2.0 Physical Setting

The crescent shaped DCP is traversed by two major north south roads (Fowler and Sunnyside Avenues, both 2-lane). It contains two lesser north south roads (Armstrong and Marion Avenues -- both two lane) which do not extend entirely across the area. From east to west, the preserve is bounded on the south by a major collector street, Nees Avenue (two-lane). Teague avenue (one lane) also runs east-west direction; however it currently terminates at Marion Avenue and does not extend across Dry Creek. Other minor one-lane roads serving small parcel divisions include Cole, Serena, Purdue, Linda Lane, Powers, and others. City of Clovis Public Works Department staff indicate that Fowler and Nees avenues are the principal through streets of major circulation planning concern. Major area expressway and freeway access points are from State Highway 168 (Freeway), East-west Herndon Avenue (Expressway), Shepherd Avenue (Arterial) and north-south Clovis Avenue (Expressway).

The DCP lies within the Clovis Sphere of Influence; however most of the area has not been annexed and, therefore, lies outside the Clovis City Limits and within County Jurisdiction for most land use permitting. However, the County and City have enacted a referral agreement which confers upon the City of Clovis the authority to develop land use plans for the DCP area.

The DCP (Dry Creek Crescent) was a part of the City of Clovis' 1988 Herndon Shepherd Specific Plan. That Plan also included some 5,200 acres of additional lands to the west and east of the DCP. In that Plan, the DCP area was largely left unchanged; reflecting strong landowner preferences at the time, for remaining in the County's Rural Residential designation, zoned for single-family residence, 2-acre minimum.

The area has gradually been divided from its original single ownership to, today, about 258 separate land parcels. These range in size from 1.5 to about 31 acres. The area is currently designated Rural Residential by Fresno County; a designation which the City of Clovis does not utilize. Consequently, if lands are annexed into the City Limits, the zoning would necessarily change to the most similar and appropriate zone utilized by the City, in order to impose the least change to the existing land uses.

2.1 Environmental Setting

2.1.1 Geography, Topography and Hydrology

The DCP lies within the temperate San Joaquin Valley. The Valley in this location has nearly flat topography, sloping gently east to west. It lies atop a broad alluvium; arising originally from the west flowing San Joaquin River, and in more recent times, from Dry Creek and other San Joaquin

River tributaries. The alluvial soil is composed of deep sandy loam soils, underlain by much older and deeper clays, producing excellent soil conditions for agriculture.

The DCP historically was a rolling, arid, native Valley Grassland habitat with sparse native bunch grasses and seasonal rainfall. The area soils were broken for dry-land wheat farming in the 19th Century by Clovis Cole, Clovis City founder and namesake. The landscape was later leveled in

(Insert Topo Map Fig 14
Insert Hydrologic map Fig 15

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piece meal fashion, to enable surface irrigation of parcels, then held by different entities. This allowed more diverse farming for tree and other permanent crops, which is evident today. Crops currently grown within the DCP include pecans, stone fruit, almonds, strawberries, grapes, walnuts, pastures, and others. Pastures are common within these soil types, and they provide the principal support for the area's equestrian and livestock uses. The area has few areas with surface clay-pan soils, consequently, applied or naturally occurring water typically percolates efficiently into groundwater. As such, there are few, if any vernal pools within the DCP area. Groundwater depth across the DCP normally ranges from 64 ft. to 135 ft. with year-to-year and locational variation (Kings River Service Area Annual Groundwater Reports, Kings River Conservation District)

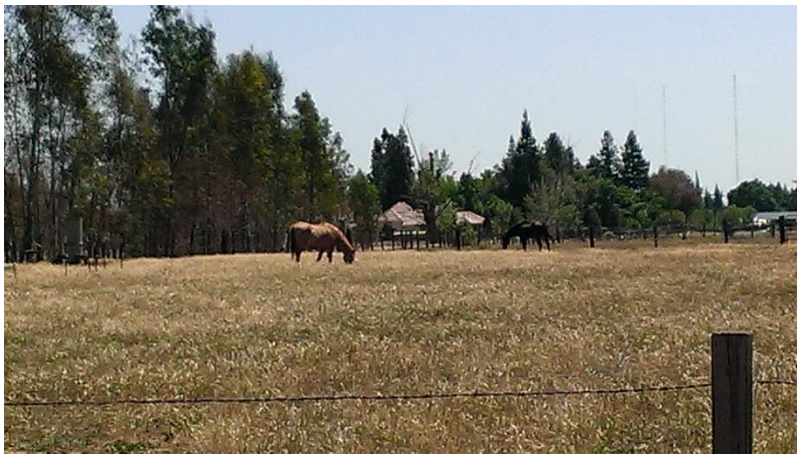


Fig. 16. Pastures contribute to the dramatic long views and open space character of the DCP landscape

Dry Creek is a natural watercourse which flows seasonally from the Sierra Nevada foothills, northeast of the DCP. Its excess water is impounded for flood control behind Dry Creek Reservoir and Dam, located 5 miles east of the DCP. Normal water releases from the Reservoir are conveyed southwestward along the DCP west boundary (figure 15). During times of flood, excess water is bypassed to the San Joaquin River. Dry Creek runs within a modified channel, varying from 20 feet to over 40 feet in width. Fresno Metropolitan Flood Control District and the City of Clovis operate a small diversion gate along Dry Creek, south of Nees Avenue, which is capable of intercepting and diverting storm flows into the City's recharge basins located south of Nees Avenue between Sunnyside and Marion. Fresno Irrigation District operates the 30-foot-wide Enterprise Canal, which crosses Dry Creek near the intersection of Sunnyside Avenue and Shepherd Avenue. At that point, FID has the capability to release water from the Canal into Dry Creek, for re-diversion by the City at the above-described downstream point. The City recharges groundwater with portions of its water entitlement received in this manner. Dry Creek and/or the Enterprise canal are the only surface water delivery sources available to the DCP area.

Fig. 17. Dry Creek is a water conveyance, a travel corridor for recreationists and wildlife and an aesthetic DCP border.

Today, the average elevation of the DCP is 387 feet above mean sea level. The land slopes gently east to west, from the built-up Enterprise Canal along the east DCP boundary toward the shallow modified channel of Dry Creek, which forms the west DCP boundary. The area has few low-lying lands which are prone to flooding (Figure 15). However, during heavy rains, water often accumulates and flows across the path shown in the Figure. At the southern edge of the DCP, it flows are captured and diverted into ponding basins located immediately south of Nees Avenue. Historically, this water spread over much more acreage, however, the construction of several dykes and ditches served to confine the present day water flow as shown. Flood management of the DCP area is the responsibility of the Fresno Metropolitan Flood Control District, who manages the area under agreement with the U.S. Army Corps of Engineers and the Federal Emergency Management Agency.

Fig. 18. Heavy storm runoff flowing along Nees Avenue, east of Sunnyside Avenue, during spring, 2010

Wetland areas within the DCP include Dry Creek and its immediate floodplain. There is also a natural swale and watercourse which traverses the area from northeast to southwest, between Fowler and Sunnyside Avenues (east-west) and between Teague and Nees Avenues (north south) (figure 18). Along this swale, water seasonally collects into a series of slow flowing ponded areas. Some of the ponds have been enlarged with low berms or dams, or deepened by residents, to extend their wetted season. Some owners supplement the ponds natural sources by directing applied water into the ponds, including FID surface irrigation water, or drain water conveyed across the area by Fresno Metropolitan Flood Control District.

2.1.2 Wildlife

Wildlife resource evaluations within the DCP and surrounding area are described in detail in Appendix C, along with a list of species that have been observed within the area.

Fig. 19. A flock of Wood Ducks relaxes in a flooded DCP Pecan

DCP Wildlife are surprisingly abundant and diverse for a near-urban community; owing to the intensive development of surrounding lands and

displacement of wildlife onto the DCP's open space areas. No State-listed or Federal-listed threatened or endangered animal or plant species, or species of special concern have been documented from the area, either from historical (1988) or from recent wildlife surveys conducted during the development of this Plan. The abundant area wildlife have become a major attraction for DCP residents and many Clovis City residents who walk, cycle or drive through the area.

Fig. 20. A pair of juvenile Grey Foxes explores a DCP residential garden

With a few exceptions, the 788-acre DCP area is adequate in size to sustain most of the wildlife species and populations which are now present. However, habitat suitability can rapidly become degraded, due to habitat partitioning by development or to adverse impacts of higher speed traffic, unshrouded night lighting, major changes in land use and/or abundant free-roaming dogs/cats. Human disturbance impacts already exist within the area, and most of the remaining wildlife species have already accommodated to the existing levels of noise and human intrusion.

A few native plant species still exist in undeveloped areas; particularly in proximity to Dry Creek. Common native perennial plants include Bush Lupine, Black Willow, Fremont Cottonwood, Valley Oak, and Mule Fat. In addition, a wide variety of annual native plants and wildflowers are seasonally evident along the Dry Creek alignment or on undeveloped lands. Where they continue to exist, these populations of native plants warrant protection and consideration in land use design, including landscaping during development of recreational trails and other features.

Fig. 21. A family of Grey Fox pups dens in a DCP scrap lumber pile

Although located on the margins of the DCP, Dry Creek remains a key environmental feature and aesthetic asset of the area. It provides a corridor for wildlife movement, which enables wildlife to move into and out of the area from neighboring valley floor and foothill areas to the north and east. The creek features a linear stand of mature trees and larger shrubs which constitute an across the area. Margins of the creek bed feature remnant grassland patches, which are key hunting grounds for hawks and owls, and key locations where a few native annual plants have persisted. The creek itself is inhabited by various warm water fish, amphibians and occasional reptiles, and Kings River water introduced into the Creek from the Enterprise Canal often carries incidental rainbow trout or other cold-water fish species, during irrigation seasons.

2.1.3 Aesthetics

Fig. 22. A Pacific Tree Frog rests in a flooded pasture

Visual quality of the area is characterized by a mostly flat (leveled) terrain, ongoing agricultural operations, pastures, trees, barns, paddocks and sparsely interspersed single family homes. Homes are typically set back from roadways, therefore the view from roadways is largely rural and pastoral. The relatively quiet one and two lane roads throughout the area have retained a typically rural appearance, which adds to the quality of the rural open space experience for area visitors. Occasional homes rise to two stories in height, and in most cases they are obscured from road views by mature trees. The area offers views and access points for the Enterprise Canal and Dry Creek, with their developed trail systems. From open locations, the area offers a distant and panoramic view of the nearby Sierra Nevada Mountains and foothills. All of these visual attributes represent strong recreational attractions for area visitors.

A more detailed description of the environmental setting surrounding the DCP was provided in the 1988 Herndon Shepherd Specific Plan Environmental Impact Report (EIR).

2.2 Demographics and Population

The DCP area has about 250 households, which range from large families to retired couples or singles. Many different nationalities and income levels are included. Some houses are currently rented; however, the majority are resident owned. The age breakdown of the population was unavailable for this area; however, in our resident outreach processes, we determined that the average period of property ownership across the DCP is 13 years, with a range of 1 to 54 years. This suggests that the DCP population is mostly well-settled, stable, and interested in longer-term property/home ownership. DCP property owners indicated that they chose their larger land parcel lifestyle because they (in order of descending frequency):

- enjoy the broad open space and/or wildlife which the RR designation provides,
- enjoy privacy and simply want to avoid close neighbors
- want to keep horses or other larger livestock or pets,
- enjoy farming or gardening as a lifestyle or for family income,
- have interests or activities with associated noise or other characteristics which would create conflicts with neighbors living more closely (such as woodworking, welding, etc.)
- have a home-based business (e.g., trucking, nursery, veterinary clinic, etc.) that is allowed or permitted under RR but which they could not do in a more populated tract
- enjoy owning a larger parcel of land to roam and "play with."

- lived on their current property all of their life and view it as a “family heritage.”

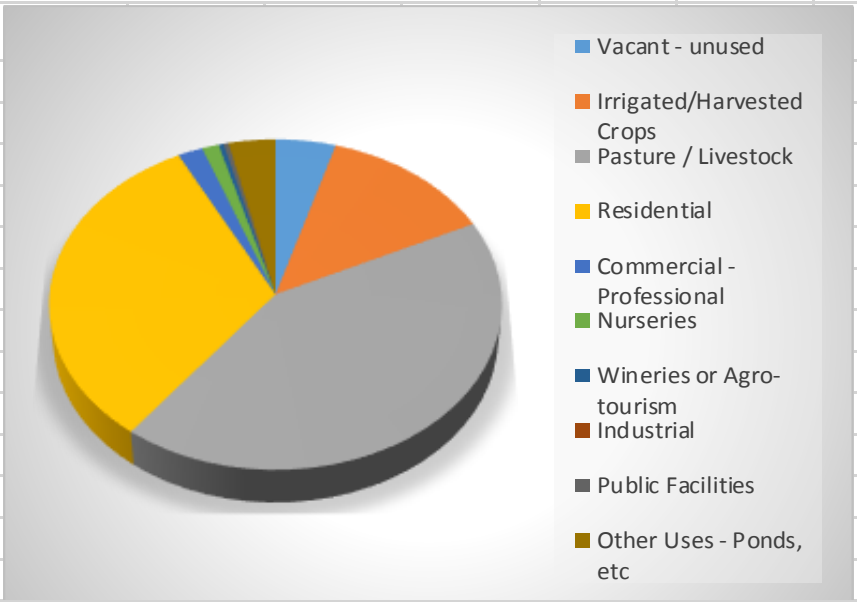
2.3 Existing Land Use

DCP lands are used for a variety of Rural Residential uses (Fig. 23). On many parcels, more than one use takes place, such as residential and equestrian or orchards. For this reason, it is difficult to determine the actual acreage of “open space,” since the “open space” uses can include many of the agricultural and non-intensive (non-structural) land uses, or unused portions of larger residential parcels.

Figure 23.

EXISTING LAND USES WITHIN THE DRY CREEK PRESERVE

Existing Uses	Acres**
	(approx.)
Vacant - unused	36
Irrigated/Harvested Crops	104
Pasture / Livestock	336
Residential	253
Commercial - Professional	15
Nurseries	10
Wineries or Agro-tourism	3
Industrial	0
Public Facilities	3
Other Uses - Ponds, etc	28



Approximate Numbers

** Acreage values are not additive, because many parcels have multiple uses

2.4 Water Availability and Entitlements.

Domestic water for DCP properties is typically supplied by pumped groundwater. In addition, many properties have reserved access to Fresno Irrigation District (FID) conveyances and are also served by FID surface water, which is diverted from the Kings River, or from the Friant Kern Canal (San Joaquin River). FID typically furnishes surface water for agricultural irrigation between the months of March and October; the length of the water season being dependent upon water availability in particular years.

FID conveys water to the area through its Enterprise Canal, which diverts Kings River Water at the Gould Weir, located near Belmont Avenue. Water delivery costs, rates and seasons are set by the FID Board of Directors, who are periodically elected by FID water users. The use of general FID agricultural water deliveries is limited to agricultural use, as governed by the FID Water Use Rules. These specifically regulate the amount and timing of water, and the permissible uses of water upon recipient parcels.

Fig. 24. Head-gate of Little Teague irrigation ditch off of Enterprise Canal

FID also has agreed upon a water entitlement with the Cities of Fresno and Clovis. Through that agreement, FID furnishes Kings River or San Joaquin River surface water for groundwater recharge and more recently for treatment and municipal distribution. The quantities of water delivered to the Cities of Fresno and Clovis are roughly equivalent to the historical FID entitlements provided to lands prior to being annexed. At the time of annexation, the parcels were developed and no longer were supplied by FID for agricultural uses. Instead, the water supply is transferred to the respective cities, who then have responsibility for furnishing water to meet residential requirements. Clovis' 2010 General Plan Update contains such a water transfer requirement for areas which annex under that Plan. Given that requirement, the agricultural water and uses of any DCP lands annexed to Clovis would be permanently lost, which will present a major barrier to gaining DCP resident support for annexation. Because one of this Specific Plan's core goals is to protect and continue DCP agricultural uses, an obvious conflict between the two Plans will need to be resolved by City Council legislative action to modify the City Ordinance Code, to exempt DCP areas from the requirement. At present, FID surface supplies are the only viable/economic source of water for the area's ongoing agriculture.

Access to City-developed domestic water may become available as water conveyances are constructed to traverse the DCP area. It is possible that some landowners who desire to pay the required fees for connection and delivery will want to take advantage of that service, while others will prefer to continue using individual wells. Both of these options will continue to be available to landowners; facilitated by the Master Annexation Agreement protections of pre-existing uses. The MAA is necessary to assure continuing open-space compatible uses after annexation of lands, in order to implement this Plan's goals related to 1) the DCP's rural residential lifestyle, 2) small-scale agriculture. Both of these features are critically important to the preservation of open space.

Fig. 25. Irrigation structures dot the DCP landscape

Surface irrigation within the DCP is by gravity delivery and utilizes furrow or flood application to orchards and crops. Because much of the DCP rests atop the alluvium of Dry Creek, any applied surface water that is not evaporated/transpired to the air or plants gradually percolates downward to the underground aquifers. Since surface irrigation water is applied to about 60 percent of the lands within the DCP, this amounts to a substantial quantity (> 1,000 AFA) of groundwater recharge. This benefits DCP area wells, and City of Clovis wells located downstream on the aquifer. The process of soil percolation naturally filters and purifies the recharged water, such that no further treatment is normally required prior to domestic or other use.

2.5 Effluent Management

Existing homes with the DCP are all currently served by individual septic systems. Typically these consist of septic tanks and leach lines, which percolate the effluent into the shallow soils which purify the water as it percolates downward toward groundwater. This system is functional, and few if any contamination problems have so far occurred. Adequate separation of wells from septic tanks has carefully been maintained by Fresno County Department of Environmental Health; therefore direct contamination of wells is unlikely in the DCP soil types. The groundwater is periodically monitored at the City's wells to assure that contamination is not occurring.

While the individual septic system approach has worked effectively at current housing densities, the County and area residents recognize that if housing density increases -- even to the level of full build-out at the 2-acre minimum parcel RR designation – some contamination problems could begin to occur. Such potential contamination is considered a significant land use constraint. Consequently, the County has discontinued approval of new parcel divisions until methods other than individual septic facilities are available to serve the new parcels. This has halted new development within the DCP for all except a few pre-existing legal but undeveloped parcels, and parcels with access to municipal sewer disposal.