7 HUMAN USE IMPACT REDUCTION

CHAPTER 7

INTRODUCTION AND OVERVIEW

The Parkway is a multi-faceted public facility serving as a significant ecological area in the California Central Valley, the ancestral home of the Nisenan Maidu, a highly altered flood-protection facility, and, perhaps most notable to visitors, a regional recreation destination. The segment of the LAR that flows through the Parkway is the most heavily used recreation river in California (USFWS et al. 2021).

As a river listed under the State and National Wild and Scenic Rivers System for its outstanding fishery and recreation values, the LAR and corridor's recreational features are significant, and the provision of recreation in the Parkway must be maintained as a condition for the continued protection of the river system. The Parkway is known for its trail facilities, including the famous Jedediah Smith Memorial Trail, and the various water-based recreational opportunities it provides to visitors. The Parkway is also a hub of utilities infrastructure that supports surrounding communities and land uses. The Parkway contains important electrical power transmission corridors and sanitary sewer infrastructure owned and maintained by various power and wastewater service providers, and the river itself provides potable water to approximately 2 million people (The Water Forum 2019). While recreational features may be the most significant aspect of the

Parkway to the average user, the Parkway serves an equally important role in the utilities systems of the Sacramento metropolitan area.

The residents of Sacramento County obtain numerous benefits from the Parkway due its status as a protected open space. There are four types of human use benefits that can accrue from protecting open space: personal, social, economic, and environmental. Personal benefits include those that a Parkway visitor may obtain while recreating; examples of these benefits include improved health or stress reduction. Social benefits include those obtained by groups, such as social or family bonding. Economic benefits can include both direct spending for activities that occur in the Parkway as well as indirect spending (known as a multiplier) as money spent on and at the Parkway continues to circulate in the local economy. A study by the Dangermond Group (2006) concluded that the Parkway had a greater than $360 million economic impact. Finally, environmental benefits provided by the Parkway include the protection of open space and subsequent habitat protection.

These benefits, derived from human uses, may result in impacts to natural resources in the Parkway. Human uses are one of the key natural resource issues in the Parkway. Thoughtful management is needed to ensure human use of the Parkway is balanced with protection of natural resources.

Festival goers at the Aftershock Festival, a special event held in the Discovery Park Area. Photo Credit: Scott Webb

This chapter addresses the reduction of specific human use impacts in the Parkway. First, a background on recreation use in the Parkway is provided along with regional and social context (Section 7.1); a plan for reducing recreation use impacts while maintaining recreation use is provided. The goal is to influence recreation uses and behavior in a manner that minimizes impacts on natural resources. Managing the impacts of special events (Section 7.2) and homelessness (Section 7.3) are discussed, respectively. This is followed by a discussion of ambient light (Section 7.4) and ends with a discussion on enhancing vegetation along electrical utility rights-of-way (Section 7.5).

7.1 RECREATIONAL USE IMPACT REDUCTION

Recreational uses are embedded as a key aspect of the Parkway Plan; the purpose of the NRMP is to not reduce recreation use, but to reduce the impacts associated with these activities. Chapter 1 of the Parkway Plan states:

The Parkway Concept can be summarized as follows: The American River Parkway is a unique regional facility which shall be managed to balance the goals of: a) preserving naturalistic open space and protecting environmental quality within the urban environment, and b) contributing to the provision of recreational opportunities in the Sacramento area. (Sacramento County 2008a, p. 10).

Picnic tables in the River Bend Park Area. Photo Credit: Regional Parks

Recreational Use in the Parkway

According to County estimates, the Parkway receives approximately 8 million visitors annually (as of 2009). The Parkway contains approximately 82 miles of single-use and multi-use paved and unpaved trails (Regional Parks 2009). The Jedediah Smith Memorial Trail, a paved bicycle/pedestrian trail, spans the entire length of the Parkway. The Two Rivers Trail runs non-contiguously along the south bank of the Parkway from Discovery Park to the Capital City Freeway. The Parkway has beaches and boating access areas that facilitate swimming and boating activities. The Arden Rapids and San Juan Rapids attract kayakers and rafters. Fishing is permitted throughout the year in most areas and occurs along the riverbanks from boats in the river channel, and at fishing ponds.

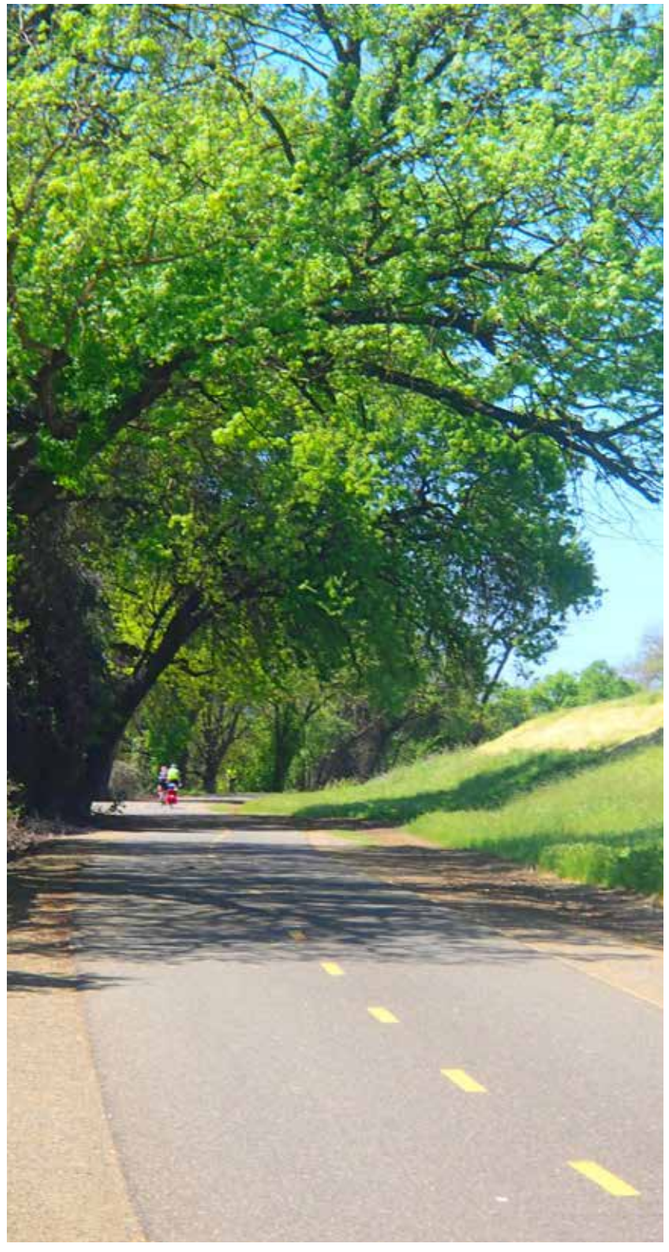
Individual picnic tables are scattered throughout the Parkway, often adjacent to trails. Picnic areas for family units and small- and medium-sized groups contain clusters of tables and barbeque grills. Large shade structure picnic areas are available for reservation at Discovery Park, Ancil Hoffman County Park, River Bend Park, and the William B. Pond Recreation Area. The Effie Yeaw Nature Center is the Parkway's headquarters for interpretive programming and hosts a number of interpretive exhibits and displays. Interpretive placards and bulletin boards are located along Parkway trails and near notable natural resources. Overnight camping is permitted, at Regional Parks' discretion, for educational and youth group purposes at Camp Pollock, River Bend Park, and in association with interpretive programming. Most existing recreation facilities and infrastructure in the Parkway support passive recreation and include pedestrian use (i.e., walking, jogging, and running), bicycling, equestrian activity, non-motorized boating, swimming, fishing, nature appreciation, picnicking, barbequing, overnight camping, and interpretation.

The Parkway's active recreational facilities include the Discovery Park archery range, the Campus Commons Golf Course, and the Ancil Hoffman Golf Course. These are recognized as incompatible uses under the Parkway Plan. Unstructured field sports are allowed on the turf fields located in Discovery Park, Ancil Hoffman County Park, and River Bend Park. Additional recreational activities include periodic special events and organized group activities, such as races, festivals, and concerts; these activities are permitted dependent upon issuance of County recreation permit(s).

The American River Parkway Foundation (ARPF) conducted an in-field Parkway community survey on December 4–17, 2018 to determine user awareness, perception, value, and usage of the Parkway. The survey had a sample size of 610 individuals, 400 of which reside in Sacramento County and 210 of which reside in either Placer, El Dorado, or Yolo Counties. The survey's key findings, produced in a 2019 report, are summarized below:

- 83 percent of respondents had visited the Parkway at some point in the past, and 43 percent of respondents had visited the Parkway in the preceding year.
- 20 percent of respondents were aware of the Parkway or one of its affiliated parks and 42 percent of respondents were aware that all parks, recreation areas, and educational centers in the Parkway.
- Respondents reported being most aware of the American River Bike Trail, Discovery Park, and the Nimbus Fish Hatchery when asked about Parkway parks, recreation areas, and educational centers.
- Respondents also listed the American River Bike Trail and Discovery Park as their most visited places along the Parkway.
- The respondents most often used the Parkway for the following activities: walking (67 percent); taking nature walks (51 percent); picnicking, barbecuing, or having a party (39 percent); and biking (36 percent).
- When asked what amenities they would like to see added or improved, respondents selected bathrooms (68 percent), walking/hiking trails (45 percent), and informational or educational signage (28 percent) as the top choices.
- 79 percent of respondents changed their perception, visitation, or usage of the Parkway by visiting less, avoiding specific parts of the Parkway, and/or volunteering less because of homelessness.
- Conflict between pedestrians and bikers was a key point of concern noted by respondents. Respondents most often attributed conflicts to fast biking speeds, pedestrians congregating in groups on trails, and lack of signage indicating the accepted uses of trails.
- Respondents most often described the Parkway as "wilderness in the city," "scenic," and "valuable."

The survey results indicate Parkway visitors predominantly use the Parkway for passive recreational activities, and users recognize the natural and scenic value of the Parkway. In addition, the survey suggests respondent awareness and knowledge of the Parkway and its features is somewhat low, perhaps indicating a need for increased interpretation and education to inform and educate users about the Parkway and its resources.



Paved bike trail in the Woodlake Area.
Photo Credit: Wildlife Conservation Board

Population Growth in Sacramento County

A key indicator of increased recreation use in an area is regional population growth; therefore, associated projections should be considered when determining what policy and management actions are necessary to properly manage ecological resources (Cordell et al. 1999). Overall, Sacramento County has grown substantially over the past half-century and continued growth is expected through 2060. According to U.S. Census Bureau data, the population of Sacramento County has tripled over the past 50 years (Table 7-1). Although the rate of population growth is expected to slow in future decades, the County is still anticipated to increase in population by approximately 700,000 people by 2060. As the County's population continues to grow, the Parkway will likely experience more demand from local users, particularly because there are currently no developed regional facilities or areas that would provide alternative recreational opportunities at the same scale. As such, it is important to maintain recreational access to the area to meet future population growth in the region. Further, Regional Parks will plan to minimize the impacts associated with recreation use while maintaining access.

TABLE 7-1 SACRAMENTO COUNTY POPULATION DATA (1960 – 2060)

PAST CENSUS YEAR	POPULATION COUNTS	PERCENTAGE INCREASE FROM DECADE PRIOR
1960	502,778	---------
1970	631,498	25.6%
1980	783,381	24.1%
1990	1,041,219	32.9%
2000	1,223,499	17.5%
2010	1,418,788	16.0%
2018	1,540,975	8.6%
Future Census Year	Projected Population Estimates	Projected Percentage Increase from Decade Prior
2020	1,572,195	10.8%
2030	1,758,565	11.9%
2040	1,938,889	10.3%
2050	2,104,947	8.6%
2060	2,264,603	7.6%

Sources: Forstall 1996, California Department of Finance 2019

Trends in Outdoor Recreation

Outdoor recreation is one of the largest industries in both California and the United States. The outdoor recreation research and advocacy organization, Outdoor Foundation, prepared the 2018 Outdoor Participation Report and reported that approximately 146.1 million Americans (49% of the U.S. population in 2017) participated in any of 42 outdoor activities at least once in 2017. This data shows a trend of slight yearly increases in the percentage of the U.S. population participating in outdoor recreation since 2015.

The Outdoor Foundation's 2016, 2017, and 2018 Outdoor Participation Reports further indicated the most popular activities by participation rate and by frequency of participation were running/jogging, fishing, biking, hiking, and camping in both categories all three years. In addition, most of these activities were among the top five most popular and favorite activities from 2010 – 2015. The Parkway supports all five of these activities. To adequately serve a growing population that continues to enjoy these activities, the County and advocates of the Parkway will need to ensure its trail and aquatic facilities remain sufficient.

The U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Department of Commerce, and U.S. Census Bureau's 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation-California underscores the economic value of wildlife-watching activities in California. The survey found 6.7 million state residents and non-residents aged 16 years and older participated in wildlife-watching activities, which include observing, feeding, and photographing wildlife, in California in 2011. In 2011, wildlife-watching expenditures in California totaled $3.8 billion from trip-related, equipment, and other expenses.

The California Natural Resources Agency and State Parks indicated in their *Outdoor Recreation in California's Regions 2013* report that the 14-county Central Valley Region, including Sacramento County, was their highest priority region for serving residents' recreational needs (State Parks 2013). The report determined that the Central Valley Region would experience the largest overall population growth (in absolute numbers and percentage) of the seven regions and providing adequate recreation facilities in the Central Valley is a notable concern. This report's conclusions emphasize the importance of the Parkway as a prominent outdoor recreation opportunity in the region and maintaining access for the growing population.

Carrying Capacity

Recreational carrying capacity (or visitor capacity) refers to the level of recreational use an area can receive without substantially impacting facilities, ecological resources, and/or visitor experience. For example, facility capacity could be exceeded based on an overflowing parking lot. Another example would be erosion caused by too many social trails. It may also be the case that a capacity could be exceeded if a visitor's experience is negatively impacted by seeing more people in an area than they expect; this is particularly true for visitors who seek solitude or wilderness experiences. Calculating a facility capacity may be as simple as counting the number of parking spaces but calculating an exact number of visitors where a social or ecological impact may occur is difficult. Indeed, developing a carrying capacity for the Parkway is difficult due to multiple access points, differences in impacts based on recreation activity (biking vs. hiking), the ability of individuals to access the Parkway without parking lots, and seasonality.

From an ecological perspective, quantifying the impact of recreational activities is highly variable. Bicycles and horses impact soils more than foot traffic. Paved surfaces tolerate very high levels of recreation use without showing impacts or signs of wear relative to dirt roads, trails, or open space. Seasonality is an important factor as well; trails that are wet and muddy during the winter or spring are much more susceptible to impact than dry trails.

TOP *Eppie's Great Race, a special event held annually in the Parkway. Photo Credit: Scott Webb*
BOTTOM *Large parking lot in the Parkway. Photo Credit: Scott Webb*

From a social perspective, setting a carrying capacity or use limit is also challenging as the number of people that recreationists prefer to see is subjective. For example, people who attend large special events do not expect to experience solitude. However, there are areas in the Parkway where visitors are sparse, and some semblance of solitude is attainable. Visitor motives also matter; if an individual's goal is to be with family (at a picnic, for example) or exercise before work, they may not be very concerned about the number of visitors they encounter. This is different than someone who may be visiting the Parkway to view wildlife and would prefer seeing few other visitors. As such, it is challenging to quantify the number of visits that an area can accommodate.

As a practical matter, limiting recreational use in the Parkway is difficult. The Parkway has numerous access points and controlling the number of people entering the Parkway is not realistic. This is particularly challenging due to the Parkway's location in an urban and suburban area. Limiting the number of parking spaces can indirectly limit or lower recreation use. However, the Parkway is visited by many people that access the Parkway by biking or walking from home. It should also be noted that the Parkway is used as a commuting route and there is no effort to limit the number of bike (or pedestrian) commuters. When considering the appropriateness of recreation uses and/or activity types in an area, the best approach is to consider the land use designation and its local management goals. Further, equity decisions must be considered to ensure that underserved populations are not disadvantaged by such a policy.

Regional Context

Nestled between the Sierra Nevada Mountains and the Sacramento – San Joaquin Delta, the greater Sacramento area contains numerous parks and trails that provide recreational opportunities to the area's population. While there are numerous recreation areas in the region, few of these resources provide so much access to a natural environment proximate to such a diverse population.

The Parkway is a unique recreational resource considering its size, location, and linear nature, along with the breadth of recreational activities it supports. The 5,000-acre Parkway is larger than most recreational resources in the region. However, the Parkway's physical size and length, in combination with its geographic context, set it apart from other areas. Unlike other recreational resource areas in the region, the Parkway traverses two incorporated cities, two unincorporated towns, and numerous unincorporated communities. It serves as a connector between the urban center of the City of Sacramento and the suburban communities of Fair Oaks, Folsom, and more. As a result, it facilitates alternative forms of transportation between local communities. In addition, while many of the recreation areas located within five miles of the Parkway are in urban or suburban locations, none of these resources supports as extensive a range of recreational activities nor as many visitors as the Parkway does. Every attempt should be made to maintain access to the Parkway as it is proximate to underserved communities in the County. Although the region has numerous other recreational opportunities, these other opportunities are at a distance that may present a barrier to underserved populations.

Recreational Use Impact Reduction

Recreational use can result in disturbance to natural resources and managing these impacts is of prime importance. One of the key concepts related to recreational impacts is the use-impact relationship. As a general rule, initial or early recreation use in a non-disturbed area has disproportionately more impact than subsequent use on a per-use basis. As an example, it is preferable to have visitors use the same trail rather than each visitor develop their own trail and impact a larger area. This is especially true when recreation use is as high as it is in the Parkway. It is preferable to have recreation users use areas that are already impacted (existing trails) than spread the impact from thousands of visitors throughout the Parkway. Notably, this points to strategies that maintain recreational access while promoting natural resource protection such as removing duplicative social trails.

Recreation can result in the reduction of vegetation density and extent. For example, consider the impact of walking through an undisturbed meadow. Initial footsteps may result in trampled vegetation even after one pass. Over time, a social trail may develop, and subsequent use may not result in the same level of impact as compared to initial use. The loss of vegetation exposes soils and roots and increases the potential for erosion. Exposed roots typically result in diminished health or plant death.

Like vegetation, soil may be impacted by trampling from foot traffic, bicycles, and horses, which leads to increased soil compaction or soil displacement in wet conditions, and soil density. The increase in soil density decreases the amount of water that infiltrates the soil and thereby, increases

surface water runoff; subsequently leading to increased soil erosion, particularly during the wet season. Specific to the Parkway, increased erosion is of greater concern along social trails, bluffs, and near water. The Parkway contains networks of social trails created by users who venture off designated trails to reach popular fishing, swimming, and scenic spots (Sacramento County 2008a). Marion (2016) suggests the trail siting process should incorporate a human behavior analysis to anticipate what routes visitors would take to access recreational and scenic areas. Regional Parks should map and analyze Area-specific social trail networks to determine the sites that users want to visit. The remaining duplicative social trails would be permanently closed, using signage and/or barriers to discourage future use. Doing so would reduce the number of social trails in the Parkway and decrease the probability that users will create more social trails in the future. A social trail network mapping survey is recommended as the first step in rehabilitating areas with social trails. This is consistent with keeping existing recreation use on developed trails that have been hardened and/or managed to tolerate relatively high levels of recreation use. As described above, soil erosion can result from outdoor recreation use, causing sediment and nutrient runoff to flow from impacted areas into nearby water sources. Improperly disposed solid waste often ends up in aquatic environments and creates both an aesthetic impact and harm to local fish and wildlife populations. As such, locating recreational facilities away from water sources is beneficial; however, this would not be possible for some water-based facilities such as a boat ramp.

Foot trail in the SARA Park Area. Photo Credit: Wildlife Conservation Board

Solid waste management challenges in the Parkway include improper litter disposal. Though most improperly disposed of waste originates from homeless encampments and illegal dumping, special events, concessions, and day use of the Parkway. As with other Parkway natural resource management issues, a combination of visitor management, site management, oversight, and monitoring are needed to manage solid waste disposal throughout the Parkway. Regional Parks may consider increasing persuasive signage near frequented dumping sites and high use areas as a part of an interpretation plan. Strategic patrolling may further influence visitors to dispose of their waste properly, as would-be illegal dumpers may be deterred by the presence of uniformed Parkway staff. Signage should be installed near popular swimming holes and boating access areas to educate visitors (particularly, visitors with children) on the adverse impacts of improper waste disposal in and near water systems. Regional Parks should continue to monitor concessionaire waste management practices and, if warranted, require concessionaires to improve their customer education on Leave No Trace waste disposal practices. In addition, Regional Parks may consider requiring raft and kayak concessionaires to provide mesh litter bags with each vessel rental, as this has proved an effective tool to manage solid waste along other recreational rivers.

Augmenting and improving informative media in protected natural areas has been proven to prevent non-compliance across a variety of users (Marion 2016). The Parkway contains signage geared toward informing visitors of the ecological and cultural importance of the Parkway and of site-specific use restrictions and trail etiquette (primarily in Discovery Park and at the Effie Yeaw Nature Center).

Increasing strategically placed signage, brochures, and bulletin boards crafted with persuasive language would likely improve overall rates of compliance in the Parkway. Signage and bulletin boards may be installed at formal Parkway access points. Signage should be installed as close as physically possible to areas impacted by non-compliance, such as areas with numerous social trails (Johnson and Vande Kamp 1996). In addition, persuasive messages should be conveyed to Parkway visitors who participate in large group activities and attend special events through event materials, such as brochures, signs, posters, and emails. Increasing the presence of uniformed employees near resource areas adversely impacted by non-compliance is another visitor management strategy that can deter off-trail hiking and other non-compliant activities (Johnson and Vande Kamp 1996). Additionally, providing educational information to visitors discussing areas to avoid and reasons they should be avoided is another method to keep visitors on designated trails (Knight and Gutzwiller 1995). Parkway users are more likely to respect trail closures and areas with restricted access if the reasoning behind them is clear. Informing and encouraging visitors about maintaining safe distances from wildlife, the importance of staying on designated trails, keeping pets on leash, and disposing of trash at waste facilities can help to reduce human impacts (Duerksen et al. 1997). Education and outreach efforts can encourage recreationists to have minimal impact during visits. These factors should be considered as Regional Parks develops an interpretation plan that both informs visitors about the Parkway and also encourages appropriate behavior. The interpretation plan should address the need for more signage throughout the Parkway, particularly in the seven Nature Study Areas, which are considered the most environmentally sensitive areas of the Parkway.

The key to minimizing recreation-related impacts in the Parkway while maintaining access is to make recreational facilities more environmentally friendly over time without reducing recreational opportunities. Additionally, interpretation and education are appropriate tools to inform people about the Parkway as well as encourage appropriate behavior. Future recreational developments and/or upgrades of existing facilities should incorporate design features that allow for continued recreation access while minimizing the impacts. Some future potential considerations include siting recreational facilities away from environmentally sensitive areas, incorporating erosion control features, and setting natural boundaries (such as trees and shrubs) to developed recreation areas.

Other recreational use issues have been noted as potential health and safety issues and require continued enforcement including: (1) mountain biking on non-designated trails, (2) dogs off-leash in the Parkway, and (3) recreationists starting illegal campfires. First, mountain biking is allowed in the Parkway on designated trails and roads; however, there is cyclist use of trails not designated for biking. Next, off-leash dogs is an issue throughout the Parkway which can potentially frighten other park users who have a fear of dogs and are a nuisance to wildlife. There are also numerous illegal campfire pits in the Parkway that present a fire risk. Regional Parks will continue enforcement of these issues. The trail mapping process to identify and potentially eliminate duplicative social trails should also note where mountain biking on non-permitted trails is occurring.

No dumping signage in the Discovery Park Area. Photo Credit: MIG

"While the importance of recreational opportunities is recognized, preserving the natural qualities of the Parkway is essential."

– AMERICAN RIVER PARKWAY PLAN, 2008

7.2 SPECIAL EVENTS

Regional Parks manages special events (e.g., group activities and special trail events) in the Parkway through review and issuance of recreation permits. Recreation permit requirements include adherence to Park Regulations included in the Sacramento County Ordinance and conditions of approval specific to the event and proposed site within the Parkway. The Parkway Plan includes additional requirements for special events in the Parkway, such as restricting large special events to Developed Recreation areas within Discovery Park and trails events to designated trails. While Parkway Plan special event policies and the recreation permit review process work to limit impacts to natural resources, robust site and event-specific monitoring is needed to properly analyze related impacts on natural resources in the Parkway. There were approximately 475 special events/group activities held in the Parkway in 2018, and an estimated 130,000 people attended these events (Personal Communication, Amber Veselka, Recreation Supervisor, Regional Parks 2019). Special events held in the Parkway include concerts, campouts, festivals, and runs. Some events are held annually. Special events may be held at a single location, in the case of a festival held on a turf field, or over multiple areas, in the case of runs and biking competitions spanning multiple Parkway Areas.

Special events in the Parkway could potentially impact vegetation, wildlife, soil and water quality, and adjacent uses. While the number of people attending special events makes up a small proportion of Parkway visitors, the impacts of special events on ecological resources are still important to consider. Events involving user groups of greater than several people are more of a concern when the event spans large areas or is held in a fragile environment (Hammitt, Cole, and Monz 2015). As a result, the anticipated resource impacts of the more common individual (one to two persons) and family (three to ten persons) user groups (as indicated in the Parkway Plan) include soil and water quality degradation caused by improper waste disposal, soil compaction and ground cover alteration caused by trampling, and noise and artificial light disturbances to wildlife (which may decrease the nesting success of sensitive wildlife populations).

Concert stage at the Aftershock Festival, a special event held in the Discovery Park Area. Photo Credit: Scott Webb

The Parkway Plan specifies that special events may be held only in areas with the Limited Recreation or Developed Recreation land use designations. In addition, special events are permitted only in a small number of Areas, including Discovery Park, Ancil Hoffman County Park, River Bend Park, and the William B. Pond Recreation Area in Arden Bar (Sacramento County 2008a). These restrictions minimize the impacts of concentrated use on fragile environments by limiting use to more developed locations that can better support large user groups. Regional Parks' role in managing special events in the Parkway is largely oversight-based, as it is responsible for issuing recreation permits and ensuring special events adhere to permit requirements. Regional Parks should continue to ensure events do not violate recreation permit requirements while still providing these events for the public. Further, Regional Parks should continue to consider the appropriateness of an event based on its compatibility with the proposed site's land use designation and the natural resource characteristics of the site itself.

7.3 HOMELESSNESS IN THE PARKWAY

Homelessness is a wide-reaching and significant socioeconomic phenomenon affecting numerous individuals throughout the United States. The phenomenon is associated with a lack of affordable housing, mental health issues, and drug abuse. Open spaces have become increasingly occupied by homeless individuals looking for safe and secure locations to shelter (Thrush 2017), resulting in adverse environmental impacts on parks, riparian zones, and natural areas.

Homelessness in Sacramento County – Point-in-Time Counts

CSUS and the Institute for Social Research, in collaboration with Sacramento Steps Forward, conducted 2017 and 2019 point-in-time (PIT) counts on homelessness in Sacramento County. The 2019 PIT Count rallied over 900 community volunteers who canvassed the County and surveyed individuals experiencing homelessness. The 2019 Count concluded an estimated 5,570 individuals experienced homelessness in the County on the night of the count. This represents an estimated 19 percent increase from the 2017 PIT Count in which an estimated 3,665 individuals experienced homelessness[1]. The 2019 PIT Count found that 70 percent of the individuals experiencing homelessness in the County are sleeping outdoors, in vehicles, or in other locations unsuitable for human habitation. Both the 2017 and 2019 PIT Counts concluded that individuals are experiencing homelessness in the County predominantly due to a lack of affordable housing. Michael Doane, Chief Ranger, estimates that there are between 500 and 700 homeless people in the Parkway on a nightly basis (Personal Communication 2019).

PIT Counts indicate that homelessness in the County is growing. With a continuously increasing homeless population, the Parkway will likely continue to face natural resource management issues related to or caused by homeless encampments. In addition, because the 2019 PIT Count found that a majority of the County's homeless are unsheltered, Regional Parks can reasonably anticipate increasing numbers of individuals seeking out Parkway open spaces for shelter. As researchers have determined a lack of affordable housing is one of the main drivers of the homelessness crisis in Sacramento County and elsewhere, Regional Parks will not be able to address the root causes of the homelessness impacting the Parkway.

Impacts on Ecological Resources

Across the United States, public parks and open space areas are subject to natural resource impacts from homeless encampments. Homelessness occurs throughout the Parkway, but the majority of encampments are downstream of Watt Avenue and concentrated in the Discovery Park, Woodlake, and Cal Expo Areas (Chief Ranger Doane, Personal Communication 2019). Encampments can be found in riparian zones and woodlands that provide ample vegetative cover and shield encampments from public view. Because many of the Parkway's riparian forest habitat areas lie along the banks of the river, encampments are typically located on banks and slopes near the water. Encampments may contain belongings such as blankets, tarps, clothing, shopping carts, plastics, cardboard, woody materials, food packaging, pharmaceuticals, personal care products, drug paraphernalia, and human and animal fecal waste (White

TOP *Aerial view of encampments along the Jedediah Smith memorial Trail in the Discovery Park Area. Photo Credit: John Hannon*
BOTTOM *Solid waste disposed of in the Parkway. Photo Credit: Scott Webb*

[1]*The raw totals from 2017 and 2019 cannot be directly compared because of changes in count methodology; as a result, the estimated 19 percent increase in growth is a real (adjusted) increase.*

2013). Nearly 1,400 tons of solid waste were removed from the Parkway in 2019; much of which was associated with homeless encampments.

The impacts of homeless encampments on natural resources are varied and compounding. Trash located in and spilling out from encampments lowers the scenic value of the Parkway's natural resources, alters the chemical composition of habitat features, and may harm wildlife. Trash left behind often consists of plastics (including microplastics) and household products such as cleaning agents and batteries. Plastics contain chemical compounds such as phthalates from polyvinyl chloride (PVC), bisphenol A (BPA) from polycarbonate, and nonylphenol compounds from polyolefins. When absorbed into soils, these are absorbed by and damage plant life. When leached into aquatic habitats, they may disrupt endocrine production and functions in aquatic wildlife, and perhaps humans, that ingest waters and soils contaminated by toxic chemical compounds (Engler 2012). Plastics are also deadly to wildlife when ingested and are known for entangling aquatic lifeforms. Needles, pharmaceuticals, cleaning products, and batteries often contain similarly toxic compounds that produce similar effects (White 2013).

Human and animal (mostly pet) fecal waste left in and near homeless encampments have an impact on natural resources. Fecal matter contains disease-causing pathogens that, when ingested, inflict illnesses and threaten environmental and public health (Santo-Domingo and Ashbolt 2008). Food, soils, air, and water can all transmit dangerous fecal pathogens. As most homeless encampments in the Parkway occur adjacent to the river, the degradation of water quality is of particular concern. Visible fecal waste is also a deterrent to recreational activity as the sight, smell, and overall presence of feces turns park users away.

Similar to the outdoor recreation impacts discussed above, encampments associated with homelessness can result in soil compaction, vegetation loss, erosion, and wildlife disturbances. Soil compaction related to encampments can increase the volume of human debris, including toxic substances, entering the LAR and impede plant establishment. In addition, camping on and near the riverbanks of the Parkway contributes to increased levels of sediment offload into the river as a result of riparian vegetation removal. Removal of riparian vegetation also increases the occurrence of erosion as the trees and plants that stabilize riverbanks are cut or removed for use in campfires and shelter. Sediment offload into waterways is associated with detrimental changes in river temperatures that may affect fish birthing and rearing success (Poole and Berman 2001). Human activity in occupied encampments may also scare away animals that otherwise inhabit areas where camps are established.

Finally, homeless encampments may increase the incidence of wildland fire. Campfires that may be left unattended for extended periods of time and improperly disposed of cigarettes have the potential to start fires, particularly when campfires burn in areas with dry, dead vegetation. Fires have considerable impacts on natural resources, including burning vegetation, displacement or death of wildlife, reduction of soil nutrient pools, and damage to park facilities and structures, which may in turn temporarily decrease volumes of park visitors.

The Law and Homelessness in Public Spaces - *Martin vs. City of Boise*

The Martin vs City of Boise (2009) case recently impacted how public agencies manage homeless individuals in public spaces. The case originated when six City of Boise residents filed a lawsuit in the United States District Court for Idaho against the City for its Camping and Disorderly Conduct Ordinances. The ordinance allowed the City to issue citations to people for sleeping or camping overnight in public spaces, such as parks and sidewalks. The plaintiffs argued that such laws and ordinances violate the Cruel and Unusual Punishments Clause of the Eighth Amendment. In 2014, the District Court sided with the plaintiffs and ordered the City to amend its anti-camping ordinances and bar the authorities, including police officers, from enforcing the City's Camping and Disorderly Camping Ordinances on nights when none of the shelters in the City had overnight bed spaces (United States Court of Appeals of the Ninth Court 2018).

On September 4, 2018, the Ninth Circuit Court of Appeals heard an appeal filed by the City of Boise and upheld the District Court's decision that governments cannot criminalize people sleeping in public places when there is no access to alternative shelter: "The panel held that, as long as there is no option of sleeping indoors, the government cannot criminalize indigent, homeless people for sleeping outdoors, on public property, on the false premise they had a choice in the matter." – Order and Amended Opinion by Judges of the Ninth Court of Appeals in *Martin vs. City of Boise* (United States Court of Appeal for the Ninth Circuit 2019).

Subsequently, on April 1, 2019, the Ninth Circuit Court of Appeals denied a petition to rehear the case, and on December 16, 2019, the Supreme Court of the United States declined to hear an appeal from the City of Boise. As such,

the September 4, 2018 ruling stands and sets a precedent in which municipalities cannot criminalize homeless people sleeping in public spaces on any night when shelters in a jurisdiction do not have available spaces. The *Martin vs. City of Boise* case and decision are relevant to Parkway natural resource management because Regional Parks can no longer, at risk of violating judicial precedent, use camping citations and require individuals experiencing homelessness to leave the Parkway.

Management of Impacts Associated with Homelessness in the Parkway

As stated above, the Martin vs. City of Boise decision prohibits the County from criminally prosecuting people who are sleeping, sitting, or lying outside on public property when those people have no home or shelter available. The Sacramento County Counsel has provided the following interpretation of the decision:

However, the decision [Martin vs. City of Boise] does not permit a person experiencing homelessness to indefinitely reside at a single location on public property, and the decision does not preclude County enforcement to avoid or mitigate detrimental consequences associated with homeless encampments, such as: accumulated debris; environmental degradation; and health and public safety issues including the degradation of public infrastructure, such as levees.

Cities, counties, and parks agencies throughout the United States are employing a variety of strategies to manage homelessness in parks and public open spaces. The strategies range from direct actions (e.g., police officers or park rangers issuing citations) to indirect and assistance-based (e.g., training staff to inform and assist people experiencing homelessness). Most actions attempt to empower people experiencing homelessness to permanently vacate public property.

Trash collected from the Parkway by Regional Parks staff. Photo Credit: Regional Parks

At the time of this report, the County is exploring options to manage homelessness in the Parkway to reduce negative impacts. The following list includes several strategies that could be considered by Regional Parks and/or partner agencies:

- Collaborating with social services agencies and nonprofit organizations combatting homelessness to provide drop-in services for housing assistance, mental health and drug abuse rehabilitation services, career skills development, and education/training (National Recreation and Park Association 2017);
- Rehabilitate areas impacted by human encampments when opportunities are presented;
- Design future potential park infrastructure to discourage people from staying overnight in parks. This may involve strategic park bench design, vegetation management, and the provision of fencing, lighting, and security cameras (National Recreation and Park Association 2017); and
- Most importantly, Regional Parks should continue its coordination with other County or local agencies, along with nonprofit organizations, to allow services to be delivered to the people experiencing homelessness in the Parkway.

Aerial view of commercial and industrial uses adjacent to the Discovery Park Area. Photo Credit: John Hannon

The I-5 American River Bridge in the Discovery Park Area. Photo Credit: MIG

7.4 AMBIENT LIGHT

Artificial ambient light, generated from built environments, may have an impact on natural resources. Ambient light is the overall light conditions present in an environment. The ambient light of a location may include direct light from natural sources such as the sun, lightning, or fire; direct artificial light from vehicles, buildings, or free-standing light fixtures; and indirect natural and artificial light reflected off physical surfaces and matter in the air. Ambient light may include direct light originating from the immediate vicinity and indirect light from beyond the immediate vicinity, including sky glow, a phenomenon caused by the reflection and scattering of light by particles in the atmosphere (Kyba et al. 2015). Artificial ambient light at nighttime may affect wildlife species in the Parkway.

Many wildlife species, both terrestrial and aquatic, function according to long-standing, dependable day-night lighting conditions. At the physiological level, artificial nighttime light may disrupt natural biological rhythms, alter hormone production, impair vision, and impact other bodily functions (Gaston, Visser, and Franz 2015). Recently, managing the amount of artificial ambient light in natural environments has become of interest to land management agencies. For example, the NPS has implemented the “Night Sky” program to decrease the amount of artificial light impacting the park units. In the Parkway, wildlife populations may be impacted by artificial light originating from fixtures lining Parkway roads, bridges and parking lots; lights from special events; exterior light fixtures associated with adjacent residential and commercial uses; vehicle lights; and skyglow. However, it is not known where in the Parkway ambient light is an issue. Regional Parks will identify areas in the Parkway where this may be a concern and then develop a plan to reduce the unnecessary light while maintaining lighting necessary for safety, consistent with the goals of the Parkway Plan.

Electrical power transmission towers in the Cal Expo Area. Photo Credit: MIG

Vegetation clearing activities under WAPA powerlines in the Cal Expo Area. Photo Credit: Regional Parks

7.5 USE OF UTILITY RIGHTS-OF-WAY FOR VEGETATION ENHANCEMENT

Electrical power infrastructure in and near the Parkway is owned and maintained by the Pacific Gas and Electric Company (PG&E), the Sacramento Municipal Utility District (SMUD), or the Western Area Power Authority (WAPA). Over 150 electrical power transmission towers and poles are located in powerline easements throughout the Parkway, predominantly within the Discovery Park, Woodlake, and Cal Expo Areas (see Figure 7-2 Electrical Power Infrastructure). These facilities require vegetation management, which is an important wildland fire risk management activity that involves clearing tree limbs and branches, brush, and grasses near transmission towers, poles, and lines. PG&E, SMUD, and WAPA conduct State and federally-mandated vegetation management activities around electric power infrastructure in the Parkway. While mandated vegetation removal near electrical power infrastructure is important to public safety, there is a benefit in enhancing vegetation in these rights-of-way. These areas could also potentially provide pathways for walking or other recreational activities. Regional Parks will work with the utilities to develop a plan to better utilize these areas within the Parkway. The plan will consider how to appropriately balance the needs for vegetation enhancement with regulation related to wildfire risk. If feasible, Regional Parks should work with utility companies to transition to underground utility lines.

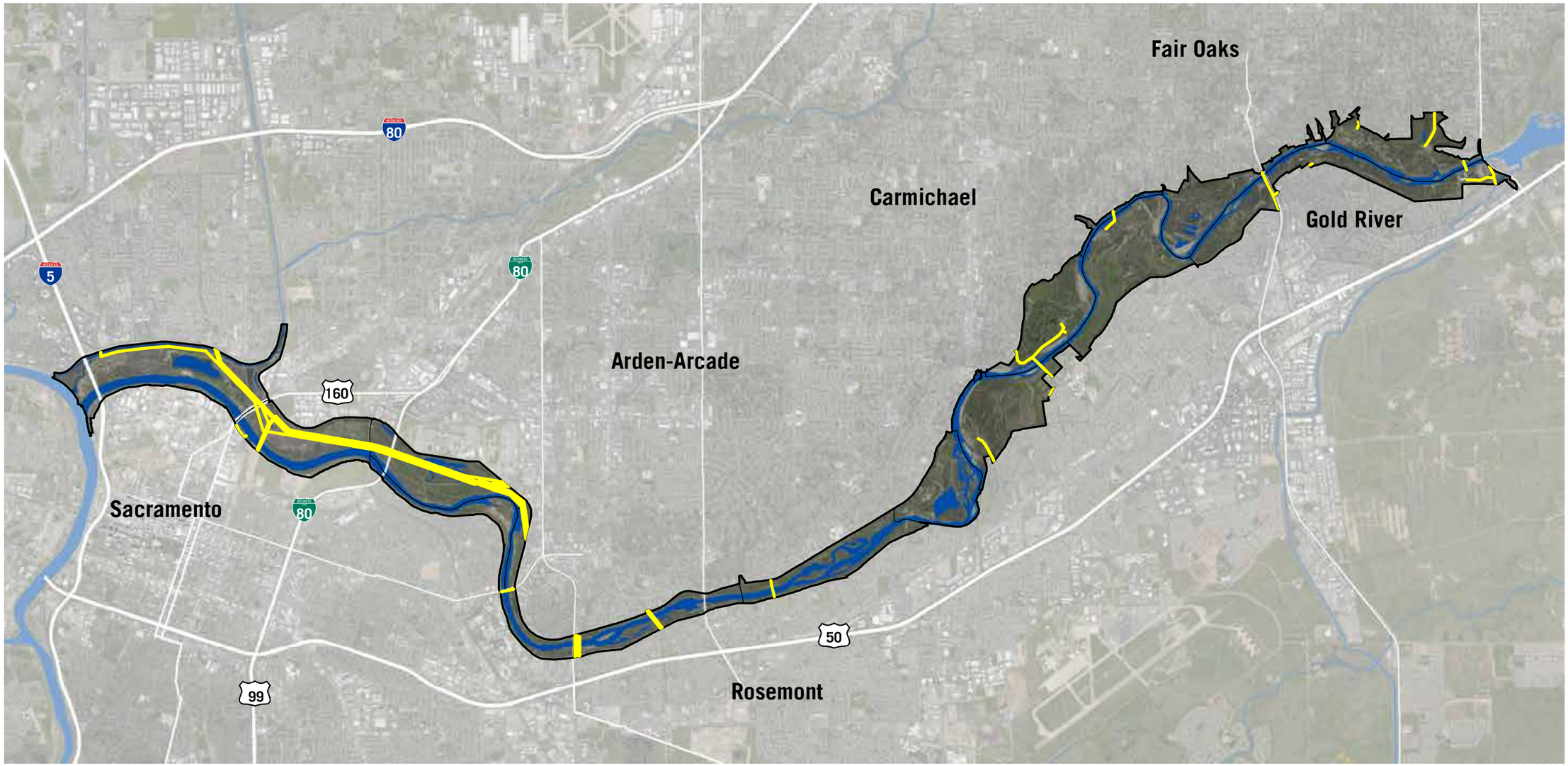


Figure 7-1
Electrical Power Infrastructure