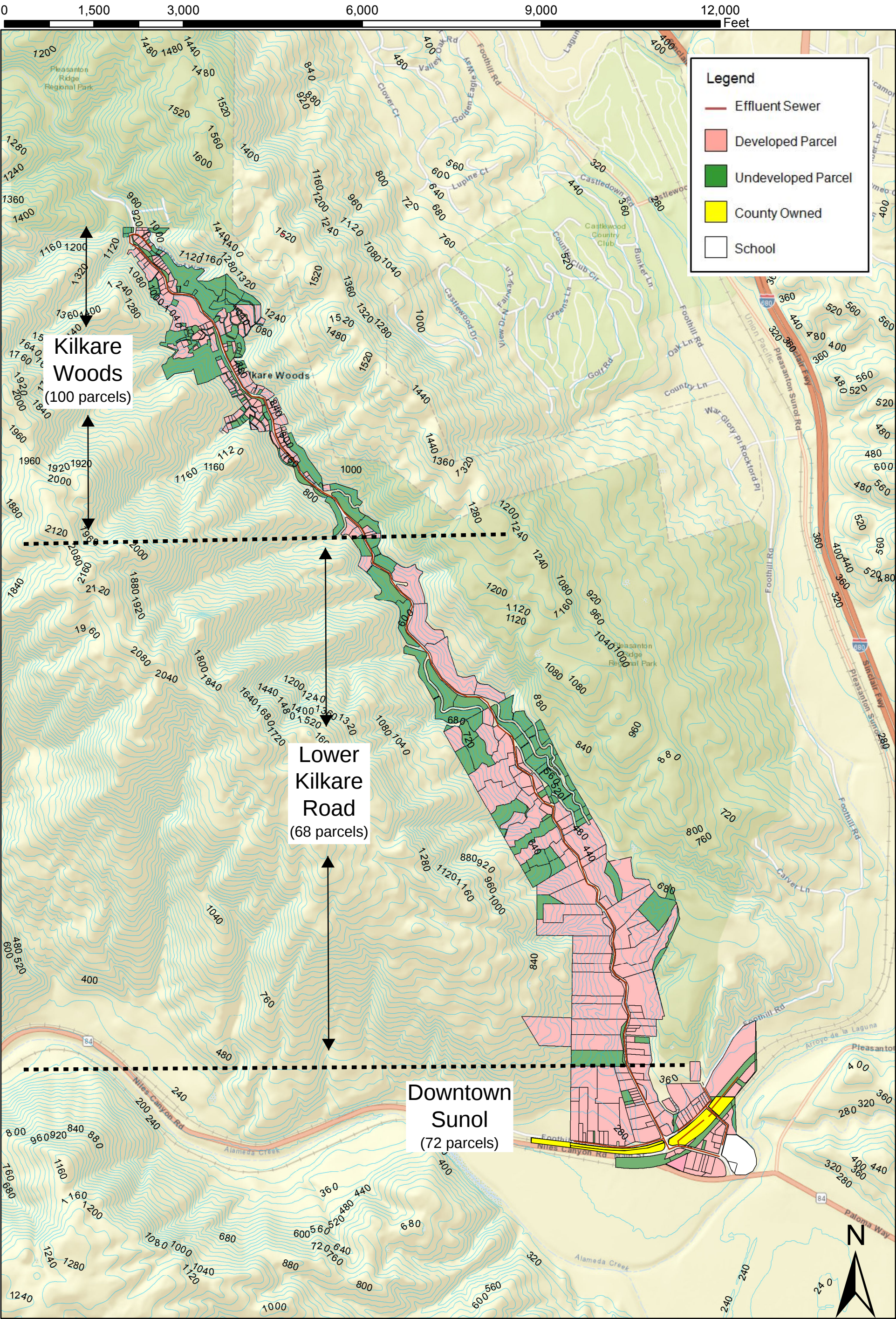




Study Area Map

Sunol Wastewater Feasibility Study
ALAMEDA COUNTY LAMP
SUNOL, CA



FIGURE
1

Sunol Wastewater Feasibility Study

Downtown Sunol Community Wastewater Alternative (#5)

Overview

June 11, 2019 - Update

- Limited capacity community wastewater system for commercial and high density areas of Sunol. Voluntary connection. Exact service area to be determined through surveys and community input.
- STEP collection system with community treatment, leachfield and subsurface drip dispersal (irrigation) on County owned parcels (Depot Park Gardens).
- Conceptual plan for approximately 10,000 to 16,000 gpd capacity could serve commercial district, up to 60 residences, elementary school and new public restroom at train depot (requested by lessee).
- STEP stands for “septic tank effluent pump”, where each parcel has its own septic tank and pump unit, with the effluent collected in a network of small diameter pipes (3”).
- Treatment and dispersal would be centered in the gravel area east of the community developed and maintained gardens.
- The existing pipeline, creek crossing and leachfield serving Bosco’s would be integrated into the community system.
- Preliminary site information indicates very suitable soil conditions for leachfields, especially in combination with secondary treatment.
- Proposed secondary treatment system – vegetative recirculating gravel filter providing; passive system with potential educational and demonstration features, and an amenity to the park.
- Estimated Dispersal Capacity:
 - ✓ Pressure distribution leachfield in traffic (parking) area: 10,000 gpd
 - ✓ Drip irrigation/dispersal for parking/treatment area landscaping: 2,500 gpd
 - ✓ Drip irrigation/dispersal of new planted area west of fenced garden: 12,000 gpd
 - Total: 24,500 gpd**

Sunol Wastewater Feasibility Study
Combined Community Wastewater System (#6)
Serving Downtown Sunol Plus Kilcare Woods
Overview
June 11, 2019

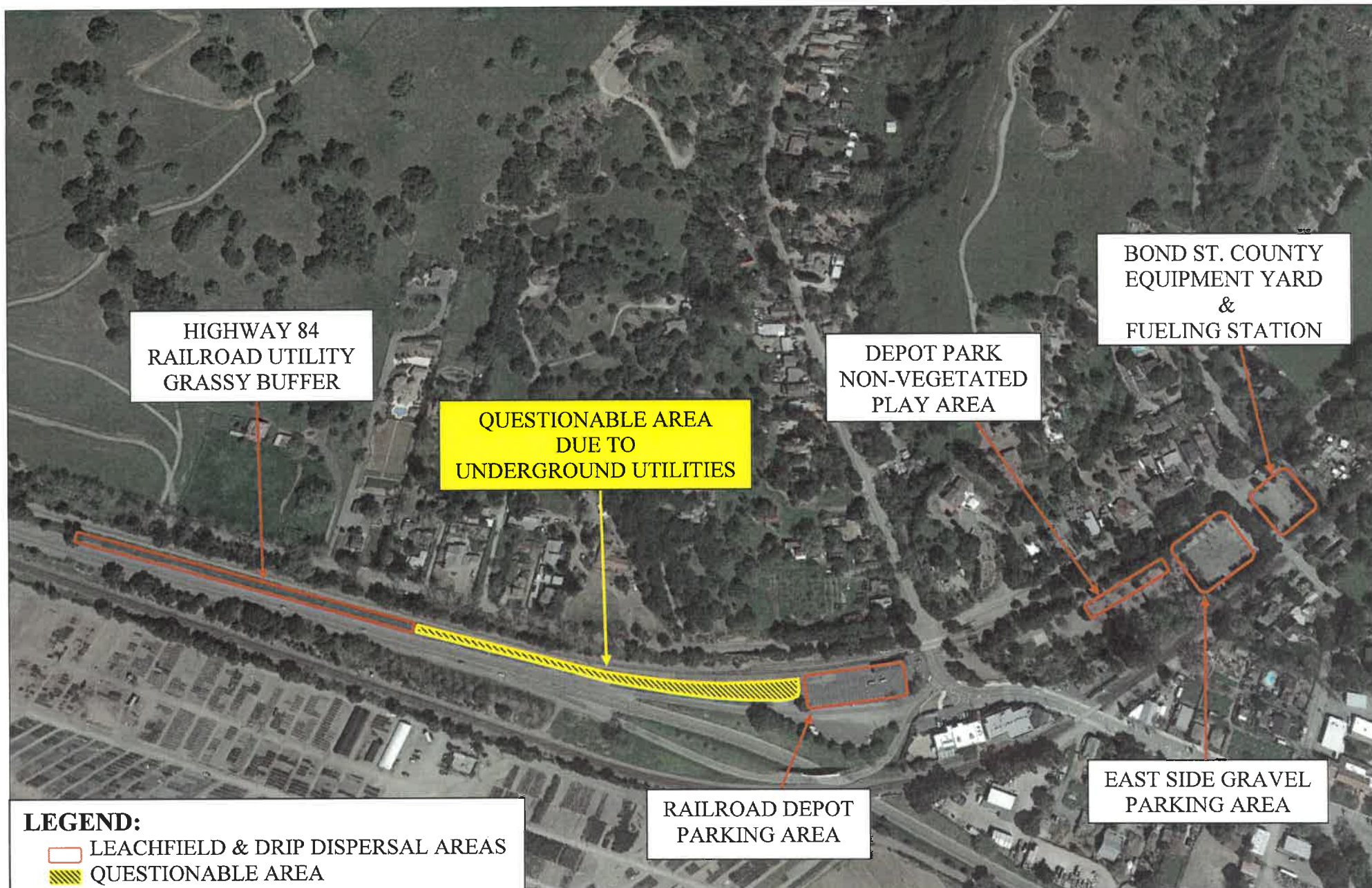
- This is an expanded version of Alternative #5, providing a community wastewater treatment facility situated in the Depot Park area, with service provided for Downtown Sunol plus properties located in Kilcare Woods. Voluntary connection. Exact service area to be determined through surveys and community input.
- Conceptual plan is for a flow of up to approximately 28,500 gpd, serving the the same downtown area as Alternative #5 (up to 16,000 gpd), plus up to 100 Kilcare Woods residences (up to 12,500 gpd).
- **Collection.** Wastewater collection would be by STEP and STEG effluent sewers, with community treatment, leachfield and subsurface drip dispersal (irrigation) on County owned parcels: (1) Depot Park Gardens; and (2) equipment/utility yard east of Bond Street).
- STEP stands for “septic tank effluent pump”, where each parcel has its own septic tank and pump unit, with the effluent collected in a network of small diameter pipes (3”). STEG stands for “septic tank effluent gravity” where each parcel has its own septic tank and the effluent flows by gravity to the treatment system in 4” diameter pipes. Wastewater from Kilcare Woods would be conveyed by a 3.4-mile long 4-inch gravity line (STEG) to the downtown area.
- **Treatment.** Wastewater treatment facilities would be the same as proposed for Alternative #5 (vegetated recirculating gravel filter); Treatment system capacity would be enlarged by adding a second identical treatment unit on the County parcel on the east side of Bond St. Incoming wastewater flow would be split between the two treatment units; final effluent would be combined for disinfection and dispersal.
- **Dispersal.** Treated effluent would be dispersed to a combination of leachfields and drip dispersal on the Depot Park areas (up to 24,500 gpd) and the County Bond Street parcel (up 4,000 gpd).

Estimated Wastewater Dispersal Capacities County-Owned Parcels, Downtown Sunol

Parcel Location	Area Description	Estimated Dispersal Area, (ft²)	Dispersal Method	Estimated Dispersal Capacity (gpd)	Notes
Depot Park	East Side Gravel Parking Area	16,000	Leachfield (Traffic Area)	10,000	Utilize, modify and/or replace existing Bosco leachfield
		2,000	Subsurface Drip (New Landscaping)	2,500	Integrated with parking and wastewater treatment system
	Non-vegetated Play Area, (West of Fenced Garden)	10,000	Subsurface Drip	12,000	Approx. 40'x250' area, 50-ft setback from Sinbad Creek; new landscaping managed as part of wastewater operations
	Sub-total			24,500	
East of Bond St.	County Equipment Yard and Fueling Station	10,000	Option A - Leachfield (Traffic Area)	Option A: 7,000	Retain existing vehicle access and utilities
			Option B -Subsurface Drip (No Traffic)	Option B: 12,000	Terminate current equipment and vehicle access; convert to drip irrigated landscaping
Railroad Depot & West	Paved Parking Area	15,000	Leachfield (Traffic Area)	6,000 to 9,000	Restricted by existing underground utilities (TBD) and uses; pavement converted to permeable pavers or equal
	Highway 84 - Railroad Utility Buffer Strip	10,000	Leachfield	6,000 to 9,000	Long, narrow grass buffer between Hwy 84 and RR; restricted by underground utilities (TBD)
	Sub-total			12,000 to 18,000	
Estimated Total Potential Wastewater Dispersal Capacity				43,500 to 54,500	

Estimated Wastewater Flows
Sunol Community Wastewater Feasibility Study

Service Areas	Land Use	# of Parcels	Unit Flow (gpd)	Sub-totals	Total Estimated Wastewater Flow (gpd)		
					100% Residential Connections	75% Residential Connections	50% Residential Connections
Downtown Sunol	Residential	60	125	7,500			
	Multi-Family	2	500	1,000			
	Commercial & Industrial	8	-	5,000			
	School	1	1,500	1,500			
	Railroad (Restroom)	1	1,000	1,000			
	Sub-total	-	-	16,000	16,000	14,125	12,250
Lower Kilkare Rd	Residential	68	125	8,500			
	Commercial	1	500	500			
	Sub-total	-	-	9,000	9,000	6,875	4,750
Kilkare Woods	Residential	100	125	12,500	12,500	9,375	6,250
Total Estimated Wastewater Flow, gpd		Downtown plus Kilkare Woods			28,500	23,500	18,500
		Entire Sunol Study Area			37,500	30,375	23,250



DATE: 6/11/2019
 PROJECT: Alameda County LAMP
 PROJECT NO.: 1500042
 DRAWN: MV
 APPROVED: NH



WASTEWATER DISPERSAL AREAS COUNTY-OWNED PARCELS DOWNTOWN SUNOL

FIGURE

2

Sunol Wastewater Feasibility Study

Community Wastewater System for Entire Study Area (#7)

Overview

June 11, 2019

- This is an expanded version of Alternative #6, providing a community wastewater treatment facility situated in the Depot Park-Bond St area, with service provided for the entire Sunol Study Area – Downtown, Lower Kilcare Road and Kilcare Woods.
- Conceptual plan is for a flow of up to approximately 37,500 gpd, as follows:
 - ✓ Downtown Sunol: 16,000 gpd
 - ✓ Lower Kilcare Road: 9,000 gpd
 - ✓ Kilcare Woods: 12,500 gpd
 - Total: 37,500 gpd
- **Collection.** Wastewater collection would be by STEP and STEG effluent sewers, with community treatment, leachfield and subsurface drip dispersal (irrigation) on County owned parcels: (1) Depot Park Gardens; (2) equipment/utility yard east of Bond Street; and (3) portions of the Railroad Depot/open space area west of town.
- STEP stands for “septic tank effluent pump”, where each parcel has its own septic tank and pump unit, with the effluent collected in a network of small diameter pipes (3”). STEG stands for “septic tank effluent gravity” where each parcel has its own septic tank and the effluent flows by gravity to the treatment system in 4” diameter pipes. Wastewater from Lower Kilcare Road and Kilcare Woods would be conveyed by a 3.4-mile long 4-inch gravity line (STEG) to the downtown area.
- **Treatment.** Wastewater treatment facilities would be the same as proposed for Alternative #6 (vegetated recirculating gravel filter); treatment system capacity would be increased (by 9,000 gpd) by enlarging the treatment facilities on the County parcel on the east side of Bond St. (Note: as a sub-alternative, a more compact package-type mechanical treatment system could be considered to minimize land area requirements, located entirely on the Bond St parcel).
- **Dispersal.** Treated effluent would be dispersed to a combination of leachfields and drip dispersal as follows: (a) the Depot Park areas (up to 24,500 gpd), (b) Bond Street parcel (1,000 – 2,000 gpd); and (c) additional leachfields developed near the Railroad Depot on the west side of town (12,000 gpd). A transmission line of up to approximately 3,000 feet would be required to convey treated water to leachfields on the west side of town.