COMMUNITY DEVELOPMENT RESOURCE AGENCY
PLANNING DIVISION

HEARING DATE: February 22, 2018
ITEM NO.: 3
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TO: Placer County Planning Commission

FROM: Development Review Committee

DATE: February 8, 2018

SUBJECT: **SUNSET AREA PLAN / IMPLEMENTING ZONING REGULATIONS AND PLACER RANCH SPECIFIC PLAN WORKSHOP (PLN15-00283 / PLN16-00341) SUPERVISORIAL DISTRICT 2 (WEYGANDT)**

COMMUNITY PLAN/GENERAL PLAN: Sunset Industrial Area (SIA) Plan, Placer County General Plan. [The proposed Sunset Area Plan (SAP) and Placer Ranch Specific Plan (PRSP) is intended to replace and supersede the SIA and amend the Placer County General Plan Land Use Map and targeted land use policies.]

ZONING: Agricultural 20 Acre Minimum, Agricultural 80 Acre Minimum, Business Park, Commercial, Industrial, Open Space, Public Facility, Public Facility/Agricultural 80 Acre Minimum. [The proposed SAP Implementing Zoning Regulations and PRSP is intended to supersede and replace all existing zoning within the SAP boundary.]

LOCATION: The Sunset Area Plan encompasses 8,497 acres located in unincorporated west Placer County west of the Highway 65 corridor and situated between the Cities of Lincoln to the north, Rocklin to the east, and Roseville to the south. The proposed Placer Ranch Specific Plan property encompasses 2,213 acres within the southern portion of the SAP and includes Assessor's Parcel Numbers 017-063-013-000, 017-063-042-000, 017-063-043-000, 017-020-018-000, 017-020-019-000, 017-063-004-000, 017-063-039-000, 017-063-040-000, 017-063-012-000, 017-063-045-000, 017-063-046-000.

APPLICANT: Placer County

PROPOSAL: The Sunset Area Plan is a County-initiated update of the existing SIA Plan and associated zoning contained therein, and an amendment to the Placer County General Plan to amend the Land Use Map to expand the SAP boundary to include 325 acres to the west, to amend the General Plan Table 1-2 Development Standards, to allow for a maximum 30 dwelling units per acre, where 21 is currently allowed, in the High Density Residential, General Commercial, and Tourist/Resort Commercial land use designations (except as otherwise noted within a Community/Area Plan or Specific Plan), to amend Table 1-5 Minimum Public Facility Buffer Zone Width to reduce and revise the residential, commercial, and recreational use buffer requirements, and to amend Policy 4.G.11 related to the proximity of residential uses to landfills. Adoption of the SAP would supersede and replace the SIA Plan and associated zoning with the Sunset Area.

The SAP is comprised of nine chapters (Land Use and Economic Development, Transportation and Mobility, Public Facilities and Services, Natural Resources, Cultural Resources, Noise, Health and Safety, Housing, and Implementation) and Implementing Zoning Regulations. The Plan, if adopted, would become a component of the Placer County General Plan. Zoning implementation is proposed through an

ordinance to rezone properties within the SAP as necessary and required to achieve consistency with the proposed SAP land use designations.

The PRSP is a County-initiated Specific Plan proposal being processed on behalf of the Placer Ranch property owner, Placer Ranch, Inc.. The Specific Plan proposal would comprehensively plan development of 2,213 acres contained within the SAP boundary. The PRSP proposes residential, commercial, light industrial, and park/open space uses, as well as a public university site, and includes specific land use designations and zoning to implement the project. If adopted, the PRSP would serve as the guiding planning document for the Placer Ranch property within the SAP boundary.

CEQA COMPLIANCE

Preparation of an Environmental Impact Report (EIR) for the SAP and PRSP is underway. The EIR is analyzing the SAP at a programmatic level and the PRSP at a project level. The EIR will analyze all impacts associated with resources related to aesthetics, agriculture, air quality, biology, cultural, geology, Green House Gas emissions, hazards, land use, noise, population and housing, public services, transportation, utilities and infrastructure, and energy. A Public Review Draft EIR is expected to be released in late spring 2018 for a 45-day public review period, at which time the Planning Commission will conduct a public hearing to receive comments on the Draft EIR

PUBLIC NOTICES AND REFERRAL FOR COMMENTS

Public notices were mailed to public interest groups and citizens including all those who submitted letters regarding the project and/or requested notification. A public hearing notice was also published in the *Sacramento Bee* newspaper. The Community Development Resource Agency staff and other County Department and special district staff were transmitted copies of the SAP and PRSP and associated documents for review and input.

LOCATION / SITE CHARACTERISTICS

The existing SIA Plan area, which includes the PRSP area, encompasses 8,172 acres in unincorporated west Placer County. The proposed SAP area includes an additional 325 acres west of the SIA for a total of 8,497 acres. West Placer County is characterized by a mix of urban, suburban, and rural land uses and is influenced by the Sacramento Metropolitan Area. The SAP area covers 13.9 square miles between the cities of Rocklin to the east, Roseville to the south, and Lincoln to the north and unincorporated Placer County to the west. The area west of the plan area is primarily farmland. Major landforms in the region include the Sierra Nevada to the east and Folsom Lake to the southeast. Approximately 25 miles from downtown Sacramento, the plan area is located immediately west of State Route (SR) 65, which connects to Interstate (I) 80 to the south and SR 99 to the north.

The proposed PRSP area encompasses 2,213 acres in the southern portion of the SAP area. The southern boundary of the PRSP area is contiguous with the Roseville city limits, and the northern boundary is defined, in part, by the existing alignment of Sunset Boulevard west of Fiddyment Road.

OVERVIEW

In 2014, the Placer County Board of Supervisors directed initiation of a SAP, with the overall objective to achieve the County's long-term vision of promoting economic development and job growth within the region. Following the Board's direction, staff developed a work program for the SAP and began preparation of background materials to help inform the Plan. Subsequently, in April 2016, the Board directed staff to process the PRSP concurrent with the SAP. By designing an overall strategy for Sunset Area, the County intends to attract large mixed use developments, commercial uses, universities, advanced manufacturing, corporate campuses, institutions, and entertainment venues that encourage businesses with primary wage jobs to locate in the Sunset Area.

Critical to achieving success within the Sunset Area is the advancement of the PRSP planning process. The 2,213-acre Placer Ranch property is located entirely within the boundaries of the SAP and will

provide critical backbone infrastructure to the Sunset Area, as well as act as a catalyst to job creation. The proposed PRSP includes a wide range of land uses, including various types of residential, commercial, light industrial, and park/open space areas. The cornerstone of the proposed PRSP project is the inclusion of a 301-acre off campus center of the California State University Sacramento. Staff has begun the planning process and environmental review for a new SAP and the PRSP. Since the Board's direction, staff has prepared a work program, collected and organized background materials, and has begun the CEQA environmental review process.

As part of the overall work program the SAP and PRSP includes the preparation of two sets of planning documents, including:

- An over-arching SAP policy document, SAP Implementing Zoning Regulations, and Design Standards and Guidelines
- A PRSP, Development Standards, and Design Guidelines

The SAP will be a single policy document which will contain broad-based planning policies applicable to the entirety of the Sunset Area within Placer County. The SAP Implementing Zoning Regulations will provide the zoning standards and design guidelines that will be specific to the entire Sunset Area. The PRSP will serve as the regulatory document that will guide the PRSP area. Similarly, the PRSP Standards and Design Guidelines will guide development and design throughout the PRSP area. It is staff's intention that these two sets of planning documents will be reflective of the County's vision for the Sunset Area.

BACKGROUND

The existing Sunset Area encompasses 8,172 acres in unincorporated west Placer County. The current SIA was adopted by the Board in 1997. That plan reflected the County vision of the area as a job center that would provide regional benefit and create primary wage–earner jobs for residents of local cities and unincorporated areas. The plan recognized that the plan area was large and absorption would likely be slow. However, a key strategic goal was to preserve an area for opportunities that would not be precluded because of residential encroachment. Because of a variety of factors, including a lack of infrastructure, and economic cycles, almost 90 percent of the area remains undeveloped. Generally, development has been variable since the SIA Plan was adopted, resulting in a patchwork pattern of sometimes incongruous uses and buildings.

There have, however, been some business expansions and new development activity during this time within the plan area. Thunder Valley Casino Resort, located at the intersection of Athens and Industrial Avenues, is the largest new development activity within the plan area since 1997, having expanded to become a full-service casino with a 297-room hotel, spa, concert, and gaming facility. Additionally, some core industrial uses have started to take hold in the southeastern corner of the plan area.

The proposed SAP reflects the County's evolving vision for the Sunset Area since the 1997 SIA Plan, with a plan for more diverse opportunities for employment, education, entertainment, and residential uses. The proposed SAP area includes an additional 325 acres west of the SIA for a total of 8,497 acres. This area west of the plan area is primarily farmland and is part of a large, contiguous property holding encompassing approximately 900 acres on the western edge of the SAP.

The 2,213-acre PRSP area covers the southwestern portion of the SAP area. Development of this property has been contemplated since 2003, when a local developer expressed a desire to gift approximately 300 acres of the PRSP area to California State University, Sacramento for the Sac State–Placer Center, and began pursuing land use entitlements through Placer County.

PROGRESS TO DATE

Since initiation of the SAP/PRSP work program, the following tasks have been completed:

- *Existing Conditions Report (October 2015)* – Documents the characterization and assessment of

existing conditions and takes an objective, policy-neutral "snapshot" of the Sunset Area's current (2015) trends and conditions.

- *Economic Market Analysis (August 2015)* – A market analysis for the plan The Economic Market Analysis provides an assessment of the Sunset Area as a viable location for industrial space including location, transportation, visibility, access, parcel size and characteristics, and land use policies.
- *Opportunities and Constraints Report (February 2016)* – Provides information on assets, issues, and opportunities within the Sunset area which helps to inform the Area Plan's land use plan, goals, policies, and implementation program
- *Preferred Land Use Plan (September 2016)* – The Existing Conditions Report, Economic Market Analysis, and Opportunities and Constraints Report provide the basis for defining the specific types and intensities of development for the Sunset Area.
- *Notice of Preparation (NOP) and Environmental Scoping (November 3, 2016)* - An NOP for the SAP/PRSP Environmental Impact Report (EIR) was released for a 45-day public review period which ended on December 16, 2016.
- *Review of Odor Management at Western Regional Sanitary Landfill (November 2017)* - This summary provides an overview of landfill and composting odor and control technology and discusses the history of odor management at the Western Placer Western Regional Sanitary Landfill (WRSL). It also summarizes and evaluates previous odor studies conducted for the WRSL, and includes a summary of how other jurisdictions have regulated land use around landfills and summarizes the technologies and practices utilized within those jurisdictions to address odor; and provides general recommendations related to the potential refinement of the County's landfill buffer policy.
- *Preliminary Public Review Drafts – SAP and PRSP (January 2018)* – Descriptions outlined in this report.

PROJECT DESCRIPTION – SUNSET AREA PLAN

The Vision of the SAP is to take advantage of opportunities to create a unique employment, entertainment, and education center that will provide regional benefit, create primary-wage earner jobs for residents of nearby cities and unincorporated areas, and help generate revenue to fund countywide services. The overarching objectives that will contribute to realizing this vision are as follows:

- High-Quality Design and Amenities: Establish and maintain high-quality standards for architectural and aesthetic design that ensure creation and maintenance of value. Project design should integrate amenities that add interest and character, including amenities that take advantage of the Sunset Area's natural and open space features.
- Infrastructure Improvement: Improve Sunset Area infrastructure with an emphasis on multimodal transportation improvements and the extension of public sewer and water to expand the supply of "shovel-ready" sites.
- Streamlining: Streamline the land development review process for CEQA compliance and project entitlements.
- Diversity of Opportunity: Broaden the range of development opportunities in the Sunset Area, including support for post-secondary education facilities and associated uses (e.g., commercial, residential, research) in Placer Ranch.
- Economic Innovation and Creativity: Transition to a more high-employee density, labor-intensive mix of uses with an emphasis on goods and services focused on innovation and creativity.
- Housing Diversity: Support the provision of housing types not otherwise available locally to accommodate employees of Sunset Area businesses.
- Preservation of Existing Operations: Preserve the viability of industrial and large-scale manufacturing operations in the Sunset Area.

- Retention of Unique Land Supply: Retain the supply of large development sites in the Sunset Area by discouraging subdivisions that diminish long-term value and foreclose unique development opportunities.
- Protection from Incompatible Uses: Protect existing and future development from adverse impacts associated with incompatible uses.
- Promotion of Active Transportation and Complete Streets: Provide a network of connected bike lanes and sidewalks to accommodate cycling and walking for both functional and recreational purposes. This includes requiring street designs that balance the needs of motorists, cyclists, and pedestrians and ensuring connectivity with adjacent areas in Lincoln, Rocklin, Roseville, and unincorporated Placer County.

The SAP is organized into four parts:

- Introduction, providing an overview of the SAP and background information.
- Goals, Policies, and Implementation Programs related to land use and economic development, transportation and mobility, public facilities and services, natural resources, cultural resources, noise, health and safety, and housing.
- Implementing Zoning Regulations, including zoning provisions for use allowances, development standards, parking and signage.
- Appendices, which are currently under preparation and include Corridor Design Standards and Guidelines, a Capital Improvement Plan and an Infrastructure Finance Strategy. Such materials are forthcoming and will be included as part of the SAP for final consideration before the Planning Commission and Board.

As part a visioning exercise for the SAP, seven thematic districts were developed that reflect discrete development opportunities that make up the vision for the SAP. These districts include: Industrial Infill district, an Eco-Industrial/Manufacturing/WPWMA district, Innovation Center district, Entertainment and Mixed-Use district, Urban Reserve district, Preserve/Mitigation Reserve district, and the PRSP area.
To achieve the County's economic development objectives and implement the SAP vision and thematic districts, a SAP Land Use Diagram and SAP Zoning Map have been developed, which contain many land use designations and zoning districts that are new and not otherwise applied to other areas within the County. The SAP Land Use Diagram includes the following Land Use Designations (see Land Use Map in Attachment A):

- General Commercial This designation provides for retail and service commercial uses along Sunset Boulevard near SR 65.
- Entertainment Mixed-Use This designation provides for entertainment-oriented and visitor-serving uses that would draw customers from beyond South Placer County. The designation also anticipates the potential need for residential uses to support the workforce employed in the area.
- Business Park This designation provides for employee-intensive industrial and professional uses in a campus-like setting.
- Innovation Center This designation accommodates a mix of industry clusters (e.g., information technology, life sciences, knowledge-based, creative), with a mix of small and large operations, in an amenity-rich setting with a high level of finish. It also provides the flexibility to integrate innovative residential uses developed in otherwise non-residential projects.
- Eco-Industrial This designation provides for ongoing operation of the landfill, as well as for industrial and manufacturing uses focused on alternative waste-to-energy technologies, recovery and reuse of materials, solid waste-related research and development, and related advanced manufacturing, perhaps in conjunction with the nearby universities.
- Light Industrial This designation provides for a wide variety of uses including office/flex, research and development, light manufacturing, assembly, and distribution activities.

- Public Facility This designation is applied to government-owned facilities and quasi-public facilities in a variety of rural and urban settings.
- Preserve/Mitigation Reserve This designation is applied to lands specifically reserved or proposed for watershed preservation, passive outdoor recreation, wilderness or wildlife/environmental preserves.
- Urban Reserve This designation is applied to land to be developed beyond the time frame of the Plan. In the short- and mid-term, these areas will remain in a reserve designation that allows interim agricultural uses.
- Placer Ranch Specific Plan This designation applies to the Placer Ranch project, which covers approximately 2,200 acres in the southern part of the Sunset Area, mostly south of Placer Parkway.

The land use designations described above are intended to generally represent the overall pattern of land use throughout the Sunset Area and to allow for flexibility in implementation. As part of the SAP, Implementing Zoning Regulations have also been developed which contain zone districts, use allowances, development standards and design guidelines which specify in greater detail how the land use designations and policies of the SAP will be implemented. The SAP Zoning Map, which is intended to implement the Land Use Diagram contains the following Zone Districts (see Zoning Map in Attachment B):

- Light Industrial The intent of this zone is to provide areas for warehousing, distribution, assembling, manufacturing, wholesaling, research and development facilities, commercial offices and limited accessory retail sales.
- Industrial Mixed-Use The intent of this zone is to provide for light industrial, distribution, and storage uses with integrated residential and commercial recreation.
- Business Professional The purpose of this zone is to provide for low impact land uses (i.e., research and development facilities, professional offices, and light manufacturing).
- Service Commercial The intent of this zone is to provide areas for retail and service commercial uses which cater directly to residents, workers, and visitors who reside, work, or are traveling through the Sunset Area and on the SR65 corridor.
- Eco-Industrial The intent of this zone is to provide areas for industrial uses that emphasize ecology, waste reuse and sustainable salvaging, and remanufacturing.
- Innovation Center The intent of this zone is to provide areas for a mix of industry clusters including information technology, life sciences, and knowledge-based, located within large scale campus-like settings.
- Entertainment Mixed-Use Attraction District The purpose of this zone is to provide the opportunity for high intensity attraction and amusement developments.
- Entertainment Mixed-Use Cornerstone District The purpose of this zone is to provide the opportunity for medium intensity vertical and horizontal mixed-use and stand-alone commercial development.
- Entertainment Mixed-Use Shopping District The purpose of this district is to provide the opportunity for super-regional shopping centers and vertical mixed-use developments.
- Farm-Development Reserve The intent of this zone is to provide existing farm and agricultural land for future urban development.
- Open Space The intent of this zone is to preserve open space land as a vital resource to Placer County.

DISCUSSION OF ISSUES / SUNSET AREA PLAN KEY COMPONENTS

General Plan Amendments

As noted previously in this report, preparation of the SAP includes a proposal for three amendments to the County's General Plan: 1) An amendment to the General Plan Land Use Map to expand the SAP boundary to include 325 acres to the west of the SAP, bringing the total SAP acreage to 8,497; 2) an

amendment to General Plan Table 1-2 Development Standards, to allow for a maximum 30 dwelling units per acre in the High Density Residential, General Commercial, and Tourist/Resort Commercial land use designations, (except as otherwise noted within a Community/Area Plan or Specific Plan), where 21 dwelling units per acre is currently allowed; and 3) an amendment to General Plan Table 1-5 Minimum Public Facility Buffer Zone Width, to revise and reduce the residential, commercial, and recreational use buffer requirements, and to amend the corresponding Policy 4.G.11 related to the proximity of residential uses to landfills. The following provides more detail related to these General Plan Amendments:

SAP Boundary Expansion – Based on the Board's direction at a September 27, 2016 hearing, the SAP boundary has been expanded to include contiguous land holdings at the western edge of the plan area, which have been assigned a land use designation of "Innovation Center", a designation intended to accommodate a mix of industry clusters with small and large operations in an amenity-rich setting. This expansion increases the SAP by 325 acres, for a total area of 8,497 acres.

Increase in Allowed Densities – The SAP includes a proposal to amendment the General Plan to increase density allowance from 21 units per acre to 30 in three land use designations: High Density Residential, General Commercial, and Tourist/Resort Commercial, except as otherwise noted within a Community/Area/Specific Plan. This General Plan amendment would allow the SAP and the PRSP to include densities up to 30 dwelling units per acre in identified zones contained therein; however, the proposed General Plan Amendment would not allow the density increase in other areas in the County until such time it was included as part of a future Community Plan, Area Plan, or Specific Plan proposal.

The proposed density increase is consistent with California State Government Code § 65583.2 which defines "Metropolitan" jurisdictions as having a population of 100,000 or more and requires such jurisdictions to provide zoning and zone sites that allow 30 dwelling units per acre in order to achieve housing affordability. To that end, Placer County is considered Metropolitan and the proposed General Plan Amendment to allow for increased density within certain zone districts is required by the State. Zoning sites within SAP that allow for up to 30 dwelling units per acre will assist the County when undergoing its next Housing Element Update and in meeting its Regional Housing Needs Allocation, in that the State will expect Metropolitan jurisdictions to demonstrate zoning capacity for 30 dwelling units per acre. Moreover, the General Plan amendment to increase density to 30 dwelling units per acre in certain zone districts will allow the SAP and PRSP to implement the vision of establishing a mix of housing types and housing affordability within the area.

It is important to note that while the General Plan Amendment will provide the framework for the SAP to allow for up to 30 dwelling units per acre, any other proposal to increase density in the County will have to undergo separate review and approval through either a Community/Area Plan update or Specific Plan process. Furthermore, it is also important to note that under the County's existing Zoning Ordinance regulations, all multi-family dwellings in any zone district require either a Minor Use Permit or Conditional Use Permit for any proposals that include 21 or more units. Accordingly, such proposal would be required to undergo separate project and environmental review.

Landfill Buffer Zone Standards – The SAP also proposes to amend the General Plan's Solid Waste Public Facilities Buffer Standards, which specifies that residential land uses shall be separated from the property lines of active and future solid waste sites by a buffer of one mile, commercial uses by 1,000 feet, and recreational uses by 500 feet. The proposed modification to the solid waste public facility buffer standards are outlined in the SAP Table 1-3 below:

TABLE 1-1 PUBLIC FACILITY BUFFER ZONE STANDARDS			
	Minimum Buffer Zone Width (feet) by Land Use Type		
Type of Public Facility	**Residential**	**Commercial**	**Recreation**
Solid Waste Disposal Site	2,000[1]	1,000[2]	500[2]
[1] Residential uses may be considered on a case-by-case basis to be as close as 1,000 feet with approval of a specific plan or development agreement that stipulates contribution to a compatibility program and disclosure of potential nuisances associated with facility operations. [2] Commercial and recreation uses may be considered on a case-by-case basis to be as close as 300 feet with approval of a specific plan or development agreement that stipulates contribution to a compatibility program and disclosure of potential nuisances associated with facility operations.			

As proposed, the residential buffer standard would be reduced from one mile to 2,000 feet; however a footnote has been added which would allow residential uses to be located as close as 1,000 feet on a case by case basis with review and approval of a Specific Plan or development agreement that stipulates contribution to a compatibility program and disclosure to future property owners of potential nuisances associated with solid waste facility operations. Also proposed is an added footnote to the existing commercial (1,000 feet) and recreational (500) buffer standards, which would allow such uses to be located as close as 300 feet with approval of a Specific Plan or development agreement stipulating contribution to a compatibility program and disclosure to future property owners of potential nuisances associated with solid waste facility operations. It is important to note that while the proposed modifications to the solid waste buffer standards result in a General Plan Amendment proposal, the proposed buffer standards are also outlined and included in the SAP Land Use and Economic Development chapter.

To help inform the General Plan and SAP solid waste public facility buffer policy refinements, the County worked with SCS Engineers to prepare a November 2017 *Review of Odor Management at Western Regional Sanitary Landfill* report (Odor Report) which reviewed and summarized odor studies that have been prepared related to the Western Regional Sanitary Landfill (WRSL) operation/facility in west Placer County. The purpose of the Odor Report is to assess potential changes to the existing one-mile buffer for residential land uses around the landfill operation.

There are many land uses with undesirable odor sources within and around the SAP area that affect odor, including wastewater treatment plants, the Rio Bravo facility, and various poultry and dairy farms, however it is widely understood that the predominant source of undesirable odors affecting the SAP area, including the PRSP area, is the operations at the WRSL, which is owned and operated by the Western Placer Waste Management Authority (WPWMA). The WRSL includes a materials recovery facility that receives, separates, processes and markets recyclable materials from the waste stream and a non-aerated turned windrow compost operation that composts source-separated green waste.

One of the most important factors influencing odor impacts is the distance between the odor source and receptors, referred to as a buffer zone or setback. The greater the distance between an odor source and receptor, the impact the odor will have when it reaches the receptor. As noted in the Odor Report however, there are other factors that influence and could help to reduce odor impacts at solid waste facilities such as implementing new or improved odor mitigation methods. The Odor Report goes on to note that after review of several odor studies prepared for the WRSL facility, one recurring recommendation to help reduce odor impacts at the facility is a fundamental change in the WRSL composting process. The Odor Report further points out that such changes to the composting process would require significant and expensive modifications of the WRSL facility but that the changes may be justified based on odor sampling results that indicate that composting is the largest and primary source of odor at WRSL.

Other findings in the Odor Report point out that the State does not have a buffer requirement related to the proximity of residential uses to solid waste facilities, and that the County's 1994 General Plan residential buffer zone standard of one-mile is one of the largest in the State. An outline of other buffer standards in the State is provided in the Odor Report and shows that other residential buffer distances range between zero and approximately 4,000 feet from solid waste facilities, with many around 1,000-2,000 feet (see Odor Report in Attachment F).

It should be noted that the WPWMA is currently preparing a master plan which outlines options for future expansion of the operation and facility. Staff has coordinated closely with the WPWMA on their master planning efforts and on the County's preparation and release of the Odor Report and the SAP. As described above, the proposed refinements to the buffer standards establish a provision which requires review and approval of a specific plan or development agreement when proposing residential, commercial, or recreational uses in close proximity to the landfill site. The intent of this provision is that it serves as a tool to assess such proposals and also to work with the WPWMA when undergoing project review to identify measures which could contribute to compatibility, including potential contribution toward the implementation of the WPWMA odor reduction improvements and disclosure of the landfill proximity to future property owners. To that end, the PRSP would be the first Specific Plan to propose implementation of the reduced buffer, and therefore the next step in the PRSP process is for staff to begin to meet with WPWMA to outline a contribution and disclosure approach that is appropriate for the project.

Development Standards

To implement the overall SAP vision of job creation and economic growth in the region, the SAP is proposing new development standards or use allowances related residential uses and scale or height of buildings. The following provides an overview of key changes in the development standards:

Scale / Height Allowances – In an effort to establish a regulatory framework intended to attract new uses that foster innovation, job creation and economic growth, the SAP includes Implementing Zoning Regulations which outline new development standards related to building scale and height allowances. As proposed, the new standards include height allowances up to 150 feet in certain zone districts. The following table outlines the proposed height allowances within the SAP:

Proposed Zone District	Proposed Height Allowance
Innovation Center - Development Reserve	Up to 150 feet
Innovation Center	Up to 150 feet
Eco-Industrial	Up to 100 feet
Business Professional	Up to 75 feet
Service Commercial	Up to 75 feet
Entertainment Mixed-Use/Attraction District	Up to 100 feet
Entertainment Mixed-Use/Cornerstone District	Up to 50 feet
Entertainment Mixed-Use/Shopping District	Up to 75 feet
Light Industrial	Up to 50 feet
Industrial Mixed-Use	Up to 50 feet
Farm - Development Reserve	Up to 36 feet
Open Space	Up to 25 feet

To help inform the proposed SAP development standards, including height allowances, staff researched development standards from other jurisdictions and consulted with the County's Economic Development Department and reached out to the Greater Sacramento Area Economic Council to better understand building dimensions that would help facilitate the type of new development that the SAP aims to attract. In terms of scale, the height allowance of 150 feet is intended to provide a development envelope that would allow for a ten-story building which is consistent with input received regarding what is needed to attract large employment campus center type of uses. For perspective, the existing Thunder Valley Casino building contains 17 stories and is 227 feet in height.

Innovation Center & Entertainment Mixed-Use – One of the key components of the SAP is to establish a framework of development standards or use allowances that attract large employment campus uses with a focus on innovation, providing areas for a mix of industry clusters including information technology, life sciences, and knowledge-based industries. Another key component of the SAP is the establishment of use allowances and development standards that would attract high-intensity mixed-use, commercial, and entertainment development, which caters to visitors and would be considered as a regional destination. To that end, the SAP has been planned to support the creation of approximately 15,000 jobs within the Sunset Area, and approximately 30-million square feet of non-residential uses. As further discussed in this report, the PRSP is expected to create 16,000 jobs within the area, bringing the total potential for job creation in the Sunset Area to approximately 31,000 jobs.

Housing / Residential Use Allowance – Based on the Board's direction at the September 27, 2016 hearing the SAP proposes to add housing as an allowed use in the Sunset area, with an overall potential of approximately 2,500 residential units. The intent of the housing allowance is that the residential uses be subordinate and incidental to primary employment generating uses on a site, such that they serve as providing workforce housing and help to create a better jobs/housing balance in the SAP. Residential uses would be permitted in the Entertainment Mixed-Use/Cornerstone District, Entertainment Mixed-Use/Shopping District, Innovation Center, Farm-Development Reserve, Light Industrial, and Industrial Mixed-Use zone districts. Single-family residential uses are allowed in the Farm-Development Reserve zone district (as currently allowed), however they are not allowed in any other zone district. For the remaining zone districts noted above, the housing allowance proposed is for residential multi-family or live/work type of uses, and all such uses require a use permit and would only be considered with a mixed-use project, given that housing is not allowed as a stand-alone use.

The general concept of mixed-use development is the use of a building, set of buildings, or neighborhoods for more than one purpose, typically combining residential with other uses. Mixed-use development can exclude residential in some cases, where uses could include retail, office, institutional, and hotel development. Mixed-use development that combines residential would generally include a mix of housing types, where residential and other uses are in close proximity, and typically include pedestrian-friendly core areas, multi-modal transportation networks, and community service facilities such as parks, trails, and gathering sites. Mixed-use development is a central smart growth principle and is an essential strategy for pedestrian-oriented development and is understood to help provide a jobs/housing balance and reduce vehicle miles traveled. The concept of allowing for mixed-use development within the SAP is consistent with the Sacramento Area Council of Governments' Sacramento Region Blueprint Project. With the approval of the SAP, the County would seek to achieve the Sunset Area as a regional employment and economic center, with workforce housing incorporated to reduce vehicle trips.

Placer Parkway – A key transportation and circulation component of the SAP is the Placer Parkway, a planned regional roadway within western Placer County which is critical to the overall success of the SAP. The Placer Parkway is a planned limited access, multi-lane facility that will connect State Route 65 at the eastern terminus to State Route 70/99 in Sutter County at the western terminus. The start of Placer Parkway is at the interchange of Whitney Ranch Parkway/State Route 65, half of which was built by Catrans and the City of Rocklin in 2015. The County's Department of Public Works and Facilities (DPWF) is proposing to construct the second half of the interchange and the Placer Parkway multi-lane expressway to Foothills Boulevard. Environmental clearance been obtained at project level for this phase of the Placer Parkway and DWPF is working on the final design so that construction can commence. This phase is anticipated to be under construction in 2019 and is expected to take two years to complete. The future phases of the roadway will occur as funding becomes available, which is generated by the Tier II development fee collected by the County and Cities on new growth areas within western Placer County.

PROJECT DESCRIPTION – PLACER RANCH SPECIFIC PLAN

The proposed PRSP area encompasses 2,213 acres in the southern portion of the SAP area. The southern boundary of the PRSP area is contiguous with the Roseville city limits, and the northern boundary is defined, in part, by the existing alignment of Sunset Boulevard west of Fiddyment Road. The PRSP would accommodate 9,344,487 square feet of university, employment, and commercial uses, as well as 342 acres of parks, open space, and paseos. The PRSP would also include approximately 758 acres of housing that would consist of 2,039 dwelling units of Low Density Residential, 720 dwelling units Low Density Residential Age-Restricted, 1,057 dwelling units of Medium Density Residential, and 2,011 dwelling units of High Density Residential.

The PRSP area is organized into six districts, as discussed below:

- University: Centrally located in the plan area, the Sac State–Placer Center is intended to be the centerpiece of the PRSP area. For planning purposes, the 301-acre site is sized to accommodate approximately 30,000 students (up to 25,000 SSPC students and 5,000 Sierra College students) with over 3 million square feet of building space, with areas for on-campus housing that could hold approximately 5,000 students and 200 faculty or staff. Because this district would ultimately be owned by the State of California, buildout of the Sac State–Placer Center would not be subject to Placer County's local land use regulations. Therefore, the PRSP does not specify any permitted uses or development standards for the University site.
- Campus Park District: Generally located along the Placer Parkway corridor, the 400-acre Campus Park District would support the University and would implement the SAP's vision for creating a major job center. This district would accommodate nearly 5.4 million sq. ft. of development, which would include a mix of uses, such as office, R&D, retail, and light industrial. The district would be situated along Placer Parkway, Campus Park Boulevard, and Foothills Boulevard, and would thus be highly visible from roadways within the plan area.
- Town Center: Surrounded by the University and Campus Park District, the Town Center would function as the PRSP's primary urban core. It would support higher intensity uses and provide the local population with goods, services, dining, and residential opportunities. The Town Center would accommodate more than 600,000 sq. ft. of commercial and office space and approximately 2,128 residential units. The housing in this district would consist of Commercial Mixed Use (CMU), Medium Density Residential (MDR), and High Density Residential (HDR). The residential component of the Town Center includes 150 reserve units that have not been allocated to any specific parcel(s), and which can be used on any parcels within the Town Center. The development pattern of this district is modeled after a traditional downtown with an urban, gridded street network that would be bike and pedestrian-friendly. Street design includes tree planting to eventually provide broad tree canopies to shade the street and sidewalks.
- University Creek Neighborhood: Located west of Fiddyment Road, the University Creek Neighborhood would consist of several residential villages organized around neighborhood parks and open space corridors. Housing in this district would consist primarily of low-density residential villages, with a mixture of conventional and small-lot, single-family, detached housing. In addition, higher density, detached and attached housing opportunities are provided at the edges of this district, near main roadways.
- Campus Arcade Neighborhood: Located south of the University, the Campus Arcade Neighborhood would include several residential villages collectively anchored by a central park space. Housing in this district would consist primarily of low-density, single-family homes, with a mixture of conventional and small-lot housing types. Villages would be well-connected, such that residents could walk or bike to the central park space or to the amenities located in the Town Center.
- Active Adult Neighborhood: Located along the southern edge of the proposed open space preserve along University Creek, the Active Adult Neighborhood would be an age-restricted community, envisioned to include a mixture of single-family housing types (approximately 720 units) with trails and a 4-acre private recreation center for the neighborhood.

The PRSP development plan, including its land use organization, roadway alignments, and resulting balance of residential and nonresidential uses, are guided by the following project objectives:

- Conduct Comprehensive Planning: Prepare a Specific Plan and associated regulatory documents that collectively create a comprehensive development plan for Placer Ranch, which facilitates development in the Sunset Area in a consistent and orderly manner and that accommodates Placer County's share of the region's future population growth.
- Integrate Placer Ranch with the Sunset Area Plan: Ensure that development of the Placer Ranch community is designed to function as with development in the Sunset Area Plan and adjacent development areas in Roseville, Rocklin, and Lincoln.
- Provide a Balanced Land Use Mix: Provide for a balanced mix of residential and employment generating land uses, which at buildout can support approximately 5,800 residential units, parks, schools, a university, public facilities, and sites for commercial and employment centers with over 9-million square feet of non-residential development.
    - Catalyze Development of the Entire Sunset Area: Create business development opportunities that will catalyze the grander vision of creating a large-scale job center in the Sunset Area Plan, which provides land for a new university and supporting employment center, retail, and residential land uses.
    - Establish a Site for California State University, Sacramento – Placer Campus: Provide approximately 300 acres to California State University for development of an off-campus center in Placer County, which is sized for a university serving up to 30,000 students.
- Establish a Major Employment Center: Create a large-scale job center that supports a wide range of employment opportunities, which implements Placer County's vision for the Sunset Area by planning for uses that allow research and development, office, retail and commercial, innovation/technology, and light manufacturing facilities.
- Incorporate a Town Center: Establish a land use framework to create a mixed-use, urban center adjacent to employment centers and the university site, which will provide retail goods, services, and multifamily housing that benefit from proximity to job clusters.
- Provide Diverse Housing Opportunities: Establish places for construction of a diverse array of housing types including single-family homes in conventional and compact development patterns, townhomes, apartments, lofts, active-adult housing, dormitories, faculty housing, and housing in mixed-use buildings.
- Meet Regional Housing Needs Allocation: Aid the County in achieving its obligation to accommodate a percentage of the region's forecasted population growth, as mandated by the California Department of Housing and Community Development and as directed by the Sacramento Council of Governments, including applicable provisions of Senate Bill 812.
    - Supply Land Areas for Public Uses: Ensure that the development plan provides an appropriate balance of land uses for development of community-wide public and civic facilities, including an elementary school, middle school, neighborhood parks, mini parks, and open spaces.
    - Integrate Plans for Placer Parkway: Establish a corridor for the future construction of Placer Parkway, including land areas for roadway interchanges at Foothills Boulevard and Fiddyment Road.
    - Establish Open Space for Habitat Conservation: Create a balanced plan for on-site habitat conservation and development through the creation of open space corridors that will permanently protect sensitive resource areas and drainage ways.
- Embrace the Placer County Conservation Plan (PCCP): Participate in the PCCP to facilitate the permanent preservation of several types of natural resources and biological communities located throughout western Placer County.
    - Ensure Economic Viability: Provide phasing and public facilities financing plans that enable the Plan Area to develop in an economically-feasible manner.

- Create a Fiscally-Responsible Plan: Ensure that the development plan creates a balanced community that can be implemented in a fiscally responsible manner, with positive revenue flows to Placer County and revenue sources for the long-term maintenance of open space areas, park facilities, landscape corridors, public services, and infrastructure.
- Foster Sustainable Community Design: Aid the County in achieving its objectives for long-term sustainability through project design and building practices that incorporate measures to reduce energy usage, conserve water, incorporate water efficient landscaping, treat stormwater, and reduce reliance on the automobile.
    - Enable Blueprint Consistency: Create a development plan that is consistent with the growth principles identified in the Sacramento Area Council of Government's Blueprint, which consists of providing higher density residential neighborhoods, more compact forms of development, alternative transportation options such as Bus Rapid Transit and bicycle use, and an interconnected network of residential neighborhoods, commercial nodes, and employment centers.

DISCUSSION OF ISSUES / PLACER RANCH SPECIFIC PLAN KEY COMPONENTS

Landfill Buffer Zone Standards

Approval of the PRSP would require approval of the proposed General Plan Amendment to revise the solid waste public facility buffer standards. As noted previously in this report, the County General Plan specifies that residential land uses shall be separated from the property lines of active and future landfill sites by a buffer of one-mile. The current PRSP land use plan identifies residential uses within approximately 1,400 feet from the WRSL land holdings and approximately 4,000 feet from the active operation of the WRSL and commercial uses within approximately 300 feet of the WRSL. The change in General Plan policy to reduce the buffer standards would need to be implemented in order for the PRSP to be considered and approved, as proposed.

As already outlined in this report, the proposed refinements to the buffer standards establish a provision which requires review and approval of a Specific Plan or development agreement when proposing residential, commercial, or recreational uses in close proximity to the landfill site. The intent of this provision is that it serves as a tool to assess such proposals and also to work with the WPWMA when undergoing project review to identify measures to contribute to compatibility, including potential contribution toward the implementation of WPWMA odor reduction improvements and disclosure of the landfill proximity to future property owners. Accordingly, staff has been reviewing the PRSP under this provision and the PRSP is the first Specific Plan to propose implementation of the reduced buffer. With the establishment of the proposed SAP buffer standard, the next step in the PRSP process is to begin to meet with WPWMA to outline a contribution and disclosure approach that is appropriate for the project.

Density

Within the PRSP and the SAP, an amendment to Table 1-2 of the General Plan would be necessary to allow an increase in density from 21 dwelling units per acre to 30 dwelling units per acre for High Density Residential and General Commercial land uses. As part of the amendment, the density for the Tourist/Resort Commercial land use would also be increased. As noted previously, this amendment would also bring Placer County into compliance with California State Government Code § 65583.2. As within the SAP, the purpose of allowing 30 dwelling units per acre in the PRSP is to implement the vision of establishing a mix of housing types and provide for housing affordability within the area.

Affordable Housing

The PRSP is designed to provide a mix of housing types ranging from low-density residential to medium density and high density, as well as mixed-use in the Town Center. At buildout, the PRSP is planned to accommodate 5,827 dwelling units, ultimately housing approximately 13,677 residents.

The General Plan Housing Element requires that new development projects satisfy their affordable housing obligations by providing ten percent (10%) of residential units as affordable to lower income households, or dedicating land to accommodate the affordable housing requirement, or paying an in-lieu fee in an amount equivalent to providing the units. To adhere to the County's General Plan affordable housing requirement, ten percent of Placer Ranch's planned housing units are to be made available at an income-qualified level, pursuant to the policies and programs outlined in the Housing Element. To satisfy this requirement, the PRSP would need to qualify 583 units as affordable. The PRSP will do this by allocating 233 dwelling units as very-low income, 233 dwelling units as low income, and 117 dwelling units as moderate income. The very-low, low, and moderate-income units would be accommodated as rental units within HDR sites, while the moderate income units may be accommodated as purchase units in LDR and MDR sites.

Employment and Jobs

The PRSP would add approximately 9.3 million square feet of commercial, employment, and university-related non-residential uses to the SAP, and are intended to create a major job center, catalyzed by proximity to the university campus. Of this, 5.4 million square feet would be located in the Campus Park district. These non-residential uses are expected to generate approximately 16,000 jobs in the PRSP area, and as noted previously in this report, when combined with the expected job creation resulting from the SAP, this could potentially bring approximately 31,000 jobs to the Sunset Area.

Sacramento State Coordination

Staff and the PRSP team have coordinated with Sacramento State about timelines and goals for the university property, as well as development details and potential responsibilities for each party. The Sac State–Placer Center would be a key component of the PRSP and the SAP, and would provide the county with a highly desired amenity. Ongoing communication will be necessary to relay timelines and development details through the environmental review and entitlement process.

PCCP Consistency

The Placer County Conservation Program (PCCP) includes two separate components that support two sets of state and federal permits. These consist of the Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan, and the Western Placer County Aquatic Resources Program. At this time, the PCCP is undergoing environmental review. While the PRSP is designed to be consistent with the goals of the PCCP and would be a Covered Activity subject to the requirements of the PCCP upon adoption and issuance of the state and federal permits, because the PCCP has not been adopted, the approach that the SAP/PRSP EIR will be undergoing is to include two options for environmental permitting. It will include one option for the PRSP project to participate in the PCCP if the plan is adopted, and a second option to undergo individual permits and mitigation on a project-by-project basis.

Height in Campus Park

The Campus Park zone district within the PRSP would allow for a maximum building height of 150 feet. This height would match the maximum allowed height in the Innovation Center zone district of the SAP, and as noted previously, would accommodate market-driven building dimensions for office and industrial space. Under the County's existing Zoning Ordinance, this height allowance has not been allowed to date in the SAP the current maximum allowed height in the area is 50 feet for General Commercial and Industrial Park zones. However, the Thunder Valley Casino was constructed at 227 feet on sovereign lands owned by the United Auburn Indian Community.

PUBLIC OUTREACH

Public outreach for the SAP initiated in 2014, kicking off with public workshops and a public survey to seek input on the vision for the Sunset Area. Following the initial public workshops, staff conducted two environmental scoping meetings in December 2016 for the Notice of Preparation for the EIR, and has presented on the SAP and PRSP to multiple boards, commissions, and committees.

In addition, because of the unique large, continuous land holdings in the Sunset Are, staff has had multiple meetings with land owners to better understand their own planning and vision for their parcels and to coordinate on the preparation of the SAP. Staff has also maintained on-going communication and coordinated on the SAP/PRSP with key stakeholders including WPWMA and the cities of Rocklin, Roseville, and Lincoln. Staff has shared technical studies (traffic and odor) with these stakeholders and continues to meet to discuss the technical studies and to develop strategies to address regional concerns.

As staff advances the SAP and PRSP forward toward adoption, staff expects to continue the coordination with key stakeholders and land owners. Staff will also conduct future public meetings and present to various stakeholder groups when necessary. In addition, following release of the Draft EIR, a Planning Commission hearing will be conducted to take public comment on the Draft EIR, and public hearings will be held following release of the Final EIR and Final SAP and PRSP.

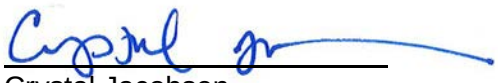
NEXT STEPS / TIMELINE TO ADOPTION

Preliminary Public Review Draft SAP/PRSP	February 2018
Public Review Draft EIR & SAP/PRSP	Late Spring 2018
Final EIR & SAP/PRSP	Late Fall 2018
PC & BOS Hearings & Deliberations	Late 2018

RECOMMENDATION

No formal action is necessary at this time as this report is intended to provide an overview and status of the SAP and PRSP and generate discussion, feedback and direction from the Planning Commission regarding the issues discussed in this report. Staff will continue to move forward on the SAP and PRSP and will return to the Planning Commission to further report on the status as necessary, and to bring forward the SAP/PRSP Public Draft EIR in late spring 2018.

Respectfully submitted,



Crystal Jacobsen
Principal Planner

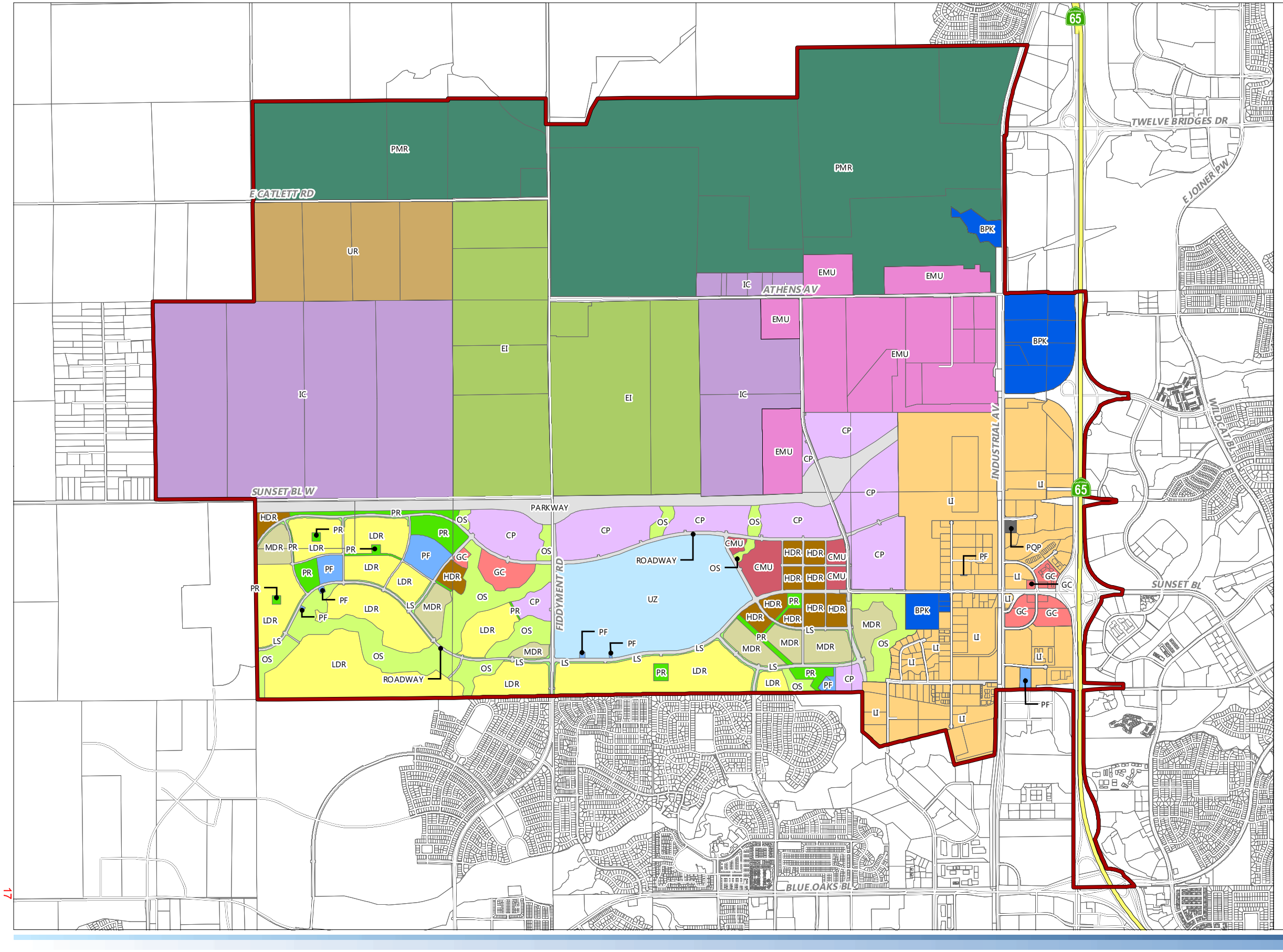
ATTACHMENTS

Attachment A – SAP / PRSP Land Use MAP
Attachment B – SAP Zoning MAP
Attachment C – SAP Document (provided under separate cover)
Attachment D – PRSP Document (provided under separate cover)
Attachment E – Odor Report

cc: Steve Pedretti – CDRA Director
EJ Ivaldi – Deputy Planning Director
Karin Schwab – County Counsel
Dave Defanti – CEO
Michele Kingsbury – CEO
Emily Setzer – Planning
Brad Brewer – Flood Control
Andy Fisher – Parks Division
Kevin Bell – Environmental Engineering

Angel Green – CDRA / Air Quality
Rich Moorehead – Public Works
Joey Scarbrough – Environmental Health Services
Rebecca Taber – Engineering and Surveying Division

Sunset Area Plan
Proposed Land Use



LEGEND

LandUse

- BPK, Business Park
- EMU, Entertainment Mixed-Use
- IC, Innovation Center
- CP, Campus Park
- GC, General Commercial
- CMU, Commercial Mixed Use
- LI, Light Industrial
- EI, Eco-Industrial
- HDR, High Density Residential
- MDR, Medium Density Residential
- LDR, Low Density Residential
- UR, Urban Reserve
- LS, Landscape
- OS, Open Space
- PR, Parks and Recreation
- PMR, Preserve/Mitigation Reserve
- PQP, Public/Quasi-Public
- PF, Public Facilities
- UZ, University
- PARKWAY, Placer Parkway
- ROADWAY, Roadway

Sunset Industrial Area

N

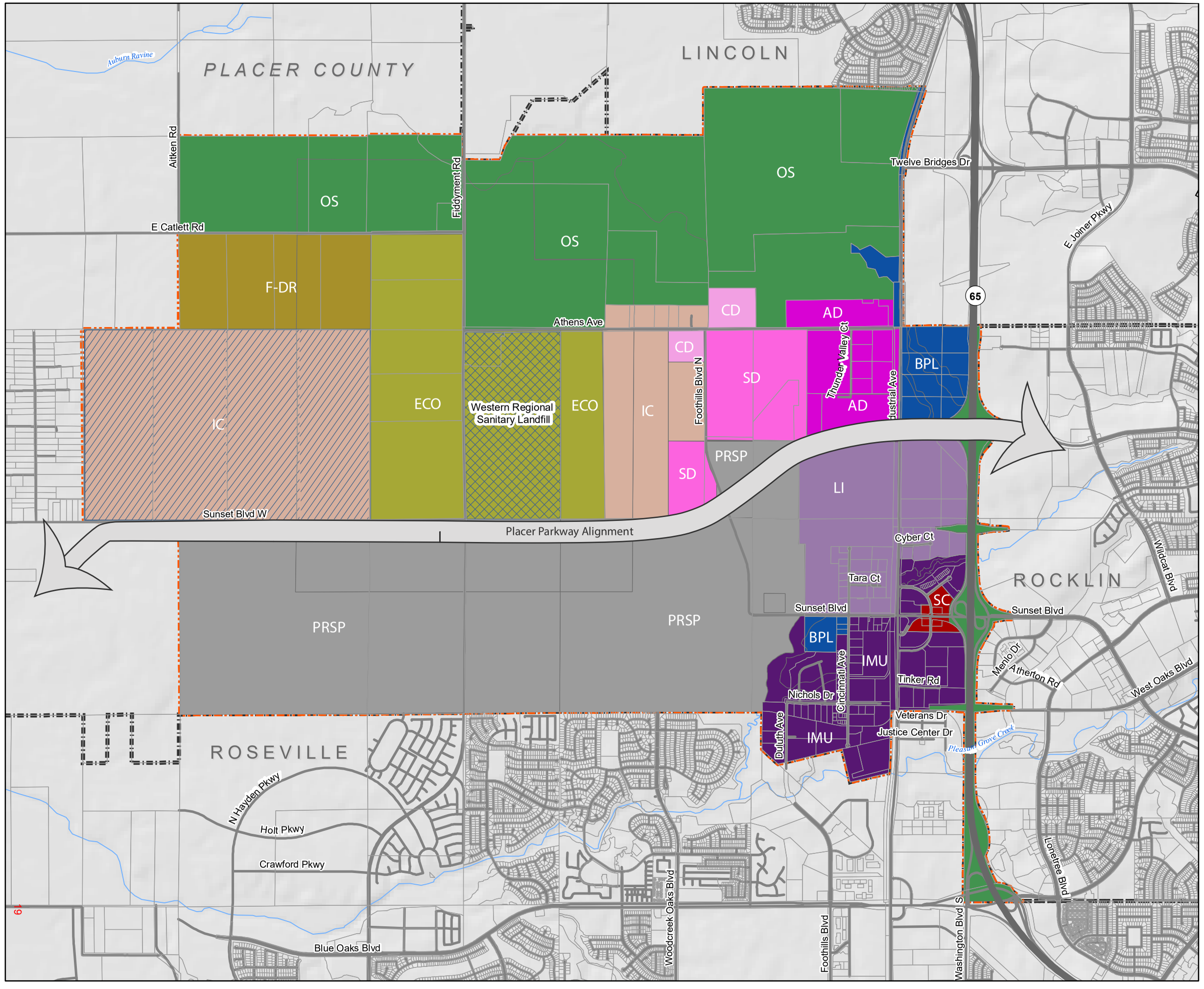
0 0.25 0.5 0.75 1
Miles

DATA DISCLAIMER:
The features on this map were prepared for geographic purposes only and are not intended to illustrate legal boundaries or supercede local ordinances. Official information concerning the features depicted on this map should be obtained from recorded documents and local governing agencies

Attachment A

Path: L:\PROJECTS\ComPln_SIA\ARCMAP\SIA_PRSP_LandUse_170925.mxd

9/25/2017



Sunset Area Plan | SAIZR

Zoning

- Western Regional Sanitary Landfill
- Development Reserve (-DR)

ZONING

- Service Commercial (SC)
- Entertainment Mixed-Use -Attraction District (AD)
- Entertainment Mixed-Use -Cornerstone District (CD)
- Entertainment Mixed-Use -Shopping District (SD)
- Business Professional (BPL)
- Innovation Center (IC)
- Eco-Industrial (ECO)
- Light Industrial (LI)
- Industrial Mixed-Use (IMU)
- Farm-Development Reserve (F-DR)
- Open Space (OS)
- Placer Ranch Specific Plan (PRSP)
- Planning Area
- City Limits

Date: 12-18-2017

Source: Placer County, 2015

Attachment B

Attachment C

Sunset Area Plan

Provided under Separate Cover

Attachment D

Placer Ranch Specific Plan

Provided under Separate Cover

SCS ENGINEERS

Review of Odor Management at Western Regional Sanitary Landfill

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November 9, 2017
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INTRODUCTION

This Review of Odor Management (Review) at the Western Regional Sanitary Landfill (WRSL) has been completed at the request of Ascent Environmental, Inc. (Ascent) on behalf of Placer County (County) to assess potential changes to the existing one-mile buffer for residential land use around the WRSL (Buffer).

The County is proposing residential development as part of the Sunset Area Plan, a portion of which is in the current Buffer around the WRSL. The Buffer restricts residential development within one mile of the WRSL

1.0 LANDFILL BACKGROUND

WRSL is owned and operated by Western Placer Waste Management Authority (WPWMA). WRSL is located approximately one (1) mile north-northwest of the city of Roseville, and encompasses an area of 291 acres, of which 231 acres are permitted for disposal activities. WRSL has been operating as a Class II and Class III Waste Management Unit (WMU), and consists of 14 modules. The Class II WMU is comprised of Modules 5, 6, 7, 8, 9, 14, 15, and 16. The Class III WMU is comprised of Modules 1, 2, 10, 11, 12, and 13. Modules 1 and 2 were closed in 1998, and Modules 10 and 11 were closed in 1999. Modules 6 through 9 are undeveloped.

Solid waste collected in western Placer County is processed at the WPWMA's Material Recovery Facility (MRF). The MRF receives, separates, processes and markets recyclable materials removed from the waste stream. The facility also processes source separated wood waste, green waste, and construction and demolition debris. Hazardous waste from households and Conditionally Exempt Small Quantity Generators is accepted at the Permanent Household Hazardous Waste Facility (PHHWCF), located next to the MRF.

Residual waste from the MRF is transported to the WRSL. WRSL is specified as a Class II/Class III non-hazardous site and a private firm, under contract with WPWMA, manages its operation.

The WRSL's maximum permitted disposal is 1,900 tons per day and currently receives approximately 1,000 tons per day. Under current land use and development conditions, WRSL has a projected lifespan extending to 2058.

1.1 LANDFILL GAS COLLECTION AND CONTROL SYSTEM

The existing landfill gas (LFG) collection, control and monitoring system, as of this study, installed at WRSL consists of the following components:

- A system of vertical extraction wells installed in the existing waste mass;
- Test wells that are connected to the conveyance system to provide some additional coverage in Module 2;
- A system of vertical extraction wells installed in native soils outside the limit of fill (perimeter system);

- Horizontal collectors installed in the existing waste mass to help control surface emissions;
- A system of lateral piping which connects the vertical wells and horizontal collectors to a main header system;
- Three main collection headers (one for the perimeter extraction system and two for the infill extraction system) which transport LFG to the blower/flare station;
- Sumps for collection of condensate.
- A blower/flare station with a flare capacity of 2,500 standard cubic feet per minute (scfm), three blowers (two with a capacity of 1,200 scfm each and one with a 2,500 scfm capacity), and condensate separators;
- A network of perimeter LFG monitoring probes;
- A landfill gas to energy (LFGTE) plant (Energy 2001) which consists of the following components:
    - Six LFG fueled engines which can control approximately 1,800 scfm of LFG;
    - A small flare which can control from 50 to 450 scfm of LFG.

1.2 MATERIALS RECOVERY FACILITY (MRF) AND COMPOSTING FACILITY

The MRF is designed to recover recyclable materials (including newspaper, cardboard, metals, glass, plastics, green waste, and wood waste) from the trash to reduce the amount of material placed in WRSL. The MRF operates under the solid waste facility permit number 31-AA-0001. The permitted area of the MRF is 52.6 acres, which includes 18.3 acres located within the WRSL boundary adjacent to the MRF's southern boundary. The maximum tonnage allowed at the MRF is 1,750 tons per day, while the design capacity is 3,850 tons per day.

The MRF alone diverts approximately 28 percent of the solid waste received. Combined with the source-separated wood waste, green waste, and inert waste diversion programs, the facility as a whole diverts approximately 42 percent of the waste received.

The MRF operations include a composting facility to produce compost suitable for public use as topsoil amendment, and a chipping and grinding operation.

Feedstock for the composting and chipping and grinding operations consist of source-separated green waste from commercial and residential haulers and green waste recovered from the municipal solid waste (MSW) and construction and demolition (C&D) sorting processes. The composting process is a turned windrow process. The turning provides aeration which minimizes odors. The composting and chipping and grinding operations are conducted on concrete pads that were constructed to minimize ponding and graded to drain to a properly designed drainage containment pond. All existing finished product storage areas are concrete pads that also drain. Drainage facilities are designed so that all contact water is separated from storm water. The facilities were constructed with a capacity of 75,000 cubic yards for compost storage and processing and for finished product storage. Approximately 50,000 tons of feedstock per year are delivered to the composting facility.

2.0 ODOR CONTROL TECHNOLOGIES

Odor management practices at landfills, MRFs, and composting facilities exist to prevent excessive odor impacts from those facilities at nearby neighborhoods, which could rise to the levels of a public nuisance. This section will discuss some of the technologies each practice can employ to reduce odor impacts from each source.

2.1.1 LANDFILL ODOR CONTROL PRACTICE

LFG contains a variety of chemicals which can contribute to odor. Sulfurous chemicals are the primary odor drivers in LFG. Hydrogen sulfide is the dominant odor driver in LFG, with methyl and ethyl mercaptan the next biggest contributors. These reduced sulfur compounds are generated in the landfilled waste when sulfur-containing materials, such as drywall, decay. Other volatile organic compounds (VOCs) can also contribute to the overall odor, but they are unlikely to be the odor drivers. These odors are generated by anaerobic waste, typically placed more than one year ago. The odorous chemicals are then emitted through the landfill surface as fugitive gas.

Another contributor to odor from landfills is newly placed waste. This is the waste that is brought daily by trucks and is covered each night. The odor from this waste is distinct from the odor of LFG. Chemicals contributing to the odor are highly dependent on the waste stream, but can include ethyl acetate and limonene. These odors are generated by recently placed waste, which is undergoing anaerobic degradation.

Methods of controlling odor emissions from a landfill include LFG collection and control systems (GCCS) and cover management. Both these practices are regulated by the landfill New Source Performance Standard (NSPS). When the Buffer at WRSL was created, the NSPS was the standard for controlling odor from landfills.

The NSPS requires that landfills as large as WRSL install LFG collection and destruction. The NSPS was intended to reduce emissions of non-methane organic compounds (NMOCs) and VOCs from landfills. NMOCs and VOCs include odorous compounds. While the NSPS was not intended as a way to reduce odor from landfills, it has the effect of reducing odor emissions from landfills. Historically, the U.S. Environmental Protection Agency (EPA) has estimated that landfills collect and destroy 75 percent of the generated LFG, on the average.

The NSPS also requires that landfills install intermediate and final cover after waste placement in areas has ceased. These thicker covers serve to reduce odor emissions from landfills by restricting air flow through the surface and increasing LFG collection by the GCCS.

Since the creation of the Buffer around WRSL, two major regulations have passed which improve odor management practices at the WRSL.

In 2009, the California Air Resources Board (CARB) implemented the Landfill Methane Regulation (LMR) for solid waste landfills. The LMR also requires that landfills collect and destroy LFG, but requires additional monitoring and applies to smaller landfills in California. The LMR also has cover installation requirements which require the installation of cover on a faster timeline than the NSPS. LMR requires integrated surface monitoring of the landfill surface

in addition to the instantaneous surface monitoring required by the NSPS. LMR also requires monitoring of landfill penetrations and pipelines with positive pressure, which are not required by the NSPS. In its assessment of the impact of LMR on emissions, CARB estimated that the LMR would increase LFG collection to 85 percent in California.

The second regulatory change that could change odor emissions from WRSL is the new landfill NSPS, passed in 2016 and effective as of September 2017. The new NSPS requires more monitoring of landfill emissions than the old NSPS. It is unlikely that the new NSPS will have much impact on the odor emissions from WRSL because the facility is not currently subject to the regulation, and the LMR is generally more stringent.

Technological improvements to landfill odor emissions have been incremental since the adoption of the Buffer. Both GCCS design and cover technologies for landfills have matured over the last 20 years. Examples to improvements to GCCS design include improved flares and engines used to destroy LFG and remote monitoring and control of GCCS operation. Improvements to landfill cover technologies include improvements in synthetic materials and practice. These technological improvements could potentially be implemented in areas where the GCCS is expanded or where final cover is implemented. Overall these technological improvements to reduce odor impacts are minor and would not be expected to contribute significantly to odor mitigation at WRSL.

2.1.2 MRF ODOR CONTROL PRACTICE

MRF odor control technology has not fundamentally changed since the creation of the Buffer, but the practice has changed to reduce odor from MRF operations. The MRF was not at the WRSL at the time of the adoption of the Buffer. Good housekeeping remains a key element of MRF odor management. MRF odor management has grown to include improved management of fines and dust control as well. MRF fines and dust can generate odor of they are left open to the air outside the MRF building, so covering MRF fines and using misters to control dust is an effective odor control measure. The technology and practice of covering fines and misting to reduce dust are not new, but there is better understanding in the industry of the effectiveness of these practices since the implementation of the Buffer.

MRF fines are a major contributor to odor from the MRF because they typically contain a high amount of sulfur-containing materials such as dry-wall dust as well as some residual organic materials. Because of the high surface area of the dust, it can decay rapidly and generate odorous chemicals.

2.1.3 COMPOST ODOR CONTROL PRACTICE

Odor from composting can include many of the same chemicals that are found in LFG, but composting odor is generally not driven by the sulfurous chemicals. Instead, compost odor is typically characterized by aldehydes, volatile fatty acids (VFA), and ammonia. The composition of the compost odor can change throughout the composting process. Compost odor can be generated from inside the windrow or pile, and then is emitted from the surface of the windrow or pile.

Prior to 2002, WRSL used a 3.1 acre pad for its composting operation. The current operation encompasses 25.4 acres and consists of receipt, processing, composting, finished product screening, and storage areas. There have been significant changes in the state of the practice for odor mitigation from compost facilities since the implementation of the Buffer. Windrow composting operations in California are still common practice, but aerated static piles (ASP) are becoming more common as a way to reduce VOC and odor emissions from composting operations. In some jurisdictions (e.g. Bay Area Air Quality Management District [BAAQMD]), covered ASP (CASP) is required as the Best Available Control Technology (BACT) for new or modified composting operations.

It is also possible for compost operations to be fully enclosed in structures to control odors. These structures and then aerated and the air is filtered before being exhausted outside the enclosed building. Enclosure of the composting operation is significantly more expensive than windrow or ASP composting operations, but offers an additional level of control of odor impacts.

Compost covers have also been required of compost facilities in several air quality districts (e.g. BAAQMD, South Coast Air Quality Management District [SCAQMD], San Joaquin Valley Air Pollution Control District [SJVAPCD]). Covering the composting materials during the active composting phase with a layer of finished compost has been shown to be effective at reducing VOC emissions, which will also serve to reduce odorous emissions.

2.1.4 GENERAL ODOR CONTROL STRATEGIES

General odor impact reduction technologies and practice have improved since the adoption of the Buffer in 1994. These technologies include the utilization of deodorizing or odor masking misters. These misters can be applied at a source-specific level, such as misters in the MRF, or as a site-wide odor reduction level where misters would be placed between odor sources and downwind receptors. In general, these site-wide odor-reducing misters are best applied as a last line of defense against odor impacts because their impact can be unreliable if misapplied. Target use of odor-reducing misters, such as at the MRF, is expected to be more reliably effective and would serve the secondary purpose of reducing dust.

3.0 BACKGROUND CONDITIONS

When the Buffer was implemented in 1994, WRSL contained approximately two (2) million tons of solid waste and recovered approximately 500 standard cubic feet per minute (scfm) of LFG. The landfill now contains approximately 8 million tons of waste and generates over 1,500 scfm of LFG. The composting has similarly expanded from a 3.1 acre operation to 25.4 acres for composting.

Surround land use is still primarily agricultural and industrial within one mile of the WRSL. Outside of the Buffer, there are residences approximately 1 (one) mile to the south of WRSL. These residences were not present when the Buffer was adopted and were constructed in the early 2000s. In the mid-2000s, the Settler's Ridge development was constructed to the west of the Crocker Ranch development.

4.0 PREVIOUS ODOR STUDIES

Several odor studies and evaluations have been performed on behalf of the County and/or the Authority, including:

- Landfill Survey and Report (URS, 2005)
- Air Modeling Report (SCS Engineers, 2007)
- Odor Study Report (SCS Engineers, 2009)
- Compost Facility Odor Evaluation (Integrated Waste Management Consulting [IWMC], 2009)
- Evaluation of Current and Future Conditions at the WPWMA Facilities and Analysis of Odotech Odor Emission Monitoring System (CalRecovery, 2015)
- Odor Assessment (Environmental Management Consulting [EMC], 2015)

This section will provide a brief summary of each of the reports, including methodologies, methods, analytes, and results, where applicable.

4.1.1 LANDFILL SURVEY AND REPORT

The Landfill Survey and Report was prepared by URS in 2005. The report provides a summary of information related to landfills and other waste management facilities (MRFs, transfer stations, composting facilities) in an effort to provide the County with information about the Placer Ranch development, which was planned at the time the report was written.

The Landfill Survey and Report reviewed buffer requirements around comparable facilities, reviewed complaints related to those facilities, and reviewed odor mitigation strategies. The URS report did not conduct field sampling, analysis or surveys. The URS report is unique in that it included a phone survey of regulatory agencies, landfill operators, and elected officials. The survey asked whether officials were aware of complaints received about the landfill and whether they were familiar with the Buffer.

The Landfill Survey and Report concluded that buffer policies were not directly correlated to adjacent development and complaints (e.g. “sites with larger buffers had similar complaints to facilities with smaller buffer zones”). URS found that buffer zones could reduce complaints related to non-odor issues, such as aesthetics, litter, and dust, but URS found that other factors, including landfill and composting operational practice were more significant contributors to odor-related complains. The URS report did not specifically recommend odor management policies, but it did not several policies that could mitigate odor impacts, including:

- meteorological monitoring,
- adjusting hours of operation,
- improved litter control,
- improved community outreach,
- notice to homeowners,
- locating composting operations at a remote area of the facility,
- composting in ag-bags or enclosures,

- control of compost feedstock accepted.

The effectiveness of these recommendations will be discussed later in this evaluation.

4.1.2 AIR MODELING REPORT

SCS prepared an air dispersion modeling report for the WRSL in 2007. The Air Modeling Report provided a screening-level evaluation of the transport of odor from the facility to offsite receptors. The Air Modeling Report evaluated hydrogen sulfide, ammonia, and NMOC emissions from the WRSL operations and the potential of those emissions to impact receptors 1.52 to 2.78 miles away.

The Air Modeling Report determined that ammonia would not be expected to exceed the concentration at which humans can smell it (odor detection threshold) at any of the modeled residential locations. The report also concluded that individual NMOC species were also unlikely to exceed the odor detection threshold. However, the Air Modeling Report determined that hydrogen sulfide may be detectible at offsite locations.

The Air Modeling Report provided a preliminary evaluation of whether sources at WRSL could be the cause of odor complaints in the area and served to inform later sampling in the area. The Air Modeling Report confirmed that the landfill was a potential contributor to odor impacts but could not confirm or eliminate composting as a contributor. It did not make recommendations related to odor mitigation.

4.1.3 ODOR STUDY REPORT

In 2009, SCS prepared an Odor Study Report. The 2009 Odor Study Report was conducted to identify potential odor sources, review on-site odor management. The 2009 Odor Study Report also identified other potential sources of odor in the region and which conditions were most likely to lead to odor complaints.

The report included interviews with nearby residents who had complained about odor. Complaints were generally consistent about the characterization of odor as “decomposing or rotting vegetation” but the description of the wind conditions when odors were worst was inconsistent.

The 2009 Odor Study Report included field sampling for hydrogen sulfide with a portable Jerome Model 631X meter, sampling for VOCs with a photo ionization detector (PID) and sampling for total organic gases (TOG) with a flame ion detector (FID). The field sampling was conducted around the WRSL facility, residential neighborhoods, and near potential off-site sources of odor.

The 2009 Odor Report also included collection of overnight ambient air samples for analysis by a laboratory. The overnight samples were analyzed for 80 chemicals, including hydrogen sulfide, other reduced sulfur compounds, chemicals characteristic of composting, and chemicals characteristic of LFG.

The 2009 Odor Study Report concluded that composting was a likely source of off-site odor because it was the strongest source of odor observed during the site visit and changes to the composting operation occurred at the same time odor complaints from the neighborhood increased. The 2009 Odor Study Report also concluded that LFG was a likely source of off-site odor because field sampling confirmed the presence of hydrogen sulfide off-site and at the landfill. The report found that the MRF was not likely to be a major contributor to off-site odor impacts due to the lack of odor observed during the site visit.

The 2009 Odor Study Report made several recommendations for odor mitigation, including:

- continued documentation of odor complaints,
- correlate complaints with upset conditions,
- review and update the Odor Impact Minimization Plan (OIMP),
- conduct additional air monitoring,
- review and improve the LFG system design,
- review and improve the composting operation,
- add an on-site meteorology station and wind sock,
- acquire a specialized compost turner.

The effectiveness of these recommendations will be discussed later in this evaluation.

4.1.4 COMPOST FACILITY ODOR EVALUATION

IWMC conducted a Compost Facility Odor Evaluation in 2009. The evaluation was to identify factors contributing to odor emissions from the compost facility at WRSL. Unlike most other odor studies for the WRSL, the Compost Facility Odor Evaluation did not address the entire facility but focused on the compost operation.

IWMC conducted a review of the composting OIMP and performed a detailed evaluation of potential design and/or operational changes that could reduce odor emissions from the composting operation. The evaluation did not include sampling or analysis for chemicals or odor. The IWMC evaluation made several recommendations, including:

- self-monitoring for odor,
- correlating complaints with composting operations,
- OIMP document training,
- develop an OIMP mitigation matrix,
- develop a marketing plan for finished compost,
- reduce “off-peak” operations,
- visual screening of compost operations,
- identify off-site options for material handling during peak loading situations.

The effectiveness of these recommendations will be discussed later in this evaluation.

4.1.5 EVALUATION OF CURRENT AND FUTURE CONDITIONS AT THE WPWMA FACILITIES AND ANALYSIS OF ODOTECH ODOR EMISSION MONITORING SYSTEM

CalRecovery performed an evaluation of the Odotech odor emission monitoring system in 2015. The evaluation consisted of a series of three technical memorandums. The first memorandum assesses the current and future conditions of WRSL operations, including projections of future waste processing and placement rates. The memorandum also describes how a proprietary monitoring system (Odotech) would be used to predict odor impacts from the WRSL. The second memorandum provides a scope and cost for improving and additional monitoring and modeling of potential offsite impacts. The final memorandum provides potential emission and control measures for the WRSL.

The evaluation does not provide recommendations for odor control, but it does provide potential odor control measures that could be taken, including an estimated effectiveness and an estimated cost to implement the measure. The potential measures include ASP, ASP with enclosures, operating MRF in a building with negative pressure, cover modifications to the landfill, and enclosing grinding and trommel operations.

4.1.6 ODOR ASSESSMENT

EMC prepared an odor assessment report for the WRSL in 2015. The assessment included the collection of 97 flux samples from the landfill face, inactive landfill surfaces, the MRF, compost windrows, and the leachate pond. Samples were analyzed in the field for hydrogen sulfide and collected samples were shipped to a laboratory for odor analysis by an odor panel.

EMC found that the composting operation had comparatively low odor emissions for a windrow composting operation; however, the composting windrows made up the largest single source of odor sampled. EMC also found that odor emissions from the MRF were low compared to other MRFs. The assessment stated that the active face of the landfill had odor emissions typical of MSW landfills but that biosolids and the MSW derived fines used as alternative daily cover (ADC) had high odor compared to the MSW refuse. EMC believed that the inactive landfill samples may have been collected during upset conditions due to operational changes due to the energy plant operations. During the sampling period, the inactive areas of the landfill were the second largest odor source, but EMC recommended resampling the source during standard (non-upset) conditions.

The EMC Odor Assessment included a few recommendations on controlling odor emissions from WRSL. EMC did noted that ASP composting technology offers significant reductions in odor emissions from composting operations. EMC also noted that while not a major source of odor, the MRF could provide additional odor mitigation by closing doors would further reduce odors. EMC noted that engineering options may need to be considered to mitigate the high odor materials on the landfill active face.

5.0 CURRENT CONDITIONS

The Authority's current operation (MRF, landfill, composting, and supporting operations) takes in approximately 427,000 tons of waste per year, and that waste acceptance rate is expected to increase by more than 40 percent over the next 20 years. The facility has some waste streams/cover materials that are significant sources of odor. MSW and MRF fines used as ADC can be a significant source of odor due to the large amount of surface area, which leads to more volatilization of odorous chemicals and faster generation of odorous chemicals through decay. Wastewater sludge from the Roseville wastewater treatment plant (WWTP) is also a significant source of odor.

The composting operation is much larger than the historical operation. The current composting operation is 25.4 acres, more than eight times larger than the historic composting facility of only 3.1 acres. The EMC report indicates that odors from the windrow composting operation are managed well compared to comparable windrow facilities, but emissions from windrow composting operations are uncontrolled and even a well-managed composting facility can have significant odor emissions.

The MRF does not seem to be a significant contributor to odor emissions from the facility other than when MRF fines are used as ADC and left uncovered overnight.

5.1 ODOR COMPLAINT HISTORY

SCS reviewed the odor complaint log provided by the WRSL. ***Table 1*** provides a summary of the complaints by year.

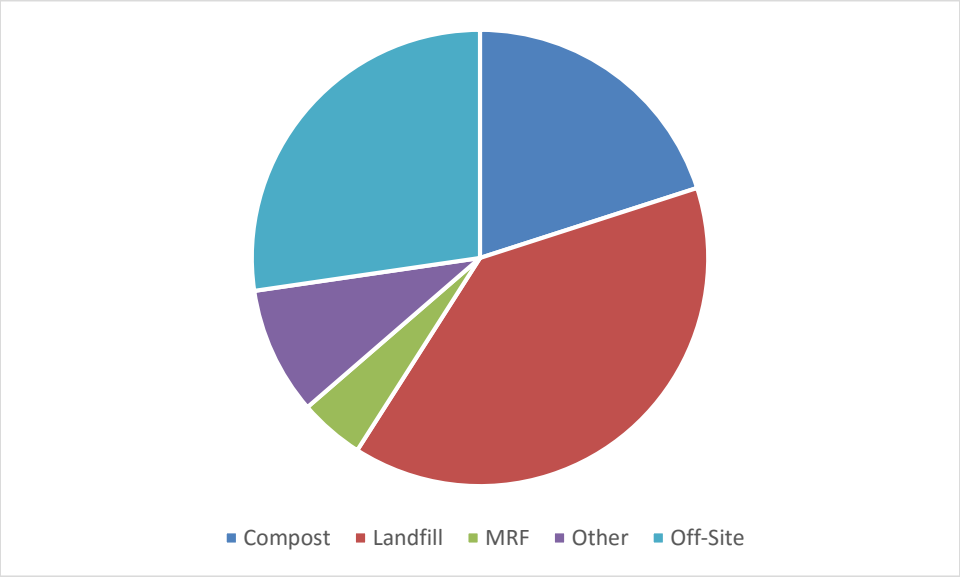
Table 1 – Odor Complaints by Year

Year	Complaints
2012	148
2013	212
2014	93
2015	333
2016	88
2017*	162
*As of September	

A complaint was considered to be valid and attributable to the landfill if it was not attributed to livestock, the WWTP, or the nearby Rio Bravo facility. This methodology may over attribute odor complaints to the WRSL, but the complaints would be consistently over attributed for the years evaluated. The number of complaints does not show a significant trend and varies significantly from year to year. ***Figure 1*** shows the source of each complaint logged for 2012-2017. As seen in ***Figure 1***, the landfill itself is the most common identified source cited in the odor complaints. It is the experience of SCS that odors from sources co-located with the landfill can be misattributed to the landfill itself and it is possible that the compost operation and MRF may represent a greater proportion of odor complaints than shown in ***Figure 1***. However, it is

clear that the landfill and the compost operation are the two sources most likely to result in odor complaints.

Figure 1 – Odor Sources 2012-2017



5.2 MITIGATION EFFECTIVENESS

WRSL has implemented many of the recommended odor mitigation measures from historical odor reports. Some of these measures do not directly reduce odor impacts but are intended to make tracking of odor sources more effective, including the maintenance of an odor monitoring log, monitoring local wind conditions, and outreach to the community. WRSL also conducts self-monitoring of odor per its OIMP. SCS notes that WRSL does not correlate odor complaints with weather/wind conditions or landfill operations in its odor complaint logs.

The WRSL OIMP integrates some of the previously suggested odor reduction measures, including good housekeeping practices, proper aeration, moisture management, and storage practiced. The OIMP does not call for moving operations that are likely to cause increased odor emissions (e.g. compost turning) to times that are less likely to have off-site impacts. The EMC sampling indicates that the windrows are generally well managed when not being turned. One observation that has been made in many of the odor reports is that composting in an aerated and/or enclosed operation would significantly reduce odor emissions; however, this modification would incur significant costs and its cost must be weighed against its effectiveness.

WRSL has implemented odor controls for the landfill through continued GCCS expansion and GCCS design review. The upset event during the EMC sampling of inactive areas of the landfill indicates that the GCCS may not be operated with odor control as the primary concern, but such operation may adversely impact the quality of the LFG available to the engine facility.

WRSL continues to receive odor complaints. The relatively large number of complaints received from year to year demonstrates that odor from WRSL is not completely under control. However,

the EMC sampling event strongly suggests that emissions for each source are relative low for the type of operation WRSL is using.

6.0 SOLID WASTE FACILITY BUFFER AREAS

The Buffer around the WRSL prohibits residential development within one mile of the WRSL. Other jurisdictions use similar restrictions for similar waste management facilities, but the approach is not universal. California does not have a buffer requirement at the state level. A buffer distance of one mile (5,280 feet) is large compared to other buffer areas where such buffers exist. ***Table 2*** shows a summary of some jurisdictions of landfills in California and the buffer distances.

Table 2 – California Landfills and Buffers

Jurisdiction	Facility	Buffer Distance (ft)	Basis	Technology (current)
City of Chula Vista	Otay Landfill	700-1,000	Health and odor assessment, historical odor complaint data	LMR compliant landfill, windrow composting, odor monitoring
Contra Costa County	Keller Canyon	2,000	Not provided	LMR landfill, windrow composting
Contra Costa County	West Contra Costa Landfill	none	NA	LMR landfill
Fresno County	American Avenue	none	NA	LMR landfill
Kern County	Shafter-Wasco	660	Precautionary	LMR landfill
Kern County	Other facilities	None	Precautionary	LMR and NSPS landfills
Los Angeles County	Puente Hills	1,000	Precautionary	LMR landfill
Los Angeles County	Antelope Valley	None	NA	LMR landfill
Los Angeles County	Lancaster Landfill	None	NA	LMR landfill
Merced County	Highway 59	60-700	Precautionary	LMR landfill, windrow composting
Monterey County	County facilities Other facilities	2,500 1,000	Precautionary	LMR and NSPS landfills, windrow composting, food waste composting, anaerobic digestion
Sacramento County	Kiefer Landfill	2,000	Precautionary	LMR Landfill
San Joaquin County	Forward Landfill	None	NA	LMR Landfill, windrow composting, MRF
Sonoma County	Central Landfill	1,320	Precautionary	LMR Landfill, MRF
Tulare County	Visalia Disposal Site	None	NA	LMR Landfill
Yuba County	Ostrom Road	3,960	Odor and risk evaluation	LMR Landfill

Some of these buffers have been rigorously evaluated, but others are conservative approaches designed to create a separation between the receptor and landfill as a precaution against potential odor or health impacts. Jurisdictions taking a precautious approach have created buffers to prevent residential encroachment on landfills on the basis of potential odor, nuisance, health risk, or vapor intrusion. These policies have rarely been formed on the basis of a rigorous or site-specific evaluation of odor or risk. In most cases, the buffer policies were adopted prior to the

implementation of the NSPS. The addition of new, potentially odor-emitting, processes such as composting, has not prompted revisitation of buffer distances. Similarly, tightening regulation on LFG emissions such as the NSPS and LMR has not impacted buffer distances. In general, buffer distances are independent of landfill practice, processes, and even size. For example, the Lewis Road Landfill in Monterey County holds approximately 22 million tons of waste and has a buffer of 2,000 feet, but the Puente Hills Landfill in Los Angeles holds more than 12 million tons of waste but has a buffer of only 1,000 feet.

Some counties have policies that create or result in unofficial buffers around landfills. Fresno County and Kern County are examples of this approach. Both counties have acquired land around county-owned landfills to create an informal buffer separating the landfills from other land use without official buffer policies for most sites. Other facilities have naturally occurring buffer zones, such as Central Disposal Site in Sonoma County. Some buffer area around the Central Disposal Site exists as a result of environmentally sensitive areas that cannot be developed residentially.

The one mile Buffer is significantly larger than most buffers around landfills in California.

6.1 OTAY LANDFILL

One notable exception to the non-specific evaluation of buffer policies is the Otay Landfill. The buffer at the Otay Landfill is an example of a facility that has undergone analysis of odor and health risk impact from the facility before an existing buffer moved from 1,000 feet to 700 feet from the landfill. Developers proposed residential development inside the 1,000 foot nuisance easement around the Otay Landfill. SCS provided a nuisance and health risk evaluation for the proposed development, assessing the potential impact the landfill would have on residences in the development.

Sources of odor at Otay Landfill were modeled using regional meteorology data. Odor impacts determined by the model were compared to complaint data provided by San Diego County. The assessment included odor emissions from major odor sources at the Otay Landfill, including the landfill itself and the greenwaste composting process. It factored in continued growth of the landfill under the existing regulatory environment, including continued waste placement and continued expansion of the GCCS. The model results were then used to determine whether residences within the original 1,000 foot buffer would be located in an area with odor impacts comparable to residential areas where odor impacts were deemed acceptable. The City of Chula Vista determined that nuisance impacts, including odor, and health impacts were allowable and the proposed development was allowed. The assessment resulted in a reduction of the buffer from 1,000 feet to 700 feet based on the odor results.

Additional development for residential use would require additional assessment of the specific proposed development plan as part of the California Environmental Quality Act (CEQA) process for such a development. Such assessment would include updating odor complaint information, odor emissions source information, and meteorology.

6.2 OSTROM ROAD LANDFILL

The Ostrom Road Landfill buffer represents a middle ground between these two approaches. A uniform buffer of 3,960 feet (three quarters of a mile) exists around the Ostrom Road Landfill. This buffer distance was determined based on site specific conductions such as wind speed and surrounding land use, but the uniform buffer distance does not account for variability in localized impacts by direction as was done in the case of Otay Landfill.

Land use surrounding the Ostrom Landfill is primarily agricultural, and residential developments are not encroaching on the buffer around the Otay Landfill. This surrounding land use makes additional refinement of the buffer area unnecessary. It has been established that the 3,960 foot buffer is protective for both health risk and odor, and there is no necessity to conduct a more refined analysis that might demonstrate that a smaller buffer could be adequate.

7.0 ODOR CONTROL STRATEGIES

There are several odor mitigation methods that are available to the WRSL. Not all these odor mitigation strategies will be viable due to conditions outside the landfill's control, and some strategies may not be feasible for financial reasons, but consideration should be given to all viable strategies.

7.1 CHANGES TO COMPOSTING METHODOLOGY

One recurring recommendation in previous odor evaluations is a fundamental change in the composting process at the WRSL. Recommendations have included utilization of an ASP system and/or partial or total cover or enclosure of the composting process. These changes would require significant and expensive modifications of the WRSL composting facility but we believe they are justified based on the EMC odor sampling results that indicate that composting is the largest source of odor at WRSL and other odor studies that identified composting as the primary source. EMC notes that odor emissions are low compared to other windrow composting facilities, which suggests that odor emissions from windrow composting are unlikely to be mitigated further without changing to a fundamentally different method such as CASP or negatively ASP with a biofilter.

CASP composting of the curing reduces VOC emissions from the overall composting process by 72 percent. Such a large decrease in the VOC emissions would result in a reduction in the odor emissions from composting by a similar amount. Modeling, such as that done for the Otay Landfill, shows that odor emissions from similar sources halves roughly every 250-350 meters. Based on this relationship, SCS predicts that utilizing a CASP system would allow the buffer to be reduced to a half-mile buffer and result in the same number of complaints resulting from compost emissions. Similarly, if the Buffer remained and CASP were implemented, the County could expect the number of complaints resulting from the composting operation to decrease.

Food waste composting has grown as a practice in California. This increase is partially driven by increased waste diversion goals. Food waste composting follows the same general practices as greenwaste composting, but emits significantly more VOCs and odors. If food waste composting

is added to the WRSL operation, CASP or similar a similar level of control would be required to mitigate odors to a reasonable level.

Food waste composting increases VOC emissions from the composting process. Air districts have not formalized VOC emission factors, but some research suggests that foodwaste increases VOC emissions by approximately 50 percent. If WRSL adopted both foodwaste composting and CASP, VOC and odor emissions would decrease overall by approximately 50 percent. Based on this decrease in VOC emissions, a decrease in the buffer distance of 250 meters (0.15 miles) is expected to result in the same number of odor complaints from the composting process. It should be noted that the magnitude of the increase of odor and VOC emissions from foodwaste composting is not rigorously established.

Application of a layer of finished compost to unfinished active compost was found to significantly reduce VOC emissions from the active composting phase. This practice has become a regulatory requirement in several air districts in California. Reducing VOC emissions from the active composting phase can significantly reduce emissions of odorous chemicals from the composting process.

The application of a finished compost layer to a windrow composting process mitigates 40 percent of VOC emissions, per SCAQMD regulations.

7.2 MONITORING OF HYDROGEN SULFIDE TRENDS AND SULFUR CONTAINING WASTES

WRSL should track hydrogen sulfide concentrations both in the LFG header and at individual wells as part of its regular monitoring. Because hydrogen sulfide is the major contributor to LFG odor, it is critical for the facility to have an understanding of hydrogen sulfide trends and whether odor emissions may be increasing despite continued control of LFG at the same level.

Tracking waste streams that contain significant amounts of sulfur is another elements of improved hydrogen sulfide tracking. Some waste streams, most notably drywall, MRF fines, and sludge, contain significantly higher amounts of sulfur than other MSW. Tracking trends in these types of waste streams would allow WRSL to anticipate increases in hydrogen sulfide.

7.3 USE OF FINES AS ADC

As previously discussed in this report, MSW/MRF fines can generate much more odor than the normal MSW waste stream due to the large surface area and potential to quickly generate odorous gases. By using fines as ADC, WRSL is leaving one of the most odorous waste streams on the surface of the landfill overnight when conditions can increase the likelihood of significant odor impacts. WRSL may find that they can landfill can reduce odors if they reduce the use of fines and/or quickly cover them with MSW or other daily cover to reduce odor emissions from fines used overnight as ADC.

Drywall fines, which are often a major component of MRF fines, are suspected of creating larger amounts of hydrogen sulfide in LFG. Because of this hydrogen sulfide generation, MRF fines

can lead to an increase in landfill odor emissions. Reducing the waste placement of MRF fines could lead to reduced hydrogen sulfide generation and related odorous emissions.

MRF fines should be covered as much as conditions allow. MRF fines should be covered while they are collected for later use to prevent odor emissions before they are landfilled at the working face. They should also be covered quickly with at least a small layer of soil when applied to the working face. Covering the fines will reduce emissions from the fine material, which is one of the major contributors to odor from the landfill itself.

7.4 IMMEDIATELY COVER SLUDGE WASTE

The other waste stream that is especially likely to generate odorous emissions is the sludge WRSL receives from the Roseville WWTP. Immediately covering sludge landfilled at WRSL will help reduce odor emitted by the stream than can migrate offsite and impact residential neighborhoods. It should be noted that there may be upcoming changes at the Roseville WWTP that reduce the quantity of sludge landfilled.

Some sites which accept sludge waste create holes or trenches specifically for the sludge. By pre-digging the holes or trenches, sites can quickly dispose of the waste and cover it, resulting in a location with less surface area for emissions. This practice prevents the sludge from off gassing for extended periods and reduces odorous emissions.

7.5 EARLY EXPANSION OF GCCS

WRSL should consider expanding the GCCS into areas at the earliest feasibly opportunity to expand into a new area. This expansion could be either vertical wells if the area has reached final grade or horizontal collectors if the area is still being filled. Horizontal collectors offer the advantage of providing some level of control to the active face area. This practice should be used more frequently when LFG data show increased levels of hydrogen sulfide in the raw gas in a new waste area or tracking of sulfurous waste streams indicates more sulfurous wastes may be present.

8.0 SCS RECOMMENDATIONS

The existing one-mile Buffer around the WRSL is among the biggest landfill buffers in California. The basis of that distance appears overly cautious and is not robustly justified by the County. The County should consider revision of the Buffer distance. However, the existing complaint log demonstrates that there are existing odor impacts from WRSL. Allowing development between the landfill and areas that are already being impacted by odor is likely to result in additional odor issues unless WRSL significantly reduces existing odor emissions. Changing from a windrow composting facility to a CASP or other controlled system offers the most potential to reduce odor emissions from the facility.

Any revised buffer distance should be consistent with expected and acceptable odor impacts for the proposed land use. The impacts of odor from the WRSL areas removed from the Buffer could be modeled based on current or expected odor mitigation strategies along with air

dispersion modeling such as that used by SCS in the 2007 Air Modeling Report or as associated with the Odotech system evaluated by CalRecovery.

WRSL maintains an odor complaint log, and maintenance of a robust odor complaint log is critical to evaluating current odor impacts and in anticipating future odor impacts. Any robust evaluation of future odor impacts should be compared to current odor impacts as a baseline for expected odor levels in surrounding areas. SCS recommends matching complaints to meteorological conditions and operations that are likely to generate significant odor (e.g. compost turning, sludge waste disposal, application of MRF fines).

Evaluation of future odor conditions could be performed to assume certain odor mitigation strategies are adopted, such as the utilization of CASP composting processes or the reduced sludge acceptance at the landfill. This evaluation could provide WRSL with a cost effectiveness for odor impact reductions in a specific area rather than a cost effectiveness based on odor emission rates. This distinction is important because odor impacts are not proportional to emission rates for different sources.