4 CUMULATIVE IMPACTS

4.1 CEQA REQUIREMENTS

The State California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations [CCR] Section 15130) requires that an environmental impact report (EIR) discuss cumulative impacts of a project. A project's contribution to a cumulative impact is considered significant when the project's incremental effect is "cumulatively considerable." The definition of cumulatively considerable is provided in CCR Section 15065(a)(3):

> "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

According to the State CEQA Guidelines (CCR Section 15130[b]),

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

For purposes of this Draft EIR, the project would have a significant cumulative effect if it meets either one of the following criteria:

- The cumulative effects of related projects (past, current, and probable future projects) without the project are not significant but the project's incremental impact is substantial enough, when added to the cumulative effects, to result in a significant impact; or
- The cumulative effects of related projects (past, current, and probable future projects) without the project are already significant and the project represents a considerable contribution to the already significant effect. The standards used herein to determine "considerable contribution" are that the impact either must be substantial or must exceed an established threshold of significance.

Mitigation measures are to be developed, where feasible, to reduce the project's contribution to cumulative effects such that the contribution is not considerable.

This cumulative analysis assumes that all mitigation measures identified in Sections 3.1 through 3.17 to mitigate project impacts are adopted, unless otherwise specified. The analysis herein analyzes whether, after adoption of project-specific mitigation, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects.

4.2 SCOPE OF THE CUMULATIVE ANALYSIS

The geographic area that could be affected by development of the project varies depending on the type of environmental resource being considered. The general geographic area associated with various environmental effects of project construction and operation defines the boundaries of the area used for compiling the list of projects considered in the cumulative impact analysis. Table 4-1 presents the general geographic areas associated with the different resources addressed in this Draft EIR and evaluated in those sections of this cumulative analysis.

Table 4-1 Geographic Scope of Cumulative Impacts

Resource Issue	Geographic Area
Aesthetics	Local (plan area and surrounding public viewpoints)
Agriculture and Forestry Resources	Regional (Yolo and Solano Counties)
Air Quality	Regional (Yolo Solano Air Quality Management District—pollutant emissions that have regional effects) Local (immediate vicinity—pollutant emissions that are highly localized)
Archaeological, Historical, and Tribal Cultural Resources	Local
Biological Resources	Regional (Yolo and Solano Counties HCP/NCCP Planning Areas) and local
Energy	Regional (PG&E energy grid within Yolo and Solano counties)
Geology, Soils, and Seismicity	Local
Greenhouse Gas Emissions and Climate Change	Global
Hazards and Hazardous Materials	Local (immediate project vicinity)
Hydrology and Water Quality	Regional and local
Land Use and Planning	Local (Yolo and Solano counties and City of Davis)
Noise	Local (immediate project vicinity where effects are localized)
Population and Housing	Local and Regional
Public Services	Local service areas
Recreation	Local
Transportation, Circulation, and Parking	Regional and local
Utilities and Service Systems	Local service areas

As noted in Table 4-1, the potential geographic scope of some cumulative effects is more localized than others. To account for both regional and localized cumulative impacts, this EIR uses regional growth projections to assess regionally cumulative impacts and the list method to assess more localized cumulative impacts. Table 4-2 lists past, present, and future development projects in the vicinity of the campus. This list is not intended to be an all-inclusive list of projects in the region, but rather an identification of projects constructed, approved, or under review in the vicinity of the project site (approximately one mile) that have some relation to the environmental impacts of construction and operation of potential uses associated with implementation of the 2018 LRDP. The list of projects used in this cumulative analysis is based on information for approved and pending projects obtained from the City of Davis, the City of Winters, the City of Woodland, the City of Dixon, Yolo County, and Solano County. Additionally, approved and pending UC Davis projects that are considered part of the previous (2003) LRDP are also listed in Table 4-2. There are no related projects proposed within Solano County that are located in the vicinity (5-mile radius) of the plan area.

Table 4-2 Cumulative Projects List

Map Key	Project Name	Developed or Proposed Land Use	Size (Acreage and/or Dwelling Units)	Built/Approved/ Proposed
UC Davis				
1	Central Cage Wash	Academic support building	Construct support building for washing animal cages. Decommission existing animal cage wash facilities	Approved
2	Webster Hall Replacement	Student Housing	Demolish Webster Hall, which is a part of the existing Cuatro Residence Hall Area, and construct new student housing (up to 150 beds)	Approved
3	Walker Hall Renewal	Academic building	Renovate Walker Hall, a building of approximately 45,000 square feet (sf) on a site of approximately two acres, in the core area of the UC Davis academic core	Approved
4	Tercero Phase 4	Student housing	Replace existing residence hall with building designed for 200 additional student residents	Approved
5	Large Lecture Hall	Academic building	Construct and operate a two-story lecture hall of approximately 17,500 sf within the UC Davis core campus	Approved
6	Activities and Recreation Center Expansion	Administrative building	Interior renovation and expansion of building space within existing courtyard	Approved
7	Tercero Dining Commons 2	Dining commons	Construct a new 30,000-sf dining commons capable of seating 500 people, which would serve the Tercero Residence Hall Area within the core campus at UC Davis south of Hutchison Drive and west of Bioletti Way	Approved
8	Orchard Park Demolition	Student housing (vacant)	Demolish existing apartment buildings in Orchard Park residential area for safety/security reasons	Completed
9	Emerson Hall Replacement	Student housing	Replace existing residence hall with building designed for 250 additional student residents	Approved
10	Vet Med Center Vision	Academic building	Renovate and expansion of facilities in Vet Med district of Central Campus	Approved
11	Research Greenhouse Expansion	Academic building	Construct new greenhouses and demolish old greenhouses	Proposed
12	California National Primate Research Center Building Renewal	Research center	Vacate existing buildings and provide replacement, modernized buildings	Proposed
13	Engineering Student Design Center	Academic building	Expand academic building to provide design space for engineering students	Approved
14	Chemistry Hall Addition	Academic building	Expand academic building to provide additional research laboratory space	Approved
City of Davis				
15	Panattoni (Willowcreek Research and Development [R&D]) – Chiles Road and Cowell Boulevard	R&D/Light industrial	150-225,000-sf R&D/light industrial development that will be incrementally built out	Proposed
16	Barovetto Place – 2nd and A Streets	Extended stay hotel	27-room extended stay hotel	Proposed
17	717 D Street Subdivision	Residential subdivision	Up to 9 residential units (7 net new)	Proposed

Table 4-2 Cumulative Projects List

Map Key	Project Name	Developed or Proposed Land Use	Size (Acreage and/or Dwelling Units)	Built/Approved/ Proposed
18	4480 Chiles Road Service Station	Commercial retail	New convenience store, fast food restaurant, and car wash	Proposed
19	B Street Apartments – 820/822 B Street	Multi-family residential (apartments)	12-unit apartment building	Proposed
20	Lincoln 40 Apartments – East Olive Drive	Multi-family residential (apartments)	130 apartments	Approved
21	Mace Ranch Innovation Center – Mace Boulevard	Master-planned community	2,650,000 sf of research/office/research development, manufacturing/research, hotel/conference, and ancillary retail space on a 228.7-acre site	On-hold
22	Nishi Gateway Project – West Olive Drive	Residential	46.9-acre Nishi site for residential development and rezoning of 10.8 acres for redevelopment	Approved but requires voter approval
23	Shell Service Station – 1944 Anderson Road	Commercial retail	Gas station, convenience store, and carwash on a 0.5-acre site	Approved
24	Sterling 5th Street Apartments – 2100 5th Street	Multi-family residential (apartments)	5-story, 244-unit apartment building	Approved
25	Trackside Center – 901-919 3rd Street	Mixed-use residential	4-story, 27-unit mixed-use residential development with 9,100 sf of retail	Approved
26	Walker Office Building – 501 Oak Avenue	Office building	2-story, 12,000-sf office building	Proposed
27	West Davis Active Adult Community (WDAAC) – 39660 West Covell Boulevard	Senior living community	475-unit senior living community	Proposed
28	Richards Blvd. Interchange Improvements	Interchange Improvements	n/a	Proposed
29	602 Cantrill Drive Building	Office/Light industrial	11,600-sf office/light industrial building	Approved
30	2860 West Covell Building	Commercial	8,657-sf commercial building	Approved
31	Cannery Market Place – Cannery Mixed Use District	Mixed-use residential	36 residential units and 171,000 sf of office and commercial space	Approved
32	Creekside Apartments – 2990 5th Street	Multi-family residential (apartments)	72 affordable housing units	Approved
33	Davis Ace Hardware – 815 3rd Street	Commercial retail	8,248-sf commercial retail space	Approved
34	Marriott Residence Inn – 4647 Fermi Place	Extended stay hotel	78,000-sf, 78-room extended stay hotel	Approved
35	Embassy Suites Hotel – 1111 Richards Boulevard	Hotel conference center	15,000-sf conference center with 132-room hotel	Approved
36	Hyatt House Hotel – 2750 Cowell Boulevard	Hotel	118-room hotel	Approved
37	Paso Fino Subdivision – 2627 E. Covell Boulevard	Single-family residential	6 single-family homes	Approved
38	Pizza 101 – 236 B Street	Addition/conversion for restaurant	Addition of 2,500 sf and conversion to restaurant	Approved

Table 4-2 Cumulative Projects List

Map Key	Project Name	Developed or Proposed Land Use	Size (Acreage and/or Dwelling Units)	Built/Approved/ Proposed
39	Trokanski Performance Center – 2720 Del Rio Place	Performance center	22,000-sf performance center	Approved
40	URC expansion – 1515 Shasta Drive	Skilled nursing expansion	17-bed expansion of existing nursing center	Approved
41	213-217 C Street Mixed Use Building	Mixed-use residential	2 apartments and 14,064 sf of office space	Under construction
42	416-420 J Street Residences	Residential	4 residential units (Single-family, accessory-dwelling units and duplex)	Under construction
43	Berry Bridge Cottages – 4100 Hackleberry Place	Single-family residential	8 affordable, single-family units	Under construction
44	Cannery Subdivision – 1111 E. Covell Boulevard	Residential and commercial	585 residences and 170,000-sf of commercial uses	Under construction
45	Del Rio Live-Work – 2751 Del Rio Place	Live-work units	16 live-work units	Under construction
46	Grande Subdivision – Grande Avenue	Single-family residential	41 single-family units	Under construction
47	Mission Residences – 225-229 B Street	Multi-family residential (condominiums)	14 condominiums	Under construction
48	Villages at Willow Creek – Drummond Avenue and Cowell Boulevard	Single-family residential	14 single-family units	Under construction
49	Shell Service Station – 1010 Olive Drive	Commercial retail	Service station and car wash	Recently completed
50	Starbucks – 403 Mace Boulevard	Commercial retail	Conversion of former Burger King to Starbucks	Recently completed
Yolo County				
51	Planned Development - 38392 LaRue Way	Single-family residential	2 homes on a 2.43-acre parcel	Proposed
Solano County				
		No projected identified in vicinity of plan area		
City of Winters				
52	Creekside Estates	Residential Development	14-acre, 41-unit subdivision	Approved
53	Callahan Estates	Residential Development	40-acre, 117-unit subdivision	Approved
54	Stones Throw Estates	Residential Development	101-acre, 395-unit subdivision	Approved
55	Hotel Winters	Commercial Hotel	Development of a 72-unit hotel on a 1-acre parcel	Approved
56	Marriot Fairfield Inn	Commercial Hotel	Development of a 72-unit hotel on a 4-acre parcel	Approved
57	PG&E Operations Academy	Industrial	Operations Academy and training facility taking up approximately 29.6-acres and 106,740 sf	Approved
City of Woodland				
58	Woodland Research & Technology Park Specific Plan	Residential Commercial	Approximately 351 acres of residential and commercial uses	Proposed
59	Woodland Commerce Center	Commercial	112 acres of commercial uses	Proposed

Table 4-2 Cumulative Projects List

Map Key	Project Name	Developed or Proposed Land Use	Size (Acreage and/or Dwelling Units)	Built/Approved/ Proposed
60	Spring Lake	Residential Commercial	11 acres of Neighborhood uses, 280 acres of public and quasi-public uses, 34 acres of park land, and 6 acres of neighborhood commercial	Approved
61	Spring Lake Central	Residential Development	Approximately 77.25 acres of residential	Approved
62	Kamilos Industrial Proposal	Warehouse Distribution	150 acres for warehouse and product distribution	On-hold
63	Cal West	Residential Development	225-sf residential development with rezoning for a school	Approved
64	Oyang North	Residential Development	112-sf residential development	Approved
65	Oyang South	Residential Development	250-sf residential development	Approved
66	Downtown Mixed-Use Hotel	Commercial	1.1-acre site for a hotel and shopping uses	Approved
67	6th and Main Street Development	Retail/Commercial	1.28 acres of retail and commercial shopping	Approved
68	Country Oak Parcel Map	Residential	5.64 acres of residential development	Approved
City of Dixon				
69	Valley Glen Planned Development	Residential Development	Approximately 93 acres of several housing types including apartment units, cluster homes with two or three units per building, medium-density detached single-family homes, and low-density homes	Approved
70	Southwest Dixon Specific Plan	Mixed-Use	269-acres with 61% being zoned for residential use and the remainder for commercial and public facilities	Approved
71	Parklane Subdivision Planned Development	Mixed-Use	94-acre residential community with 40-acres a new high school and infrastructure	Under construction

Source: Data compiled by Ascent Environmental in 2017 based on data obtained from the City of Davis, University of California at Davis (UC Davis), City of Woodland, City of Winters, City of Dixon, Yolo County, and Solano County in 2017.

4.3 CUMULATIVE IMPACT ANALYSIS

4.3.1 Aesthetics

The cumulative context for aesthetics and aesthetic resource impacts for the 2018 LRDP include the existing and planned land uses surrounding the campus, including the City of Davis. Development of past and current projects, and future proposed projects continue to alter the visual environment of Davis and the surrounding area. With few exceptions, the visual resource impacts of the related projects listed above are site-specific and would not necessarily combine with other projects because they are not in the same viewshed.

The most prominent public viewsheds for the 2018 LRDP are the surrounding agricultural lands and views of the Coast Range to the west. Given the nature of the 2018 LRDP, associated buildings or structures would be intended to compliment, rather the detract, from the cumulative viewshed experience. Through the design review process implemented by UC Davis, new development would be visually compatible (e.g., visual character) with surrounding existing and new development. However, the impacts of further development within the western portion of campus, combined with potential development in the western portion of the City of Davis (e.g., West Davis Active Adult

Community, could further detract from long-distance views and would be cumulatively considerable, Therefore, cumulative viewshed impacts would be significant. As noted in Section 3.1, "Aesthetics," no feasible mitigation measures are available to reduce the 2018 LRDP's contribution.

Cumulative effects of lighting are visible over a wide area, because of the potential for lighting from a number of projects to create skyglow. Under existing conditions, the UC Davis campus, and surrounding areas, experience lighting in the form of streetlights, or illumination for paths, buildings, and other noteworthy structures. As described in Impact 3.1-3, implementation of the 2018 LRDP would introduce new lighting sources; however, while these fixtures would be similar in nature to existing lighting, implementation of Mitigation Measure 3.1-3 would further ensure that impacts relating to lighting remain less than significant. Therefore, the project would not have a considerable contribution to skyglow such that a new significant skyglow impact would occur. This would be a less-than-significant cumulative impact. No additional mitigation beyond the mitigation measures identified in Section 3.1, "Aesthetics" is necessary.

Development under the 2018 LRDP, in combination with cumulative development, could result in substantial changes to the local viewshed because it would further limit westward views towards the Coast Range mountains. While development would be designed to be compatible with the surrounding visual environment, it would further limit long-distance views in the area. New lighting sources associated with the 2018 LRDP and cumulative development would not contribute considerably to the overall skyglow. Due to the potential cumulative impact to views within west campus and the western portion of the City of Davis, the project would result in a **significant and unavoidable** cumulative visual impact.

4.3.2 Agriculture and Forest Resources

The cumulative setting for agricultural resources includes the areas surrounding and adjacent to the UC Davis campus. Because the majority of land surrounding campus consists of designated farmland, cumulative development of these lands would result in the conversion of prime farmland, unique farmland, and/or farmland of statewide importance to non-agricultural uses. Since 2006, there has been a decline in the acreage of farmland, including prime farmland, unique farmland, and/or farmland of statewide importance, compared to non-agricultural uses in the region. Using Yolo County as a proxy, there were approximately 540,000 acres of agricultural land in Yolo County in 2006. Between 2006 and 2016, approximately 7,700 acres of farmland (including grazing land) were converted to non-agricultural uses, an approximately 1.4 percent decline in available farmland over that period (California Department of Conservation 2017). Lands converted from agricultural use to non-agricultural use typically do not return to agricultural use at a later date but become part of a more urban condition. Therefore, the removal of such agricultural land would be considered cumulatively considerable in the context of agricultural lands within Yolo County and, due to similar conditions, Solano County.

With respect to forestry resources, there are no forestry resources that could be affected by 2018 LRDP implementation, and thus, the 2018 LRDP is not cumulatively considerable with respect to forestry resources.

UC Davis is not accountable for designated agricultural uses and prime farmland outside of the campus jurisdiction. The preservation of designated farmland is the responsibility of the public agency in which the land is located. General Plans for the cities of Davis, Winters, and Dixon, as well as both Yolo and Solano counties, contain policies that encourage preservation of lands designated for agricultural uses and those that may be listed as important farmland under the Farmland

Mapping and Monitoring Program. Certain jurisdictions, like the City of Davis (City Municipal Code 40A.03), require the purchase of compensatory agricultural lands for any lost/converted agricultural acreage, similar to Mitigation Measure 3.2-1 for the 2018 LRDP. While established city and county policies and Mitigation Measure 3.2-1 aim to reduce impacts of urban development on designated agricultural lands, they do not fully mitigate the permanent conversion of prime farmlands. Several of the projects identified above in Table 4-2, including the Nishi Gateway project, would involve the conversion of existing farmland to non-agricultural use. Additionally, some of these areas are currently designated as Important Farmland within the context of CEQA. While the 2018 LRDP would limit the potential further reduction of available Important Farmland in the region to the extent feasible, it would not prevent further reduction in available farmland as a result of 2018 LRDP implementation, and impacts would be cumulatively considerable. Due to the historic decline in available farmland in the region and the projected continued development of farmland as a result of 2018 LRDP implementation and other development in the region, cumulative impacts on agricultural resources would be **significant and unavoidable**. As noted in Section 3.2, "Agriculture and Forestry Resources," no feasible mitigation measures are available that would reduce the 2018 LRDP's contribution to less than cumulatively considerable.

4.3.3 Air Quality

The cumulative context for air quality is both regional (Yolo-Solano Air Quality Management District [YSAQMD]) for criteria pollutants and local for toxic air contaminants (TAC) and odors. The proposed land uses under the 2018 LRDP would result in an increase of emissions from area sources, stationary sources, and mobile sources, with substantial emissions of reactive organic gases (ROG) from the proposed composting facility. The 2018 LRDP would also result in increased traffic and related emissions throughout the region because of the increased capacity for students and staff. Cumulative development in the region will continue to increase the concentration of pollutants from traffic, natural gas combustion in buildings, area sources, and stationary sources, but would be partially offset by State and Federal policies that set emissions standards for mobile and non-mobile sources.

SHORT-TERM CONSTRUCTION-RELATED IMPACTS

YSAQMD has established a significance threshold of 80 pounds per day (lb/day) for emissions of respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}) and 10 tons per year (TPY) for emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X), which are ozone precursors. YSAQMD acknowledges that the entire Sacramento Valley Air Basin (SVAB) violates state and federal ambient air quality standards for ozone and particulate matter (PM_{10} and $PM_{2.5}$) because of the combined levels of emissions generated by sources throughout the SVAB (including farming activities and other activities, including from the projects listed in Table 4-2). YSAQMD considers emissions of ROG and NO_X (both ozone precursors) and PM_{10} from an individual project that exceed the applicable thresholds to be a substantial contribution to this SVAB-wide (i.e., cumulative) impact (YSAQMD 2007).

Construction-related emissions of ROG, NO_X, and PM_{10} because of development of the 2018 LRDP would exceed YSAQMD's applicable thresholds. Implementation of Mitigation Measure 3.3-1, which includes limits on architectural coatings, prohibition of construction workers from driving on unpaved roads, and a minimum of Tier 3 engines during construction, would reduce ROG emissions to below YSAQMD thresholds, however, NO_x emissions would remain in exceedance.

The SVAB is in nonattainment status for ozone, PM_{10}, and $PM_{2.5}$. This is a result of past cumulative development in the basin, as well as transport of pollutants from other basins. New development,

including the construction occurring under the 2018 LRDP, would be required to comply with YSAQMD measures that would reduce potential new construction emissions of criteria pollutants and precursors. As described above, the contribution of the 2018 LRDP to regional NO_X emissions (see Impact 3.3-1), would be considerable because emissions from the 2018 LRDP would exceed YSAQMD's applicable thresholds, with mitigation, and these thresholds are targeted toward cumulative emissions impacts. No additional feasible mitigation is available to reduce the 2018 LRDP's contribution, and as a result, the 2018 LRDP would result in a **significant-and-unavoidable** cumulative short-term construction-related emissions impact.

LONG-TERM OPERATION-RELATED IMPACTS

Because the SVAB is currently designated as a nonattainment area for ozone, PM_{10} and $PM_{2.5}$, stationary and mobile-source emissions could contribute on a cumulative basis to pollutant concentrations that exceed the ambient air quality standards because of growth in the area. This is considered to be a significant cumulative impact. As noted above, YSAQMD considers emissions of ROG and NO_X (both ozone precursors) and PM_{10} from an individual project that exceed the applicable thresholds to be a substantial contribution to this SVAB-wide (i.e., cumulative) impact (YSAQMD 2007).

Long-term project operation would not result in concentrations of carbon monoxide (CO) as a result of localized vehicle emissions that could exceed ambient air quality standards. The concentrations presented in Section 3.3, "Air Quality," include roadway volumes from existing and projected development in the region, and as such no significant cumulative impact within the cumulative context would occur. However, as noted in Impact 3.3-2, unmitigated long-term, operational emissions would exceed YSAQMD significance thresholds for ROG and NO_X, but would not generate substantial operational emissions of PM_{10} or $PM_{2.5}$. Emissions from major stationary sources, such as the proposed composting facility and wastewater treatment plant expansion, would substantially contribute to the 2018 LRDP's overall emissions. Implementation of Mitigation Measures 3.3-2 and 3.3-3, which include measures to implement Best Available Control Technologies for stationary sources, reduce emissions from vehicle travel, and advocate for the use of low-volatile organic compound (VOC) products, would reduce annual ROG and NO_X emissions to below YSAQMD thresholds. Project-specific mitigation may reduce emissions from the 2018 LRDP, but it is not currently known if emissions would be reduced below YSAQMD thresholds, which were established to reach attainment with air quality standards. The 2018 LRDP's long-term operational emissions would considerably contribute emissions which would exceed applicable air quality standards. No additional mitigation, beyond that suggested in Section 3.3, "Air Quality," is available to reduce the 2018 LRDP's contribution. Therefore, operational emissions generated by the 2018 LRDP would result in a **significant-and-unavoidable** cumulative air quality impact.

TOXIC AIR CONTAMINANT IMPACTS

With respect to toxic air contaminants (TACs), LRDP-related activities, including new construction and operational emissions, as well as the location of new student housing proximate to sources of TACs, could increase exposure to TACs within the cumulative context. Impact 3.3-6 includes a discussion of the cumulative impacts associated with on- and surrounding off-site sources on receptors located within the 2018 LRDP area. Impacts associated with the location of new residential receptors on campus and the resulting exposure to diesel PM and ultrafine particulate matter (UFP) generated by various sources, including vehicles traveling on I-80, is site-specific and not considered cumulatively considerable. As also noted in Impact 3.3-5, emissions from stationary sources for the 2018 LRDP and related projects would be regulated through YSAQMD's permitting process. Further, additional vehicle trips generated by implementation of the 2018 LRDP would not exceed the thresholds related to incremental increases in TAC levels such that it could exacerbate existing environmental conditions

within the cumulative context. Therefore, with respect to Impact 3.3-5, implementation of the 2018 LRDP would not be cumulatively considerable.

Further, due to the localized potential for TAC-related impacts associated with construction equipment as evaluated under Impact 3.3-4, potential impacts related to TACs generated during construction of on-campus development are not considered cumulatively considerable based on the distance between potential construction efforts at UC Davis and the City of Davis, as well as the distance between sources and potential receptors. As a result, construction of projects under the 2018 LRDP could contribute to temporary concentrations of TACs in excess of YSAMQD significance criteria on-campus, but would not be considered cumulatively considerable with other development in the area, as identified in Table 4-2. This impact would be **less than significant.** No additional mitigation, beyond that suggested in Section 3.3, "Air Quality," is necessary to reduce the 2018 LRDP's contribution.

ODORS

Development under the 2018 LRDP would include new on-campus housing, academic/administrative space, and supporting uses (i.e., recreation, utility-related, infrastructure-related, etc.). Odors resulting from the construction of new land uses that would be allowed under the 2018 LRDP are not likely to affect a substantial number of people due to the fact that construction activities are localized and are not expected to emit odors that are considered to be offensive for an extended period of time or that can be perceived from areas other than immediately adjacent to the construction sites. Other odor impacts resulting from development under the 2018 LRDP are also not expected to affect a substantial amount of people outside the UC Davis campus, as planned development under the 2018 LRDP generally does not represent new/unique uses and wastes that could contribute substantial odors. All wastes, similar to existing conditions, would be stored in areas and in containers as required by applicable health regulations. Odor impacts are typically not additive as areas impacted by isolated local odor sources typically do not overlap with other areas affected by other isolated local odor sources. Therefore, the 2018 LRDP is not anticipated to be cumulatively considerable nor would it result in a potentially significant impact in terms of the creation of objectionable odors affecting a substantial number of people. Thus, this is considered to be a **less-than-significant** cumulative impact. No additional mitigation, beyond that suggested in Section 3.3, "Air Quality," is necessary to reduce the 2018 LRDP's contribution.

4.3.4 Archaeological, Historical, and Tribal Cultural Resources

The cumulative context for the cultural resources analysis considers a broad regional system of which the resources are a part. The cumulative context for historical resources is UC Davis, the City of Davis, and the Sacramento Valley where common patterns of historic-era settlement have occurred over roughly the past two centuries. The cumulative context for archaeological resources, human remains, and tribal cultural resources is the former territory of the Southern Wintun, or Patwin. River Patwin occupied the west side of the lower Sacramento River below the mouth of the Feather River and the lower reaches of Cache Creek and Putah Creek in the Sacramento Valley.

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful

approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

Many of the buildings constructed during the early days of development of both the campus and the city of Davis are no longer present, or have been substantially altered for conversion to other uses. Therefore, the cumulative loss of historic resources at UC Davis and the Sacramento Valley is considered significant. Known historic resources on the UC Davis campus include Hart Hall, TB-9, Walker Hall, North Hall, and South Hall. While no modifications to these buildings are proposed under the 2018 LRDP, future development under the plan could result in the loss or modification of buildings or structures that have not yet been evaluated for historical significance.

Proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions and cultures by recording data about sites discovered and preserving artifacts found. Federal, state, and local laws are also in place that protect these resources in most instances. Even so, it is not always feasible to protect these resources, particularly when preservation in place would make projects infeasible, and for this reason the cumulative effects of past and present projects in the Sacramento Valley could result in a potentially significant cumulative impact on cultural resources. Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code (PRC) Section 5097, as well as PRC Section 21080.3.2 and Section 21084.3 (a) and UC Davis's continuing notification of the Yocha Dehe Wintun Nation of all projects, would ensure that treatment and disposition of the cultural and tribal cultural resources, including human remains occurs in a manner consistent with the California Native American Heritage Commission guidance. Thus, the project's contribution to cumulative impacts to human remains would not be cumulatively considerable. With implementation of Mitigation Measures 3.4-1a, 3.4-1b, and 3.4-1c, adverse effects on currently known archeological resources and potentially newly discovered archeological resources would be avoided or mitigated. With implementation of these measures the proposed project would not contribute to a cumulative loss of archaeological resources. In regards to historic resources, implementation of Mitigation Measures 3.4-4 would require a historic structure report and evaluation of resources prior to ground-disturbing activities and would require all report recommendations be implemented to offset the project's contribution. However, it is possible that a historic building would need to be demolished or altered in such a way that it would no longer convey its historic significance. Therefore, the project's contribution to cumulative historic resource impacts would be cumulatively considerable, and impacts would be **significant and unavoidable**. No additional mitigation, beyond that identified in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," is available to reduce the 2018 LRDP's contribution.

4.3.5 Biological Resources

The cumulative context for biological resources impacts for the 2018 LRDP is the area included in the proposed Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) plan area because this area supports all of the special-status species and habitats that could potentially be affected by implementation of the 2018 LRDP, contains known and major populations of many of these species, and contains important occupied and potential habitat for these species. Preparation of the HCP/NCCP is led by the Yolo Habitat Conservancy, a joint powers agency composed of Yolo County, and its four cities (Davis, West Sacramento, Woodland, and Winters). The HCP/NCCP planning area includes the entirety of Yolo County which is approximately 653,500 acres. The plan also includes conservation activities outside of Yolo County within an additional 1,174 acres along Putah Creek in Solano County. The 2018 LRDP plan area is within the plan area of the HCP/NCCP, however UC Davis is not a participant in the plan, but a trustee agency within the Yolo Habitat Conservancy.

Past development in the HCP/NCCP plan area, ranging from conversion of natural land to agricultural production more than a hundred years ago to recent expansion of urban development, has resulted in a substantial loss of native habitat to other uses. This land conversion has benefited a few species, such as those adapted to agricultural uses, but the overall effect on native plants, animals, and habitat has been decidedly negative. Implementation of the 2018 LRDP could result in potentially significant impacts on palmate-bracted bird's beak (discussed under Impact 3.5-1), western pond turtle and giant garter snake (Impact 3.5-2), Chinook salmon (Impact 3.5-3), Swainson's hawk and white-tailed kite (Impact 3.5-4), burrowing owl (Impact 3.5-5), western yellow-billed cuckoo, least bell's vireo, and tricolored blackbird (Impact 3.5-6), valley elderberry longhorn beetle (Impact 3.5-7), and special-status mammal species (Impact 3.5-8). However, these potential impacts would be mitigated to less-than-significant levels with implementation of the mitigation measures described in Section 3.5, "Biological Resources." Therefore, the project's incremental contribution to the cumulative impact on special-status species in the region would not be considerable. Similarly, impacts to sensitive habitats (i.e., jurisdictional wetlands, riparian vegetation, and aquatic habitat) under the LRDP would be reduced through identification, avoidance, and project-specific permitting requirements through appropriate regulatory agencies (e.g., Section 404 permit, Section 401 certification, Fish and Game Code Section 1602 authorization). As a result and through implementation of mitigation identified in Section 3.5, "Biological Resources," the 2018 LRDP, with respect to sensitive habitat, would not be cumulatively considerable.

With respect to conflicts with applicable plans and policies, local jurisdictions are not subject to UC Davis requirements related to heritage/specimen trees, and UC Davis is not subject to local/regional planning requirements. As a result, the significant impact identified for the 2018 LRDP associated with the UC Davis tree preservation standards and habitat conservation planning are not considered cumulatively considerable. Similarly, the 2018 LRDP would not result in adverse impacts to nurseries and wildlife corridors, and as such is not considered cumulatively considerable.

In summary, cumulative development could result in potentially significant biological resource impacts. However, with implementation of the mitigation measures proposed under the 2018 LRDP, the project's contribution to these impacts would be reduced to a less-than-significant level. Therefore, while the overall cumulative condition is adverse, the project's contribution to cumulative biological resource impacts would not be considerable, and the project would have a **less-than-significant** cumulative biological resource impact. No additional mitigation, beyond that suggested in Section 3.5, "Biological Resources," is necessary to reduce the 2018 LRDP's contribution to cumulative impacts to biological resources.

4.3.6 Energy

The geographic area considered for cumulative impacts related to energy use includes the service area for PG&E. As noted in Section 3.6, "Energy," PG&E provides the physical infrastructure in the region that is utilized by Western Area Power Authority for much of UC Davis, although the public-private partnership housing projects within campus and the City of Davis receive service directly from PG&E. PG&E employs various programs and mechanisms to support provision of these services to new development; various utilities charge connection fees and re-coup costs of new infrastructure through standard billings for services. The cumulative context for energy usage is Yolo and Solano Counties. The project, in combination with other development in Yolo and Solano Counties, would contribute to the increased demand of energy. PG&E anticipates having adequate energy capacity through the year 2050.

The 2018 LRDP would reduce its energy demand through exceedance of the California Code of Regulations Title 24 standards for energy efficiency that are in effect at the time of construction. The 2018 LRDP design features would further improve the energy efficiency and reduce non-renewable energy demand of the project through increased use of on-site renewable energy, efficient lighting, energy efficient plumbing fixtures, and/or consideration of zero net energy development (if feasible). The combination of these features would improve the energy efficiency of the project and reduce its contribution to the cumulative demand for energy from buildings. The 2018 LRDP's transportation system design would reduce its contribution to cumulative transportation energy use through the expansion of new on-street and off-street bicycle facilities that would interconnection with bicycle facilities on campus. This would reduce project VMT and associated fuel usage relative to similar land uses. Therefore, the project's contribution to cumulative energy demand impacts would not be cumulatively considerable. Impacts would be **less than significant**. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to cumulative impacts to energy.

4.3.7 Geology, Soils, and Mineral Resources

Geotechnical impacts are site-specific rather than regional in nature and any development occurring within the UC Davis campus would be subject to, at minimum, uniform site development and construction and regulatory standards relative to seismic and other geologic conditions that are prevalent within the region, such as the California Building Code standards. Therefore, cumulative geology and soils impacts would be less than cumulatively considerable and **less than significant**. No additional mitigation, beyond that suggested in Section 3.7, "Geology, Soils, and Seismicity," is necessary to reduce the 2018 LRDP's contribution to cumulative impacts to geologic conditions in the area.

4.3.8 Greenhouse Gas Emissions and Climate Change

The discussions of greenhouse gas (GHG) emissions generated by Plan construction and operation under Impact 3.8-1 in Section 3.8, "Greenhouse Gas Emissions and Climate Change," is inherently a cumulative impact discussion. GHG emissions from one project cannot, on their own, result in changes in climatic conditions; therefore, the emissions from one project must be considered in the context of their contribution to cumulative global emissions, which is a significant cumulative impact. However, projected GHG emissions associated with the 2018 LRDP are consistent with UC and State targets for GHG emissions reduction and applicable plans for the reduction of GHG emissions. Therefore, the 2018 LRDP would not result in a considerable contribution to a significant cumulative GHG impact. Impacts would be **less than significant**. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to cumulative impacts to greenhouse gas emissions and climate change.

4.3.9 Hazards and Hazardous Materials

Although some hazardous materials releases can cover a large area and interact with other releases (e.g., atmospheric contamination, contamination of groundwater aquifers), incidents of hazardous materials contamination are more typically isolated to a small area, such as leaking underground storage tank sites or release at individual businesses. These relatively isolated areas of contamination typically do not interact in a cumulative manner with other sites of hazardous materials contamination. However, if construction would create a new site of contamination, or

contribute substantially to a hazardous condition in the general project area, it could be considered to contribute to a cumulative impact. Safety issues related to airports can be cumulatively considerable if incompatible land uses are created that could interfere with airplane flight paths. Impacts related to emergency vehicle access and response are considered site specific and not cumulatively considerable.

There are two contamination sites documented within the plan area. In addition, there are sites known to contain hazardous materials within 1 mile of the plan area (see Table 3.9-1). Activities involving the assessment, cleanup, and monitoring of these sites would continue regardless of approval of the 2018 LRDP. Due to the proximity of documented contamination sites, historical land use, and proximity to a major roadway there is potential for contamination to be encountered during construction. With implementation of Mitigation Measures 3.9-2a, soil conditions on-site would be confirmed before development and any identified contamination would be appropriately remediated. Mitigation Measure 3.9-2b would establish a contingency plan that would describe the necessary actions that would be taken if evidence of contaminated soil or groundwater is encountered during construction, including cessation of work until the potential contamination is characterized and properly contained or remediated. Mitigation Measure 3.9-2c would minimize the potential for release of potentially hazardous construction materials during demolition by requiring that asbestos-containing building materials, lead-based paint, and other hazardous substances in building components are identified, removed, packaged, and disposed of in accordance with applicable state laws and regulations.

Given the limited potential for hazardous materials contamination to occur as a result of the construction, the legal requirements to clean up any releases, and the limited potential for any project generated contamination to interact on a cumulative basis with other incidents of contamination, the 2018 LRDP (with implementation of Mitigation Measures 3.9-2a through 3.9-2c) would not make a cumulatively considerable contribution to a significant cumulative impact related to hazardous materials. Therefore, this would be a **less-than-significant** cumulative impact. No additional mitigation, beyond that suggested in Section 3.9, "Hazards and Hazardous Materials," is necessary to reduce the 2018 LRDP's contribution to cumulative impacts.

4.3.10 Hydrology and Water Quality

WATER QUALITY AND STORMWATER DRAINAGE

Overall water quality in the region has degraded over time as natural habitat has been converted to urban uses, and these uses have resulted in runoff of various pollutants into local and regional waterways. A variety of programs have been implemented with the goal of halting degradation of water quality and reversing this trend. Several state and federal agencies are involved in these programs, many of which are required by or originate in the federal Clean Water Act. Nonetheless, a cumulative adverse water quality condition exists.

Construction activities associated with implementation of the UC Davis 2018 LRDP would expose bare soil to rainfall and stormwater runoff, which could accelerate erosion and result in sedimentation of stormwater and, eventually, waterbodies. The 2018 LRDP would be required to comply with the campus construction stormwater protection program, which, as implemented by the UC Davis Department of Environmental Health and Safety (EHS), includes a review of all development for compliance with General Construction Permit and Phase II Small MS4 Permit requirements and their attendant stormwater protections. This program exists to ensure compliance with applicable laws and implementation of BMPs on the ground during construction.

Expansion of the campus population and campus facilities under the 2018 LRDP would result in an increase in the amount of wastewater generated. It is expected that the types of chemical constituents in wastewater would remain approximately the same with implementation of the 2018 LRDP. By continuing to adhere to the provisions of NPDES permit CA0077895, it is expected that the WWTP would continue to comply with waste discharge requirements.

New impervious surfaces from development of the 2018 LRDP would result in new sources of stormwater runoff and contamination, as well as an increased risk of erosion and sedimentation. However, the campus is covered under the Phase II Small MS4 Permit, which requires management of long-term stormwater discharges and implementation of pollution protection measures. These management practices are enforced under the campus stormwater management program and ensure long-term protection related to stormwater pollution.

New development on campus would result in an overall increase in impervious surfaces and produce changes to site-specific stormwater infrastructure. Development could involve changes to stormwater infrastructure. The pattern of drainage, infrastructure connectivity, and the locations of specific features could change. Stormwater infrastructure that is not replaced or redesigned could contribute to problems associated with drainage and flooding. Implementation of Mitigation Measure 3.10-6 would require drainage studies of projects proposed under the 2018 LRDP and would ensure that necessary stormwater systems and/or on-site detention facilities would be engineered and constructed with appropriate sizing for anticipated storm events. This mitigation would reduce potential impacts associated with localized flooding to less-than-significant levels.

Water quality regulations require implementation of construction and post-construction site specific BMPs and water quality protection measures. Therefore, implementation of the 2018 LRDP and the construction and operation of related projects would reduce site-specific water quality impacts such that cumulatively adverse hydrology and water quality impacts would not occur. The 2018 LRDP would not have a considerable contribution such that a new significant cumulative impact would occur. No additional mitigation, beyond that suggested in Section 3.10, “Hydrology and Water Quality,” is necessary to reduce the 2018 LRDP’s contribution to cumulative water quality and stormwater drainage impacts. The cumulative impact would be **less than significant**.

GROUNDWATER SUPPLY AND RECHARGE

While implementation of the 2018 LRDP is not expected to increase groundwater withdrawals from the shallow/intermediate aquifer, recharge infiltration patterns could be affected by the increase in development. However, new impervious surfaces from the conversion of open space to other uses represent a small fraction of total campus lands, and lands within the Putah Creek watershed, which feeds the underlying aquifer through recharge.

As noted in Sections 3.10, “Hydrology and Water Quality’ and 3.17, “Utilities and Service Systems,” UC Davis will continue to draw domestic water from the six campus wells in the deep aquifer. Although much of the potable water demand associated with the 2018 LRDP would likely be fulfilled by surface water supplies, UC Davis would continue to complement surface water supplies with groundwater, including during Term 91 conditions and other times when water may not be available from the Davis Woodland Water Supply Project (DWWSP). However, based on observed groundwater levels in the area, the reduction in demand for groundwater supplies by local jurisdictions (e.g., City of Davis), and available information from the California Department of Water Resources, campus and nearby demands for groundwater supplies with implementation of the 2018 LRDP are not anticipated to result in substantial decline of the deep aquifer. As a result, the 2018 LRDP impacts to groundwater supply and recharge would not be considered cumulatively considerable, and

impacts would be **less than significant**. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to cumulative impacts to groundwater.

FLOODPLAIN

Portions of the plan area are located within a floodplain, however, no new student, or faculty and staff housing is proposed within the 100-year floodplain. The 2018 LRDP may involve the construction of additional academic and administrative facilities within the far western portion of west campus. Should that occur and in the event of a 100-year flood, there would be increased exposure to the risk of loss and flood damage. Mitigation Measure 3.10-7 would ensure that buildings are elevated appropriately or are floodproofed to withstand a 100-year flood event. Implementation of Mitigation Measure 3.10-7 would ensure that the impacts from risks associated with a 100-year flood event are less than significant. In addition, these impacts are site-specific rather than regional in nature; therefore, cumulative impacts related to flooding, including flooding related to dam failure, would be **less than significant**. No additional mitigation, beyond that suggested in Section 3.10, "Hydrology and Water Quality," is necessary to reduce the 2018 LRDP's contribution to cumulative impacts related to flooding.

4.3.11 Land Use and Planning

The cumulative context for land use impacts for the 2018 LRDP include the existing and planned land uses surrounding the campus. As previously discussed above, UC Davis is the only agency with land use jurisdiction over campus projects, therefore, campus development occurring consistent with the proposed 2018 LRDP would have no land use impacts within the campus.

Table 4-2, Cumulative Projects List, describes planned or approved projects anticipated for both the City of Davis and UC Davis. Generally, the types of uses identified in Table 4-2 represent a continuation of existing land use types and/or redevelopment of similar land use types. With respect to the 2018 LRDP, the types of land use changes (primarily to student housing and academic/administrative space with some athletic fields and open space) that could occur within UC Davis would remain consistent with the current types of campus land uses, especially with respect to the interfaces between campus and local jurisdictions. As a result, no existing or reasonably foreseeable land use impacts were identified as a result of implementation of the 2018 LRDP, and implementation of the 2018 LRDP would not be cumulative considerable. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to potential cumulative land use and planning impacts. Impacts would be **less than significant**.

4.3.12 Noise and Vibration

Noise is typically considered a local impact because noise levels dissipate rapidly with increased distance from the source. When discussing increases in noise levels, a doubling of a noise source results in a 3-dB increase. Thus, for noise impacts to occur under a cumulative condition, noise sources must combine to result in increases in noise at the same receptor, that otherwise would not experience the increase attributed to the combined (or cumulative) condition.

CONSTRUCTION-GENERATED NOISE AND VIBRATION

Noise and vibration levels associated with construction of new building and university facilities would be intermittent, temporary, and would fluctuate over the years as new buildings are constructed and existing buildings are maintained or repairs. Construction-related noise and vibration is typically considered a localized affect, affecting the land uses closest to construction activities. In addition, mitigation measures are in place that would generally limit construction noise to the less-sensitive times of the day, and construction activities would implement construction noise-reducing measures that would minimize construction noise, further reducing the chances for disturbing people. Given that construction activities associated with 2018 LRDP implementation dispersed throughout a large area (i.e., entire campus), noise and vibration would be localized, and would generally occur during the less-sensitive times of the day, construction activities would not be expected to combine with construction noise and vibration from other construction activities in the area to result in a substantial increase in cumulative noise and vibration levels. As such, construction noise and vibration would not be considered cumulatively considerable and impacts would be **less than significant**. No additional mitigation, beyond that suggested in Section 3.12, "Noise," is necessary to reduce the 2018 LRDP's contribution to cumulative impacts related to construction noise.

OPERATIONAL NOISE AND VIBRATION

New development associated with the 2018 LRDP would include stationary equipment associated with new residential, educational, and administrative buildings. However, noise from these sources would be localized and would not combine with noise sources from other land uses adjacent to or in the project area. Further, mitigation is included as part of the 2018 LRDP that would ensure all new stationary equipment is designed and located in such a way that noise is minimized at the nearest receptors. Increases in operational stationary noise sources would not combine with other area sources to result in a substantial increase in cumulative noise. this impact would not be cumulatively considerable. With respect to the siting of new sensitive receptors near existing noise sources, impacts associated with the location of new receptors on campus and the resulting exposure to rail and air traffic in the area, as well as sporting events on campus, is site-specific and not cumulatively considerable. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to potential cumulative impacts related to operational noise and vibration. The impact would be **less than significant**.

LONG-TERM TRAFFIC NOISE

As noted in Section 3.12, "Noise," project-related traffic increases would not result in substantial noise increase on affected roadways under future conditions. Therefore, even though traffic in the project vicinity is expected to increase under cumulative conditions, the project's contribution would not be considered cumulatively considerable and impacts would be less than significant. Refer to Table 3.12-15 for further clarification.

Therefore, the 2018 LRDP would not result in a considerable contribution such that a new significant cumulative noise impact would occur, and cumulative noise impacts would be **less than significant**. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to potential cumulative impacts related to traffic noise.

4.3.13 Population and Housing

As described in Section 3.13, "Population and Housing," implementation of the 2018 LRDP would allow a substantial increase in student and faculty growth but would also accommodate a commensurate increase in campus housing. Under the 2018 LRDP, student enrollment is projected to increase by 5,175, while on-campus student housing is projected to increase by 9,050. Thus, UC Davis would provide more student housing on-campus with implementation of the 2018 LRDP than the anticipated growth in the student enrollment. While providing additional capacity could be considered growth inducing, the provision of additional housing is anticipated to allow for more of the existing student body (3,875 existing students) to live on-campus and reduce off-campus housing demand.

With respect to employees, UC Davis faculty/staff could increase by 2,135 employees with implementation of the 2018 LRDP, as shown in Table 3.13-10. Of the 2,135 increase in employees, 485 faculty/staff could be accommodated on-campus, while the remaining increase (1,655 employees) would be anticipated to seek housing in the region. Ample housing exists throughout the region (see Table 3.13-4), and as shown in Table 4-2 above, several of the cumulative projects would result in construction of new residential units. In addition, as noted in Section 3.13, "Population and Housing," there are several additional planned residential developments in communities within a reasonable commute distance, including approximately 7,200 planned residential units in the City of West Sacramento, that could accommodate anticipated population growth.

However, as noted in Section 3.13, "Population and Housing," the 2018 LRDP, in and of itself, induces substantial population growth, the effects of which are evaluated throughout this EIR. Although impacts are mitigated where feasible, implementation of the 2018 LRDP, which would increase campus population over several years, would result in certain significant and unavoidable impacts. For these reasons, the population and housing impacts related to implementation of the 2018 LRDP would result in a considerable contribution to cumulative population and housing impacts pursuant to CEQA. While the 2018 LRDP would result in population growth that would be consistent with growth projections for the region, this would be a **significant** cumulative impact. No feasible mitigation measures are available to reduce the 2018 LRDP's contribution to cumulative population and housing impacts.

4.3.14 Public Services

Under existing conditions, public services are provided in the plan area and surrounding area by multiple agencies, including the UC Davis Fire Department and Police Department, City of Davis Fire Department and Police Department, and police and fire departments in the adjacent cities through automatic aid agreements. School services are primarily provided by Davis Joint Unified School District (DJUSD). Cumulative development in the region continues to increase the concentration of persons and structures within these local public service jurisdictions and could increase demands for such services.

The increase in population under the 2018 LRDP could continue the trend of increasing the demand for public services and could combine with other proposed development projects within the city to result in a cumulative increase in demand for public services. Other development projects in the region would be required to pay impact fees consistent with local jurisdiction requirements, including the City of Davis and DJUSD, to ensure the adequate provision of public services, including schools, in the future, thereby offsetting the contribution of each cumulative project. As noted in Section 3.14,

"Public Services," it is not anticipated that new public facilities would be required under the 2018 LRDP. Therefore, the project would not result in a cumulatively considerable contribution such that a significant cumulative public services impact would occur. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to potential cumulative impacts related to public services. Therefore, cumulative impacts to public services would be **less than significant**.

4.3.15 Recreation

The cumulative context for recreation facilities includes the City and UC Davis campus. Past and present development has resulted in an increase in demand for recreation resources and a subsequent dedication of parklands and open space consistent with state and local plans and policies. This has increased the number of developed parklands, trails, and recreational facilities, and the amount of preserved open space within the City and UC Davis campus.

The increase in population under the 2018 LRDP would continue the trend of increasing the demand for recreational resources and could combine with other proposed development projects within the city to result in a cumulative increase in demand for recreational resources. Consistent with the City of Davis General Plan, further development of parklands and trails and preservation of open space would occur as planned development proceeds. Therefore, the amount of parkland is expected to increase within the City over time consistent with the City's park dedication standard of 5 acres of parkland per 1,000 residents. The increase in park acreage required for the 2018 LRDP to meet this standard would be would be 47.5 acres of new parkland, and the plan proposes 49 acres of park/recreation area. Thus, although UC Davis is not subject to the standards of the City of Davis, the increase in recreational facilities/areas under the 2018 LRDP would be consistent with the City's standard and would off-set the incremental increase in recreational facility demand associated with implementation of the 2018 LRDP. In addition, other new developments within the city are required to pay fees to mitigate for increased park demands in accordance with the Quimby Act (California Government Code Section 66477), to off-set maintenance and construction of recreation facilities in response to increases in population.

Therefore, the 2018 LRDP would not result in a cumulatively considerable contribution such that a significant cumulative recreation impact would occur. As a result, no mitigation measures are necessary to reduce the 2018 LRDP's contribution to potential cumulative impacts related to operational noise and vibration. Cumulative impacts to recreation would be **less than significant**.

4.3.16 Transportation, Circulation, and Parking

Cumulative traffic impacts are evaluated and presented in Section 3.16, "Transportation, Circulation, and Parking," in Chapter 3 of this volume.

4.3.17 Utilities and Service Systems

The cumulative context for water treatment/distribution, wastewater collection/treatment, and chilled water and steam infrastructure impacts is the UC Davis campus. The cumulative context for water supply is the Yolo Subbasin for groundwater and the Solano Project and Davis Woodland Water Supply Project service area for surface water. The cumulative context for solid waste is Yolo County, and the cumulative context for electricity and natural gas facilities is the service area for each utility.

WATER SUPPLY AND INFRASTRUCTURE

As discussed in Section 3.17, "Utilities and Service Systems," water would be supplied to UC Davis from WDCWA, Solano County Water Agency, groundwater sources, and (for reuse) from treated wastewater supplies (see Table 3.17-6). As noted in Impact 3.17-1, water supplies would be sufficient to meet future projected demand through the provision of surface water supplies from the DWWSP and groundwater supplies that have demonstrated capacity to accommodate higher demands historically than are anticipated under the 2018 LRDP. Total demand (potable and irrigation) for the 2018 LRDP is estimated to be 7,215 acre-feet per year (afy). As noted in Section 3.17, "Utilities and Service Systems," total available supplies are *at least* 11,367 afy. (The term "at least" is used because the deep water aquifer has demonstrated its ability to meet current demand without drawdown, and may be able to accommodate a higher level of extraction.) Total potable demand is projected to be 2,970 afy under the 2018 LRDP, and total available supplies are at least 5,016 afy. Therefore, there is ample available supply in excess of demand.

Of its available supplies, 6,016 afy is provided via water rights with the WDCWA (2,016 afy) and the SCWA (4,000 afy). These water rights are available to UC Davis regardless of cumulative demand; because they are water rights, cumulative development beyond the limits of UC Davis campus has no entitlement to this water. The remaining water is provided via groundwater which, as described under Impact 3.17-1, is available without affecting other groundwater resources.

The other major water users in the region that utilize the same surface water and groundwater supplies are the City of Woodland and City of Davis. The Urban Water Management Plan (UWMP) for Woodland shows that the City would have 25,450 afy of available water supply in 2035, with a cumulative 2035 demand of 19,491 afy (City of Woodland 2016). The City of Davis UWMP projects a 2035 supply of 26,080 afy and cumulative demand of 15,680 afy (City of Davis 2016).

Given the overall supply of water to UC Davis and the cities of Woodland and Davis relative to demand during cumulative conditions, it is clear that UC Davis would be able to continue to meet water demands within their service area, and this would be a less-than-significant cumulative impact.

In addition, the 2018 LRDP includes domestic and utility water system infrastructure projects, which are included in the Capital Improvement Plan. Cumulative impacts related to construction and operation of these projects are evaluated in the relevant resource sections of this EIR. The 2018 LRDP would not use municipal systems outside of the UC Davis campus and therefore would not contribute to any impact, including cumulative impacts, on these outside systems. No mitigation measures are necessary to reduce the 2018 LRDP's contribution to potential cumulative impacts. Thus, cumulative impacts related to water supply and infrastructure would be **less than significant**.

WASTEWATER TREATMENT

Under the 2018 LRDP, population increases would result in greater levels of wastewater flows. As shown in Table 3.17-8, the wastewater treatment plant can accommodate up to 3.6 million gallons per day, which is substantially less than projected flows. Therefore, the campus wastewater treatment plant has capacity to both serve the flows in 2030–2031 under the 2018 LRDP. In addition, implementation of the 2018 LRDP includes implementation of wastewater infrastructure projects, as identified in the Capital Improvement Plan, which take into consideration future on-campus infrastructure needs. Further, UC Davis operates on a closed system and does not connect to the City of Davis or other nearby jurisdictions. Thus, the impacts of the 2018 LRDP with respect to wastewater are not cumulatively considerable with projects located outside of UC Davis. No mitigation measures are necessary to reduce the 2018 LRDP's contribution. As a result, impacts would be **less than significant**.

ELECTRICITY, NATURAL GAS, CHILLED WATER, AND STEAM FACILITIES

Overall campus demand for energy, including natural gas, has declined regardless of square footage and population growth as energy conservation and efficiency projects are implemented. This trend is anticipated to accelerate as the campus moves to further decrease energy use. However, maintenance and upgrades to electricity, natural gas, chilled water, and steam facilities, including the options for converting steam heating to hot water heating identified in Section 3.17, "Utilities and Service Systems," would be necessary to ensure health and safety and other campus needs. Cumulative impacts related to construction of these projects are evaluated in the relevant resources section (e.g., biological resources, cultural resources, hydrology and water quality) of this EIR. With inclusion of relevant mitigation measures, project-specific impacts would be reduced and incremental contributions of construction-related effects from infrastructure improvements would be less than cumulatively considerable. Thus, cumulative impacts would be **less than significant**, and no mitigation measures are necessary to reduce the 2018 LRDP's contribution.

SOLID WASTE

As discussed under Impact 3.17-4 in Section 3.17, "Utilities and Service Systems," the quantity of municipal solid waste generated at UC Davis would be expected to increase through 2030–2031. However, the amount of municipal solid waste disposed of at the Yolo County Central Landfill would decrease because the 2018 LRDP includes new material recycling and composting efforts/projects. These efforts/projects would result in increased diversion of solid waste away from the landfill than would occur under existing conditions (refer to Section 3.17, "Utilities and Service Systems," for further clarification). Regardless of this decrease in materials landfilled by the UC Davis campus, there may be an increase in demands for solid waste disposal capacity within the cumulative context due to potential increases in municipal solid waste associated with development projects identified in Table 4-2. However, as noted in Section 3.17, "Utilities and Service Systems," the average daily throughput at the Yolo County Central Landfill is approximately one third of its permitted daily capacity, and the landfill's capacity for daily disposal (based on the permitted daily capacity) is anticipated to last until 2081, thereby indicating substantial capacity to meet existing and projected demands. Therefore, cumulative solid waste impacts would be less than significant. The 2018 LRDP would not be cumulatively considerable; and no mitigation measures are necessary to ensure that this cumulative impact would be **less than significant**.

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