varner Road, and to the north of the I-10 corridor (Figure 6-2). In addition to these existing lines, SCE has three planned projects that affect North City:

- (1) The Devers-Mirage 115 kV System Split Project is proposed in order to maintain electric system reliability, enhance operational flexibility, and serve projected electrical demand in the cities of Palm Springs, Rancho Mirage, Cathedral City, Palm Desert, Indian Wells and unincorporated areas of Riverside County, including the community of Thousand Palms. Construction is scheduled to be completed by mid-2010. The improvements involving the City of Cathedral City include installing relays, line

⁸ Size of pipe is determined according to the hydrology analysis prepared for the North City Specific Plan, “*Infrastructure Analysis and Hydrology Study*,” listed in Appendix B and provided under separate cover.



positions, telecommunication, and other equipment at Tamarisk Substation, and replacing six existing wood poles with four new wood poles and one new tubular steel pole in the Vicinity of Date Palm Drive and Varner Road.

- (2) The Devers-Palo Verde No. 2 Transmission Project involves constructing a new 500kV Transmission Line starting from Devers station and running along I-10 all the way to Arizona. The project is currently acquiring approval from several committees. If approved, the 500kV transmission line will run across North City within the existing SCE easement.
- (3) Caltrans is currently in the design planning stage for a new bridge across the I-10 freeway at Date Palm Drive. SCE is proposing that new conduits be installed underneath the overpass, running from the south side to the north side of the freeway, to facilitate the provision of power to cities further to the north. If the proposal is approved, these conduits will also likely provide power to the North City Specific Plan area.

2. Recommendations

Figure 6-3 illustrates the recommended preliminary layout of the major electrical distribution lines for the Specific Plan area⁹. Two major distribution backbone lines are recommended for the electrical system:

- (1) To serve the Edom Hill-Light Industrial District – A 12kV distribution line, running underground from the Edom Hill-Light Industrial District along Edom Hill Road to the intersection with Varner Road, then southeast on Varner Road to the intersection with Date Palm Drive, then south to Valley Center Boulevard.
- (2) To serve all new development along I-10 – A 12kV distribution line running underground from Palm Drive along the proposed Valley Center Boulevard all the way to the eastern limit of the Specific Plan area.

A substation is one of the major infrastructure facilities of the electrical company. Its major purpose is to lower higher voltage transmission power to a lower voltage for the smaller distribution lines to carry and eventually distribute to end users. As previously described, there is a major transmission line carrying 220kV running across the Specific Plan area. While a substation is optional, it is recommended that a substation be constructed to acquire power from the major transmission line and then distribute the power to new development within the Specific Plan area.

⁹ Based on the conceptual nature of the proposed infrastructure systems, the designs are preliminary and conceptual. The electricity purveyor (SCE) would ultimately decide the final layout, sizes, and installation time lines of the electric system backbone. This would occur once the actual number of units and/or buildings in the different development areas is provided.



Chapter 6: Infrastructure Improvements

New development shall be in compliance with SCE's regulations for new residential and business development. In addition, developers will need to follow Cal-OSHA standards for trenching of electrical distribution lines.

G. Gas Systems**I. Existing Conditions**

Southern California Gas Company (The Gas Company) is the distributor of natural gas for North City. The Gas Company has three major interstate high-pressure gas lines running through North City: Line No. 2000 (30-inch line), Line No. 2001 (30-inch line), and Line No. 2051 (36-inch line). In addition, an existing 6-inch local high-pressure gas line runs north from the intersection of Vista Chino and Date Palm Drive under the I-10 freeway up to Line No. 2000, and then follows Varner Road northerly (Figure 6-3). The easement width over these high pressure gas lines varies from 16.5 feet to 100 feet. The exact width and location of these easements must be identified by individual property owners and/or developers during site design. No building or vertical structure is permitted to be constructed within these easements.

2. Recommendations

A gas flow and pressure regulation and control station should be connected directly between the distribution line and service line. The exact locations of these stations would be determined by The Gas Company.

The City uses the County of Riverside Underground Utility Location Standards for gas line trenching. New development shall be in compliance with these standards. Dry utilities can be trenched together.

H. Telecommunications System**I. Existing Conditions**

Verizon Communications will provide the telecommunication system for the Specific Plan area. There are two kinds of existing infrastructure for telecommunications: overhead cables and underground conduits. Both types can be found in the Specific Plan area and are located along Palm Drive and Varner Road (Figure 6-3).



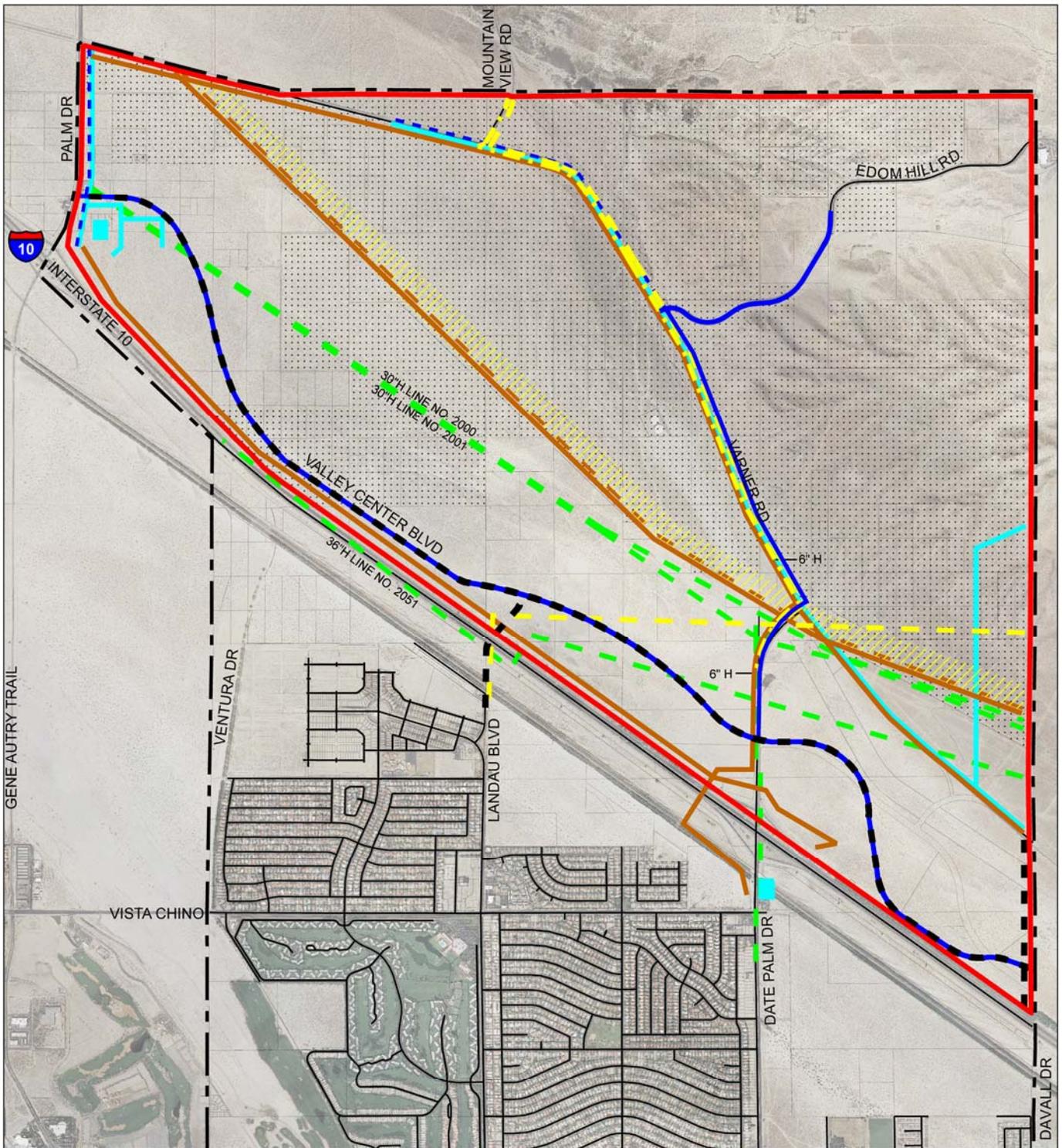


Figure 6-3: Existing and Recommended Dry Utilities for the Specific Plan Area

- Specific Plan Area
- City Boundary
- Future Road (approximate alignment)
- Existing SCE Power Lines (Overhead)
- Existing SCE Transmission Lines
- Existing Television Cable Line (Overhead Structure)
- Existing Television Cable Line (Underground Conduits)
- Existing Gas Line
- Existing Telecommunication Lines (Underground Conduits)
- Existing Telecommunication Lines (Overhead Structure)
- SCE Right of Way
- Joint Trench for:
 - Recommended SCE Power Lines
 - Recommended Telecommunication Lines
 - Recommended Television Cable Line
 - Recommended Gas Lines
 - Recommended SCE Power Lines
- Existing Cell Facilities for Cingular, Nextel and Verizon Wireless



North City Specific Plan



Chapter 6: Infrastructure Improvements**2. Recommendations**

The existing overhead lines should be placed underground for visual enhancement of the Specific Plan area. Cables should be buried directly in the soil using one of two general construction methods: open trench construction, or cable plow. In both instances, a cable rated for direct burial would be used. The direct burial method is especially useful in rural and suburban locations. The route must be carefully planned taking care to avoid other buried utilities (water, electrical, telephone, gas, etc.) and meeting environmental requirements.

All new distribution lines shall also be placed underground (CCMC Section 8.30, Underground Wires). There will usually be one connection line per household. The number of commercial lines will vary depending on their demand. New manholes shall be constructed at 750 feet apart and pull boxes for commercial areas should be spaced 750 feet apart.

General design and construction practices are the same as those associated with most public works projects. The physical design of the media path should conform to national and local construction design codes. The City will issue construction permits.

Currently, one over-size cell site is located in North City near Palm Drive and the future Valley Center Boulevard, and one exists just south of North City near Date Palm Drive (Figure 6-3). Co-location of facilities is recommended. New facilities shall be sited so as to minimize impacts and suitably camouflaged consistent with City policy. There are a number of cell sites in Cathedral City.

I. Cable Television Systems**I. Existing Conditions**

Time Warner Cable will provide cable television for the Specific Plan area. As illustrated in Figure 6-3, there are two kinds of existing cable television infrastructure: overhead cables and underground conduits. There are two overhead cable lines within the Specific Plan area. One overhead cable line runs southerly along Varner Road from Mountain View Road to Date Palm Drive. The second line starts at Landau Boulevard and runs north, crosses the I-10 freeway, then runs due east to the eastern limits of the Specific Plan area. The underground lines are located at the intersection of Mountain View Road and Varner Road going southerly along Varner Road to Date Palm Drive.



2. Recommendations

Similar to telecommunication lines, the existing overhead lines should be relocated underground for visual enhancement of the Specific Plan area. These should be co-located in one trench with the other dry utilities. The location, depth and separation of the cable lines from the other dry utilities within the trench would need to be discussed and agreed upon by the different dry utility companies. The cable company would provide the list of materials needed.

Joint trenching of utilities is a widely accepted practice. Every cable company has its own working arrangement with other utility companies that includes methods of cost sharing for common trenching. Actual cost savings would depend on depths and number of eliminated trenches. The installation rates which developers actually pay certain utility companies for underground service vary greatly. In most cases, these rates reflect the total (or partial) difference between the cost of constructing overhead and underground service as allowed by state utility commissions. Cost savings realized using common trenching and other innovations help reduce these initial charges.

In addition to the obvious cost savings due to less excavation, joint trenching has other advantages. It allows the maximum use of land, requiring narrower utility easements, and leaving more land available for closer spacing of units. Significantly more natural areas can be saved, resulting in reduced costs for clearing and grubbing. Another advantage of common trenching is that it allows different utility companies to work together, thereby coordinating their construction activities. This permits the utility lines to be installed in a much shorter period of time than with separate trenches.



