

California Climate and Agriculture Network

## Triple Harvest:

Farmland conservation for climate protection, smart growth and food security in California

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### About CalCAN

The California Climate and Agriculture Network (CalCAN) is a network of sustainable agriculture advocates, farmers, ranchers and agricultural experts that advances policy solutions at the nexus of sustainable agriculture and climate change.

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# Glossary

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AB 32	Assembly Bill 32, Global Warming Solutions Act of 2006
AB 1532	Assembly Bill 1532, Greenhouse Gas Reduction Fund, 2012
CARB	California Air Resources Board
CDFA	California Department of Food and Agriculture
CEQA	California Environmental Quality Act
CFCP	California Farmland Conservancy Program
DOC	Department of Conservation
FMMP	Farmland Mapping and Monitoring Program
FRPP	Federal Farm and Ranch Protection Program
GHG	Greenhouse gas
LAFCO	Local Agency Formation Commission
OPR	Governor's Office of Planning and Research
RPS	Renewable Energy Portfolio Standard
RTAC	Regional Targets Advisory Committee
SB 375	Senate Bill 375, Sustainable Communities and Climate Protection Act of 2008
SCS	Sustainable Communities Strategy
SGC	Strategic Growth Council
UGB	Urban Growth Boundaries



# Executive Summary

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California's Mediterranean climate enables the year-round production of abundant and diverse crops and livestock and gives the state a significant economic and food security advantage globally. But because of an ongoing failure of public policy and planning, California continues to lose farm and rangeland to development at an alarming rate, imperiling this unique and vital resource.

As California's economy recovers from the most recent recession, traditional development pressures will again threaten California's farmland with conversion to urban sprawl, big-box stores and rural ranchettes. Meanwhile, new infrastructure developments present emerging challenges to farmland conservation. For example, large-scale solar energy projects intended to help the state meet its renewable energy goals and address climate change threaten to take some of California's most significant agricultural lands out of production. High-speed rail and the development that will result from it also put highly productive Central Valley farmland at risk. Finally, the country's boom in oil and natural gas extraction presents a new threat to both agricultural lands and the clean water upon which farming depends.

Old and new pressures to pave over the state's farmland come at a time of uncertainty for farmland conservation in the state. In recent years, the state eliminated funding for our primary farmland conservation program, the Williamson Act. Moreover, Governor Brown's proposed 2013/14 fiscal-year budget cuts funding for farmland conservation easements. And the federal government is not likely to take up the slack, as Congress is expected to cut funding for the farm bill.

Mounting evidence demonstrates the importance of protecting farmland as a method to limit urban sprawl and curb the associated increases in greenhouse gas (GHG) emissions related to transportation and energy use. Consequently, just as we are learning the importance of conserving farmland as a response to climate change, we face continued reductions in farmland acreage and limited resources to slow this loss.

This paper summarizes the current and emerging threats to California farmland and illustrates the role agricultural land can play in mitigating and adapting to climate change. It goes on to outline the limits of current farmland protection policies and programs for preventing urban sprawl, and concludes with a set of policy recommendations for protecting California farmland and the climate in the 21st century.



### **In sum, the report finds that:**

- California farm and ranchland is vital to advancing California's climate protection goals and critical to the state's adaptation to climate change and maintenance of its long-term food security.
- Existing farmland protection policy tools are outdated and underfunded.
- Current policy is failing to protect the very farmland that has the greatest potential to address climate change: lands at the urban edge.
- Farmland protection policies should be strengthened at the boundaries of our cities, where the greatest climate change benefits can occur. Specifically, the following recommendations are offered:
  1. Develop farmland mitigation requirements based on cumulative impacts
  2. Clarify CEQA mitigation requirements for loss of farmland
  3. Re-envision and reinstate state funding of the Williamson Act
  4. Direct a portion of AB 32 cap-and-trade revenues to farmland conservation
  5. Shore up the California Farmland Mapping and Monitoring Program to provide information for climate planning
  6. Engage the Strategic Growth Council in farmland conservation efforts
  7. Strengthen SB 375 to require farmland conservation strategies
  8. Require an agricultural element in OPR general plan guidelines
  9. Require LAFCOs to establish baseline farmland conservation requirements



# 1. Introduction

California is fortunate to have one of the world's five Mediterranean-climate growing regions, enabling the year-round production of abundant and diverse crops and livestock and giving the state a significant economic and food security advantage globally. But because of an ongoing failure of public policy and planning, California continues to lose farmland to development at an alarming rate.

Evidence is mounting regarding the importance of protecting farmland as a method for limiting urban sprawl and the associated increases in transportation and development-related greenhouse gas (GHG) emissions. It is this new and compelling climate change rationale for farmland protection that is the focus of this paper. We identify regional and state-level policy recommendations to protect our unique and vital farmland resources.

## Alarming trends in loss of farmland

For the past 30 years, California has lost an average of 50,000 acres of farmland each year.<sup>1</sup> Because development is most likely to occur on the valley floors around existing cities, the most valuable farmland is disappearing fastest. California lost over 850,000 acres of irrigated farmland between 1984 and 2008.<sup>2</sup> American Farmland Trust predicts that, if we continue to lose farmland at the current rate, California could lose an additional two million acres of agricultural land by 2050<sup>3</sup>—six percent of the total 31.6 million acres of farm and rangeland in the state as of 2008.

In too many cases, instead of accommodating larger populations with smart growth, infill development, public transit and greenbelt protection, California's cities and counties have permitted suburban and ex-urban sprawl and the fragmentation of farmland into large lot "rural ranchettes." This conversion of farmland to low-density development is, in effect, wasting the land that is being sacrificed. Statewide, an acre of farmland is being paved over for every nine new residents and in some critical agricultural areas like the San Joaquin Valley, the conversion rate is an acre for only six people<sup>4</sup>.

With the recent economic downturn, traditional development pressures on farmland have eased temporarily. However, they are likely to increase again as California's population continues to grow and the economy recovers.





## Emerging new threats

Meanwhile, as California continues to grapple with population pressures, modernize its infrastructure and work to meet its climate and renewable energy goals,<sup>a</sup> new pressures from large-scale infrastructure projects and resource development are emerging in the state. These projects, which threaten to accelerate the loss of farmland—solar power development, high-speed rail and oil and natural gas hydraulic fracturing (“fracking”)—are briefly summarized below.

**Large solar farms** — As the state strives to meet its Renewable Energy Portfolio Standard (RPS)<sup>b</sup>, there is increased pressure to develop new, large-scale solar on readily accessible farmland adjacent to transmission lines. For example, as of January 2012, local government approved 45 photovoltaic projects for the San Joaquin Valley, projected to cover 17,570 acres of the state’s most productive farming and grazing land. Another 59 projects currently in the permitting process could cover an additional 23,188 acres.<sup>5</sup>

There are currently no comprehensive regional planning requirements to limit solar facilities to impaired agricultural lands or appropriate urban spaces (such as rooftops or parking lots). Instead, these projects will remove from production some of the most fertile farmland in the world. Though solar development pressures are mounting, the state has not done any analysis of the cumulative impacts of these burgeoning new threats to California agriculture.

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a California’s Renewable Portfolio Standard requires utilities to achieve 33 percent renewable energy procurement by 2020. The Global Warming Solutions Act of 2006 mandates that greenhouse gas emissions be reduced to 1990 levels by 2020.

b According to the California Public Utilities Commission: “California’s RPS is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33% of total procurement by 2020.”



## Agriculture's Riches

Even as the threats of farmland conversion multiply and intensify, the many environmental and societal benefits of farm and ranch land are becoming better understood and more widely appreciated. The growing public consciousness, literacy and concern about food sources and production methods and the heightened interest in local food has elevated awareness of the many benefits of working lands.

California has some of the most productive agricultural land in the world. The state's farmers and ranchers produce an abundance of more than 400 crops, and in 2011 contributed \$43.5 billion to California's economy. California leads the nation in dairy production and produces more than half of the fruits, vegetables and nuts consumed in the country, and nearly a quarter of California's bounty is exported to world markets.<sup>12</sup> This productivity provides food security to the region and the nation.

Additionally, California agriculture can provide a host of benefits including:

- Watershed protection
- Flood mitigation
- Water filtration
- Wildlife habitat
- Open space for hiking, hunting and other forms of recreation

Finally, and importantly, agriculture is essential to California's history, iconic landscapes, sense of place and unique character.

Section 2 of this report, conserving farmland can contribute to all of these goals in several ways. In Section 3, a review of existing farmland protection tools is provided as well as a summary of their limits for achieving farmland and climate protection goals.

**High-speed rail** — California's high-speed rail line will cut through the most valuable farmland in the San Joaquin Valley. Early estimates suggest the conversion of over 2,500 acres for the first phase of the rail line running between Merced and Bakersfield.<sup>6</sup> The rail line will bisect farms, rural roads and irrigation systems, fragmenting agricultural infrastructure and potentially increasing urban-rural conflicts. The absence of adequate smart growth planning requirements, rural ranchettes and bedroom communities will likely sprawl further into the Central Valley's prime farmland. As the rail project proceeds, the complex set of impacts on agriculture beyond land conversion from the rail line itself must be considered and appropriately mitigated.

**Fracking/oil and gas development** — There is a new California boom in the extraction of oil and natural gas using hydrologic fracturing also known as fracking, which is driven by advances in technology and high energy prices. The technique involves pumping water and chemicals under pressure into wells to force up the gas, and there is emerging concern about the impact of the technology on agriculture in terms of both water quality and quantity.<sup>8</sup> Many farms do not own their subsurface mineral rights, which are being purchased by oil and gas companies. Permits from the Department of Conservation (DOC) are currently being issued without review of potential impacts on agriculture. Only recently has the DOC proposed some basic fracking regulations.

## New 21<sup>st</sup> century tools are needed to protect farmland

It is essential that California transition to a clean energy economy and reduce the state's GHG emissions while planning for increased population pressures. Agriculture, after all, is among the most vulnerable industries to climate change as growers depend upon weather and the availability of natural resources. It is also essential to assure the long-term viability of California's agriculture sector and food supply. As described in

Given the traditional and emerging threats to California's farm and rangeland, and the potential of these resources for providing a host of climate, ecological, economic and social values, it is imperative that a comprehensive set of policies and planning tools be utilized to make the wisest possible land use decisions. Section 4 provides recommendations to this end.

With the benefit of consultation with some of California's most experienced land conservationists and sustainable agriculture advocates, this paper answers the following questions:

- What is the potential value of protecting California farmland to advance the state's climate protection goals?
- What existing policy and programmatic tools can be better utilized to achieve that potential?
- What new policies and resources are needed to assure that the climate benefits of protecting California farm and rangeland can be maximized?

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## 2. The Climate Benefits of Farmland Protection

Farmland must be considered a critical component of California's comprehensive approach to both climate change mitigation and adaptation. There are several important climate change-related reasons to protect farmland:

**Avoided transportation and energy emissions** — Sprawl development leads to increased vehicle miles traveled and increased transportation-related GHG emissions. Because transportation activities alone generate over 40 percent of California's GHG emissions,<sup>9</sup> urban planning that concentrates growth in dense areas rather than converting farmland will have lower associated emissions.<sup>10</sup> Urban sprawl also tends to correlate with higher energy use, due to larger unit sizes and a greater proportion of detached single-family houses as opposed to multifamily structures, townhouses and duplexes, which are typically more energy-efficient due to shared-wall construction. In a Yolo County case study, emissions related to gas and electricity use for more compact development were more than 40 percent lower than in sprawl developments.<sup>11</sup>

**Potential carbon sinks** — Cropland, rangeland, woodlands and forests offer the only currently available terrestrial "sinks" of carbon dioxide, the most predominant GHG, by removing carbon dioxide from the atmosphere and storing it in soils and woody biomass. This process is known as

### Agriculture as a Carbon Source and Sink

Agriculture is both a source of GHG emissions and a potential "sink" for removing carbon dioxide from the atmosphere. In California, on-farm emissions account for approximately six percent of the state's GHGs. Agriculture is a major contributor of two highly potent GHGs, nitrous oxide and methane.

Farming and ranching also may provide solutions to the climate crisis by reducing GHG emissions and sequestering atmospheric carbon. The use of "climate-friendly" farming practices can maximize the carbon storage capacity of the soils and woody plants on California farmland and rangeland.

The potential for sequestering carbon in soil depends upon soil type, regional climate, crop systems and management practices. As noted in a study funded by the California Energy Commission, combining various soil management practices yields the best methods to build soil organic matter and sequester carbon.<sup>20</sup>

Cover crops, perennial cropping, reduced synthetic fertilizer inputs, and conservation tillage have the greatest potential to sequester carbon.<sup>21</sup> Cover crops or green manures have been found to increase soil carbon 1.5 to 4 times as much as tilled cropland with no cover crops.<sup>22</sup> Composting and adding organic amendments have also resulted in increased carbon storage in soils.<sup>23</sup> Studies reviewing the carbon sequestration potential of conservation tillage are mixed and sometimes contradictory. The potential for conservation tillage to increase carbon sequestration may grow with the use of additional soil management practices such as cover cropping, which can help build soil organic matter.<sup>24,25</sup>

Incorporating trees, shrubs or other types of woody vegetation into rangeland or farm landscapes can also sequester carbon in significant quantities.<sup>26,27</sup> Trees and plants absorb carbon dioxide and store it in the woody biomass above ground and in the root system. Planting hedgerows along the margins of farms and buffers in riparian zones can increase carbon sequestration.<sup>28</sup> In California, replanting oak woodlands on rangeland is one of the best opportunities to sequester atmospheric carbon.<sup>29</sup>

carbon sequestration. Sustainably managed farmland provides additional environmental benefits, such as water capture and filtration, biodiversity enhancement and wildlife and pollinator habitat. See sidebar for more information.

**Flood mitigation and groundwater recharge** — The impermeable surfaces of roads, rooftops and parking lots increase the speed and volume of storm water runoff and reduce groundwater recharge,<sup>13</sup> whereas farms and ranches have more permeable areas that can mitigate flooding, store surface water and recharge groundwater—and this capacity is increasingly essential for California’s predicted water-scarce future.

**Buffering climate change impacts on cities** — Urbanized areas are covered by asphalt, rooftops and other hard surfaces that absorb solar radiation and have higher ambient temperatures than surrounding areas, creating “urban heat islands”. In contrast, farmland and rangeland reflect sunlight and cool temperatures, increasing what is known as the “albedo effect”.<sup>14</sup> For example, data collected for the Sacramento area in July 2012 shows a nine-degree Fahrenheit difference between the hottest urban neighborhoods and surrounding agricultural land.<sup>15</sup> Greenbelts and agricultural buffers surrounding urban areas may mitigate “hot spots” created by cities<sup>16</sup> and help offset the impacts of increased temperatures and heat waves.

**Assisting with wildlife adaptation** — Climate-change-driven loss of biodiversity poses a number of risks to California agriculture, including: lack of pollination, loss of soil biodiversity and capacity for nutrient cycling, and loss of natural biological control leading to potential new pest outbreaks. Networks of habitats and corridors that allow wildlife to migrate will be increasingly important for species adaptation as the climate changes, and the open space provided by well-managed farms and ranches can play an important role in meeting this need.<sup>17</sup>

**Food security** — Maintaining a regional source of food will buffer Californians from the increased volatility in global food prices that the United Nations argues<sup>18</sup> is likely to result from climate change. Additionally, as noted in California’s Climate Adaptation Strategy,<sup>19</sup> farmers will need the option to move their operations to new productive land to adapt to the changing weather, water availability and pest and disease patterns that may require different production and cropping patterns.

The remainder of this paper focuses primarily on the role of farmland protection in reducing future GHG emissions related to sprawl development. While there is a growing body of scientific knowledge about specific farming and ranching practices that can sequester carbon and reduce the carbon footprint of agricultural operations (summarized in sidebar), our focus is on the inherent value of protecting farmland at risk of development, independent of management practices.

## 2.1 Protecting Farmland to Limit Greenhouse Gas Emissions

The battle to contain sprawl development often occurs at urban/agricultural borders. Strategic protection of agricultural land can be an effective way to stop sprawl and reduce the GHG emissions. In 2008, the DOC asked Dr. Robert Wassmer of Sacramento State University to study whether conserving farmland could reduce future GHG emissions.

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*The current use of Williamson contracts are not fulfilling their full potential as a policy instrument in the fight to slow the state’s sprawl and to help achieve the reduction in GHGs mandated by AB 32 (Wassmer, 2008).*

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In his [report](#), Dr. Wassmer concluded that conserving agricultural land at the urban edge could slow or stop the spread of sprawl, and that a slowing of sprawl will help achieve the mandated AB 32 goal of reducing GHG emissions.<sup>34</sup>

A team led by Dr. Louise Jackson of the University of California, Davis expanded on the work of Dr. Wassmer and published a state-funded climate adaptation study in July 2012 for Yolo County. Dr. Jackson and her colleagues cooperated with the county in developing their climate action plan<sup>35</sup> and compared the GHG emissions associated with irrigated cropland in Yolo County to the emissions from urban land. The results showed that agricultural GHG emissions were primarily due to nitrogen fertilizers, diesel-powered farm equipment and livestock (manure and enteric fermentation). While agricultural land accounted for 87 percent of acreage in Yolo County, it produced only

14 percent of GHG emissions. Urban land, which accounted for 4.6 percent of the county's acreage, produced 86 percent of the GHG emissions. [The study](#) concluded that GHG emissions for urban land in Yolo County are 70 times greater than for irrigated cropland.<sup>36,37</sup>

The study notes that urbanization of farmland raises two primary issues: (i) the loss of ecosystem services, including food production for the state and global populations, wildlife habitat and open space and (ii) an increase in GHG emissions from decentralized urbanization.

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*The 70-fold difference in the annual rate of emissions between urbanized land and irrigated cropland suggests that land use policies... are likely to help stabilize and or reduce future emissions, particularly if they are coupled with "smart growth" policies that prioritize urban infill over expansion (Jackson et. al., 2012).*

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While the UC Davis study focused on Yolo County, the authors' goal was to create a science-based tool to assist local governments in analyzing the climate change consequences of land use decisions. To demonstrate the impact of farmland protection and smart growth on GHG emissions one project of the study (led by Dr. Stephen Wheeler at UC Davis) modeled the projected GHG emissions of three land-use scenarios through 2050. The researchers found that a smart growth scenario that assumed 100 percent infill reduced Yolo County's GHG residential transportation and energy-related emissions from 2010-2050 development by more than 50 percent, compared with a business-as-usual scenario, while also preserving the ecosystem services provided by local agricultural lands and enhancing agricultural economic sustainability. They concluded that the study "highlights the importance of farmland preservation and smart growth as strategies to mitigate emissions in California."<sup>38,39</sup>



## California climate policy statements supporting farmland protection

### **Land Use Subcommittee of the California Action Team (2008):**

The Land Use & Infrastructure Working Group, including a representative of the California Department of Food and Agriculture and the Natural Resources Agency, provides advice to the Strategic Growth Council and the Climate Action Team on sustainable land use policies and their link to climate change adaptation and mitigation. A Working Group report noted the importance of strengthening farmland protection as a response to climate change. For example, the group recommended that guidance be provided to cities and counties “to help develop and adopt sustainable agriculture policies, particularly in conjunction with smart growth planning initiatives.”<sup>30</sup>

### **Assembly Bill 32 Scoping Plan (2008):**

The California Air Resources Board (CARB) produced the first AB 32 Scoping Plan in 2008 (a revision is planned for release in 2013) to propose a comprehensive set of actions to achieve the GHG emissions reduction targets of AB 32 (i.e., a reduction to 1990 levels by 2020). The Scoping Plan identified potential opportunities for GHG reductions in agriculture from altered nitrogen fertilizer use practices, increases in on-farm fuel efficiency and water use efficiency, and biomass utilization and methane capture on dairies. CARB also stated that, “Increasing carbon sequestration, including on working rangelands, hardwood and riparian woodland reforestation, also hold potential as a greenhouse gas strategy.”<sup>31</sup>

### **Regional Targets Advisory Committee (2009):**

As required by Senate Bill 375, the Regional Targets Advisory Committee (RTAC) set regional targets for reducing transportation-related GHG emissions, and produced a report to make recommendations on meeting the targets. The RTAC report recognized the benefits of farmland protection, noting, “There are greenhouse gas benefits inherent in conserving land-based resources including farm and forest land. They play a vital role in California’s agricultural economy and maintaining biological health and diversity in the state. These resources also are capable of sequestering carbon in plant and tree matter as well as in soil.”<sup>32</sup>

### **Climate Change Adaptation Strategy (2009):**

Prepared by California Natural Resources Agency (and being updated in 2013), the state’s Adaptation Strategy report summarizes predicted climate change impacts in California and recommends adaptation strategies for various sectors. The report identifies farmland protection as a primary strategy for California’s adaptation to climate change to ensure food security, mitigate flooding, produce renewable energy, sequester carbon and more.

The report recommends that the relevant state agencies, with local and regional government, do the following:<sup>33</sup>

- Use the Farmland Mapping and Monitoring Program (FMMP) and the California Farmland Conservancy Program (CFCP) to identify and secure the most productive and adaptable farmland
- Encourage the conservation of the most productive and adaptable farmland
- Encourage land use planning that supports sustainable agriculture at the urban edge and creates land use certainty for farmers
- Support the development of regional and local markets for urban edge farmers, and assure the energy and transportation infrastructure needed to support the industry
- Map foodsheds as a tool for urban planners
- Update soils-based farmland maps based on climate change scenarios

### 3. Status of Existing Farmland Protection Tools

Existing farmland protection programs protect millions of acres of California farmland from immediate development. However, conserving farmland adjacent to cities is particularly challenging in California. In the face of uncertain land values, property owners on the urban/agricultural edge are reluctant to commit to protecting farmland over the long term and few landowners adjacent to cities participate in the state's current farmland conservation programs. Urban-rural conflicts over issues such as dust, noise and chemical use, and the loss of local agricultural infrastructure (e.g., storing, processing and distribution facilities) on the urban edge also decrease the viability of farming near cities. Often general plan policies, land uses designations and zoning have enabled the division of land at the urban edge into small parcels. Development speculation drives up land values, making conservation expensive and less enduring.

In spite of these challenges, several local jurisdictions have put in place farmland conservation programs that protect land at the urban edge. Programs such as those in Marin, Sonoma, Napa and Ventura Counties offer models for other local jurisdictions that the state should encourage in leading agricultural counties before they lose most of their farmland.

At the state level, existing farmland protection programs have been most successful at conserving rural land rather than farmland at the urban edge, where the greatest gains in controlling urban sprawl and reducing GHG emissions are possible.<sup>40</sup> The programs also do little to address emerging development pressures from infrastructure projects such as large-scale solar, high-speed rail and fracking. New or revised state-level policies and programs are needed to better incorporate farmland protection as a successful strategy for supporting smart growth urban planning efforts, avoiding future GHG emissions and furthering the objective of AB 32 (see Section 4 for specific recommendations).

Here we review existing farmland protection programs and policies and their effectiveness in addressing climate change.





### 3.1 California Farmland Mapping and Monitoring Program

Since 1982, the California Farmland Mapping and Monitoring Program (FMMP) has monitored and mapped California farmland and documented loss of agricultural land, producing consistent and impartial data about county and statewide agricultural land use and conversion. The FMMP assessment, managed by the DOC, has been an essential tool for farmers, ranchers, planners and conservationists. The 2009 Climate Change Adaptation Strategy recommended that FMMP survey agricultural lands “that offer future productivity potential against climate impacts.”<sup>41</sup>

To date, the FMMP has been funded with Williamson Act cancellation fees, creating an inconsistent source of funding and potentially a perverse incentive for DOC in its management of the Williamson Act program. Future land use planning decisions would be hampered without continued access to information regarding trends in farmland conversion.

### 3.2 Williamson Act

Since 1965, the California Land Conservation Act, known as the Williamson Act, has provided a lower property tax rate to farmers and ranchers who enter into ten-year contracts to keep their land in agriculture. A Super Williamson Act provides enhanced tax benefits for a twenty-year agreement. Approximately 15 million acres—almost one-half of California’s agricultural land—is enrolled in the Williamson Act. Since 2009, the California government has virtually eliminated subvention payments it made to counties to assist with the cost of decreased property tax revenue. With constraints on county government budgets, several counties have stopped enrolling new contracts<sup>42</sup> and there is a threat that this trend will expand to more counties and that some may discontinue contracts in the absence of adequate state support.

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*The Williamson Act has done little to limit the rate and volume of farmland in the path of city expansion (Sokolow, 2010).*

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Though the program has protected an impressive amount of agricultural land that provides various benefits such as wildlife habitat, open space and uplands water filtration, there are few Williamson Act contracts and virtually no Super Williamson contracts around the rapidly growing urban areas.<sup>43</sup> An article in a 2010 issue of [California Agriculture](#) concluded that, while the Williamson Act has reduced the extent of leapfrog development and sprawl in rural California, it “has done little to limit the rate and volume of farmland in the path of city expansion.”<sup>44</sup>



## 3.3 Local land use planning

The most effective local farmland protection programs in California (and elsewhere) combine two basic approaches: a strong urban growth boundary or other smart growth policies (described here) and funding sources for agricultural conservation easements<sup>45</sup> as described below in Section 3.4.

### Agricultural Zoning

The primary traditional mechanism for local governments to protect farmland is agricultural zoning. Such designations establish very large minimum parcel sizes (for example, 160-acre minimum parcel sizes for ranching land in Alameda County's Livermore Valley and 80 to 160 acre minimum parcel sizes for irrigated cropland and orchards in Yolo County). These zoning districts also allow only agricultural uses and restrict the number of dwellings per parcel. In theory, agricultural zoning provides certainty about future land use and eliminates speculative land values, and thus farmers and ranchers become willing to invest in their farming operations and enter into long-term agreements such as Williamson Act contracts and conservation easements. However, heavy development pressure has resulted in relatively few communities adopting restrictive zoning designations, and because such ordinances can be overturned by a majority vote of the local elected body, they can prove to be a relatively weak tool in practice.

A stronger farmland protection tool has been Urban Growth Boundaries (UGBs), known in some places as Urban Limit Lines. These restrict land subdivision beyond a certain line. A related mechanism, Urban Service Boundaries, precludes the extension of urban infrastructure to serve new development beyond established borders. These mechanisms are usually locked in for long periods, such as 20 years, or require a ballot referendum to change. They are politically difficult to establish, but have existed in California jurisdictions such as Contra Costa County, San Jose, Santa Barbara, Modesto, and 17 smaller Bay Area cities.

### Community Blueprints

Equally important for growth management planning as agricultural zoning are efforts to promote infill development within existing cities and towns. Such planning lessens the pressures for sprawl development, while providing homes and workplaces in locations that will require less driving and in building types (such as multifamily housing) that are likely to use less energy. In recent years local, regional, and state governments have provided an increasing range of incentives for infill development, including financial incentives to developers, municipal provision of infrastructure related to developments, and reductions in California Environmental Quality Act (CEQA) requirements for well-located development.

Several regional planning organizations around the state are voluntarily developing "blueprints" to plan for anticipated population growth using smart growth principles. The blueprints identify regional priority conservation and development areas, directing future growth to urban areas while calling for more efficient development. They can also provide important regional data regarding at-risk farmland. Some blueprints, such as the Associations of Bay Area Governments' FOCUS project include farmland in priority conservation areas. In another example, the San Joaquin Valley Blueprint will, if implemented by cities and counties, reduce farmland conversion by one-third (115,000 acres) between now and 2040, compared with the current trend.

Senate Bill 375, the Sustainable Communities and Climate Protection Act of 2008, creates a formal process for regional collaboration among local officials that builds on these voluntary blueprint efforts with a focus on reducing transportation-related GHG emissions. Described below in Section 3.6, SB 375 incentivizes smart growth, but it does not explicitly support farmland protection.

### Local Agency Formation Commissions

Local Agency Formation Commissions (LAFCOs) were created in 1963 to coordinate the formation of new local government agencies, preserve agricultural land resources and discourage sprawl. However, the authority of LAFCOs to achieve farmland protection is limited because they do not have jurisdiction over county land, and therefore counties can develop in unincorporated areas without LAFCO approval. In response, cities often create large “spheres of influence”—planning tools to designate the future boundary and service area of a city or special district—to keep the counties from developing too close to their city limits. This creates uncertainty about future land use and insecurity about land values.

## 3.4 Funding of agricultural conservation easements

Agricultural conservation easements protect farmland by eliminating future development in perpetuity. Property owners donate or sell easements to a land trust or public entity, which holds the easement and ensures that the property owner complies with the easement restrictions. The easement, which is recorded, applies to any future property owner.

There are several sources of easement funding available to protect California farmland.

**State farmland protection programs** — The California Farmland Conservancy Program (CFCP) is the primary state funder of agricultural conservation easements. The CFCP has leveraged \$70 million of Proposition 12 and Proposition 40 bond funds with federal and local money to permanently protect over 54,000 acres of California farmland. However, because of high land costs and other challenges of conserving urban edge agriculture, few easements have been completed adjacent to urban areas. As of 2008, the Proposition 12-funded easement program had not conserved land in a manner that would slow urban development.<sup>46</sup> Since then, the CFCP has funded some easements in urban edge farming regions like Brentwood. The State Coastal Conservancy has also conserved California farmland in its jurisdiction.

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*There has been little effort in the use of CFCP grants to assist in the generation of a fixed agricultural buffer around any urban area in California (Wassmer, 2008).*

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Today the CFCP has limited funds left to invest in conservation easements. Governor Brown’s 2013/14 budget eliminates funding for the program. The State Coastal Conservancy, which has also funded farmland protection, has similar funding constraints. Although most of the Proposition 12 and 40 bond funds have been spent, it is unlikely that any conservation bond measures will be placed on the ballot in the near future, given California’s current economic and political climate.

The California Wildlife Conservation Board also provides funding made available from bond initiatives for easements on working lands that protect the ecological integrity of the forests.

**Federal funding and tax incentives** — The federal Farm and Ranch Protection Program (FRPP) also funds agricultural conservation easements. However, the FRPP has limited funding for

California easements (\$3.7 million in 2011) and the national rating criteria for easement projects favors rural easements over urban edge conservation. Federal tax laws also provide tax benefits to property owners who donate easements to nonprofit land trusts, but California landowners have been reticent to donate easements, particularly in urban edge agricultural areas with development speculation and high land values. An additional limit of the program is that its easement acquisitions require a state or local match, limiting its applicability in California, given the state's fiscal context.

Also funded under the federal farm bill is the Grasslands Reserve Program, which offers easements to participants who agree to voluntarily limit future development and cropping uses of the land while retaining the right to conduct common grazing practices and operations. The goal of the program is to support working grazing operations, enhancement of plant and animal biodiversity and protection of grassland under threat of conversion to other uses. In 2010, \$1.9 million was spent to protect approximately 4,000 California acres.<sup>47</sup> In addition, the Wetlands Reserve Program offers technical support and easements to establish long-term conservation and wildlife practices and protection on wetlands. In California in 2010, the program committed \$8.7 million to protect almost 4,000 acres.

Finally, the U.S. Fish and Wildlife Service provides conservation easements for typically 10 to 30 years to landowners willing to restore wildlife habitat on their property.

**Local funding** — Local government mitigation ordinances fund urban edge agricultural easements in some California counties and cities. Some special districts (such as the Sonoma County Agricultural Preservation and Open Space District, which uses a quarter-cent sales tax to fund conservation easements) finance agricultural conservation with special assessments and taxes. However, the local jurisdictions and conservation organizations that manage farmland mitigation programs often have limited capacity and resources. Some local governments, particularly in rapidly growing cities, have conflicting policy goals that favor development over farmland protection. The California Council of Land Trusts is developing a model agricultural mitigation ordinance that will provide an important tool for local jurisdictions seeking to mitigate the loss of farmland.

**Conditions on development approvals** — Whether in the CEQA review process or as a result of locally adopted ordinances, plans and policies, many development projects that convert agricultural land are required to purchase easements over an equal or greater acreage of similar quality farmland, though there are inconsistencies between jurisdictions in the application of these requirements.



**Private funding** — Nonprofit land trusts and other organizations also collect private donations to fund conservation easements and raise public awareness about farmland protection. The tax-deductible donations can be used to purchase easements and leverage state and federal funding. Some land trusts have been successful in raising significant funds from private donors. However, fundraising is most successful in regions with high wealth demographics, and donations are not necessarily available where the threat of development is the greatest.

### 3.5 State planning priorities under AB 857

AB 857, which became law in 2002, offers a significant opportunity to conserve farmland, but it has never been implemented. It establishes three state planning priorities: urban infill, more efficient development in general and the preservation of agricultural and environmental resources. It requires the governor to prepare and periodically update an environmental goals and policy report detailing how state infrastructure investments are consistent with these priorities. Each state agency must demonstrate that its policies and programs are consistent with the same priorities. The Strategic Growth Council signaled in its most recent strategic plan its intention to make AB 857 implementation a priority.

### 3.6 New opportunities through California’s climate change legislation

AB 32 mandates a reduction of GHG emissions statewide to 1990 levels by the year 2020. Implementation of AB 32 has involved the design and launch of several new programs and has sparked additional legislation intended to support the state’s achievement of renewable energy development and climate protection goals. Two of these efforts have direct relevance to farmland protection, though more education and advocacy work is needed to ensure that these tools will be used to protect farmland.

**AB 32 cap-and-trade auction revenues** — The California Air Resources Board (CARB) recently established a cap-and-trade program that places a “cap” on aggregate GHG emissions by the largest GHG-producing entities. Starting in November 2012, CARB now requires regulated industrial entities to purchase a small percent of their “allowances” (permits to emit GHGs) at a public auction; the amount they will be required to purchase will increase over time. Assembly Bill 1532 (AB 1532), which was signed by the governor in September 2012, governs the budgeting and expenditure of cap-and-trade auction revenues and directs the Department of Finance to prepare a three-year investment plan for the allowance revenue. AB 1532 identifies numerous eligible activities for investment, including sustainable agriculture and land resource protection.

**Senate Bill 375 Sustainable Communities Strategies** — SB 375 requires that regional planning agencies include a Sustainable Communities Strategy (SCS) in their transportation plans. Each SCS must show how the region will meet its GHG emissions reduction target. The SCS process, which is focused on reducing vehicle miles traveled by encouraging infill development, provides CEQA streamlining for smart growth projects. However, while SB 375 incentivizes smart growth, it does not offer similar incentives for open space or working lands conservation.

Mitigation is typically accomplished by putting conservation easements on the preserved acres, either purchased directly by the developers or accomplished through a development fee arrangement. The requirements are established through local ordinance or as a result of the settlement of litigation over specific development projects.



## 4. 21<sup>st</sup> Century Policy Tools to Strengthen Farmland Protection

Our current farmland conservation policies were developed decades ago, long before California began to consider how to reduce GHG emissions and prepare communities for a changing climate. As a result—while considerable success has been achieved in protecting farmland in rural areas and these accomplishments should be protected—we find ourselves with an inadequate policy framework to maximize the climate benefits of farmland conservation at the urban edge. And, paradoxically, some of our current attempts to make our communities more sustainable—increased large-scale solar development and high-speed rail—threaten further development of important farmland and will lead to increased GHG emissions arising from farmland conversion.

### **Key Recommendation:**

Farmland conservation policies should be strengthened at the boundaries of our cities where the greatest climate change benefits can occur.

To minimize future GHG emissions and support smart growth, we recommend that farmland protection policies be strengthened at the boundaries of our cities, where the greatest climate change benefits can occur. The state and local governments need new tools and funding to protect urban edge farming, including strong land use planning and zoning protections, regulatory streamlining for urban infill, conservation easement programs, financial incentives for agricultural property owners and agricultural economic development support.

To move our farmland conservation policies into the 21st century, we offer the following recommendations to protect the most vulnerable and productive agricultural lands and strengthen the role of farmland protection in helping achieve California's climate change goals.

### **1. Develop mitigation requirements based on cumulative impacts**

Mitigation must be based on the cumulative impacts of development on an agricultural region, from the sprawl-inducing developments to large-scale projects such as high-speed rail and large-scale solar development. For example, the growth-inducing impact of high-speed rail will result in a far greater loss of agricultural land than merely the acreage used for rail track and stations. Farming regions bisected by high-speed rail, public infrastructure and accompanying development suffer cumulative losses, including loss of contiguous cropland, agricultural infrastructure and farm services. These cumulative losses all affect the region's agricultural economy. An adequate mitigation ratio should be selected based on the cumulative impacts of the particular development project.

#### **Recommendations:**

The Natural Resources secretary in conjunction with the director of DOC should develop a stakeholder group of land trusts, agricultural interests and academic experts to recommend to the secretary and the director how to design a farmland mitigation program for large infrastructure projects.

In addition, DOC and the Governor's Office of Planning and Research (OPR) should conduct research documenting the cumulative impacts of farmland conversion, including the impact on future GHG emissions.

## 2. Clarify CEQA mitigation requirements for loss of farmland

The California Environmental Quality Act requires environmental review of development projects and, in some instances, mitigation of environmental impacts. Without adequate farmland mitigation that outlines a clear pathway for farmland conservation, future development will result in the loss of hundreds of thousands of farmland acres over the next two decades.

However, lead agencies still approve projects that take farmland out of production without requiring adequate mitigation. In an attempt to ensure some minimum level of mitigation, several local jurisdictions have adopted farmland mitigation programs, including the City of Davis, Yolo County, San Joaquin County, the City of Stockton and the City of Brentwood. Under these programs, developers can satisfy farmland mitigation requirements by granting a farmland conservation easement, or by paying in-lieu fees sufficient to purchase a farmland easement and pay for administrative costs.<sup>48</sup>

The time is ripe for the state to clarify that CEQA requires mitigation for farmland conversion. The 2010 court decision in *Building Industry Association of Central California v. County of Stanislaus*<sup>49</sup> confirmed the legal legitimacy of farmland mitigation requirements within general plans. In addition, there is political interest in reevaluating and improving CEQA. Any revision of CEQA should include additional tools for protecting California's farmland.

### **Recommendation:**

The state should clarify farmland mitigation requirements under CEQA. Consideration should be given to implementing graduated mitigation requirements based on the efficiency of development on converted farmland, and to regulatory streamlining or fast-tracking for urban infill developments as well as cumulative development impacts.



### 3. Re-envision and reinstate state funding of the Williamson Act

While the current Williamson Act is important to California farmers and ranchers, it has not protected the farmland at greatest risk of urban development. It is time to re-envision the Williamson Act as a program that also protects and incentivizes urban edge farming.

#### **Recommendation:**

A new Williamson Act should create an option for local governments to develop agricultural enterprise zones around our cities where farmers would have heightened tax benefits commensurate with development-associated land values. Farmers and ranchers on the urban edge face a series of unique challenges, and agricultural enterprise zones could provide additional benefits, such as regulatory streamlining and priority easement. Additional benefits could be provided to farmers utilizing sustainable practices. We also strongly recommend that the state reinvest in the Williamson Act with the restoration of subvention payments to the participating counties. Greater funding should be made available to counties that participate in agricultural enterprise zones on the urban edge boundary with agriculture.

### 4. Direct AB 32 cap-and-trade revenues to farmland conservation

On September 30, Governor Brown signed AB 1532 into law, which establishes a public process for allocating cap-and-trade auction revenues. AB 1532 outlines eligible funding categories, including activities "...to reduce greenhouse gas emissions associated with water use and supply, land and natural resource conservation and management, forestry, and sustainable agriculture."<sup>50</sup>

Cap-and-trade auction revenues should be invested in strategic easements on productive agricultural land most at risk of development, significantly reducing future carbon dioxide emissions.

#### **Recommendation:**

A portion of cap-and-trade revenues should be invested annually in CFCP, targeting the creation of easements on farmland most at risk of development. The CFCP should identify and fund agricultural conservation easements that maximize AB 32, AB 1532 and SB 535 goals.

### 5. Shore up the California Farmland Mapping and Monitoring Program to provide information for climate planning

The FMMP program has been largely funded by fees from the cancellation of Williamson Act contracts, which may create a perverse incentive for DOC in its management of Williamson Act contracts. Cancellation fees are also an unstable funding source, limiting the effectiveness of the department. The current FMMP "prime farmland" designation relies on the use of irrigation and soil quality, a criterion that is too narrow, eliminating significant agricultural lands from its designation, including rangeland.

#### **Recommendation:**

Alternative reliable sources of funding for FMMP should be identified so the program can continue to provide up-to-date information about the status of California farmland and farmland conversion.

To tailor California's farmland protection strategies to address climate change, we need a comprehensive assessment of the community and ecosystem values provided by farmland (beyond soil quality and irrigation use). We also need an inventory of the land most threatened by development and a study of the cumulative impacts of farmland conversion. FMMP should collect the data necessary to identify the most important California farmland and re-assess conservation priorities.

## 6. Engage the Strategic Growth Council in farmland protection

The Strategic Growth Council (SGC) is the state cabinet-level council tasked with coordinating smart growth. The SGC, which is currently focused on transportation and infill development, provides grants to regional agencies to advance smart growth planning. California's Climate Change Adaptation Strategy recommends that the SGC work with the CDFA to develop sustainable agricultural policies in conjunction with smart growth planning.<sup>51</sup> The SGC has been discussing including farmland protection in its strategies.<sup>52</sup>

### **Recommendation:**

The SGC should expand its mission to include farmland protection as a smart growth and climate change mitigation tool, and in its next grant cycle SGC should fund a comprehensive assessment of the future agricultural land and water needs of the state for both food production and ecosystem purposes. It should also fund a comprehensive assessment of the projected cumulative impact of urban development, infrastructure projects, energy development and climate change on the availability of farmland, all with a view to establishing farmland conservation goals.

## 7. Strengthen SB 375 to require farmland protection strategies

SB 375 provides a process for local governments to plan regionally to achieve climate change benefits, and requires each of California's 18 regions to develop an integrated transportation, land use and housing plan known as a Sustainable Communities Strategy (SCS). As originally envisioned, SB 375 considered both sides of the urban-rural interface: protection of open space and agricultural lands around our cities and smart infill urban development. However, the version of SB 375 signed into law primarily focuses on infill development.

### **Recommendation:**

The legislature should strengthen SB 375 to require that regions assess the impacts on farm and rangeland from the region's land use scenarios and develop SCS strategies to protect priority farm and rangeland as a tool to help achieve regional GHG targets. The SCS should identify agricultural enterprise zones where farmland is protected and agricultural economic development is concentrated.

## 8. Require an agricultural element in OPR general plan guidelines

A general plan is the local government's long-term blueprint for development. The OPR is responsible for issuing and updating general plan guidelines for local government planning purposes. OPR also monitors General Plan implementation with annual progress reports from cities and counties, and grants general plan extensions for qualified cities and counties.

### **Recommendation:**

The OPR should update its current guidelines to require that general plans contain an agricultural element that includes a specific, effective strategy for retaining sufficient farmland.

## 9. Require LAFCOs to establish baseline farmland protection requirements

Currently, LAFCOs do not have jurisdiction over county land, and counties can develop in unincorporated areas without LAFCO approval. LAFCOs do have authority to establish "right size" spheres of influence designed to accommodate only the development reasonably likely to occur within the period covered by a jurisdiction's current general plan. Cities typically create large spheres of influence to retain land use control and receive sales tax revenues from development projects.

### **Recommendation:**

State law should require that LAFCOs establish baseline requirements for annexation and spheres of influence. LAFCOs should require that local jurisdictions have reasonable urban growth boundaries and farmland mitigation policies before annexation of additional territory is allowed. Moreover, the law should be amended to allow cities to annex land for the purpose of permanently protecting it as farmland, thereby allowing cities to effectively create buffers between urbanized areas.





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## The California Climate & Agriculture Network

The California Climate and Agriculture Network (CalCAN) is a collaboration of California's leading sustainable agriculture organizations and allies advocating for policy solutions at the nexus of climate change and agriculture. We have come together as a coalition to cultivate farmer leadership to face the challenges of climate change and to serve as the sustainable agriculture voice on climate change policy in California.



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