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Opportunities for Agriculture and Solar in the Urban Fringe: the Antelope Valley as a Case Study

A comprehensive project submitted in partial satisfaction of the requirements for the degree Master of Urban and Regional Planning.

University of California, Los Angeles

Author: Irene Takako Farr, MURP 2021

Client: Los Angeles County Department of Regional Planning

Faculty Chair of Committee: Dr. Kian Goh

Disclaimer: This report was prepared in partial fulfillment of the requirements for the Master in Urban and Regional Planning degree in the Department of Urban Planning at the University of California, Los Angeles. It was prepared at the direction of the Department and of the Los Angeles County Department of Regional Planning as a planning client. The views expressed herein are those of the authors and not necessarily those of the Department, the UCLA Luskin School of Public Affairs, UCLA as a whole, or the client.

Acknowledgements

I express my sincere gratitude and appreciation to Alejandrina Baldwin, Thuy Hua, and Iris Chi of the Los Angeles County Department of Regional Planning for all the fundamental support and thoughtful guidance they provided to me over the course of my graduate career. I further express my gratitude to Dr. Kian Goh for the kind patience and direction she provided to me at UCLA Luskin. I feel very fortunate to have had the opportunity to work with so many inspiring women. Thank you all for your time and energy.

This report was completed in the ancestral and unceded homeland of the people of the Tongva tribe, and the area researched in this report is the traditional, unceded land of the Serrano people. The history of Los Angeles's land use practices and the disenfranchisement of Indigenous voices are critical to the understanding of the area we are planning for and the role we play in that legacy.

This work was supported with funding from the UCLA Lewis Center for Regional Policy Studies. As a land grant institution, the Lewis Center for Regional Policy Studies at UCLA acknowledges the Gabrielino/Tongva peoples as the traditional land caretakers of Tovaangar (Los Angeles basin, So. Channel Islands).

Executive Summary

Project Background and Motivation

In August 2019, the Los Angeles County Board of Supervisors adopted OurCounty, an extensive and thorough regional sustainability plan for Los Angeles. Widely heralded for its comprehensive and inclusive approach, OurCounty outlines twelve goals, 37 strategies, and 159 actions that come together to produce a policy mechanism through which healthy, sustainable and resilient communities can be developed. Within Strategy 3A, which calls on the County to increase housing density and limit urban sprawl, is Action 47, which institutionalizes a County effort to "Support the preservation of agricultural and working lands, including rangelands, by limiting the conversion of these lands to residential or other uses through tools such as the creation of agricultural easements, particularly within high climate-hazard areas and [Significant Ecological Areas]." The Los Angeles County Department of Regional Planning (LACDRP) has been tasked by the Los Angeles County Chief Sustainability Office to identify methods that promote "equitable and sustainable land use and development without displacement."

The report importantly provides a critical lens through which the importance of policy and land use analysis is justified as a response to conflicting community feedback about the agriculture-solar shift. The findings of this report are particularly relevant for the LACDRP, the client, as the agency has been tasked with identifying opportunities to preserve agriculture across the County and supporting local renewable energy resources. The agency will use the findings of this report to guide updates to the Los Angeles County General Plan and the Los Angeles County Climate Action Plan.

The report also contributes to the largely undeveloped, yet expanding, landscape of agricultural and solar planning in academic research today. Though substantial academic research on the benefits and impacts of agriculture and solar as individual land uses exists already, the two are often treated as siloed subjects and are rarely compared or discussed in relation to one another. The growing phenomenon of solar encroachment on agricultural lands, particularly in peri-urban fringes across California, and the resulting impacts on rural communities warrants an expansion of academic research that considers the broad significance of this economic, environmental, and social shift.

Research Questions and Methods

The purpose of this paper is to frame the Antelope Valley as an important case study that (1) highlights the current state of California's desert farmlands and (2) the impact solar might have on these rural places. Specifically, this project will determine the patterns associated with these lands by farmland quality, physical land uses, and zoning, and assess the matter by which these characteristics might influence or be influenced by the relationship the land has with solar energy development. The project then seeks to identify policy mechanisms that the LACDRP can implement to better plan for both agriculture and solar. As such, the primary research questions of this endeavor are as follows:

1. What is the status of agricultural land in the Antelope Valley, and what is its relationship to solar?
2. How do present-day land use conflicts for agriculture and solar impact the future of the Antelope Valley?
3. How can the County plan for both the preservation of agriculture and the development of renewable energy in the Antelope Valley?

The first two questions were addressed using secondary, spatial data sources made available to the LACDRP. Zoning, parcel use, and farmland quality datasets were merged to identify interesting overlaps and patterns. Satellite imagery was also used to identify the historical physical land uses of approved utility-scale projects or those currently in review. Then, a set of new spatial datasets were produced to identify areas in which the development of agricultural and solar land uses might be feasible, and to determine how the physical land use realities of these sites might infer conclusions on how to preserve agriculture and promote solar in the Antelope Valley. The final question was addressed by interviews with planners from different jurisdictions. The literature review outlined in this report resulted in the development of a semi-structured interview guide that was used to facilitate these discussions.

Findings

Lands zoned for agriculture are overwhelmingly used for residential land uses, as opposed to agriculture. These areas are predominantly dominated by single family dwellings and mobile homes; in fact, farming activities make up just 1.37% of the Light Agriculture zone,

Zone A-1, and just 5.72% of the Heavy Agriculture zone, Zone A-2. Notably, nearly all of the farm-related physical land use categories described in this report are sited in Zone A-2. While the highest value categories of farmland have declined in the past several decades, the lowest value categories of farmland have expanded in size. Agricultural zoning appears to be correlated with the preservation of high value agricultural lands, with highest quality farmland most commonly found in Zone A-2.

Importantly, nearly all utility-scale solar projects in the Antelope Valley have been sited on undeveloped, vacant land located in Zone A-2 and not on land that is historically, physically agricultural. This research finds that housing presents a greater land use conflict to agriculture than does solar, and that housing simultaneously presents some conflict to solar development. Therefore, as the LACDRP establishes strategies to improve the environmental impacts of existing land use practices, it will be critical to preserve agriculture and promote solar by planning housing sustainably.

Though housing land uses may present greater land use conflict to agriculture in the Antelope Valley than solar, it is still important to plan the development of the expanding industry safely.
Meetings with planners from local jurisdictions highlighted the ways in which physical and jurisdictional limitations altered the development of utility-scale solar in their regions, and identified strategies that might improve outcomes in the Antelope Valley. These jurisdictions identified nine approaches that allow them to develop solar while meeting political pressures related to public health, environmental conservation, and other community concerns.

Additional findings that were considered but do not meet the scope of this report are also provided. Preliminary research conveys a correlation between solar development and regional cases of Valley Fever. While this point warrants a research project of its own, the finding helps describe the complexities of the agriculture-solar conflict in the Antelope Valley.

Conclusion and Recommendations

The following policy recommendations were drafted as a result of the findings provided by this research project:

Related to the Preservation of Agriculture

1. The County should prioritize the preservation of agricultural activities in areas where residential uses are allowed to be developed, as housing is more readily developed than utility-scale solar, and appears to be imposing the greatest shift of land use from agriculture.
2. The County should also consider upzoning closer to town cores and limiting built expansion in agricultural zones. The County should emphasize this effort on Zone A-2, in particular, as the category was found to have more agricultural physical land uses and higher quality farmland than Zone A-1.
3. Relatedly, the County should promote the development of residential uses in urban, as opposed to rural, places. This will discourage the conversion of agriculturally zoned lands into residential uses.
4. The County should focus future rezoning efforts on environmental qualities such as soil type and water access, to establish land use ordinances that address physical and environmental limitations of the land.
5. Though outside of the scope of this project, the County should consider pursuing recent land use innovations like agrovoltaic development.

Related to the Development of Solar

1. The County should encourage the development of utility-scale solar on degraded land, even if that land is agricultural (so as to allow farmers a meaningful exchange of their livelihood for profit off the land).
2. The County should discuss design and development strategies that mitigate local impacts of Valley Fever. The City of Lancaster's approach of prohibiting grading seems to be a design intervention worth additional analysis, as this is an approach that has been adopted locally, successfully.
3. The County should also consider how efforts to decarbonize the local grid may be better supported through rooftop solar or community grids, as these strategies mitigate concerns vocalized by opponents of utility-scale development.

Related to County Processes and Data Collection Methods

1. The County should implement spatial land use analysis for future conservation and/or preservation efforts. Specifically, the County should implement a land use analysis strategy to minimize encroachment on culturally or ecologically significant lands.
2. The County should implement technical methods for categorizing physical land uses to better support future research.

Future Areas of Research

The following points summarize research opportunities the LACDRP should pursue to produce a more socially and environmentally just analysis of current and future land use outcomes in the Antelope Valley:

1. Opportunities to support indigenous land practices in the Antelope Valley. Industries that extract from the land should be guided by the input and leadership of the People to which the land belongs.
2. The socioeconomic and racial implications of sprawling urban development and utility expansion in rural, agricultural places. Planning should be used as a tool to create healthy communities and supportive livelihoods, not as a tool to disinvest or further extract from specific populations.
3. A cost and benefit analysis of utility scale development versus rooftop or community solar for Los Angeles County. Potential costs to consider include: greenhouse gas emissions, utility fees, and utility reliance.

Contents

I. Introduction

Research Context

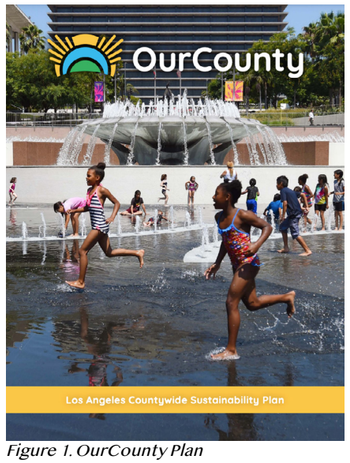


Figure 1. OurCounty Plan

In August 2019, the Los Angeles County Board of Supervisors adopted OurCounty, an extensive and thorough regional sustainability plan for Los Angeles. Widely heralded for its comprehensive and inclusive approach, OurCounty outlines twelve goals, 37 strategies, and 159 actions that come together to produce a policy mechanism through which healthy, sustainable and resilient communities can be developed. Within Strategy 3A, which calls on the County to increase housing density and limit urban sprawl, is Action 47, which institutionalizes a County effort to "Support the preservation of agricultural and working lands, including rangelands, by limiting the conversion of these lands to residential or other uses through tools such as the creation of agricultural easements, particularly within high climate-hazard areas and [Significant Ecological Areas]." The LACDRP has been tasked by the Los Angeles County Chief Sustainability Office to identify methods that promote "equitable and sustainable land use and development without displacement."[1] The purpose of this project, therefore, is to examine the forces that impact agriculture as both a physical and legislative land use category, and to devise policy recommendations that support the LACDRP in its efforts to develop ordinances that respond to the objectives of OurCounty.

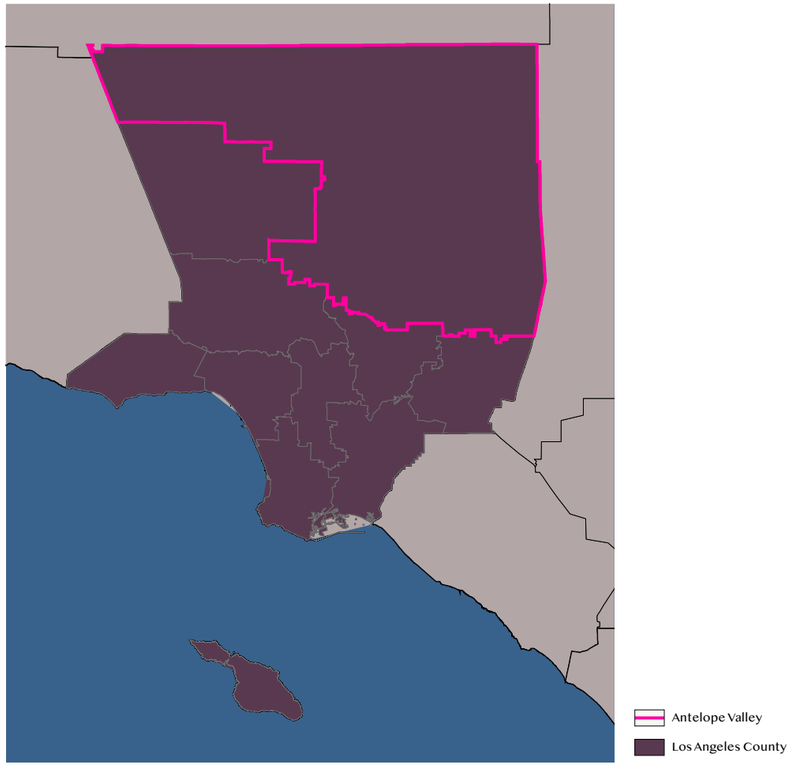
Though Los Angeles County was once the most productive agricultural county in the United States, starting from the 1940s, urbanization steadily expanded across the region's open lands; much of what used to be agricultural lots have been subdivided for urban development like housing.[2] Today, the only historically agricultural region within the county that still remains so is the Antelope Valley, a desert land that sits north of the Sierra Pelona and San Gabriel Mountains and lies at the fringes of the county's most urban spaces. In recent years, the County has instituted specific spatial policies in the Antelope Valley that maintain low impact development, to encourage the preservation of its rural

1 Los Angeles County. 2019. Our County: Los Angeles Countywide Sustainability Plan. Retrieved from https://ourcountyla.lacounty.gov/

2 Chandler, John. 1990. Farmland Fading From Scene in Antelope Valley. Los Angeles Times. Retrieved from https://www.latimes.com/archives/la-xpm-1990-07-06-me-278-story.html

and agricultural qualities.[3] However, to respond to the compounding climate crisis, the State of California has simultaneously enacted expansive decarbonization targets that encourage the development of these lands by way of utility-scale renewable energy infrastructure. These policies have been cited as cause for local concern - the climate and environment of the Antelope Valley region, while suitable for farming, are ideal for utility-scale solar. Subsequently, solar fields have expanded across the Antelope Valley landscape over the past decade, causing a rapid and prolific transformation of the very agricultural qualities the County hopes to preserve.[4]

Map 1. Los Angeles County Service Planning Areas



3 Los Angeles County Department of Regional Planning. 2020. Approved Ordinances. Retrieved from https://planning.lacounty.gov/ord/adopted

4 Stringfellow, Kim. 2017. The Shifting Demographics of Antelope Valley — And Development's Consequences. KCET. Retrieved from https://www.kcet.org/shows/artbound/the-shifting-demographics-of-antelope-valley-and-developments-consequences

Thus lies the complexity of utility-scale solar in the California desert. As groundwater limits have been restricted and then constrained further due to long-standing climate woes, farmers have begun to reckon with the reality that the resulting increases in water costs might make their livelihoods unsustainable. Many have sold or started to lease their lands to solar developers, who, padded with federal and state subsidies in their pockets, are eager to replace food harvest with solar yields.[5] This approach is frequently debated, as some environmental advocates cite concerns about the impact utility-scale development might have on habitat conservation and connection, and several local groups contend that this kind of development impairs recent efforts to preserve the rural landscape.[6 7] Meanwhile, other environmental advocates consider utility-scale solar development on agricultural lots to be a productive use of degraded land, and regional economists suggest that solar energy development can replace the jobs and tax revenues lost as limited water supplies force the agriculture industry to scale down.[8] The role of the LACDRP is to identify solutions that produce the most sustainable and equitable outcomes for both locals and the County as a whole, while meeting the requirements established by Federal, State and local law. Despite the contention that shrouds recent transitions to solar, the LACDRP's approach coalesces with many of the regional planning strategies adopted across the state. According to the 2017 Census of Agriculture, California is at the nation's forefront for on-farm renewable energy systems.[9]

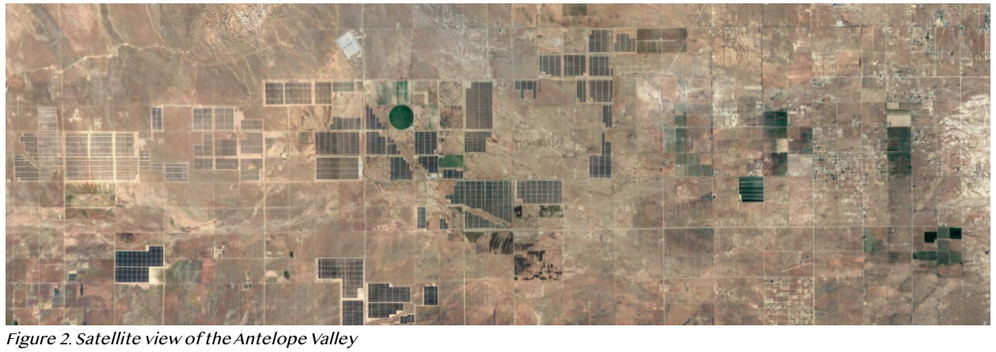


Figure 2. Satellite view of the Antelope Valley

5 Roth, Sammy. 2019. California farmers are planting solar panels as water supplies dry up. Los Angeles Times. Retrieved from https://www.latimes.com/business/la-fi-agriculture-farmlands-solar-power-20190703-story.html

6 Stringfellow, Kim. 2017. The Shifting Demographics of Antelope Valley — And Development's Consequences. KCET. Retrieved from https://www.kcet.org/shows/artbound/the-shifting-demographics-of-antelope-valley-and-developments-consequences

7 Drake, Julie. 2019. Solar firm gets approval for new plant. Antelope Valley Press. Retrieved from https://www.avpress.com/news/solar-firm-gets-approval-for-new-plant/article_ac0d9364-d51f-11e9-b5ac-af7f0a0eded3.html

8 Roth, Sammy. 2019. California farmers are planting solar panels as water supplies dry up. Los Angeles Times. Retrieved from https://www.latimes.com/business/la-fi-agriculture-farmlands-solar-power-20190703-story.html

9 United States Department of Agriculture. 2019. 2017 Census of Agriculture. Retrieved from https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf

Research Questions

An interpretation of current agricultural land use in the Antelope Valley region of unincorporated Los Angeles County, this Applied Planning Research Project will analyze the trends associated with shrinking agricultural land uses and expanding utility-scale renewable energy development in rural zones. The purpose of this paper is to frame the Antelope Valley as an important case study that highlights (1) the current state of California's desert farmlands and (2) the impact solar might have on these rural places. Specifically, this project will determine the patterns associated with these lands by farmland quality, physical land uses and zoning, and assess the relationships these lands have to solar energy development. The project then seeks to identify policy mechanisms that the LACDRP can implement to better plan for both agriculture and solar. As such, the primary research questions of this endeavor are as follows:

1. What is the status of agricultural land in the Antelope Valley, and what is its relationship to solar?
2. How do present-day land use conflicts for agriculture and solar impact the future of the Antelope Valley?
3. How can the County plan for both the preservation of agriculture and the development of renewable energy in the Antelope Valley?

Project Significance

This research project provides quantitative and qualitative conclusions about the conditions that cause agricultural and solar land uses to shrink and grow, considers how agricultural and solar land uses interact and relate with one another, and proposes region-specific land use guidelines the LACDRP can consider to maximize the potential of both. Understanding the impact of solar on agricultural land and subsequent strategies for planning for both land uses is integral to the future of urban development as planners make strides to create healthy, resilient and sustainable communities for all.

The report importantly provides a critical lens through which the importance of policy and land use analysis is justified as a response to inconsistent and conflicting community feedback about the agriculture-solar shift. The findings of this report are particularly relevant for the LACDRP, the client, as the agency has been tasked with both identifying opportunities to preserve agriculture across the County and identifying optimal sites for the County to construct renewable energy infrastructure that reduces greenhouse gases. The agency will use the findings of this report to guide updates to the Los Angeles County General Plan and the Los Angeles County Climate Action Plan.

The report also contributes to the largely undeveloped, yet expanding, landscape of agricultural and solar planning in academic research today. Though substantial research on the benefits and impacts of agriculture and solar as individual land uses exists already, very little of it specifically compares the two. The growing phenomenon of solar encroachment on agricultural lands, particularly in peri-urban fringes across California, and the resulting impacts on rural communities warrants an expansion of academic research that considers the broad significance of this economic, environmental, and social shift.

Report Outline

The following sections of this report are structured to further contextualize the motivations and standards undertaken by this research, as well as identify its findings and implications. The literature review provided in Section II offers an analysis of the theoretical underpinnings of land use conflict, examines land use solutions proposed in existing research, and outlines the structure and implications of land use ordinances upheld by the LACDRP. The methodology outlined in Section III then documents the types of data employed to answer each research question, the sources of this data, and the matter by which the data was leveraged to produce the research findings of this report. Section IV offers research findings and analysis for each research question. The report concludes with a set of land use policy recommendations for the LACDRP. The conclusion also identifies how the findings of the research might be applied to support other jurisdictions and future areas of research.

II. Literature Review

Introduction

The following literature review contextualizes the history, existing policy landscape, and political opportunity associated with the development of both agricultural and solar land uses. First, this literature review will provide an overview of the agriculture-solar land use conflict as it is presented from a set of different research perspectives. Second, it will provide an overview of the land use ordinances adopted by the LACDRP to site agricultural and utility-scale solar development in the Antelope Valley. Then, it will identify planning strategies that have been recently explored in places where both land uses are dominant. The findings of this literature review informed the composition of a semi-structured interview guide that was then employed by this research (Appendix A).

Different Perspectives on Land Use Conflict

Urban pressures have long been the most substantial threat to agricultural activities in the United States. Through suburbanization, industrialization, and other expansive planning practices, producers of commodities have been encouraged to respond to urban consumption and demand by breaking into vast, open, and undeveloped places located at the peri-urban fringe. The influx of resulting, competing land uses in these places often causes rapid and boundless transformations of agricultural lands, thereby transforming important, albeit degraded, lands upon which rural livelihoods are based into centers of sprawling development and reducing regional capacity for food production. Urban pressures make retaining agricultural activities difficult, as incentives made available to farmers to keep land agricultural are often too weak, and planning policies that institute agricultural preservation are often too costly and complex.[10]

Land use conflict in rural spaces can also be ignited when urban demand for rural resources meets its extreme, and city dwellers themselves choose to cross the urban-rural divide, and opt for country life over city life. In this case, incoming urban populations tend to provide new opinions about pre-existing land uses that contradict existing residents' planning preferences and norms.[11] Most migrations are economically driven, namely by the significant measure of affordability rural parcels of land are offered, and the potential for opportunity they provide.[12] With large, undeveloped plots of land, land owners can devise a future of their own, whether that inspires the development of a farm, a single family home, a commercial structure, or not.

Agricultural land use conflicts are best represented by existing literature to be issues wherein land uses that produce substantially different outcomes locally and regionally encroach and impede upon long standing agricultural lands due to their large, flat and undeveloped qualities. On the other hand, solar land use conflicts are best represented by existing literature to be circumstances in which the intense and expansive characteristics of the land use might restrict the fulfillment of local people, local culture, and wildlife. Research finds that opposition to utility-scale solar is justified in many ways, namely by local citizens who do not want local development by the world's largest multinational corporations ('big solar'), who feel that solar is another circumstance by which urban centers will justify the exploitation of local resources, and/or who believe that utility-scale development will cause harmful impacts to the desert ecosystem and wildlife.[13]

However, academic discourse about solar presents conflicting research arguments and conclusions that reminisce the tensions urban planners must understand and respond to in order to make productive land use decisions. Planning approaches that work for some populations will not work for others, particularly when positive and negative impacts are produced at different scales. Though utility-scale renewable energy developments are heralded for their ability to reduce greenhouse gas emissions regionally, they might disrupt local biodiversity, soil quality, water availability, and human health.[14] And though utility-scale renewable energy developments provide the very jobs many labor groups hope to promote with a Green New Deal, they also have the power to displace and cessate other' livelihoods.[15] [16]

10 Berry, D. and Plaut, T., 1978. Retaining agricultural activities under urban pressures: a review of land use conflicts and policies. Policy Sciences, 9(2), pp.153-178. Retrieved from https://link.springer.com/article/10.1007/BF00143740

11 Jensen, D., Baird, T. and Blank, G., 2019. New landscapes of conflict: land-use competition at the urban–rural fringe. Landscape Research, 44(4), pp.418-429. Retrieved from https://www.tandfonline.com/doi/full/10.1080/01426397.2017.1413173?-casa_token=UVcVvJnIkogAAAAA%3AagMmL6x2EfX3bCzqMwlgdwDEJo88QpuSH_5UY0ZAxvs3xeG0103bsir56VK845xKiiG0C-ckdolg0vg

12 Hart, J. F. 1976. Urban encroachment on rural areas. Geographical Review, 1-17. Retrieved from https://www.jstor.org/stable/213311?seq=1#metadata_info_tab_contents

13 Mulvaney, D., 2017. Identifying the roots of Green Civil War over utility-scale solar energy projects on public lands across the American Southwest. Journal of Land Use Science, 12(6), pp.493-515. Retrieved from https://www.tandfonline.com/doi/full/10.1080/1747423X.2017.1379566

14 Yenneti, K., Day, R. and Golubchikov, O., 2016. Spatial justice and the land politics of renewables: Dispossessing vulnerable communities through solar energy mega-projects. Geoforum, 76, pp.90-99. Retrieved from https://www.sciencedirect.com/science/article/pii/S0016718515303249

15 Anderson, Lauren. 2020. "A Green Deal for American Workers?" Harvard Political Review. Retrieved from https://harvardpolitics.com/green-deal/

16 Yenneti, K., Day, R. and Golubchikov, O., 2016. Spatial justice and the land politics of renewables: Dispossessing vulnerable communities through solar energy mega-projects. Geoforum, 76, pp.90-99. Retrieved from https://www.sciencedirect.com/science/article/pii/S0016718515303249

An Overview of Relevant Land Use Ordinances in the Antelope Valley

The LACDRP has enacted a number of land use policies in order to (1) codify the voices of community members across unincorporated Los Angeles and (2) ensure the production of positive community outcomes, through the Los Angeles County General Plan and separate community-based plans which include Area Plans, Community Plans, Neighborhood Plans, Local Plans, Local Coastal Plans, and Specific Plans.[17] The following sections summarize the land use policies most relevant to agriculture and ground-mounted utility-scale solar in the Antelope Valley.

The Antelope Valley Area Plan [18]

The Antelope Valley Area Plan (Area Plan) is a comprehensive long-range plan to guide development in the Antelope Valley. The Area Plan was created to achieve the communities' shared vision of the future through specific goals, policies, land use and zoning maps, and other planning instruments. The Plan was adopted on June 16, 2015, and replaces the previously adopted 1986 Antelope Valley Areawide General Plan. The plan establishes two districts within the Antelope Valley, Economic Opportunity Areas and Agricultural Resource Areas, as sites where significant opportunities for economic and agricultural growth and development lie.

Economic Opportunity Areas

These are areas where major infrastructure projects are being planned by state and regional agencies, which would bring tremendous opportunities for growth and economic development in the vicinity of these projects. These projects include the High Desert Corridor on the east side of the Antelope Valley, and the Northwest 138 Corridor Improvement Project on the west side. Both projects are being undertaken by Los Angeles County Metropolitan Transportation Authority (Metro) and California Department of Transportation (Caltrans). Thus, any development induced by these two infrastructure projects should be guided to these areas so that the areas around them can be preserved and maintained at low density, or agricultural uses. This is intended to balance the growth and development which the two projects will undoubtedly bring, with the general intent of this Area Plan to preserve the ecological value and rural character of the Antelope Valley.

17 Los Angeles County Department of Regional Planning. 2009. Land Use & Zoning. Retrieved from https://planning.lacounty.gov/luz

18 Los Angeles County Department of Regional Planning. 2009. Land Use & Zoning. Retrieved from https://planning.lacounty.gov/luz

Agricultural Resource Areas

Agricultural Resource Areas consist of farmlands identified by the California Department of Conservation and farms that have received permits from the Los Angeles County Agricultural Commissioner/Weights and Measures. The County encourages the preservation and sustainable utilization of agricultural land, agricultural activities and compatible uses within these areas.

Significant Ecological Areas Ordinance [19] [20]

Chapter 22.102 of the Los Angeles County General Plan

Significant Ecological Areas (SEA) are officially designated areas within LA County with irreplaceable biological resources. The SEA Ordinance establishes the permitting, design standards, and review process for development within SEAs, balancing preservation of the County's natural biodiversity with private property rights. These requirements will help ensure the long-term survival of the SEAs and their connectivity to regional natural resources.

This Chapter regulates development within SEAs by:

1. Protecting the biodiversity, unique resources, and geological formations contained in SEAs from incompatible development, as specified in the Conservation and Natural Resources Element of the General Plan;
2. Ensuring that projects reduce the effects of habitat fragmentation and edge effects by providing additional technical review of existing resources, potential impacts, and required mitigations;
3. Ensuring that development within a SEA conserves biological diversity, habitat quality, and connectivity to sustain species populations and their ecosystem functions into the future;
4. Directing development to be designed in a manner that considers and avoids impacts to SEA resources within the Los Angeles County region.

Within the boundaries of the Antelope Valley Area Plan, agricultural uses on all previously disturbed farmland are exempted from the SEA Ordinance. Previously disturbed farmland is defined to be "farmland not grazed by domestic stock identified within the State of

19 Los Angeles County Department of Regional Planning. 2015. Antelope Valley Area Plan. Retrieved from https://planning.lacounty.gov/view/antelope_valley_area_plan

20 Los Angeles County Department of Regional Planning. 2019. Significant Ecological Areas Program. Retrieved from https://planning.lacounty.gov/site/sea/home/

California Farmland Mapping and Monitoring Program, or proven to have been used for agricultural production at some time during the past four years to the satisfaction of the Director."[21]

Renewable Energy Ordinance Summary [22]

Chapter 22.140.510 of the Los Angeles County General Plan

The Renewable Energy Ordinance (REO) updates the County's planning and zoning code for the review and permitting of solar and wind energy projects. The ordinance helps California meet its goals for renewable energy generation and greenhouse gas reduction, while minimizing environmental and community impacts.

The purpose and goals of the REO include:

1. Incentivizing small-scale and structure-mounted projects through a streamlined review process, thereby reducing dependence on ground-mounted utility-scale projects; and
2. Regulating ground-mounted utility-scale projects to better address community concerns and minimize environmental impacts.

The REO prohibits ground-mounted utility-scale solar energy facilities within adopted Significant Ecological Areas designated in the General Plan and Economic Opportunity Areas designated in the Antelope Valley Area Plan.

21 Los Angeles County Department of Regional Planning. 2009. Title 22. Retrieved from https://planning.lacounty.gov/title22

22 Los Angeles County Department of Regional Planning. 2009. Title 22. Retrieved from https://planning.lacounty.gov/title22

Zoning Ordinance [23]

Chapter 22.16 - 22.26 of the Los Angeles County General Plan

The Agricultural, Open Space, Resort and Recreation, and Watershed Zones consist primarily of lands for agricultural uses or are in natural resource areas which limit dwellings and accessory uses. These zones provide areas for agricultural operations, open space, recreation, natural resource industries, or natural resource protection.

Table 1. Agricultural, Open Space, and Watershed Zones in the Antelope Valley (as detailed by Table 22.16.020-A of the General Plan)

Abbreviation	Full Name	Permits Agriculture	Permits Ground-Mounted Utility-Scale Solar	Permits Residential
A-1	Light Agricultural	X		X
A-2	Heavy Agricultural	X	X	X
O-S	Open pace	X		
W	Watershed	Uses owned and maintained by U.S. Forest Service and recreational uses approved by the Forest Service		

Residential Zones preserve, protect, and enhance areas for residential land uses in a range of densities; provide for orderly, well-planned, and balanced growth of residential neighborhoods; and ensure adequate light, air, privacy, and open space for each dwelling. These zones also provide for the appropriate location of public and semi-public uses such as schools, parks, and religious facilities that can serve and complement residential uses.

Table 2. Residential Zones in the Antelope Valley (as detailed by Table 22.18.020-A of the General Plan)

Abbreviation	Full Name	Permits Agriculture	Permits Ground-Mounted Utility-Scale Solar	Permits Residential
R-A	Residential Agricultural	X		X
R-1	Single-Family Residence	X		X
R-2	Two-Family Residence	X		X
R-3	Limited Density Multiple Residence	X		X
RPD	Residential Planned Development			X

23 Los Angeles County Department of Regional Planning. 2009. Title 22. Retrieved from https://planning.lacounty.gov/title22

Commercial Zones provide for the orderly, well-planned, and balanced growth of commercial districts; support commercial activity to meet the needs of the community, strengthen the County's tax base; and provide appropriate transitions between commercial and residential uses to promote commercial opportunities and preserve residential quality of life.

Table 3. Commercial Zones in the Antelope Valley
(as detailed by Table 22.20.020-A of the General Plan)

Abbreviation	Full Name	Permits Agriculture	Permits Ground-Mounted Utility-Scale Solar	Permits Residential
C-M	Commercial Manufacturing	X	X	X
C-R	Commercial Recreation	X	X	X
CPD	Commercial Planned Development	X		

Industrial Zones provide for the orderly, well-planned, and balanced growth of industrial districts and designate adequate land for the growth of employment centers in the County.

Table 4. Industrial Zones in the Antelope Valley
(as detailed by Table 22.22.020-A of the General Plan)

Abbreviation	Full Name	Permits Agriculture	Permits Ground-Mounted Utility-Scale Solar	Permits Residential
M-1	Light Manufacturing	X	X	
M-1.5	Restricted Heavy Manunfacturing	X	X	
M-2	Heavy Manufacturing	X	X	
M-2.5	Aircraft, Heavy Industrial			
MPD	Manufacturing-Industrial Planned Development	X		

The Rural Zones are established to implement the policies of preserving and maintaining the rural character of rural towns as identified in the General Plan.

Table 5. Rural Zones in the Antelope Valley
(as detailed by Table 22.24.020-A of the General Plan)

Abbreviation	Full Name	Permits Agriculture	Permits Ground-Mounted Utility-Scale Solar	Permits Residential
C-RU	Rural Commercial	X	X	
MXD-RU	Rural Mixed Use Development	X	X	X

The Specific Plan Zone (Zone SP) is established to provide a zone for property which is subject to a specific plan adopted in accordance with the provisions of the California Government Code and this Title 22. Zone SP recognizes the detailed and unique nature of specific plans and the need to ensure that development conforms to the uses, development standards and procedures contained in specific plans. Zone SP may be established for an area concurrently or following the adoption of a specific plan.

The Centennial Specific Plan (Specific Plan) is the only specific plan in the Antelope Valley. Adopted in 2019 after sixteen years of agency review and public input, the Specific Plan authorizes the development of a new master-planned community of 19,333 residences and 8.4 million square feet of commercial and business park uses, with associated grading, utilities, infrastructure, public services and facilities, and offsite infrastructure and mitigation areas. Both agriculture and utility-scale solar are permitted within the Specific Plan, though agricultural uses are more readily developed as a 'permitted use' within fourteen of the Specific Plan's fifteen zones; utility-scale solar is permitted only by ministerial review or conditional use permit, for ten of the identified zones. Notably, construction for the devlopment associated with the Specific Plan has not yet begun and was recently halted when a Los Angeles County Superior Court jude rejected the project's environmnetal review, due to concerns about wildfire risk and additional greenhouse gases generated from vehicles. It is uncertain if the project will move forward as proposed.

Table 6. Special Purpose Zones in the Antelope Valley
(as detailed by Table 22.24.020-A of the General Plan)

Abbreviation	Full Name	Permits Agriculture	Permits Ground-Mounted Utility-Scale Solar	Permits Residential
SP	Specific Plan	See Specific Plan	See Specific Plan	See Specific Plan

Summary of Impact on Agriculture by LACDRP Land Use Ordinances

Land use policies established by the LACDRP allow several types of agricultural land uses to happen in different zoning categories 'by right,' in which the developer of the land can acquire a permit through an administrative process without public review. However, the permit/review requirements are dependent on the respective zone category and are specific to the proposed physical land use; as a result, no generalized statement can be made about what kind of agriculture can go where. Appendix B provides permit and review requirements for each agricultural use category according to the assigned zoning code. A wide range of agriculture-type uses are considered by the LACDRP, which include uses like aqueducts, community gardens, crops, greenhouses, mushroom farms, and wineries.

Summary of Impact on Solar by LACDRP Land Use Ordinances

In the Antelope Valley, ground-mounted utility-scale solar may only be sited in Zones A-2, C-M, C-R, C-RU, M-1, M-1.5, M-2, MXD-RU, and MXD with a Conditional Use Permit. Though the LACDRP land use policies encourage the development of ground-mounted solar, it is not without careful restrictions. Ground-mounted utility-scale solar is prohibited from development in the County's Significant Ecological Areas and Economic Opportunity Areas and must be directed to locations where environmental, noise and visual impacts are minimized. Developers must provide a decommissioning plan, commit to the use of recycled water, comply with transmission line policies to minimize the impact on local wildlife, and, if their parcel is found to have sensitive biotic communities, dedicate a set amount of land within a Significant Ecological Area for open space. These measures are put in place to mitigate the potential impacts of new ground disturbance.

The LACDRP provides additional guidelines for solar uses that are not ground-mounted utility-scale solar. Solar permit and review requirements are provided in Appendix C. Most notably, structure-mounted utility scale solar is more easily permitted by right, to encourage the development of rooftop solar.

Reducing the Agriculture-Solar Land Use Conflict

The perceived agriculture-solar land use conflict is a highly localized issue that is dependent on a large number of factors, including, but not limited to, water availability, topography, local soil type, crop potential, access to the electricity grid, and the number of sunny days expected per year. According to several academic reports, there are ways to develop solar in manners that cause less social and environmental harm than that caused by the standards used today. For example, utility-scale solar projects are subject to less scrutiny and opposition when public participation is encouraged during the land acquisition and development process.[24] Additionally, sites can be formed to encourage the presence and preservation of wildlife, which play critical roles in many agricultural systems, through design-oriented solutions, such as reducing ground disturbance during project construction, utilizing above-ground cabling when possible, and incorporating native landscaping, which facilitates habitat and produces environmental pathways for animals, stormwater, and other ecosystem markers.[25] [26] Furthermore, sites of important recreation and habitat conservation value across desert regions can be documented to produce land use ordinances.[27]

Interestingly, recent scholarly works contend that the combination of the two land uses, as in, placing food crops on the same lots where utility-scale solar is sited, result in productive socioeconomic and environmental outcomes.[28] [29] Co-located systems can mitigate soil degradation caused by solar and can maximize land and water use efficiency, which results in positive economic outcomes.[30] [31] Furthermore, the co-production of these industries can offer support in regions with high demand for land, with 'agrovoltaic' systems causing an increase of land productivity as high as 60-70%.[32] [33] This hybrid land use can be particularly productive when crops are planted along western edges of PV

24 Guerin, T., 2017. Using agricultural land for utility-scale photovoltaic solar electricity generation. Agricultural Science, 29(1), pp.40-49. Retrieved from https://search.informit.org/doi/abs/10.3316/ielapa.413700618881277

25 Hart, J. F. 1976. Urban encroachment on rural areas. Geographical Review, 1-17. Retrieved from https://www.jstor.org/stable/213311?seq=1#metadata_info_tab_contents

26 Sinha, P., Hoffman, B., Sakers, J. and Althouse, L., 2018. Best practices in responsible land use for improving biodiversity at a utility-scale solar facility. Case Studies in the Environment, 2(1), pp.1-12. Retrieved from https://online.ucpress.edu/cse/article/2/1/1/33870/Best-Practices-in-Responsible-Land-Use-for

27 Semeraro, T., Pomes, A., Del Giudice, C., Negro, D. and Aretano, R., 2018. Planning ground based utility scale solar energy as green infrastructure to enhance ecosystem services. Energy Policy, 117, pp.218-227. Retrieved from https://www.sciencedirect.com/science/article/pii/S0301421518300594

28 Cameron, D.R., Crane, L., Parker, S.S. and Randall, J.M., 2017. Solar energy development and regional conservation planning. In Energy sprawl solutions (pp. 66-75). Island Press, Washington, DC. Retrieved from https://link.springer.com/chapter/10.5822/978-1-61091-723-0_5

29 Choi, C.S., Ravi, S., Siregar, I.Z., Dwiyanti, F.G. and Macknick, J., 2018, December. Combined land use of solar infrastructure and agriculture for socioeconomic and environmental co-benefits in Indonesia. In AGU Fall Meeting Abstracts (Vol. 2018, pp. GC31D-1279). Retrieved from https://scholarshare.temple.edu/handle/20.500.12613/2695

30 Ravi, S., Macknick, J., Lobell, D., Field, C., Ganesan, K., Jain, R., Elchinger, M. and Stoltenberg, B., 2016. Colocation opportunities for large solar infrastructures and agriculture in drylands. Applied Energy, 165, pp.383-392. Retrieved from https://www.sciencedirect.com/science/article/pii/S0306261915016517

31 Miskin, C.K., Li, Y., Perna, A., Ellis, R.G., Grubbs, E.K., Bermel, P. and Agrawal, R., 2019. Sustainable co-production of food and solar power to relax land-use constraints. Nature Sustainability, 2(10), pp.972-980. Retrieved from https://www.nature.com/articles/s41893-019-0388-x

32 Dupraz, C., Marrou, H., Talbot, G., Dufour, L., Nogier, A. and Ferard, Y., 2011. Combining solar photovoltaic panels and food crops for optimising land use: Towards new agrivoltaic schemes. Renewable energy, 36(10), pp.2725-2732. Retrieved from https://www.sciencedirect.com/science/article/pii/S0960148111001194

33 Choi, C.S., Ravi, S., Siregar, I.Z., Dwiyanti, F.G. and Macknick, J., 2018, December. Combined land use of solar infrastructure and agriculture for socioeconomic and environmental co-benefits in Indonesia. In AGU Fall Meeting Abstracts (Vol. 2018, pp. GC31D-1279). Retrieved from https://scholarshare.temple.edu/handle/20.500.12613/2695

panels, where rainfall is concentrated, and if solar cells with mirror backsides are installed, to increase the output of the crops.[34] [35] This approach is backed at the federal level; the United States Office of Energy Efficiency and Renewable Energy has published an online guide to help farmers' outweigh the costs and benefits associated with co-location.[36]

Conclusion

The existing narrative of the agriculture-solar land use conflict largely characterizes agriculture to be a land use category by which food supply and livelihoods have historically been produced, and solar to be a land use category by which our futures may be guided, for better or worse. The findings of this analysis will be considered in the remaining sections of this report, through which agriculture and solar land uses in the Antelope Valley will be examined. Of important note is that no literature was found to investigate the conversion of agriculture to solar at peri-urban, water-constrained places like the Antelope Valley. As Southern California faces continued expansion of urban development into rural, open, and/or open spaces and increased susceptibility to drought, the tensions exacerbated by utility-scale solar construction are set to unfold for local planners and stakeholders. These trends signal the importance of studying a place like the Antelope Valley, which serves an important case study for those interested in addressing Southern California's climate woes.

34 Dupraz, C., Marrou, H., Talbot, G., Dufour, L., Nogier, A. and Ferard, Y., 2011. Combining solar photovoltaic panels and food crops for optimising land use: Towards new agrivoltaic schemes. Renewable energy, 36(10), pp.2725-2732. Retrieved from https://www.sciencedirect.com/science/article/pii/S0960148111001194

35 United States Office of Energy Efficiency & Renewable Energy. (n.d.). Farmer's Guide to Going Solar. Retrieved from https://www.energy.gov/eere/solar/farmers-guide-going-solar

36 Netburn, Deborah. 2019. California, climate change and the trauma of the last decade. Los Angeles Times. Retrieved from https://www.latimes.com/environment/story/2019-12-26/california-decade-extreme-weather-climate-change-anxiety

III. Methods

This project investigates the relationship between agricultural preservation and solar development in the Antelope Valley. To substantiate the relationship between agriculture and solar, the project identifies the regional and local complexities that each entail. The project seeks to address three primary research questions:

1. What is the status of agricultural land in the Antelope Valley, and what is its relationship to solar?
2. How do present-day land use conflicts for agriculture and solar impact the future of the Antelope Valley?
3. How can the County plan for both the preservation of agriculture and the development of renewable energy in the Antelope Valley?

The first research question involves the analyses of both current trends of physical, agricultural land use and historic trends of general agricultural characteristics within the Antelope Valley. The second research question then aims to unpack the complexities involved with the land use conflict presented by rising demand for solar and increasing policy work aimed to preserve agriculture. The final research question identifies strategies the LACDRP can consider to establish best practices for agricultural preservation and solar development. Findings resulting from this research will support advocacy for sustainable land use approaches, and also respond to important State and County sustainability goals.

Understanding the Agricultural Landscape in the Antelope Valley

Evidence Gathering and Management

The status of agricultural land in the Antelope Valley was assessed through secondary data that provides for (1) an analysis of the physical land uses of lots zoned for agricultural use; (2) an investigation of the transformation of agricultural quality over the past several decades; and (3) an examination of how solar and agriculture spatially relate in the present day. The secondary data involved were sourced from the LACDRP and the California Department of Conservation, Division of Land Resource Protection in the format of ArcGIS shapefiles.

The first inquiry was addressed through analyses of parcel-level Los Angeles County zoning and parcel data. The zoning shapefile, last updated in October 2019 as part of the Zoning Map Conversion and Integration Project (ZCIP), features adopted zoning codes in unincorporated Los Angeles County as determined by Title 22 of the Los Angeles County Code. The parcel data, updated weekly by the Los Angeles County Office of the Assessor, categorizes the physical land uses of each parcel in unincorporated Los Angeles County. As to be described in the findings of this report, there are significant limitations with this data, as the parcel descriptions provided are typically updated only when a new permit is being issued, not when a use changes. There is also no departmental criteria for how the use types should be categorized; rather, they are determined via appraisers' subjective conclusions. For this reason, the Office of the Assessor was unable to provide guidance about what physical land use category solar might be represented by, and analysis of this data was largely limited to the use type 'Irrigated Farm.'

The second inquiry was informed through historical data provided by the California Department of Conservation, as part of the Farmland Mapping and Monitoring Program (FMMP). The data, last updated in July 2020, categorizes agricultural conditions into seven classes that reflect varying agricultural qualities. The data is presented in a series of shapefiles that reflect the conditions of Los Angeles County from 1984 to 2018, every two years. To identify historic and recent trends in agricultural qualities, this project incorporated the FMMP data from years 1984 and 2018. Notably, the Important Farmland data, sourced from the State of California Department of Conservation, appears to have minor errors in the dataset, as the data documents spatial trends within the Antelope Valley that took the region from high, to low, and then back to high quality agricultural lands between 1984 and 2018, which is unlikely.

The FMMP categories, as provided by the California Department of Conservation, are defined in the following way: [37]

- Prime Farmland: Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Farmland of Statewide Importance: Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland: Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date
- Farmland of Local Importance: Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- Grazing Land: Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.
- Urban and Build-up Land: Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- Other Land: Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

The final inquiry was guided by data on the placement of solar projects that have either already been approved or are currently in review by the LACDRP. The data, last updated in 2021, elaborates upon the project name, applicant name, energy output, important farmland category, area, prior land use, and zoning code of each project submitted to the LACDRP.

Analysis

Zoning and parcel data were examined spatially using ArcGIS, where datasets were merged and exported for analysis. Analysis on ArGIS was leveraged to determine the spatial distribution of agriculture as a zone and a physical land use across the Antelope Valley. By

37 California Department of Conservation. 2019. Important Farmland Categories. Retrieved from https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx

unionizing the two shapefiles on ArcGIS, the data was then analyzed at the parcel scale to define the zoning and physical land use status of each lot. These qualities were then summarized to provide descriptive statistics. Analysis sought to determine the efficacy of Title 22 of the Los Angeles County Code in preserving local agriculture. Such analysis resulted in the development of findings related to the shrinking of agricultural uses as a result of residential development, and advanced the claim to preserve agricultural land in the Antelope Valley.

FMMP data were similarly analyzed spatially through ArcGIS. This process incorporated approaches to identify both quantifiable fluctuations and spatial shifts in agricultural quality. Analysis here sought to describe the historical patterns associated with agriculture as an environmental resource. Such analysis resulted in the development of findings regarding the correlation between high value farmland with Zone A-2, and identified opportunities for enhanced land use policies.

Lastly, data on the utility-scale solar projects in the Antelope Valley were assessed to identify what kinds of projects have already been approved or are currently in review at the LACDRP. Aerial photographs from the past two decades were assessed for each project to classify the previous physical land uses. Summary statistics on this data were then produced.

Identifying Future Land Use Conflicts for Agriculture and Solar in the Antelope Valley

Evidence Gathering and Management

Solar and agriculture in the Antelope Valley were compared through a series of secondary data that, together, form an illustrative narrative of the local environmental and economic conditions that define the productivity and impact of each. This data was sourced from the LACDRP, in the format of ArcGIS shapefiles and includes renewable energy, parcel type, and zoning data.

Analysis

Zoning data was filtered to produce three new shapefiles for areas that allow development of agriculture, solar and residential uses. These shapefiles were then compared to parcel data, similar to the prior subsection, to determine the spatial distribution of physical land uses in each of these considerations.

Planning for Both

Evidence Gathering and Management

Interviews with urban planners from other jurisdictions were conducted to identify how other Southern California planning agencies have responded to the land use conflict. To guide these conversations, a set of interview questions were inspired from findings identified in the Literature Review section of this report. Interviews were facilitated with San Bernardino County, the City of Lancaster, and the City of Santa Clarita.

Analysis

Notes from these interviews were summarized in Appendix D of this report. The conclusions uncovered through these conversations were then drafted as potential strategies for the LACDRP to consider as the development of solar continues.

Additional Methods

Evidence Gathering and Management

Though outside the scope of this project, materials that provide additional context to the issue of agriculture and solar in the Antelope Valley were considered. Two sets of data were analyzed to identify the relationship between solar development and infection of Valley Fever. Data on the area of solar development approved by year was provided by the LACDRP. Countywide data on Valley Fever was collected from a report published by the Los Angeles County Department of Public Health.

Analysis

Data on solar development approvals and Valley Fever were analyzed and then converted into tables, as provided in the findings section of this report. This investigation produced a conclusion that suggests there is a positive correlation between the two.

IV. Findings and Analysis

The Agricultural Landscape in the Antelope Valley

Findings

The LACDRP is responsible for identifying strategies that work to preserve agricultural zoning in unincorporated parts of the County. As identified in Table 7, 79.54% of all agriculturally zoned lands under LACDRP's jurisdiction can be found in the Antelope Valley. Therefore, an understanding of the zoning landscape in the Antelope Valley, and the way this impacts both physical land uses and agricultural qualities, is critical to the approach the LACDRP will take in response to the goals established by OurCounty.

Table 7. Distribution of Agricultural Zones by LACDRP Planning Areas

Planning Area	Zone A-1	Zone A-2	Zones A-1 & A-2
	Light Agricultural	Heavy Agricultural	All Agricultural
Antelope Valley Planning Area	50.01%	84.34%	79.57%
Coastal Islands Planning Area	0.00%	0.00%	0.00%
East San Gabriel Valley Planning Area	13.72%	0.78%	2.58%
Gateway Planning Area	1.48%	0.47%	0.61%
Metro Planning Area	0.29%	0.00%	0.04%
San Fernando Valley Planning Area	1.75%	3.73%	3.46%
Santa Clarita Valley Planning Area	17.57%	10.35%	11.35%
Santa Monica Mountains Planning Area	13.32%	0.16%	1.99%
South Bay Planning Area	0.46%	0.00%	0.06%
West San Gabriel Valley Planning Area	1.04%	0.00%	0.15%
Westside Planning Area	0.35%	0.17%	0.19%
TOTAL	100.00%	100.00%	100.00%

Relationship of Zoning with Physical Land Uses

Map 2 portrays the spatial distribution of the zoning categories in the Antelope Valley. Agricultural zoning occupies 39.72% of the region, as seen in Table 8. Zone A-1, which

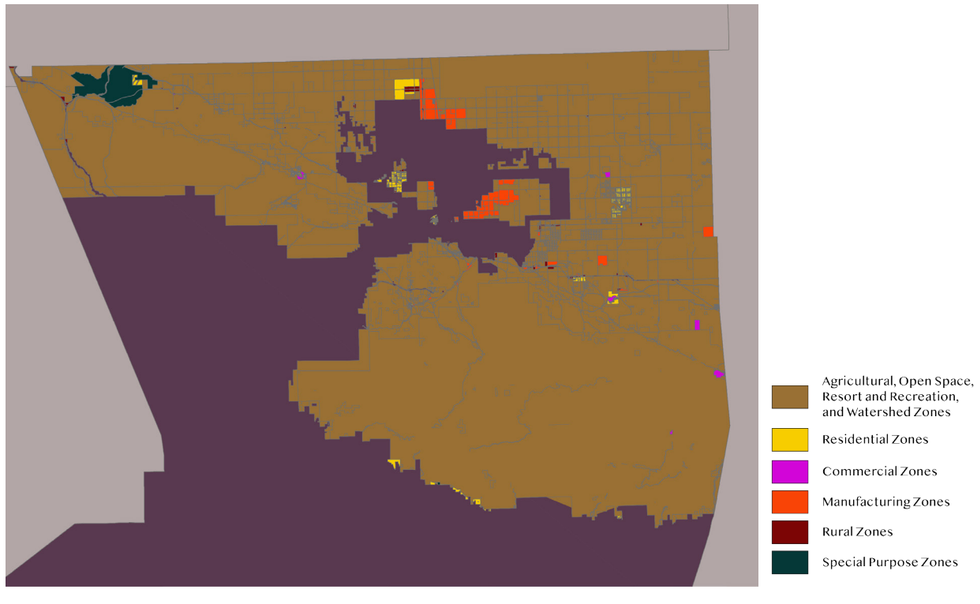
Table 8. Breakdown of Zoning in the Antelope Valley

Zone Category	Permitted Uses	Area (Acres)	% Total Acres
Agricultural, Open Space, and Watershed Zones in the Antelope Valley			
Zone A-1 Light Agricultural	Single family residences, crops (field, tree, bush, berry, row and nursery stock) (22.16.030) Greenhouses and raising of cattle, horses, sheep, goats, poultry, birds, earthworms, etc. (22.16.030)	45,437	3.51%
Zone A-2 Heavy Agricultural	Uses permitted in zone A-1 (22.16.030.C) Animal hospitals, dairies, dog kennels, livestock feedlots, manure spreading, oil wells (22.16.030.C)	469,156	36.21%
Zone O-S Open Space	Campgrounds, crops, grazing of animals, resource management (22.40.410)	93,574	7.22%
Zone W Watershed	Uses owned and maintained by U.S. Forest Service and recreational uses approved by the Forest Service (22.40.250)	648,345	50.04%
Residential Zones in the Antelope Valley			
Zone R-A Residential Agriculture	Single family residences Crops (field, tree, bush, berry, row and nursery stock) (22.20.410 - 22.20.440)	6,006	0.46%
Zone R-1 Single Family Residence	Single family residences (22.20.070 - 22.20.100)	3,509	0.27%
Zone R-2 Two Family Residence	Two family residences (or duplex), single family residences (22.20.170 - 22.20.200)	14	0.00%
Zone R-3-()U Limited Multiple Residence	Apartment houses, uses permitted in Zone R-1 and R-2 (22.20.260 - 22.20.290)	193	0.01%
Zone RPD Residential Planned Development	Single family residences (22.20.460A) Planned unit development with approved CUP (22.20.460B)	352	0.03%
Commercial Zones in the Antelope Valley			
Zone C-M Commercial Manufacturing	Zone C-3 uses plus limited manufacture and assembly (22.20.030.C)	8	0.00%
Zone C-R Commercial Recreation	Amusement parks, campgrounds, tennis courts, golf courses, limited agriculture (22.20.030.C)	1,218	0.09%
Zone CPD Commercial Planned Development	R-A zone uses (22.20.090.A.1, 22.18.030.C) Non-residential C-1 uses with approved CUP (22.20.090.A.2)	1	0.00%
Industrial Zones in the Antelope Valley			
Zone M-1 Light Manufacturing	Uses permitted in zones A-1 and C-M. Residential uses and schools are prohibited (22.32.040)	5,926	0.46%
Zone M-1.5 Restricted Heavy Manufacturing	All uses except residential, some institutions, and schools are prohibited. Some heavy industries are prohibited (22.32.100)	3,424	0.26%
Zone M-2 Heavy Manufacturing	All uses except some heavy industries need a CUP. Residential uses and schools are prohibited (22.32.160)	1,269	0.10%
Zone M-2.5 Aircraft Heavy Manufacturing	Storage, maintenance, manufacturing and testing of aircraft and aircraft parts. M-4 uses with CUP (22.32.260)	2,504	0.19%
Zone MPD Manufacturing Planned Development	Any zone SR-D use and non-residential uses permitted in zone R-A (22.32.150) With CUP, uses permitted in zone M-1 1/2 (22.32.150)	4	0.00%
Rural Zones in the Antelope Valley			
Zone C-RU Rural Commercial	Limited, low-intensity commercial uses that are compatible with rural and agricultural activities, including retail, restaurants, and personal and professional offices. Recreation and Amusement (22.28.360)	1,534	0.12%
Zone MXD-RU Rural Mixed Use Development Zone	Commercial Uses (22.40.805) with limited residential.	720	0.06%
Special Purpose Zones in the Antelope Valley			
Zone SP Specific Plan	Specific to site, as provided in local specific plan. (22.40.730)	12,539	0.97%
TOTAL		1,295,735	100.00%

makes up 3.51% of the Antelope Valley, enables the development of single family homes, crops, greenhouses, and the raising of cattle, horses, sheep, goats, poultry, birds, earthworms, and the like. Zone A-2, on the other hand, makes up 36.21% of the Antelope Valley landscape and additionally enables the development of animal hospitals, dairies, dog kennels, livestock feedlots, manure spreading, and oil wells. Zone A-2 is the second most dominant zoning category after the watershed zone, Zone W, in the Antelope Valley, of which all land uses must be owned or maintained by the Forest Services. This makes Zone A-2 the most dominant zoning category over which the LACDRP has jurisdictional powers.

Importantly, zoning categories meant to preserve and foster certain land use types often include other land use types that are seen to support the desired uses. As described before, both Zones A-1 and A-2 permit single family housing and Zone A-2 allows for

Map 2. Zoning Catagories in the Antelope Valley



several higher intensity uses. Furthermore, certain physical land uses are more easily developed than others according to zone type due to preexisting permit and review processes, which apply differently to each use according to the zoning code. (For example, community gardens are allowable in all zones with a standard permit, except for in Zone M-2.5, wherein a Conditional Use Permit (CUP) is required. While permitting is a ministerial process by which a developer can develop a community garden "by right," the granting of a CUP is a discretionary process, for which a public hearing is required, and approval can be dependent on the public feedback received at that time.) Therefore, from the perspective of the developer, land use as a law and practice is not just black and white. Zoning categories produced and maintained by the LACDRP - though specifically defined and highly detailed throughout the code - are not limited to the permitted uses outlined in summary definitions of each code.

Accordingly, the way in which physical land use categories are distributed across the zoning codes is a manifestation of the LACDRP's codified priorities, methods and approaches. As defined in Table 9, Zone A-1 is primarily made up of residential uses (64.41%), specifically mobile homes (37.25%) and single family homes (26.35%). 'Irrigated Farms' make up 24.06% of the zoning category, specifically the 'Irrigated Farm' category for 'Desert' (22.69%), and government parcels make up an additional 10.26%. Zone A-2, on the other hand, is primarily made up of 'Irrigated Farm' (75.21%), particularly land that falls under the category of 'Desert' (69.49%). Residential land uses follow, capturing 18.96% of the zoning code, with single family homes making up 16.89% of the zone, and government parcels occupy an additional 1.94% of it.

Figure 3. Zone A-1 and Zone A-2 by Use Type

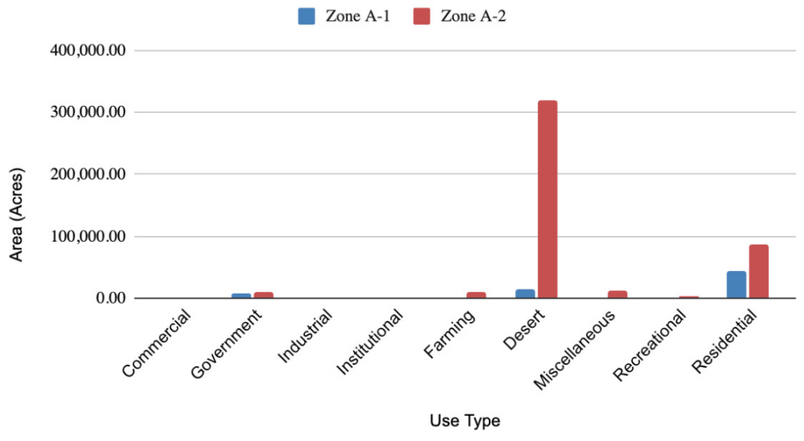


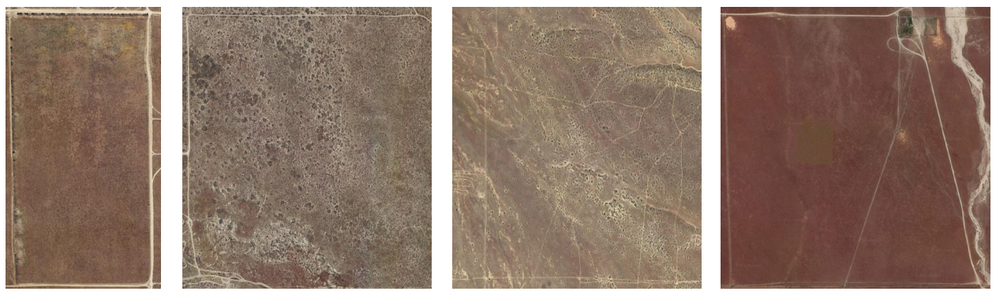
Table 9. Breakdown of Physical Land Uses Within Zones A-1 and A-2

		Zone A-1				Zone A-2		
Use Type	Use Description	Area (Acres)	Percent Within Use Type	Percent Total Zone A-1	Percent All AV	Area (Acres)	Percent Within Use Type	Percent Total Zone A-2
	Animal Kennels	0	0.00%	0.00%	0.00%	226.67	17.45%	0.05%
	Auto, Recreation EQPT, Construction EQPT, Sales & Service	0	0.00%	0.00%	0.00%	2.02	0.16%	0.00%
	Commercial	77.06	81.62%	0.11%	0.01%	754.23	58.05%	0.16%
	Hotel & Motels	0	0.00%	0.00%	0.00%	50.49	3.89%	0.01%
	Nurseries or Greenhouses	0	0.00%	0.00%	0.00%	47.57	3.66%	0.01%
	Office Buildings	2.12	2.25%	0.00%	0.00%	93.06	7.16%	0.02%
	Parking Lots (Commercial Use Properties)	0	0.00%	0.00%	0.00%	9.46	0.73%	0.00%
	Professional Buildings	0	0.00%	0.00%	0.00%	1.09	0.08%	0.00%
	Restaurants, Cocktail Lounges	0	0.00%	0.00%	0.00%	27.66	2.13%	0.01%
	Store Combination	14.96	15.85%	0.02%	0.00%	0.79	0.06%	0.00%
	Stores	0.26	0.28%	0.00%	0.00%	5.36	0.41%	0.00%
	Wholesale & Manufacturing Outlets	0	0.00%	0.00%	0.00%	80.93	6.23%	0.02%
Commercial	Total Commercial	94.41	100.00%	0.14%	0.01%	1,299.32	100.00%	0.28%
	Government Parcel	7,077.50	100.00%	10.26%	0.55%	8,947.84	100.00%	1.94%
Government	Total Government	7,077.50	100.00%	10.26%	0.55%	8,947.84	100.00%	1.94%
	Heavy Manufacturing	77.14	27.50%	0.11%	0.01%	310.81	22.72%	0.07%
	Industrial	202.48	72.17%	0.29%	0.02%	775.77	56.71%	0.17%
	Mineral Processing	0	0.00%	0.00%	0.00%	56.13	4.10%	0.01%
	Motion Picture, Radio & Television	0	0.00%	0.00%	0.00%	141.32	10.33%	0.03%
	Open Storage	0.01	0.00%	0.00%	0.00%	39.78	2.91%	0.01%
	Warehousing, Distribution, Storage	0.91	0.33%	0.00%	0.00%	44.25	3.23%	0.01%
Industrial	Total Industrial	280.55	100.00%	0.41%	0.02%	1,368.06	100.00%	0.30%
	Churches	103.12	39.00%	0.15%	0.01%	127.83	19.69%	0.03%
	Homes For Aged & Others	2.65	1.00%	0.00%	0.00%	279.17	43.00%	0.06%
	Institutional	0	0.00%	0.00%	0.00%	79.83	12.30%	0.02%
	Schools (Private)	158.62	59.99%	0.23%	0.01%	162.34	25.01%	0.04%
Institutional	Total Institutional	264.4	100.00%	0.38%	0.02%	649.16	100.00%	0.14%
	Dairies	0	0.00%	0.00%	0.00%	162.89	0.05%	0.04%
	Desert	15,653.40	94.32%	22.69%	1.21%	319,899.22	92.40%	69.49%
	Feed Lots	0	0.00%	0.00%	0.00%	59.61	0.02%	0.01%
	Field Crops	161.04	0.97%	0.23%	0.01%	8,552.15	2.47%	1.86%
	Fruit & Nuts	226.56	1.37%	0.33%	0.02%	3,380.03	0.98%	0.73%
	Irrigated Farm	461.12	2.78%	0.67%	0.04%	9,899.57	2.86%	2.15%
	Pasture	38.32	0.23%	0.06%	0.00%	3,445.74	1.00%	0.75%
	Poultry	42.04	0.25%	0.06%	0.00%	512.17	0.15%	0.11%
	Vineyards	13.92	0.08%	0.02%	0.00%	224.32	0.06%	0.05%
	Waste	0	0.00%	0.00%	0.00%	67.95	0.02%	0.01%
Irrigated Farm	Total Irrigated Farm	16,596.40	100.00%	24.06%	1.28%	346,203.65	100.00%	75.21%
	Miscellaneous	0.2	0.11%	0.00%	0.00%	2,131.54	18.81%	0.46%
	Pipelines, Canals	35.02	19.17%	0.05%	0.00%	2,085.68	18.41%	0.45%
	Rights of Way	46.61	25.52%	0.07%	0.00%	603.49	5.33%	0.13%
	Rivers & Lakes	0	0.00%	0.00%	0.00%	0.79	0.01%	0.00%
	Utility Commercial & Mutual: Pumping Plants State Assessed Pr	100.84	55.21%	0.15%	0.01%	6,453.48	56.95%	1.40%
	Water Rights	0	0.00%	0.00%	0.00%	56.47	0.50%	0.01%
Miscellaneous	Total Miscellaneous	182.67	100.00%	0.26%	0.01%	11,331.46	100.00%	2.46%
	Athletic & Amusement Facilities	14.58	25.23%	0.02%	0.00%	7.69	0.23%	0.00%
	Camps	0	0.00%	0.00%	0.00%	1,965.24	59.98%	0.43%
	Clubs., Lodge Halls, Fraternal Organizations	43.22	74.77%	0.06%	0.00%	940.63	28.71%	0.20%
	Golf Courses	0	0.00%	0.00%	0.00%	48.34	1.48%	0.01%
	Race Tracks	0	0.00%	0.00%	0.00%	251.94	7.69%	0.05%
	Recreational	0	0.00%	0.00%	0.00%	32.76	1.00%	0.01%
	Skating Rinks	0	0.00%	0.00%	0.00%	29.91	0.91%	0.01%
Recreational	Total Recreational	57.8	100.00%	0.08%	0.00%	3,276.51	100.00%	0.71%
	Five or more apartments	10.58	0.02%	0.02%	0.00%	758.1	0.87%	0.16%
	Four Units (Any Combination)	0	0.00%	0.00%	0.00%	334.23	0.38%	0.07%
	Mobile Home Parks	9.97	0.02%	0.01%	0.00%	137.56	0.16%	0.03%
	Mobile Homes	25,693.83	57.83%	37.25%	1.98%	5,089.39	5.83%	1.11%
	Single	18,179.26	40.92%	26.35%	1.40%	77,753.36	89.10%	16.89%
	Three Units (Any Combination)	50.51	0.11%	0.07%	0.00%	686.83	0.79%	0.15%
	Two Units	484.39	1.09%	0.70%	0.04%	2,505.47	2.87%	0.54%
Residential	Total Residential	44,428.54	100.00%	64.41%	3.43%	87,264.95	100.00%	18.96%

The Los Angeles County Office of the Assessor does not have a technical method of identifying and categorizing each parcel's primary physical land uses. For this reason, the physical realities of each physical land use category and subcategory cannot be fully assumed for this analysis. Of primary interest in this report is the classifications of lands that are categorized within 'Irrigated Farm,' as summarized in Table 10. One such subcategory, 'Desert' lands, occupies the largest area in both Zones A-1 and A-2, making up 22.69% and 69.49% of each zone category, respectively. Figure 4 shows that aerial analysis may infer that this 'Desert' category acts as a catchall description for parcels in the Antelope Valley that are vacant and/or undeveloped.

An important caveat to this representation is the fact that the 'Irrigated Farm' categories not described as 'Desert' do not include lands used for grazing by domestic livestock. Though pasture lands do certainly account for some of the grazing happening in the Antelope Valley, they do not account for all. Therefore, it is assumed that grazing lands are at least somewhat encapsulated by the 'Desert' description. For this reason, the category 'Desert' has not been excluded from this report when agricultural physical land uses are analyzed; instead, the category is explicitly identified as the 'Desert' and is excluded from future references of the use type 'Irrigated Farm.'

Figure 4. Aerial view of parcels labeled 'Desert'



Importantly, the remaining classifications from the 'Irrigated Farm' use type category appear to describe land uses that better relate to farming activities: these physical land uses are dairies, feed lots, field crops, fruit and nuts, irrigated farm, pasture, poultry, vineyards, and waste. However, these categories in sum make up just 1.37% of Zone A-1 and just 5.72% of Zone A-2. Residential uses occupy a proportionally significant portion of the land zoned for agriculture in the Antelope Valley; in Zone A-1, residential uses have a 63.04% lead over the 'Irrigated Farm' uses, and in Zone A-2, residential uses have a 13.24% lead.

Table 10. Summary Physical Land Uses Within Zones A-1 and A-2, for Irrigated Farms				
Use Description	Zone A-1		Zone A-2	
	Area (Acres)	Percent Total Zone A-1	Area (Acres)	Percent Total Zone A-1
Dairies	0.00	0.00%	162.89	0.04%
Desert	15,653.40	22.69%	319,899.22	69.49%
Feed Lots	0.00	0.00%	59.61	0.01%
Field Crops	161.04	0.23%	8,552.15	1.86%
Fruit & Nuts	226.56	0.33%	3,380.03	0.73%
Irrigated Farm	461.12	0.67%	9,899.57	2.15%
Pasture	38.32	0.06%	3,445.74	0.75%
Poultry	42.04	0.06%	512.17	0.11%
Vineyards	13.92	0.02%	224.32	0.05%
Waste	0.00	0.00%	67.95	0.01%
TOTAL	16,596.40	24.06%	346,203.65	75.21%

Commercial, industrial, institutional, miscellaneous, and recreational physical land use categories each make up less than 1% of both Zones A-1 and A-2. These physical land uses are not permitted within these zoning categories through the ministerial review processes and the area found in the data either reflect the few circumstances in which the discretionary review process resulted in approvals of these uses, or an error in the dataset. The spatial distribution of all physical use types is depicted in Map 3.

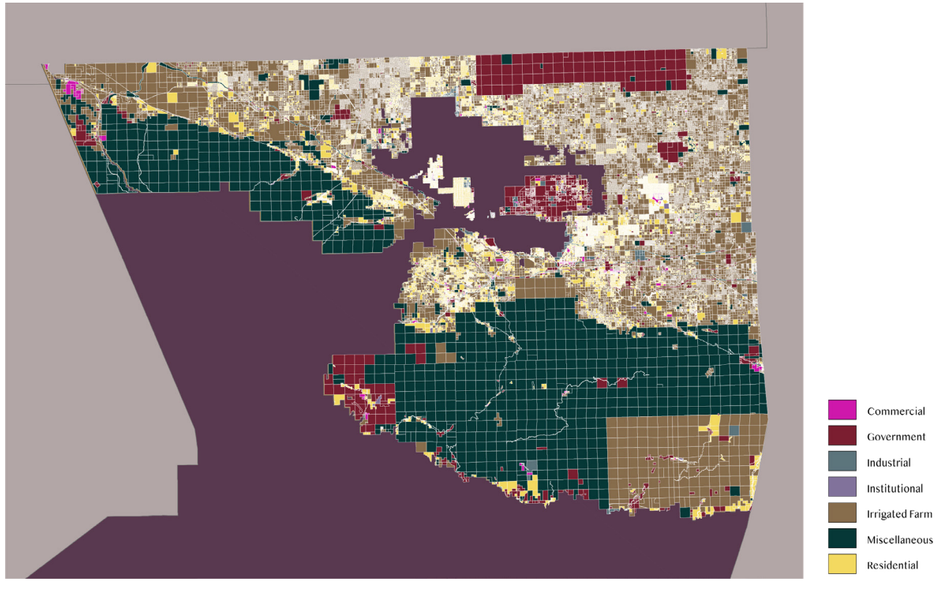
Notably, the 'Irrigated Farm' category is not limited to the agricultural zoning codes, Zones A-1 and A-2. As described in Table 11, 'Irrigated Farm' lands are seen widely across each of the zoning codes, except within residential and commercial zoning categories.

Furthermore, 'Irrigated Farm' categories are overwhelmingly sited within Zone A-2. 'Dairies' and 'Feed Lots' uses are sited solely in the zone category; and 79.26% of 'Field Crops,' 91.74% of 'Irrigated Farms,' 89.20% of 'Poultry,' and 94.16% of 'Vineyards' are sited similarly. Notably, only 39.93% of 'Pasture' uses are sited in Zone A-2, and the majority (50.04%) of this use description category is located in Zone SP.

Across the Antelope Valley, the 'Desert' use description makes up 76.84% of all agricultural physical land use types; it occupies 92.49% of the two agricultural zones; and 82.54% of it

Table 11. Breakdown of Irrigated Farm (Use Type) by Zoning Code Areas (Acres)												
Zone Category		Dairies	Feed Lots	Field Crops	Fruit & Nuts	Irrigated Farm	Pasture	Poultry	Vineyards	Waste	Total Without 'Desert'	Desert
Agricultural, Open Space, and Watershed Zones in the Antelope Valley	Zone A-1	0	0	161.04	226.56	461.12	38.32	42.04	13.92	0	943	15,653.40
	Zone A-2	162.89	59.61	8,552.15	3,380.03	9,899.57	3,445.74	512.17	224.32	67.95	26,304.42	319,899.22
	Zone O-S	0	0	0	0	265.98	665.26	0	0	0	931.24	18,203.87
	Zone W	0	0	0	0	153.97	0	0	0	77,263.97	77,497.96	10,572.27
Residential Zones in the Antelope Valley	Zone R-A	0	0	0	0	166.53	73.43	0	0	0	239.97	1,182.65
	Zone R-1	0	0	0.91	0	0	0	0	0	0	0.91	171.04
	Zone R-2	0	0	0	0	0	0	0	0	0	0	0
	Zone R-3-()U	0	0	0	0	12.46	0	0	0	0	12.46	0
	Zone RPD	0	0	0	0	0	0	0	0	0	0	352.27
Commercial Zones in the Antelope Valley	Zone C-M	0	0	0	0	0	0	0	0	0	0	0
	Zone C-R	0	0	0	0	0	0	0	0	0	0	203.52
	Zone CPD	0	0	0.00	0	0	0	0	0	0	0	1.09
Industrial Zones in the Antelope Valley	Zone M-1	0	0	0	70.57	25.45	0	0	0	0	96.02	1,706.19
	Zone M-1.5	0	0	0.00	0	0	0	0	0	0	0	0.01
	Zone M-2	0	0	0	0	58.23	0	0	0	0	58.23	157.6
	Zone M-2.5	0	0	0.00	0	0	0	0	0	0	0	0
	Zone MPD	0	0	0	0	0	2.16	0	0	0	2.16	1.86
Rural Zones in the Antelope Valley	Zone C-RU	0	0	0	55.04	25.25	46.96	10.06	0	0	137.32	221.5
	Zone MXD-RU	0	0	9.74	12.95	18.14	0	0	0	0	40.83	305.22
Special Purpose Zones in the Antelope Valley	Zone SP	0	0	0.00	0.14	0.03	4,317.64	0	0	0	4,317.80	7,041.64
ALL ZONES		162.89	59.62	10,790.38	4,077.80	11,553.76	8,629.17	574.2	238.24	80,652.88	116,818.94	387,572.21

Map 3. Use Types in the Antelope Valley

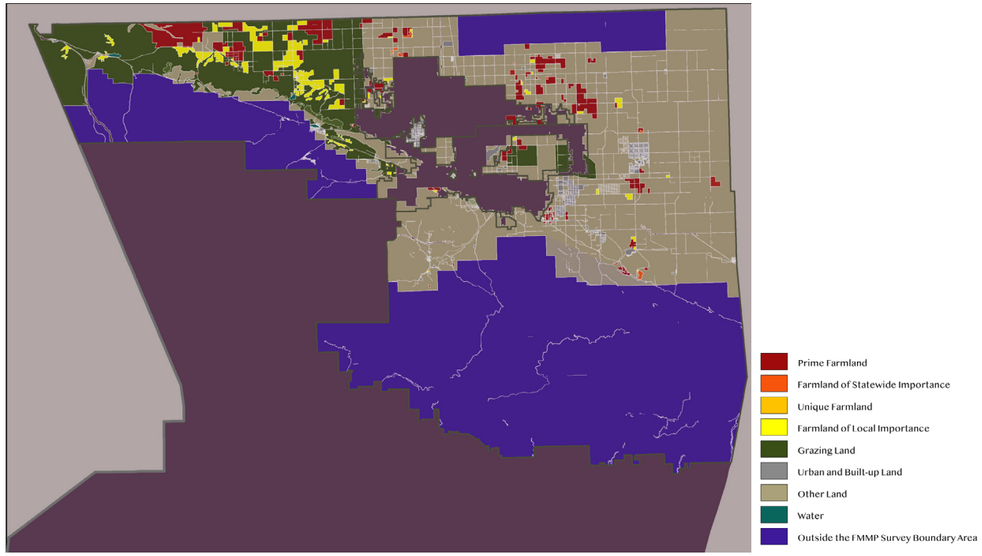


is concentrated within Zone A-2. In fact, 'Desert' makes up nearly all (more than 90%) of each zoning type, except for Zone W, for which it makes up just 12.00% of all irrigated farm land in the zoning code. This can be attributed to the spatial reality of Zone W, which falls predominantly upon the San Gabriel Mountains, and not upon the characteristically desert lands of the Antelope Valley, which establish environmental conditions that are better for agriculture.

Relationship of Zoning with Important Farmland Categories

The quality of farmland has shifted in the past several decades, as described in Tables 12 through 14. While the highest value categories (Prime Farmland and Farmland of State Importance) have declined, the lowest value categories (Farmland of Local Importance, Grazing Land, Urban and Built-up Land, and Other Land) have expanded in size. More than 13,000 acres, or 43.29%, of Prime Farmland, the highest category of farmland, has been lost since 1984; meanwhile, Urban and Built Up Land, the least valuable category of those explicitly defined, has increased more than 12,000 acres, by 110.15%. Grazing Land has grown by 23,871.72 acres, or by 12.52%.

Map 4. Distribution of Important Farmland in 1984



Map 5. Distribution of Important Farmland in 2018

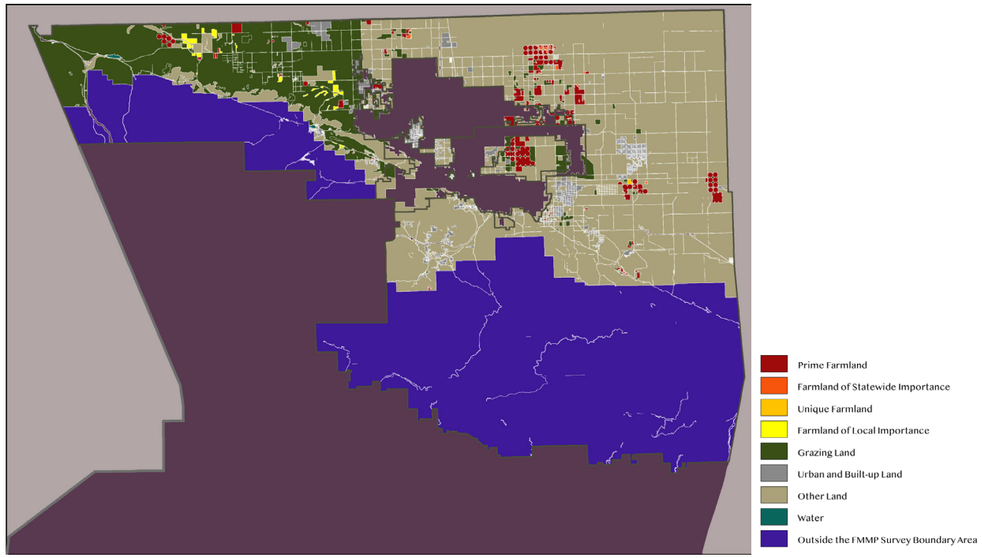


Table 12. Area of Important Farmland Categories by Acres		
Important Farmland Categories	1984	2018
Prime Farmland	30,701.20	20,971.26
Farmland of Statewide Importance	666.71	535.38
Unique Farmland	19.54	141.38
Farmland of Local Importance	18,374.73	27,845.05
Grazing Land	121,001.59	120,237.70
Urban and Built-up Land	10,933.18	10,878.53
Other Land	407,469.51	408,557.81
Water	725.61	725.63
Outside the FMMP Survey Boundary Area	597,352.99	565,352.29
TOTAL	1,157,245.05	1,157,245.05

Table 13. Area of Important Farmland Categories by Percentage		
Important Farmland Categories	1984	2018
Prime Farmland	2.65%	1.50%
Farmland of Statewide Importance	0.06%	0.05%
Unique Farmland	0.00%	0.01%
Farmland of Local Importance	1.59%	2.41%
Grazing Land	10.46%	10.39%
Urban and Built-up Land	0.94%	0.94%
Other Land	35.21%	35.30%
Water	0.06%	0.06%
Outside the FMMP Survey Boundary Area	49.03%	49.03%
TOTAL	100.00%	100.00%

Table 14. Shift in Important Farmland Category 1984 - 2018	
Prime Farmland	+ 43.29%
Farmland of Statewide Importance	+ 8.52%
Unique Farmland	- 1,472.64%
Farmland of Local Importance	+ 85.80%
Grazing Land	- 19.73%
Urban and Built-up Land	- 110.15%
Other Land	- 9.97%
Water	+ 17.63%
Outside the FMMP Survey Boundary Area	+ 8.39%
TOTAL	+ 0.00%

Table 15. Breakdown of Important Farmland by Zone Category, 2018 (Percent of All AV)											
Zone Category		Urban and Built-up Land	Grazing Land	Farmland of Local Importance	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Water	Other Land	Not Defined	Total Zone Category
Agricultural, Open Space, and Watershed Zones in the Antelope Valley	Zone A-1	0.52%	0.23%	0.00%	0.03%	0.00%	0.00%	0.00%	2.81%	0.08%	3.73%
	Zone A-2	0.69%	8.27%	0.22%	1.10%	0.05%	0.02%	0.00%	26.90%	1.12%	38.57%
	Zone O-S	0.02%	2.13%	0.00%	0.00%	0.00%	0.00%	0.05%	5.52%	0.02%	7.78%
	Zone W	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	42.30%	44.95%
Residential Zones in the Antelope Valley	Zone R-A	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%	0.00%	0.49%
	Zone R-1	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.03%	0.20%
	Zone R-2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Zone R-3-()U	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%
	Zone RPD	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%
Commercial Zones in the Antelope Valley	Zone C-M	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Zone C-R	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.03%	0.10%
	Zone CPD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Industrial Zones in the Antelope Valley	Zone M-1	0.03%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.44%	0.00%	0.50%
	Zone M-1.5	0.04%	0.06%	0.00%	0.07%	0.00%	0.00%	0.00%	0.12%	0.00%	0.29%
	Zone M-2	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.00%	0.11%
	Zone M-2.5	0.00%	0.04%	0.00%	0.08%	0.00%	0.00%	0.00%	0.09%	0.00%	0.21%
	Zone MPD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Rural Zones in the Antelope Valley	Zone C-RU	0.04%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.00%	0.13%
	Zone MXD-RU	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.00%	0.06%
Special Purpose Zones in the Antelope Valley	Zone SP	0.00%	0.97%	0.00%	0.05%	0.00%	0.00%	0.00%	0.01%	0.00%	1.03%
All Zones		1.93%	12.15%	0.22%	1.46%	0.05%	0.03%	0.05%	37.57%	43.58%	100%

Lastly, as seen in Table 15, zoning appears to be correlated with the preservation of high value farmland categories. 75.23% of Prime Farmland, 98.26% of Farmland of Statewide Importance, 85.49% of Unique Farmland, and 99.83% of Farmland of Local Importance lie within Zone A-2.

Investigating the Agriculture-Solar Land Use Conflict

Utility-scale, ground-mounted solar is permitted in Zones A-2, C-M, C-R, M-1, M-1.5, M-2, C-RU, and MXD-RU zones with a discretionary permit. The Renewable Energy Ordinance additionally provides that this development cannot occur within Significant Ecological Areas and Economic Opportunity Areas.

Table 16. Solar Projects in the Antelope Valley, Approved and In Review

Project Name	Applicant	Megawatts	Important Farmland Category	Status	Area (Acres)	Prior Land Use	Zoning
Rutan	Sunlight Partners	4	Urban and Built-up Land, and Other Land	Approved	45.27	Undeveloped	M-1
Silver Sun Greenworks	Silverado Power	20	Grazing Land	Approved	161.21	Undeveloped	A-2
Alpine Solar Addition	NRG	0	Grazing Land	Approved	35.24	Undeveloped	A-2
Western Antelope Blue Sky Ranch	Silverado Power	40	Grazing Land	Approved	159.47	Undeveloped	A-2
West Antelope Solar Project	Canadian Solar	20	Grazing Land	Approved	269.42	Undeveloped	A-2
Antelope Expansion 3	sPower	30	Grazing Land	Approved	151.45	Undeveloped	A-2
AV Solar Ranch One	First Solar	230	Grazing Land, Farmland of Local Importance, Prime Farmland, and Other Land	Approved	2,082.62	Undeveloped	A-2
Alpine Solar	NRG	92	Grazing Land, and Prime Farmland	Approved	792.91	Undeveloped	A-2
Antelope Solar Greenworks	Silverado Power	52	Grazing Land, Prime Farmland, Farmland of Statewide Importance, and Other Land	Approved	257.53	Undeveloped	A-2
Antelope Valley Solar - LACo	Renewable Resources Group	156	Grazing Land, Prime Farmland, and Other Land	Approved	1,286.33	Farmland	A-2
5149 Lancaster Energy LLC	Tweety Capital	42	Grazing Land, and Other Land	Approved	109.15	Undeveloped	A-2
American Solar Greenworks	Silverado Power	35	Other Land	Approved	134.57	Undeveloped	A-2
Antelope Valley Solar	Antelope Valley Solar LLC	7.5	Other Land	Approved	76.54	Undeveloped	A-2
Lancaster WAD	Silverado Power	5	Other Land	Approved	38.95	Undeveloped	MXD-RU
El Campo Solar	sPower	35	Grazing Land	In Review	238.71	Undeveloped	A-2
High Valley Solar Site 1	sPower	40	Grazing Land	In Review	343.88	Undeveloped	A-2
High Valley Solar Site 2	sPower	7	Grazing Land, and Other Land	In Review	73.89	Undeveloped	A-2
Estrella Solar	sPower	21	Prime Farmland	In Review	148.78	Farmland	A-2
High Valley Solar Site 3	sPower	7	Other Land	In Review	63.19	Undeveloped	A-2
High Valley Solar Site 4	sPower	1	Other Land	In Review	10.13	Undeveloped	A-2

Table 16 depicts how, out of all fourteen approved solar projects in the Antelope Valley, twelve fall within the zoning category A-2. Just two projects outly this category and they instead occupy parcels in Zones M-1 and MXD-RU. Notably, these projects are of smaller scale - neither occupies more than 100 acres of land - though projects in Zone A-2 average 459.70 acres. Importantly, just one of the fourteen approved solar projects is sited on what was previously farmland, and though three of the projects are sited on Prime Farmland, it is just partially. Out of the seven projects currently in review, only one is proposed on existing farmland. All are proposed on parcels in Zone A-2.

Figure 5. NRG Alpiine Solar Project, 2011 to 2021

Analysis

In summary, the Antelope Valley is a region in Los Angeles County where the vast majority of lands, 79.57%, are dedicated to agriculture through the zoning ordinance. Agricultural physical land uses and high quality farmland are very much correlated to this land use practice; however, the flexibility of the zoning code has allowed other physical land uses to dominate the agricultural zones. Residential land uses, in particular, have been widely developed across the agricultural zoning codes and today make up more than 60% of Zone A-1 and almost 20% of Zone A-2. Meanwhile, the 'Irrigated Farm' category of physical land uses is most concentrated within Zone A-2. Highest value farmland categories are also seen to be most concentrated within Zone A-2.

While solar projects in the Antelope Valley are frequently occurring on what is zoned to be agricultural land, the large proportion of this activity is taking place on vacant, undeveloped land and not land that is historically, physically agricultural. Only one of fourteen projects already approved and one of seven projects currently in review are sited on what was previously farmland. These findings therefore illustrate that the land-use conflict has little to do with land use policy and that the departure of agriculture and influx of solar may have more to do with external dynamics or factors that are not considered in this research.

Future Land Use Conflict in the Antelope Valley

Findings

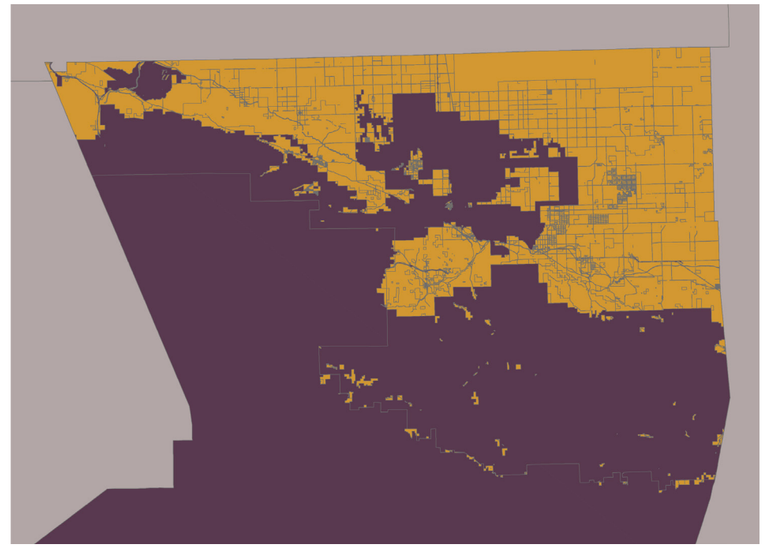
The development of agriculture is permissible across 645,720 acres in the Antelope Valley, and the development of solar is permissible across a more limited 148,974 acres. For the purpose of this research, these area calculations include places within zoning codes where the development of agriculture and solar land uses may be subject to additional review and not executed 'by right.' Therefore, it is important to recognize the fact that the feasibility of development is a layer that is not fully described in this context.

In this research, it was found that agricultural and residential land uses were generally permitted for development across the same codes of the existing zoning ordinance. Similarly, while the area where solar is permitted is much more limited, the zoning categories that reflected some level of permission were also seen to allow agricultural and residential development. This is important because, generally, agriculture and housing are more readily developed than solar in that there are fewer restrictions and greater pathways to permitting and construction.

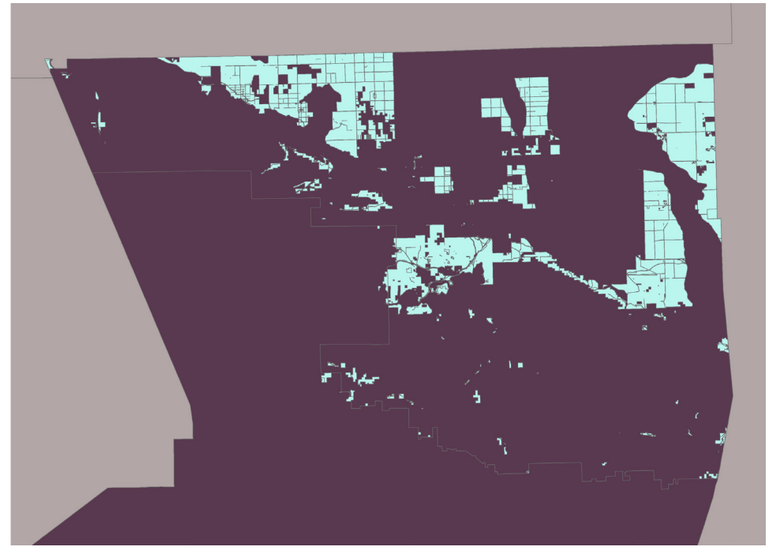
The conflict of residential development with both agriculture and solar is elaborated through analysis of existing physical land uses within areas where the two are allowed for development. Where agriculture is permitted, the 'Irrigated Farm' category of physical land uses makes up just 4.45% of the area, while residential physical land uses make up 22.06% of all physical land uses by area, and the more nebulous 'Desert' category dominates 55.40% of the space. Single family homes are the most common residential use within these zones and are followed by mobile home parks, with each occupying 16.44% and 4.81%, respectively, of the entire area where both agriculture and residential land uses are allowed. As the 'Desert' category is likely to be vacant or otherwise unoccupied land, single family dwellings can be understood to be the leading physical land use, as well as the leading demand for development, in places where agriculture is permitted.

A similar analysis of lands where solar is permitted shows that residential land uses occupy 20.08% of the area, and that the 'Irrigated Farm' and 'Desert' categories make up 6.60% and 64.86% of the lands, respectively. Single family homes againlead the developed physical land uses, occupying 18.00% of all areas where solar is permitted. In the case of solar, the 'Desert' category may signify optimal opportunities to develop solar, at least from the developers' perspective, as these are likely undeveloped lands.

Map 6. Areas in the Antelope Valley Where Agriculture is Permissible



Map 7. Areas in the Antelope Valley Where Solar is Permissible



These findings expose a slight discrepancy between agriculture and solar in how residential land uses might encourage displacement. Residential land uses account for a greater percentage of the area where agriculture is permitted than where solar is permitted. Though this is by a mere 1.98%, the discrepancy translates to more than 95,085 acres of housing developed in areas where agricultural uses are permitted and solar is not. As a result, housing is 23.21% more likely in areas where agricultural uses are permitted and solar is not. This signifies that while housing, particularly single family housing and mobile homes, is a development demand in both areas, areas where agriculture is permitted are more readily developed for housing.

These findings also describe how agricultural physical land uses are more prevalent in areas where solar is permitted than where agriculture is more broadly permissible. Physical agricultural land uses as denoted by the 'Irrigated Farm' are 1.79% more likely to be represented in areas where solar is permitted than in areas where agriculture is allowed; this translates to agriculture-related activities being 3.21% more likely to be sited in these places. Therefore, zoning categories that permit solar can be understood to improve the development or conservation of agricultural land uses.

Analysis

In sum, housing is the most dominant physical land use in areas where agriculture and solar are permitted for development. Furthermore, areas where agriculture is permitted are more susceptible to housing development and are less likely to encourage agricultural physical land uses than are areas where solar is permitted. This may be related to the zoning ordinance, as the categories that do permit solar are less adaptable for the development of housing. That being said, it is important to note in this analysis that housing is generally more readily developed than solar; it is more commonly allowed 'by right,' and solar is more commonly permitted through additional review. Therefore, though areas where solar is permitted are less likely to be subject to housing development today, it is possible that long term solar goals may be outpaced by housing development in the future.

Table 17. Physical Land Uses Where Agriculture and Solar Can Be Developed

Use Type	Use Description	Zoning Permits Agriculture	Zoning Permits Utility-Scale Solar
		Area (Acres)	Area (Acres)
Commercial	Animal Kennels	226.67	178.71
	Auto, Recreation EQPT, Construction EQPT, Sales & Service	50.61	27.01
	Commercial	2,908.05	972.10
	Hotel & Motels	89.38	81.16
	Nurseries or Greenhouses	49.06	1.49
	Office Buildings	255.18	55.60
	Parking Lots (Commercial Use Properties)	19.61	14.67
	Professional Buildings	3.86	1.65
	Restaurants, Cocktail Lounges	63.64	56.44
	Store Combination	151.95	43.33
	Stores	92.37	50.19
	Wholesale & Manufacturing Outlets	80.93	80.93
	Total Commercial	4,019.33	1,573.89
Government	Government Parcel	75,575.90	7,402.94
	Total Government	75,575.90	7,402.94
Industrial	Heavy Manufacturing	1,044.68	957.93
	Industrial	2,070.12	673.76
	Mineral Processing	649.25	0.00
	Motion Picture, Radio & Television	153.40	118.97
	Open Storage	124.57	35.47
	Warehousing, Distribution, Storage	81.61	79.91
	Total Industrial	5,534.40	1,894.14
Institutional	Churches	252.32	60.24
	Homes For Aged & Others	287.97	279.17
	Institutional	79.83	76.57
	Schools (Private)	339.68	116.18
	Total Institutional	960.12	532.16
Irrigated Farm	Dairies	162.89	0.00
	Desert	357,704.22	153,036.78
	Feed Lots	59.61	30.53
	Field Crops	8,723.84	5,403.64
	Fruit & Nuts	3,745.15	1,460.46
	Irrigated Farm	10,920.28	6,782.46
	Pasture	4,269.71	1,474.79
	Poultry	564.27	191.18
	Vineyards	238.24	171.91
	Waste	67.95	67.95
	Total Irrigated Farm	386,456.16	168,619.69
Miscellaneous	Miscellaneous	15,982.54	1,648.01
	Pipelines, Canals	3,260.25	369.94
	Rights of Way	735.23	509.95
	Rivers & Lakes	0.79	0.00
	Utility Commercial & Mutual: Pumping Plants State Assessed Pr	6,741.43	4,433.51
	Water Rights	72.64	37.26
	Total Miscellaneous	26,792.88	6,998.67
Recreational	Athletic & Amusement Facilities	23.21	8.63
	Camps	1,980.56	979.49
	Clubs., Lodge Halls, Fraternal Organizations	1,019.19	23.36
	Golf Courses	433.02	205.88
	Race Tracks	251.94	182.51
	Recreational	184.02	32.76
	Skating Rinks	32.36	13.58
	Total Recreational	3,924.31	1,448.45
Residential	Five or more apartments	783.29	26.69
	Four Units (Any Combination)	337.02	6.19
	Mobile Home Parks	196.11	80.35
	Mobile Homes	31,037.03	3,172.33
	Single	106,125.54	42,463.73
	Three Units (Any Combination)	757.74	273.76
	Two Units	3,217.67	1,346.93
	Total Residential	142,455.94	47,369.98
TOTAL	Zone	645,719.97	235,963.75

How to Plan for Both

Findings

Regional Responses to the Agriculture-Solar Land Use Conflict

Three interviews were conducted with planners from local jurisdictions to identify the strategies planning agencies have adopted to respond to agriculture and solar land use priorities. These interviews were conducted with planners from San Bernardino County, the City of Lancaster, and the City of Santa Clarita. Respective notes are outlined in Appendix F.

Solar development varies widely in Southern California according to the physical and jurisdictional constraints imposed. San Bernardino County is vast, but 89% of its lands are public lands, and the County planning agency therefore only manages 11-12% of its area. The City of Lancaster does not have agricultural zoning, and agriculture-related land uses are instead sited within the boundaries of rural zones. The City of Santa Clarita does not have very much agriculture to begin with.

The jurisdictions' land use goals vary accordingly. San Bernardino restricts solar development from community plan areas, and has established ordinances that allow them to scale solar development up or down based on future community impacts. Though the City of Lancaster encourages the preservation of existing agricultural uses, solar is a major developmental priority and the city seeks to become the solar capital of the world. The City of Santa Clarita does not consider solar farms in their list of permitted uses, and as a result, solar has not replaced any land uses at all.

The agriculture-solar conflict, or lack thereof, is an outcome of these constraints and methods. San Bernardino County reported minimal agriculture-solar conflict because their agriculture is sited in the valley and their solar is sited in the desert, solely on undeveloped land. The City of Lancaster suggested there is little agriculture-solar conflict because agriculture is not seen to be a realistic use of property, given current water constraints; and because most residents are commuters, and therefore have limited inclination to participate in public meetings. The City of Santa Clarita, on the other hand, attributed minimal agriculture-solar conflict to the fact that solar is generally permitted on rooftops, and, less commonly, on small ground-mounted systems.

The three jurisdictions identified strategies that help reduce local land use concerns raised by the development of utility-scale solar, which are as follows:

San Bernardino County:

- To encourage stakeholder engagement, a robust community engagement process is established for each utility-scale solar project.
- To minimize the impact on local habitat corridors, site-specific design proposals are reviewed. These can include the inclusion of habitat corridors between solar panels and the intentional siting of solar panels to minimize this impact.
- To minimize the impact of noise on local residents, a process to establish that all infrastructure is in proper working order is set in place. Age and maintenance matter.
- To restrict the impact on the desert ecosystem, solar development on degraded lands are encouraged.
- To establish thorough decommissioning plans, newer projects are required to put a bond down for the County and identify how the site will be deconstructed, in advance.

City of Lancaster:

- To minimize the degrading of local lands near residents, solar is sited far from residential subdivision zoning, where there are not too many people residing.
- To minimize impacts related to Valley Fever and local wildlife, the grading of land is prohibited for the construction of solar, except for access roads. Vegetation is encouraged, no higher than six inches, to reduce soil disturbance.
- To encourage local reliance on renewable energy, the entire city was automatically transitioned into acquiring energy from their own community choice aggregate.

City of Santa Clarita:

- To encourage use of renewable energy, the rooftop development of solar is supported.

The LACDRP already considers several of these points in its current and long range planning processes. However, some of these takeaways warrant additional research as the agency responds to future conflict in the Antelope Valley. Maintenance, siting, and grading for ground-mounted utility-scale solar, in particular, are matters that can be further addressed in future planning.

Analysis

Planning agencies from local governments engage in a variety of solar land use strategies, according to the various physical and land use constraints imposed; what is successful

in some places might be unsuccessful in others. This conclusion is a reminder that the current praxis of land use allocation at varied levels of government, such as city or county and state levels, allows jurisdictions to best respond to pressures from local stakeholders, who might want to restrict the development of solar locally, and regional stakeholders, who might want to encourage the development of solar in the pursuit for clean air. Accordingly, as the LACDRP identifies organized approaches to permit the development of solar, coordinated regional and local engagement is needed to identify how the varying scales of needs can be compromised to produce fair outcomes for all.

Additional Findings

Findings

While outside of the scope of this project, the following findings provide the existing narrative of land use conflict with additional context. The following subsection warrants a research project of its own and should be read as complementary material that does not provide definitive conclusions.

Valley Fever

Valley Fever is a common fungal disease transmitted through the inhalation of Coccidioides immitis spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils.[38] Valley Fever is spread when arid land soils are disturbed; in rural places like the Antelope Valley, it is linked to broad public health concerns related to socioeconomic vulnerability and health care access. The infection is often cited by those opposing solar in the Antelope Valley.[39] Though no studies researching the broad impact of solar development on local cases of Valley Fever could be found, there was an outbreak of Valley Fever among 28 workers at large solar power construction sites in San Luis Obispo County, in 2013, that was widely reported by local media outlets.[40]

As portrayed by Figures 6 thorugh 8, preliminary findings suggest that region-wide reports of Valley Fever may at least be correlated to solar development. Nearly 3,000 acres were

38 Los Angeles County Department of Public Health. (n.d.). Acute Communicable Disease Control. Retrieved from http://publichealth.lacounty.gov/acd/diseases/cocci.htm

39 Clarke, Chris. 2013. Uh Oh: Valley Fever Outbreak Linked to Solar Development. KCET. Retrieved from https://www.kcet.org/redefine/uh-oh-valley-fever-outbreak-linked-to-solar-development#:~:text=Valley%20fever%2C%20a%20respiratory%20infection,Obispo%20solar%20project%20construction%20sites.&text=The%20state%20accounts%20for%20a,half%20of%20the%20nation's%20fatalities.

40 Cart, Julie. 2013. Officials study valley fever outbreak at solar power projects. Los Angeles Times. Retrieved from https://www.latimes.com/local/la-xpm-2013-apr-30-la-me-solar-fever-20130501-story.html

Figure 6. Area Pending Solar Development by Approval Year

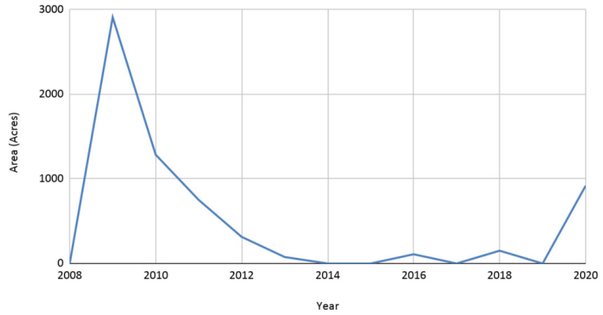


Figure 7. Rate of Dust Valley Fever by Los Angeles County Department of Public Health Service Planning Areas, 2004 - 2016

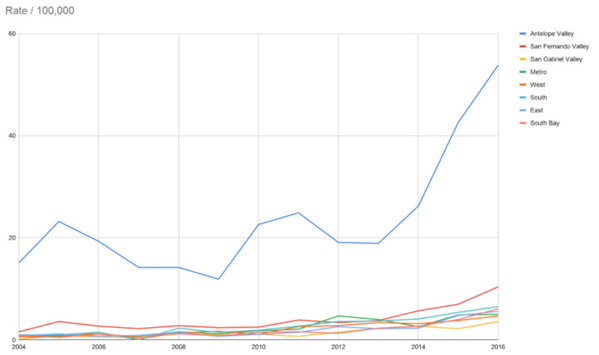
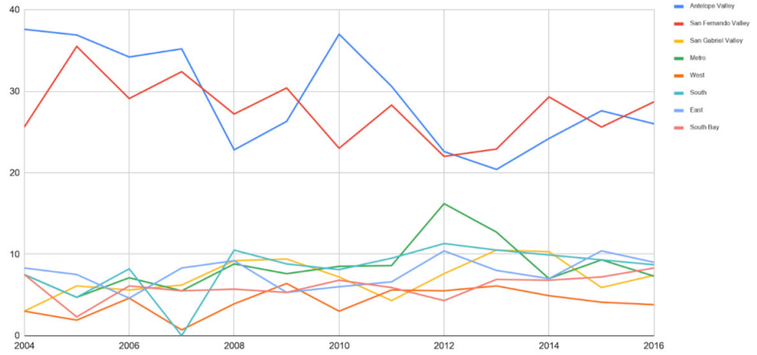


Figure 8. Percent of Dust Valley Fever by Los Angeles County Department of Public Health Service Planning Areas, 2004 - 2016



approved for solar development in 2009 and in the years that followed, the rate of Valley Fever grew significantly. To validate this conclusion, this data should be compared to other development growth data, as solar is not the only kind of development that requires the grading of land. It is also unclear if this substantial uptick in cases is related to increased access to testing or improved testing methods.

However, it is clear that Valley Fever is occurring at a more concentrated rate in the Antelope Valley than at other areas in Los Angeles County. Though the Service Planning Area produces roughly the same number of cases as the San Fernando Valley, the per capita rate of infection in the Antelope Valley is considerably higher.

Analysis

The County's effort to prioritize the preservation of agriculture and the development of solar is more complicated than it seems. Beyond the land use perspective, there are a number of important components that must be considered and addressed, which include, but are not nearly limited to, environmental health issues like Valley Fever. Issues of water access and jobs were also addressed by interview participants and research on these topics could further contextualize the context of the agriculture-solar land use conflict.

V. Conclusion and Recommendations

Throughout the course of this research, many of the conversations with planners from the LACDRP and other jurisdictions circled back to the pursuit of satisfying stakeholder needs at multiple scales. While the State imposes political pressures on local jurisdictions to allow the development of more housing, local stakeholders have retaliated with collective claims of detrimental public and environmental health outcomes as a result. The question the LACDRP must address is not a matter of prioritizing regional needs over local ones, or prioritizing the preservation of agriculture over the development of solar. Rather, the LACDRP must identify strategies that allow for the healthy and safe existence of both. The LACDRP has made many strides toward this plan by adopting the Antelope Valley Area Plan and implementing ordinances like the Renewable Energy and the Significant Ecological Area Ordinances. However, the continued diminishment of agricultural lands in the Antelope Valley cannot be denied. The findings of this research therefore allow the LACDRP to identify data-driven strategies that best support the agency's efforts to produce positive environmental outcomes for both conservation and climate mitigation.

Summary of Findings

Lands zoned for agriculture are overwhelmingly used for residential land uses, as opposed to agriculture. These areas are predominantly dominated by single family dwellings and mobile homes; in fact, farming activities make up just 1.37% of the Light Agriculture zone, Zone A-1, and just 5.72% of the Heavy Agriculture zone, Zone A-2. Notably, nearly all of the farm-related physical land use categories described in this report are sited in Zone A-2. While the highest value categories of farmland have declined in the past several decades, the lowest value categories of farmland have expanded in size. Agricultural zoning appears to be correlated with the preservation of high value agricultural lands, with highest quality farmland most commonly found in Zone A-2.

Importantly, nearly all utility-scale solar projects in the Antelope Valley have been sited on undeveloped, vacant land located in Zone A-2 and not on land that is historically, physically agricultural. This research finds that housing presents a greater land use conflict to agriculture than does solar, and that housing simultaneously presents some

conflict to solar development. Therefore, as the LACDRP establishes strategies to improve the environmental impacts of existing land use practices, it will be critical to preserve agriculture and promote solar by planning housing sustainably.

Though housing land uses may present greater land use conflict to agriculture in the Antelope Valley than solar, it is still important to plan the development of the expanding industry safely.
Meetings with planners from local jurisdictions highlighted the ways in which physical and jurisdictional limitations altered the development of utility-scale solar in their regions, and identified strategies that might improve outcomes in the Antelope Valley. These jurisdictions identified nine approaches that allow them to develop solar while meeting political pressures related to public health, environmental conservation, and other community concerns.

Additional findings that were considered but do not meet the scope of this report are also provided. Preliminary research conveys a correlation between solar development and regional cases of Valley Fever. While this point warrants a research project of its own, the finding helps describe the complexities of the agriculture-solar conflict in the Antelope Valley.

Proposed Policy Recommendations

The following policy recommendations were drafted as a result of the findings provided by this research project:

Related to the preservation of agriculture

1. The County should prioritize the preservation of agricultural activities in areas where residential uses are allowed to be developed, as housing is more readily developed than utility-scale solar, and appears to be imposing the greatest shift of land use from agriculture.
2. The County should also consider upzoning closer to town cores and limiting built expansion in agricultural zones. The County should emphasize this effort on Zone A-2, in particular, as the category was found to have more agricultural physical land uses and higher quality farmland than Zone A-1.
3. Relatedly, the County should promote the development of residential uses in urban, as opposed to rural, places. This will discourage the conversion of agriculturally zoned lands into residential uses.
4. The County should focus future rezoning efforts on environmental qualities such as soil type and water access, to establish land use ordinances that address physical and environmental limitations of the land.
5. Though outside of the scope of this project, the County should consider pursuing recent land use innovations like agrovoltaic development.

Related to the development of solar

1. The County should encourage the development of utility-scale solar on degraded land, even if that land is agricultural (so as to allow farmers a meaningful exchange of their livelihood for profit off the land).
2. The County should discuss design and development strategies that mitigate local impacts of Valley Fever. The City of Lancaster's approach of prohibiting grading seems to be a design intervention worth additional analysis, as this is an approach that has been adopted locally, successfully.
3. The County should also consider how efforts to decarbonize the local grid may be better supported through rooftop solar or community grids, as these strategies mitigate concerns vocalized by opponents of utility-scale development.

Related to County processes and data

1. The County should implement spatial land use analysis for future conservation and/or preservation efforts. Specifically, the County should implement a land use analysis strategy to minimize encroachment on culturally or ecologically significant lands.
2. The County should implement technical methods for categorizing physical land uses to better support future research.

Future Areas of Research

The following points summarize research opportunities the LACDRP should pursue to produce a more socially and environmentally just analysis of current and future land use outcomes in the Antelope Valley:

- Opportunities to support indigenous land practices in the Antelope Valley. Industries that extract from the land should be guided by the input and leadership of the People to which the land belongs.
- The socioeconomic and racial implications of sprawling urban development and utility

expansion in rural, agricultural places. Planning should be used as a tool to create healthy communities and supportive livelihoods, not as a tool to disinvest or further extract from specific populations.

- A cost and benefit analysis of utility scale development versus rooftop or community solar for Los Angeles County. Potential costs to consider include: greenhouse gas emissions, utility fees, and utility reliance.

Concluding Remarks

The findings and concluding policy recommendations of this report will be used to guide the LACDRP as it identifies strategies to respond to Action 47 of the OurCounty Plan, pursues updates to the Los Angeles County General Plan, and establishes ordinances that effectively preserve agricultural activities.

Please contact the author, Irene Takako Farr (irenefarr@ucla.edu), and the client representative, Alejandrina Baldwin (abaldwin@planning.lacounty.gov), if you have any comments or questions regarding the findings of this report.

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Appendix A

Interview Questions for Urban Planners From Other Jurisdictions

1. What are your jurisdiction's agriculture and solar land use goals
2. How has the recent development of solar impacted your communities, planning goals and planning objectives (if at all)?
3. If there is conflict:
    How has your jurisdiction responded to it?
    How has your jurisdiction incorporated land use planning into its response?
4. If there is no conflict, why do you think this is so? (economic development, sustainability, etc)
5. What do you believe to be the optimal mix of solar and agriculture for your region? Why?
6. Generally, how do you/your department navigate varying stakeholder desires while achieving sustainability objectives?

Appendix B

Agriculture-related permit and review requirements

Zoning Code	Agricultural, Open Space, Resort and Recreation, and Watershed Zones				Residential Zones					Commercial			Manufacturing				Rural		Specific Purpose
	A-1	A-2	O-S	W	R-A	R-1	R-2	R-3	RPD	C-M	C-R	CPD	M-1	M-1.5	M-2	M-2.5	C-RU	MXD-RU	SP
Any use owned and maintained by the Forest Service of the United States Department of Agriculture, and any authorized leased use designated to be part of the Forest Service overall recreational plan of development	-	-	-	SPR 1	P	P	P	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aqueducts	-	-	CUP	-	P	CUP	CUP	CUP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Community gardens	P	P	P	-	CUP	CUP	CUP	CUP	N/A	P	P	N/A	P	P	P	CUP	N/A	N/A	N/A
Crops, including field, tree, bush, berry, and row	P	P	P	-	CUP	CUP	CUP	CUP	N/A	SPR	SPR	N/A	P	P	P	CUP	SPR	SPR	N/A
Fairgrounds of a public character, when permanently located, including accessory commercial uses	-	SPR 3	CUP	-	P	CUP	CUP	CUP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Greenhouses	SPR 2,4	SPR 2,4	-	-	SPR	SPR	SPR	SPR	N/A	SPR	SPR 2	N/A	SPR	SPR	SPR	CUP	SPR	SPR	N/A
Harvesting of miscellaneous forest products	-	-	CUP	-	CUP	CUP	CUP	CUP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Land reclamation projects	CUP	CUP	CUP 5	CUP	SMP	SMP	SMP	SMP	N/A	CUP	CUP	N/A	CUP	CUP	SPR	CUP	N/A	N/A	N/A
Logging operations, involving only the actual controlled cutting and removing of trees																			
Excluding sawmill operations	-	SPR	-	SPR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Including sawmill operations	-	CUP	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manure, spreading, drying, and sales, excluding pulverizing and shaking machinery	-	SPR 2,6	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	SPR	CUP	N/A	N/A	N/A
Mushroom farms	-	SPR 2	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oil wells	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CUP	CUP	N/A	N/A	N/A	N/A	N/A	CUP	-	N/A
In compliance with Section 22.140.400. C.1.a	CUP	SPR	-	CUP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
In compliance with Section 22.140.400. C.1.b	CUP	SPR	-	CUP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CUP	CUP	CUP	CUP	N/A	N/A	N/A
In compliance with Section 22.140.400. D	-	-	CUP	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plant aquaria	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plant nurseries, propagation of nursery stock only	SPR	SPR	SPR	SPR 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Secondary land uses under high-voltage transmission lines	SPR	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Solid fill projects	CUP	CUP	-	-	N/A	N/A	N/A	N/A	N/A	CUP	CUP	N/A	CUP	CUP	SPR	CUP	N/A	N/A	N/A
Surface mining operations	SMP	SMP	SMP	SMP	N/A	N/A	N/A	N/A	N/A	SMP	SMP	N/A	SMP	SMP	SMP	SMP	N/A	N/A	N/A
Watershed, water recharge, and percolation areas	-	-	SPR	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wildlife, nature, forest and marine preserves, and sanctuaries	-	-	SPR	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wineries																			
In compliance with Section 22.140.610. D.1	MCUP	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
In compliance with Section 22.140.610. D2	MCUP	MCUP	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
In compliance with Section 22.140.610. D3	CUP	CUP	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Animal-Related Uses																			
Animal experimental research institutes					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Animal hospitals	-	SPR 2	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Animal shelters and pounds	-	SPR 2	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Apiaries	SPR 2,4	SPR 2,4	SPR 7	SPR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix B (Cont'd)

Agriculture-related permit and review requirements

Breeding farms for selective or experimental breeding of cattle or horses, or the raising or training of horses or show cattle	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cemeteries and crematories for pets					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	CUP	CUP	N/A	N/A	N/A
Circus winter quarters	-	CUP	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dairies	-	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	CUP	CUP	N/A	N/A	N/A
Dog breeding facilities					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Dog kennels	-	SPR 2	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Dog training schools	-	SPR 2	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	CUP	-	N/A
Equestrian hostels, including corrals and feeding bins	-	-	-	SPR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grazing of cattle, horses, sheep, goats, alpacas, or llamas	SPR	SPR	SPR 8	SPR 8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Hogs or pigs	SPR	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Humane societies	-	CUP	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	CUP	CUP	N/A	N/A	N/A
					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Livestock feed yards	-	SPR 2,6	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	CUP	CUP	N/A	N/A	N/A
Livestock sales yards	-	SPR 2,8	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	CUP	CUP	N/A	N/A	N/A
Menageries, zoos, animal exhibitions, or other facilities for keeping of wild animals	-	CUP	CUP	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CUP	CUP	CUP	CUP	CUP	CUP	N/A
Raising, breeding, and training of horses and other equine, cattle, sheep, goats, alpacas, and llamas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR/CUP	SPR	SPR	CUP	N/A	N/A	N/A
On a lot having an area of not less than one acre, up to eight animals allowed per acre	SPR	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
On a lot having, as a condition of use, an area of not less than five acres, nine or more animals allowed per acre	CUP	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Raising of poultry, fowl, birds, rabbits, chinchilla, nutria, mice, frogs, fish, bees, earthworms, and other similar animals of comparable nature, form, and size, including hatching, fattening, marketing, sale, slaughtering, dressing, processing, and packing, including eggs, honey, or similar products derived from such animals	SPR	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Riding academies 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Riding academies and stables, with the boarding of horses	CUP 8	SPR 2,8	CUP 8	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CUP 3	SPR	SPR	CUP	CUP	-	N/A
Stables, with the boarding of horses 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CUP 3	SPR	SPR	CUP	N/A	N/A	N/A
of racehorses, provided such use is not established for commercial purposes 1					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Veterinaries	-	SPR	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	N/A	N/A	N/A
Veterinaries, small animal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clinics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	SPR	SPR	N/A
Hospitals and veterinary consulting offices	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPR	SPR	SPR	CUP	CUP	CUP	N/A
Wild animals, keeping of individually or collectively for private or commercial purposes	-	CUP	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	P/AP	P/AP	P/AP	CUP	N/A	N/A	N/A

Appendix C

Solar-related permit and review requirements

Permitted Solar by Zone and Description																		
Zoning Code	Agricultural, Open Space, Resort and Recreation, and Watershed Zones				Residential Zones				Commercial			Manufacturing				Rural		Specific Purpose
	A-1	A-2	O-S	W	R-A	R-1	R-2	R-3	C-M	C-R	CPD	M-1	M-1.5	M-2	M-2.5	C-RU	MXD-RU	SP
Energy generating or storage devices, including but not limited to solar, wind, or geothermal devices	-	-	CUP	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	CUP	CUP	CUP	-	-	-	N/A
Utility-scale solar energy facilities, ground-mounted	-	CUP	-	-	-	-	-	-	CUP	CUP	N/A	P	P	P	-	P	P	N/A
Utility-scale solar energy facilities, structure-mounted	P	P	-	-	P	P/ MCUP	P	P	P	P	N/A	-	-	-	-	CUP	CUP	N/A
Utility-scale wind energy facilities	-	-	-	-	-				-	-	N/A							N/A
Small-scale solar energy systems, structure-mounted	P	P	P	P	P	P	P	P	P	P	N/A	P	P	P	P	P	P	N/A
Small-scale solar energy systems, ground-mounted	SPR	SPR	MCUP	MCUP	SPR	SPR	SPR	SPR	SPR	SPR	N/A	SPR	SPR	SPR	SPR	SPR	SPR	N/A

Appendix D

Notes with Interviews from Planners with Other Jurisdictions

Interview with San Bernardino County
February 11, 2021

Notes:
1. What are your jurisdiction's agriculture and solar land use goals?

- SB county is very different from most other counties. Largest county in the US, 89% of it is lands that are public lands (the 1 million acres counted included these public lands) - military bases.
- 11-12% of the land they have jurisdiction over
- Does cover the whole county, but originally wanted to look at the larger areas. Had so many utility scale projects coming in, didn't have strong codes, wasn't sure if things were going to be approved. Wanted to work with businesses and residents
- You don't get a lot of money from putting solar there, but there are significant consequences nearby
- Robust public engagement process. People started creating nonprofits against solar, they were so engaged.
- There's not a lot of agriculture in SB county, only in the valley. They have one valley and two deserts.
- Solar would happen in the desert
- Just adopted the countywide plan. Countywideplan.com
- Go in there and look for the policy plan. Do have policies on agriculture, separate from solar, but talks about changing over from ag to something else, what they're trying to protect

2. How do you site your solar? Have you observed solar replacing agriculture in SB County?

- In general, identified 14 community planning areas; not allowed in any of them. Can find those in the countywide plan website. Some are large, some are small. Residents were willing to have solar further out
- Desert - wide open spaces, people enjoy that view, feel like they own that view
- Another reason they did this because there was no surety for an applicant that something would be approved. Wanted to set guidelines out early on about what applicants need to do. Residents also wanted language that would protect
- Preferably in a site already disturbed
- A lot of the projects are on hold - go to county website, land use services, under planning there's a renewable energy tab that lists all projects, which ones are in review, etc.
- Do have mitigation, all have to do an EIR. one of the biggest issues we have are habitat corridors. Definitely try to have them go around. Some of them put a corridor in between. Definitely site specific. Mitigation measures would come out of EIRs. land use services -> environmental planning has all of the EIRs

3. How has the recent development of solar impacted your communities, planning goals and planning objectives (if at all)?

- Valley fever is brought up
- Really complained about this one solar development, placed on a sand river that was there for thousands of years. Sand river moves
- Claim that if they are near to a solar field, their property values go down. Has seen reports that it goes up and reports that it goes down
- Some people like them because would rather have that than subdivision of houses
- Some claim noise, but Karen hasn't heard that
- A lot of it is scenic quality and quality of life
- What people don't think about when they don't like projects is that you use electricity, and we need electricity. You don't like the sand blowing, but you're also releasing emissions from your car
- They feel that they are having to get the solar fields, and are getting all the negative and not the positive of it because the electricity is going to LA
- Newer ones that are built are more community friendly. One has 20' high solar panels, tall, impacts from it, supposedly make noise. Age and maintenance matter

4. What is the biggest environmental impact you've observed from solar? Do you grade your solar projects?

- Desert tortoise is big
- Biggest issue that residents complain about is bolling sand
- Newer projects have to do a whole construction plan, have to put a bond down, and talk about how they're going to put the site together back to the way it is now
- Water - that's another reason they're not hampering ag is because there's not a lot of

water up there. For ag, most ag, you need a lot of water, and you need it not so dry
- People do complain about water because during the construction phase, they do need water

5. What do you believe to be the optimal mix of solar and agriculture for your region? Why?
- Have a lot of land that is not being used for its highest and best use. A lot of it is because its far out, so can't put a lot of housing there
- Jobs are mostly in the valley
- Ag is around, and there wasn't that much of it until now, people are doing hemp
- Solar - two huge deserts and a lot of sun, solar makes sense
- Difficult to weigh those, drew the line in the sand with renewable energy conservation element
- Given themselves the room to allow more or back away from solar more if they feel like there will be community impacts - but hasn't resolved the whole problem of giving surety to the applicant

6. Generally, how do you/your department navigate varying stakeholder desires while achieving sustainability objectives?
- SB county is kind of different - largest county in land area, even though they don't have jurisdiction for all of it. SB county is also poor
- Sustainability-wise, not always on the forefront, can't do a lot of things cities do, like architectural design guidelines.
- General plan was adopted in 2020, started in 2013 - sustainability in here but not sustainability for sustainability's sake
- Haven't as a county said that climate change is an issue and that we're going to go in this direction, but will participate in policies that achieve sustainability objectives

7. How do you navigate regional vs. local priorities?
- Planning is hard, trying to make most people happy and do the right thing
- Not going to make everybody happy
- Public land agencies and their role with land use ordinances
- Now have first solar project that's on state school lands up in the high desert, lucerne valley area. Within a community plan area, but no jurisdiction over it because it's a public land. Not sure what to do with it, participating in a scoping meeting. Transmission line goes through private land, but they don't approve that either - goes through CPUC
- What voice do we have? What voice do we want to have?
- First chance to see how their input will help with these projects

8. Where is solar usually sited? What were the prior uses?
- Vacant land, open, vacant desert land

Interview with City of Lancaster
February 4, 2021

Notes:
1. What are your jurisdiction's agriculture and solar land use goals?
- Do not have agricultural zoning. Allow ag zoning in rural zones, but not a specific zoning code
- Do encourage the preservation of existing agricultural uses, however that's not the city's focus in term of development
- Development is focused in urban areas of the city
- City has large renewable energy goals, only allowed with use permit in rural zones over 2.5 acres
- Historically agriculture: alfalfa, onions and carrots, which are water intensive
- But with groundwater cases and adjudication, many farmers no longer find it profitable to pursue it.
- East side is better for renewable, more transmissions
- West side farm was alfalfa, was converted to solar facility
- No other active ag properties that have converted to solar
- Not many active agricultural uses going on in the city, most that are active are on the east side

2. How has the recent development of solar impacted your communities, planning goals and planning objectives (if at all)?
- If someone is going to comment on a solar project, they're not resident within the city
- Some smaller homes near solar fields
- Most residential uses in the city are in the east
- Most of the solar farms start 80th st west on out - areas aren't inhabited by many individuals within city limits
- Sometimes get comments from unincorporated individuals - antelope/bakers
- Have gotten letters from town councils, most of the time from individuals who live in the area
- Lancaster is 94 square miles - most of solar is west of residential subdivision zoning. Not too many people living there. People don't tend to get involved. A lot has to do with being a commuter community, don't have inclination to participate in public meetings

- Haven't seen an increase in the number of people engaging in meetings
- In 2010, city changed zoning code to allow solar in rural zone with use permit. Have a lot of solar projects. Westside of lancaster is very much a solar area. Up until 2018 on a yearly basis. 4 more that came in at the end of 2020 and those are being handled with a EIR in conjunction with the county, county has 5 that they're processing.

3. If there is no conflict, why do you think this is so? (economic development, sustainability, etc)
- Water
- May have been more of a conflict if agriculture was a more realistic use for the property. Given adjudication of the court cases that limits water rights. Have to water whatever it is you have to grow. Have a lot of temperature extremes
- No natural precipitation
- Don't allow the property to be grated. The vegetation
- Fire department will not let vegetation get higher than six inches
- Encourage vegetation for dust storms but not realistic, particularly with the types of crops that are traditional here.

4. What do you believe to be the optimal mix of solar and agriculture for your region? Why?
- Will continued to be allowed, council has a public goal of being the solar capital of california, the us, the world
- With the state requiring all electrical vehicles by 2035, RPS going to 50-60% renewable
- Don't think solar is going to stop
- 320 days of sunshine
- Transmission lines in and out of the area is pretty easy

5. Generally, how do you/your department navigate varying stakeholder desires while achieving sustainability objectives?
- This does serve the state as a whole, but also the city thinks this is important to ensure that we have the jobs that we need, reduce wind borne dust (with something covering it with vegetation underneath), improve air quality
- People don't like the looks of it, council acknowledges that they can be ugly
- Commuter community, so having jobs that are well paid local - whether they're construction or permanent, that seems to be a goal that they look at.

6. Renewable energy projects coming in - are they serving Lancaster?
- Lancaster has their own CCA - community choice aggregate

- Automatically enrolled in it unless you opted out
- % power provided even for basic plan has higher renewable energy content than from getting your power from edison
- Always looking for ways to be green and to add to that

7. Solar projects as water intensive - do you see the case as well
- Construction is water intensive because have dust requirements
- Operations are not water intensive
- Wash the panels on a quarterly basis, not out there daily
- Some of the sites bring in water, some of the sites have used recycled water. Some of the sites have water rights attached to the property.

8. What is the biggest impact of solar in your region?
- Biological resources, but for the most part, they have been able to navigate that.
- Burrowing owl colonies have been moving in, FW said to ignore them and just continue their work
- No grading except for access roads, so no dirt disturbance

9. How do you implement grading?
- Only have one that used to be a farm, other sites may have been ag in 50s and 60s but not actively
- Wasn't accepting that crops could be gone. Fire dept wouldn't let you go over six inches

Interview with City of Santa Clarita
February 1, 2021

Notes:
1. What are your jurisdiction's land use goals? How do you see solar fitting into the future of your city? Where is solar being sited now?
- Our permitted use chart doesn't contemplate solar farms. As a result, we primarily permit solar on residential roof tops, commercial roof tops and, less commonly, small residential ground mounted systems. We rarely see anything over 10 kW for residential projects. We have, however, seen more apartment buildings come in with larger room top systems recently.

2. How has the recent development of solar impacted your communities, planning goals

and planning objectives (if at all)? Has solar replaced other important land uses?

- There has been no impact to communities. We have met with no community push back on rooftop solar. Solar has not replaced any land uses.

3. If there is no conflict, why do you think this is so? (economic development, sustainability, etc)

- Because we generally only deal with smaller systems I don't think the public feels there is any impact, and so there has been no conflict.
- Generally, how do you/your department navigate varying stakeholder desires while achieving sustainability objectives?
- There hasn't been any varying stakeholder desires.