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Via E-Mail and FedEx (exhibits only by FedEx)

Mark Slovick
County of San Diego
Planning & Development Services
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Re: Lilac Hills Ranch Project Draft Environmental Impact Report

Dear Mr. Slovick:

This firm represents the Cleveland National Forest Foundation ("CNFF") in connection with the proposed Lilac Hills Ranch project ("Project"). The Project and the County's draft environmental impact report ("DEIR") suffer from numerous flaws. Specifically, the DEIR fails to comply with the requirements of the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq. First, the DEIR reaches the outrageous conclusion that the Project would have no significant effects on agricultural resources even though it would convert hundreds of acres of productive farmland to non-agricultural use. Likewise, the DEIR concludes—contrary to common sense and all evidence—that the construction of the proposed suburban community, which is far from any existing urban area and will cause more than 60 million miles of vehicle travel per year, will somehow not have a significant impact on greenhouse gas emissions or climate change.

In addition, the Project conflicts with the County's General Plan, the Bonsall Community Plan and the Valley Center Community Plan, in violation of State Planning and Zoning Law, Gov't Code § 65000 et seq. For example, the Project proposes a new "village" in a rural and semi-rural area where no village is currently planned. The General Plan prohibits such a new village unless it complies with strict environmental stewardship standards, which this Project does not. Finally, the Project's inconsistency with the General Plan precludes its approval under the Subdivision Map Act.

Specifically, Section 66473.5 of the Government Code requires that subdivisions be consistent with the jurisdiction's general plan. The Project hinders achievement of the General Plan's and Community Plans' goals to preserve productive agricultural lands, ensure that new development does not impact surrounding agriculture, and maintain the rural character of the community. As a result of these inconsistencies, the Project cannot lawfully be approved.

I. The DEIR Vastly Understates the Project's Impacts on Agriculture, and As A Result, Fails to Adequately Mitigate the Project's Significant Impacts.

Agriculture is vital to San Diego County, accounting for the fifth largest sector of the County's economy. http://www.utsandiego.com/news/2013/aug/02/crops-agriculture-avocados-county/. The County has more farms—6,687—than any other county in the nation. *Id.* Further, many of them are small farms; more than two thirds of the County's farms are less than ten acres in size. *Id.*

Agriculture is also vital to the Bonsall and Valley Center communities where the proposed Project would be located. The Project site itself contains approximately 400 acres of land that is currently in agricultural use for the production of citrus, avocados, row crops, nursery products and wine grapes. DEIR at 2.4-4; Agricultural Resources Report of EIR, Figure 9. The Project site is also surrounded by orchards, row crops, nurseries, greenhouses and other agricultural uses. *See* Agricultural Resources Report of EIR, Figure 12. The Project will destroy virtually all on-site agricultural uses and will serve as a wedge that will make surrounding agriculture less viable from a financial and practical perspective. Despite these huge effects, the DEIR concludes that the Project will not have any significant impacts to on-site agricultural resources, and that a few mitigation measures will cause the Project to not have any off-site impacts to surrounding agriculture. This surprising and counterintuitive conclusion is not supported by substantial evidence, but is based on spurious analysis that fails to account for a variety of factors.

A. The Project Will Cause A Significant Impact By Converting On-Site Agricultural Operations to Non-Agricultural Uses.

Despite the presence of numerous, diverse agricultural operations on the Project site, the DEIR reaches the bizarre conclusion that the Project will not cause a significant impact due to conversion of on-site agricultural lands. It reaches this conclusion by determining that on-site soils are poor, and therefore the conversion of hundreds of acres

of existing agricultural operations to non-agricultural uses is insignificant. This conclusion is outrageous, and certainly is not supported by substantial evidence.

The DEIR purports to use the Local Agricultural Resources Assessment ("LARA") model to reach its conclusion that the Project will not have significant agricultural impacts due to on-site conversion of farmland. Although it may sometimes be appropriate to use this model as a threshold for determining whether a project's agricultural impacts will be significant, agencies must use the model correctly, and they may not rely exclusively on the model for a finding of insignificant impacts if other substantial evidence in the record demonstrates that the Project may actually cause significant impacts. *Communities for a Better Env't v. California Resources Agency* (2002) 103 Cal.App.4th 98, 112-13 (thresholds of significance cannot be used as binding standards that foreclose the use of other evidence to demonstrate that a project may have significant effects); *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ("in preparing an EIR, the agency must consider and resolve every fair argument that can be made about the possible significant environmental effects of a project, irrespective of whether an established threshold of significance has been met"). Nor may the County rely on this model as a threshold for determining significance if the model fails to accurately measure the particular environmental effects caused by the Project. *Protect the Historic Amador Waterways,* 116 Cal.App.4th at 1109.

In addition, the County's reliance on the LARA model is suspect because it appears that the County never formally adopted the LARA guidance or model as an appropriate method for generally determining the significance of a project's agricultural impacts. Pursuant to CEQA, agencies are encouraged to adopt generally applicable thresholds of significance to measure particular impacts, but they must adopt them by ordinance, rule, regulation or resolution after a thorough public process. Guidelines § 15064.7. They must also be supported by substantial evidence. *Id.* Here, it does not appear that the County ever adopted the LARA guidelines by ordinance, rule, regulation or resolution after a thorough public process. Nor does this guidance include any evidence supporting the notion that impacts on hundreds of acres of productive agricultural land can be considered "insignificant" merely because the soil is considered poor by some standards. Accordingly, the County's rote reliance on the LARA model in the Project DEIR is unwarranted, and the DEIR's conclusion that the Project will not significantly impact on-site agricultural land is not based on substantial evidence, as CEQA requires.

1. The DEIR Fails to Follow the County's Own Guidance on How to Measure Agricultural Impacts Using the LARA Model and Fails to Provide Enough Information to Support, and for the Public to Understand, the DEIR's Conclusions.

In 2007, the County issued guidance on how agencies should analyze the agricultural impacts of projects they approve. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Agricultural Resources ("Guidance") (March 19, 2007), attached as Exhibit 1. For example, the Guidance requires agencies to identify the soil types on a project site by "[p]rovid[ing] a description of the associated Land Capability Classification ("LCC"), Storie Index, and suitability for crop production based on information from the San Diego Area Soil Surveys or other data sources." Guidance, p. 7. Although the DEIR here purports to provide the Storie Index ratings, it does not actually do so. Agricultural Resources Report of EIR, p. 19. Nor does it provide the Land Capability Classifications for on-site soils. *Id.* This failure renders the DEIR's description of existing environmental conditions inadequate, as it does not allow the public to accurately assess the on-site agricultural resources and therefore determine whether their loss will be significant. *See* 14 Cal. Code Regs (hereafter CEQA "Guidelines") § 15125.

Another flaw is that the DEIR does not provide enough information to support its conclusions. The DEIR's analysis of impacts to on-site farmland is based on a report that uses a matrix to conclude that on-site agricultural resources are not important. The matrix shows that on-site soils achieved a rating of ".100," but does not explain how it came up with this rating. Agricultural Resources Report of EIR, p. 47. The DEIR then explains that "Soil quality matrix scores that are less than 0.33 and have less than 10 acres of contiguous Prime Farmland or Statewide Importance soils receive a low rating pursuant to the LARA Model. Therefore, since the 0.100 is less than 0.33 and the site does not have at least 10 contiguous acres of Prime or Statewide Importance soils, the project would receive a low rating in the soil quality category." *Id.* There are at least two problems with this analysis. First, the Agricultural Resources Report does not provide any background information regarding how it determined that on-site soils have a rating of 0.100. The public therefore has no way to verify this finding. This lack of information violates CEQA's core purpose of promoting informed decisionmaking. See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (August 5, 2013), S202828, __ Cal.4th __.

Second, the DEIR lacks information to support its conclusion that the site does not have at least 10 contiguous acres of Prime or Statewide Importance soils. On the

contrary, a map in the DEIR shows that there are at least two large swaths of land containing Statewide Importance soils near the northern end of the Project site, and that most of these areas are available for agricultural use. *See* Agricultural Resources Report of EIR, Figure 7 (see Fallbrook sandy loam, 5 to 9 percent slopes, eroded), Figure 8. It appears as though these areas may each be greater than 10 acres. *See id.*, Figure 8; DEIR at 2.4-10 (acknowledging that the Project site contains more than 40 acres of land that meets the criteria for Prime or Statewide Importance, and that all of these acres may be converted to non-agricultural uses, but not stating how many acres are contiguous). At the least, the DEIR contains no evidence that these areas are less than 10 acres. Thus, its conclusion that the site does not contain important agricultural resources because it does not have at least 10 contiguous acres of Prime or Statewide Importance soils is not based on substantial evidence, as required by CEQA. Guidelines § 15384.

2. The DEIR's Exclusive Reliance on the LARA Model is Unjustified Because Other Evidence Demonstrates that the Project May Cause Significant Environmental Effects.

The DEIR relies exclusively on the LARA model to determine that "the site is not considered an important agricultural resource." Agricultural Resources Report of EIR, p. 47. It therefore summarily dismisses as insignificant the conversion of hundreds of acres of productive farmland. The DEIR's exclusive reliance on the LARA model is misplaced for numerous reasons.

(a) The Alleged Fact that On-Site Soils Are "Poor" Does Not Mean the Project Has Less Than Significant Impacts to Farmland.

The DEIR concludes that the Project will not have a significant impact on on-site agricultural lands because on-site agricultural soils are poor. DEIR at 2.4-9. This is the exclusive reason the DEIR finds that the Project will not have a significant impact on on-site agricultural lands. *Id.* The DEIR bases its finding on the Agricultural Resources Report's LARA modeling, which found that "only" 40 acres of on-site land is classified as having soils designated as Prime Farmland soils or soils of Statewide Importance. Agricultural Resources Report of EIR, p. 47; DEIR at 2.4-10.[1]

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[1] As described above, the DEIR never justifies its conclusion that conversion of a "mere" 40 acres of farmland with admittedly superior soil characteristics is an insignificant impact. Given the importance of farmland to the region, even conversion of

The DEIR's characterization of on-site soils as "poor," and its reliance on this factor to find no significant impacts is not supported by substantial evidence. On the contrary, the DEIR itself acknowledges that the site contains a vibrant and productive variety of farms that grow citrus, row crops, grapes and nursery products. If the soil is allegedly so poor, farmers would not have been able to grow these crops for the past four decades. Indeed, if allegedly poor soil disqualified land from being able to support productive agriculture, San Diego County would not have much agriculture. *Most* agricultural soils in the County are poor, but this has not stopped the County from becoming the 12th largest agricultural county in the nation, with more than 292 organic growers—the highest number of any county in the nation. San Diego County General Plan EIR, p. 2.2-2 - 7 (August, 2011), excerpts attached as Exhibit 2 and available in full at http://www.sdcounty.ca.gov/dplu/gpupdate/docs/BOS_Aug2011/EIR/FEIR_2.02_-_Agriculture_2011.pdf .

As the County's own General Plan describes, "The resources that support the County's agriculture are unique. Unlike other jurisdictions across the nation, farming in San Diego is dependent upon the region's unusual microclimates and *often has very little relationship to the quality of the soils*." County General Plan, Conservation and Open Space Element, p. 5-14 – 15, attached as Exhibit 3. And as stated in the EIR for the County's recent General Plan update, "[s]oils in the San Diego region are generally considered poor, with only six percent of the region's soils considered prime agricultural land .... Soil quality measures typically rate local soils as poor because of the County's generally steep terrain and erodible soils." Exhibit 2, p. 2.2-2.

The County General Plan EIR goes on to describe various measures of soil quality and how County soils are often rated poor even though they support a wide variety of agriculture. For example, the Storie Index uses a 100 point scale to express the value of soil for intensive agriculture, with higher ratings indicating higher quality soils. *Id.* at 2.2-3. As the EIR notes, "[p]roductive agriculture in San Diego County typically occurs on soils with low S[torie] I[ndex] ratings (typically in the 30 point range)." *Id.* Likewise, County agriculture generally occurs on soils with Land Capability Classifications of III and IV, with designations of "e" and "s," indicating that the soils are shallow and

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these 40 acres is clearly a significant impact. *See Masonite Corp. v. Cnty. of Mendocino,* A134896, 2013 WL 3865101 (Cal. Ct. App. July 25, 2013) (holding that EIR improperly mitigated the significant impact of converting 45 acres of prime farmland); *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296 (conversion of 40 acres of prime farmland was a significant impact).

erodible. *Id.* at 2.2-2 - 3 (class I soils are the most productive, and classes VI – VIII have the most severe limitations).

Accordingly, the fact that some soils on-site are rated as "poor" using standardized measures of soil quality cannot serve as the sole basis on which to conclude that the Project will not have significant impacts on agricultural land. The undisputed evidence demonstrates that the Project will convert hundreds of acres of productive agricultural land to nonagricultural uses. By any rational measure, this is a significant—indeed huge—impact. The DEIR's exclusive reliance on the LARA model, which does not accurately measure the productivity of agricultural land in San Diego County, is misplaced and cannot support the DEIR's finding of insignificant impacts. *See Protect the Historic Amador Waterways,* 116 Cal.App.4th at 1109 (agency may not rely on a standardized measure of significance that fails to measure or account for particular, on-site impacts).

As one example, the Project site contains more than 210 acres of Fallbrook sandy loam with 15 to 30 percent slopes, 149 acres of which are available for agricultural use. Agricultural Resources Report of EIR, p. 19. Although Fallbrook sandy loam with lesser slopes qualifies as a soil of Statewide Importance, the same soil with higher slopes does not. *Id.* Although steep sloped land may not be suited to particular types of agriculture in other areas of the country, it is very well suited to avocado production and other crops that are important in San Diego County. Exhibit 4, Table 5 (federal report on avocado production in California describing how avocados are grown on slopes up to 75%, and that *most* avocado production in San Diego County occurs on slopes greater than 9%). Indeed, Fallbrook sandy loam with 15 to 30 percent slopes has a Storie Index of 35. Agricultural Analysis of Meadowood Project, Fallbrook Community Planning Area, August, 2010, Table 2, attached as Exhibit 5. As described by the County itself in its General Plan EIR, productive agriculture in the County *typically* occurs on soils with Storie Index ratings in the 30 point range. Thus, the DEIR should not have dismissed the impacts on approximately 149 acres of good, though steep, Fallbrook soil as an insignificant impact.

Likewise, the DEIR should not have dismissed all impacts on Cieneba soils as insignificant. The same federal report, described above, describes how San Diego County is the leading avocado producing county in the state, growing nearly 47% of California market value for avocados. Exhibit 4, p. 1. It also describes how the Cieneba soil series accounts for approximately 37% of avocado bearing soil acreage, and how these soils are located on slopes of 9 – 85%. *Id.* The DEIR, however, states that there will be no significant impact to avocado production (or other agricultural resources) on-

site because all Cieneba soils are of low quality, and therefore have no significant value to agriculture. Agricultural Resources Report of EIR at A-4. The DEIR's conclusion, and its dismissal of allegedly "low quality" Cieneba soil as unimportant for agriculture, ignores the facts. As the seminal 1973 soil survey of San Diego County noted, avocado production occurs on Cieneba-Fallbrook rocky sandy loams with 30 to 65 percent slopes. Exhibit 6 (USDA soil survey). The Project site contains 115.88 acres of Cieneba-Fallbrook rocky sandy loams with 30 to 65 percent slopes. Agricultural Resources Report of EIR at A-4). There is no basis for the DEIR to ignore impacts to these 115 acres of viable and productive agricultural land simply because the soil fails to meet some metrics of high soil quality.

(b) The DEIR Erroneously Fails to Analyze Impacts to All Types of Farmland.

Second, and related to the issue of allegedly poor soils, the DEIR (and the LARA model generally) only considers whether the Project will impact farmland with soils designated as Prime Farmland or soils of Statewide Importance. Agricultural Resources Report of EIR, p. 47. Because the site only contains a few dozen acres of such soils, the DEIR concludes that the Project site does not contain important agricultural resources and that the Project will not have a significant impact on agriculture due to conversion of on-site farmland. This approach completely ignores all impacts to on-site, productive farmland classified as Unique Farmland and Farmland of Local Importance.

The DEIR presents no justification for its failure to analyze impacts to these other types of farmland, even though it acknowledges that Unique Farmland and Farmland of Local Importance are extremely valuable to the County and that the Project site contains more than 331 acres of Unique Farmland and 146 acres of Farmland of Local Importance. Agricultural Resources Report of EIR, p. 27:

> Unique Farmland includes areas that do not meet the above stated criteria for Prime Farmland or Farmland of Statewide Importance, but that have been used for the production of specific *high economic value crops* during the two update cycles prior to the mapping date. It has the *special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop* when treated and managed according to current farming methods. This land is usually irrigated, but may include non-irrigated 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 *is important to the local agricultural economy*, as determined by the County Board of Supervisors and a local advisory committee. The County of San Diego defines Farmland of Local Importance as land with the same characteristics as Prime Farmland or Farmland of Statewide Importance with the exception of irrigation. There are 146.4 acres of Farmland of Local Importance ... within the project site.

Agricultural Resources Report of EIR, p. 27 (emphasis added).

The DEIR's analysis of impacts only to Prime Farmland and Farmland of Statewide Importance is inappropriate. Appendix G to the CEQA Guidelines specifically recommends that agencies analyze impacts not only to Prime Farmland and Farmland of Statewide Importance, but also to Unique Farmland. CEQA Guidelines, Appdx. G, § II(a). The County recognized this recommendation when it analyzed the agricultural impacts of its General Plan update; indeed, it went even farther, also analyzing impacts to Farmland of Local Importance and land with historic agricultural uses that was no longer used for farming.

> Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance, Agricultural Resources, the proposed General Plan Update would have a significant impact if it would convert San Diego County Agricultural Resources (*including, but not limited to, Prime Farmland, Unique Farmland, Farmland of Statewide or Local Importance*, pursuant to the FMMP of the California Resources Agency), or other agricultural resources, to non-agricultural use.

Exhibit 2, p. 2.2-12 (emphasis added). Oddly, the Project DEIR itself claims that it uses CEQA Guidelines Appendix G in its analysis, yet it fails to analyze impacts to Unique Farmland, as recommended in Appendix G. DEIR at 2.4-8 ("For the purpose of this EIR, the identified significance thresholds are based on criteria provided in Appendix G of the State CEQA Guidelines . . ."). The DEIR's internal inconsistency on this point also renders the document confusing, thereby thwarting the document's ability to meet CEQA's fundamental purpose of supporting informed decisionmaking.

If the County or other agencies only analyzed impacts to Prime Farmland and Farmland of Statewide Importance in their environmental review for projects in San Diego County—as the Project DEIR does—they would ignore impacts on a vast swath of viable, productive farmland. As of 2006, only approximately 19,000 acres of the County's 314,000 acres of farmland and grazing land were classified as Prime Farmland

and Farmland of Statewide Importance, which represents just 6% of County farmland. Exhibit 2, p. 2.2-35 (such land represents 9% of all agricultural land if grazing land is excluded). Under this DEIR's theory (and the LARA model's theory) that impacts to all other types of farmland are unimportant and insignificant, projects could destroy more than 90% of the County's farmland without ever triggering a finding that there is a significant impact, and therefore requiring mitigation. This is patently absurd.

Analyzing the full range of impacts on all types of farmland also comports with the Legislature's repeated assertion that preservation and protection of state farmland is an important policy goal and that CEQA is one tool that should be used to carry out this goal. *Masonite Corp. v. Cnty. of Mendocino*, A134896, 2013 WL 3865101 (Cal. Ct. App. July 25, 2013) ("our Legislature has repeatedly stated the preservation of agricultural land is an important public policy. (Gov't Code, § 51220, subd. (a) ["the preservation of a maximum amount of the limited supply of agricultural land is necessary to the conservation of the state's economic resources, and is necessary ... for the assurance of adequate, healthful and nutritious food for future residents of this state and nation"]; Pub. Resources Code, § 10201, subd. (c) . . . ; Civ.Code, § 815 . . . The Legislature has also declared that CEQA is intended to effectuate this public policy. (Stats.1993, ch. 812, § 1, p. 4428 [(d) The California Environmental Quality Act plays an important role in the preservation of agricultural lands."])." Here, the DEIR's myopic analysis fails to conform with CEQA's explicit requirements or the broader goals of the Legislature. It also flies in the face of the CEQA Guidelines and the County's own, prior analysis for its General Plan update.

(c) The DEIR's Reliance on Soil Types As a Proxy For Significant Agricultural Impacts Is Inappropriate.

The DEIR should not rely exclusively on soil types to determine agricultural viability and importance. Two types of on-site agricultural resources are nurseries and greenhouses (Agricultural Resources Report of EIR, pp. 13, 29, Figure 6), which do not depend entirely on existing soil types for their viability because they can import soil to use in potted plants and greenhouses. Although the DEIR does not disclose what is grown at the on-site nurseries, agricultural production of "ornamental trees and shrubs" and "indoor flowering and foliage plants" were the top two crops (by value) grown in San Diego County in 2010, with total values of $418 million and $293 million, respectively. Agricultural Resources Report of EIR, p. 29. Accordingly, to the extent the DEIR's reliance on soil quality as a proxy for determining agricultural viability fails to account for impacts to nursery and greenhouse products, the document fails to serve its purpose. In order to accurately measure the Project's impacts to agriculture, the DEIR must use a

metric that does not rely exclusively on soil types to determine whether impacts are significant.

(d) The DEIR Ignores Impacts on More Than 40 Acres of Prime Farmland and Farmland of Statewide Importance.

Even if the County could legitimately analyze only impacts on Prime Farmland and Farmland of Statewide Importance—which it may not—the DEIR offers no valid excuse for its failure to measure the significance of the 40 acres of such farmland that the Project will convert to non-agricultural uses. DEIR at 2.4-10. The DEIR acknowledges that these types of farmland comprise 10% of the Project site (*id.*), yet curiously disregards any impact on these more than three dozen acres of important farmland. Apparently, the DEIR authors believe that, because the LARA model found that the overall site does not contain a high proportion of these types of farmland, it does not need to analyze the impacts to the Prime Farmland and Farmland of Statewide Importance that do exist on site. Nothing in CEQA or the LARA model allows such a result. On the contrary, CEQA specifically requires agencies to analyze *any* significant impact, including impacts to Prime Farmland and Farmland of Statewide Importance. Pub. Resources Code §§ 21065, 21081; Guidelines Appendix G, § II(a). Likewise, the County's own guidance on implementing LARA states that the model is intended to ensure "completeness of agricultural impact analyses." Guidance, p. i.

In sum, given that citrus, avocados and other crops have been successfully grown on the Project site for more than 40 years (Agricultural Resources Report of DEIR, p. 29), and that the Project would wipe out hundreds of acres of productive agriculture on the site, the DEIR's conclusion that the Project will not have significant impacts due to conversion of on-site agricultural uses is specious.

B. The DEIR Fails To Accurately and Fully Analyze the Impacts the Project Will Have On Surrounding Agricultural Lands and Operations.

The DEIR describes the impacts that the Project will have on surrounding agricultural uses, but it ignores some types of impacts and incorrectly analyzes the significance of other impacts. The DEIR's flaws include the following.

1. The Project May Have A Significant Impact On Adjacent Farms By Making Farming Less Viable.

The EIR briefly analyzes a few ways in which the Project may impact off-site farmland due to adjacency issues. DEIR at 2.4-13 – 21. However, it ignores one of the most significant and pernicious effects of the Project, which would be to change the character and economics of the area, thereby making farming less viable from a financial and practical perspective. As numerous reports have demonstrated, creeping urbanization undermines the ability of farms to remain viable, for a host of reasons:

> Neighboring farmers often cooperate in production activities, including equipment sharing, land renting, custom work, and irrigation system development. These benefits will disappear when neighboring farms are converted to development. Farmers may no longer be able to benefit from information sharing and formal and informal business relationships among neighboring farms. Urbanization may also cause the "impermanence syndrome" (i.e., a lack of confidence in the stability and long–run profitability of farming), leading to a reduction in investment in new technology or machinery, or idling of farmland (Lopez, Adelaja, and Andrews, 1988).
>
> As urbanization intensifies, agricultural and nonagricultural land use conflicts become more severe. This may lead to an increase in local ordinances designed to force farmers to pay for some of the negative impacts generated by agriculture. As the nearest input suppliers close because of insufficient demand for farm inputs, a farmer may have to pay more for inputs or spend more time to obtain equipment repairs (Lynch and Carpenter, 2003). Competition for labor from nonagricultural sectors may raise farmers' labor costs. When the total amount of farmland falls below a critical mass, the local agricultural economy may collapse as all agricultural supporting sectors disappear.

Land Use Changes: Economic, Social, and Environmental Impacts (2008), attached as Exhibit 7.

The DEIR fails to analyze any of these indirect impacts of the Project, which will undoubtedly be significant. The DEIR is therefore inadequate as a matter of law.

2. Impacts From Pets and Pests.

The DEIR acknowledges that non-native or invasive pests and pets from developed areas can damage adjacent agricultural land. However, instead of actually analyzing the Project's potential to damage adjacent agricultural land through its spread of pests and pets, it merely concludes that this impact will be significant. The same is true of the DEIR's "analysis" of impacts related to pathogens/diseases. DEIR at 2.4-20 (concluding that the Project could result in spread of disease onto adjacent farmland, which would be a significant impact, but not actually analyzing the issue). The DEIR may not cure the DEIR's failure to *analyze* these impacts by rotely acknowledging the impacts' significance. As the court stated in *Galante Vineyards*, "[T]his acknowledgment is inadequate. 'An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences.'" *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1123 (quoting Guidelines § 15151); *see also Mira Monte Homeowners Assn. v. County of Ventura* (1985) 165 Cal.App.3d 357, 365 (EIR protects "the right of the public to be informed in such a way that it can intelligently weigh the environmental consequences of a[] contemplated action").

Thus, the County may not "travel the legally impermissible easy road to CEQA compliance . . . [by] simply labeling the effect 'significant' without accompanying analysis . . . ." *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Comrs.* (2001) 91 Cal.App.4th 1344, 1371. Rather, "a more detailed analysis of how adverse the impact will be is required." *Galante Vineyards*, 60 Cal.App.4th at 1123. The public and decision-makers must know whether the Project's potential to impact adjacent farmland due to the introduction of pests, pets and diseases will merely cause a minor nuisance, or whether it may lead to adjoining farms becoming unviable. The County's refusal to provide this information violates CEQA. It also violates the County's own guidance, which requires that the analysis of agricultural impacts not only identify potential interface conflicts, but also "discuss why those conflicts would or would not result in significant adverse effects." Guidance, p. 16. The discussion must describe typical farm management practices associated with surrounding farm use "based on a farm operator interview, if possible." The DEIR does not even attempt to comply with these procedures.

In addition, the Project includes a mitigation measure consisting of a 6-foot high fence along the southern edge of the Project in certain locations in order to prevent intrusion by people and domestic pets. DEIR at 2.4-24. However, the DEIR never

describes whether this measure will actually be effective, much less provide substantial evidence that it will be effective. At the least, domestic cats can easily climb such fences, so it would not provide a barrier for them. Likewise, the measure does not state whether the fence may be made of chain link or whether it must be made of something more sturdy. If it is chain link, it can easily be cut. Anza Borrego State Park and other conservation agencies have found that chain link is easily cut and does not provide an adequate barrier that keeps people out. To the extent the DEIR relies on this mitigation measure to minimize impacts to offsite agricultural lands, the DEIR is inadequate in that it does not demonstrate that the measure is likely to be effective and does not specify the material required to be used for the fence.

3. Impacts Related to School.

The Project proposes a 12-acre school site in the southern portion of the Project, which would be located within 425 feet of off-site orchards where aerial spraying of pesticides is used. DEIR at 2.4-14. Despite the obvious danger of placing hundreds of schoolchildren within a few hundred feet of where pesticides are sprayed, the EIR concludes that impacts associated with the proposed school would be less than significant. *Id.* It bases this conclusion on the fact that state regulations prevent aerial pesticide "drift" onto neighboring properties, and the school site will be 325 feet away from the Project boundary. *Id.* The DEIR's finding of insignificant impacts is not supported by substantial evidence.

Despite state law that prohibits pesticide applications from drifting across property lines, such drift occurs with some regularity. As one study found, "[i]n 2002, nearly half of the reported pesticide illness cases in California were individuals who were exposed as a result of pesticide drift[, and r]esearchers believe that reported occurrences are a fraction of actual incidents." Getting the Drift on Chemical Trespass: Pesticide drift hits homes, schools and other sensitive sites throughout communities, p. 1, attached as Exhibit 8. Of particular concern, with the "aerial application of pesticides, [] up to 40% of the pesticide is lost to drift." *Id.* In fact, pesticides often drift more than 325 feet, as they can volatilize and remain in the atmosphere for long periods of time, where they are subject to being blown by the wind. *Id.*, pp. 1-2. Accordingly, the DEIR's conclusion that state laws will ensure that children are not exposed to pesticides is not supported by substantial evidence. Even the LARA model on which the County relies so heavily recognizes that there is a potential for agricultural operations to negatively affect schools, and vice versa, if a school is located within a *mile* of such operations. The DEIR never offers any concrete evidence that locating a school more than fifteen times closer than this recommended distance will somehow avoid any impact.

The DEIR also ignores specific CEQA provisions that require agencies to closely analyze the siting of new schools to ensure future children and employees are not placed at risk due to surrounding hazardous conditions. Public Resources Code section 21151.8 requires agencies to determine whether a proposed school site is located within a quarter mile of surrounding hazards, including large agricultural operations. If the site is located within a quarter mile of such hazards, a school district must find that the school site will not endanger public health. Here, the EIR never conducts a health risk assessment or other analysis to support its determination that there will be no significant impacts to schoolchildren with substantial evidence.

Further, the area between the school site and the off-site agricultural operations is proposed for a park. DEIR at 2.4-14. The EIR should not rely on this park as a buffer between the school and the off-site agriculture (and its pesticide spraying) because the schoolchildren will likely use the park. Indeed, County staff pointed out this precise concern in written comments on the proposed Project: "Proposed School Site. The future school children will most likely use this park and therefore a larger buffer is needed between the park and adjacent off-site agriculture. The park as a buffer between the school and off-site agriculture is not enough. There should be an on-site buffer between the park and the off-site ag." Project Issue Checklist, p. 254.

All in all, the school and adjacent park appear to be placed in a terrible location where children may be exposed to pesticides and where adjacent farmers will be exposed to children who may trespass, vandalize or otherwise harm their farming operations. DEIR at 2.4-14 (admitting that the Project will have a significant impact due to compatibility concerns from children using a park adjacent to agricultural lands).

4. The DEIR Fails to Analyze a Range of Other Ways in Which the Project May Impact Off-Site Agricultural Operations.

Although the EIR briefly analyzes a few ways in which the Project may impact off-site farmland due to adjacency issues such as invasive pests, generation of air contaminants, nighttime lighting, etc., it fails to acknowledge or address a variety of other ways in which the Project may impact adjacent agricultural operations. As County staff detailed in written comments on the Project application, such impacts include, but are not limited to, incompatible traffic flows, such as slow-moving farm vehicles on roadways, and the corresponding increased risk of accidents; increased fire risks; and littering. Project Issue Checklist, pp. 25-28. The DEIR must be revised to include this information and then recirculated.

C. The DEIR Fails to Include All Feasible Mitigation, and the Mitigation It Does Include Fails to Conform to CEQA's Standards.

Because the DEIR concludes that impacts to on-site agricultural resources will not be significant, it does not require any mitigation for these impacts. However, because such impacts are actually significant, the DEIR must include all feasible mitigation to minimize these impacts.

An EIR's central purpose is to identify a project's significant environmental effects and then evaluate ways of avoiding or minimizing them. §§ 21002.1(a), 21061. The lead agency also must adopt any feasible mitigation measure that can substantially lessen the project's significant environmental impacts. § 21002; Guidelines § 15002(a)(3). In doing so, the lead agency must "ensure that feasible mitigation measures will actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded." *Federation of Hillside and Canyon Assns. v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261 (italics omitted).

1. The DEIR Must Require Agricultural Conservation Easements to Mitigate the Project's Impacts.

One type of mitigation that the courts have recently upheld as being feasible and effective is the purchase of agricultural conservation easements ("ACE") to protect off-site agricultural lands. *Masonite Corp. v. Cnty. of Mendocino,* A134896, 2013 WL 3865101 (Cal. Ct. App. July 25, 2013. In *Masonite Corp.*, a project was going to convert 45 acres of prime farmland, which the agency properly recognized was a significant impact. However, the agency refused to mitigate for this impact by requiring the project proponent to purchase off-site agricultural easements or by paying an in-lieu fee for the agency to acquire the same. The agency claimed that such easements did not actually mitigate the project's impacts because they did not replace the lost farmland or lessen the amount of acreage that was converted.

The court emphatically disagreed, stating that ACE "may appropriately mitigate for the direct loss of farmland when a project converts agricultural land to a nonagricultural use, even though an ACE does not replace the onsite resources. Our conclusion is reinforced by the CEQA Guidelines, case law on offsite mitigation for loss of biological resources, case law on ACEs, prevailing practice, and the public policy of this state." As the court noted, "[t]here is no good reason to distinguish the use of offsite ACEs to mitigate the loss of agricultural lands from the offsite preservation of habitats for endangered species, an accepted means of mitigating impacts on biological

resources." Use of ACE therefore can directly and effectively mitigate a project's cumulative, indirect and growth-inducing effects by limiting the amount of agricultural land lost due to a project and other cumulative projects.

Here, the Project will undoubtedly have significant impacts on adjacent farms. Indeed, the DEIR admits as much with regard to adjacency impacts (though it incorrectly finds that mitigation will reduce these impacts to a level of insignificance). The Project will also have growth-inducing impacts due to the fact that it will create or expand roads, wastewater facilities and other infrastructure, thereby allowing further growth in the region. In addition, the Project would set a new, and dangerous, precedent in terms of ignoring (or at least creatively interpreting) the County General Plan policies that prohibit leapfrog development that is not adjacent to existing villages. If this Project is approved, developers will be emboldened to propose more sprawling projects far from existing development and services, and the County will be more likely to approve them. Further, if the County allows this Project to go forward with its inadequate analysis of agricultural impacts under LARA, which ignores all impacts on areas that have allegedly poor soils, it would allow and encourage further, unmitigated growth that could destroy the vast majority of the region's farmland with no required mitigation.

All of these factors mean that the Project will likely directly and indirectly impact surrounding farms, and will induce further growth in the region, leading to increased pressure on the region's fast-disappearing farmland. This is precisely why agricultural easements are so crucial—they can help maintain a critical mass of agricultural land and stave off some of the financial pressures to convert agricultural land. Because courts and other agencies have recognized the feasibility of this type of mitigation, the County must impose it as a condition on this Project if it goes forward.

2. The DEIR Unlawfully Defers Mitigation.

The DEIR imposes Mitigation Measure M-AG-4, which requires the applicant or future Homeowners' Association to exercise control over interim agricultural operations in order to reduce conflicts between such operations and the developing Project. DEIR at 2.4-24 – 25. However, the mitigation measure does not meet CEQA's standards for being specific, enforceable and certain. In particular, the measure specifies that the "applicant/HOA will prohibit aerial pesticide spraying and will take all precautions to minimize other impacts . . . including noise and dust generation, trespassing, and vandalism." *Id.* But it is not clear how this measure is binding on the HOA, as required by CEQA. Guidelines § 15126.4(a)(2). Nor is it clear what, exactly, the HOA or applicant is supposed to do, other than take "all precautions to minimize other impacts."

Do they have to repair fences that are supposed to keep trespassers from going off-site? Repair them within a certain timeframe? Put up warning signs regarding pesticide application? Come up with a list at some later time about the things they will do to carry out this vague mitigation measure?

In essence, the DEIR provides only a vague and unenforceable mitigation measure and provides no evidence that it will, in fact, mitigate the impacts as it is supposed to do. It defers formulation of actual implementing measures without providing any guidelines as to what measures the applicant or HOA will eventually take. This flatly violates CEQA, which allows a lead agency to defer mitigation only when: (1) an EIR contains criteria, or performance standards, to govern future actions implementing the mitigation; (2) practical considerations preclude development of the measures at the time of initial project approval; and (3) the agency has assurances that the future mitigation will be both "feasible and efficacious." *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 94-95; *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 669-71; Guidelines § 15126.4(a)(1)(B). Here, none of these requirements are met.

D. The DEIR's Analysis of Cumulative Impacts is Deficient.

For many of the same reasons that the DEIR's analysis of Project-specific impacts is deficient, its analysis of cumulative impacts is also insufficient. For example, the DEIR again relies on the LARA model's faulty analysis to conclude that, because the Project allegedly will not impact an important agricultural resource, it cannot possibly contribute to a significant cumulative impact. DEIR at 2.4-21. This is absurd for all of the reasons detailed above, and for the additional reason that the Project will directly impact more than 40 acres of Prime Farmland or Farmland of Statewide Importance; thus, even impacts on only this type of farmland contribute to a significant cumulative impact.

The DEIR's analysis is also internally inconsistent. After first determining that the Project will not contribute to a cumulative impact, the DEIR then analyzes cumulative impacts anyway, and determines that "significant cumulative indirect impacts could occur." DEIR at 2.4-22. Such inconsistent reasoning and analysis thwarts CEQA's fundamental purpose to inform the public and decisionmakers and is in itself a CEQA violation.

Regardless, the DEIR's analysis of cumulative agricultural impacts is faulty for substantive reasons as well. First, the DEIR attempts to show that the Project's

conversion of hundreds of acres of productive farmland is insignificant by comparing it to the loss of farmland statewide, as opposed to regional, or community-wide losses. DEIR at 2.4-22. It thus bases its finding of insignificant cumulative impacts on this County-wide analysis, even though it admits that the Project represents 58% of the potential impacts to Important Farmland within the cumulative study area. *Id.* The DEIR may not artificially minimize the Project's apparent impacts by ignoring the document's selected cumulative impact study area and "watering down" the Project's impact by comparing them to a vastly larger area. As the DEIR recognizes, the County requires agencies to analyze cumulative impacts by looking at impacts caused by other projects in the cumulative study area. DEIR at 2.4-21; see also Guidelines § 15130(b)(3) (agencies must define a relevant cumulative study area in which they analyze cumulative impacts). Here, the cumulative study area consists of a few thousand acres surrounding the Project site, not the entire County. DEIR at 2.4-22. Within this study area, the Project will unquestionably make a cumulatively considerable contribution to a significant cumulative impact on agricultural resources. The DEIR's conclusion to the contrary is not supported by substantial evidence.

II. The County May Not Approve the Project as Proposed Because It Is Inconsistent With Numerous County General Plan and Community Plan Policies.

The State Planning and Zoning Law (Gov't Code § 65000 et seq.) requires that development decisions be consistent with the jurisdiction's general plan. As reiterated by the courts, "[u]nder state law, the propriety of virtually any local decision affecting land use and development depends upon consistency with the applicable general plan and its elements." *Resource Defense Fund v. County of Santa Cruz* (1982) 133 Cal.App.3d 800, 806. Accordingly, "[t]he consistency doctrine [is] the linchpin of California's land use and development laws; it is the principle which infuses the concept of planned growth with the force of law." *Families Unafraid to Uphold Rural El Dorado County v. Board of Supervisors* (1998) 62 Cal.App.4th 1332, 1336.

General plans and community plans establish long-term goals and policies to guide future land use decisions, thus acting as a "constitution" for future development. *Lesher Communications, Inc. v. City of Walnut Creek* (1990) 52 Cal.3d 531, 540. To promote coordinated land use policies and practices, state law requires local governments not just to formulate theoretical land use plans, but also to conform their development and land use projects and approvals with those duly certified plans. *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 570. It is an abuse of discretion to approve a project that "frustrate[s] the General Plan's goals and policies." *Napa Citizens*

for Honest Gov't v. Napa County (2001) 91 Cal.App.4th 342, 379. The project need not present an "outright conflict" with a general plan provision to be considered inconsistent; the determining question is instead whether the project "is compatible with and will not frustrate the General Plan's goals and policies." *Napa Citizens*, 91 Cal.App.4th at 379. As the County recognizes in the Project Specific Plan, "Community Plans are part of the General Plan and . . . [a]s legally required by State law, Community Plans must be internally consistent with General Plan goals and policies of which they are a part." Specific Plan, p. V-7.

Here, the Project fundamentally conflicts with numerous policies of the County General Plan, Bonsall Community Plan and Valley Center Community Plan. These inconsistencies violate State Planning and Zoning Law and render any Project approval unlawful.

A. The Project Conflicts With Plan Policies Intended to Protect Agriculture and the Rural Character of the Area.

The County General Plan contains numerous goals and policies designed to retain and protect farming and agriculture, promote a sustainable agricultural industry, protect agricultural operations from encroachment of incompatible land uses, and support the acquisition of agricultural conservation easements. Agricultural Resources Report of EIR, pp. 95-96. Likewise, the Valley Center Community Plan has goals to "Preserve and enhance existing and future agricultural uses in the Valley Center," to "Support agricultural uses and activities through the community plan area by providing appropriately zoned areas in order to ensure the continuation of an important rural lifestyle in Valley Center," and to "Prohibit residential development which would have an adverse impact on existing agricultural uses." Agricultural Resources Report of EIR, pp. 96-97. The Bonsall Community Plan contains similar goals, including to (1) "Maintain the existing rural lifestyle by continuing the existing pattern of residential, equestrian, and agricultural uses within the Bonsall CPA," (2) "Discourage incompatible land uses on areas of agricultural use and land suitable for agricultural usage," (3) "Encourage the use of agriculture easements ....", and (4) "Require development to minimize potential conflicts with adjacent agricultural operations." *See id.* at p. 97.

The relevant Plan policies fall into various categories. The Project conflicts with all of them, and the DEIR fails to accurately or adequately analyze these conflicts. First, a number of relevant policies aim to ensure that new development does not unduly impact offsite agricultural land, or serve as a wedge that drives out surrounding agriculture. *See, e.g.*, Agricultural Resources Report of EIR, pp. 95-97 (describing General Plan Policy

COS 6.2, 6.3, 6.4; Bonsall Community Plan Policy P LU-1.1.2, COS-1.2-3; Valley Center Community Plan Policy 1, 4). As described above, the Project will have numerous significant impacts to offsite agricultural lands, and will likely start a domino effect whereby surrounding lands will succumb to suburban/urban development. The DEIR incorrectly, and without support, dismisses the notion that the Project conflicts with these policies. Agricultural Resources Report of EIR, pp. 97-106. However, it never addresses any of the deficiencies identified above. Its conclusion that the Project will not conflict with these policies is therefore not supported by substantial evidence.

Second, other policies concern the protection of the rural and agricultural character of the region. *See, e.g.*, Agricultural Resources Report of EIR, pp. 95-97 (describing General Plan Policy LU-7, LU-7.1, COS 6; Valley Center Community Plan Policy 1, 2, 4; Bonsall Community Plan Policy P LU-1.1.2, Goal COS-1.2); Specific Plan, p. V-11 ("Perhaps the major goal in the Valley Center Community Plan is to maintain its rural character. The theme of this goal is repeated in several policies."); Specific Plan, p. V-13 ("Perhaps the major goal in the Bonsall Community Plan is the maintenance of rural character. This goal is supported by several policies emphasizing the retention of agriculture and large lot estate development."). Currently, the Bonsall community, in which the Project is partially located, is characterized by spaced, rural housing, agricultural operations and open space. As the DEIR describes, houses are located far apart, and "[s]urrounding the houses are large open spaces composed of fallow fields, undisturbed native vegetation, and agriculture. Agriculture is a key factor in Bonsall's rural community character, as are the scenic, sometimes narrow and winding, rural roads . . . Open space is an outstanding characteristic of the community of Bonsall and, along with the uses and pleasures it affords, comprises the "rural atmosphere" which Bonsall residents are committed to preserving." DEIR at 3-63 – 64.

Similarly, Valley Center "is characterized by its unique topographic features, its agricultural activities, and its predominance of estate residential development. The rural character of the community results from the low population density and the prevalence of large areas of open space provided by agriculture. . . . although urbanization has greatly diminished agricultural uses in other areas of the County, Valley Center has managed to maintain its rural identity." DEIR at 3-63. Currently, "[t]he area immediately around the project site does not contain streetlights, lighted signs, or traffic signals, and outside lighting of residences is customarily kept to a minimum to maintain dark skies." DEIR at 3-64.

The DEIR contains various, contorted rationales for how the Project will protect the rural and agricultural nature of the area. DEIR at 3-66 – 67. For example, it states

that the rural qualities of the area will be protected because the Project will allow "varied land uses," will maintain some token areas where agriculture is allowed on-site, will place the highest density of homes in the center of the site, and will include different architectural styles. *Id.* But these rationales have nothing to do with the actual policies, which call for "[m]aintaining the existing rural lifestyle by *continuing the existing pattern of residential, equestrian, and agricultural uses*" in the area. Agricultural Resources Report for EIR, p. 97 (quoting Bonsall Community Plan Policy P LU-1.1.2) (emphasis added). No reasonable person could conclude that placing more than 1700 new residences and associated commercial uses in the middle of a rural area is a continuation of the existing pattern of land uses. The DEIR admits as much when it notes that "The project proposes land uses and densities that are not consistent with the adopted General Plan Land Use Element Regional Category of Semi Rural" and that the Project vicinity currently "consists of rural hills, valleys, and riparian habitat, as well as estate residential development." DEIR at 3-64. In fact, County staff, who commented on the Project application and EIR, specifically stated that "The predominance of small lot development, as well as the uniformity of lot sizes within the development area would not be consistent with rural development patterns within the Valley Center Community Plan area." Project Issue Checklist, p. 15.

The Specific Plan also claims that agriculture will be protected because the Project may allow farmers' markets on site (Specific Plan, p. V-4) and that "[t]he project will retain agriculture throughout, reinforcing the agricultural nature of the surrounding area" (Specific Plan, p. V-11). Again, it is incomprehensible how wiping out hundreds of acres of row crops, orchards and vineyards will somehow "retain agriculture." That the Project may allow farmers' markets on site, or allow a couple rows of orchard trees around the edge to provide a buffer does not mean that it is retaining agriculture in any meaningful sense of the term.

Last, the Project also conflicts with policies to promote agricultural easements as a method for maintaining agriculture. E.g., Agricultural Resources Report of EIR, pp. 95-97 (describing General Plan Policy COS 6.4; Bonsall Community Plan Policy COS-1.2.2). As described previously in this letter, and in contrast to these policies that encourage agricultural easements, the Project does not include any requirement for agricultural easements in order to mitigate the Project's significant impacts on farmland.

B. The Project Flatly Violates Two Mandatory County General Plan Policies Prohibiting Leapfrog Development and Expansion of Existing and Planned Villages.

The County General Plan contains mandatory, explicit prohibitions on "leapfrog" development and the creation of new rural "villages." Although there are exceptions to these prohibitions, the Project does not fall within any of the exceptions and is therefore prohibited due to its inconsistency with these policies.

1. The Project is A Classic "Leapfrog" Development that is Prohibited By the General Plan.

County General Plan Policy LU-1.2 states:

> "**Leapfrog Development**. Prohibit leapfrog development which is inconsistent with the Community Development Model. Leapfrog Development restrictions do not apply to new villages that are designed to be consistent with the Community Development Model, that provide necessary services and facilities, and that are designed to meet the LEED-Neighborhood Development Certification or an equivalent. For purposes of this policy, leapfrog development is defined as Village densities located away from established Villages or outside established water and sewer service boundaries."

The Project site is located in an area far from existing cities, towns and villages, and surrounding land uses are rural or semi-rural in character. This is a classic "leapfrog" development under the General Plan's own definition of the term. Accordingly, it is prohibited unless the Project is designed to meet the LEED-Neighborhood Development ("LEED ND") Certification or an equivalent standard. The County admits as much in the Specific Plan, stating that the proposed Project is located in a semi-rural area and may only be approved if it is designed to meet the LEED-ND standards. Specific Plan at II-32, V-7. Because it is not designed to meet this standard, it is prohibited.

The LEED ND certification emphasizes "site selection, design, and construction elements that bring buildings and infrastructure together into a neighborhood and relate the neighborhood to its landscape as well as its local and regional context." LEED 2009 for Neighborhood Development, p. xii, attached as Exhibit 9. To qualify for LEED ND certification, a project must satisfy a variety of mandatory prerequisites and additionally qualify for a minimum number of points based on other project features. *Id.*, p. xix.

Here, the Project fails to meet a number of the mandatory minimum requirements for certification, and is thus ineligible for certification.

First, the LEED ND standard requires a development to be in a "smart location." *Id.*, p. 1. The goal is to "encourage development within and near existing communities and public transit infrastructure. To encourage improvement and redevelopment of existing cities, suburbs, and towns while limiting the expansion of the development footprint in the region to appropriate circumstances[, and t]o reduce vehicle trips and vehicle miles traveled." *Id.* To carry out this goal, projects must locate the project either on an infill site or a site that is adjacent to previously developed land where the connectivity of the site and adjacent land is at least 90 intersections per square mile. *Id.* Previously developed land does not include agricultural land. *Id.*, p. 14. Here, the Project is not on an infill site, nor is it adjacent to previously developed land at all,[2] much less land with a connectivity of 90 intersections per square mile.

Alternatively, a project may qualify if it is constructed on a transit corridor where at least 50% of dwelling units are located within close walking distance to transit stops, and the service at those stops provide at least 60 trips per day. *Id.*, p. 3. The Project does not meet this requirement, as it is not near existing transit and does not include plans for such high quality transit. DEIR at 1-12 (stating that the Project is located 8 miles from existing transit routes and that "[a]s the project is built-out, the NCTD [transit district] *may* adjust routes and services to meet the needs of the growing community.") (emphasis added).

Second, the LEED ND standard requires that a development preserve agricultural land by "Locat[ing] the project development footprint such that it does not disturb prime soils, unique soils, or soils of state significance as identified in a state Natural Resources Conservation Service soil survey." Exhibit 9, p. 15. Here, as described above, the Project will impact more than 40 acres of land designated as prime or statewide significant soils. It will also impact more than 330 acres designated as "unique farmland." Agricultural Resources Report of EIR, p. 27. The Project cannot meet this standard.

Nor does it meet alternative standards, such as locating on a site with transferred development rights, or mitigating the loss of farmland "through the purchase of

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[2] A project must have 25% of its border adjoining previously developed land, and at least 75% of those bordering parcels must be previously developed. *Id.*, p. 7.

easements providing permanent protection from development on land with comparable soils in accordance with the ratios based on densities per acre of buildable land as listed in Tables 1 and 2 [of the LEED ND guidance]." Exhibit 9, p. 15.

Third, the Project does not meet the criteria for getting points based on preferred locations, as it is not an infill site, is not adjacent to already developed sites, does not have high connectivity to adjacent sites, is not located in a high-priority redevelopment area, and is not located in an area with reduced auto dependence. *Id.* at 22-28. Indeed, the Project will cause people to drive tens of millions of miles per year.

Lastly, the County has apparently made virtually no attempt to find that the Project would comply with any of the above requirements or the various other requirements to be certified as LEED ND or equivalent. For example, in addition to the above requirements, the Project would have to include a LEED certified building, have energy efficient buildings, and obtain dozens more points based on its sustainability, energy efficiency, production of on-site renewable energy, or other factors. *See generally, id.* The Specific Plan includes only a cursory discussion of the need to comply with the LEED ND standard, and a half-hearted attempt to show that this sprawling, transit-unfriendly development would somehow comply with the standard. Specific Plan at II-31 – 33, V-1 - 14. Likewise, the DEIR mentions the LEED ND standard in passing and devotes a couple sentences to justifying the Project's alleged compliance with the standard. DEIR at 3-64 – 65. This discussion is plainly inadequate and does not address any of the specific inconsistencies discussed above.

The County admits that it may not approve the Project unless it meets the LEED ND or an equivalent standard. It has made virtually no attempt to show that the Project would meet the standard, nor can it show that the Project meets the standard. The County therefore may not lawfully approve the Project as proposed.

2. The Proposed Project Would Unlawfully Permit a New Village that is Not Contiguous With Existing or Planned Villages.

In addition to its prohibition against leapfrog development, the County General Plan allows new village designations *only* if the new village is contiguous with an existing or planned village *and* where the expansion is consistent with community character, the scale, and the orderly and contiguous growth of a village. General Plan Policy LU-1.4. Here, the new proposed village is not contiguous with an existing or

planned village. *See* Valley Center Community Plan, p. 9, Figure 3;[3] Bonsall Community Plan, p. 24, Figure 3; Lilac Hills Ranch Specific Plan, Figures 7-10.[4] Nor does the County proposed to change General Plan Policy LU-1.4 as part of the Project. Lilac Hills Ranch Specific Plan, Figures 7-10. The Project is therefore strictly prohibited by the County's General Plan. In addition, the Project DEIR unlawfully fails to discuss the Project's inconsistency with this policy.

For all of the reasons discussed above, the DEIR's conclusion that the Project is consistent with the General Plan and both Community Plans, and that "land use impacts associated with policy inconsistencies would be less than significant," is baseless. DEIR at 3-65.

III. The DEIR Fails to Adequately Evaluate the Project's Contribution to Climate Change.

The DEIR's analysis of greenhouse gas ("GHG") emissions attributable to the Project is also shockingly deficient. Likewise, its conclusion that the Project—which consists of more than 1700 homes where residents will drive more than 60 million miles every year—will not have significant GHG-related impacts is breathtaking. By any rational measure, the Project will have a significant impact related to climate change. The DEIR concludes otherwise only because it distorts the Project's actual impacts, uses an inappropriate way to measure the significance of the Project's impacts, ignores that the Project conflicts with various relevant GHG-reduction policies, and uses other flawed analyses. Because the DEIR concludes that the Project will not have a significant climate-related impact, it fails to adopt feasible mitigation. However, because the

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[3] The version of the Valley Center Community Plan on the County's website for the Project DEIR does not contain Figure 3; rather, that page is blank. The County must correct this error. The full, current Community Plan can be found at *www.sdcounty.ca.gov/.../C.2_21_VALLEY_CENTER__08_03_11.pdf* and is incorporated in this comment by reference. *See Consolidated Irrigation District v. Superior Ct.* (2012) 205 Cal.App.4th 697 (documents referenced in comment letter with a specific URL link are included in the record).

[4] This document can be found listed as the "General Plan Amendment – Land Use Element" on the County's website for the Project DEIR, or can be found at http://www.sdcounty.ca.gov/pds/regulatory/docs/LILAC_HILLS_RANCH/General_Plan_Amendment_-_Land_Use_Element.pdf

Project's impact will actually be significant, the DEIR must identify and include adequate mitigation measures to reduce or avoid the Project's contribution to global warming.

A. The DEIR's Significance Threshold for Measuring GHG Emissions Is Flawed, and the County Misapplies the Threshold in Any Event.

1. The DEIR's Use of a "Business As Usual" Approach to Determine Significance of GHG Impacts Is Inappropriate.

Determining whether or not a project may result in a significant adverse environmental effect is a key aspect of CEQA. CEQA Guidelines § 15064(a) (determination of significant effects "plays a critical role in the CEQA process"). Under CEQA, agencies use thresholds of significance as a tool for judging the significance of a Project's impacts. CEQA Guidelines §§ 15064.4, 15064.7. The first major problem with the DEIR's climate change analysis is that it uses an approach to measuring climate change impacts that has been soundly rejected as inappropriate by the California Supreme Court, Attorney General and numerous others. Specifically, the DEIR does not measure the significance of the Project's GHG emissions by comparing them to existing conditions, as CEQA generally requires. *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (August 5, 2013), S202828, __ Cal.4th __. Rather, it compares the Project's emissions to the emissions that would be emitted under a hypothetical future scenario in which the Project did not include any mitigation measures or design features that reduced GHG emissions. In essence, it compares the Project's emissions to a future, hypothetical "business as usual" ("BAU") baseline to find that climate change impacts would not be significant.

This method of analysis is contrary to CEQA's requirements. In evaluating project impacts, courts have repeatedly held that agencies should normally analyze a project's impacts by comparing them to actual existing conditions, not hypothetical conditions that may minimize the project's apparent impacts and allow the agency to avoid analysis and mitigation. *See, e.g.*, *Woodward Park Homeowners Ass'n, Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 691 ("hypothetical office park was a legally incorrect baseline [against which to measure significance] which resulted in a misleading report of the project's impacts."); *Env't Planning & Information Council v. County of El Dorado*, 131 Cal. App.3d 350 (1982) (EIR for area plan invalid because impacts were compared to existing general plan rather than to existing environment).

The California Supreme Court recently reaffirmed this longstanding principle in *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (August 5,

2013), S202828, __ Cal.4th __, where it held that, "while an agency preparing an EIR does have discretion to omit an analysis of the project's significant impacts on existing environmental conditions and substitute a baseline consisting of environmental conditions projected to exist in the future, the agency must justify its decision by showing an existing conditions analysis would be misleading or without informational value." The County has not even attempted to show how it would be misleading or without informational value to compare the Project's GHG emissions against existing on-site emissions in order to determine the significance of those emissions. Accordingly, the DEIR's failure to compare Project GHG emissions to actual, existing conditions, and its use of a hypothetical, future baseline against which to measure Project impacts, violates CEQA.

The Attorney General has also criticized the use of a BAU approach to measure GHG impacts. As the Attorney General recently opined, evaluating GHG impacts based on purported reductions from "business as usual" "will not withstand legal scrutiny and may result in significant lost opportunities for . . . local governments to require mitigation of greenhouse gas (GHG) emissions)." Letter from Attorney General to San Joaquin Valley Air Pollution Control District re: Final Draft Staff Report on Greenhouse Gas Emissions Under CEQA (Nov. 4, 2009), attached as Exhibit 10. Likewise, the California Resources Agency recently updated the CEQA Guidelines by adopting recommendations on how agencies may analyze the significance of a project's GHG emissions. One of the factors for determining the significance of Project GHG impacts in the Guidelines is whether the project "may increase or reduce greenhouse gas emissions compared to the *existing environmental setting*." Guideline § 15064.4(b)(1) (emphasis added). As set forth in the Final Statement of Reasons for Regulatory Action on the Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97:

> This section's reference to the 'existing environmental setting' reflects existing law requiring that impacts be compared to the environment as it currently exists. This clarification is necessary to avoid a comparison of the project against a 'business as usual' scenario as defined by ARB in the Scoping Plan. Such an approach would confuse 'business as usual' projections used in ARB's Scoping Plan with CEQA's separate requirement of analyzing project effects in comparison to the environmental baseline.

Final Statement of Reasons at 24-25, attached as Exhibit 11 and available at http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf.

Here, it is misleading to measure the significance of Project impacts by comparing the Project to a hypothetical "what if" scenario rather than to existing conditions. For example, the DEIR sets out a hypothetical BAU scenario in which the Project is built but only a few statewide regulations and laws regarding GHG emission reductions have gone into effect. DEIR at 3-30. Then, the DEIR calculates the Project's emissions by giving the Project credit for reducing emissions based on the Project's compliance with preexisting requirements of law such as the low carbon fuel standard, tire pressure program and other measures. DEIR at 3-30. The DEIR then compares the BAU scenario to the Project's impacts and, unsurprisingly, finds that the Project will have fewer emissions than the artificially inflated BAU scenario.[5]

Because the Project would have to comply with existing GHG-related laws and regulations anyway (including CEQA's requirement for mitigation), it is misleading for the DEIR to state that the Project will cause a 16% reduction in GHG emissions due to particular Project features, when in fact these features are required anyway. Likewise, it is misleading and inappropriate to compare the Project emissions against an artificially inflated baseline of alleged BAU conditions. Courts have recognized that comparing project impacts to such an artificially inflated baseline results in "illusory comparisons that can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts, a result at direct odds with CEQA's intent." *Communities for a Better Environment v. South Coast Air Quality Management Dist.*, 48 Cal. 4th 310, 322 (2010). A proper comparison would be to the Project site as it currently exists. Guidelines § 15126.2(a)

An accurate comparison with existing conditions is particularly important with regard to climate change because existing conditions are such that we have already exceeded the capacity of the atmosphere to absorb additional GHG emissions without risking catastrophic and irreversible consequences. Therefore, even seemingly small additions of GHG emissions into the atmosphere must be considered cumulatively considerable. *See Communities for Better Env't v. California Resources Agency*, 103 Cal.

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[5] The DEIR also gives the Project credit for installing only gas fireplaces (DEIR at 3-31) instead of some wood-burning ones. But it is questionable whether using gas fireplaces instead of wood burning ones actually reduces overall climate change impacts. If wood is harvested from areas where the trees will grow back, burning wood is carbon neutral. In contrast, gas is a fossil fuel, and burning it may actually produce more carbon dioxide than wood. Gas fireplaces do emit fewer particulates and other pollutants than wood fireplaces, but this is irrelevant for the GHG analysis.

App. 4th 98, 120 (2002) ("the greater the existing environmental problems are, the lower the threshold for treating a project's contribution to cumulative impacts as significant."); *see also Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508, 550 (9th Cir. 2007) ("we cannot afford to ignore even modest contributions to global warming."). In keeping with the seriousness of the threats posed by climate change, both the Bay Area Air Quality Management District and San Diego County have proposed low bright-line and efficiency-based thresholds for analyzing project-level GHG emissions. As described below, the Project exceeds these thresholds. The County may not ignore the Project's exceedence of these thresholds simply because the Project may not have a significant impact when measured by a different, inappropriate BAU threshold.

2. Even If the County Could Use a "Business As Usual" Approach, the DEIR Misapplies the Approach.

Even if BAU were a legitimate means for determining significance, which it is not, there is no evidence supporting the DEIR's assumption that new development that is 16% below BAU will help achieve California's emission reduction objectives. First, the AB 32 Scoping Plan determined that California's overall emissions must be cut by "approximately 30 percent from business-as-usual emission levels projected for 2020" to meet AB 32 requirements. Thus, a 16% reduction from BAU is not nearly enough to meet this standard. Moreover, even if the Project was 30% below BAU, this would still not be enough. The DEIR's significance determination mistakenly presumes, without any support, that emission reduction expectations are the same for existing and new sources of emissions to meet AB 32 targets. However, the Scoping Plan is silent as to the obligation of new development to mitigate greenhouse gas emissions under CEQA. Contrary to the DEIR's naked assumptions, as opportunities for reducing emissions from the built environment are more limited and present greater challenges, expectations for minimizing emissions from new development, through energy efficiency, renewables, increased density, mixed use and siting close to transit, should be greater than that of existing development, where emission reduction opportunities may be more constrained.

As recognized by the California Air Pollution Control Officers Association ("CAPCOA") in its CEQA & Climate Change White Paper, "greater reductions can be achieved at lower cost from new projects than can be achieved from existing sources." CAPCOA, CEQA & Climate Change at 33, attached as Exhibit 12.[6] Similarly, as one of

[6] As explained on its website, CAPCOA "is a non-profit association of the air pollution control officers from all 35 local air quality agencies throughout California.

its reasons for finding that a proposed 29% below BAU threshold of significance "will not withstand legal scrutiny," the Attorney General noted that "it seems that new development must be more GHG efficient than this average, given that past and current sources of emissions, which are substantially less efficient than this average, will continue to exist and emit." Exhibit 10. Accordingly, there is no scientific or factual basis supporting the EIR's unsubstantiated opinion that new development that is merely 16% below BAU (or even 30% below BAU) will not interfere with California's near-term emission reduction objectives. *See* Pub. Res. Code § 21082.2(c) ("[a]rgument, speculation, unsubstantiated opinion or narrative, [and] evidence which is clearly inaccurate or erroneous" does not constitute substantial evidence); *see also Californians forAlternatives to Toxics v. Dept. of Food & Agric.*, 136 Cal. App. 4th 1, 17 (2005) ("[C]onclusory statements do not fit the CEQA bill."). By simply assuming that AB 32 emission reduction targets will be achieved because Project emissions are purportedly 16% below "business as usual," the EIR's significance criteria does not reflect "careful judgment . . . based to the extent possible on scientific and factual data." Guidelines § 15064(b).

The DEIR also blindly relies on the County's guidelines for determining GHG significance without demonstrating that the recommendations and methods in the guidance are supported by substantial evidence. Although it may sometimes be appropriate to rely on thresholds of significance that are adopted for general use, here the County's GHG guidance and thresholds have apparently not been adopted by regulation, rule, resolution or ordinance, as required by CEQA. Guidelines § 15064.7(b). Nor is there any evidence that the guidance was subject to public review as required by CEQA. *Id.* Nor does the guidance include information, studies and explanations that constitute substantial evidence on which the suggested 16% below BAU threshold is based.[7]

CAPCOA was formed in 1976 to promote clean air and to provide a forum for sharing of knowledge, experience, and information among the air quality regulatory agencies around the State."

[7] The County posted a document entitled Appendix To Guidelines For Determining Significance Climate Change on its website. http://www.sdcounty.ca.gov/pds/advance/Draft_Guidelines_for_Determining_Significance_Climate_Change_Appendix.pdf. This document contains background documentation to support its bright line and efficiency threshold, but does not appear to contain any similar evidence to support its BAU threshold.

For all of these reasons, even if the DEIR could use a BAU approach, there is no evidence demonstrating that a 16% reduction below BAU will help the region achieve the state's short and long term GHG reduction goals. As described above, the Scoping Plan supports the notion that new development would need to reduce emissions below BAU by at least 30%. Likewise, the County's own interim guidance from 2008 stated that development projects would have to reduce emissions 33% below BAU to achieve AB 32's 2020 targets. Given that the 2008 guidance used San Diego specific data to develop the 33% reduction recommendation, and the 2012 guidance used generic, statewide data, the 2008 guidance appears to be more accurate. *Compare* Exhibit 13, p. 4, *with* Exhibit 14, pp. 32-33.

B. Other Substantial Evidence Demonstrates that the Project Will Likely Have a Significant Impact Related to Its GHG Emissions.

The County's Guidelines for Determining the Significance of Climate Change include three suggested methods, or thresholds, for determining whether residential and mixed use projects will have a significant GHG-related impact. Exhibit 14, p. 21. The DEIR relies entirely on one of these thresholds—the BAU, or "performance standard" approach described above—to determine that the Project will not have a significant impact on climate change. DEIR at 3-29. However, even if the County could legitimately use the BAU threshold, and even if it properly applied the threshold—neither of which are true—the County is still required to consider other evidence that the Project may cause a significant GHG-related impact. *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ("in preparing an EIR, the agency must consider and resolve every fair argument that can be made about the possible significant environmental effects of a project, irrespective of whether an established threshold of significance has been met").

Here, other evidence clearly demonstrates that the Project's GHG emissions will cause a significant impact. As described below, the Project's GHG emissions exceed the County's two other recommended thresholds—a "bright line" and an "efficiency" threshold—by a great margin. The County may not ignore this evidence, which demonstrates that the Project's GHG emissions may have a significant impact on the environment. *Protect the Historic Amador Waterways,* 116 Cal.App.4th at 1109.

Under the bright line threshold, a project will have a significant impact if it will result in a net increase of operational GHG emissions greater than 2,500 metric tons of CO_2 equivalent per year. Exhibit 14, p. 28. Here, the DEIR states that Project will result in net operational GHG emissions of 32,317.22 metric tons of CO_2 equivalent per year.

DEIR at 3-32.[8] This is nearly thirteen times the County's bright line significance threshold. Accordingly, using the County's own significance threshold and the DEIR's own evidence, it is clear that the Project may have a significant impact related to GHG emissions. The DEIR must be revised and recirculated to address this significant impact, and mitigation must be imposed.

Under the efficiency threshold, a project will have a significant impact "if it would result in a net increase of construction and operational GHG emissions, either directly or indirectly, at a level exceeding 4.32 metric tons of CO2e per year, per service population." Exhibit 14, p. 24. The service population is the sum of the residents and employees. *Id.* at 26.

The average Valley Center household size in 2010 was 2.96 persons per household. DEIR at 1-38. Given that the Project includes development of 1,746 residential units, this equates to a population of 5,168 people. The Project also includes construction of up to 90,000 square feet of commercial, office, and retail. DEIR at 1-2. It does not appear that the DEIR calculates the projected number of employees at the site. However, based on general statistics for employees per square foot in the San Diego region, agencies such as the City of San Diego estimate that each employee needs between 300 square feet (for general retail and office use), to 400 square feet (for industrial parks), to 1000 square feet (for hotels/resorts) per employee. City of San Diego Draft General Plan PEIR, p. 3.18-5, attached as Exhibit 15. Taking the approximate average of these numbers (and taking into account that the Project includes only one, small hotel/inn), the Project's 90,000 square feet of commercial/retail space could result in 180 employees if each employee used 500 square feet of space. Accordingly, the "service population" of the Project would be 5,348.[9]

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[8] This number is calculated by taking the Total annual estimated GHG emissions and subtracting the construction related emissions of 567.12. *See id.*

[9] A 2001 report, which the County's GHG Guidelines cite as a source for determining employees per square foot as part of the service population calculation, have slightly higher numbers, averaging 600 – 1300 square feet per employee for the types of facilities the Project is likely to have. *See* www.mwcog.org/uploads/committee.../bl5aX1pa20091008155406.pdf. The Project's GHG impacts would still be significant if the DEIR used these numbers to calculate the service population.

The Project's total annual, net CO_2 equivalent per year for construction and operations is 32,884.34. DEIR at 3-32. 32,884.34 divided by 5,348 is 6.15. This means the Project will result in a net increase of construction and operational GHG emissions, either directly or indirectly, at a level nearly 50 percent higher than the County's threshold of 4.32 metric tons of CO2 equivalent per year, per service population. Once again, this evidence demonstrates that the Project may have a significant impact related to GHG emissions.

The Project also exceeds other relevant thresholds of significance, further reinforcing the conclusion that it will have a significant impact related to GHG emissions. For example, the Bay Area Air Quality Management District has developed thresholds of significance for GHG emissions that are similar to San Diego County's bright line and efficiency thresholds. These recommended thresholds recognize that a residential or mixed-use development will normally have a significant GHG-related impact if its emissions exceed 1,100 metric tons of CO_2 equivalent per year or 4.6 metric tons of CO_2 equivalent per year, per service population. *See* Exhibit 16.

C. The DEIR's Conclusion that the Project Will Not Conflict With Relevant Plans to Reduce GHG Emissions Is Not Supported By Substantial Evidence.

In addition to the BAU threshold discussed above, the DEIR also uses a different threshold of significance which recognizes that the Project will have significant GHG-related impacts if it will conflict with an applicable plan, policy, or regulation that was adopted for the purpose of reducing the emissions of GHGs. DEIR at 3-36. However, the DEIR concludes that the Project will not conflict with any such plan, and therefore will not have a significant impact. The EIR's analysis on this point is deeply flawed.

First, the DEIR errs by considering the Project's consistency with only a subset of relevant plans and policies. Primarily, it (and the County's guidance on which the DEIR's analysis is based) only considers whether the Project will conflict with AB 32. DEIR at 3-29 (GHG analysis "focuses on a 2020 timeline, consistent with the legislative mandate embodied in AB 32"), 3-36 – 37 (analyzing compliance with AB 32 and Scoping Plan). However, AB 32 and the Scoping Plan are not the only relevant policies and plans that have been adopted for the purpose of reducing GHG emissions. Crucially, Executive Order ("EO") S-3-05 also sets forth state policy related to GHG reduction, including that it is the policy of the state to reduce GHG emissions to 80% below 1990 levels by 2050. DEIR at 3-18.

The DEIR acknowledges EO S-3-05, and even states that the County's Climate Action Plan ("CAP") "was designed to mitigate the impacts of climate change by achieving meaningful GHG reductions within the County, consistent with AB 32, *EO S-3-05*, and SB 97, and to provide a mechanism that subsequent projects may use as a means to address GHG impacts under CEQA." DEIR at 3-24 (emphasis added). It further states that the "CAP provides the overall framework for assessing significance" and that it is intended to foster mitigation that will help achieve the "state-mandated reduction targets embodied in . . . EO S-3-05…." DEIR at 3-36. Yet the DEIR never analyzes the Project's consistency with EO S-3-05 or portions of the CAP that go beyond the 2020 targets. For example, the CAP includes GHG reduction targets for 2020 *and* 2035, yet the DEIR does not measure the Project's impacts against the 2035 targets. DEIR at 3-24 – 25.

The DEIR's failure to compare the Project's emissions—which will continue for decades if not in perpetuity—against long-term GHG emission reduction policies such as those in EO S-3-05 is unlawful. The GHG reductions in EO S-3-05 embody the reductions that climate scientists have concluded are needed to provide a 50-50 chance of limiting global average temperature rise to 2°C above pre-industrial levels. The AB 32 Scoping Plan incorporates this goal, establishing a "trajectory" for reaching it over time. That trajectory requires continuing and steady annual reductions in both total and per capita emissions. Accordingly, analyzing the impacts of a long-term project such as this[10] against only short-term GHG-reduction plans misleads the public into thinking that the Plan will help achieve the GHG reductions necessary to stabilize our climate. This is inaccurate. In fact, even if the Project helped achieve the 2020 targets embodied in AB 32 (which it does not), the Project is wildly out of compliance with the necessary 80% reductions embodied in EO S-3-05.

The Cleveland National Forest Foundation previously litigated and won a case involving a San Diego regional agency's failure to measure a project's impacts against EO S-3-05. In *Cleveland National Forest Foundation v. San Diego Association of*

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[10] The Project is planned for construction over a ten year period. DEIR, p. S-3. Given that environmental review is still ongoing, and assuming for the sake of argument that the Project could proceed without significant redesign and further environmental review, the Project could not realistically begin any earlier than 2014. It would thus not be built out until 2024, at the earliest—nearly half a decade beyond the 2020 timeframe in which the DEIR measures the significance of the Project's GHG impacts.

Governments, the Superior Court held that SANDAG's EIR for its Regional Transportation Plan was

> impermissibly dismissive of Executive Order S-03-05. SANDAG argues that the Executive Order does not constitute a 'plan' for GHG reduction, and no state plan has been adopted to achieve the 2050 goal. [ROA 62 at 34] The EIR therefore does not find the RTP/SCS's failure to meet the Executive Order's goals to be a significant impact. This position fails to recognize that Executive Order S-3-05 is an official policy of the State of California, established by a gubernatorial order in 2005, and not withdrawn or modified by a subsequent (and predecessor) governor. Quite obviously it was designed to address an environmental objective that is highly relevant under CEQA (climate stabilization). . . SANDAG thus cannot simply ignore it.

Ruling on Petitions for Writ of Mandate, Dec. 3, 2012, pp. 11-12, attached as Exhibit 17. So too here, the County ignores EO S-03-05 when analyzing the significance of the Project's GHG impacts.

Indeed, the DEIR ignores any comparison of Project impacts to long-term GHG reduction goals. In addition to EO S-03-05, it also fails to analyze the Project's inconsistency with SB 375 and the recently adopted regional transportation plan/sustainable communities strategy ("RTP/SCS") for San Diego County. DEIR at 3-24 – 25, 3-36 – 37 (describing and analyzing consistency with various local, regional and statewide plans, but not SB 375 or the RTP/SCS); DEIR at 3-20 (describing SB 375 and RTP/SCS). Pursuant to SB 375, SANDAG was required to adopt an RTP/SCS that achieved specific GHG reduction targets for 2020 and 2035 due to better land use planning and consequent reductions in vehicle miles traveled. To do so, it used current planning assumptions under jurisdictions' general plans to develop a proposed land use development scenario that would reduce vehicle trips and meet the GHG reduction targets. Here, this Project does not comply with existing General Plan designations for the site, and therefore frustrates the County's ability to meet the reductions forecast in the RTP/SCS. Also, by placing new single family development so far from existing services, where residents will be reliant on private vehicles for virtually all offsite trips (and many onsite trips), the Project flies in the face of SB 375 and the RTP/SCS, which are supposed to facilitate reduced driving. The DEIR's failure to analyze the Project's inconsistency with the above plans and laws means that the County has failed to proceed in the manner required by law.

Second, to the extent the DEIR relies on the Project's alleged compliance with the CAP as evidence that the Project will not have significant GHG-related impacts, this reliance is unfounded. *See* DEIR at 3-36 (stating that the "CAP provides the overall framework for assessing significance"). The San Diego County Superior Court recently invalidated the County's CAP because it failed to contain binding commitments that demonstrated the County was going to reduce GHG emissions by the amount it claimed it would. *See* Superior Court of San Diego, Minute Order in Case No. 37-2012-00101054-CU-TT-CTL (April 19, 2013), attached as Exhibit 18. Although the case is on appeal, the fate of the CAP is uncertain and the DEIR should, at the least, acknowledge this fact and describe how, as a result, alleged compliance with the CAP is insufficient to demonstrate that the Project will not have significant GHG impacts.

D. The DEIR Underestimates the Project's GHG Emissions.

As described in technical comments submitted to the County on the DEIR's traffic analysis by Darnell & Associates, the DEIR does not accurately analyze the number of vehicle trips that will be caused by the Project. Because the DEIR underestimates such trips by approximately 12%, it also underestimates the GHG emissions associated with such trips. Likewise, because the DEIR underestimates the number of external trips, and overestimates the percent of trips "captured" within the Project, the DEIR does not accurately portray the total vehicle miles traveled, which will be greater than estimated in the DEIR. Again, this serves to minimize the GHG emissions associated with the Project's generation of vehicle trips. The County must revise its GHG analysis after it corrects its erroneous calculation of vehicle trips.

E. The DEIR Fails to Analyze and Adopt All Feasible Mitigation.

Because the DEIR concludes that the Project's GHG-related impacts will be less than significant, the County did not adopt any mitigation measures related to GHG impacts.[11] However, because the Project's actual GHG emissions will cause a significant impact, the DEIR must analyze, and the County must adopt, all feasible mitigation to

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[11] The Project does include some "design features," which are functionally equivalent to mitigation measures, that are intended to reduce the Project's GHG emissions. DEIR at 3-32 – 36. However, the DEIR never hints that these few features represent all feasible mitigation, therefore satisfying CEQA's requirement that agencies adopt all feasible mitigation to reduce or mitigate a Project's significant impacts. Pub. Res. Code § 21081.

reduce those impacts. Numerous agencies and organizations have documented the types of mitigation that are appropriate and feasible for residential and commercial development projects. The County itself describes such mitigation in its 2008 Guidelines re GHG Analysis. As just a few examples, the County finds that the following measures are often appropriate:

Transportation and Motor Vehicles

• Use low or zero-emission vehicles, including construction vehicles.

• Promote ride sharing programs e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides.

• Create car sharing programs. Accommodations for such programs include providing parking spaces for the car share vehicles at convenient locations accessible by public transportation.

• Create local "light vehicle" networks, such as neighborhood electric vehicle (NEV) systems.

• Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations

• Build or fund a transportation center where various public transportation modes intersect.

• Provide shuttle service to public transit.

• Provide public transit incentives such as free or low-cost monthly transit passes.

Energy Efficiency

• Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.

• Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.

• Install light colored "cool" roofs, cool pavements, and strategically placed shade trees.

• Provide information on energy management services for large energy users.

• Install energy efficient heating and cooling systems, appliances and equipment, and control systems.

• Install light emitting diodes (LEDs) for traffic, street and other outdoor lighting.

• Limit the hours of operation of outdoor lighting.

• Use solar heating, automatic covers, and efficient pumps and motors for pools and spas.

• Provide education on energy efficiency.

Renewable Energy

• Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning. Educate consumers about existing incentives.

• Install solar panels on carports and over parking areas.

• Use combined heat and power in appropriate applications.

Water Conservation and Efficiency

• Create water-efficient landscapes.

• Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.

• Design buildings to be water-efficient. Install water-efficient fixtures and appliances.

• Restrict watering methods (e.g., prohibit systems that apply water to nonvegetated surfaces) and control runoff.

• Restrict the use of water for cleaning outdoor surfaces and vehicles.

• Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm

water runoff on- site can drastically reduce the need for energy-intensive imported water at the site.)

Exhibit 13, pp. 14-16.

In its 2012 Guidance, the County also lists other sources of mitigation measures; the County must consider all of the measures listed in these documents in a recirculated Project DEIR, and it must adopt all feasible measures in order to reduce the Project's impacts to a level below significance.

- Governor's Office of Planning and Research. 2008. Technical Advisory. CEQA AND CLIMATE CHANGE: Addressing Climate Change through California Environmental Quality Act (CEQA) Review. See Attachment 3, "Examples of GHG Reduction Measures." Available: http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf.

- California Air Pollution Control Officers Association (CAPCOA). 2008 (January). CEQA & Climate Change. Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. See page 79, "Mitigation Strategies for GHG." Available: http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA-White-Paper.pdf.

- California Air Pollution Control Officers Association (CAPCOA). 2010 (August). Quantifying Greenhouse Gas Mitigation Measures. A Resource for Local Government to Assess Emission Reduction from Greenhouse Gas Mitigation Measures. Available: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

- Attorney General of the State of California. 2008 (December). The California Environmental Quality Act. Addressing Global Warming Impacts at the Local Agency Level. Available: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf.

Exhibit 14, p. 36.

These documents, in addition to lists of mitigation measures and design features maintained by other organizations cover a wide range of topics, including (1) land use, urban design, transportation measures; (2) shade and sequestration, including using trees to shade buildings; (3) energy conservation; (4) water Conservation; and (5) carbon offset

credits. The County must consider all of these types of mitigation measures for the Project's significant impacts.

Other agencies routinely require mitigation for residential and mixed-use development projects that include requirements to use renewable energy or install on-site solar power. For instance, Riverside County has previously required large development projects to meet the following standard: "80 percent of residential units shall meet 60 percent of their baseline demand power energy needs with renewable energy; and 80 percent of commercial building square footage shall meet 40 percent of their baseline demand power energy needs with renewable energy." Travertine Point Specific Plan Conditions of Approval, attached as Exhibit 19, p. 91. If the developer cannot show that the local electricity provider is meeting these standards, than renewable energy must be provided from on-site sources. *Id.* Likewise, Riverside County also required this project to install cool pavement and cool roofs. *Id.* (see p. 90, measure 30. Planning 111); *see also id.*, pp. 88-94 (requiring other energy and water efficiency measures).

Likewise, the building industry is rapidly advancing in its ability to offer energy efficient homes. For example, Shea homes now offers a zero-energy home that offsets all of the home's energy use by using efficient building techniques and having solar power on the roof. *See* Exhibit 20. Courts have made clear that "if [a] project can be economically successful with mitigation, then CEQA requires that mitigation …." *Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 599-600. Given that Shea has sold more than 1,000 zero-energy homes, and that the technology for providing solar power has become much more affordable over the past few years, it is certainly feasible for the developer here to provide zero-energy homes to mitigate the Project's GHG impacts. The DEIR has certainly offered no evidence to the contrary.

Finally, the best mitigation would be to disapprove this Project and adopt a city-centered, infill alternative that conforms to actual smart growth principles. This would have numerous benefits, including preservation of agricultural land, the rural character of Bonsall and Valley Center, reduced vehicle miles traveled (and concomitant reductions in GHG and other air pollutant emissions), shorter commutes, preservation of wildlife habitat, and less traffic on rural roads.

F. The DEIR Must Compare the Project's GHG Impacts to the Impacts of the Proposed Alternatives.

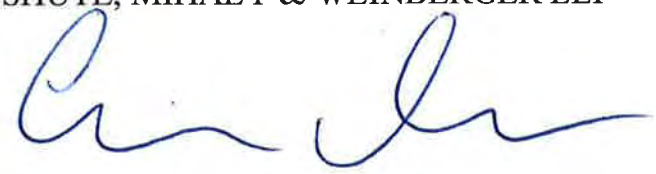
When the County revises and recirculates the DEIR's GHG impacts analysis, the revised document must also include a full comparison of the Project's GHG-related impacts to the same impacts of the alternatives.

Conclusion

The Project is a terrible example of the type of sprawling development that California is, unfortunately, famous for, and which both the County and the state have been claiming they want to stop. The DEIR's self-serving rhetoric about how the Project is an allegedly "sustainable" town cannot cloak the reality that the Project would massively increase GHG emissions at a time when we desperately need to be significantly reducing them, and would destroy hundreds of acres of productive farmland that the County and state cannot afford to lose. To make matters worse, the DEIR is woefully inadequate and does not begin to provide a reasoned and full analysis of the Project's huge impacts, much less provide adequate mitigation to address these impacts. As proposed, the Project also flatly violates numerous General Plan provisions and may not be approved. CNFF urges the County to reject this ill-conceived Project entirely. At the least, the Project will have to be massively revised, and the DEIR will have to be substantially updated and recirculated, before the County can seriously consider approving the Project.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Erin B. Chalmers

EXHIBIT LIST

Exhibit 1: County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Agricultural Resources (March 19, 2007)

Exhibit 2: San Diego County General Plan EIR, Agricultural Impacts Analysis

Exhibit 3: San Diego County General Plan, Conservation and Open Space Element

Exhibit 4: Federal report on avocado production in California

Exhibit 5: Agricultural Analysis of Meadowood Project, Fallbrook Community Planning Area, August, 2010, excerpts

Exhibit 6: USDA soil survey, excerpts

Exhibit 7: Land Use Changes: Economic, Social, and Environmental Impacts (2008)

Exhibit 8: Getting the Drift on Chemical Trespass: Pesticide drift hits homes, schools and other sensitive sites throughout communities

Exhibit 9: LEED 2009 for Neighborhood Development

Exhibit 10: Letter from Attorney General to San Joaquin Valley Air Pollution Control District re: Final Draft Staff Report on Greenhouse Gas Emissions Under CEQA (Nov. 4, 2009)

Exhibit 11: California Natural Resources Agency: Final Statement of Reasons for Regulatory Action (December 2009)

Exhibit 12: CAPCOA: CEQA and Climate Change (January 2008)

Exhibit 13: County of San Diego Draft Interim Guidelines for Determining Significance (2008)

Exhibit 14: County of San Diego Draft Guidelines for Determining Significance (June 20, 2012)

Exhibit 15: City of San Diego Draft General Plan PEIR, Theoretical Buildout Analysis

Exhibit 16: BAAQMD Resolution Adopting Thresholds of Significance under CEQA (June 2010)

Exhibit 17: Ruling on Petitions for Writ of Mandate (Dec. 3, 2012); *Cleveland National Forest Foundation v. San Diego Association of Governments,* San Diego County Superior Court Case No. 2011-00101593

Exhibit 18: Order Invalidating San Diego County Climate Action Plan (April 19, 2013); San Diego County Superior Court Case No. 37-2012-00101054-CU-TT-CTL

Exhibit 19: Travertine Point Specific Plan Conditions of Approval

Exhibit 20: "Zero-net-energy homes: More feasible, still rare," San Francisco Business Times (March 29- April 4, 2013)

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COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE
AND
REPORT FORMAT AND CONTENT REQUIREMENTS

AGRICULTURAL RESOURCES

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

March 19, 2007

APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Agricultural Resources** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning and Land Use, in coordination with the Director of Public Works on the 19th day of March, 2007.

GARY PRYOR
Director of Planning and Land Use

JOHN SNYDER
Director of Public Works

Attest: ERIC GIBSON
Deputy Director of Planning and Land Use

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Agricultural Resources** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the 19th day of March, 2007. The Director of Planning and Land Use is authorized to approve revisions to these Guidelines for Determining Significance and Report Format and Content Requirements for Agricultural Resources, except any revisions to the Guidelines for Determining Significance presented in Chapter 4.0 must be approved by the DCAO.

Approved, March 19, 2007

Chandra Wallar

CHANDRA WALLAR
Deputy CAO

COUNTY OF SAN DIEGO

REPORT FORMAT AND CONTENT REQUIREMENTS

AGRICULTURAL RESOURCES

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

March 19, 2007

PURPOSE

These Agricultural Report Format and Content Requirements provide guidance on conducting agricultural impact analyses and preparing reports for discretionary projects being processed by the Land Use and Environment Group. These guidelines are designed to:

1. Ensure the quality, accuracy and completeness of agricultural impact analyses.

2. Aid in staff's efficient and consistent review of agricultural impact analyses from different consultants.

3. Provide adequate information to make appropriate planning decisions and to make determinations regarding conformance with applicable regulations.

4. Increase the efficiency of the environmental review process and avoid unnecessary time delays.

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1.0 INTRODUCTION

This document provides guidance to County staff and consultants in the determination of the need for a technical study and in the preparation of technical studies for the environmental review of agricultural resources located within the jurisdiction of the County of San Diego. These format and content requirements and the guidance provided herein are based on a series of technical committee meetings with local agriculture and land use planning professionals. The intent of these guidelines is to ensure consistency in the environmental review of agricultural resources including identification, evaluation, and preservation or mitigation.

All agricultural resource reports shall follow the requirements in this document. The overall length of reports and the amount of information to include will vary depending on the size and scope of the project, the regional setting, the agricultural resources present onsite and in the surrounding area and the degree of impact involved.

2.0 REPORT FORMAT REQUIREMENTS

All written reports shall follow these general guidelines:

- Reports should be technical in nature and should avoid extraneous and repetitive information.
- All conclusions must be based on substantial evidence or reasonable assumptions as documented and justified in the report.
- Reports should be concise and written in a professional manner suitable for peer review. Staff may reject reports based on quality if the report is written in such a manner that an efficient and detailed review cannot be completed.
- Draft copies of the report shall have all changes made in response to staff comments in strikeout/underline form, unless an exception is granted by staff. Final copies of the report shall be clean, with all editing marks removed.

All agricultural resource reports will be reviewed for technical accuracy and completeness by a staff from the lead County department and may also be reviewed by staff from the County Department of Agriculture Weights and Measures (AWM). Reports are considered draft until County staff determines the report to be complete. Each submittal and review of a draft agricultural resource report is considered an "iteration." Staff will review each iteration and determine the report to be complete or respond with comments for necessary changes. The County expects that the first iteration will be as complete and comprehensive as possible; however, each report may have up to three iterations, after which project denial may be recommended due to inadequate environmental progress.

2.1 Outline

The sections of an Agricultural Resource Report are provided in the outline below.

AGRICULTURAL RESOURCES REPORT OUTLINE

COVER PAGE

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7.0 REFERENCES

8.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

TECHNICAL APPENDICES / ATTACHMENTS (if not included within body of the report)

A. Maps and Figures and project plot plan/map (if not clearly shown on the agricultural resource map);
B. Vicinity and USGS topographic maps if not included elsewhere in the document.
C. Any other documents necessary to supplement the information provided within the agricultural report;
D. Agricultural Operator or Knowledgeable Person Interview Results (to assess potential indirect impacts to offsite operations);
E. LARA Model Instructions, when the LARA model is completed as part of the technical report, include as an attachment Section 3.1, LARA Model Instructions from the Agricultural Resources Guidelines for Determining Significance, and
F. Cumulative Project List, attach the cumulative project list.

2.2 Content

COVER PAGE

The cover page shall include the following information:

- Project common name.
- Project numbers (i.e. TM, ZAP, etc.) including the environmental log number (ER).
- Date (original report date plus all revisions) must be revised during each iteration of the draft report).
- Name of Approved County CEQA Consultant preparing document, firm name (if applicable) and address.
- Signature of County Approved CEQA Consultant.
- Project proponent's name and address.
- The following statement: "Prepared for: The County of San Diego."

TABLE OF CONTENTS

The table of contents must follow the order and format outlined in this document with the exception that non-applicable sections should be excluded. Titles of each Appendix or Attachment should be listed in the order in which they are found in the document.

GLOSSARY OF TERMS AND ACRONYMS

Provide a list of terms and acronyms used in the report. Where terms are used that are defined within the Guidelines for Determining Significance for Agricultural Resources, those definitions should be used.

SUMMARY (ABSTRACT)

Provide a brief summary of the project, the agricultural resources present on and surrounding the site, including potential impacts and mitigation and/or project design elements proposed. No new information should be provided in the summary that is not further explained elsewhere in the document. The purpose of the summary is to provide a quick reference for the public and decision-makers. Therefore, the language should be less technical than that used in the remainder of the document.

1.0 INTRODUCTION

1.1 Purpose of the Report

Discuss the purpose of the report. Depending on the site location, the type of project, and the location and nature of the agricultural resources present, the purpose of the report may be one or a combination of the following:

- to determine the importance of onsite agricultural resources and assess the potential impacts to those resources
- to determine potential impacts to surrounding active agricultural operations and/or lands under a Williamson Act Contract
- to address consistency with General Plan policies pertaining to agriculture
- to determine the significance of cumulative impacts to agricultural resources
- to identify project design elements and/or mitigation measures that would minimize significant adverse effects

Where the purpose of the document does not include one of the above statements, it should not be included within the purpose statement. The information included in the project's scoping letter should provide guidance to identify the purpose of the report.

1.2 Project Location and Description

Project Location. Discuss the project location in the regional and local context. Include a USGS topographic map with the site and APN clearly identified as numbered figure(s).

Project Description. Provide a detailed description of the project, including all on-site and off-site components and design alternatives. An 8.5"x11" or 11"x17" copy of the plot plan/map must be included as one of the report figure(s). Describe the whole of the project considering the ultimate use of the site after the project is implemented. For example, a Tentative Map or Tentative Parcel Map proposes to subdivide property; however the project includes not only the division of parcels but also the grading of house pads, the construction of homes, and the construction of access roads. The project description should be as detailed as possible, including details such as:

- Size of project site and area proposed for development.
- Purpose and scale of proposed uses associated with the project.
- Proposed structures (size, location, purpose, etc.).
- Location of all existing easements, including those for biological open space, steep slope easements, limited building zone easements, utilities and roads.
- Location of proposed steep slope, biological, and cultural easements, limited building zone easements, fuel modification zones, and agricultural compatibility buffers.
- Location and purpose of existing structures and/or uses that will continue under the proposed action and identification of existing structures and/or uses that will be removed with the proposed action. If agricultural use is proposed to be retained, provide details of the project components that will facilitate it's continuation.
- Off-site improvements, such as for roads, utility extensions, or stormwater facilities.
- Description of any proposed rezones or variances.

- Description of any proposed Local Agency Formation Commission (LAFCO) action.
- Proposed site access.

1.3 Analysis Methods

Provide a discussion of the methods used to complete the technical study including interview results, site investigation findings, aerial photo interpretations and any other background research completed prior to preparation of the report. Examples of data sources include, but are not limited to the U.S. Department of Agriculture Soil Conservation Service Soil Surveys, the Department of Conservation FMMP Farmlands maps for San Diego County, the County AWM Annual Crop Statistics and Annual Reports, Phase I Environmental Site Assessments, pesticide use records from the County AWM, and previous agricultural resource reports prepared in the project area.

Discuss the methods used to map the onsite and/or surrounding agricultural resources such as field verification, aerial photo interpretation, FMMP maps, biological resources maps, County GIS data, etc.

1.4 Environmental Setting (Existing Conditions)

1.4.1 Regional Context

The geographic extent of the regional description will depend on the location of the project in relation to its surroundings. Community Plan boundaries are often appropriate boundaries for a regional context description if they are instructive in defining the boundary of the local agricultural community. For small or fragmented community plans, a wider regional context including areas with similar agricultural characteristics, connectivity, or history would be more appropriate. The regional context could serve as the area within which potential cumulative impacts would be considered if the area is representative of the area where similar agricultural impacts would occur. The following points should be included in a description of the regional context, as applicable:

- Generally describe the physical characteristics of the region including general topography, elevation, climate, water resource availability and soil types. The information here should be very general as the site specific information regarding these resources will be included in the onsite agricultural resources section.
- Provide an overview of the dominant land uses in the region.
- Describe the general vicinity in terms of type and density of development and infrastructure.
- Specify public and private ownership of land in the vicinity, particularly preserved lands, the location of lands within an agricultural preserve, and lands under a

Williamson Act Contract. Describe any preserved lands adjacent or contiguous with the site.

- Include a description of typical agricultural uses in the region including intensity and value.
- Identify the location and types of FMMP designations in the region.

This section should include the following maps (11x17 max.) with the project site clearly identified:

- A regional aerial photo(s) showing the relationship of the project site to surrounding lands.
- A map identifying the FMMP designations in the region including a legend.

1.4.2 Onsite Agricultural Resources

Generally describe the agricultural resources on the project site. Agricultural resources include active agricultural operations, areas of the site designated as an FMMP Important Farmland Category (that meets the definition of the FMMP designation), and areas of the site with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses. Agricultural resources do not include developed lands, areas of soil compaction (i.e. dirt roads), or biological resources except that non-native grassland should be defined as an agricultural resource, if it was used for agriculture in the past.

Include a figure to identify the area of the site defined as an agricultural resource. Site features such as existing structures, dirt roads, and rock outcroppings shall be identified to aid in the assessment of the value of the site for agricultural purposes. Where the project also has a biological resources map, ensure that the map is consistent with the mapping done for biological resource evaluation with the exception that non-native grasslands that have been used for agriculture may also be mapped as agriculture. The discussion under each subheading that follows should be based on the area of agricultural resources onsite, as described above.

If no agricultural resources are located onsite simply state this fact, do not include the subheadings listed below, and skip to the next section of the report.

Soils

Identify the soil types for the agricultural resources on the project site. Provide a description of the associated Land Capability Classification (LCC), Storie Index, and suitability for crop production based on information from the San Diego Area Soil Surveys or other data sources. Identify whether any of the soils meet the soil quality criteria for Prime Farmland or Farmland of Statewide Importance. Soils that meet these criteria are available at http://www.conservation.ca.gov/DLRP/fmmp/pubs/soils/SANDIEGO_ssurgo.pdf.

Include a map that identifies the soil types of the agricultural resources onsite.

FMMP Farmland Designations

Include a very brief description of the Department of Conservation's FMMP. Include definitions of each FMMP designation located on the project site and quantify the acreage of each FMMP category located on the project site. Verify that each designation meets the associated FMMP definition. If the land does not meet the definition of the mapped Farmland category when examined at a site specific level, identify why the land does not meet the definition and recognize that such mapping inconsistencies are common based on the gross scale of the State level mapping effort (i.e. the FMMP maps are developed with a 10 acre minimum mapping unit and are based largely on aerial photo interpretation and digital soil survey information. Due to these factors, site specific mapping errors are common). If there are designated Farmlands that do not meet the respective Farmland definition, include a table that identifies the acreage mapped by the State for each category and the actual FMMP acreage after verification. Include clear justification for any reduction in the mapped FMMP acreage.

Include a map that identifies the FMMP Farmland Designations on the project site, with any areas that do not meet the Farmland definition clearly identified.

History of Agricultural Use

Provide details regarding the history of agricultural use of the property. If a Phase I Environmental Site Assessment (ESA) or a cultural resources report was completed for the site, these are good resources to identify past agricultural uses. If the most recent use of the site was agriculture and the farm operators are available to provide details of production, include production information based on an operator interview.

Climate

Discuss the climate at the site such as rainfall, temperature, humidity, and frequency of temperature extremes. Include regional weather station precipitation and temperature information if the weather station data is representative of site conditions. If an interview with local agricultural operators is completed, inquire about local weather conditions. Include a discussion of the project's location in relation to the San Diego Plantclimate Map prepared by the University of California Agricultural Extension Service and discuss the importance of the area's climate as it relates to agriculture. Identify the Sunset Zone and UDSA Hardiness Rating applicable to the site and discuss the type of crops that would be viable based on climate. Describe the purpose of the Sunset Zone and USDA Hardiness ratings. Discuss any limitations for agricultural production based on climate.

Water Resources

Discuss the type of water supply available to serve the project site. Identify whether imported water is currently available at the site. If the site is not already connected to imported water, identify whether the project proposes to connect to imported water and how far the imported water infrastructure would need to be extended to serve the site. Identify the number, quality and location of groundwater wells and identify the type of groundwater aquifer that the water is accessed from. If groundwater quality information is available, provide this information.

Williamson Act Contracts and Agricultural Preserves

Identify whether the land is under a Williamson Act Contract (Contract) and whether the project is within an Agricultural Preserve. If the project is under Contract or in a Preserve, identify the Contract and/or Preserve Name and Number. If a project is under a Contract, no land use is allowed that conflicts with the provisions of the Contract. A copy of the contract should be included as an attachment to the analysis. Contracts are on file with the DPLU.

Prime Agricultural Land

Only include this section if the project includes a LAFCO action that involves a significant extension of water or sewer service into previously unserved areas (i.e. a reorganization that would expand service beyond properties adjacent to the district boundary). Include a discussion regarding the presence of Prime Agricultural Lands on the project site as defined in Government Code Section 56064. Government Code Section 56064 defines "Prime agricultural land" as,

> "an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:
>
> (a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
>
> (b) Land that qualifies for rating 80 through 100 Storie Index Rating.
>
> (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Handbook on Range and Related Grazing Lands, July, 1967, developed pursuant to Public Law 46, December 1935.
>
> (d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.

(e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years."

1.4.3 Offsite Agricultural Resources

If no offsite agricultural resources are present, skip this section as the regional setting discussion would have already established the lack of surrounding agricultural resources. Agricultural operations within one mile from the project site must be identified if the project proposes a school, day care, or group care. For all other project types, agricultural operations within one-quarter mile from the project site must be identified, as detailed below.

- Identify any land under a Williamson Act Contract and describe the types of agricultural uses that have occurred or currently occur on lands under contract.
- Identify FMMP Farmland designations.
- Identify active agricultural operations, the type of commodity produced, and describe the customary agricultural practices associated with production such as labor requirements, frequency of chemical application, truck traffic associated with deliveries, etc. Where feasible, contact adjacent agricultural operators for detailed information about production practices.

Include map(s) that identifies Williamson Act Contract lands, FMMP designations, and active agricultural operations for the appropriate surrounding area (one mile or one-quarter mile). For efficiency in report preparation, when using a one-quarter mile boundary, the boundary should be drawn in accordance with the direction provided for defining the project's Zone of Influence (ZOI) as defined in Attachment F of the Guidelines for Determining Significance for Agricultural Resources. **Do not simply draw a 0.25 mile boundary around the project site and call it a ZOI.** Identifying all agricultural resources within the ZOI will be useful for completing the surrounding land use portion of the LARA model, Section 2.1.

1.4.4 Zoning and General Plan Designation

Identify whether the site is located in an agricultural zone (A70 or A72). If the project is located in an agricultural zone, state the intent of the zone. If the project is not in an agricultural zone, identify the zone the site is located in and identify that it is not an agricultural zone

Identify whether the site is located in an Agricultural General Plan Designation, (19) Intensive Agriculture or (20) General Agriculture. If the project is in the (19) Intensive Agriculture Designation and proposes two acre lots, state the findings that must be made to allow the two acre density and identify how the project meets the required findings. If the site is located in an agricultural designation, state the purpose of the designation. If the site is not located in an agricultural land use designation of the

General Plan, state the designation it is in and the fact that it is not an agricultural land use designation.

2.0 ONSITE AGRICULTURAL RESOURCES

If there are no onsite agricultural resources, skip to Section 3.0.

2.1 Local Agricultural Resource Assessment (LARA) Model

Insert the following information as a brief explanation of the LARA model:

"The County of San Diego has approved a local methodology that is used to determine the importance of agricultural resources in the unincorporated area of San Diego County, known as the Local Agricultural Resource Assessment (LARA) model. The LARA model takes into account six factors including water, climate, soil quality, surrounding land uses, land use consistency, and slope in determining the importance of agricultural resources.

The following subheadings include a description of the project site's rating for each LARA model factor, including justification for the factor ratings assigned to the project site. Each factor receives a rating of high, moderate or low importance based on site specific information as detailed in the LARA Model Instructions (*Section 3.1 LARA Model Instructions, from the Agriculture Guidelines for Determining Significance*). The factor ratings for the project site are summarized in Table XX, LARA Model Factor Ratings. The final LARA model result is based on the resulting combination of factor ratings, in accordance with Table XX, Interpretation of LARA Model Results.**"**

2.1.1 LARA Model Factors

Under each subheading below, describe the site specific conditions that results in each LARA factor rating for the site. Explanation included in the Guidelines for Determining Significance should be included to provide background information regarding the purpose and justification of each factor.

Water

State the LARA model water score for the site and justify the rating.

Climate

State the LARA model climate score for the site and justify the rating.

Soil Quality

State the LARA model soil quality score for the site and justify the rating. Include a graphic of the area “available for agricultural use”. This will be useful to reference for both the soil quality and the topography rating.

Surrounding Land Uses

State the LARA model surrounding land use score for the site and justify the rating. Include a graphic that identifies the surrounding land use interpretation that resulted in the associated score. An aerial photograph is required. Clearly label the project site and the Zone of Influence (ZOI) boundary. Define the ZOI when it is first mentioned in the report.

Land Use Consistency

State the LARA model land use consistency score for the site and justify the rating. Include a graphic that represents the range of parcel sizes within the ZOI and clearly label the project site and the ZOI boundary.

Slope

State the LARA model slope score for the site and justify the rating. Remember to base the score only on the “areas available for agricultural use” as defined in the soil quality rating. Include a graphic that identifies the slope categories used in the LARA model for the areas available for agricultural use on the project site.

2.1.2 LARA Model Result

Include tables in this section that summarize the LARA model factor ratings and the Interpretation of LARA Model Results, as suggested below. Include a brief description of the site’s LARA model ratings, explain the conclusion of the site’s agricultural importance based on the Interpretations of LARA Model Results table, and clearly state whether the site is or is not an important agricultural resource based on the LARA model results.

Table XX. LARA Model Factor Ratings

	LARA Model Rating		
	High	Moderate	Low
Required Factors			
Climate			
Water			
Soil Quality			
Complementary Factors			
Surrounding Land Uses			
Land Use Consistency			
Slope			

Table XX. Interpretation of LARA Model Results

LARA Model Results			LARA Model Interpretation
Possible Scenarios	**Required Factors**	**Complementary Factors**	
Scenario 1	All three factors rated high	At least one factor rated high or moderate	The site is an important agricultural resource
Scenario 2	Two factors rated high, one factor rated moderate	At least two factors rated high or moderate	
Scenario 3	One factor rated high, two factors rated moderate	At least two factors rated high	
Scenario 4	All factors rated moderate	All factors rated high	
Scenario 5	At least one factor rated low importance	N/A	The site is *not* an important agricultural resource
Scenario 6	All other model results		

2.2 Guidelines for the Determination of Significance

Include the following information in this section:

"The following significance guideline is the basis for determining the significance of impacts to important onsite agricultural resources, as defined by the LARA Model, in San Diego County. Direct impacts to agricultural resources are potentially significant when a project would result in the following:

The project site has important agricultural resources as defined by the LARA Model; and the project would result in the conversion of agricultural resources that meet the soil quality criteria for Prime Farmland or Farmland of Statewide Importance, as defined by the FMMP; and as a result, the project would substantially impair the ongoing viability of the site for agricultural use."

2.3 Analysis of Project Effects

Using the guideline in Section 2.2, discuss the significance of any potential direct impacts to important agricultural resources onsite. If the LARA model determined that the site is not an important agricultural resource, this should be briefly stated and no further analysis required. The focus of the determination of significance is the extent to which the project would impact agricultural resources that meet the Prime and Statewide Importance soil candidate criteria. The analysis should include the following information:

- A quantification of the total project impact to land defined as an agricultural resource that meets the Prime and Statewide Importance soil candidate criteria. Impacted means that the land would be precluded from agricultural use. The following areas of a project site are typically precluded from agricultural use: (1) land within biological open space easements or other easements that would preclude the use of the land for agriculture; (2) land with proposed structures or paving; (3) land within a road right of way; and (4) land within 15 feet of front and side yards of residences and within 30 feet from the rear yard of residences. An assumption is made that no agriculture will occur within the stated distances from residences based on the fact that an average homeowner will usually maintain landscaping and outdoor recreation areas around the residence.
- Based on the quantification detailed above, determine whether at least half of the site's agricultural resources that meet the Prime or Statewide Importance soil quality criteria, would remain available *and viable* for agricultural use.
- If the preserved resources are determined to be viable on site with the proposed project design, the analysis must include detailed justification as to why the resources will remain viable. The analysis should discuss the viability of the area that will be available for agricultural use. Discussion of viability may include providing local examples of productive agriculture occurring on similar areas and/or parcel sizes and discussion of the economics of farming in San Diego County, for example.
- The analysis must make a conclusion, based on the significance guidelines, whether or not the impacts are significant.

LAFCO Consistency

Only include this section if the project includes a LAFCO action that involves a significant extension of water or sewer service into previously unserved areas (i.e. a reorganization that would expand service beyond properties adjacent to the district boundary). Identify LAFCO's Legislative Policy L-101. The policy states,

> "LAFCOs are required to consider how spheres of influence or changes of local governmental organization could affect open space and prime agricultural lands. Commissions are directed to guide development away from prime agricultural lands – unless that action would not promote the

planned, orderly and efficient development of an area – and to encourage development of existing vacant or non-prime agricultural lands within a jurisdiction before approving any proposal that would allow development of open-space lands outside of an agency's boundary (Govt. Code § 56377). Proposals must be further reviewed for their effect on maintaining the physical and economic integrity of agricultural lands (Govt. Code § 56668).

It is the policy of the San Diego Local Agency Formation Commission to:

1. Discourage proposals that would convert prime agricultural or open space lands to other uses unless such an action would not promote the planned, orderly, efficient development of an area ***or*** the affected jurisdiction has identified all prime agricultural lands within its sphere of influence and adopted measures that would effectively preserve prime agricultural lands for agricultural use;

2. Require prezoning of territory (city only) to identify areas subject to agricultural/preservation and planned development;

3. Follow San Diego LAFCO's adopted procedures to define agricultural and open space lands and to determine when a proposal may adversely affect such lands."

In this section, the analysis should address policies 1 and 3 by identifying whether the proposal would adversely affect Prime Agricultural lands. The results of the LARA model may be included as part of the discussion, however additional discussion must be included to address if the project would constitute an adverse effect on Prime Agricultural Lands. Include a discussion regarding whether the project promotes the planned, orderly, efficient development of the area. Make a clear conclusion regarding project compliance with policies one and three from LAFCO Legislative Policy L-101.

2.4 Mitigation Measures and Design Considerations

Provide brief descriptions of proposed mitigation measures and design considerations. These may include changes to the project design to accommodate agricultural resources or reduction in parcel yield to accommodate agricultural use, for example. Refer to Attachment A for a description of Limited Building Zone (LBZ) easements and their use as a mitigation measure. If onsite preservation of agricultural resources is proposed, this section should discuss the need to apply a LBZ over the area intended for agricultural preservation. See Section 5.1 of the Guidelines for Determining Significance under the heading, Limited Building Zones, for discussion that describes when a LBZ is needed.

2.5 Conclusions

Determine if the proposed mitigation measures and/or project design considerations have reduced the significance level to “less than significant” in accordance with the stated significance guideline.

3.0 OFFSITE AGRICULTURAL RESOURCES

3.1 Guidelines for the Determination of Significance

Include the following information in this section:

“The following significance guidelines are the basis for determining the significance of indirect impacts to offsite agricultural operations and Williamson Act Contract land in San Diego County:

a. ***The project proposes a non-agricultural land use within one-quarter mile of an active agricultural operation or land under a Williamson Act Contract (Contract) and as a result of the project, land use conflicts between the agricultural operation or Contract land and the proposed project would likely occur and could result in conversion of agricultural resources to a non-agricultural use.***

b. ***The project proposes a school, church, day care or other use that involves a concentration of people at certain times within one mile of an agricultural operation or land under Contract and as a result of the project, land use conflicts between the agricultural operation or Contract land and the proposed project would likely occur and could result in conversion of agricultural resources to a non-agricultural use.***

c. ***The project would involve other changes to the existing environment, which due to their location or nature, could result in the conversion of offsite agricultural resources to a non-agricultural use or could adversely impact the viability of agriculture on land under a Contract.”***

3.2 Analysis of Project Effects

The analysis of project effects section should include a discussion of the potential agriculture interface conflicts that could occur. This analysis must identify potential interface conflicts and discuss why those conflicts would or would not result in significant adverse effects. Discussion should include distances from proposed uses to offsite operations including discussion of land uses that separate the existing and proposed uses (such as roads, landscaping and topography). Discuss typical farm management practices associated with surrounding agricultural uses, based on a farm operator interview, if possible.

The analysis must make a conclusion, based on the significance guidelines, whether or not these impacts are significant.

3.3 Mitigation Measures and Design Considerations

Provide brief descriptions of proposed mitigation measures and design considerations. Refer to Attachment A for a description of LBZ Easements and their use as a mitigation measure. If potential indirect impacts to offsite agricultural operations could occur as a result of incompatible uses potentially being located near an offsite agricultural operation, a LBZ on the portion of the site adjacent to the offsite agricultural operation may be proposed to provide a compatibility buffer that would restrict certain incompatible uses (i.e. swimming pools, habitable structures, etc.) near offsite agricultural operations. The width of the compatibility buffer depends on site specific conditions.

3.4 Conclusions

Determine if the proposed mitigation measures and/or project design considerations have reduced the significance level to “less than significant” in accordance with the stated significance guideline.

4.0 CONFORMANCE WITH AGRICULTURAL POLICIES

Only include Section 4.0 if the project must demonstrate compliance with General Plan policies related to agriculture. General Plan conformance will not usually be addressed within an agriculture technical report unless there is specific agricultural analysis that must be done to determine compliance with the policy. General Plan conformance will usually be addressed in the CEQA analysis of Land Use and Planning, therefore this section would rarely be used. If specific policies pertaining to agriculture apply to the project and an Environmental Impact Report (EIR) is being prepared, a decision must be made whether to assess conformance with such policies in the agricultural resources section or land use and planning section of the EIR. This decision is made by County staff on a case by case basis.

4.1 Applicable General and Community Plan Policies

Identify any agriculture related General Plan policies with strict requirements for conformance in this section.

4.2 Project Consistency with Applicable Policies

Discuss whether the project complies with the policies listed above.

4.3 Conclusions

Provide a clear conclusion regarding project conformance with applicable agricultural policies in the General Plan.

5.0 CUMULATIVE IMPACTS

Cumulative impacts are those caused by the additive effects of other impacts to agricultural resources over time. A project's impact may not be individually significant, but the additive effect when viewed in connection with the impacts of past projects, present projects, and probable future projects may cause the significant loss or degradation of agricultural resources.

5.1 Guidelines for the Determination of Significance

The guidelines for determining the significance of cumulative impacts are based on the same guidelines used to determine the significance of project level impacts except that the analysis considers the significance of the cumulative impact of the individual project impact in combination with the impacts caused by the projects in the cumulative study area that would also impact important agricultural resources.

5.2 Analysis of Project Effects

Addressing cumulative impacts to agricultural resources requires an analysis using one of the methods identified in CEQA §15130(b)(1). If the list of projects method is used, a reasonable list of cumulative projects must be compiled based on past, present, and probable future projects that could also cumulatively contribute to the project's impacts. The summary of projections approach to completing a cumulative analysis is not currently available due to the lack of a recent local planning document or EIR that describes and evaluates regional or area wide conditions contributing to a potential cumulative agricultural impact. When a plan or EIR with adequate projections of potential cumulative impacts to agriculture becomes available, this may be used as an alternative to the list of projects approach when completing a cumulative analysis. Additional direction for completing a cumulative analysis using a summary of projections will need to be added to this document when that approach becomes available. When using the list of projects approach, only projects with agricultural resources onsite should be included in the cumulative analysis. It is recommended that a table be included in an Appendix that lists each project and that includes the following information at a minimum:

Table XX. Cumulative Project List

Project name	Project number	Agricultural resources onsite	Important Agricultural Resource?	Direct impact estimate	Potential indirect impact estimate
		Generally describe the agricultural resources on each project site (i.e. orchards or row crops)	*Reference LARA model result, if available. If not, provide soils, water and climate information to determine importance*	*Based on project size, proposed density, and amount of agricultural resources present, estimate the direct impact for each project*	*Determine the extent to which projects are proposed adjacent to offsite agricultural uses and would adversely impact those resources*
				Identify total potential cumulative impact	*Identify total potential cumulative indirect impact*

A graphic must be included that identifies the location of each project in relation to the proposed project site.

The list of projects is based on a defined cumulative study area. The consultant, in consultation with County staff, must determine the extent of the area used in the cumulative analysis. The area should be defined by considering the following factors and others, as appropriate: agricultural land use patterns, topography, history of the local agricultural community, using best professional judgment.

Where the LARA has been completed for projects within the cumulative study area, the model results should be referenced in the cumulative analysis. Where the LARA model has not been completed for proposed projects in the cumulative study area that have the potential to impact agriculture, a more general analysis of the site's importance as an agricultural resource may be undertaken considering the underlying soil type, the availability of water, and climate. Where projects in the cumulative study area contain important agricultural resources that would potentially be impacted, a more detailed analysis of the significance of the potential loss of those resources must be undertaken.

The analysis of potential cumulative impacts should generally be structured as follows: "The cumulative projects study area was chosen because _____. The cumulative projects will impact xxx (sample: xxx acres or xxx percent). This is/is not significant because _____." (If significant), "The project's contribution is xxx percent of the total cumulative impact. This is/is not considerable because _____."

If the cumulative impact is significant, the consultant shall determine whether the project makes a cumulatively considerable contribution to the significant cumulative impact. Mitigation to reduce the significance of a cumulatively considerable

contribution to a significant cumulative impact may include a reduction in the project's contribution to the loss of resources, or offsite mitigation to replace impacted resources.

The cumulative analysis should take the following points into consideration:

- What is the relative value of the agricultural commodities that would be impacted within the cumulative analysis boundary as compared to the production value of other commodities produced in San Diego County?
- Is the community under significant pressure to convert land to non-agricultural uses?
- Will cumulative projects result in incompatible development that would increase agriculture interface conflicts and associated agricultural viability?

The above points are intended to indicate the relative importance of agricultural use within the cumulative analysis boundary and to identify the significance of the cumulative impact to agriculture after all cumulative projects are considered. In general, if the agricultural community has low value agriculture, is not under significant pressure to convert to non-agricultural uses, or a significant amount of lands would remain available for agricultural use after consideration of the potential cumulative impacts, the likelihood of the project having a significant cumulative impact is low. In contrast, a significant cumulative impact is more likely to occur when the impacts are located in an agricultural community where high value agriculture and a significant pressure to convert to non-agricultural use exists.

If it is determined that the impacts from cumulative projects are significant, the following points should be evaluated to support a conclusion as to whether the project's incremental impacts are cumulatively considerable:

- Consider the extent of the project's impact in relation to the identified cumulative impact. Will the project preserve the viability of ongoing agriculture at the site? Are the project's impacts considerable in relation to the impacts of the cumulative projects?
- Consider the type of project proposed. General Plan Amendments and LAFCO district expansions that would adversely affect agricultural resources are projects with a high likelihood of causing cumulative impacts.
- Consider whether the project could result in growth inducing impacts into an agricultural area. A project with growth inducing impacts, where the growth inducement would occur in an agricultural area, will usually have a cumulatively considerable impact to agricultural resources. Growth inducement can be caused by extension of imported water infrastructure, sewer service, or other urban level services and amenities, for example.

5.3 Mitigation Measures and Design Considerations

Provide brief descriptions of proposed mitigation measures and/or design considerations, if additional measures are needed to reduce the significance of potential cumulative impacts.

5.4 Conclusions

Provide a clear conclusion regarding whether cumulative impacts are significant based on the list of projects. If cumulative impacts are significant, identify whether the project's incremental effect is cumulatively considerable.

6.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

This section shall provide a brief text summary of identified project impacts and mitigation.

7.0 REFERENCES

Include all references used to complete the report.

8.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

Provide a list of preparers, noting each person included on the County list of approved consultants. Note that the principal author must be on the list or the report will not be accepted.

TECHNICAL APPENDICES / ATTACHMENTS

The Table of Contents shall list each document attached to the report in the order in which they are referenced in the report. The following documents must be included in the report, either within the body of the report or as an attachment:

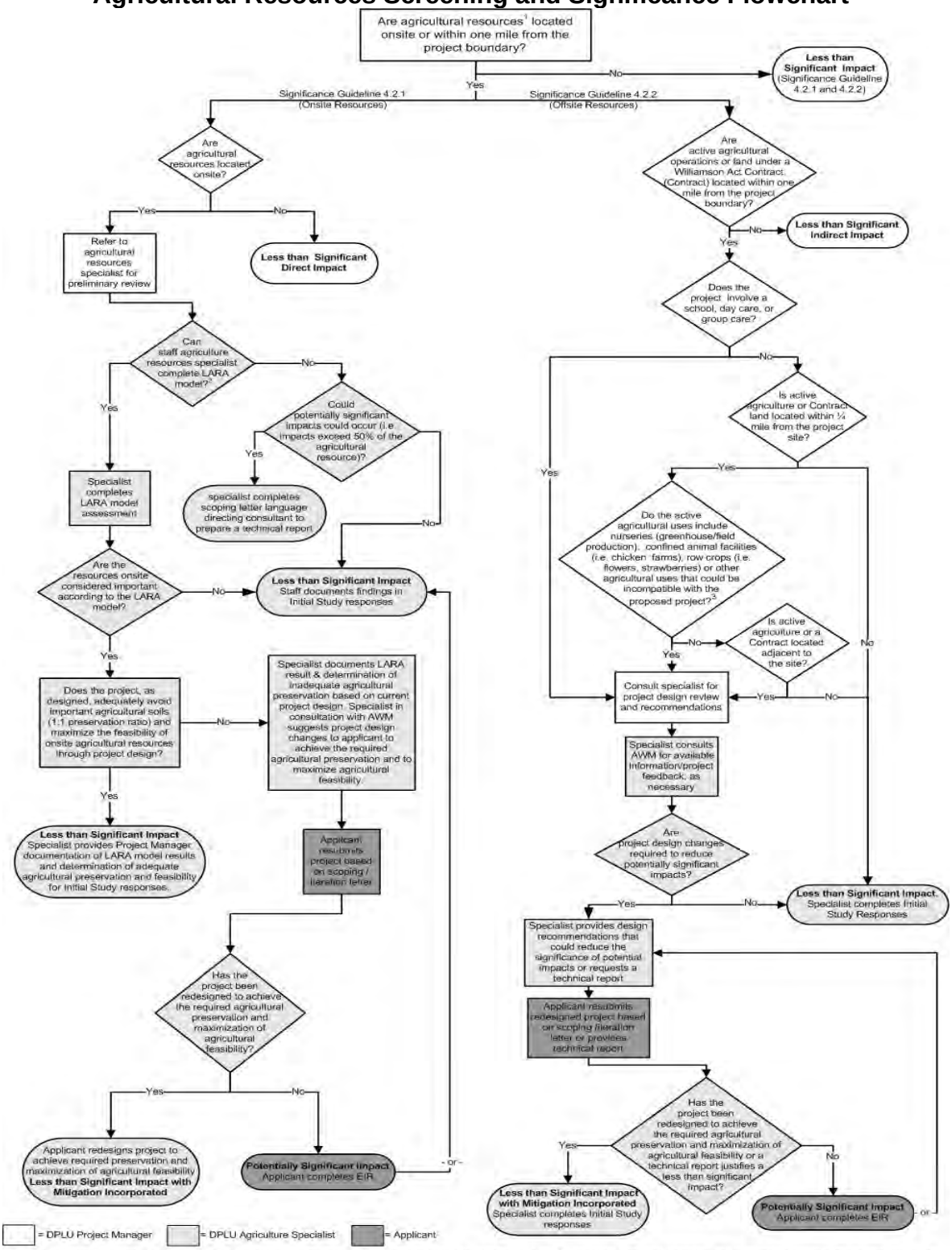
A. Maps and Figures and project plot plan/map (if not clearly shown on the agricultural resource map);
B. Vicinity and USGS topographic maps if not included elsewhere in the document.
C. Any other documents necessary to supplement the information provided within the agricultural report;
D. Agricultural Operator or Knowledgeable Person Interview Results; (to assess potential indirect impacts offsite operations);
E. LARA Model Instructions, when the LARA model is completed as part of the technical report, include as an attachment Section 3.1, LARA Model Instructions from the Agricultural Resources Guidelines for Determining Significance, and
F. Cumulative Project List, attach the cumulative project list.

Attachment A
Limited Building Zone Easements

Limited Building Zone (LBZ) Easements is a mechanism used to preserve the availability of important onsite agricultural resources for ongoing or future agricultural use. They are also used to protect offsite agricultural resources from adjacent incompatible uses. The term limited building zone is used instead of agricultural conservation easement because the application of the easement ensures that the land resource would remain available for agricultural use by prohibiting structures or uses that would preclude the use of the land for agriculture. Agricultural conservation easements are voluntary easements that typically involve valuation and purchase of the development value of the easement area.

LBZ easements are typically applied adjacent to any on- or off-site biological open space easements to prohibit the building of structures that would require vegetation clearing within the protected open space for fuel management purposes. A LBZ to protect biological open space may overlap with the LBZ required to preserve land for agricultural use, however all allowable uses must be consistent with the purpose of both biological protection and agricultural resource protection. For LBZ easements to protect biology, the easement usually includes the provision to allow structures that do not require fire fuel modification/vegetation management. If the LBZ will be used to achieve the required onsite agricultural resource protection, allowable structures must be limited to those incidental to the agricultural use of the land.

Attachment B
Agricultural Resources Screening and Significance Flowchart*



[1] Agricultural resources include active agricultural operations; sites designated as *and that meet the definition of* a FMMP Important Farmland Category; and sites with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses

[2] The LARA model will be applied by County staff unless it is not feasible due to large project size or other peculiar site conditions.

[3] Orchard crops such as avocados and citrus typically have less compatibility issues than the referenced agricultural uses due to less chemical treatments, less farmworker presence, less truck traffic, or less odor; however the site specific conditions of each commodity must be taken into consideration when determining whether an agricultural use could be incompatible with the proposed project.

*Larger format also available online at http://www.sdcounty.ca.gov/dplu/Resource/3~procguid/3~procguid.html#agr

2.2 Agricultural Resources

This section of the EIR describes and evaluates the potential impacts to agricultural resources that could result from implementation of the proposed General Plan Update. This section is based on the information provided in the County of San Diego Guidelines for Determining Significance, Agricultural Resources (DPLU 2007f), the County of San Diego General Plan Conservation and Open Space Element Background Report (DPLU 2007b), the County of San Diego Department of Agriculture, Weights and Measures (AWM) 2007 Crop Statistics and Annual Report (AWM 2008), and additional resources as cited throughout the section.

A summary of the impacts to agricultural resources identified in Section 2.2.3 is provided below.

Agricultural Resources Summary of Impacts

Issue Number	Issue Topic	Project Direct Impact	Project Cumulative Impact	Impact After Mitigation
1	Conversion of Agricultural Resources	Potentially Significant	Potentially Significant	Significant and Unavoidable
2	Land Use Conflicts	Potentially Significant	Less Than Significant	Less Than Significant
3	Indirect Conversion of Agricultural Resources	Potentially Significant	Potentially Significant	Significant and Unavoidable

2.2.1 Existing Conditions

The following section is divided into six subsections that examine different aspects of agricultural resources within the County. These discussions encompass the County's agricultural lands, agricultural soils, crops and commodities, agricultural economy, agricultural trends, and agricultural land preservation strategies.

2.2.1.1 Agricultural Resources

CEQA Guidelines reference maps produced by the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) as a resource that may be used to identify agricultural resources. The FMMP uses a 10 acre minimum mapping unit to determine farmland resources. While this standard would be appropriate in other areas of the State with larger farms, it does not account for the numerous smaller farms located throughout San Diego County. Sixty-eight percent of San Diego County's farms are between one and nine acres, with an average farm size of four acres. Therefore, FMMP data does not capture a significant portion of the agricultural resources located within the County. For this reason, the County has broadened the definition of an agricultural resource to include any land with an active agricultural operation, or any site with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses. The broadened definition allows the County to map smaller farms that the State FMMP would overlook due to the 10 acre minimum threshold. Below is a brief description of FMMP-identified agricultural lands and County-identified agricultural resources.

FMMP Identified Agricultural Lands

FMMP produces maps and statistical data used for analyzing impacts to California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status, with the best quality land labeled Prime Farmland. FMMP maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. Table 2.2-1 lists FMMP farmland categories and corresponding acreages for the County. Figure 2.2-1 shows the FMMP land acreage throughout the County. Table 2.2-2 provides the definition of different agricultural land categories used in FMMP land classification. As shown in Table 2.2-1, recent FMMP agricultural and grazing land totals for San Diego County are identified at 314,032 acres. This is 93,568 acres less than the 407,600 acres of agricultural land identified by County staff and discussed below.

County-Identified Agricultural Resources

In order to better estimate the acreage of agricultural resources within the County, a number of agricultural data sources were considered, which identified approximately 407,600 acres of farmland within the County. Agricultural data sources used in this calculation included: FMMP data; DPLU GIS vegetation data; California Department of Water Resources land use data; Cleveland National Forest grazing allotments data; U.S. Department of Agriculture (USDA) Statistics Service data; and Agricultural Weights and Measures Commodities data. These 407,600 acres of identified agricultural resources have been categorized into one of the following two commodity categories: grazing lands or croplands. The grazing lands category includes two agricultural land use types: grazing lands and field crops. The croplands category includes three agricultural land use types: intensive agriculture, orchards and vineyards, and truck crops. Table 2.2-3 provides the location, by CPA or Subregion, and estimated acreage of agricultural resources throughout the County. Table 2.2-4 provides the definition of the different agricultural resource categories used in this analysis. Figure 2.2-2 shows the distribution of agricultural lands throughout the County.

2.2.1.2 Agricultural Soils

Soils in the San Diego region are generally considered poor, with only six percent of the region's soils considered prime agricultural land, as defined in Government Code Section 51201 (The Williamson Act). Soil quality measures typically rate local soils as poor because of the County's generally steep terrain and erodible soils. Descriptions of various measures of soil quality are presented below. These classifications are based on the USDA Soil Surveys: Parts I & II (USDA 1973), and the County of San Diego Soil Interpretation Manual, Part III (DPLU 1975). The locations of prime agricultural soils in the County are identified in Figure 2.2-3.

Land Capability Classification (LCC)

LCC classifies soils according to their limitations when cultivated and according to the way that they respond to management practices. Class I soils have no significant limitation for raising crops. Classes VI through VIII have severe limitations, limiting or precluding their use for agriculture. Capability subclasses are also assigned by adding a small letter to the class designation. Capability subclasses include the letters *e*, *w*, *s*, or *c*. The letter *e* indicates that the main limitation is risk of erosion. The letter *w* indicates that water in or on the soil interferes with plant growth or cultivation. The letter *s* indicates that the soil is limited mainly because it is

shallow, droughty, or stony. Finally, the letter *c* is used only in some parts of the U.S. where cold or dry climates are a concern. Groupings are made according to the limitation of the soils when used to grow crops and the risk of damage to soils when they are used in agriculture. Productive agriculture in San Diego County typically occurs on soils having LCC ratings of III and IV, and a significant number of local soils have the class designations *e* and *s* indicating limitations related to erosion and shallow soils.

Storie Index (SI)

SI, another traditional measure of soil quality, uses a 100 point scale to numerically express the relative degree of suitability or value of a soil for general intensive agriculture. Higher SI ratings indicate higher quality soils. The SI rating is based on several factors including profile characteristics (affecting root penetration), surface soil texture (affecting ease of tillage and capacity of soil to hold water), slope (affecting soil erosion), and other unique limiting factors of the soil such as poor drainage, high water table, salinity, and acidity. Productive agriculture in San Diego County typically occurs on soils with low SI ratings (typically in the 30 point range).

Prime Agricultural Soils

As discussed above, only six percent of the San Diego region's soils meet the soil quality criteria defined by the Williamson Act definition of prime agricultural land. This definition includes all land that qualifies for rating as class I or class II in the Natural Resource Conservation Service LCC ratings and land which qualifies for rating 80 through 100 in the SI, among other non-soil related criteria. The Williamson Act Program is the California regulation enabling local governments to enter into contracts with private land owners for the purpose of restricting specific parcels of land to agricultural or related open space use. In San Diego County, prime agricultural soils are sparsely scattered throughout the region and are often constrained by protected biological resources such as wetlands, which restricts their use. Because San Diego County has generally steep terrain and erodible soils, the soil quality measures of LCC and SI rate local soils as poor due to the importance of slope and erodibility in the formulas that determine these soil ratings.

Prime Farmland and Farmland of Statewide Importance

FMMP farmland categories are based on local soil characteristics and irrigation status, with the best quality land identified as Prime Farmland and Farmland of Statewide Importance. FMMP publishes a list of soils that meet the soil quality criteria for Prime Farmland soils and Soils of Statewide Importance. In the County, 44 local soils qualify for the Prime Farmland designation and 65 soils qualify for the Farmland of Statewide Importance designation. These soil criteria include a much broader range of soils than the prime agricultural soils identified in the Williamson Act. Approximately 70 percent of the soils that meet the Prime Farmland and Farmland of Statewide Importance soil criteria have a LCC greater than II and approximately 88 percent have SI ratings below 80.

2.2.1.3 Types of Crops and Commodities

San Diego County is the most southwestern county in the state and enjoys a subtropical climate that optimizes the production of a variety of crops that would be more difficult to produce elsewhere. The County's unique topography also creates a wide variety of microclimates that

result in nearly 30 different types of vegetation communities. This diversity allows San Diego farmers to grow over 200 different agricultural commodities – from strawberries along the coast, apples in the mountain areas, to palm trees in the desert. The success of San Diego County's diverse agricultural industry is reflected in 45 commercial crops, each holding a value of over $1 million. San Diego County ranks number one in both California and the nation in the production value of nursery, floriculture, and avocados. Statewide, San Diego County is in the top five counties in the production of oranges, chickens, fresh market tomatoes, eggs, mushrooms, tangerines, grapefruit, and honey. In terms of total agricultural value, major crop categories for San Diego County include nursery and flower crops (cut flowers, bedding plants, foliage), fruit and nut crops (avocados, citrus, berries), vegetable crops (tomatoes, mushrooms, herbs), livestock and poultry (cattle, pigs, chickens), livestock and poultry products (milk, eggs, hide), field crops (barley, hay, oat), timber, and apiary products (honey, bees wax, pollen). Figure 2.2-4 identifies these major crop categories in percentage of total contribution to total agricultural value. The top 10 crops grown in the County include indoor flowering and foliage plants, ornamental trees and shrubs, bedding plants, avocados, tomatoes, cut flowers and foliage, eggs, poinsettias, strawberries, and Valencia oranges. Figure 2.2-5 identifies these crops in terms of 2007 growth percentages. Total values shown in these figures may not add up exactly due to rounding in the calculations.

2.2.1.4 Agricultural Economy

San Diego County has the sixth highest urban population among counties in the U.S., and the twelfth largest agricultural economy nationwide. It is the only county in California that qualifies as both a major urban county and is ranked among the top 10 agricultural counties in terms of agricultural value. The San Diego County Department of Agriculture, Weights and Measures, estimates that of the County's approximate 2.73 million acres, 308,991 acres are in agriculture. Agriculture is ranked 5th in contributing components to the County's economy. In 2007, 9,220 agricultural shipments originated from San Diego County, destined to 55 different countries world-wide. During this time, the total reported value for all agricultural commodities produced in the County was almost $1.5 billion. This value does not reflect the cost of production. In addition, the gross economic value of farm products does not reflect the total value to the economy (AWM 2008). Table 2.2-5 highlights County crop statistics from the 2007 Agriculture, Weights and Measures annual report. Table 2.2-6 shows a 10 year comparison of agricultural growth in the County. Historical data shows that the majority of crop categories increased in value and acreage from 1997 to 2007.

2.2.1.5 Agricultural Trends

This section discusses agricultural trends that are unique to the County. These include urbanization pressures, profitability margins, average farm size, water availability issues and emerging organic farming practices.

Urbanization

As of 2008, the population of the unincorporated area of San Diego County was 491,764. Under the proposed General Plan Update, this number would increase approximately 38 percent by 2030 to a population of 678,270. The FMMP concluded that land for urban and built-up use increased 31.1 percent in approximately 20 years, from 252,931 acres in 1984 to 345,316 acres in 2006. This is an average of nearly 4,000 acres per year. These data illustrate

the intense competition for land and other natural resources to serve San Diego County's future growth, agriculture and environmental quality.

As urbanization expands into unincorporated areas, land becomes increasingly scarce and land values continue to climb. The nature of San Diego County's high-value, low-acreage agriculture makes land used for farming attractive for development. This is reflected in the escalating agricultural land values per acre in San Diego County as reported by the California Chapter of the American Society of Farmland Managers and Rural Appraisers (ASFMRA). Information from the ASFMRA for 2007 indicates that the value of avocado farmland in San Diego County ranged from $15,000 to $62,000 per acre, citrus land from $15,000 to $170,000 per acre and cropland from $15,000 to $170,000 per acre. In comparison, the land value for avocados in San Diego County alone in 2000 ranged from $9,000 to $16,600 per acre and citrus land from $6,100 to $12,000 per acre (ASFMRA 2008).

The high price of land in San Diego County also limits the ability of farmers to purchase land for agricultural expansion. The value of land in the most productive agricultural areas of the County is typically not driven by its agricultural potential. Rather, it is usually driven by the value of its potential for urban development or as a primary residence, making land purchase for agricultural expansion infeasible for the majority of producers. As reported by DataQuick Real Estate News, important agricultural areas such as the communities of Valley Center, Fallbrook and Bonsall that are interspersed with non-agricultural uses had median home prices reported at above $600,000 in 2006. However, this same source reported median home prices in the month of 2009 at approximately $100,000 for Bonsall and $300,000 for the Fallbrook and Valley Center communities (DQ News 2009). The significant decline in median home values in these areas is attributable to the national economic downturn which began in early 2007 and severely impacted the housing market nationwide, including San Diego County.

Profitability

For the many small farm owners in San Diego County, remaining profitable and maximizing economies of scale has proven to be a significant challenge. While the overall number of farms has decreased in San Diego County, the change in the number of farms according to sales volume is a better indicator of trends in the business of farming. Although the USDA Census of Agriculture 2007 report does not include all farms in the County, it appears to represent agricultural trends. Table 2.2-7, Number of Farms by Sales Volume, illustrates how farms with sales less than $5,000 dropped by 34 percent. Some of these probably moved into a higher sales volume category, others consolidated, but many went out of agriculture altogether. At the same time, farms with sales volumes between $5,000 and $49,999 increased nearly 50 percent, and those with sales between $50,000 and $249,999 decreased by less than one percent. Farms with sales between $250,000 and $499,999 decreased by 21 percent, while those with sales of $500,000 or more increased by 29 percent. In order to remain profitable, individual farms need to reach a stable level of production, which is determined on an individual basis by each farm owner.

Farm Size

According to the 2007 Agricultural Census by the U.S. Department of Agriculture, San Diego County has 6,687 farms, the highest number of farms of all counties in the State (USDA 2009). However, the way agriculture is conducted on these farms differs greatly from agricultural operations in the majority of California. Economically productive agriculture is conducted on

small farms, with 68 percent of farms ranging from one to nine acres in size with the median farm size being four acres. In contrast, the average size of farms statewide is 313 acres. In the County, 77 percent of farmers live on their farms and 92 percent of farms are family owned. Nineteen percent of farmland in the County is held by Native Americans. In 1997, 671 citrus farms operated on two acres or less within the County. To date, this trend of small farm operations still holds within the County. Historically, the cost of land in the County made it prohibitive for many new farmers to begin an operation on a large parcel, so the ability to farm small parcels was crucial to the success of agriculture in San Diego County.

Water

For agricultural lands reliant on imported water, economic viability is constrained by the cost of imported water. To illustrate and compare the water costs in San Diego County to nearby farming counties, the cost for imported water from the Imperial Irrigation District (Imperial County) is $15 per AF while the average cost for agricultural water in San Diego County is $650 per AF. High agricultural water costs are due to a number of factors including limited water supply, conservation incentives, importation costs, and energy costs. Growers in Ventura County, an area similar to San Diego in terms of climate and type of agricultural crops grown, pay $379 per AF. For avocado production in San Diego County, the annual water cost is currently about $3,000 per acre and is estimated to increase to $6,000 per acre, as the crop requires up to three AF per year for optimum production. Farmers within the Metropolitan Water District service area, which includes portions of San Diego County, can enroll in Interim Agricultural Water Program (IAWP) that provides a $127 discount per AF of water. In exchange for that discount, enrolled farmers agree to take a 30 percent reduction in water deliveries in a time of drought or supply emergency before municipal and industrial users have their supplies reduced. However, the IAWP is currently being phased-out and will no longer be available after January of 2013. The San Diego County Water Authority (SDCWA) provides a Special Agricultural Water Rate (SAWR) which is currently $10 per AF less than municipal and industrial user rates. The SAWR is available to enrolled farmers in exchange for them agreeing to take cutbacks in water during emergency shortages. In times of shortage, the agricultural customers participating in the IWAP and SAWR receive water reductions of up to 30 percent before municipal and industrial customers are asked to take cutbacks in delivery. Due to recent drought conditions, the agricultural customers participating in the IWAP and SAWR have undergone reductions pursuant to these programs. The mandatory cutbacks in water supply required by the IWAP and SAWR programs have significantly affected local farmers in San Diego County.

Water cost is also affected by the price of energy. Many water districts have to pump water up to higher elevations for delivery, the cost of which has increased greatly with increases in the price of energy. These costs are passed directly to growers in the form of higher water rates. Growers themselves often need to pump water to higher elevations to reach their crop, resulting in additional overall water costs. In addition, while some farmers in San Diego County face high costs of water, others are faced with a limited supply. In areas such as Borrego Springs and Julian, farmers rely entirely on groundwater sources to irrigate crops. Water scarcity is a continuous problem for farmers in Borrego Springs given the arid climate of the region and its location outside the boundary of the SDCWA. In particular, groundwater in the Borrego Springs area is subject to an annual decline where recharge does not replace extraction. Additional information about water supply and demand is included in Section 2.16, Utilities and Service Systems.

Organic Farming

San Diego County is at the forefront of organic farming with 292 registered organic growers, more than any other county in the nation. In 2007, San Diego organic growers produced over 150 different crops ranging from oranges, grapes, and avocados to unusual crops such as cherimoyas, loquats, and jujubes. The top 10 organically produced crops in San Diego County are shown in Table 2.2-8. The National Organic Standards Board defines "organic agriculture" as "an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and management practices that restore, maintain and enhance ecological harmony." Research on organic farms, done over several decades, have revealed characteristics usually associated with sustainable farming to include reduced soil erosion, lower fossil fuel consumption, less leaching of nitrate, greater carbon sequestration, and little to no pesticide use.

2.2.1.6 Agricultural Land Preservation

Many different land use designations exist to help preserve agricultural lands in the State and the County, including agricultural zoning, agricultural land use designations, Agricultural Preserves, and Williamson Act Contract lands. These are discussed below. Table 2.2-9 and 2.2-10 identifies the distribution and acreage of these categories by CPA.

Agricultural Zoning

The County Zoning Ordinance was adopted by the Board of Supervisors (BOS) as a way to regulate land uses in the unincorporated County. The current Zoning Ordinance divides the unincorporated area into zones according to the present and potential uses of the land. Currently, most zoning designations within the County allow for agricultural operations. However, Section 2700-2720 of the Zoning Ordinance includes two specific agricultural use regulations: A70 limited agriculture and A72 general agriculture. A70 and A72 regulate land uses such as the number of outbuildings or the number of animals allowed on a property. The A70 Use Regulation relates to crop production and allows for a limited number of small farm animals to be kept. The A72 Use Regulation is intended for both crops and animals. Agricultural uses are allowed in most residential, commercial and industrial land use zones; however, the keeping of animals is restricted in a number of these areas due to incompatibility issues with surrounding uses. Side-by-side parcels may have the same use regulation but different animal, development, and special area regulations. Approximately 31 percent of the unincorporated area in the County is zoned A70 limited agriculture or A72 general agriculture.

The County Zoning Ordinance also has a Special Area Regulation Designator ("A") to denote those lands in the County which have been designated as being within an Agricultural Preserve in accordance with the California Land Conservation Act of 1965, commonly referred to as the Williamson Act. There are restrictions on the land under the Williamson Act, as well as the County Zoning Ordinance, which accompany the implementation of the "A" designator.

Agriculture Land Use Designations

The existing San Diego County General Plan (DPLU 1978) identifies two agricultural land use designations: (20) General Agriculture and (19) Intensive Agriculture. The (20) General Agriculture designation is applied to areas where agricultural use is encouraged, protected and

facilitated. This designation is intended to facilitate agricultural use as the dominant land use. Uses supportive of and/or compatible with agriculture, including low density residential, are also permitted under this designation. The (19) Intensive Agriculture designation promotes a variety of agricultural uses including minor commercial, industrial and public facility uses appropriate to agricultural operations or supportive of the agricultural population. Approximately 10 percent of the County's unincorporated area is designated as General Agriculture or Intensive Agriculture. However, many of the County's existing productive agricultural uses are located outside areas designated for either General Agriculture or Intensive Agriculture.

Agricultural Preserves

Agricultural Preserves are regulated by rules and restrictions designated to ensure that the land within the preserve is maintained for agricultural or open space use. An Agricultural Preserve is adopted by the BOS and designates an area devoted to agricultural use, open space use, recreational use or any combination of such uses, as defined by the Williamson Act, and further addressed in the San Diego County BOS Policy I-38, Agricultural Preserves. Preserves are established for the purpose of defining the boundaries of areas that the County is willing to enter into a contract pursuant to the Williamson Act, which is further discussed below. Landowners within an adopted preserve area may enter into a contract with the County to restrict their land to the uses stated above whereby the tax assessment on their land will be based on its restricted use rather than on its market value. The minimum parcel size to qualify for an Agricultural Preserve is 10 acres for groves or croplands, 80 acres for grazing land, and 40 acres for mixed land uses. Only land located within an Agricultural Preserve is eligible for a Williamson Act Contract, as discussed below. Figure 2.2-6 shows the location of adopted Agricultural Preserves within the County, for which there are approximately 402,100 acres within the unincorporated County (see Table 2.2-10).

Williamson Act Contract Lands

The Williamson Act has been the State's premier agricultural land protection program since its enactment in 1965. This Act was passed to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. Nearly 16.9 million of the State's 29 million acres of farmland and ranchland are currently protected under the Williamson Act (DLRP 2008c). In the unincorporated County, approximately 80,504 acres of private, federal and State lands are in Williamson Act Contract. During the past 25 years, very few property owners have requested to enter into a Williamson Act Contract within San Diego County. According to information from the County Assessor's Office, only two contracts were executed in San Diego County between 1980 and 2005 and 40 parcels currently under a Williamson Act Contract are in the process of Non-Renewal, as defined by the Williamson Act. The Non-Renewal process takes 10 years to complete, during which time property taxes are incrementally raised to remove the tax benefit, and at the end of the 10 year period restrictions to development are lifted. Figure 2.2-6 identifies the location of Williamson Act Contract lands within the County.

2.2.2 Regulatory Framework

2.2.2.1 Federal

Farmland Protection Policy Act

The USDA administers the Farmland Protection Policy Act of 1981. The Act is intended to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The act also requires these programs to be compatible with State, local, and private efforts to protect farmland.

2.2.2.2 State

California Civil Code Section 3482.5 (The Right to Farm Act)

The Right to Farm Act is designed to protect commercial agricultural operations from nuisance complaints that may arise when an agricultural operation is conducting business in a "manner consistent with proper and accepted customs." The code specifies that established operations that have been in business for three or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of a new land use.

California Land Conservation Act (Williamson Act)

The Williamson Act of 1965 was designed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program requires a 10-year contract between the County and the land owner. While in contract, the land is taxed on the basis of its agricultural use rather than its market value. The land becomes subject to certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement. The goal of the Williamson Act is to protect agriculture and open space.

California Farmland Conservancy Program (CFCP)

Implemented by the California Department of Conservation, the CFCP is a voluntary program that seeks to encourage the long-term, private stewardship of agricultural lands through the use of agricultural conservation easements. The CFCP, formerly known as the Agricultural Land Stewardship Program, was created in 1996, and provides grant funding for projects that use and support agricultural conservation easements for the protection of agricultural lands.

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 established procedures for local government changes of organization, including city incorporates, annexations to a city or special district, and city and special district consolidations. This act requires that development or use of land for other than open-space shall be guided away from existing prime agricultural lands in open-space use toward areas containing nonprime agricultural lands, unless that action would not promote that planned, orderly, efficient development of an area.

Open Space Subvention Act (OSSA)

The OSSA was enacted on January 1, 1972, to provide for the partial replacement of local property tax revenue foregone as a result of participation in the Williamson Act and other enforceable open space restriction programs (Government Code Section 16140 et seq.). Participating local governments receive annual payment on the basis of the quantity (number of acres), quality (soil type and agricultural productivity), and, for Farmland Security Zone contracts, location (proximity to a city) of land enrolled under eligible enforceable open space restrictions. A Farmland Security Zone is an area created within an Agricultural Preserve by a board of supervisors upon request by a landowner or group of landowners.

Farmland Mapping and Monitoring Program (FMMP)

The FMMP, established in 1982, produces maps and statistical data used for analyzing impacts to California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status, with the best quality land called Prime Farmland. Maps are updated every two years, with current land use information gathered from aerial photographs, a computer mapping system, public review, and field reconnaissance. The minimum mapping unit is 10 acres. The DOC Prime Farmlands, Farmlands of Statewide Importance, and Unique Farmlands are referenced in the CEQA Guidelines, Appendix G, as resources to consider in an evaluation of agricultural impacts.

Farm and Ranch Lands Protection Program (FRPP)

The FRPP is a voluntary program that helps farmers and ranchers keep their land in agriculture. The program provides matching funds to State, tribal or local governments and non-governmental organizations with existing farm and ranch land protection programs to purchase conservation easements. FRPP is reauthorized in the Farm Security and Rural Investment Act of 2002. The USDA Natural Resources Conservation Service (USDA 2008c) manages the program.

California Land Evaluation Site Assessment Model (LESA)

The USDA NRCS developed LESA to assist State and local officials to make sound decisions about land use. Combined with forest measures and rangeland parameters, LESA can provide a technical framework to numerically rank land parcels through local resource evaluation. In determining whether impacts to agricultural resources are significant environmental effects, the CEQA Guidelines reference the California Agricultural LESA Model prepared by the DOC, as an optional methodology that may be used to assess the relative value of agriculture and farmland. The California Agricultural LESA Model evaluates soil resource quality, project size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score. The project score then becomes the basis for making a determination of a project's potential significance. The California Department of Conservation encourages local agencies to develop local agricultural models to account for the variability of local agricultural resources and conditions. An alternative approach, referred to as the Local Agricultural Resource Assessment (LARA) model, has been developed to assess the relative value of agricultural resources in San Diego County.

2.2.2.3 Local

County of San Diego Code of Regulatory Ordinances Sections 63.401 through 63.407, Agricultural Enterprises and Consumer Information Ordinance

This ordinance is similar to the State Right to Farm Act. The ordinance defines and limits the circumstances under which agricultural enterprise activities, operations, and facilities will constitute a nuisance. The ordinance recognizes that the commercial agricultural industry in the County of San Diego is a significant element of the County's economy and a valuable open space/greenbelt resource for County residents. The ordinance establishes a procedure whereby prospective purchasers of property are notified in writing of the inherent potential conditions associated with agricultural operations found throughout the unincorporated area. These conditions include, but are not limited to, noise, odors, dust, insects, rodents, and chemicals. The application of this ordinance is not to be construed to in any way modify or abridge the State law set out in The Right to Farm Act relative to agricultural nuisances.

County of San Diego BOS Policy I-38, Agricultural Preserves

The BOS Policy I-38 sets forth policies for the implementation of the California Land Conservation Act of 1965, known as the Williamson Act. In 1965 the State Legislature added to the Government Code Sections 51200 et. seq. which authorized the County to establish Agricultural Preserves. Board Policy I-38 identifies criteria for the establishment, modification and disestablishment of an Agricultural Preserve including processing requirements, application fees, and hearing requirements. The policy also establishes a minimum size for an Agricultural Preserve, requires that each preserve establish minimum ownership sizes that landowners must meet to be eligible for a contract, requires the application of zoning regulations, establishes eligibility criteria for filing an application for an Agricultural Preserve and contract with the County, and establishes criteria to cancel a contract including cancellation by eminent domain.

County of San Diego BOS Policy I-133, Support and Encouragement of Farming in San Diego County

In 2005, the BOS adopted Policy I-133 to establish the County's support of agriculture. The policy recognizes the Board's commitment, support, and encouragement of farming in San Diego County through the establishment of partnerships with landowners and other stakeholders to identify, secure, and implement incentives that support the continuation of farming as a major industry in San Diego. The intent is to develop and implement programs designed to support and encourage farming in San Diego County.

County of San Diego Farming Program

The County of San Diego has completed a contract with American Farmland Trust to help develop the Farming Program. The Farming Program is intended to create the framework for an economically and environmentally sustainable farming industry for San Diego County. The Plan, when adopted, will include land use policies and programs to keep land available and affordable for farming on a voluntary basis. It will also include economic development tools to help improve farm profitability.

Agricultural Clearing Permit Requirements

A County Agricultural Clearing Permit is typically required for projects involving the clearing and/or removal of natural vegetation on agricultural land. The establishment of a new agricultural operation on, or the expansion of an existing operation into, any area that has not been in agricultural production for at least one of the preceding five years may also be required to obtain an agricultural clearing permit. Agriculturally related clearing within the MSCP boundary would also require an agricultural clearing permit.

Local Agricultural Resource Assessment (LARA) Model

The LARA model has been developed by the County DPLU to assess the relative value of agricultural resources in the County. The LARA model serves as the local agricultural model that accounts for the variability of local agricultural resources and conditions. San Diego County has chosen to use the LARA model to determine the importance of agricultural resources, rather than the LESA model, because the LARA model accounts for the large number of farms in the County that are less than 10 acres in size and takes into account the County's unique soil conditions. The LESA model does not account for agricultural resources less than 10 acres in size. The County uses the LARA model to determine the importance of agricultural resources in the context of discretionary land use projects. The LARA model considers soils, climate and water as primary model factors while also considering the presence of Williamson Act Contracts, other preserved lands, and existing land uses in the surrounding area.

2.2.3 Analysis of Project Effects and Determination of Significance

2.2.3.1 Issue 1: Direct Conversion of Agricultural Resources

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance, Agricultural Resources, the proposed General Plan Update would have a significant impact if it would convert San Diego County Agricultural Resources (including, but not limited to, Prime Farmland, Unique Farmland, Farmland of Statewide or Local Importance, pursuant to the FMMP of the California Resources Agency), or other agricultural resources, to non-agricultural use. A significant impact would also occur if the proposed project would substantially impair the ongoing viability of important agricultural resources.

Impact Analysis

Definition of Agricultural Resources

For the purpose of this analysis, the definition of an agricultural resource has been broadened from the FMMP definition to include any land with an active agricultural operation, or any site with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses. The reason for the broadened definition is to include in the analysis the many small farms in San Diego County that the FMMP does not include due to the 10 acre minimum criteria. It should be noted that not all agricultural resources that have been identified within the County and discussed below are in active operation. The agricultural

resources discussed below include lands within the unincorporated County that are available and suitable for agricultural use, although they may not be in current agricultural use. These resources have been included to provide a broad picture of the potential agricultural resources that exist within the County. Issues indirectly related to agriculture, such as farmworker housing and biological impacts from clearing and grading agricultural lands are discussed in other sections of this EIR. Farmworker housing is discussed in detail in Section 2.12, Population and Housing. Biological impacts are further discussed in Section 2.2, Biological Resources.

Conversion of Agricultural Resources to Non-Agricultural Land Uses

The conversion of agricultural resources to non-agricultural land uses would result in a direct impact to agriculture by significantly reducing or eliminating the productive capacity of the land. According to the FMMP, agricultural land in the County has been reduced through land conversion to other uses. As shown in Table 2.2-1, FMMP data indicates that agricultural acreage in San Diego County has been declining since at least 1984. This is due to a number of issues which create pressures on the continuation of agriculture, such as high land values, conflicts with the urban/agricultural interface, and the high economic cost of operation. Contradictory to the decline in agricultural resources identified by the FMMP, information contained in the San Diego County Annual Crop Report (AWM 2008) indicates that agricultural acreage has actually increased over the past 10 years. This is shown in Table 2.2-6 which identifies a total of 170,917 acres of agriculture in 1997 and 308,991 acres in 2007. On the surface, these numbers contradict the decline that the FMMP has identified for agricultural resources in the County. However, according to AWM, reported increases in agricultural acreages are due to improved survey information obtained during the years 2001 and 2002. It is unlikely that County agricultural acreage actually increased from 1997 to 2007 and more likely that additional existing agricultural operations were identified and included in these acreage surveys over the years. Additionally, it should be noted that the 308,991 agricultural acres reported by AWM is lower than the agricultural lands subtotals reported by the FMMP from 1984 through 2006. This further indicates that AWM data does not include all FMMP resources.

Although agricultural acreage has been declining over the past three decades, agriculture continues to be a vital component of the San Diego County economy. This is due, in part, to the many small farms in the County that produce high value crops. Sixty-eight percent of farms within the County range in size from one to nine acres, with the median size of farms being four acres. The agricultural trend of producing high value crops on small amounts of land has allowed San Diego County farmers to continue economically productive operations, despite the land use pressures discussed above.

The existing General Plan identifies specific land use designations for agriculture uses, including general agriculture and intensive agriculture. Instead of providing specific agricultural land use designations, implementation of the proposed General Plan Update would allow agricultural operations to occur under any land use designation and would eliminate the existing land use designations for agriculture. Generally, land currently designated for general agriculture and intensive agriculture under the existing General Plan would be designated for open space, rural lands, or semi-rural lands under the General Plan Update. For example, areas within the Julian CPA that are designated for intensive agriculture under the existing General Plan would be changed to the rural lands designation under the proposed General Plan Update. Another example is located in the Bonsall CPA, where land currently designated for intensive agriculture under the existing General Plan would be changed to the semi-rural residential land use designation under the proposed General Plan Update.

In order to evaluate the potential impact that the proposed General Plan Update would have on agricultural resources throughout the unincorporated County, an analysis of proposed land use designations that would be placed on areas containing existing agricultural resources has been prepared. Although all land uses proposed under the General Plan Update would have the potential to result in a loss of agricultural resources, some land uses have a higher potential to result in a direct conversion of agricultural resources to non-agricultural uses than others. Table 2.2-11 identifies the acreages of proposed land use designations that would be placed on lands containing existing agricultural resources under implementation of the General Plan Update. It should be noted that not all agricultural resources identified in Table 2.2-11 are in active agriculture. Rather, the data shown in Table 2.2-11 includes any land with an active agricultural operation, or any site with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses. Therefore, the following discussion presents a conservative estimate of the potential impact that the proposed General Plan Update would have on agricultural resources because it includes unincorporated agricultural resources that are not currently in agricultural production.

Village Residential and Village Core Mixed Use. Although agriculture has become increasingly more viable on smaller lot sizes within the unincorporated County, there becomes a point when an individual lot size is considered to be too small for a viable agricultural operation to persist. For the purposes of this analysis, and as a conservative estimate, areas allowing one dwelling unit per acre (du/acre) would be considered too small to support a viable agricultural operation. Therefore, any parcels smaller than one du/acre have been calculated to result in a 100 percent conversion of agricultural resources to non-agricultural uses for the purposes of this analysis.

With implementation of the proposed General Plan Update, nine residential land use designations within the village residential category would allow densities ranging from two to 30 du/acre. All nine village residential land use designations, in addition to the village core mixed use designation, would have an allowable development density of greater than 1 du/acre. Therefore, areas classified with the village residential and village core mixed designations would not be considered viable for agriculture operations. Any existing agricultural resources located within these proposed land use designations would be considered to be fully impacted by the proposed project, and represent a direct conversion of agricultural resources to non-agricultural land uses.

As shown in Table 2.2-11, approximately 4,518 acres of County agricultural resources are located in areas that would be designated for greater than 1 du/acre under the proposed General Plan Update. Implementation of the proposed General Plan Update would result in the designation of approximately 4,461 acres of village residential and 57 acres of village core mixed land uses in areas containing existing agricultural resources. Since land uses that would be designated for greater than 1 du/acre under the proposed General Plan Update are assumed to be fully impacted, they represent a direct conversion of agricultural resources to non-agricultural land uses. Therefore, the proposed General Plan Update would result in the direct conversion of 4,518 acres of agricultural resources from the implementation of land use designations village residential and village core mixed use.

Industrial, Commercial, Office Professional. Industrial, commercial and office professional land use designations proposed under the General Plan Update would be considered incompatible with agricultural resources because the allowable development on these lands contrast significantly from typical characteristics of viable agricultural operations. Although

possible, it is unlikely that any development allowable under the industrial, commercial or office land use designations would maintain viable agricultural operations in conjunction with development. For example, only in rare cases would an industrial park or office building development (allowable under these proposed land uses) operate on the same parcel as an agricultural use, such as a field crop, orchard, vineyard or truck crop operation. Additionally, industrial, commercial and office land uses would allow high density development, which is considered incompatible with agricultural resources for the reasons listed above. Therefore, areas classified with the industrial, commercial or office designations would generally not be considered viable for agriculture operations. Any existing agricultural resources located within these proposed land use designations would be considered fully impacted, and represent a direct conversion of agricultural resources to non-agricultural land use.

The proposed General Plan Update would apply three land use designations within both the commercial and industrial land use categories and one land use designation within the office professional category. As shown in Table 2.2-11, 470 total acres of industrial, 507 total acres of commercial, and 7 total acres of office land uses would be designated in areas considered to be County agricultural resources. Therefore, implementation of the proposed General Plan Update would result in a direct conversion of 984 acres of agricultural resources from proposed industrial, commercial and office professional land use designations.

Rural and Semi-Rural Residential. When compared to other residential land use designations proposed in the General Plan Update such as village residential, the proposed rural and semi-rural land use designations denote areas where lower density residential development would occur. Therefore, the rural and semi-rural land use designations proposed under the General Plan Update would be considered generally compatible with agricultural resources. Rural and semi-rural land use designations would allow for the development of large lots with lower density restrictions. Generally, agricultural operations are viable in the County in areas with residential land use densities less than one dwelling unit per acre.

The proposed General Plan Update rural land use category would be implemented to preserve the rural agricultural and backcountry areas of the unincorporated County. Four residential land use designations would be applied within the rural land use category under implementation of the proposed General Plan Update. The densities allowable under the rural land use designations are the lowest of all proposed in the General Plan Update and range from one dwelling unit per 20 gross acres (RL-20), to one dwelling unit per 160 gross acres (RL-160). As shown in Table 2.2-11, implementation of the proposed General Plan Update would result in the designation of 38,118 acres of RL-20; 49,575 acres of rural lands at one dwelling unit per forty acres (RL-40); and 6,648 acres of rural lands at one dwelling unit per eighty acres (RL-80) in areas considered to be County agricultural resources. The proposed General Plan Update would not result in the designation of any RL-160 in areas currently classified as agricultural resources. A total of 94,341 acres of rural lands would be located in areas currently classified as agricultural resources.

Under implementation of the proposed General Plan Update, four residential land use designations would be applied within the semi-rural residential category. Semi-rural densities range from one dwelling unit per one acre (SR-1) to one dwelling unit per ten acres (SR-10). As shown in Table 2.2-11, implementation of the proposed General Plan Update would result in the designation of 8,442 acres of (SR-1); 33,109 acres of semi-rural residential at one dwelling unit per two acres (SR-2); 23,387 acres of semi-rural residential at one dwelling unit per four acres (SR-4); and 23,824 acres of SR-10 in areas considered to be County agricultural resources. A

total of 88,762 acres of semi-rural residential would be located over areas considered to be County agricultural resources.

Although the proposed semi-rural and rural land use designations would be considered generally compatible with agricultural resources, the subdivision of these lands increases the potential for an agricultural resource to be converted to a non-agricultural use. For example, a 560 acre parcel with existing agricultural resources and a land use designation of R-80 could hypothetically subdivide into 7 large-lot residential units, each with one residential unit. In contrast, a different 560 acre parcel with existing agricultural resources and a land use designation of R-20 could hypothetically subdivide into 28 large-lot residential units. Due to San Diego's unique agricultural characteristics, land that is subdivided into smaller lots would actually increase agricultural viability, since smaller parcels are more affordable and still conducive for raising crops in the County. However, any subdivision of land resulting in the development of housing would create some agricultural acreage loss from development activities such as grading activities and the installation of residences, driveways, utilities, leach fields and accessory units.

For the purpose of this analysis, County DPLU performed a review of built-out subdivision projects that have occurred in the unincorporated County over existing agricultural resources. This review indicated that historically, the subdivision of lands over existing agricultural resources averaged a total of 1.5 acres of agricultural resources being permanently converted to a non-agricultural land use per lot. Therefore, to evaluate the potential for agricultural resources to be converted to non-agricultural uses from implementation of the proposed General Plan Update rural and semi-rural land use designations, the historical conversion factor of 1.5 acres per lot was used. Table 2.2-11 identifies that the proposed RL-20 land use designation would occur over 38,118 acres of existing agricultural resources. Hypothetically, these 38,118 acres could subdivide into a maximum of 1,906 residential lots, with each lot consisting of one dwelling unit on 20 acres. Each of the 1,906 subdivided residential lots would potentially impact 1.5 acres of agricultural resources. Therefore, implementation of the proposed RL-20 land use designation would potentially impact 2,859 acres of agricultural resources. Although it is not realistic to assume that every parcel with a proposed rural or semi-rural land use designation would be subdivided to the maximum extent feasible, the conversion factor of 1.5 acres per residential lot is used in this analysis to provide a conservative estimate of agricultural resources that would be impacted under implementation of the proposed General Plan Update rural and semi-rural land use designations.

Using the same conversion factor and the data shown in Table 2.2-11, the proposed land use designation RL-40 would impact 1,859 total acres of agricultural resources, RL-80 would impact 125 total acres of agricultural resources, SR-2 would impact 24,832 acres of agricultural resources, SR-4 would impact 8,770 acres of agricultural resources, and SR-10 would impact 3,574 acres of agricultural resources. The proposed land use designation SR-1 would be assumed to impact one acre of agricultural resources per lot (the entire lot), with a total of 8,442 acres converted. Therefore, based on a conservative estimate and historical agricultural conversion trends from the subdivision of land within the unincorporated County, implementation of the proposed rural and semi-rural land uses would impact 50,461 acres of agricultural resources. Although rural lands and semi-rural residential lands are generally considered compatible with agriculture, the process of subdividing land in areas that have agricultural resources increases the potential to convert agricultural resources to non-agricultural uses.

State and Federal Lands, Military Installations, Tribal Lands. Table 2.2-11 identifies that the proposed General Plan Update would result in the designation of 68,452 acres of State and federal lands, 22,752 acres of military installation, and 4,903 acres of tribal lands in areas considered to contain County agricultural resources. As shown in Table 2.2-11, the majority of agricultural resources located within State and federal lands (99 percent), military installations (92 percent), and tribal lands (79 percent) are classified as grazing lands. As discussed in Table 2.2-4, grazing lands occupy the greatest acreage of all agricultural land in the County, but represent a category of low value agricultural land use.

Land use activities on State and federal lands, military installations, and tribal lands are outside the jurisdiction of the County of San Diego and would not be impacted by implementation of the proposed project. Existing agricultural resources and operations that exist within these land use designations would not be expected to change under implementation of the proposed General Plan Update. For these reasons, the designation of State and federal land, military installation, tribal land use categories in areas containing existing agricultural resources would not represent a direct conversion of agricultural resources to non-agricultural uses.

Specific Plan Areas. Table 2.2-11 identifies that the proposed General Plan Update would result in the designation of 13,083 acres of specific plan area land uses in areas considered to contain County agricultural resources. As shown in Table 2.2-11, 83 percent of the agricultural resources located within specific plan areas are classified as grazing lands. Grazing lands occupy the greatest acreage of all agricultural land in the County, but represent a category of low value agricultural land use. In order to be designated as a specific plan area, a specific plan is subject to CEQA review, which requires an analysis of the potential impacts that a specific plan would have on existing County agricultural resources. Specific plan areas denoted within the proposed General Plan Update have been approved in the past with corresponding environmental analysis documents. Any potential impacts to agricultural resources resulting from specific plan areas have been previously addressed and mitigated, if necessary, in the CEQA documents prepared for the specific plans. Therefore, the specific plan area land use designation proposed in General Plan Update would not result in further impacts to agricultural resources.

Open Space (Conservation), Open Space (Recreation) and Public/Semi-Public Facilities. As shown in Table 2.2-11, 140,493 total acres of open space (conservation), 289 total acres of open space (recreation) and 5,024 total acres of public/semi-public facilities land uses would be designated in areas considered to contain County agricultural resources. Under the proposed General Plan Update, the open space (conservation) designation would primarily be applied to lands dedicated to open space that are owned by a jurisdiction, public agency, or conservancy group. Allowed uses would include habitat preserves, passive recreation, and reservoirs. Grazing and other uses would be permitted if they do not substantially diminish protected resources or alter the character of the area. As shown in Table 2.2-11, 98 percent of the agricultural resources located in areas designated as open space (conservation) are classified as grazing lands. In rare cases, open space (conservation) would prohibit grazing in favor of biological preservation. However, biological preservation generally occurs in areas separate from those with existing agricultural resources. Open space (conservation) lands located in the unincorporated County and owned by a conservancy group would remain under the jurisdiction of the County. Open space (conservation) lands located in the unincorporated County and owned by alternative jurisdictions or public agencies, such as school or water districts, are not under the jurisdiction of the County. Regardless of ownership, the land uses currently implemented in the open space (conservation) areas would not be expected to change under

implementation of the proposed General Plan Update. Therefore, the designation of an open space (conservation) use over an existing agricultural resource would not represent a direct conversion.

With implementation of the proposed General Plan Update, the open space (recreation) designation would apply to large, existing recreational areas while the public/semi-public land use designation would serve to identify major facilities built and maintained for public use. Similar to open space (conservation), the open space (recreation) and public/semi-public land use designations would not typically prohibit agricultural operations in favor of biological preservation, recreational use, or public facilities because these resources and uses generally occur in areas separate from those containing agricultural resources. Additionally, in areas where open space (recreation) and public/semi-public land use designations are under the jurisdiction of other public agencies (such as school districts, water districts or the National Forest Service) and outside the jurisdiction of the County, existing agricultural operations in these areas would not be expected to change with implementation of the General Plan Update. Therefore, the designation of open space (recreation) or public/semi-public land uses in areas considered to contain existing agricultural resources would not represent a direct conversion.

Federal, State and Local Regulations and Existing Regulatory Processes

As identified in the Regulatory Framework section above, there are a number of federal, State, and local regulations, programs and policies in place to protect agricultural resources in the County from conversion. These include the Williamson Act, CFCP, OSSA, FMMP, FRPP, San Diego County BOS Policies I-38 and I-133, and the San Diego County Farming Program. Density and lot size restrictions also play a significant role in preserving agricultural resources by limiting the amount of development that can occur in a given area. These restrictions and other zoning regulations also help to maintain the character of areas and minimize development pressures on agricultural lands. However, these regulations can also result in the conversion of agricultural resources by allowing substantial development on and adjacent to agricultural lands.

Projects that are subject to discretionary review by the County undergo an evaluation for agricultural impacts. This evaluation is based on the County's Guidelines for Determining Significance and the LARA model. Through this process, mitigation measures are required for projects that would result in a potentially significant conversion of agricultural land. Some community plans also contain policies that relate to preservation of agriculture and guide decision making on projects that could result in impacts to agricultural resources.

Proposed General Plan Update Goals and Policies

The proposed General Plan Update contains goals and policies within the Land Use, and Conservation and Open Space Elements that would preserve existing agricultural resources within the unincorporated County and promote the agricultural industry within the County to ensure the long term-viability of agricultural resources.

Within the Land Use Element, Goal LU-6 is to create a built environment in balance with the natural environment, scarce resources, natural hazards, and the unique local character of individual communities. Policy LU-6.4 supports this goal by requiring sustainable subdivision design with the intent to protect agricultural operations. Goal LU-7 is to create a land use plan that retains and protects farming and agriculture as beneficial resources that contribute to the County's rural character. Policies in support of this goal include Policies LU-7.1 and LU-7.2,

which would protect agricultural lands with lower density land use designations, and would allow for reductions in lot size for compatible development when tracts of historically agricultural land are preserved in conservation easements for continued agricultural use.

Within the Conservation and Open Space Element, Goal COS-6 is to maintain a viable and long-term agricultural industry and the sustainability of agricultural land uses in San Diego County that serve as a beneficial resource and contributor to the County's rural character and open space network. Policy COS-6.4 supports this goal by supporting the acquisition and voluntary dedication of conservation easements and programs.

Conservation Subdivision Program

In addition to the goals and policies listed above, the County of San Diego is currently proposing a conservation subdivision program which would encourage residential subdivision design that improves preservation of sensitive environmental resources while balancing planned densities and community character. The intention of the program is to accommodate planned growth without sacrificing other essential components of unincorporated communities such as character, habitat lands, farmlands, groundwater supplies, unique topography, historical and cultural resources, scenic resources, recreational trails, and park lands.

The term "conservation subdivision" is typically used to define a compact residential development that includes community open space on the remaining land for the purpose of protecting environmental resources and/or providing recreational facilities. Conservation subdivision design results in numerous benefits, including the retention of existing agriculture/farmland. Other benefits include the preservation of local biodiversity, increased watershed protection, improved recreational opportunities, reduced infrastructure costs, and improved fire protection for residential developments. The conservation subdivision program would focus on those lands designated as semi-rural 10, rural lands 20, rural lands 40, rural lands 80 and rural lands 160.

Farming Program

The County is also in the process of preparing a Farming Program for agricultural planning that would create a framework for an economically and environmentally sustainable agricultural industry. The Farming Program would streamline the regulatory environment for farmers, provide recommendations for the proposed Purchase of Agricultural Conservation Easements (PACE) program, and support County pest exclusion and pest detection efforts designed to minimize the economic damage caused by quarantines and treatment protocols required for new and exotic pests. Participants in the PACE program would voluntarily place easement restrictions on property to protect the agricultural resources associated with the parcel. These easements would either be sold or donated by the landowner, and constitute a legally binding restriction that prohibits certain types of development, such as residential or commercial use, from taking place on the land.

Summary

As discussed above, the following land uses proposed by the General Plan Update would be considered to represent a direct conversion of agricultural resources, if designated in areas considered to contain existing County agricultural resources: village residential, village core mixed use, industrial, commercial and office professional. The proposed General Plan Update

would designate these land uses over approximately 5,502 acres of existing County agricultural resources. Additionally, the potential subdivision of rural and semi-rural lands would result in the conversion of agricultural resources to non-agricultural land uses. Based upon historical agricultural conversion trends from the subdivision of land within the unincorporated County, implementation of the proposed rural and semi-rural land uses would potentially convert 50,461 acres of agricultural resources. Therefore, implementation of the proposed General Plan Update would result in the direct conversion of 55,963 acres of agricultural resources to non-agricultural land uses. While existing County policies and regulations and proposed General Plan Update goals and policies are intended to protect agricultural resources, specific measures that implement these policies and regulations are proposed to ensure that the intended protections are achieved. Therefore, the proposed project would result in a potentially significant impact to agricultural resources and specific implementation programs are identified as mitigation.

2.2.3.2 Issue 2: Land Use Conflicts

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance, Agricultural Resources, the proposed General Plan Update would have a significant impact if it would conflict with a Williamson Act Contract (contract) or the provisions of the California Land Conservation Act of 1965 (Williamson Act). Additionally, a significant impact would occur if the proposed project would conflict with existing zoning for agricultural use.

Impact Analysis

Williamson Act Contracts

Within the unincorporated County, there are approximately 402,100 total acres of land in designated Agricultural Preserves. Although land may be in a County adopted Agricultural Preserve, and bear the “A” Special Area Regulation Designator, it should be noted that the vast majority of these areas are not in active agriculture. Table 2.2-10 identifies the distribution of Agricultural Preserves by CPA. Those areas with the largest acreage of preserves include Central Mountain Subregion - remainder (30,113 acres), Desert Subregion (48,777 acres), Jamul/Dulzura CPA (31,157 acres), Pala/Pauma Valley Subregion (20,301 acres), Pine Valley (within the Central Mountain CPA) (62,069 acres) and Ramona CPA (26,114 acres). Figure 2.2-6 depicts the location of Agricultural Preserves throughout the County.

Any land in a County adopted Agricultural Preserve is eligible for entry into a Williamson Act Contract. However, while approximately 402,100 acres of land are within County adopted Agricultural Preserves, only approximately 80,500 acres of land are currently under Williamson Act Contract. In addition, very few of these contracts were recently established. Table 2.2-10 identifies CPA’s with lands currently under Williamson Act Contract. Those areas with the largest areas under contract include Cuyamaca (Central Mountain Subregion) (3,946 acres), Desert Subregion (3,007 acres), Jamul/Dulzura Subregion (3,289 acres), Julian CPA (5,352 acres), North Mountain Subregion – remainder (31,280 acres), and Ramona CPA (5,401 acres). Figure 2.2-6 depicts the location of land under Williamson Act Contract throughout the County.

Implementation of the proposed General Plan Update would remove parcels from adopted Agricultural Preserves for most of the land that is not currently under a Williamson Act Contract. Additionally, implementation of the General Plan Update would remove the County Zoning Ordinance "A" Special Area Regulation Designator in all Agricultural Preserves not currently under a Williamson Act Contract. The removal of parcels from adopted Agricultural Preserves and the "A" designator would apply to approximately 321,590 acres of land throughout the County. However, for those lands under Contract, when the Contract expires, the land would continue to be designated as an Agricultural Preserve with the "A" designator, unless the owner applies to have the designation removed through an action by the County BOS. As noted above, there are use restrictions under the Williamson Act and the "A" Special Area Regulation Designator that would continue to run with the land until the property owner applied, and was approved for, the removal of their parcel(s) from the Agricultural Preserve. Therefore, although implementation of the proposed General Plan Update would remove lands not currently under a Williamson Act Contract from County adopted Agricultural Preserves, it would not result in a conflict with any existing Williamson Act Contract or the provisions of the Williamson Act.

Although a direct land use conflict would not occur, agricultural resources would be impacted from the removal of non-contracted lands from Agricultural Preserves. One purpose of an Agricultural Preserve is to protect Williamson Act Contract lands from nearby incompatible development. By removing lands from a preserve at the boundary of a Contract area, new incompatible land uses could be developed adjacent to existing agricultural resources. Incompatible land uses could result in an indirect conversion of agricultural resources. Therefore, because implementation of the proposed General Plan Update would remove the Agricultural Preserve designation, a potential land use conflict would occur because agricultural resources under Williamson Act Contract, and in the vicinity of the areas removed from Agricultural Preserve designation, may no longer be fully protected from surrounding development pressures. This would be considered a potentially significant impact. As an example, Williamson Act Contract lands located in Ramona would be indirectly impacted by the higher density residential land uses proposed by the General Plan Update, which would replace areas that were previously under a County-adopted Agricultural Preserve. Indirect impacts to agricultural resources are further discussed below in Issue 3: Indirect Conversion of Agricultural Resources. However, it should be noted that the majority of Williamson Act Contract lands are located in the central portion of the County, within the Central Mountain and North Mountain Subregions (see Figure 2.2-6). Generally, the proposed General Plan Update would designate lower-density land uses into these areas, thereby reducing the overall potential for incompatible development of adjacent lands.

Agricultural Zoning

The County Zoning Ordinance establishes zones which regulate the use of land, height of buildings, area of lots, setbacks, and other patterns. County zoning maps show the boundaries of such zones. The County Zoning Ordinance, Section 2700-2720, currently has two designations for agricultural zoning, A70 – limited agriculture and A72 – general agriculture. Figure 2.2-7 identifies the areas within the County that are designated A70 and A72. As shown in Table 2.2-12, approximately 313,150 acres of land within the unincorporated County are zoned A70 and 430,676 acres are zoned A72. A70 and A72 zones do not serve to protect and preserve agricultural land uses, rather these zones regulate land use, such as the number of outbuildings or animals allowed on a property. The zoning regulations do not exclusively permit agricultural uses and often residential, commercial or industrial operations exist within these zones. Conversely, the zoning regulations do not restrict agricultural operations throughout the

County, as current zoning allows for agriculture in every area of the County. Table 2.2-12 identifies the proposed General Plan Update land use designations and acreages in areas currently zoned A70 and A72. The majority of land uses proposed under implementation of the General Plan Update, and within the A70 or A72 zones, would be rural lands, semi-rural residential lands, open space, and State and federal lands, which are generally regarded as compatible land uses for agricultural operations.

The land uses proposed under the General Plan Update would not conflict with agricultural zoning. Although A70 and A72 zones specifically address agriculture, agricultural operations are allowed in every area of the County. Additionally, a number of other zoning requirements also apply to lands in A70 and A72 zones. Under existing conditions, no zoning designation exclusively regulates agricultural operations. This would also be true with implementation of the proposed General Plan Update. No exclusive land use designation to regulate or restrict the location of agricultural operations is proposed and agricultural operations would be allowed in every area of the County under the proposed project. Therefore, implementation of the proposed General Plan Update would not conflict with existing agricultural zoning, and a potentially significant impact would not occur.

Federal, State and Local Regulations and Existing Regulatory Processes

In addition to the regulations identified in the Regulatory Framework section above, all parcels in the County that are subject to a Williamson Act contract are specifically noted in the County's GIS database. Additionally, all Williamson Act Contract lands are within Agricultural Preserves, which receive an "A" Special Area Regulation Designator pursuant to the Zoning Ordinance. These notes and designations are intended to ensure that any land use permit that is processed by the County is consistent with the Williamson Act, including the County adopted Agricultural Preserve and Contract. For those parcels under Contract, the "A" designator would generally be superseded by the requirements and restrictions of the established Contract. For non-contracted lands, the "A" designator further imposes findings on any proposal that requires a Major Use Permit to ensure that the use is not incompatible with the continued agricultural use of land within the Agricultural Preserve, thereby, reducing the potential indirect effects of a proposed use. Subdivisions are also reviewed in light of the Subdivision Map Act which contains specific mention of Williamson Act Contract lands, as well as lands not under Contract but within an adopted Agricultural Preserve. Projects that are subject to discretionary review by the County are also reviewed for Williamson Act Contract conflicts based on the County's Guidelines for Determining Significance and CEQA. These guidelines require that the evaluation extends to areas adjacent to Williamson Act Contract lands, as well as the lands under Contract.

Proposed General Plan Update Goals and Policies

The proposed General Plan Update contains goals and policies within the Land Use Element and the Conservation and Open Space Element that would reduce agricultural land use conflicts. Goal LU-7 creates a land use plan that retains and protects farming and agriculture as beneficial resources that contribute to the County's rural character. Policy LU-7.1 would protect agricultural lands with lower density land use designations that support continued agricultural operations. Goal COS-6 aims to create a viable and long-term agricultural industry and the sustainability of agricultural land uses in San Diego County that serve as a beneficial resource and contributor to the County's rural character and open space network. Policy COS-6.3 would require planning for new development adjacent to agricultural land uses to encourage siting

compatible recreational and open space uses and multi-use trails adjacent to the agricultural lands, where these uses are mutually beneficial and would minimize conflicts with non-agricultural land uses.

Summary

Implementation of the proposed General Plan Update would remove non-contracted lands from County adopted Agricultural Preserves and remove the "A" designator from these lands. By removing lands from a preserve at the boundary of a Contract area, new incompatible land uses could be developed adjacent to existing agricultural resources. Therefore, because implementation of the proposed General Plan Update would remove the agricultural preserve designation, a potential land use conflict would occur because agricultural resources under Williamson Act Contract, and in the vicinity of the areas removed from the Agricultural Preserve designation, may no longer be fully protected from surrounding development pressures. Therefore, this would be considered a potentially significant impact. While existing County policies and regulations and proposed General Plan Update goals and policies are intended to protect agricultural resources, specific measures that implement these policies and regulations are proposed to ensure that the intended protections are achieved. Therefore, the proposed project is concluded to result in a potentially significant impact to Williamson Act Contract Lands and specific implementation programs are identified as mitigation.

2.2.3.3 Issue 3: Indirect Conversion of Agricultural Resources

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance, Agricultural Resources, the proposed County General Plan Update would have a significant impact if it would involve other changes in the existing environment which, due to their location or nature, could result in conversion of a San Diego County agricultural resource to non-agricultural use.

A potentially significant indirect impact to a San Diego County agricultural resource would occur if proposed land uses under the General Plan Update would result in compatibility conflicts with existing agricultural activities. Land use/agricultural interface issues often arise from dust, noise, liability concerns, trespassing, theft, competition for water, traffic, pest introduction and conflicts with pesticide use. The type of agricultural use and the sensitivity of the nearby land uses would be key considerations in determining agricultural compatibility. As an example, orchard crops would be more likely to be compatible with surrounding residential uses than a confined animal feeding operation. In addition, if a sensitive use, such as a school, church, day care or other use involving a concentration of people is proposed within one mile of an existing agricultural operation or land under contract, land use/agricultural interface conflicts could increase. If these conflicts would result in the conversion of agricultural resources to a non-agricultural uses, then a potentially significant impact would occur.

Impact Analysis

Land uses proposed near an active agricultural use have the potential to cause the conversion of agricultural resources to non-agricultural uses because of the potential incompatibility between the proposed use and existing agricultural activity. Adverse impacts caused by

incompatible development near agricultural uses would include, but would not be limited to: farm practice complaints; pesticide use limitations; liability concerns; economic instability caused by urbanization and changing land values; trespassing, theft, and vandalism; damage to equipment, crops, and livestock; introduction of urban use pollutants entering farm water sources; competition for water; development affecting recharge of groundwater; soil erosion and storm water runoff emanating from urban use; shading of crops from inappropriate buffering; importation of pests and weeds from urban areas or introduced pest populations from unmaintained landscaping; increased traffic; effects of nighttime lighting on growth patterns of greenhouse crops; and interruption of cold air drainage.

The Farmland Protection Action Guide published by the Institute for Local Self Government (ILSG 2002) summarizes the conflicts that occur at the agriculture urban interface as follows:

> "This situation is a common one: A fast-growing community approves a subdivision located on farmland, placing new homes right next to farms. Proximity to the bucolic landscape is one of the development's most attractive features. But the new homeowners are soon disillusioned by pesticide drift, night harvesting, odor, flies, dust and slow-moving tractors. Farmers also have concerns about adjacent development. Theft and vandalism increase when the surrounding area urbanizes. Imported pests and increased traffic also affect operations. As a result, farmers may see the next wave of development as inevitable, and accordingly reduce investments in their operation. The operation becomes less profitable, real estate becomes more valuable, and soon another farmer is willing to entertain offers from developers. Farming and residential uses are fundamentally incompatible. When they are located next to one another, local agencies can anticipate significant complaints and problems. However, there are several strategies that local agencies can use to head off or reduce such problems, such as creating physical barriers and educating residents to create more appropriate expectations. Such approaches can improve both the quality of life in new subdivisions and farmers' ability to remain a viable part of the local agricultural economy."

As described above, conflicts at the agriculture/urban interface flow in two directions: from existing agricultural use to a newly established non-agricultural use and from a newly established non-agricultural use to existing agricultural use. Complaints from encroaching urban uses force changes in normal farming practices. Farmers feel pressured to change or discontinue their agricultural operation; reduce investments in the operation; make financial investments in an effort to appease the encroaching urban environment; or reduce productivity and, consequently, income. Although the focus of this analysis is on the impacts to agricultural resources and not the impacts that farms would have on new residential or urban uses, the adverse effects perceived by new urban neighbors near farms must be recognized as an indirect contributor to the degradation of the viability of surrounding farms.

The type of agricultural use and the sensitivity of the nearby land uses are key considerations in determining agricultural compatibility. As an example, orchard crops would be more likely to be compatible with surrounding residential land uses than a confined animal feeding operation. Orchard crops such as citrus typically have fewer compatibility issues than nurseries, confined animal facilities, and row crop production, due to lower chemical treatments, less farmworker presence, less truck traffic, and fewer odors. In addition, if a sensitive use, such as a school, church, day care or other use involving a concentration of people is proposed near an existing

agricultural operation or land under Williamson Act Contract, agricultural interface conflicts could increase. Additionally, growth inducement and the associated extension of infrastructure that can change rural character and increase the likelihood of agriculture/urban interface conflicts would indirectly impact the agricultural resources within the County. Significant economic impacts to active agricultural operations compromise the ongoing viability of agricultural operations and result in an increased likelihood of conversion.

Implementation of the proposed General Plan Update would increase density within the vicinity of some agricultural operations while allowing for agricultural operations to exist within any land use designation, including within the vicinity of sensitive receptors. As shown in Figure 2.2-1, the majority of FMMP-classified Prime Farmland, Farmland of Local Importance, Farmland of Statewide Importance and Unique Farmland are clustered in the western portion of the unincorporated County, near incorporated jurisdictions and within or adjacent to the SDCWA service area. The location of existing agricultural resources is further shown in Figure 2.2-2, where the majority of orchards and vineyards, truck crops, intensive agriculture, and field crops are located within or adjacent to the SDCWA boundary. Implementation of the proposed General Plan Update would redirect 80 percent of the projected population growth into the western portion of the County, specifically areas within the SDCWA service area. This would be consistent with the policies included in the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, which requires that development of land for uses other than open-space uses be guided away from existing prime agricultural lands, unless that action would not promote the planned, orderly, efficient development of an area. Implementation of the General Plan Update would direct non-open space development into appropriate areas; however, the redirection of high density growth into areas containing agricultural resources would cause some indirect conversion (in addition to the direct conversion discussed in Issue 1: Direct Conversion of Agricultural Resources) of agricultural resources to non-agricultural use, due to the land use conflicts discussed above. Therefore, this would be considered a potentially significant impact.

It should be noted that not all agricultural resources would be adversely affected by the proposed shift of density to areas within or adjacent to the existing SDCWA service area. As shown in Figure 2.2-2, the County has significant grazing land resources that are located outside of the SDCWA boundary and that would not be adversely affected by implementation of the General Plan Update. Implementation of the General Plan Update would retain lower density development in eastern unincorporated San Diego County, which could result in an increase of agricultural resources in that area. Additionally, within certain areas in the County, such as Bonsall, implementation of the General Plan Update would maintain lower density development near agricultural resources in order to reduce potential land use conflicts.

Other indirect effects that would cause the conversion of agricultural resources to non-agricultural uses include various project features such as: 1) the proposed removal of non-contracted lands from County adopted Agricultural Preserves; 2) the placement of public trails on agricultural lands; and 3) the additional competition for water from proposed residential, commercial, industrial uses. The removal of non-contracted lands from Agricultural Preserves may remove a barrier to growth in the vicinity of existing agricultural operations, thereby resulting in indirect conversion to non-agricultural uses for some areas. Trails adjacent to agricultural lands can result in increased trespassing, theft, and potential disease to crops. For example, trails in avocado orchards can increase exposure to avocado root rot. Although policies within the County Trails Master Plan and the proposed General Plan Update specifically require trails to be placed a certain distance and downhill from orchards to avoid root rot, it is

difficult to restrict hikers from veering off established trails and into agricultural areas. Root rot is easily transmitted to avocados because the spores of the disease move naturally through the soil and are spread on horse hoofs and on the shoes of trail users. The competition over limited water resources in the region is an escalating issue that particularly affects farmers. Such water supply constraints may indirectly result in the conversion of existing agricultural resources to non-agricultural uses. Additional analysis regarding water supply in the County is included in Section 2.16.3.4 Issue 4: Adequate Water Supplies.

On occasion, federal, State and local environmental regulations also contribute to the indirect conversion of agricultural resources. For example, livestock or poultry operations in the vicinity of a creek would be subject to water quality standards and setbacks to prevent agricultural wastes and runoff from reaching the creek. Regulations requiring setbacks could result in the loss of some existing agricultural resources near the creek while additional costs associated with managing agricultural operations in compliance with applicable water quality standards could drive up operational costs such that an indirect conversion of agricultural resources would occur.

Federal, State and Local Regulations and Existing Regulatory Processes

Federal, State, and local regulations that protect agricultural lands from conversion, both direct and indirect, are summarized under Section 2.2.3.1, Issue 1: Conversion of Agricultural Resources. Additionally, the County's Guidelines for Determining Significance require that lands adjacent to agricultural resources be evaluated for possible impacts.

To offset the indirect conversion of agricultural resources, the County of San Diego is in the process of formulating and implementing a number of programs to help preserve agricultural resources, such as the PACE program. This program would create agricultural easements for the protection of agricultural resources throughout the County. Generally, agricultural easements are effective in protecting and retaining farming operations, even for properties that are later purchased by non-farmers primarily for residential use. The reason for this is that residential purchasers tend to lease their newly acquired land to active farmers for ease of management and tax reasons. However, there are challenges to agricultural easement programs. Often jurisdictions have difficulty completing acquisitions stated in the program goals for reasons such as the high cost of land in the San Diego County region. Also, many communities with agricultural easements experience a decline in agricultural services, such as farm supply outlets, tractor dealers and processing facilities, causing the viability of agricultural operations to be compromised (AFT 2006).

Proposed General Plan Goals and Policies

The proposed General Plan Update contains goals and policies within the Land Use Element, Housing Element, and Conservation and Open Space Element that would help reduce the potential for the indirect conversion of agricultural resources to non-agricultural uses. Within the Land Use Element, Goal LU-6 is to create a built environment, in balance with the natural environment, scarce resources, natural hazards, and the unique local character of individual communities. Policy LU-6.4 supports this goal by requiring residential subdivisions to conserve open space and natural resources and protect agricultural operations including grazing. Goal LU-7 is to create a land use plan that retains and protects farming and agriculture as beneficial resources that contribute to the County's rural character. Policies in support of this goal include Policies LU-7.1 and LU-7.2, which would protect agricultural lands with lower density land use

designations and allow for reductions in lot sizes when large tracts of historically agricultural land are preserved in conservation easements for continued agricultural use.

Within the Conservation and Open Space Element, Goal COS-6 is to create a viable and long-term agricultural industry and the sustainability of agricultural land uses in San Diego County that serve as a beneficial resource and contributor to the County's rural character and open space network. Policies COS-6.2 and COS-6.3 supports this goal by protecting existing agricultural operations from encroachment of incompatible land uses.

Summary

Implementation of the proposed General Plan Update would result in an indirect conversion of agricultural resources to non-agricultural land uses for a variety of reasons, as discussed above. While existing County policies and regulations and proposed General Plan Update goals and policies are intended to protect agricultural resources from indirect conversion, specific measures that implement these policies and regulations are proposed to ensure that the intended protections are achieved. Therefore, the proposed project is concluded to result in a potentially significant impact to the indirect conversion of agricultural resources and specific implementation programs are identified as mitigation.

2.2.4 Cumulative Impacts

The geographic scope for cumulative analysis of agricultural resources is the San Diego region, which includes the entire County of San Diego, including incorporated areas, Riverside County, Orange County and Imperial County. The scope for the cumulative analysis has been defined by the climatic conditions of southern California that create a subtropical climate that optimizes the production of a variety of crops that would be more difficult to produce elsewhere.

2.2.4.1 Issue 1: Direct Conversion of Agricultural Resources

In general, agricultural resources are in decline in the San Diego region. This decline can be attributed, in part, to the increasing population in the region and subsequent pressures that would require the direct conversion of lands supporting agricultural resources to be converted to non-agricultural uses. Cumulative projects in the incorporated cities and surrounding counties would have the potential to convert agricultural lands and resources to non-agricultural uses from the development of incompatible land uses such as commercial, industrial or high density residential. Additionally, tribal lands within the County currently account for approximately 19 percent of the total agricultural operations in the unincorporated County. Many of the tribes are planning to construct new residential, commercial, casino, and resort developments, which would have the potential to directly convert agricultural resources to non-agricultural land uses. Therefore, cumulative projects would result in a potentially significant impact related to the direct conversion of agricultural resources in the San Diego region.

As discussed above, implementation of the proposed General Plan Update would result in the direct conversion of agricultural resources to non-agricultural uses due to the loss of agricultural viability under some proposed land use designations. In combination with other cumulative projects, such as development projects allowable under surrounding jurisdictions general plans and tribal projects, the proposed project would have a cumulatively considerable contribution to a regionally significant impact to the direct conversion of agricultural land.

2.2.4.2 Issue 2: Land Use Conflicts

Within the San Diego region, incorporated cities and surrounding counties designate and adopt Agricultural Preserves, enter into Williamson Act Contracts and adopt agricultural zoning to protect their agricultural resources. With these regulations in place, cumulative projects occurring in the San Diego region, such as development allowable under surrounding jurisdictions' general plans, would not result in conflicts with existing agricultural zoning or Williamson Act Contracts. Additionally, implementation of any cumulative project would be subject to CEQA review, which requires an analysis of the potential impacts that a proposed project would have on agricultural lands. Any potential impact to agricultural resources from a proposed cumulative project would have undergone analysis and mitigation, if required, to reduce any direct conversion of agricultural resources to a level below significance. Therefore, cumulative projects would not result in a potentially significant impact related to agricultural land use conflicts.

Implementation of the General Plan Update would result in a potentially significant conflict with agricultural zoning or land under Williamson Act Contract. However, as discussed above, a potentially significant cumulative impact would not occur from the combined impacts of other cumulative projects. Therefore, the proposed General Plan Update would not contribute to a potentially significant cumulative impact.

2.2.4.3 Issue 3: Indirect Conversion of Agricultural Resources

Within the San Diego region, the indirect conversion of farmland is increasing due to population growth and the subsequent development required to support this growth. Land use conflicts often arise from increased agricultural/urban interface areas, high operating costs, and escalating property values. These conflicts have the potential to occur in incorporated cities and surrounding counties. Development on tribal lands would also place incompatible land uses in the vicinity of existing agricultural operations. Similar to the proposed project, cumulative projects resulting in urban development are anticipated to indirectly affect the viability of agricultural resources in the region by increasing conflicts related to urban/agricultural interfaces and increasing land values, which would result in a potentially significant cumulative impact. Implementation of the proposed General Plan Update also has the potential to result in an indirect conversion of agricultural resources to non-agricultural uses from conflicts arising from proposed General Plan Update land uses. In combination with other cumulative projects such as development projects allowable under surrounding jurisdictions' general plans and tribal projects, the proposed project would have a cumulatively considerable contribution to a regionally significant impact to the indirect conversion of agricultural land.

2.2.5 Significance of Impact Prior to Mitigation

Prior to mitigation, the proposed General Plan Update would result in potentially significant direct and cumulative impacts regarding the direct and indirect conversion of agricultural resources to non-agricultural uses. Implementation of the proposed General Plan Update would not result in potentially significant direct or cumulative impact associated with land use conflicts with agricultural zoning or Williamson Act Contract lands.

2.2.6 Mitigation

2.2.6.1 Issue 1: Conversion of Agricultural Resources

The proposed General Plan Update would allow additional growth and development to occur in the County consistent with proposed land use designations, which would result in the direct conversion of agricultural resources. General Plan Update policies and mitigation measures (described further below), have been identified that would minimize these impacts. Some mitigation measures have been identified that would reduce impacts associated with agricultural resources to below a level of significance; however, the County has determined that their implementation would be infeasible. A discussion of infeasible mitigation measures, as well as General Plan Update policies and feasible mitigation measures is provided below.

Infeasible Mitigation Measures

The following measures were considered in attempting to reduce impacts associated with the direct conversion of agricultural resources within the unincorporated County to below a level of significance. However, the County has determined that these measures would be infeasible, as described below. Therefore, these measures would not be implemented.

- Restrict any development of land uses with allowable densities of 1 du/acre or more, due to potential incompatibilities with agricultural resources. This measure would be infeasible because it would result in restrictions on future development in areas identified for increased growth under the proposed General Plan Update. Restricting land use densities of 1 du/acre or more would result in a greater concentration of lower density land uses distributed throughout the unincorporated County and would discourage sustainable growth because infrastructure costs, vehicle miles traveled and environmental impacts associated with development would be increased. This mitigation measure would conflict with the project objective of promoting sustainability by locating new development near existing infrastructure, services and jobs and conflict with the General Plan Update housing goal of supporting a reasonable share of projected regional population growth.

- Create a land use designation solely for agricultural resources, within which no other land uses would be allowable. This measure would be infeasible because it would result in restrictions on future development in areas identified for increased growth under the proposed General Plan Update and/or areas where existing land uses are not the same as the land uses proposed by the General Plan Update. Additionally, many agricultural operations throughout the unincorporated County are unique in that they operate on small lots, located adjacent to a variety of land uses, such as residential. Creating an agriculture-resource-only land use designation would negatively impact many existing County agricultural operations located in non-agricultural land uses. Therefore, this measure would conflict with the proposed project's objective to preserve agriculture as an integral component of the region's economy, character, and open space network.

Because the measures listed above have been found to be infeasible, impacts would remain significant and unavoidable. Chapter 4.0, Project Alternatives, provides a discussion of several land use alternatives to the proposed project that would result in some reduced impacts associated with direct conversion of agriculture as compared to the proposed project.

General Plan Update Policies

The following policies would reduce impacts associated with the direct conversion of agricultural resources, but not to below a significant level.

Policy LU-6.4: Sustainable Subdivision Design. Require that residential subdivisions be planned to conserve open space and natural resources, protect agricultural operations including grazing, increase fire safety and defensibility, reduce impervious footprints, use sustainable development practices, and, when appropriate, provide public amenities. [See applicable community plan for possible relevant policies.]

Policy LU-7.1: Agricultural Land D evelopment. Protect agricultural lands with lower-density land use designations that support continued agricultural operations.

Policy LU-7.2: Parcel Size Reduction as Incentive for Agriculture. Allow for reductions in lot size for compatible development when tracts of existing historically agricultural land are preserved in conservation easements for continued agricultural use.

Policy COS-6.4: Conservation Easements. Support the acquisition or voluntary dedication of agriculture conservation easements and programs that preserve agricultural lands.

Mitigation Measures

The following mitigation measures would reduce impacts associated with the direct conversion of agricultural resources, but not to below a significant level.

Agr-1.1 Implement the General Plan Regional Category map and Land Use Maps which protect agricultural lands with lower density land use designations that will support continued agricultural operations.

Agr-1.2 Develop and implement programs and regulations that protect agricultural lands (such as the CEQA guidelines, Zoning Ordinance, Right to Farm Act, Open Space Subvention Act, Farm and Ranch Lands Protection Program, San Diego County Agricultural Enterprises and Consumer Information Ordinance, BOS Policy I-133, and the San Diego County Farming Program), as well as, those that support implementation of the Williamson Act (including the CEQA guidelines, Zoning Ordinance, and Subdivision Ordinance).

Agr-1.3 Create a Conservation Subdivision Program that facilitates conservation-oriented project design through changes to the Subdivision Ordinance, Resource Protection Ordinance, Zoning Ordinance, Groundwater Ordinance, and other regulations as necessary with the goal of promoting conservation of natural resources and open space (including agricultural lands) while improving mechanisms for flexibility in project design so that the production of housing is not negatively impacted.

Agr-1.4 Develop and implement the PACE program which compensates landowners for voluntarily limiting future development on their land.

Agr-1.5 Revise community plans to identify important agricultural areas within them and specific compatible uses and desired buffers necessary to maintain the viability of that area. Community plans are used to review development projects (including General Plan Amendments).

2.2.6.2 Issue 2: Land Use Conflicts

The following General Plan Update policies and mitigation measures would reduce the proposed project's direct impacts related to conflicts with agricultural zoning or Williamson Act Contract lands to a level below significant.

Proposed General Plan Update Policies

Policy LU-7.1: Agricultural Land Development. Protect agricultural lands with lower density land use designations that will support continued agricultural operations.

Policy COS-6.3: Compatibility with Recreation and Open Space. Encourage siting compatible recreational and open space uses and multi-use trails that are compatible with agriculture adjacent to the agricultural lands when planning for development adjacent to agricultural land uses.

Mitigation Measures

The following mitigation measure would reduce impacts associated with conflicts with Williamson Act Contract lands to a level below significant.

Agr-2.1 Prior to the approval of any Zoning Ordinance Amendment that would result in the removal of an "A" designator from a certain property, an analysis shall be conducted to ensure that the action removing such a designation will not result in any significant direct or indirect adverse impact to a Williamson Act Contract lands.

2.2.6.3 Issue 3: Indirect Conversion of Agricultural Resources

The proposed General Plan Update would designate land uses that would allow additional growth and development to occur in the County which would have the potential to indirectly convert agricultural resources to non-agricultural use. General Plan Update policies and mitigation measures (described further below) have been identified that would minimize these impacts. Some mitigation measures have been identified that would reduce impacts related to the indirect conversion of agricultural resources to below a level of significance; however, the County has determined that their implementation would be infeasible. A discussion of infeasible mitigation measures, as well as General Plan Update policies and feasible mitigation measures is provided below.

Infeasible Mitigation Measures

The following measures were considered in attempting to reduce impacts associated with the indirect conversion of agricultural resources to below a level of significance. However, the

County has determined that these measures would be infeasible, as described below. Therefore, these mitigation measures would not be implemented.

- Within 0.5-mile of any agricultural resource, approve development that is compatible in size and scope with the existing agricultural resource. This measure would be infeasible because it would restrict future development in areas identified for increased growth in the General Plan Update. Small farming operations are typical in the County, and many existing and potential agricultural operations are located on small parcels with intermixed surrounding land uses. This measure would restrict certain types of incompatible development in these areas, which would have the potential to conflict with the land uses proposed under the General Plan Update. This measure would also conflict with the project objective of promoting sustainability by locating new development near existing infrastructure, services and jobs because many existing agricultural resources within the unincorporated County are located in areas where existing infrastructure, services and jobs already exist.

Because the measure listed above has been found to be infeasible, impacts would remain significant and unavoidable. Chapter 4.0, Project Alternatives, provides a discussion of several land use alternatives to the proposed project that would result in some reduced impacts associated with indirect conversion of agriculture as compared to the proposed project.

General Plan Update Policies

The policies listed under Section 2.2.6.3, Issue 1: Direct Conversion of Agricultural Resources are applicable to this issue and incorporated here by reference. The following policies would reduce impacts associated with the indirect conversion of agricultural resources, but not to below a significant level.

Policy COS-6.2: Protection of Agricultural Operations. Protect existing agricultural operations from encroachment of incompatible land uses by doing the following:

- Limiting the ability of new development to take actions to limit existing agricultural uses by informing and educating new projects as to the potential impacts from agricultural operations
- Encouraging new or expanded agricultural land uses to provide a buffer of non-intensive agriculture or other appropriate uses (e.g., landscape screening) between intensive uses and adjacent non-agricultural land uses
- Allowing for agricultural uses in agricultural areas and designing development and lots in a manner that facilitates continued agricultural use within the development.
- Requiring development to minimize potential conflicts with adjacent agricultural operations through the incorporation of adequate buffers, setbacks, and project design measures to protect surrounding agriculture
- Supporting local and State right-to-farm regulations
- Retain or facilitate large and contiguous agricultural operations by consolidation of development during the subdivision process

Policy COS-6.3: Compatibility with Recreation and Open Space. Encourage siting recreational and open space uses and multi-use trails that are compatible with agriculture adjacent to the agricultural lands when planning for development adjacent to agricultural land uses.

Mitigation Measures

The mitigation measures listed under Section 2.2.6.1, Issue 1: Direct Conversion of Agricultural Resources, are applicable to this issue and would be implemented to reduce impacts to the indirect conversion of farmland, although not to below a significant level.

2.2.7 Conclusion

The discussion below provides a synopsis of the conclusion reached in each of the above impact analyses, and the level of impact that would occur after mitigation measures are implemented.

2.2.7.1 Issue 1: Conversion of Agricultural Resources

The following land uses proposed by the General Plan Update would be considered to represent a direct conversion of agricultural resources, if designated in areas considered to contain existing County agricultural resources: village residential, village core mixed use, industrial, commercial and office professional. The proposed General Plan Update would designate these land uses over approximately 5,502 acres of existing County agricultural resources. Additionally, based upon historical agricultural conversion trends, the potential subdivision of rural and semi-rural lands would result in the conversion of 50,461 acres of agricultural resources to non-agricultural uses. Therefore, implementation of the proposed General Plan Update would result in the direct conversion of 55,963 acres of agricultural resources to non-agricultural land uses.

General Plan Update policies and mitigation measures, in addition to compliance with the Farmland Protection Policy Act, the Right to Farm Act, Williamson Act, Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, OSSA, San Diego County Agricultural Enterprises and Consumer Information Ordinance, San Diego County BOS Policies I-38 and I-133, would partially reduce proposed project impacts related to the conversion of farmland; however, not to below a level of significance. Therefore, project impacts would remain significant and unavoidable. Additionally, the proposed project, in combination with other cumulative projects, would have a cumulatively considerable contribution to the regional loss of agricultural land. To achieve all project objectives of the proposed General Plan Update, impacts related to the direct conversion of agricultural resources would remain significant and unavoidable. Alternatives that would reduce this impact are discussed in Chapter 4.0, Project Alternatives.

2.2.7.2 Issue 2: Land Use Conflicts

Implementation of the proposed General Plan Update would remove non-contracted lands from County-adopted Agricultural Preserves and would also remove the “A” designator from these lands. By removing lands from a preserve at the boundary of a Contract area, new incompatible land uses could be developed adjacent to existing agricultural resources. Therefore, this would

be considered a potentially significant land use conflict to Williamson Act Contract lands. However, implementation of the proposed General Plan Update policies, mitigation measures and required regulations would mitigate this impact to below a level of significance. As discussed above, a potentially significant cumulative impact would not occur from the combined agricultural land use conflict impacts of other cumulative projects. Therefore, the proposed General Plan Update would not contribute to a potentially significant cumulative impact.

2.2.7.3 Issue 3: Indirect Conversion of Agricultural Resources

Implementation of the General Plan Update would redirect high density growth into areas containing agricultural resources and potentially cause some indirect conversion of agricultural resources to non-agricultural use, which is considered to be a potentially significant impact. The proposed General Plan policies and mitigation measures, in addition to compliance with applicable regulations such as those discussed under Section 2.2.7.1, Issue 1: Direct Conversion of Agricultural Resources, would partially reduce proposed project impacts related to indirect impacts to agricultural resources, although not to below a level of significance. Additionally, the proposed project would have a cumulatively considerable contribution to a potentially significant cumulative impact associated with the indirect conversion of agricultural land. Therefore, direct and cumulative impacts would be significant and unavoidable. To achieve all project objectives of the proposed General Plan Update, impacts related to the indirect conversion of agricultural resources would remain significant and unavoidable. Alternatives that would further reduce this impact are discussed in Chapter 4.0, Project Alternatives.

Table 2.2-1. San Diego County Farmland Mapping and Monitoring Program Acreages

Land Use Category	Acreage By Category [1]												1984-2006 Net Acreage Changed	Average Annual Acreage Change
	1984	1986	1988	1990	1992	1994	1996	1998	2000 [2]	2002 [3]	2004 [4]	2006		
Prime Farmland	15,497	12,364	11,759	12,130	12,014	11,796	11,100	10,660	10,257	9,401	8,527	8,251	-7,246	-329
Farmland of Statewide Importance	28,542	16,090	15,314	15,543	14,466	13,961	13,902	13,617	13,142	13,450	12,181	10,959	-17,583	-799
Unique Farmland	69,588	67,682	69,219	70,819	70,462	69,153	67,734	67,535	57,306	57,522	55,565	53,250	-16,338	-743
Farmland of Local Importance	98,493	115,241	111,451	107,209	102,475	104,493	105,190	105,001	112,398	133,543	134,489	134,892	+36,399	+1,655
Important Farmland Subtotal	**212,120**	**211,377**	**207,743**	**205,701**	**199,417**	**199,403**	**197,926**	**196,813**	**193,103**	**213,916**	**210,762**	**207,352**	**-4,768**	**-217**
Grazing Land	159,835	160,232	156,246	152,251	146,306	144,760	142,857	142,335	137,619	111,442	107,328	106,680	-53,155	-2,416
Agricultural Land Subtotal	**371,955**	**371,609**	**363,989**	**357,952**	**345,723**	**344,163**	**340,783**	**339,148**	**330,722**	**325,358**	**318,090**	**314,032**	**-57,923**	**-2,633**
Urban and Built-Up Land	252,931	264,889	274,812	287,820	297,095	301,546	307,169	311,491	323,909	332,715	338,845	345,316	+92,385	+4,199
Other Land	1,530,215	1,518,702	1,516,346	1,509,273	1,512,228	1,509,453	1,507,356	1,504,625	1,499,018	1,495,576	1,496,460	1,494,047	-36,168	-1,644
Water Area	11,591	11,494	11,546	11,646	11,646	11,530	11,385	11,429	13,043	13,043	13,298	13,298	+1,707	+78
Total Area Inventoried	**2,166,692**	**2,166,694**	**2,166,693**	**2,166,691**	**2,166,692**	**2,166,692**	**2,166,693**	**2,166,693**	**2,166,692**	**2,166,692**	**2,166,693**	**2,166,693**	**1**	**0**

(1) Figures are generated from the most current version of the GIS data. Files dating from 1984 through 1992 were reprocessed with a standardized county line in the Albers Equal Area projection, and other boundary improvements.
(2) Water area changed between 1998 and 2000 to reflect digitizing of Barrett Lake and Morena Reservoir from USGS quads, plus other minor corrections.
(3) Due to the incorporation of digital soil survey data (SSURGO) during this update, acreages for farmland, grazing and other land use categories may differ from those published in the 2000-2002 California Farmland Conversion Report. In particular, Farmland of Local Importance increased relative to Grazing Lands as a result of the automated selection of qualifying soil units.
(4) Water area changed in 2004 due to completion of Olivenhain Reservoir.
Percentage of County Inventoried: 80 percent
Source: DLRP 2008b

Table 2.2-2. FMMP Farmland Categories

Prime Farmland Land 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 Land 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 last FMMP mapping date.
Unique Farmland Land of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated 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. In San Diego County, this category is defined as land that meets all the characteristics of Prime and Statewide, with the exception of irrigation. They are farmlands not covered by the above categories but are of significant economic importance to the county. They have a history of good production for locally adapted crops. The soils are grouped in types that are suited for truck crops (such as tomatoes, strawberries, cucumbers, potatoes, celery, squash, romaine lettuce, and cauliflower) and soils suited for orchard crops (avocados and citrus).
Grazing Land Land on which the existing vegetation is suited to the grazing of livestock. It has a minimum mapping unit of 40 acres.
Urban and Built-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 such as 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.
Water Area Perennial water bodies with an extent of at least 40 acres.

Source: DLRP 2006

Table 2.2-3. Existing Agricultural Resource Distribution in the County (in acres)

CPA or Subregion	Grazing Lands		Cropland			Total Acres
	Field Crops	Grazing Lands	Intensive Agriculture	Orchards and Vineyards	Truck Crops	
Alpine	1,103	2,960	14	17	37	4,131
Bonsall	291	2,228	121	6,712	1,896	11,248
Central Mountain	467	53,489	1	4	86	54,047
County Islands	1	3	20	-	3	27
Crest/Dehesa	304	11,503	-	285	-	12,092
Desert	852	32,530	-	3,446	1,452	38,280
Fallbrook	628	2,153	81	13,972	1,510	18,344
Jamul/Dulzura	2,215	20,200	122	367	432	23,336
Julian	232	2,108	-	817	170	3,327
Lakeside	466	14,167	40	580	181	15,434
Mountain Empire	1,312	40,282	0	42	325	41,961
North County Metro	738	8,460	348	8,060	2,084	19,690
North Mountain	1,758	21,572	0	289	806	24,425
Otay	132	12,722	3	-	-	12,857
Pala/Pauma	422	5,056	0	9,346	1,976	16,800
Pendleton/De Luz	242	25,164	0	4,271	2,175	31,852
Rainbow	10	458	21	3,036	920	4,445
Ramona	2,164	19,829	877	5,472	374	28,716
San Dieguito	341	1,985	232	2,216	332	5,106
Spring Valley	24	713	19	-	10	766
Sweet Water	10	3,009	-	2	20	3,041
Valle De Oro	203	3,141	16	61	51	3,472
Valley Center	1,404	6,293	267	24,085	2,154	34,203
Total Acres	15,319	290,025	2,182	83,080	16,994	407,600

Note: Data has been rounded to nearest whole number.
Source: SanGIS 2008

Table 2.2-4. County Agricultural Resource Categories

Grazing Land Category	
The DPLU grazing land category includes grazing lands and field crops. Both field crops and grazing operations in San Diego County are economically marginal because of a lack of sufficient contiguous area with good soils, sufficient rainfall, and appropriate topography.	
	Field Crops
	Field crops include agriculture that requires clearing of native vegetation to plant a crop, but requires little other farm management or inputs. Field crops do not require the use of pesticides or irrigation infrastructure. Most field crops in the County are dryland farmed, restricting active agricultural use of the land to the wet winter months. Field crops include alfalfa, oat, wheat, other grains and similar crops.
	Grazing Lands
	Grazing lands occupy the greatest acreage of all agricultural land in the County, but represent a category of low value agricultural land use. These lands generally involve no mechanical impact to the land and require little support infrastructure. Grazing lands do not require the use of pesticides or irrigation infrastructure. Grazing is a low water use activity reliant on natural water sources or wells. The location of grazing lands in the County reflects this fact, with much of the identified grazing lands being located east of the SDCWA service area.
Cropland Category	
The DPLU cropland category includes intensive agriculture, orchards and vineyards, and truck crops. Commodities included in the cropland category generally involve more permanent or severe land disturbance.	
	Intensive Agriculture
	This category includes semi-agricultural and incidental agricultural operations such as chicken farms, dairies, poultry farms, and livestock feed lots.
	Orchards and Vineyards
	Orchards and Vineyards include crops such as apples, apricots, avocados, citrus fruits and wine grapes.
	Truck Crops
	Truck crops include all indoor and outdoor greenhouse flowers, vegetable crops and row crops. Truck crops include tomatoes, strawberries, cucumbers, potatoes, celery, squash, romaine lettuce, cauliflower and similar crops.

Source: DPLU 2007b

Table 2.2-5. Economics of Agricultural Crops in San Diego County

Year 2007	
Total Value	$1,536,429,974
Change in Value from 2006 Percent Change	$74,764,713 +5.1%
Total Acreage	308,991
Change in Acreage from 2006 Percent Change	6,305 -2.0%
Highest Value per Acre Dollar Value per Acre	Indoor Flowering & Foliage Plants $539,029
Crop with the Lowest Value Per Acre Dollar Value per Acre	Oat Grain $14

Source: AWM 2008

Table 2.2-6. Ten Year Comparison of Major Crops in San Diego County (1997-2007)

Agricultural Grouping	1997		2007	
	Acreage	Value (dollars)	Acreage	Value (dollars)
Nursery & Flower Crops	8,295	$704,988,190	9,836	$1,042,461,078
Fruit & Nut Crops	42,384	$215,090,527	46,180	$231,160,982
Vegetable Crops	13,227	$112,364,649	6,888	$159,549,612
Livestock & Poultry Products[(1)]	Note [(1)]	$85,395,203	Note [(1)]	$73,324,083
Livestock and Poultry[(1)]	Note [(1)]	$14,082,554	Note [(1)]	$20,461,957
Field Crops	107,011	$5,650,940	246,087	$5,299,084
Apiary[(1)]	Note [(1)]	$1,153,787	Note [(1)]	$3,423,868
Timber[(1)]	Note [(1)]	$629,850	Note [(1)]	$749,310
Totals	**170,917**	**$1,139,355,700**	**308,991**	**$1,536,429,974**

[(1)] acreages not reported, numbers do not add due to rounding
Source: AWM 2008

Table 2.2-7. Number of Farms by Sales Volume in San Diego County

Sales Volume	1997	2007	Change 1997 to 2007 (percent)
Less than $5,000	4,380	2,875	-34
$5,000 to $9,999	690	1,006	45
$10,000 to $19,999	564	948	68
$20,000 to $24,999	168	267	58
$25,000 to $39,999	320	395	23
$40,000 to $49,999	123	128	4
$50,000 to $99,999	374	345	-7
$100,000 to $249,999	300	326	8
$250,000 to $499,999	171	135	-21
$500,000 or more	203	262	29
Totals	**7,293**	**6,687**	**-8**

Source: USDA 2009

Table 2.2-8. Top Ten Organically Produced Crops in San Diego County

Crop	Acreage
Oranges	1,189
Avocados	1,180
Lemons	675
Grapefruit	405
Tangelos/Tangerines	256
Chard	133
Cucumbers	66
Radicchio	62
Beans	59
Persimmons	55

Source: AWM 2008

Table 2.2-9. Existing Agricultural Zones, Designations, Preserves and Contracts in San Diego County (in acres)

CPA or Subregion	Total Acres in CPA	A70 Zone	A72 Zone	(19) Intensive Agriculture Designation	(20) General Agriculture Designation
Alpine	68,136	24,983	31,513	0	13,424
Bonsall	21,037	10,718	283	2,863	70
Central Mountain	203,310	5,854	22,848	0	0
County Islands	520	12	50	0	0
Crest/Dehesa	20,227	5,717	7,765	0	214
Desert	599,107	43	48,768	0	32,433
Fallbrook	36,094	25,984	1,721	108	1,375
Jamul/Dulzura	107,348	4,546	86,911	52	14,193
Julian	33,385	11,539	19,077	11,893	7,400
Lakeside	46,043	20,644	1,874	2,074	388
Mountain Empire	303,906	2,408	56,808	0	25,293
North County Metro	56,163	20,811	8,094	3,672	8,885
North Mountain	311,775	43,809	84,519	0	37,765
Otay	28,432	35	4	0	0
Pala/Pauma	73,692	30,443	14,812	4,226	18,469
Pendleton/De Luz	163,302	14,565	14,380	0	0
Rainbow	9,660	9,028	0	647	408
Ramona	83,995	40,070	26,331	8,129	26,218
San Dieguito	30,025	1,119	0	0	0
Spring Valley	7,479	791	106	0	0
Sweetwater	8,910	610	0	0	0
Valle De Oro	13,137	1,497	342	28	391
Valley Center	55,233	37,924	4,470	770	6,581
Totals	**2,280,916**	**313,150**	**430,676**	**34,462**	**193,507**

Note: All data is represented as acreage; Data has been rounded to nearest whole number.
Source: SanGIS 2008

Table 2.2-10. Existing Agricultural Preserves and Williamson Act Contract Lands

CPA or Subregion	Agricultural Preserves (acres)	Williamson Act Contracts (acres)
Alpine CPA	13,417	1,428
Bonsall CPA	303	69
Central Mountain Subregion – Remainder	30,113	2,660
Central Mountain Subregion – Cuyamaca	11,315	3,946
Central Mountain Subregion – Descanso	663	1
Central Mountain Subregion – Pine Valley	62,069	9,696
Crest/Dehesa Subregion	219	43
Desert Subregion	48,777	3,007
Fallbrook CPA	1,972	593
Jamul/Dulzura Subregion	31,157	3,289
Julian CPA	18,433	5,352
Lakeside CPA	402	394
Mountain Empire- Lake Morena/Campo	16,135	901
Mountain Empire Subregion – Jacumba	19	0
Mountain Empire Subregion – Boulevard	9,262	225
Mountain Empire Subregion – Potrero	10,317	58
Mountain Empire – remainder	19,847	679
North County Metro Subregion – Hidden Meadows	335	111
North County Metro Subregion – remainder	8,674	683
North Mountain Subregion – Palomar Mountain	11,813	3,978
North Mountain Subregion – remainder	48,420	31,280
Pala/Pauma Valley Subregion	20,301	2,326
Pendleton/De Luz CPA	500	326
Rainbow CPA	663	293
Ramona CPA	26,114	5,401
San Dieguito CPA	3,071	0
North County Metro Subregion – Twin Oaks	181	31
Valle De Oro CPA	316	171
Valley Center CPA	7,290	3,566
Total	**402,098**	**80,507**

Note: Data has been rounded to nearest whole number.
Source: SanGIS 2008

Table 2.2-11. Proposed Land Uses in Areas of Agricultural Resources

Proposed General Plan Update Land Use Designation	Grazing Lands (acres)		Cropland (acres)			Total Acres
	Field Crops	Grazing Lands	Intensive Agriculture	Orchards and Vineyards	Truck Crops	
General Commercial	103	27	0	37	26	193
High Impact Industrial	20	124	13	0	11	168
Limited Impact Industrial	44	92	4	46	13	199
Medium Impact Industrial	71	12	0	8	12	103
Military Installations	65	21,099	0	8	1,580	22,752
State and Federal Lands	71	68,239	0	141	1	68,452
Neighborhood Commercial	18	10	3	17	2	50
Office Professional	0	4	0	0	3	7
Open Space (Conservation)	1,135	102,534	32	475	317	104,493
Open Space (Recreation)	6	152	48	43	40	289
Public/Semi-Public Facilities	312	3,224	69	972	447	5,024
Rural Commercial	48	57	6	67	86	264
Rural Lands (RL-20)	829	14,736	183	20,774	1,596	38,118
Rural Lands (RL-40)	5,630	34,967	401	5,822	2,755	49,575
Rural Lands (RL-80)	800	5,720	1	36	91	6,648
Rural Lands (RL-160)	0	0	0	0	0	0
Semi-rural Residential (SR-1)	814	2,548	143	4,143	794	8,442
Semi-rural Residential (SR-2)	1,294	7,159	455	21,523	2,678	33,109
Semi-rural Residential (SR-4)	1,101	6,745	291	12,355	2,895	23,387
Semi-rural Residential (SR-10)	1,447	6,442	250	13,421	2,263	23,824
Specific Plan Area	459	10,895	130	1,245	354	13,083
Tribal Lands	370	3,888	9	562	74	4,903
Village Core Mixed Use	1	4	36	8	8	57
Village Residential (VR-10.9)	12	17	0	14	0	43
Village Residential (VR-15)	65	30	6	26	9	136
Village Residential(VR-2)	320	699	46	766	436	2,267
Village Residential (VR-2.9)	99	233	24	237	72	665
Village Residential (VR-24)	6	1	0	8	0	15
Village Residential (VR-30)	5	0	0	0	22	27
Village Residential (VR-4.3)	84	223	16	132	395	850
Village Residential (VR-7.3)	88	148	16	194	12	458
Total	**15,317**	**290,029**	**2,182**	**83,080**	**16,992**	**407,600**

Note: Data has been rounded to nearest whole number.
Source: SanGIS 2008

Table 2.2-12. Proposed General Plan Update Land Use Designations in Agricultural Zoning Areas

General Plan Update Land Use Designation	Zoning Area	Acres
General Commercial	A70	25
High Impact Industrial	A70	74
Limited Impact Industrial	A70	105
Medium Impact Industrial	A70	268
Neighborhood Commercial	A70	26
Office Professional	A70	25
Open Space (Conservation)	A70	21,362
Open Space (Recreation)	A70	2,352
Public/Semi-Public Facilities	A70	5,131
Rural Commercial	A70	165
Rural Lands (RL-20)	A70	51,335
Rural Lands (RL-40)	A70	87,535
Rural Lands (RL-80)	A70	3,123
Semi-rural Residential (SR-4)	A70	120,958
Specific Plan Area	A70	658
Village Residential (VR-7.3)	A70	4,556
Subtotal A70		**297,698**
General Commercial	A72	1
Medium Impact Industrial	A72	1
Neighborhood Commercial	A72	2
Open Space (Recreation)	A72	146,465
Public/Semi-Public Facilities	A72	1,981
Rural Commercial	A72	4
Rural Lands (RL-80)	A72	171,971
Semi-rural Residential (SR-4)	A72	20,096
Specific Plan Area	A72	323
Village Residential (VR-7.3)	A72	110
Subtotal A72		**340,954**
Total		**638,652**

Note: Data has been rounded to nearest whole number.
Source: DPLU GIS 2008

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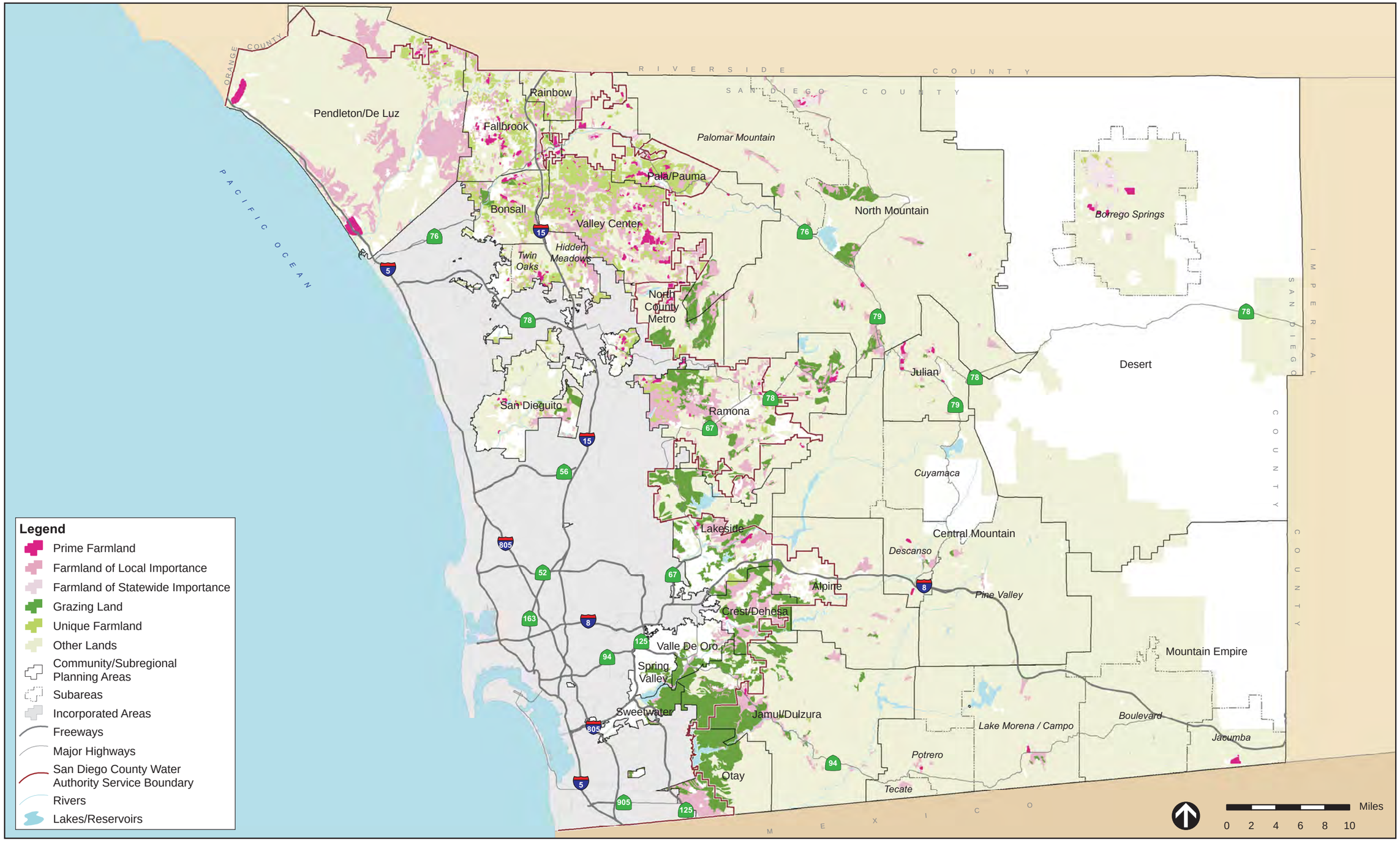
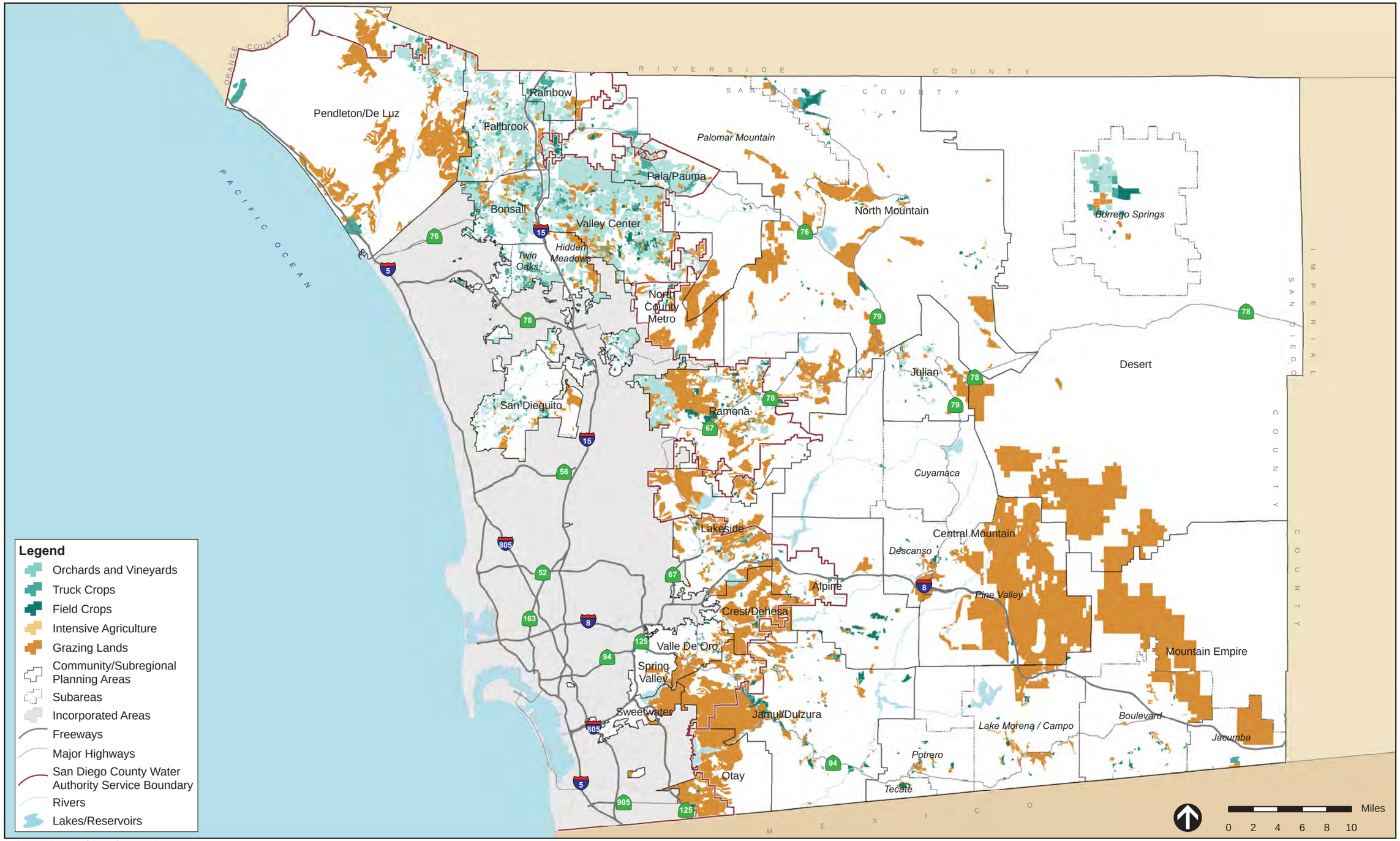


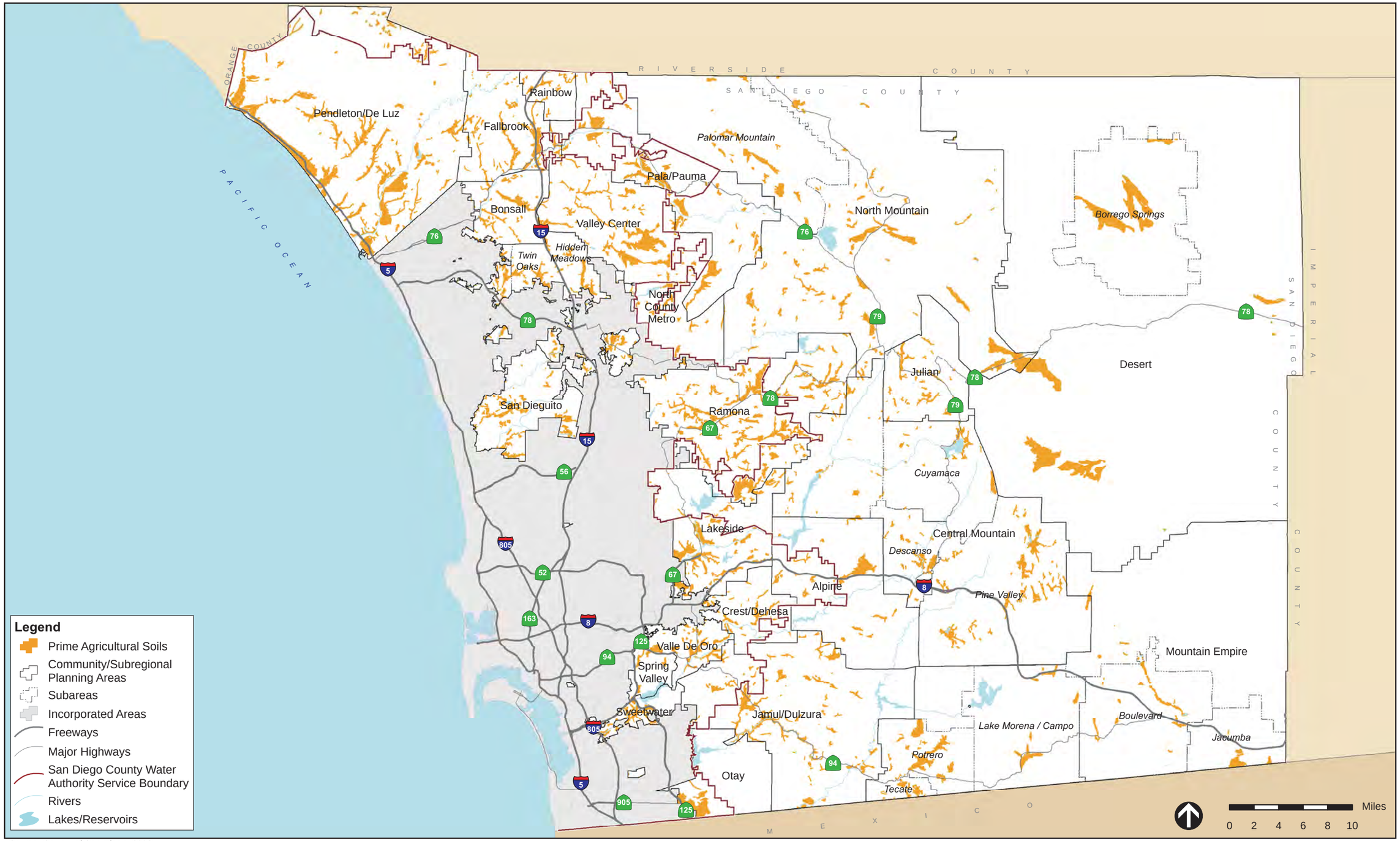
Source: FMMP, 2004; County of San Diego, 2008

FARMLAND MAPPING AND MONITORING PROGRAM LANDS **FIGURE 2.2-1**



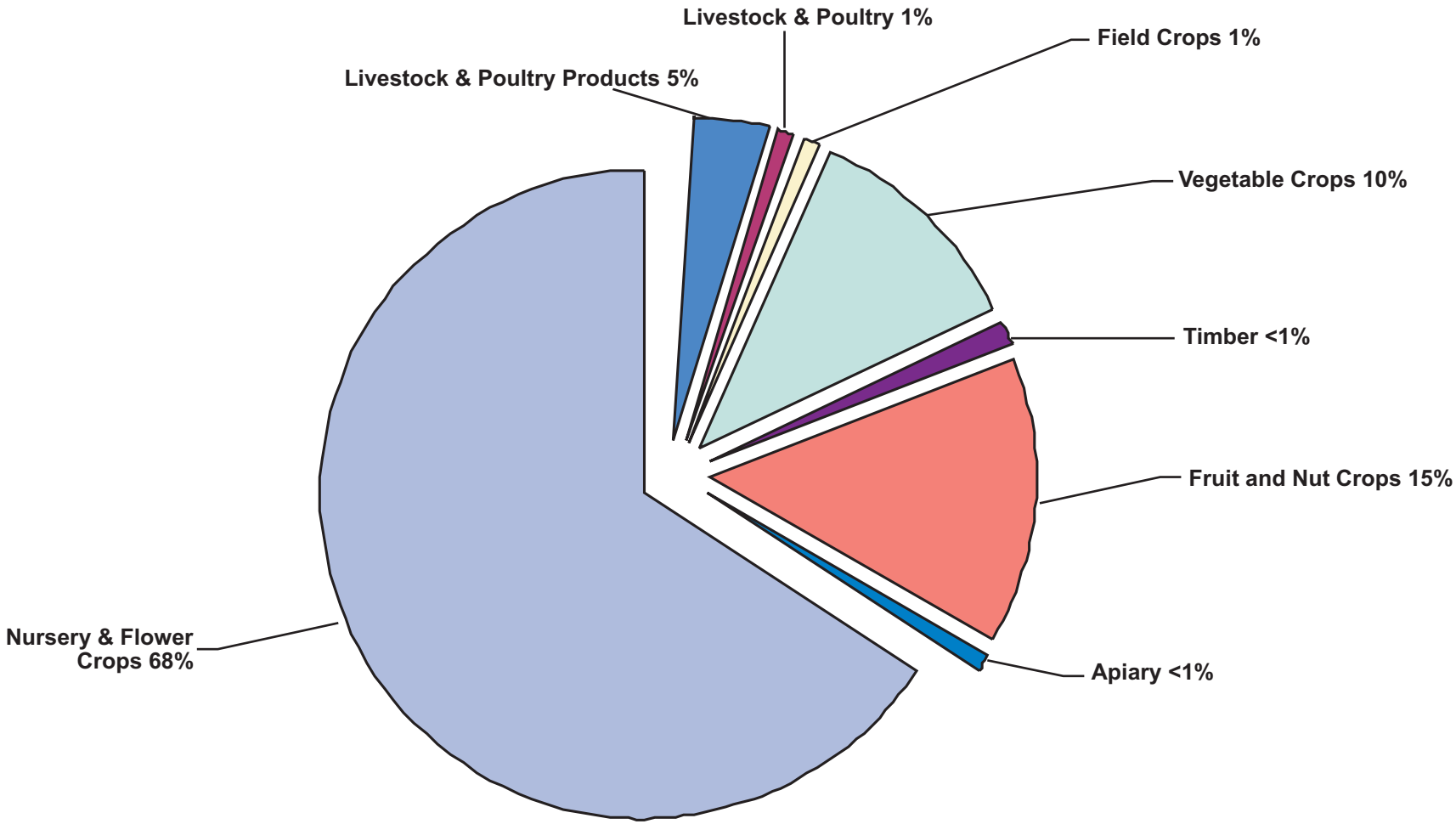
Source: County of San Diego, 2008

COUNTY IDENTIFIED AGRICULTURAL LANDS **FIGURE 2.2-2**



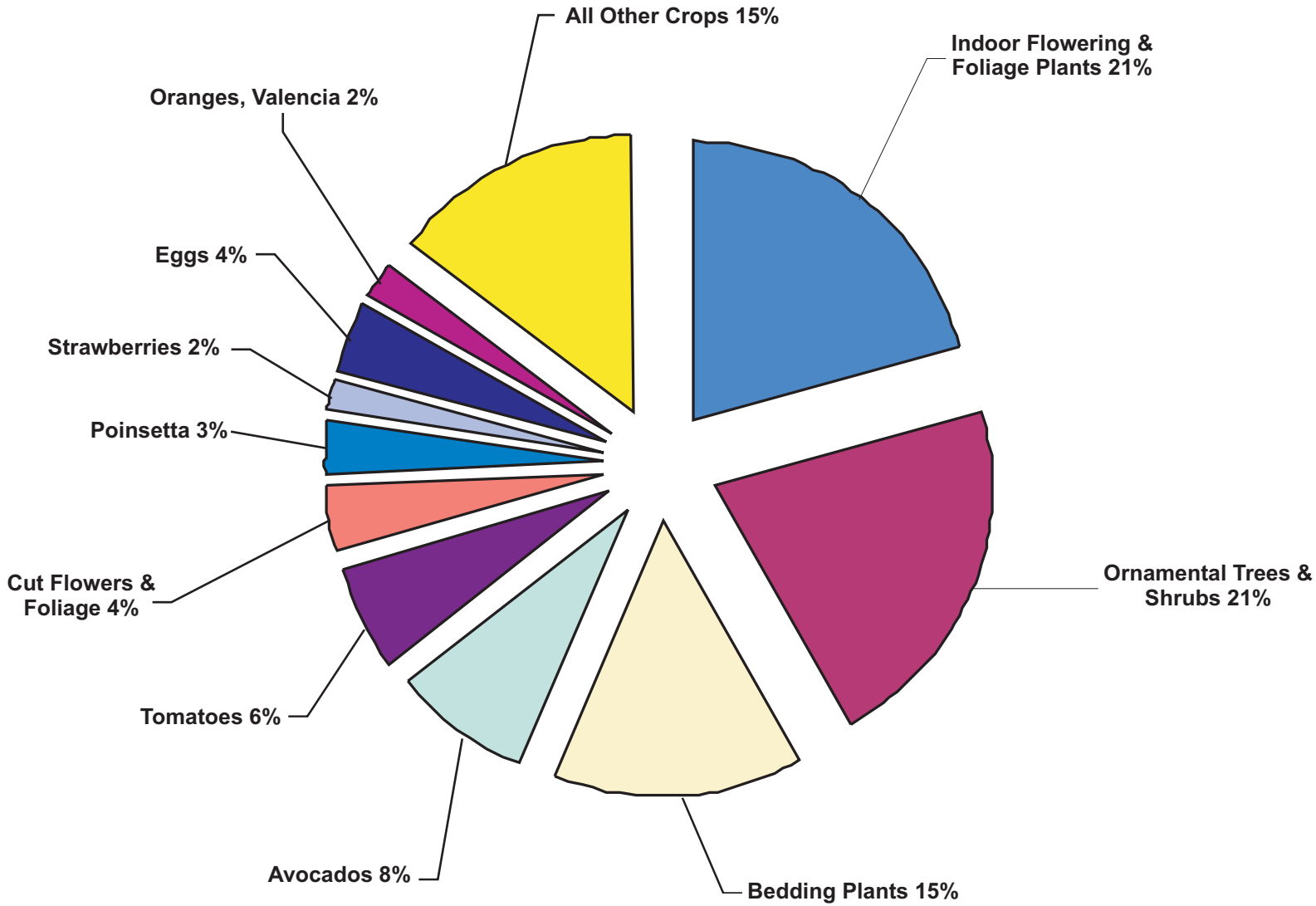
Source: County of San Diego, 2008

PRIME AGRICULTURAL SOILS **FIGURE 2.2-3**



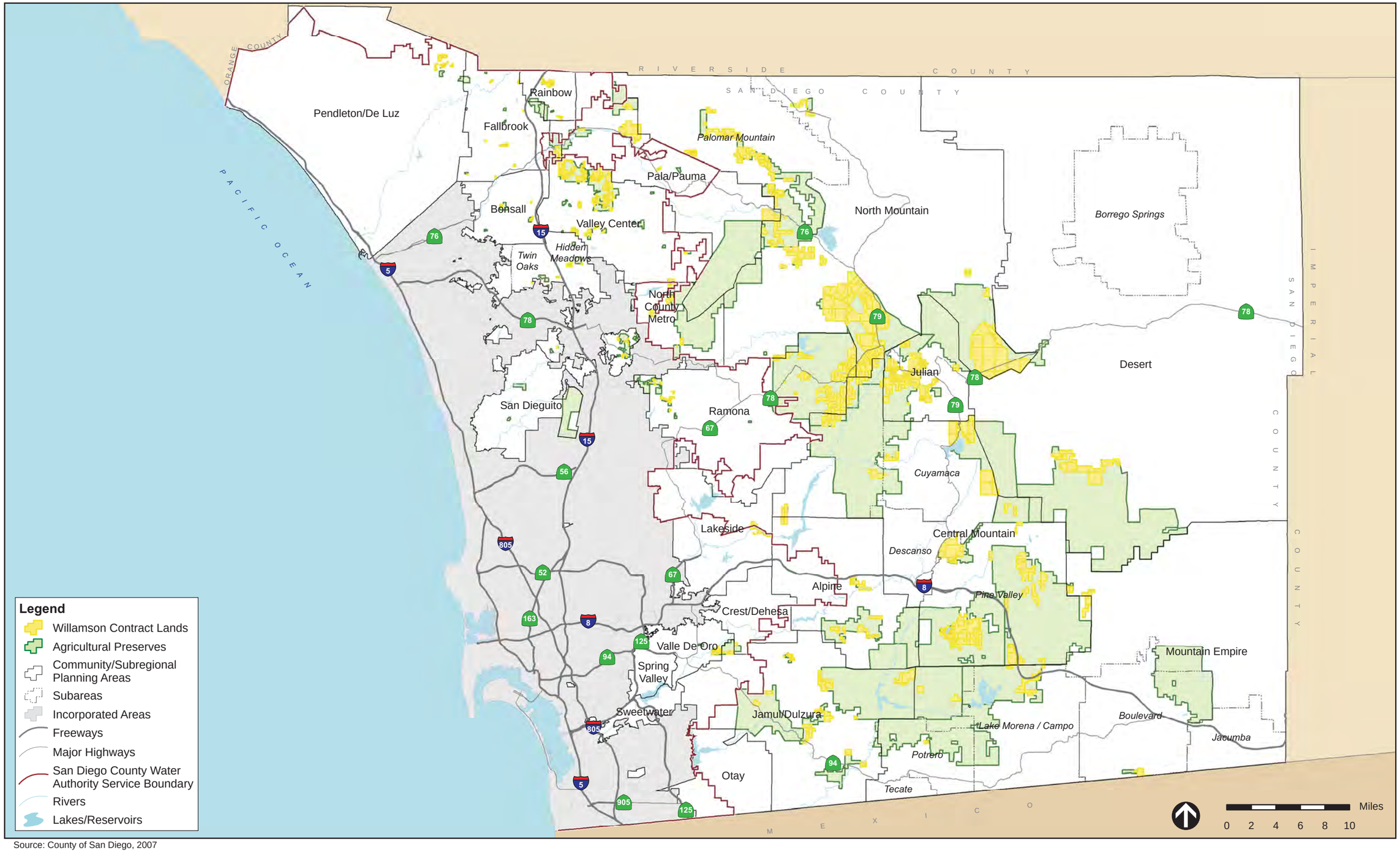
SOURCE: AWM, 2008

2007 MAJOR CROP CATEGORIES FROM SAN DIEGO COUNTY **FIGURE 2.2-4**



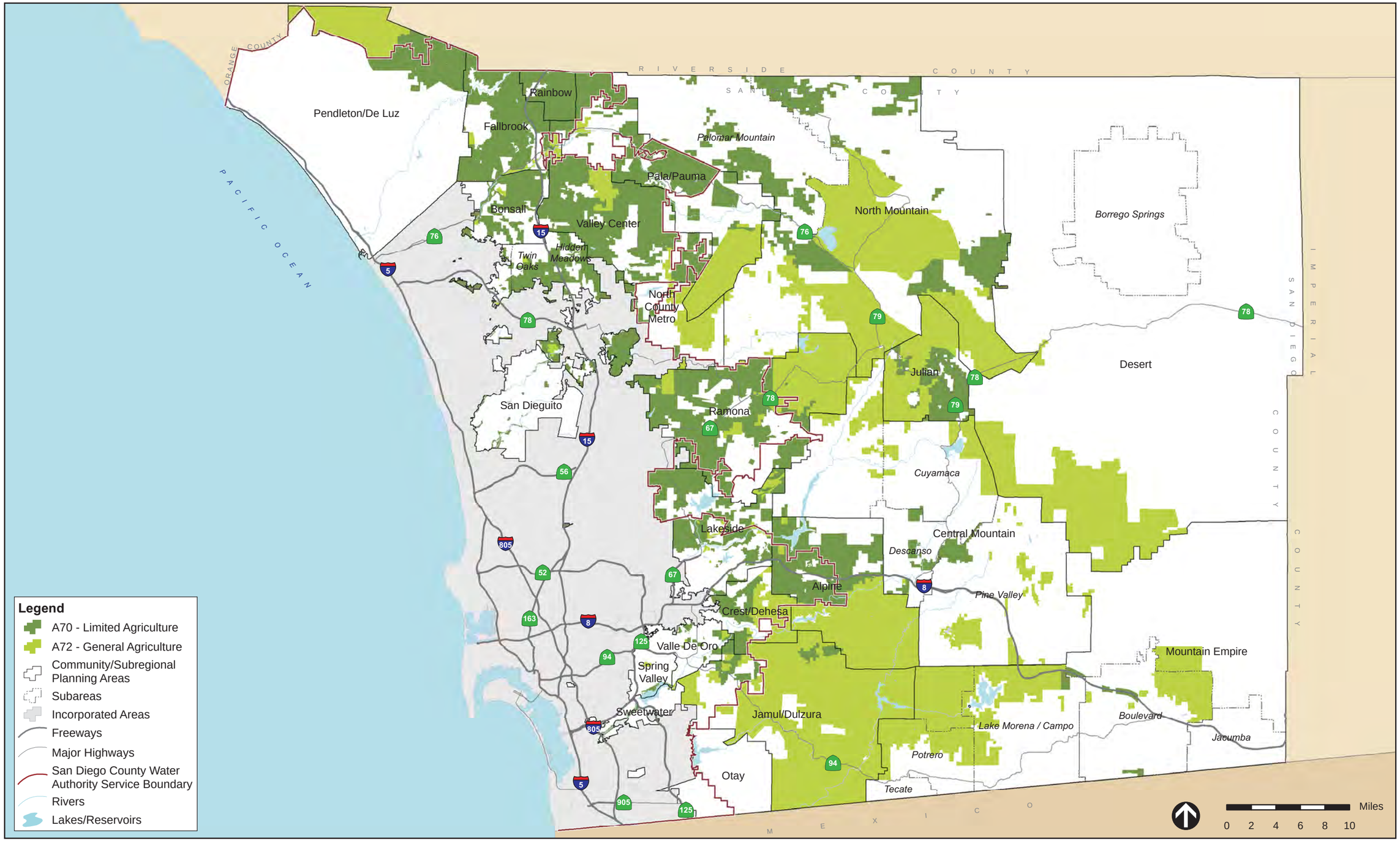
SOURCE: AWM, 2008

TOP TEN CROPS FOR 2007 **FIGURE 2.2-5**



Source: County of San Diego, 2007

AGRICULTURAL PRESERVES AND WILLIAMSON ACT CONTRACT LANDS **FIGURE 2.2-6**



Source: County of San Diego, 2008

AGRICULTURAL ZONING MAP **FIGURE 2.2-7**

CHAPTER 5 Conservation and Open Space Element

Introduction

Purpose and Scope

The primary focus of the Conservation and Open Space Element is to provide direction to future growth and development in the County of San Diego with respect to the following:

- The conservation, management, and utilization of natural and cultural resources
- The protection and preservation of open space
- The provision of park and recreation resources

Open space is defined as any parcel or area of land or water that is essentially unimproved and devoted to open space use. There is not a specific Open space section in this Element. Open space issues are addressed in every section of this document.

Population growth and development continually require the use of both renewable and nonrenewable resources. Goals and policies provided in this General Plan Element are divided into nine sections that address the following:

- *Biological Resources*—Land use-based conservation goals and policies that protect the ecological and lifecycle needs of threatened, endangered, or otherwise sensitive species and their associated habitats.
- *Water Resources*—Conserve and efficiently use water and protect the groundwater aquifer, water bodies, and water courses, which include reservoirs, rivers, streams, and the watersheds located throughout the region.
- *Agricultural Resources*—Minimize land use conflicts, preserve agricultural resources, and support the long-term presence and viability of agricultural industry as an important component of the region's economy and open space linkage.
- *Cultural Resources*—Federal and State legislation such as the *National Environmental Policy Act* (NEPA), *National Historic Preservation Act* (NHPA), and *California Environmental Quality Act* (CEQA) establish requirements to ensure cultural resources are protected and preserved. This section supplements this legislation with goals and policies that set the framework for local ordinances and regulations that protect these important cultural resources.
- *Paleontological Resources and Unique Geologic Features*—Preserve the County's rich geologic and paleontological history by establishing achievable land-use-based goals and policies.
- *Mineral Resources*—Manage the remaining mineral deposits while striving to ensure that adequate resources are available to support the economic prosperity of future generations of San Diego County residents.
- *Visual Resources*—Protect scenic corridors, geographically extensive scenic viewsheds, and dark skies within the natural environment.
- *Air Quality, Climate Change, and Energy*—Reduce the emissions of criteria air quality pollutants, emissions of greenhouse gases, and energy use in buildings and infrastructure, while promoting the use of renewable energy sources, conservation, and other methods of efficiency.

- *Park and Recreation Facilities*—Ensure that adequate park and recreational facilities will adequately serve current and future residents.

Guiding Principles for Conservation and Open Space

The Guiding Principles for the General Plan are introduced in Chapter 2. Guiding Principles 3, 4, 7 and 8 are relevant to the Conservation and Open Space Element. The conservation of natural resources and the preservation of open space are essential actions required to realize the overall vision of this General Plan, along with the achievement of the County's strategic initiatives.

The Conservation and Open Space Element establishes goals, policies, and programs that value and protect natural resources to ensure they are available for the future. Primary objectives of the Conservation and Open Space Element are to preserve the diverse range of visual, natural, and cultural resources that exemplify the County. The Element strives to minimize the impact of future development in areas with significant visual, natural, and cultural resources and supports the creation and enhancement of important habitat preserves and open space areas that are well managed and maintained. The Element also promotes efficient use of water and other natural resources and strives to ensure the long-term sustainability of non-renewable resources. The Element also supports the preservation and creation of parks, recreational facilities, and open spaces.

Energy production, transportation, and consumption are key contributors to greenhouse gases affecting climate change, poor local air quality, and a variety of other sustainability challenges. The Conservation and Open Space Element encourages and supports land use development patterns and transportation choices that reduce pollutants and greenhouse gases. In addition, the Element encourages renewable energy production, along with efficient energy use in buildings and infrastructure and minimizes the impacts of projects that can generate air pollutants.

The Conservation and Open Space Element also sets forth goals and polices that minimize agricultural land use conflicts and support the long-term presence and viability of the County's agricultural industry.

Relationship to Other General Plan Elements

The effectiveness of the Conservation and Open Space Element depends upon its integration with the other elements comprising this General Plan. Elements that share topics, issues, and policy direction with the Conservation and Open Space Element include Land Use, Mobility, Housing, Noise, and Safety.

Primary objectives of the Land Use Element are to minimize future development in areas with significant natural resources that are identified in the Conservation and Open Space Element; along with areas that may be affected by natural hazards that are identified in both the Conservation and Open Space and Safety Elements. In addition, the Land Use Element encourages the development of vibrant and healthy communities, of which park and recreation facilities are an integral part. The Land Use Element also balances the availability of water with future development, while the Conservation and Open Space Element establishes policies that protect and conserve water resources to ensure they are available for future supplies. The Land Use and Mobility Elements also include goals and policies that address Climate Change by fostering land use patterns that facilitate a reduction in vehicle miles traveled and by planning for

transportation networks that encourage other modes of travel rather than the single-occupant motor vehicle.

The purpose of the Safety Element is to establish policies related to future development that will minimize the risk of personal injury, loss of life, property damage, and environmental damage associated with natural hazards, as identified in both the Conservation and Open Space and Safety Elements. The Safety Element identifies floodplain locations throughout the County, while Figure C-2 (Floodwater Accommodation) identifies the rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. The Mobility Element includes regional trails and bikeways, which are major recreational assets for the region.

This Element also has connections to the Housing and Noise Elements. Regarding the Housing Element, the goals and policies contained in this Element affect where and how housing is planned and developed, such as requiring development to avoid sensitive resources. With regard to noise issues, biological resources can be adversely affected by noise. Additionally, the mining of mineral resources typically has noise, traffic, air, and groundwater impacts that must be addressed.

Goals and Policies for Conservation and Open Space Element

Biological Resources

CONTEXT

The San Diego region is recognized as one of the most biologically important areas in the United States, and one of the most biologically diverse areas in the world.[1] The diversity of species found in the San Diego region can be attributed to the wide variety of vegetation and habitats associated with the region's range of micro-climates, topography, soils, and other natural features. Unincorporated lands comprise the largest geographical area in the County with natural features that include lagoons, foothills, mountain ranges, and deserts. Today, the San Diego region supports over 400 sensitive plants and animals, ranging in sensitivity from common to critically endangered. All of this diversity is part of the San Diego region's unique natural heritage and a legacy for future generations.

HABITATS & SPECIES

The physical and climatic conditions found in the San Diego region provide for a wide variety of habitats and biological communities. These communities are associations of plants, animals, fungi, and microbes. Different habitat types may occur separately or be intermixed, but because they have different characteristics, they often support unique assemblages of species.

[1] Dobson, A.P., J.P. Rodriquez, W.M. Roberts, and D.S. Wilcove. 1997 Geographic Distribution of Endangered Species in the United States. Science 275(5299): 550-553.

The San Diego region's unique attributes have resulted in a relatively large number of endemic species in the area, that is, species that are only found in a limited geographic location. For example, 26 plant species in the County are found nowhere else in the world[2]. When combined with habitat loss from urban, rural, and agricultural development, the result is that the County is home to an exceptional number of rare, threatened, endangered, or otherwise sensitive species. Both wildfire events and invasive plant and animal species further disrupt native habitat regeneration and pose a threat to conservation of native habitat and endemic species.

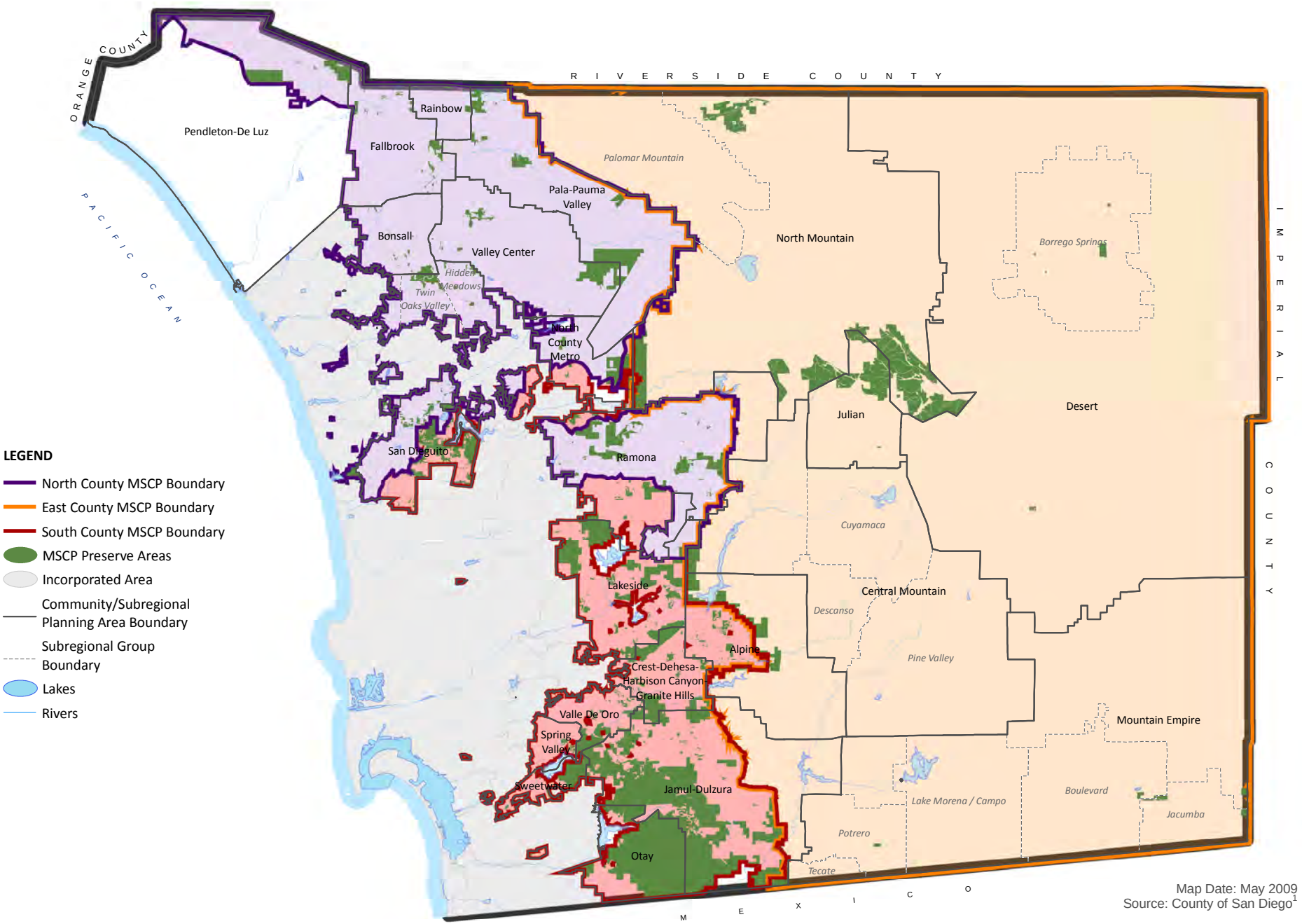
Waterways and their associated riparian vegetation provide important habitat values for wildlife, including several rare species of birds. Moreover, wetlands provide important water quality functions such as pollutant removal, floodwater retention, and greenhouse gas reduction. Valuable wetland resources in the County have been reduced from past development such that they must be protected, along with adjacent upland habitats, to maintain their functions and values.

Protecting the region's resources requires coordination and cooperation with other governmental and non-governmental entities, such as SANDAG, adjacent jurisdictions, California Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, California Regional Water Quality Control Board, California Coastal Commission, and various conservation organizations.

WILDLIFE CORRIDORS AND HABITAT LINKAGES

Significant portions of the County are publicly owned, including areas designated as open space preserves and parks, National Forests, and State Parks. The County strives to work harmoniously with all such entities to achieve common goals. Important wildlife corridors and linkages have been identified to provide connections between areas of undeveloped lands, especially to significant public lands. Species that are well-distributed across their ranges are less susceptible to extinction than species confined to small portions of their range. Therefore, maintaining large, inter-connected blocks of habitat containing sizable and diverse populations of sensitive species is superior to a fragmented landscape with undersized populations. Figure C-1 (Habitat Conservation Programs) identifies existing preserve areas, along with areas where a connected system of preserves will be established as additional easements are recorded for open space and/or lands are acquired for public benefit.

[2] http://www.sdnhm.org/research/botany/sdplants/preface.html



HABITAT CONSERVATION PROGRAMS

San Diego County General Plan

Figure C-1

Wildlife corridors and linkages function better when they support sufficient native habitat conducive for wildlife movement. Linkages are landscape level, regional connections between core habitat areas. They consist of a variety of upland and riparian habitat types which provide resources for year-around foraging, nesting, and local dispersal. Corridors are more local movement paths for species that typically follow naturally occurring paths.

Escondido Creek serves as a wildlife corridor in the San Dieguito Community Planning Area

The San Diego region is an important part of the Pacific Flyway, one of the major migration routes for birds between Alaska and Central and South America. Some migrant birds use parts of the County as winter habitat or as stopover sites for resting and feeding. Stopover sites are just as critical to bird conservation as breeding habitat. Many spring migrants coming north from the Gulf of California or along the west coast of mainland Mexico use the San Diego region, with its comparatively low mountains, as a corridor for crossing the mountains to reach the Pacific coast.

Local migration of birds and other wildlife is also important. For example, in the San Diego region, western bluebirds breed in the mountains but migrate to the coastal lowlands and other warmer regions for the winter. Many of the larger mammals in the County, such as mountain lions, mule deer, and bobcats, move between blocks of habitat as part of their daily routine searching for food, water, and shelter. Inter-connected habitats are also important to prevent isolation of populations of plants and animals.

GOALS AND POLICIES

GOAL COS-1

Inter-Connected Preserve System. A regionally managed, inter-connected preserve system that embodies the regional biological diversity of San Diego County.

Policies

COS-1.1 **Coordinated Preserve System.** Identify and develop a coordinated biological preserve system that includes Pre-Approved Mitigation Areas, Biological Resource Core Areas, wildlife corridors, and linkages to allow wildlife to travel throughout their habitat ranges.

Gnatcatcher

COS-1.2 **Minimize Impacts.** Prohibit private development within established preserves. Minimize impacts within established preserves when the construction of public infrastructure is unavoidable.

COS-1.3 **Management.** Monitor, manage, and maintain the regional preserve system facilitating the survival of native species and the preservation of healthy populations of rare, threatened, or endangered species.

COS-1.4 **Collaboration with Other Jurisdictions.** Collaborate with other jurisdictions and trustee agencies to achieve well-defined common resource preservation and management goals.

COS-1.5 **Regional Funding.** Collaborate with other jurisdictions and federal, state, and local agencies to identify regional, long-term funding mechanisms that achieve common resource management goals.

COS-1.6 **Assemblage of Preserve Systems.** Support the proactive assemblage of biological preserve systems to protect biological resources and to facilitate development through mitigation banking opportunities.

COS-1.7 **Preserve System Funding.** Provide adequate funding for assemblage, management, maintenance, and monitoring through coordination with other jurisdictions and agencies.

COS-1.8 **Multiple-Resource Preservation Areas.** Support the acquisition of large tracts of land that have multiple resource preservation benefits, such as biology, hydrology, cultural, aesthetics, and community character. Establish funding mechanisms to serve as an alternative when mitigation requirements would not result in the acquisition of large tracts of land.

COS-1.9 **Invasive Species.** Require new development adjacent to biological preserves to use non-invasive plants in landscaping. Encourage the removal of invasive plants within preserves.

COS-1.10 **Public Involvement.** Ensure an open, transparent, and inclusive decision-making process by involving the public throughout the course of planning and implementation of habitat conservation plans and resource management plans.

COS-1.11 **Volunteer Preserve Monitor.** Encourage the formation of volunteer preserve managers that are incorporated into each community planning group to supplement professional enforcement staff.

GOAL COS-2

Sustainability of the Natural Environment. Sustainable ecosystems with long-term viability to maintain natural processes, sensitive lands, and sensitive as well as common species, coupled with sustainable growth and development.

Policies

COS-2.1 **Protection, Restoration and Enhancement.** Protect and enhance natural wildlife habitat outside of preserves as development occurs according to the underlying land use designation. Limit the degradation of regionally important natural habitats within the Semi-Rural and Rural Lands regional categories, as well as within Village lands where appropriate.

The preservation of existing native plants and the planting of a variety of native (genetically locally adapted) or compatible non-native, non-invasive plant species enhance wildlife habitat areas.

COS-2.2 **Habitat Protection through Site Design.** Require development to be sited in the least biologically sensitive areas and minimize the loss of natural habitat through site design.

GOAL COS-3

Protection and Enhancement of Wetlands. Wetlands that are restored and enhanced and protected from adverse impacts.

Policies

COS-3.1 **Wetland Protection.** Require development to preserve existing natural wetland areas and associated transitional riparian and upland buffers and retain opportunities for enhancement.

COS-3.2 **Minimize Impacts of Development.** Require development projects to:

- Mitigate any unavoidable losses of wetlands, including its habitat functions and values; and
- Protect wetlands, including vernal pools, from a variety of discharges and activities, such as dredging or adding fill material, exposure to pollutants such as nutrients, hydromodification, land and vegetation clearing, and the introduction of invasive species.

Water Resources

CONTEXT

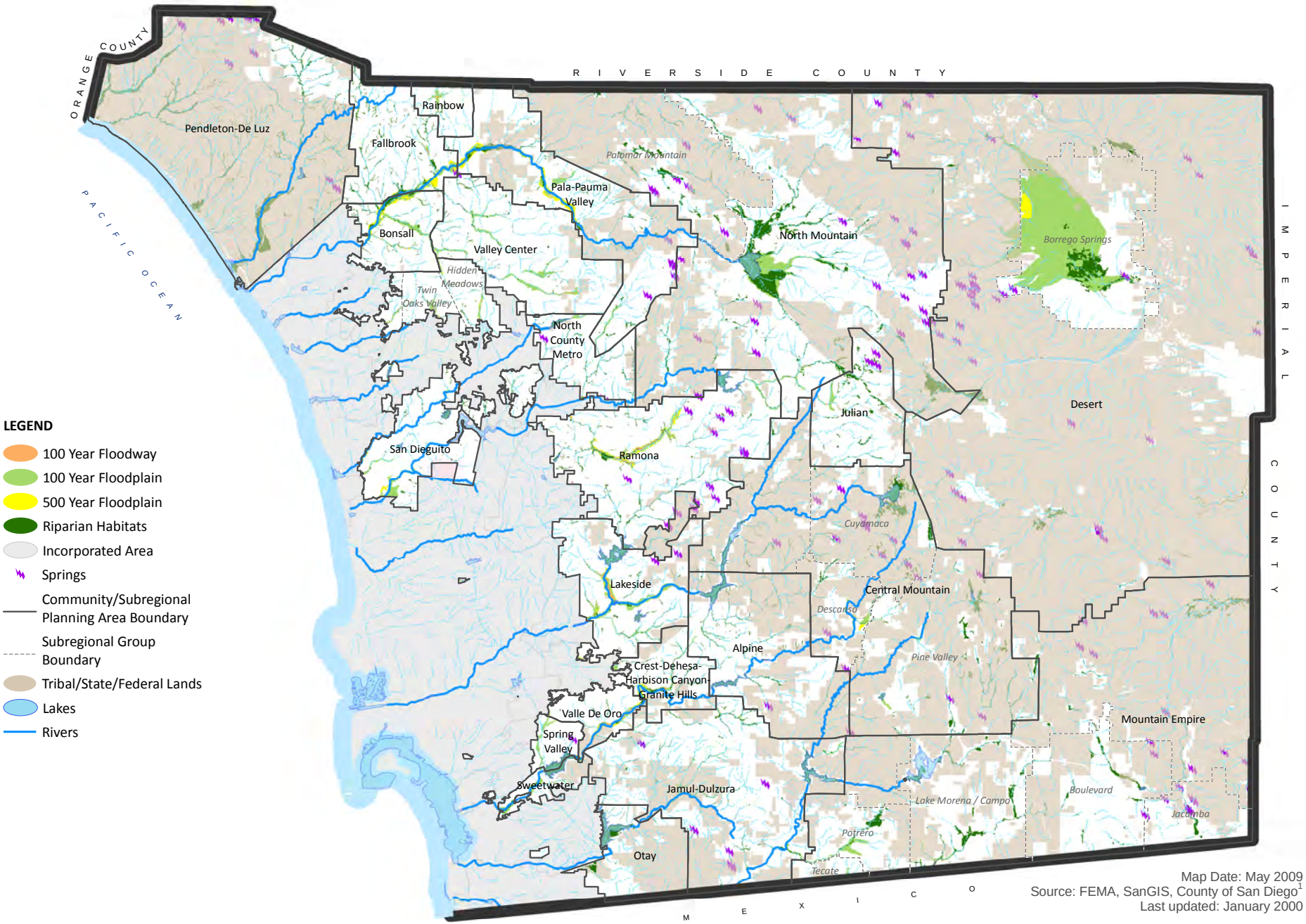
The County relies upon a safe and reliable supply of this most basic necessity for its quality of life and economic prosperity. Not only do the County's clean water resources provide drinking water, but they also sustain the County's rich natural environment. Water resources may be classified as surface water, which collects in streams, rivers, lakes, reservoirs and groundwater, which resides in subsurface aquifers.

While surface water can drain through the County's watersheds, it can also be infiltrated into the subsurface saturated zone to become groundwater, a resource that many residents of the unincorporated County depend upon. Aquifers are recharged at varying rates depending upon a number of factors, primarily the amount and frequency of rainfall. On average, the County's coastal areas see less than ten inches of rain per year, the mountain peaks in excess of 40 inches, and the deserts less than three inches. Not only must the County have sufficient quantities of groundwater, but the water must also be of a sufficient quality. Figure C-2 (Floodwater Accommodation) identifies the rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

Watersheds facilitate the collection and transportation of sediments and pollutants that can degrade water quality and damage downstream environments. Lakes and reservoirs capture flows from many of these watersheds. Watershed management relates to sustaining watersheds at an acceptable level of quality, contributing to resource surface and subsurface quality, and maintaining groundwater supplies.

The County of San Diego is divided into two hydrologic regions—the Colorado Hydrologic Region (CHR) which drains in an easterly direction into the Salton Sea and the San Diego Hydrologic Region (SDHR) which drains in a westerly direction toward the Pacific Ocean and encompasses most of the County, parts of southwestern Riverside County and southwestern Orange County. The watersheds, areas into which surface run-off, streams, creeks, and rivers drain, in the County of San Diego are shown on Figure C-3 (Watersheds).

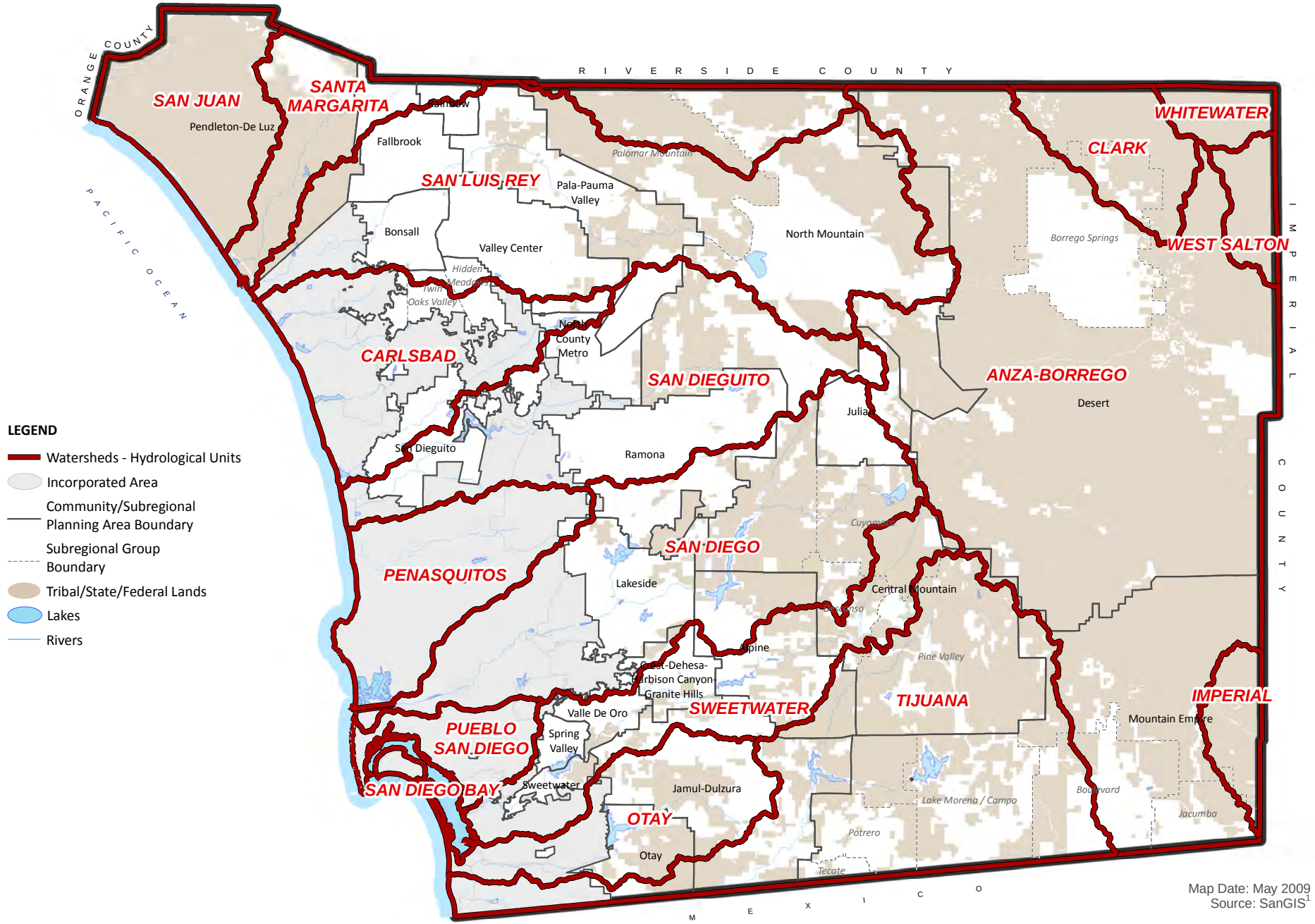
Lake Jennings



FLOODWATER ACCOMMODATION

San Diego County General Plan

Figure C-2



WATERSHEDS

San Diego County General Plan

Figure C-3

Groundwater aquifers and local surface water reservoirs are of great importance to providing an adequate water supply for communities that are not served by imported water. It is critical to protect the water quality found in the local drinking water reservoirs and aquifers to ensure a continual source of drinking water, as well as increasing local supplies through recycling and conservation efforts. Imported supplies also help to replenish local groundwater basins. The City of San Diego has seven water reservoirs in the unincorporated County that are crucial to protecting habitat. These reservoirs include Barrett, El Capitan, Hodges, Morena, Otay, San Vicente, and Sutherland.

The Metropolitan Water District of Southern California imports water from the Colorado River and Northern California. This water is distributed to water purveyors in San Diego County. The Metropolitan Water District (MWD) sets the targets for lowering demands and securing the necessary supplies in the Integrated Resources Plan (IRP). The so-called "Preferred Resource Mix" is identified based on extensive technical modeling, IRP workgroups, and stakeholder involvement. The 2004 MWD IRP assumed that new local efforts—both increasing supplies and lowering demands—would meet the needs of population growth. Given the challenges facing imported supplies, it is widely expected that the 2009 IRP will have an even greater focus on control of demand through recycling and conservation efforts. (For additional information on water supply and how agencies are planning to meet future demands, refer to the Land Use Element, Community Services and Infrastructure section.)

GOALS AND POLICIES

GOAL COS-4

Water Management. A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

COS-4.1 **Water Conservation.** Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

COS-4.2 **Drought-Efficient Landscaping.** Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

COS-4.3 **Stormwater Filtration.** Maximize stormwater filtration and/or infiltration in areas that are not subject to high groundwater by maximizing the natural drainage patterns and the retention of natural vegetation and other pervious surfaces. This policy shall not apply in areas with high groundwater, where raising the water table could cause septic system failures, moisture damage to building slabs, and/or other problems.

COS-4.4 **Groundwater Contamination.** Require land uses with a high potential to contaminate groundwater to take appropriate measures to protect water supply sources.

Potential sources of groundwater contamination include, but are not limited to, landfills, fertilizer, pesticide, manure storage and sales, petroleum product storage tanks, manufacturing plants, and on-site wastewater treatment systems.

COS-4.5 **Recycled Water.** Promote the use of recycled water and gray water systems where feasible.

GOAL COS-5

Protection and Maintenance of Water Resources. Protection and maintenance of local reservoirs, watersheds, aquifer-recharge areas, and natural drainage systems to maintain high-quality water resources.

Water conservation is also addressed in Goal COS-19 in the "Air Quality, Climate Change, and Energy" section below.

Policies

COS-5.1 **Impact to Floodways and Floodplains.** Restrict development in floodways and floodplains in accordance with policies in the Flood Hazards section of the Safety Element.

Development in floodways and floodplains has the potential to alter natural hydrologic flow and cause soil erosion and increased stormwater runoff—including loss of wetland and health issues related to surface and groundwater contamination.

COS-5.2 **Impervious Surfaces.** Require development to minimize the use of directly connected impervious surfaces and to retain stormwater run-off caused from the development footprint at or near the site of generation.

Impervious surface area impairs groundwater recharge and contributes to stormwater runoff and heat retention.

COS-5.3 **Downslope Protection.** Require development to be appropriately sited and to incorporate measures to retain natural flow regimes, thereby protecting downslope areas from erosion, capturing runoff to adequately allow for filtration and/or infiltration, and protecting downstream biological resources.

COS-5.4 **Invasive Species.** Encourage the removal of invasive species to restore natural drainage systems, habitats, and natural hydrologic regimes of watercourses.

COS-5.5 **Impacts of Development to Water Quality.** Require development projects to avoid impacts to the water quality in local reservoirs, groundwater resources, and recharge areas, watersheds, and other local water sources.

Protecting reservoir water quality requires that the quality of the water entering the reservoirs is maintained or improved. Pollutants of high concern are nutrients and related algae, total organic carbon, and total dissolved solids.

Agricultural Resources

CONTEXT

Agricultural uses in Julian

The County of San Diego is the only major urban county with a farm gate value[3] consistently ranked among the top ten agricultural counties (ranked eight for several years) in California.[4] The County has the fourth highest number of farms of any county in the country and third highest number of farms of any county in California.[5] Agriculture is the fifth largest component of the County's economy.[6] Agriculture in the County provides an array of economic, environmental, and social benefits that contribute to the quality of life in the region. Agriculture also provides a valuable open space resource and plays a critical role in regional wildlife conservation by providing usable open space corridors and habitat for some species.

The County of San Diego is the only major urban county with a farm gate value[7] consistently ranked among the top ten agricultural counties (ranked eight for several years) in California.[8] The County has the fourth highest number of farms of any county in the country and third highest number of farms of any county in California.[9] Agriculture is the fifth largest component of the County's economy.[10] Agriculture in the County provides an array of economic, environmental, and social benefits that contribute to the quality of life in the region. Agriculture also provides a valuable open space resource and plays a critical role in regional wildlife conservation by providing usable open space corridors and habitat for some species.

The resources that support the County's agriculture are unique. Unlike other jurisdictions across the nation, farming in San Diego is dependent upon the region's unusual microclimates and often has very little

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[3] The farm gate value of a cultivated product in agriculture or aquaculture is the net value of the product when it leaves the farm, after marketing costs have been subtracted. Since many farms do not have significant marketing costs, it is often understood as the price of the product at which it is sold by the farm (the farm gate price). The farm gate value is typically lower than the retail price consumers pay in a store as it does not include costs for shipping, handling, storage, marketing and profit margins of the involved companies.
[4] Source: USDA National Agricultural Statistics Service, Summary of California County Agricultural Commissioners' Reports, 2004-2005.
[5] Source: USDA National Agricultural Statistics Service, Census of Agriculture, 2002.
[6] Source: San Diego Regional Chamber of Commerce, 2006.

[7] The farm gate value of a cultivated product in agriculture or aquaculture is the net value of the product when it leaves the farm, after marketing costs have been subtracted. Since many farms do not have significant marketing costs, it is often understood as the price of the product at which it is sold by the farm (the farm gate price). The farm gate value is typically lower than the retail price consumers pay in a store as it does not include costs for shipping, handling, storage, marketing and profit margins of the involved companies.
[8] Source: USDA National Agricultural Statistics Service, Summary of California County Agricultural Commissioners' Reports, 2004-2005.
[9] Source: USDA National Agricultural Statistics Service, Census of Agriculture, 2002.
[10] Source: San Diego Regional Chamber of Commerce, 2006.

relationship to the quality of the soils. Much of the County's climate supports a year-round growing season that facilitates successful small farms and crop diversification producing over 200 agricultural commodities including high value specialty crops, nursery products, and a variety of fruits. Only six percent of the San Diego region's soils are classified as prime agricultural soils. The small percentage of prime soils, the small farm size, and the high value of agriculture in the region highlights the uniqueness of farming in the County.

A number of issues create pressures and stresses for the ongoing success of agriculture. These include conflicts associated with the urban/agricultural interface, land use pressures, water quality issues, and the high economic cost of operation. In addition, agricultural resources are particularly important in riverbeds, but face conflicts with aggregate resource extraction and wildlife corridor protection. These, among other issues, have increased the economic and social pressures faced by San Diego's farmers and represent a challenge to the future success of the County's agricultural industry.

Agriculture is the fifth largest industry in San Diego County

GOALS AND POLICIES

GOAL COS-6

Sustainable Agricultural Industry. A viable and long-term agricultural industry and sustainable agricultural land uses in the County of San Diego that serve as a beneficial resource and contributor to the County's rural character and open space network.

The agriculturally rich Pala-Pauma Valley

Agriculture in semi-rural area near Ramona

Policies

COS-6.1 **Economic Diversity.** Support the economic competitiveness of agriculture and encourage the diversification of potential sources of farm income, including value added products, agricultural tourism, roadside stands, organic farming, and farmers markets.

COS-6.2 **Protection of Agricultural Operations.** Protect existing agricultural operations from encroachment of incompatible land uses by doing the following:

- Limiting the ability of new development to take actions to limit existing agricultural uses by informing and educating new projects as to the potential impacts from agricultural operations
- Encouraging new or expanded agricultural land uses to provide a buffer of non-intensive agriculture or other appropriate uses (e.g., landscape screening) between intensive uses and adjacent non-agricultural land uses

- Allowing for agricultural uses in agricultural areas and designing development and lots in a manner that facilitates continued agricultural use within the development.
- Requiring development to minimize potential conflicts with adjacent agricultural operations through the incorporation of adequate buffers, setbacks, and project design measures to protect surrounding agriculture
- Supporting local and State right-to-farm regulations
- Retain or facilitate large and contiguous agricultural operations by consolidation of development during the subdivision process

Discourage development that is potentially incompatible with intensive agricultural uses includes schools and civic buildings where the public gather, daycare facilities under private institutional use, private institutional uses (e.g., private hospitals or rest homes), residential densities higher than two dwelling units per acre, and offices and retail commercial.

COS-6.3 **Compatibility with Recreation and Open Space.** Encourage siting recreational and open space uses and multi-use trails that are compatible with agriculture adjacent to the agricultural lands when planning for development adjacent to agricultural land uses.

Recreational and open space uses can serve as an effective buffer between agriculture and development that is potentially incompatible with agriculture uses.

COS-6.4 **Conservation Easements.** Support the acquisition or voluntary dedication of agriculture conservation easements and programs that preserve agricultural lands.

In addition to their economic value, agricultural lands provide the added benefit of serving as habitat areas for sensitive animal species.

COS-6.5 **Best Management Practices.** Encourage best management practices in agriculture and animal operations to protect watersheds, reduce GHG emissions, conserve energy and water, and utilize alternative energy sources, including wind and solar power.

Cultural Resources

CONTEXT

Our cultural past has helped shape our present community and will continue to create our future. Archaeological and historic resources, known collectively as cultural resources, are the tangible or intangible remains left by ancestral people who made and used them. Cultural resources, found throughout the County of San Diego, are irreplaceable reminders of the County's prehistoric and historic past that continues to have value for communities today. These resources can provide clues to prehistoric and historic human behaviors, and provide scientific, religious, and other valuable educational information about our cultural past. In addition, these resources such as

One of the historical sites listed on the San Diego County Historic Property Listing, the Somers-Linden Farmhouse was constructed between 1891 and 1892.

sacred places and traditional cultural properties continue to influence and have value for the County's living tribal people. The cultural environment encompasses both the built (post-1769) and the archaeological environments, which include both prehistoric and historic archaeological sites. Cultural resources are found throughout the County and include not only physical evidence of the past such as Native American rock shelters, and pictographs but the intangible evidence such as traditional cultural lands and sacred sites. Examples of historic cultural resources (the built environment) include homes, barns, bridges, fountains, and silos. In 2008, the County of San Diego had more than 23,000 recorded cultural resource sites and this number continues to grow.

GOALS AND POLICIES

GOAL COS-7

Protection and Preservation of Archaeological Resources. Protection and preservation of the County's important archeological resources for their cultural importance to local communities, as well as their research and educational potential.

Policies

COS-7.1 **Archaeological Protection.** Preserve important archaeological resources from loss or destruction and require development to include appropriate mitigation to protect the quality and integrity of these resources.

The importance of archaeological resources must be evaluated from the perspective of the affected community, including local tribes, in addition to the definitions contained in the California Public Resources Code. Input from the affected community on the importance of cultural resources through the consultation process is important in determining what resources should be preserved and what constitutes appropriate mitigation.

COS-7.2 **Open Space Easements.** Require development to avoid archeological resources whenever possible. If complete avoidance is not possible, require development to fully mitigate impacts to archaeological resources.

Avoidance of archaeological resources is normally achieved through the design of the development project in conjunction with the use of open space easements that protect the resources. If complete avoidance is not possible, other forms of mitigation, including data recovery excavations and the incorporation of archaeological features into the project design on a case-by-case basis may be appropriate. The determination of what constitutes adequate mitigation should be based on meaningful consultation with the affected community, including local tribes.

COS-7.3 **Archaeological Collections.** Require the appropriate treatment and preservation of archaeological collections in a culturally appropriate manner

The determination of what constitutes appropriate treatment and preservation of archaeological collections should be based on existing federal curation standards in combination with consultation with the affected community, such as the tribes. Many collections should be placed in a local collections curation facility that meets federal standards per 36 CFR Part 79. The proper storage and treatment of these collections should also be based on consultation with the affected community, such as the tribes. In addition, existing federal and state law governs the treatment of certain cultural items and human remains, requires consultation, and in some circumstances, repatriation. The County is committed to conduct an inventory of collections it holds or are held by cultural resources consulting firms.

COS-7.4 **Consultation with Affected Communities.** Require consultation with affected communities, including local tribes to determine the appropriate treatment of cultural resources.

Consultation should take place with the affected communities concerning the appropriate treatment of cultural resources, including archaeological sites, sacred places, traditional cultural properties, historical buildings and objects, artifacts, human remains, and other items. The County is required by law, Senate Bill 18 Protection of Traditional Tribal Cultural Places (SB-18), to consult with the appropriate tribes for projects that may result in major land use decisions including General Plans, General Plan Amendments, Specific Plans and Specific Plan Amendment. In addition to these types of permits, it is County policy to consult with the appropriate tribes on all other projects that contain or are likely to contain, archaeological resources. Consultation may also include active participation by the tribes as monitors in the survey, testing, excavation, and grading phases of the project.

COS-7.5 **Treatment of Human Remains.** Require human remains be treated with the utmost dignity and respect and that the disposition and handling of human remains will be done in consultation with the Most Likely Descendant (MLD) and under the requirements of Federal, State and County Regulations.

Human remains, including ancestral Native American remains, should be left undisturbed and preserved in place whenever possible. For most development permits, this is required by the County's Resource Protection Ordinance. In the event that human remains are discovered during any phase of an archaeological investigation, the requirements of State and local laws and ordinances, including notification of and consultation with appropriate tribal members, must be followed in determining what constitutes appropriate treatment of those remains.

COS-7.6 **Cultural Resource Data Management.** Coordinate with public agencies, tribes, and institutions in order to build and maintain a central database that includes a notation whether collections from each site are being curated, and if so, where, along with the nature and location of cultural resources throughout the County of San Diego.

This database should be accessible to all qualified individuals while maintaining the confidentiality of the location and nature of sensitive cultural resources, such as archaeological sites. The County maintains a partnership with the local repository of the database, the South Coastal Information Center at San Diego State University, which provides direct access by qualified County personnel to the database so that the information it contains may be used to design development projects to avoid cultural resources at an early point in the process.

GOAL COS-8

Protection and Conservation of the Historical Built Environment. Protection, conservation, use, and enjoyment of the County's important historic resources.

Policies

COS-8.1 **Preservation and Adaptive Reuse.** Encourage the preservation and/or adaptive reuse of historic sites, structures, and landscapes as a means of protecting important historic resources as part of the discretionary application process, and encourage the preservation of historic structures identified during the ministerial application process.

Historic buildings, objects, trails, landscapes and districts are important parts of the multi-cultural heritage of San Diego County and should be preserved for the future enjoyment and education of the County's diverse populations. Preservation and adaptive reuse of these resources should be encouraged during the planning process and an emphasis should be placed on incentives for preservation, such as the Mills Act property tax program, in addition to restrictions on development, where appropriate.

Alpine Women's Club is located in the former Alpine Hall built in 1899

COS-8.2 **Education and Interpretation.** Encourage and promote the development of educational and interpretive programs that focus on the rich multicultural heritage of the County of San Diego.

The County should continue to develop educational and interpretive programs that focus on the history of San Diego County, including but not limited to the important historical resources located on County parks, such as the Adobe at Rancho Penasquitos and Rancho Guajome. Such programs should be for residents and visitors of all ages from all communities and should include docent and self-guided tours, interpretive signage, kiosks, informational pamphlets, books and other audio-visual materials.

Paleontological Resources and Unique Geological Features

CONTEXT

PALEONTOLOGICAL RESOURCES

Paleontological resources are the fossilized remains and/or traces of prehistoric life—both plant and animal—as well as sedimentary formations in which they occur and the locations where they may be collected. Fossils are generally older than 10,000 years, a temporal boundary marking the end of the glacial Pleistocene Epoch and the beginning of the warmer Holocene Epoch in which we live today. For planning purposes, paleontological resources exclude human remains, which are considered cultural resources.

In the San Diego region, fossils typically occur in undisturbed sedimentary rock layers beneath the soil and sometimes may be found in surface outcrops. These fossils are limited and non-renewable. They are considered unique and worthy of preservation when they contain a unique or unusual assemblage of fossil organisms, provide paleo-biological information, provide insight to prehistoric life, or are the best example of its kind in the region.

The County can be divided into three distinct geomorphic regions—the Coastal Plain, the Peninsular Ranges, and the Salton Trough (the desert). Each region is characterized by different climatic, topographic, biological, and geologic settings. Correspondingly, each region contains geologic deposits that are associated with particular types of fossils, some of which are unique within the context of California and even the United States. Since fossils form in sedimentary rocks, most of the fossils in the San Diego region are in the Coastal Plain and Salton Trough strata. In the plutonic Peninsular Ranges, fossils occur only in valleys and other environments where material eroded from the mountains was transported down hill and deposited.

UNIQUE GEOLOGICAL RESOURCES

The San Diego region has a rich geologic history. Unique geological features are those that are locally or regionally unique in the context of the geologic history of California. They may include particular rocks or strata that explain or result from geologic processes that have affected the County and that lend themselves to scientific study.

The present landforms that characterize the San Diego region are the result of a series of geologic events spanning millions of years. These events include intrusive emplacement of magma, regional volcanism, large-scale erosion, river- and ocean-derived sedimentation, local faulting and uplift, and hydrothermal processes. The scale of some of the resulting unique geologic features, such as entire rock formations, can be much larger than the scale of other natural resources in the County. The conservation/preservation of these large-scale features is not necessarily needed or desired, as long as examples of them remain represented in the County. The County defines a "unique geologic feature" as a site that exhibits distinctive characteristics, is exclusive to the region, or provides a key piece of geologic information important in the study of geology or geologic history. Examples may include unique rock outcrops (e.g., natural bridge), type localities of named geologic formations (e.g., type locality of Scripps Formation in the sea cliffs north of Scripps Institute of Oceanography), information-rich geologic exposures (e.g., cliff face exposing faulted sedimentary layers), or unique landform (e.g., Round Mountain in Jacumba Valley, which represents a volcanic plug).

GOALS AND POLICIES

GOAL COS-9

Educational and Scientific Uses. Paleontological resources and unique geologic features conserved for educational and/or scientific purposes.

Policies

COS-9.1 **Preservation.** Require the salvage and preservation of unique paleontological resources when exposed to the elements during excavation or grading activities or other development processes.

COS-9.2 **Impacts of Development.** Require development to minimize impacts to unique geological features from human related destruction, damage, or loss.

Mineral Resources

CONTEXT

Mineral resources are vital to community development and economic prosperity and also support recreational, educational, and scientific pursuits. The County's supply of accessible mineral resources is finite and exhaustible. Management of the remaining mineral deposits is important to ensure adequate resources are available to support the economic prosperity of future generations of County citizens.

MINERAL RESOURCES OF SAN DIEGO COUNTY

The State Geologist has classified certain areas of the County as underlain by significant mineral deposits. These areas are identified as Mineral Resource Zone 2 (MRZ-2) on the maps prepared by the California Geological Survey (Figure C-4 [Mineral Resource Zones]). Some of these areas have also been designated by the State Mining and Geology Board as containing mineral resources of "statewide or regional significance."

The term "mineral resource" refers to a concentration or occurrence of a naturally occurring material in such form or amount that economic extraction of a commodity is currently potentially feasible. In San Diego County, there are three general categories of important mineral resources, including construction materials, industrial and chemical mineral materials, and metallic and rare materials. Although mineral resources of all types are economically important, the continued availability of construction aggregate for the development of roads, homes, buildings, and other infrastructure is essential to the economy of the County. While the County is underlain by vast quantities of mineral deposits from which aggregate can be produced, urban development has encroached upon many existing and potential future mining sites. This development and other non-compatible land uses has reduced or eliminated access to many of the local important mineral deposits.

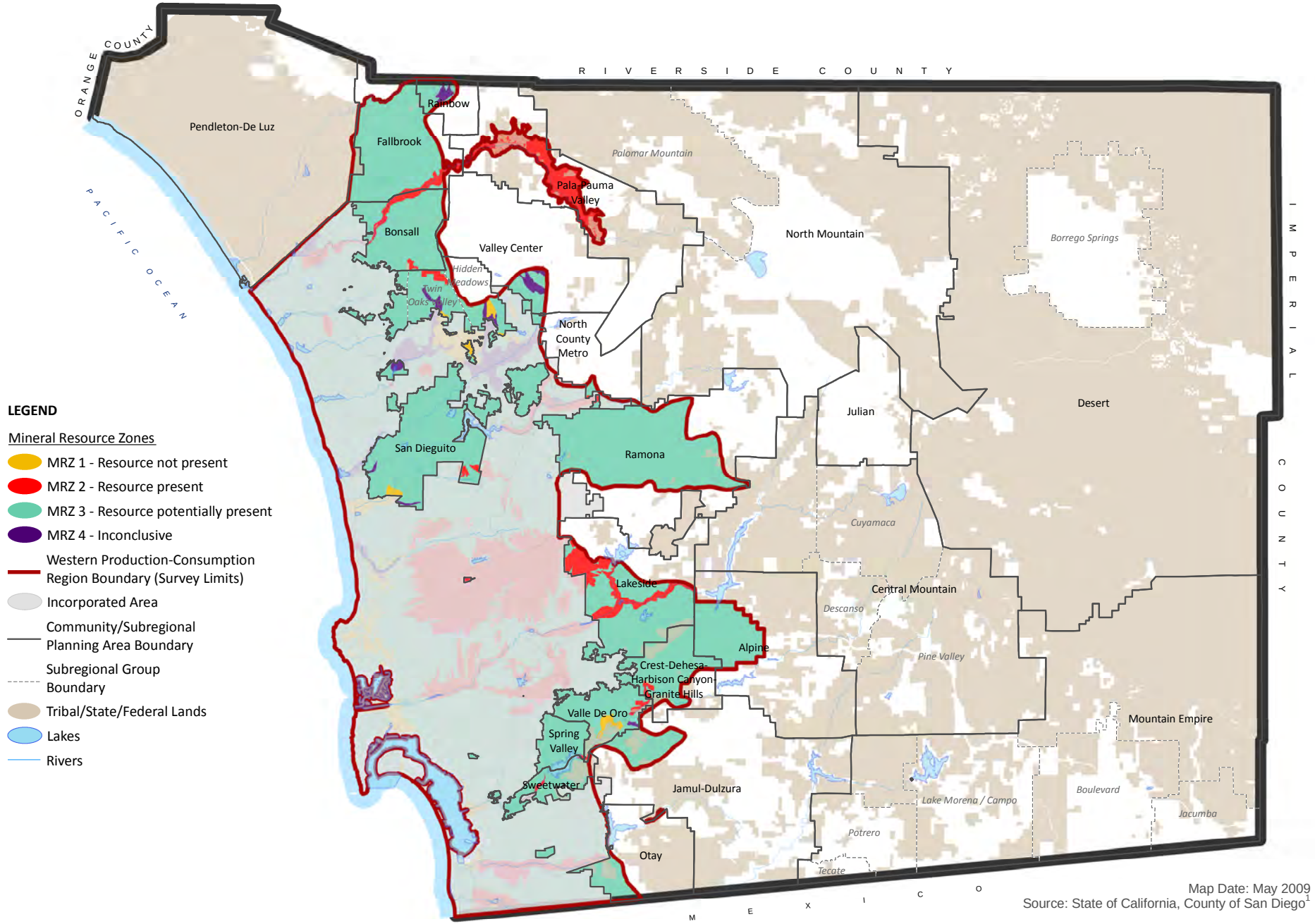
Two mineral classification reports have been completed for San Diego County; these include (1) Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region[11] and (2) Update of Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region.[12] The latter 1996 report concluded that aggregate reserves significantly decreased since the 1982 study and that Portland cement concrete (PCC)-grade aggregate reserves within Western San Diego County were enough to supply the demand for 20 years (until 2016). The report further concluded it was unlikely all identified resources would be mined as access to resources could be substantially restricted by competing conservation measures, such as the MSCP program.

As a result, few new mining sites have been recently permitted in the County and the aggregate production rate from existing local mining sites has not kept pace with demand. The total permitted aggregate resources as of January 2006 were 198 million tons, a 28 percent decrease from January 2001.[13] The permitted aggregate resources represent only 17 percent of the 50-year estimated demand (year 2006 to 2056) of 1,164 million tons. To meet demand, substantial volumes of aggregate are being imported from quarries located outside of San Diego County. Due to increased transportation costs, the price for aggregate in the County is among the highest in the State of California. The total permitted area of local mining facilities contains less than a 50-year supply of aggregate for the County. Thus, maintaining access to mineral resources, especially the remaining undeveloped MRZ-2 classified lands, is important for the future economic activity of the County.

PERMITTING AND RECLAMATION OF MINING SITES

In order for a new mining site to be operated, the California *Surface Mining and Reclamation Act* (SMARA) requires that a permit is granted by the local lead agency (the County), and a Reclamation Plan prepared

[11] Kohler, S.L. & Miller, R.V. (1982). California Department of Conservation, Special Report 153
[12] Davis, James F. (1996). California Department of Conservation, DMG Open-File Report 96-04
[13] California Geological Survey (2006), Map Sheet 52 – Aggregate Availability in California



MINERAL RESOURCE ZONES

San Diego County General Plan

Figure C-4

consistent with the minimum standards for reclamation listed in Article 9, Section 3700 et seq. of the State Mining and Geology Board reclamation regulations. The Reclamation Plan is subject to approval by the County in coordination with the California Department of Conservation.

RECYCLING OF CONSTRUCTION MATERIALS

Although not a mining activity, the recycling of construction materials collected from demolished buildings, roadways, or other facilities can incrementally increase the local availability (i.e. production rate) of construction materials and extend the lifespan of existing mining operations. (Recycling also extends the lifespan of local landfills.)

GOALS AND POLICIES

The goals and policies listed below are intended to achieve the following:

- Assure an adequate supply of mineral resources to support the economic activity projected to occur under the County General Plan.
- Comply with the requirements of the SMARA with regard to the conservation of mineral resources, and the permitting and reclamation of mining sites.

GOAL COS-10

Protection of Mineral Resources. The long-term production of mineral materials adequate to meet the local County average annual demand, while maintaining permitted reserves equivalent to a 50-year supply, using operational techniques and site reclamation methods consistent with SMARA standards such that adverse effects on surrounding land uses, public health, and the environment are minimized.

Policies

COS-10.1 **Siting of Development.** Encourage the conservation (i.e., protection from incompatible land uses) of areas designated as having substantial potential for mineral extraction. Discourage development that would substantially preclude the future development of mining facilities in these areas. Design development or uses to minimize the potential conflict with existing or potential future mining facilities. For purposes of this policy, incompatible land uses are defined by SMARA Section 3675.

COS-10.2 **Protection of State-Classified or Designated Lands.** Discourage development or the establishment of other incompatible land uses on or adjacent to areas classified or designated by the State of California as having important mineral resources (MRZ-2), as well as potential mineral lands identified by other government agencies. The potential for the extraction of substantial mineral resources from lands classified by the State of California as areas that contain mineral resources (MRZ-3) shall be considered by the County in making land use decisions.

COS-10.3 **Road Access.** Prohibit development from restricting road access to existing mining facilities, areas classified MRZ-2 or MRZ-3 by the State Geologist, or areas identified in the County Zoning Ordinance for potential extractive use in accordance with SMARA section 2764.a.

COS-10.4 **Compatible Land Uses.** Discourage the development of land uses that are not compatible with the retention of mining or recreational access to non-aggregate mineral deposits. *See Policy COS-10.1 for a definition of incompatible land uses.*

COS-10.5 **Reclamation Plans.** Require all mining projects to be conducted in accordance with a reclamation plan that meets the minimum reclamation standards required by the California *Surface Mining and Reclamation Act* and the associated State Mining and Geology Board regulations. Require the reclamation plan to include a phasing plan that provides for the completion of the surface mining on each segment of the mined lands so that the reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.

COS-10.6 **Conservation of Construction Aggregate.** Encourage the continued operation of existing mining facilities and streamline the permitting of new mining facilities consistent with the goal to establish permitted aggregate resources that are sufficient to satisfy 50 years of County demand.

COS-10.7 **Recycling of Debris.** Encourage the installation and operation of construction and demolition (C&D) debris recycling facilities as an accessory use at permitted (or otherwise authorized) mining facilities to increase the supply of available mineral resources.

COS-10.8 **New Mining Facilities.** Develop specific permit types and procedures for the authorization of new mining facilities that recognize the inherent physical effects of mining operations and the public necessity for available mineral resources adequate to meet local demand, in accordance with PRC Section 2762.

COS-10.9 **Overlay Zones.** Provide zoning overlays for MRZ-2 designated lands and a 1,500-foot-wide buffer area adjacent to such lands. Within these overlay zones, the potential effects of proposed land use actions on potential future extraction of mineral resources shall be considered by the decision-makers.

Visual Resources

CONTEXT

Visual resources are diverse in nature. They are found both within the natural environment and the built, or human-made, environment. Visual resources can be valued both objectively and subjectively based on their quality, uniqueness, prominence, relationship to community identity, and economic contributions, such as to land values and tourism. Visual resources are important from an aesthetic perspective when, based on the characteristics summarized above; they are identified as containing significant scenic value.

While existing visual resources can be preserved or enhanced, the urban growth anticipated by this General Plan provides opportunities to identify or even create new visual resources, both within existing communities and in new growth areas. Goals and policies in this section emphasize the protection of scenic corridors and dark skies within the natural environment and the recognition and enhancement of community character within the built environment.

LANDSCAPE/SETTING

The landscape of the San Diego region is rich in natural open space, unique topographic resources, and scenic vistas. These natural features contribute greatly to the overall quality of the existing visual setting experienced by viewers within the County. Urban land uses are focused in the western third of the County, while the eastern two-thirds are largely undeveloped with mountains and desert dominating the landscape. The County of San Diego has three distinctive geographic regions, listed from west to east:

- Low-lying Coastal Plain
- Mountainous Peninsular Range
- Desert Salton (Imperial) Basin

The diversity of these regions provides San Diego County residents and visitors with an array of natural vistas and scenic environments that provide a unique aesthetic collection from the ocean to the desert.

Throughout these three distinctive geographic provinces are vast amounts of publicly owned lands that provide open space and visual relief from the human-made environment. Examples include the Marine Corps Base Camp Pendleton on the Coastal Plain in northern San Diego County; the Cleveland National Forest in the Peninsular Range; and Anza-Borrego Desert State Park in the Salton (Imperial) Basin. In addition to these examples of large expanses of open space, County parks, habitat preserves, reservoirs, and undeveloped lands contribute to the County's open space lands and overall aesthetic resource value.

Aesthetic value is not limited to open space and rural lands, but also can be demonstrated through architectural design, or in historic structures and districts, streetscapes, and manufactured landscapes. Within the "developed" environment, scenic features can include built uses such as structures of historic significance or architectural merit, open but developed areas such as expansive agricultural fields or groves, and the individual form and character of a unique neighborhood or community. These valuable aesthetic elements of the human-made environment can be found throughout the County. A well-known example is the historic gold-mining community of Julian.

SCENIC CORRIDORS

A highway corridor generally includes the land adjacent to and visible from the vehicular right-of-way. The dimension of the corridor is usually identified using a motorist's line of vision and may include viewshed, extending to the horizon. A "scenic highway" can pertain to any freeway, highway, road, or other vehicular right-of-way along a corridor with considerable natural or otherwise scenic landscape.

State Scenic Highways are those highways that are either officially designated by Caltrans or are eligible for designation. This statewide system of scenic highways is part of the Master Plan of State Highways Eligible for Official State Designation as Scenic Highways. A highway may be designated as "scenic" depending upon how much of the natural landscape can be seen by travelers, the aesthetic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

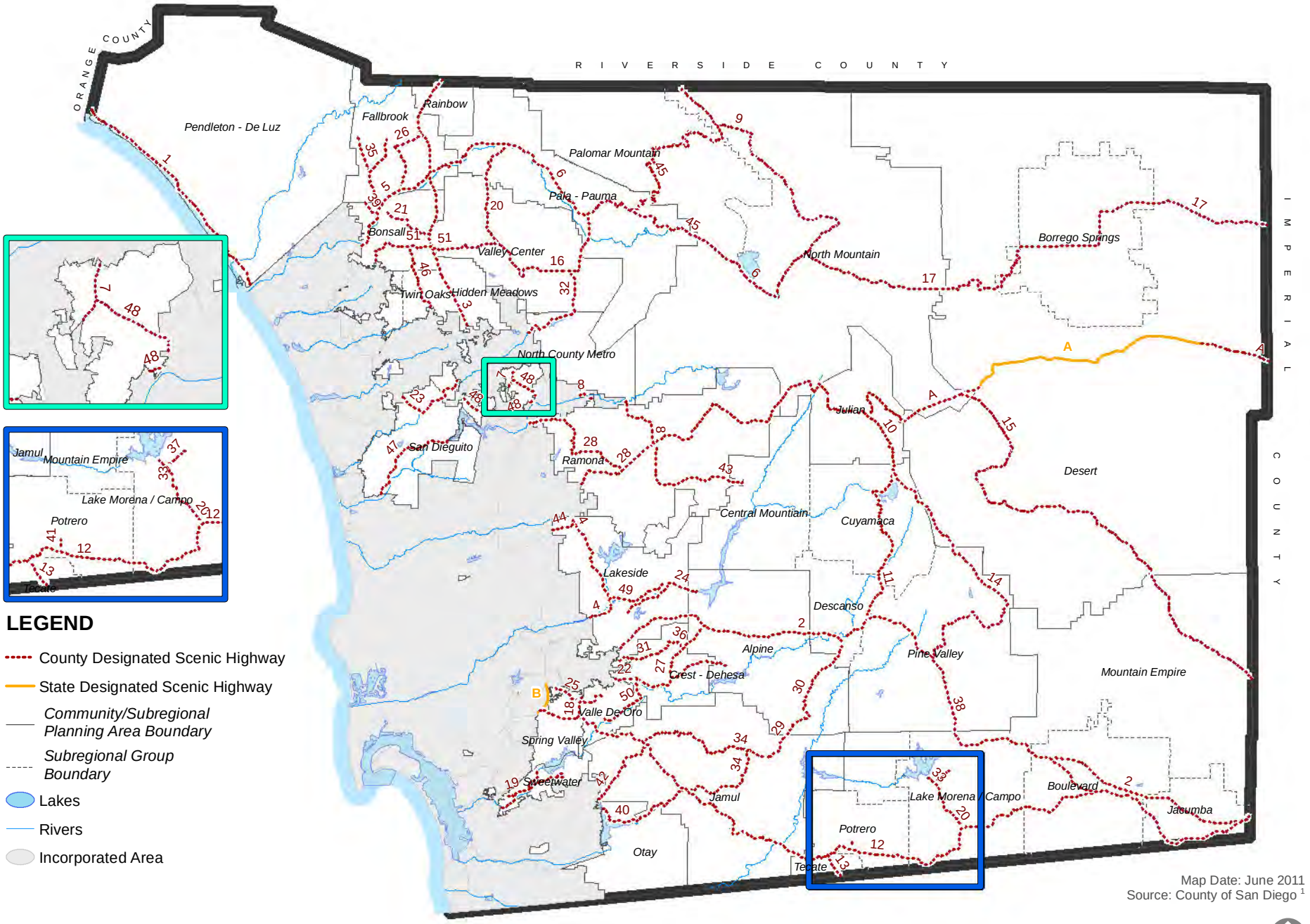
A highway's status changes from "eligible" to "officially designated" when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as an official State Scenic Highway. Two County routes have been designated State Scenic Highways; these include (1) State Route 78 through the Anza-Borrego

Desert State Park (18.2-mile segment) and (2) State Route 125 from State Route 94 in Spring Valley to Interstate 8 in La Mesa (two miles of this segment are in the unincorporated County). In addition, Sunrise Highway (S1) is a National Scenic Byway that runs north from Old Highway 80 to State Route 79 through the Cleveland National Forest. Roads within the unincorporated County included in the Scenic Highway system are shown on Figure C-5 (Scenic Highways) and in Table COS-1 (County Scenic Highway System).

Table COS-1 County Scenic Highway System

Map Ref.	Route	Segment
A	State Route 78	Wynola Road east to Imperial County line (excluding portion in Anza-Borrego Desert State Park)
B	State Route 125	State Route 94 to Interstate 8
1	Interstate 5	Oceanside city limits north to Orange County line
2	Interstate 8	El Cajon city limits to Imperial County line
3	Interstate 15	Escondido city limits north to Riverside County line
4	State Route 67	Santee city limits to State Route 78 (excluding portion in city of Poway)
5	State Route 76	Oceanside city limits east to Interstate 15
6	State Route 76	Interstate 15 east to State Route 79
7	Bear Valley Parkway and State Route 78	Escondido city limits southeast to Via Rancho Parkway
8	State Route 78	Via Rancho Parkway to State Route 79 (excluding portion within city of San Diego)
9	State Route 79	Riverside County line to State Route 76
10	State Route 79	State Route 78 (Wynona) south to Old Highway 80
11	State Route 79	Interstate 8 north to Sunrise Highway
12	State Route 94	State Route 125 to Interstate 8
13	State Route 188 (Tecate Road)	U.S. / Mexican Border north to State Route 94
14	Sunrise Highway (S1)	State Route 79 south to Old Highway 80
15	Old Overland Stage Route (S2)	Imperial County line north to State Route 78
16	Lilac Road and Valley Center Road (S6)	State Route 76 to State Route 76
17	San Felipe Road, Montezuma Valley Road, Pal Canyon Road, Peg Leg Road, and Borrego Salton Seaway (S22)	State Route 79 east to Imperial County line
18	Avocado Boulevard	State Route 94 to El Cajon city limits
19	Bonita, San Miguel, Guajolote, and Sweetwater River Roads	Interstate 805 north to State Route 94 (excluding portion within city of Chula Vista)
20	Buckman Springs Road	Lake Morena Drive to State Route 94
21	Camino del Rey west to Lilac Road	Oceanside city limits east to Vista Way
22	Dehesa Road	El Cajon city limits to Tavern Road
23	Elfin Forest Road / Harmony Grove Road	San Marcos city limits to Escondido city limits
24	El Monte Road	El Capitan Reservoir to Lake Jennings Park Road

Table COS-1 County Scenic Highway System		
Map Ref.	**Route**	**Segment**
25	Fuerte Drive	Interstate 8 to Chase Ave.
26	Gird, Reche, Live Oak Park, and Mission Roads	State Route 76 north and east to Interstate 15
27	Harbison Canyon Road	Arnold Way to Dehesa Road
28	Highland Valley Road	San Diego city limits to State Route 67
29	Honey Springs Road	State Route 94 north to Lyons Valley Road
30	Japatul Road	Lyons Valley Road to Interstate 8
31	La Cresta Road	Greenfield Drive to La Cresta Boulevard
32	Lake Wohlford Road	Valley Center Road east (Escondido city limits) to Valley Center Road (excluding portion within city of Escondido)
33	Lake Morena Drive	Buckman Springs Road north to Morena Lake
34	Lyons Valley Road	State Route 94 to Cleveland National Forest
35	Mission and Green Canyon Roads	State Route 76 north and east to Reche Road
36	Mountain View Road/Francis Drive	La Cresta Boulevard to Harbison Canyon Road
37	Oak Drive	Lake Morena Drive north to Buckman Springs Road
38	Old Highway 80	State Route 79 (Pine Valley) to Interstate 8 (Jacumba)
39	Olive Hill Road	State Route 76 to planning area boundary
40	Otay Lakes Road	Chula Vista city limits to State Route 94
41	Potrero Valley Road	State Route 94 to Potrero County Park
42	Proctor Valley Road	Chula Vista city limits to State Route 94
43	San Vicente and Ramona Oaks Roads	State Route 78 to Cleveland National Forest
44	Scripps Poway Parkway	Poway city limits to State Route 67
45	South Grade Road, Canfield Rd/Highway to the Stars, Palomar Divide Road, and Oak Grove Truck Trail	State Route 76 to State Route 78
46	Twin Oaks Valley Road	Gopher Canyon Road to San Marcos city limits
47	Via de la Valle, Paseo Delicias, and Del Dios Highway	San Diego city limits east to Via Rancho Parkway
48	Via Rancho Parkway (San Pasqual Road)	Del Dios Highway to State Route 78 (excluding portions in cities of Escondido and San Diego)
49	Willow and El Monte Roads	State Route 67 to southern end of El Capitan Reservoir
50	Willow Glen Drive	Jamacha Road to Dehesa Road
51	Vista Way, Gopher Canyon, and Old Castle Roads	Vista city limits north and east to Lilac Road



SCENIC HIGHWAYS

ASTRONOMICAL DARK SKIES

Astronomical research has contributed to a greater understanding of our solar system, supported advances in space travel, improved telecommunication systems, advanced weather forecasting, and provided insight to energy production. The maintenance of dark skies in San Diego County is vital to the two world-class observatories that depend on them for astronomical research. The five criteria for a high-quality site include: (1) Elevation over 5,000 feet above sea level; (2) clear, cloud-free night sky; (3) proximity to the Pacific Ocean; (4) distance from urban areas; and (5) freedom from nearby sources of light, dust, and smoke. Sites in the United States that meet these criteria are found only in west Texas, central New Mexico, Arizona, the central California coast, and the San Diego region.

The two sites in the County of San Diego, which meet all of the above criteria, include Palomar and Mount Laguna Observatories. The maintenance of dark skies in the County is vital to their operation and the astronomical research carried out at these facilities. Palomar Observatory, located 5,500 feet at the top of Palomar Mountain in northern San Diego County near Palomar Mountain State Park, is privately owned and operated by the California Institute of Technology (Caltech) and is used to support some of California's and the United States' premier scientific research programs. San Diego State University (SDSU) and the University of Illinois operate the Mount Laguna Observatory jointly. Located at an altitude of 6,100 feet on the eastern edge of the Cleveland National Forest near the Anza-Borrego State Park, 45 miles east of downtown San Diego, the Mount Laguna Observatory is one of the County's best astronomical research and education facilities.

GOALS AND POLICIES

GOAL COS-11

Preservation of Scenic Resources. Preservation of scenic resources, including vistas of important natural and unique features, where visual impacts of development are minimized.

Policies

COS-11.1 **Protection of Scenic Resources.** Require the protection of scenic highways, corridors, regionally significant scenic vistas, and natural features, including prominent ridgelines, dominant landforms, reservoirs, and scenic landscapes.

COS-11.2 **Scenic Resource Connections.** Promote the connection of regionally significant natural features, designated historic landmarks, and points of regional historic, visual, and cultural interest via designated scenic corridors, such as scenic highways and regional trails.

COS-11.3 **Development Siting and Design.** Require development within visually sensitive areas to minimize visual impacts and to preserve unique or special visual features, particularly in rural areas, through the following:

- Creative site planning
- Integration of natural features into the project
- Appropriate scale, materials, and design to complement the surrounding natural landscape
- Minimal disturbance of topography

Potential measures for promoting scenic compatibility may include limiting or avoiding soundwalls, placing utilities underground, minimizing grading, and providing scenic vista points.

- Clustering of development so as to preserve a balance of open space vistas, natural features, and community character.
- Creation of contiguous open space networks

COS-11.4 **Collaboration with Agencies and Jurisdictions.** Coordinate with adjacent federal and State agencies, local jurisdictions, and tribal governments to protect scenic resources and corridors that extend beyond the County's land use authority, but are important to the welfare of County residents.

COS-11.5 **Collaboration with Private and Public Agencies.** Coordinate with the California Public Utilities Commission, power companies, and other public agencies to avoid siting energy generation, transmission facilities, and other public improvements in locations that impact visually sensitive areas, whenever feasible. Require the design of public improvements within visually sensitive areas to blend into the landscape.

COS-11.6 **Billboards.** Prohibit new billboards and other forms of large-scale advertising and signage within scenic corridors. Encourage the removal of existing billboards and other forms of large-scale advertising and signage along State and County scenic highway corridors.

COS-11.7 **Underground Utilities.** Require new development to place utilities underground and encourage "undergrounding" in existing development to maintain viewsheds, reduce hazards associated with hanging lines and utility poles, and to keep pace with current and future technologies.

The concept of "undergrounding" in the initial phases of a project not only increases the aesthetic value of the surrounding viewshed, but can also reduce costs in the long run since less infrastructure is exposed to the elements.

GOAL COS-12

Preservation of Ridgelines and Hillsides. Ridgelines and steep hillsides that are preserved for their character and scenic value.

Policies

COS-12.1 **Hillside and Ridgeline Development Density.** Protect undeveloped ridgelines and steep hillsides by maintaining semi-rural or rural designations on these areas.

COS-12.2 **Development Location on Ridges.** Require development to preserve the physical features by being located down and away from ridgelines so that structures are not silhouetted against the sky.

GOAL COS-13

Dark Skies. Preserved dark skies that contribute to rural character and are necessary for the local observatories.

Policies

COS-13.1 **Restrict Light and Glare.** Restrict outdoor light and glare from development projects in Semi-Rural and Rural Lands and designated rural communities to retain the quality of night skies by minimizing light pollution.

COS-13.2 **Palomar and Mount Laguna.** Minimize, to the maximum extent feasible, the impact of development on the dark skies surrounding Palomar and Mount Laguna observatories to maintain dark skies which are vital to these two world-class observatories by restricting exterior light sources within the impact areas of the observatories.

COS-13.3 **Collaboration to Retain Night Skies.** Coordinate with adjacent federal and State agencies, local jurisdictions, and tribal governments to retain the quality of night skies by minimizing light pollution.

Air Quality, Climate Change, and Energy

CONTEXT

There is a strong correlation between land use planning, transportation system planning, and the emission of air quality pollutants, greenhouse gases (GHG) that contribute to global climate change (GCC) and criteria pollutants that degrade air quality within a region. The primary opportunities to reduce air quality pollutants and GHG emissions are in the urbanized areas of the County where there are land use patterns that can best support the increased use of transit and pedestrian activities since most GHGs and air pollutants result from mobile source emissions. The unincorporated County can also be a part of the solution by producing development patterns that contribute to reducing the dependence on the automobile and by promoting development with lower energy demands.

The development of sustainable communities contributes to both the reduction in overall air pollutants as well as solving the larger challenges associated with GCC. A holistic approach to achieving sustainable communities requires the integration of a regionwide multi-modal transportation system with a significant reduction in the reliance on single-occupant motor vehicles, along with buildings that consume less through design and efficient building materials.

AIR QUALITY

The boundaries of the San Diego Air Basin are contiguous with the political boundaries of San Diego County, including the incorporated cities, and encompass approximately 4,260 square miles. The County is divided by the Laguna Mountain Range with peaks that exceed 6,000 feet, which runs approximately parallel to the coast about 45 miles inland and separates the coastal area from the desert. To the north of the County are the Santa Ana Mountains which run along the Orange County coast, turning east to join with the Laguna Mountains near the San Diego-Orange County border.

Air pollutant emission sources in the San Diego Air Basin are typically grouped into two categories: stationary and mobile sources. Mobile source emissions can be attributed to vehicles and transportation related activities. Stationary sources can be further divided into two major subcategories: point and area sources. Point source emissions originate from manufacturing and industrial processes. Area source emissions are generated from residential heaters, small engines, and other consumer products. They are widely distributed and may have a cumulative effect.

According to readings from the ten monitoring stations operated by San Diego APCD, the County has experienced substantial improvement in ambient ozone levels. The number of days above the Federal one-

hour ozone standard has decreased from 39 days in 1990 to zero days in 2005, while the number of days above the more stringent State standard has decreased from 139 days in 1990 to 16 days in 2005. However, in 2004, the County of San Diego was designated a basic non-attainment area for the new eight-hour ozone standard.

Transportation is California's largest source of carbon dioxide, with passenger vehicles and light duty trucks creating more than 46 percent of total climate change emissions.[14] Toxic air contaminants (TAC) include pollutants known or suspected to cause cancer or other adverse health effects such as respiratory irritation or reproductive effects. The regulatory structure for TAC is different than for criteria pollutants. In San Diego County, motor vehicles and natural sources are key contributors of TAC, emitting more than 27 million pounds; while industrial, commercial, and government facilities emit more than three million pounds of TAC. Since 1989, emissions from industrial and commercial sources reduced by approximately 75 percent. Prioritizing and reducing these emissions further will require a continued, cooperative effort by the public, industry, environmental groups, the California Air Resources Board (ARB), and the California Air Pollution Control District (APCD).

CLIMATE CHANGE

The natural "greenhouse effect" allows the earth to remain warm and sustain life. GHGs trap the sun's heat in the atmosphere, like a blanket, and help determine our climate. The amount of GHGs in the atmosphere is being drastically altered by human activity. The onset of the industrial revolution and the increased consumption of fossil fuels (wood, coal, gasoline, etc.) have substantially increased atmospheric levels of GHGs. Temperatures rise as atmospheric concentrations of GHGs (such as carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons) increase. Over time, this rise in temperatures results in climate change. GHGs have been at the center of the widely contested political, economic, and scientific debate surrounding GCC.

State legislation *California Global Warming Solutions Act of 2006* requires that the State's global warming emissions be reduced to 1990 levels by year 2020. Through more efficient land use patterns, promoting a variety of modes of transportation, and encouraging new and existing development to implement a variety of energy efficient, energy conserving and renewable technologies and practices, the County is supporting the legislation and providing the mechanism for reduced emissions throughout the region.

Human activities produce GHGs. For example, burning fossil fuels such as oil, coal, and natural gas for energy to power automobiles, homes, and factories put carbon dioxide into the air. While carbon dioxide is the GHG emitted in the largest quality, other GHGs such as methane, nitrous oxide, and fluorocarbons also contribute to the problem. In California, carbon dioxide accounts for approximately 84 percent of all the GHGs, while methane makes up approximately eight percent, and nitrous oxide and hydrofluorocarbons contribute an additional six percent and two percent, respectively.

The principal sources of carbon dioxide in the atmosphere are fossil fuel combustion and wildland fires. Agriculture is a major source of both methane and nitrous oxide, with additional methane coming primarily from landfills. Cars also emit methane and nitrous oxide. In California, more than half of fossil fuel emissions of carbon dioxide are related in some way to transportation. Fossil fuels account for 98 percent of carbon dioxide emissions, with a two percent contribution from several industrial processes that produce carbon

[14] University of San Diego, September 2008

dioxide as a by-product.[15] Buildings contribute to 40 percent of GHGs worldwide, though this is likely to be less in the County due to the rural characteristics of many areas.

Countywide, over a million tons of organic materials are disposed of in landfills annually, with approximately 200,000 tons disposed from the unincorporated County. Currently operating and closed landfills are significant sources of GHG emissions. An estimated 50 million cubic feet of methane and carbon dioxide are released daily from both closed and active County landfills, but other more potentially impactive greenhouse emissions are also released such as volatile organic carbon gases. Emissions result from the decomposition of organic materials in the anaerobic condition present in landfills.

Although methane recovery systems are placed on closed landfills, the majority of the methane generated by anaerobic decomposition occurs either prior to the recovery system's placement or is not captured by this system. Sequestering carbon through composting stabilizes the carbon in the soil materials, resulting in a very slow release of carbon dioxide and effectively prevents the formation of methane, which is 24 times more retentive of atmospheric heat than carbon dioxide. Capturing methane by anaerobic digestion of agricultural manures and burning the gas for the production of electricity on the farm is also very effective in reducing methane emissions.

ENERGY & SUSTAINABLE DEVELOPMENT

San Diego Gas & Electric (SDG&E) is a regulated public utility that provides electric service to 3.4 million customers within a 4,100-square-mile service area that encompasses 25 cities throughout San Diego and southern Orange Counties. In 2003, the three key energy agencies in California—the California Energy Commission (CEC), the California Power Authority (CPA), and the California Public Utilities Commission (CPUC)—came together to adopt an Energy Action Plan that identifies joint goals for California's energy future and sets forth a commitment to achieve these goals through specific actions. In 2008, an Energy Action Plan Status Update was released to incorporate the CEC's 2007 Integrated Energy Policy Report (IEPR), reflecting the passage of Assembly Bill 32, the California Global Warming Act of 2006. The IEPR includes advanced policies, intended to enable California to meet its energy needs in a carbon-constrained world. The report also provides a comprehensive set of recommended actions to achieve these policies. SDG&E's Long Term Resource Plan (LTRP) sets forth a strategy of mixed resources to ensure long-term, reliable, and affordable power in the region, as established by the CPUC. The CPUC regulates energy issues related to supply, delivery, rates, and tariffs for all SDG&E customers in the County.

Population is the primary driver of increasing demand for new housing. From the 1980s to the 1990s, the rate of growth of population diminished, however, electricity consumption grew by 29 percent, and natural gas consumption grew by 36 percent. In 2001, with the electricity crisis, there was a significant drop in per capita consumption of energy. SANDAG has projected that the population of the San Diego region will grow 38 percent by 2030, resulting in nearly four million people. Therefore, the demand for energy will also rise as this new population seeks ways to cool/heat and light their homes and power their cars.

[15] AB 1493 (Pavley) Briefing Package prepared by the California Environmental Protection Agency at http://www.climatechange.ca.gov/background/index.html

Energy and water are inextricably linked, especially in Southern California, where moving imported water around the State requires large amounts of energy. For example, the California State Water Project uses more energy than any single user. Therefore, reducing water use can save significant amounts of energy.

Energy efficiency, a key to meeting long-term energy needs, implies using less energy to perform the same function. Conserving energy or "doing without", and using energy more efficiently by doing the same task with less energy, are methods where the County can promote to extend the supply of energy, with minimal to no adverse impacts. Installing lighting that uses less electricity, installing additional insulation to reduce heating and cooling requirements, and switching to a vehicle with better gas mileage are energy efficiency measures. Conservation connotes "doing without" in order to save energy rather than using less energy to do the same thing. For example, turning off lights, turning down the air conditioner, and making fewer vehicle trips are all conservation measures.

Renewable sources include everything from small rooftop solar photovoltaic applications to larger renewable developments such as the Kumeyaay Wind project. While the large projects can supply energy to many thousands of homes, they generally require new transmission lines, which can result in land use and aesthetic impacts, along with an increased risk of wildfires. San Diego County depends on fossil fuels and natural gas to generate a large portion of its energy and power. These resources are non-renewable, and can be polluting. It is likely that non-renewable resources will become a more scarce and costly method of producing energy in the future. Other sources of energy can be derived from technologies such as methane recovery at landfills, roof-top solar panels and solar farms, wind turbines, bio-fuels, and rarer projects such as those that harness geothermal or tidal energy. These technologies are renewable, and can supplement existing non-renewable sources, extending the supply of non-renewable fuels and offering an alternative to polluting energy sources.

GOALS AND POLICIES

GOAL COS-14

Sustainable Land Development. Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment. [See also Goal LU-6]

Policies

COS-14.1 **Land Use Development Form.** Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.

COS-14.2 **Villages and Rural Villages.** Incorporate a mixture of uses within Villages and Rural Villages that encourage people to walk, bicycle, or use public transit to reduce air pollution and GHG emissions.

COS-14.3 **Sustainable Development.** Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.

COS-14.4 **Sustainable Technology and Projects.** Require technologies and projects that contribute to the conservation of resources in a sustainable manner, that are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.

COS-14.5 **Building Siting and Orientation in Subdivisions.** Require that buildings be located and oriented in new subdivisions and multi-structure non-residential projects to maximize passive solar heating during cool seasons, minimize heat gains during hot periods, enhance natural ventilation, and promote the effective use of daylight.

COS-14.6 **Solar Access for Infill Development.** Require that property setbacks and building massing of new construction located within existing developed areas maintain an envelope that maximizes solar access to the extent feasible.

COS-14.7 **Alternative Energy Sources for Development Projects.** Encourage development projects that use energy recovery, photovoltaic, and wind energy .

COS-14.8 **Minimize Air Pollution.** Minimize land use conflicts that expose people to significant amounts of air pollutants.

COS-14.9 **Significant Producers of Air Pollutants.** Require projects that generate potentially significant levels of air pollutants and/or GHGs such as quarries, landfill operations, or large land development projects to incorporate renewable energy, and the best available control technologies and practices into the project design.

The recovered methane from landfills can be pumped through turbines to generate power. This provides a mutual benefit by generating energy and reducing the amount of CO2 and methane being released from landfills. Other uses for closed facilities include photovoltaic (solar) panels, wind, and microturbines, as appropriate for the area they would be located in.

COS-14.10 **Low-Emission Construction Vehicles and Equipment.** Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.

COS-14.11 **Native Vegetation.** Require development to minimize the vegetation management of native vegetation while ensuring sufficient clearing is provided for fire control.

Plants use photosynthesis to remove carbon from the atmosphere by incorporating it into biomass and releasing oxygen into the atmosphere.

COS-14.12 **Heat Island Effect.** Require that development be located and designed to minimize the "heat island" effect as appropriate to the location and density of development, incorporating such elements as cool roofs, cool pavements, and strategically placed shade trees.

Heat islands formed as urbanized areas replace natural land cover with pavement, buildings, and other infrastructure, resulting in significantly higher average temperatures than the rural areas surrounding them.

COS-14.13 **Incentives for Sustainable and Low GHG Development.** Provide incentives such as expedited project review and entitlement processing for developers that maximize use of sustainable and low GHG land development practices in exceedance of State and local standards.

Additional goals and policies that relate to land use development are contained in the Land Use Element.

GOAL COS-15

Sustainable Architecture and Buildings. Building design and construction techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment.

Solar panels in Alpine

Policies

COS-15.1 **Design and Construction of New Buildings.** Require that new buildings be designed and constructed in accordance with "green building" programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.

COS-15.2 **Upgrade of Existing Buildings.** Promote and, as appropriate, develop standards for the retrofit of existing buildings to incorporate design elements, heating and cooling, water, energy, and other elements that improve their environmental sustainability and reduce GHG.

Green building programs include the Leadership in Energy and Environmental Design (LEED) standards set by the U.S. Green Building Council, the Green Point Rated system standards set by Builditgreen.org, or equivalent programs.

COS-15.3 **Green Building Programs.** Require all new County facilities and the renovation and expansion of existing County buildings to meet identified "green building" programs that demonstrate energy efficiency, energy conservation, and renewable technologies.

COS-15.4 **Title 24 Energy Standards.** Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.

COS-15.5 **Energy Efficiency Audits.** Encourage energy conservation and efficiency in existing development through energy efficiency audits and adoption of energy saving measures resulting from the audits.

COS-15.6 **Design and Construction Methods.** Require development design and construction methods to minimize impacts to air quality.

Energy-efficiency audits include checking, repairing, and readjusting heating, ventilation, and air conditioning, lighting, water heating equipment, insulation, and weather proofing.

GOAL COS-16

Sustainable Mobility. Transportation and mobility systems that contribute to environmental and human sustainability and minimize GHG and other air pollutant emissions.

Policies

COS-16.1 **Alternative Transportation Modes.** Work with SANDAG and local transportation agencies to expand opportunities for transit use. Support the development of alternative transportation modes, as provided by Mobility Element policies.

COS-16.2 **Single-Occupancy Vehicles.** Support transportation management programs that reduce the use of single-occupancy vehicles.

COS-16.3 **Low-Emissions Vehicles and Equipment.** Require County operations and encourage private development to provide incentives (such as priority parking) for the use of low- and zero-emission vehicles and equipment to improve air quality and reduce GHG emissions. [Refer also to Policy M-9.3 (Preferred Parking) in the Mobility Element.]

COS-16.4 **Alternative Fuel Sources.** Explore the potential of developing alternative fuel stations at maintenance yards and other County facilities for the municipal fleet and general public.

COS-16.5 **Transit-Center Development.** Encourage compact development patterns along major transit routes.

The Mobility Element contains additional goals and policies that relate to alternate modes of travel and Transportation Demand Management.

GOAL COS-17

Sustainable Solid Waste Management. Perform solid waste management in a manner that protects natural resources from pollutants while providing sufficient, long term capacity through vigorous reduction, reuse, recycling, and composting programs.

Policies

COS-17.1 **Reduction of Solid Waste Materials.** Reduce greenhouse gas emissions and future landfill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with State law.

COS-17.2 **Construction and Demolition Waste.** Require recycling, reduction and reuse of construction and demolition debris.

On the line at the recycling plant

COS-17.3 **Landfill Waste Management.** Require landfills to use waste management and disposal techniques and practices to meet all applicable environmental standards.

COS-17.4 **Composting.** Encourage composting throughout the County and minimize the amount of organic materials disposed at landfills.

COS-17.5 **Methane Recapture.** Promote efficient methods for methane recapture in landfills and the use of composting facilities and anaerobic digesters and other sustainable strategies to reduce the release of GHG emissions from waste disposal or management sites and to generate additional energy such as electricity.

COS-17.6 **Recycling Containers.** Require that all new land development projects include space for recycling containers.

COS-17.7 **Material Recovery Program.** Improve the County's rate of recycling by expanding solid waste recycling programs for residential and non-residential uses.

COS-17.8 **Education.** Continue programs to educate industry and the public regarding the need and methods for waste reduction, recycling, and reuse.

GOAL COS-18

Sustainable Energy. Energy systems that reduce consumption of non-renewable resources and reduce GHG and other air pollutant emissions while minimizing impacts to natural resources and communities.

Policies

COS-18.1 **Alternate Energy Systems Design.** Work with San Diego Gas and Electric and non-utility developers to facilitate the development of alternative energy systems that are located and designed to maintain the character of their setting.

COS-18.2 **Energy Generation from Waste.** Encourage use of methane sequestration and other sustainable strategies to produce energy and/or reduce GHG emissions from waste disposal or management sites.

COS-18.3 **Alternate Energy Systems Impacts.** Require alternative energy system operators to properly design and maintain these systems to minimize adverse impacts to the environment.

GOAL COS-19

Sustainable Water Supply. Conservation of limited water supply supporting all uses including urban, rural, commercial, industrial, and agricultural uses.

Policies

COS-19.1 **Sustainable Development Practices.** Require land development, building design, landscaping, and operational practices that minimize water consumption.

COS-19.2 **Recycled Water in New Development.** Require the use of recycled water in development wherever feasible. Restrict the use of recycled water when it increases salt loading in reservoirs.

A permit is required from the County Department of Environmental Health for the use of recycled water.[16]

GOAL COS-20

Governance and Administration. Reduction of local GHG emissions contributing to climate change that meet or exceed requirements of the *Global Warming Solutions Act of 2006.*

[16] CPC Title 24, Part 5, California Administrative Code, Appendix G

Policies

COS-20.1 **Climate Change Action Plan.** Prepare, maintain, and implement a climate change action plan with a baseline inventory of GHG emissions from all sources; GHG emissions reduction targets and deadlines, and enforceable GHG emissions reduction measures.

COS-20.2 **GHG Monitoring and Implementation.** Establish and maintain a program to monitor GHG emissions attributable to development, transportation, infrastructure, and municipal operations and periodically review the effectiveness of and revise existing programs as necessary to achieve GHG emission reduction objectives.

COS-20.3 **Regional Collaboration.** Coordinate air quality planning efforts with federal and State agencies, SANDAG, and other jurisdictions.

COS-20.4 **Public Education.** Continue to provide materials and programs that educate and provide technical assistance to the public, development professionals, schools, and other parties regarding the importance and approaches for sustainable development and reduction of GHG emissions.

Parks and Recreation

CONTEXT

This section identifies how the County of San Diego intends to meet the public need for parks and recreation opportunities. This section also identifies how the County intends to meet open space needs including building out the inter-connected preserve system (refer to Goal COS-1) and meeting General Plan goals and County strategic initiatives. The Mobility Element addresses the regional trail network, which further enhances and augments public recreational opportunities and experiences throughout the San Diego region. It should be noted that there are a wide range of park and recreation opportunities within the San Diego region provided by cities, state entities, federal entities, special districts, school districts, and private non-profit organizations in addition to those provided by the County:

- **Local Parks**—Local parks range in acreage depending on the uses and community or neighborhood they serve, and may be associated with joint use facilities such as schools. Typically, local parks contain recreation areas such as a community center, athletic fields, or facilities of special interest to the community. Smaller local parks may be located within or near town centers, where they can be used as common recreation and gathering areas by the community.

The Valle de Oro Community Park is located to the south of the City of El Cajon and to the east of the city of La Mesa.

- **Regional Parks**—Regional parks serve County residents and visitors and are often larger than 200 acres, although smaller facilities may be appropriate for specific sites of regional interest. Regional parks include a variety of passive and active recreational uses and may include an interpretive center. Most regional parks contain open space,

natural resources, cultural resources, and multi-use trails. Most regional parks also contain a local park element by serving as the recreation outlet for a community.

- **Trails**—Trails provide recreational opportunities and allow for enjoyment by the public of parks and open space preserves. Trails provide connection between recreation uses. The County Trail Program is addressed in detail in the Community Trails Master Plan.
- **Recreation Facilities**—Recreational facilities include community centers, teen centers and gymnasiums and are operated and maintained by County staff, volunteers, and service contracts.
- **Preserves**—Preserves include areas of environmental significance and beauty. The dual purpose of preserves is to protect biological, cultural, and historical resources, as well as community character, and to make these resources available for public recreation opportunities. However, typically only minimal improvements such as trails, parking, and restroom facilities are found in preserves. Some preserves may also provide interpretive or educational amenities. Preserves vary in size depending on the resources being protected, and public access can be limited according to the sensitivity of the resources *(see also Goal COS-1 and related policies in the Biological Resources section)*.

Grasslands being preserved as open space in Ramona

Open space in the County is provided by cities, the County, State entities, federal entities, special districts, private non-profit organizations, and land owners as part of the development process. The primary objective of open space within the MSCP preserve system is biological conservation. Open space may also be dedicated / preserved to meet other objectives such as preservation of cultural resources or avoidance of steep slopes. However, open space in general allows for the overall vision of this General Plan, along with the achievement of the County's strategic initiatives, to be met. Other land uses, such as passive recreational opportunities, may be appropriate within open space areas depending on the sensitivity of the resources being protected. In addition to the Park and Recreation goals and policies concerning Open Space, see also goals and policies under the Biological Resources and Cultural Resources sections in this Element.

Existing sources of funding for park acquisition and development include federal, state, and local funds, donations, and through developer exactions. The Park Lands Dedication Ordinance (PLDO) provides funding for local park active recreation. The PLDO specifies that new subdivisions are required to dedicate active park land or pay a fee in-lieu of dedication, or a combination of both, at a level of three acres per 1,000 population. State law allows for up to five acres per 1,000 population if the current active park acreage exceeds the three-acre level. These fees may also be used to provide recreational services in regional parks for local community residents. The County also participates in agreements that establish partnerships with other public and private agencies (typically with non-profit organizations) to develop, operate, and maintain recreation facilities on land typically owned by those agencies. Existing sources of funding for open space land acquisition that will ultimately build out the MSCP preserve include local, state and federal funds and donations.

GOALS AND POLICIES

GOAL COS-21

Park and Recreational Facilities. Park and recreation facilities that enhance the quality of life and meet the diverse active and passive recreational needs of County residents and visitors, protect natural resources, and foster an awareness of local history, with approximately ten acres of local parks and 15 acres of regional parks provided for every 1,000 persons in the unincorporated County.

The historic Rancho Guajome Adobe, Guajome County Park

Policies

COS-21.1 **Diversity of Users and Services.** Provide parks and recreation facilities that create opportunities for a broad range of recreational experiences to serve user interests.

COS-21.2 **Location of Parks.** Locate new local parks and recreation facilities near other community-oriented public facilities such as schools, libraries, and recreation centers where feasible, so that they may function as the "heart" of a community.

COS-21.3 **Park Design.** Design parks that reflect community character and identity, incorporate local natural and cultural landscapes and features, and consider the surrounding land uses and urban form and cultural and historic resources.

COS-21.4 **Regional Parks.** Require new regional parks to allow for a broad range of recreational activities and preserve special or unique natural or cultural features when present.

COS-21.5 **Connections to Trails and Networks.** Connect public parks to trails and pathways and other pedestrian or bicycle networks where feasible to provide linkages and connectivity between recreational uses.

GOAL COS-22

Park and Recreational Services. High-quality parks and recreation programs that promote the health and well-being of County residents while meeting the needs of a diverse and growing population.

Lakeside Community Center

Policies

COS-22.1 **Variety of Recreational Programs.** Provide and promote a variety of high quality active and passive recreation programs that meet the needs of and benefit County residents.

GOAL COS-23

Recreational Opportunities in Preserves. Acquisition, monitoring, and management of valuable natural and cultural resources where public recreational opportunities are compatible with the preservation of those resources.

Policies

Agua Caliente County Park

COS-23.1 **Public Access.** Provide public access to natural and cultural (where allowed) resources through effective planning that conserves the County's native wildlife, enhances and restores a continuous network of connected natural habitat and protects water resources.

COS-23.2 **Regional Coordination.** Coordinate the planning, acquisition, protection, development, and management of open space among governmental agencies and private organizations to maximize opportunities to link regional open space lands.

COS-23.3 **Public Safety Involvement.** Coordinate with public safety agencies to address safety concerns when planning the acquisition and management of open space.

GOAL COS-24

Park and Recreation Funding. Adequate funding for acquisition, development, maintenance, management, and operation of parks, recreation facilities, and preserves.

Patriot Park in 4-S Ranch

Policies

COS-24.1 **Park and Recreation Contributions.** Require development to provide fair-share contributions toward parks and recreation facilities and trails consistent with local, state, and federal law.

COS-24.2 **Funding Opportunities.** Maximize funding opportunities for the following:

- The acquisition, expansion, and development of parks, recreation facilities, preserves, and trails
- The operation, maintenance, and management of parks, recreation facilities, preserves, and trails

[from www.epa.gov/oppefed1/models/water/ca_avocado.doc]

CALIFORNIA AVOCADOS

Avocados are grown on approximately 60,000 acres, primarily in southern and central California, typically in regions tempered by coastal climates. Most of the avocado acreage lies between San Luis Obispo and San Diego. Avocados are produced in 15 counties but five coastal counties account for essentially all of the state's production. Based on 2002 USDA census data, San Diego, Santa Barbara, and Ventura Counties are the top producing counties, accounting for approximately 80% of the total avocado acreage in California (USDA, 2002). San Diego County is the leading county, producing nearly 47% of California market value for avocados (USDA, 1999a), accounting for 39% of the state's avocado producing acreage (USDA, 2002). Other counties with significant production are Riverside (14%) and Orange (3%) counties. California produces 95% of the avocados grown in the United States and 10% of the world's production. From 1990 to 1998, California's average production was 323 million pounds, with typical fluctuations of 5% (USDA, 1999a) This crop requires relatively few chemicals to control insect pests. Beneficial insects are used as part of an Integrated Pest Management (IPM) approach in which harsh chemicals are avoided to maintain this balance.

Several varieties of avocados are harvested in California including, Haas, Lamb Haas, Bacon, Zutano, Fuerte, Pinkerton and Gwen. The Haas variety is the predominant tree accounting for roughly 90% of the total production. Due to California's unique coastal micro-climate, avocados are harvested year round with a typical tree yielding 60 lbs of fruit per year. The official avocado crop year runs from November 1 through October 31. Avocado fruit can be held successfully after harvest in cold storage for approximately 2 to 4 weeks. The size and oil levels of the harvested fruit, in part, determine the grade of the harvest.

Avocados are typically grown in well-drained, fine or course sandy loam soils. Micro sprinkler and drip irrigation systems typically are used to deliver water to the grove floor. Avocado roots are relatively shallow, so deep watering is unnecessary. There are over two-dozen avocado bearing soils in San Diego, Santa Barbara, and Ventura Counties alone (USDA, 2006). Approximately 63% of avocado bearing soils in these counties are in drainage groups C and D. Of these, the Cieneba series is the most common avocado bearing soil with moderate expected yields under irrigation (Table 5). The Cieneba series accounts for approximately 37% of avocado bearing soil acreage (USDA, 2006). Cieneba soils are thermic, shallow Typic Xerorthents located on uplands with slopes of 9 to 85 percent (USDA, 1999b). Location and metfile selections are often the most important developments affecting scenario vulnerability and protectiveness. Because this scenario is intended to represent avocado production along the southern coastal area of California, the metfile closest to the center of the primary avocado producing county (San Diego) was chosen. The Cieneba soil series was selected for this scenario because it is both representative of avocado bearing soils (Oster, 2006), is predominant in San Diego County as well as central and southern California, represents the majority (44%) of avocado soils in drainage, the fourth most erosive soil type, and is among the steeper sloped avocado bearing soils (Table 5).

Cieneba is a Hydrologic Group C soil, which represents the majority (44%) of these soils in drainage. Cieneba soils have a USLE K factor of ranging from 0.24-0.32; approximately 82% of avocado bearing soils have a USLE K factor between 0.24 and 0.32 (Table 5). Approximately 10% of avocado bearing soils have a pH lower than Cieneba soils (5.8 - 6.5), although soil pH is not currently a PRZM input parameter and is not expected to often affect chemical fate in the acidic range. Based on the official soil series description, Ceineba soils have an A horizon from 0 to 10 inches (0-25 cm) deep and a C horizon from 10 to over 30 inches (25-76 cm) deep, however the C horizon is primarily weathered granitic material with remnant rock structure. (USDA, 2006). Cieneba coarse sandy loam was used to parameterize this scenario (USDA 2005).

The Met station chosen was the San Diego station (23188.dvf) located at 32º 44’ N, 117º 10’ W and at an elevation of approximately 4 meters above sea level. This station receives an average of approximately

25.2 cm of rainfall annually. The station is the closest available station to this scenario with data necessary for PRZM.

Table 1. PRZM 3.12 Climate and Time Parameters for San Diego, California – Avocado.

Parameter	Value	Source/Comments
Starting Date	Jan. 1, 1961	Meteorological File from San Diego County, (W 23188)
Ending Date	Dec. 31, 1990	Meteorological File from San Diego County, (W 23188)
Pan Evaporation Factor (PFAC)	0.70	PRZM Manual Figure 5.1. Value represents San Diego region.
Snowmelt Factor (SFAC)	0	In areas where climatology prevents snow fall, SFAC should be set to 0.0 - PRZM Manual (EPA 1998)
Minimum Depth of Evaporation (ANETD)	32.5 cm	PRZM Manual (EPA 1998) Average of 30-35 cm

Table 2. PRZM 3.12 Erosion and Landscape Parameters for San Diego, California – Avocado.

Parameter	Value	Source/Comments
Method to Calculate Erosion (ERFLAG)	4 (MUSS)	PRZM Manual (EPA, 1998)
USLE K Factor (USLEK)	0.24	USDA NRCS Soil Data Mart (http://soildatamart.nrcs.usda.gov/)
USLE LS Factor (USLELS)	3.63	PRZM Manual (EPA, 1998) LS value for 12% slope and 400' slope length; LS equation (Haan and Barfield, 1978)
USLE P Factor (USLEP)	1.0	Set to 1 for orchards (EPA, 2004)
Field Area (AFIELD)	172 ha	Area of Shipman Reservoir watershed (EPA, 1999)
NRCS Hyetograph (IREG)	1	PRZM Manual Figure 5.12 (EPA, 1998) Type I, IREG=1
Slope (SLP)	12 %	Slopes for Cieneba coarse sandy loam exceed 12%. Set to 12% as per PRZM scenario guidance (EPA, 2004). Some data indicate slopes as high as 16% (Oster and Arpaia 2006)
Hydraulic Length (HL)	600 m	Shipman Reservoir (EPA, 1999)
Irrigation Flag (IRFLAG)	1	Year round irrigation. EPA, 2005
Irrigation Type (IRTYP)	4 (drip)	Irrigation Guidance for developing PRZM Scenarios, Table 3; (EPA 2005).
Leaching Factor (FLEACH)	0.0	Set to 0 as per Irrigation Guidance for developing PRZM Scenarios, Table 3; (June 15, 2005).
Fraction of Water Capacity when Irrigation is Applied (PCDEPL)	0.5	Set to default as per Irrigation Guidance for developing PRZM Scenarios, Table 3; (EPA 2005).
Maximum Rate at which Irrigation is Applied (RATEAP)	0.056 cm hr^{-1}	Irrigation Guidance for developing PRZM Scenarios, Table 1; (June 15, 2005). For CN = 79 and f = 0

Table 3. PRZM 3.12 Crop Parameters for San Diego, California – Avocado.

Parameter	Value	Source/Comments

Table 3. PRZM 3.12 Crop Parameters for San Diego, California – Avocado.

Parameter	Value	Source/Comments
Initial Crop (INICRP)	1	Set to one for all crops (EPA, 2004).
Initial Surface Condition (ISCOND)	3	Orchard residues are left behind between rows, under trees are cleared to reduce disease. Consistent with the FL avocado scenario and other orchard type scenarios.
Number of Different Crops (NDC)	1	Set to number of crops in simulation.
Number of Cropping Periods (NCPDS)	30	Set to weather data in meteorological file: San Diego, CA (W23188).
Maximum rainfall interception storage of crop (CINTCP)	0.25	Recommended value for orchards (EPA, 2004).
Maximum Active Root Depth (AMXDR)	25 cm	Set to horizon depth. Most of the roots for Haas avocados grown in an orchard with Cieneba soil type were located above 15 cm (Oster and Arpaia 2006)
Maximum Canopy Coverage (COVMAX)	70	Taken from FL avocados scenario
Soil Surface Condition After Harvest (ICNAH)	3	Plant residues are left behind. Consistent with the FL avocado scenario and other orchard type scenarios.
Date of Crop Emergence (EMD, EMM, IYREM)	01/01	Values are set to keep E/T and canopy coverage terms working correctly for this evergreen scenario.
Date of Crop Maturity (MAD, MAM, IYRMAT)	02/01	Values are set to keep E/T and canopy coverage terms working correctly for this evergreen scenario.
Date of Crop Harvest (HAD, HAM, IYRHAR)	31/12	Values are set to keep E/T and canopy coverage terms working correctly for this evergreen scenario.
Maximum Dry Weight (WFMAX)	0.0	Not used in scenario
Maximum CropHeight (HTMAX)	914	Avocado trees typically grow to 20-40 feet California Avocado Commission
SCS Curve Number (CN)	84, 79, 82	Gleams Manual Table H-4; meadows; hydrological group C (USDA, 1990)
Manning's N Value (MNGN)	0.023	RUSLE Project; C25CFCFN for California citrus with full cover (USDA, 2000).
USLE C Factor (USLEC)	0.040 - 0.062	RUSLE Project; C25CFCFN for California citrus with full cover (USDA, 2000).

Table 4. PRZM 3.12 Cieneba Soil Parameters for San Diego, California – Avocado.

Parameter	Value	Source/Comments
Total Soil Depth (CORED)	25 cm	NRCS Soil Data Mart (SDM) (http://soildatamart.nrcs.usda.gov)
Number of Horizons (NHORIZ)	2	NRCS Soil Data Mart (SDM) (http://soildatamart.nrcs.usda.gov). The third horizon from SDM was excluded because it is bedrock.
Horizon Thickness (THKNS)	10 cm (HORIZN = 1) 15 cm (HORIZN = 2)	NRCS Soil Data Mart (SDM) (http://soildatamart.nrcs.usda.gov).

Bulk Density (BD)	1.55 g/cm^3 (HORIZN = 1) 1.55 g/cm^3 (HORIZN = 2)	NRCS Soil Data Mart (SDM) (http://soildatamart.nrcs.usda.gov). Midpoint of the reported range. PRZM Scenario Guidance (EPA, 2004).
Initial Water Content (THETO)	0.168 cm^3/cm^3 (HORIZN =1) 0.168 cm^3/cm^3 (HORIZN =2)	NRCS Soil Data Mart (SDM); values are mean 1/3-bar water contents of Cieneba coarse sandy loam soils.
Compartment Thickness (DPN)	0.1 cm (HORIZN = 1) 5 cm (HORIZN = 2)	NRCS Soil Data Mart (SDM) (http://soildatamart.nrcs.usda.gov). PRZM Scenario Guidance (EPA, 2004).
Field Capacity (THEFC)	0.168 cm^3/cm^3 (HORIZN =1) 0.168 cm^3/cm^3 (HORIZN =2)	NRCS Soil Data Mart (SDM); values are mean 1/3-bar water contents of Cieneba coarse sandy loam soils.
Wilting Point (THEWP)	0.08 cm^3/cm^3 (HORIZN =1) 0.08 cm^3/cm^3 (HORIZN =2)	NRCS Soil Data Mart (SDM); values are mean 15-bar water contents of Cieneba coarse sandy loam soils.
Organic Carbon Content (OC)	0.44% (HORIZN = 1) 0.44% (HORIZN = 2)	NRCS SDM; values for horizons 1 to 3 = mean %OM / 1.724. PRZM Scenario Guidance (EPA, 2004).

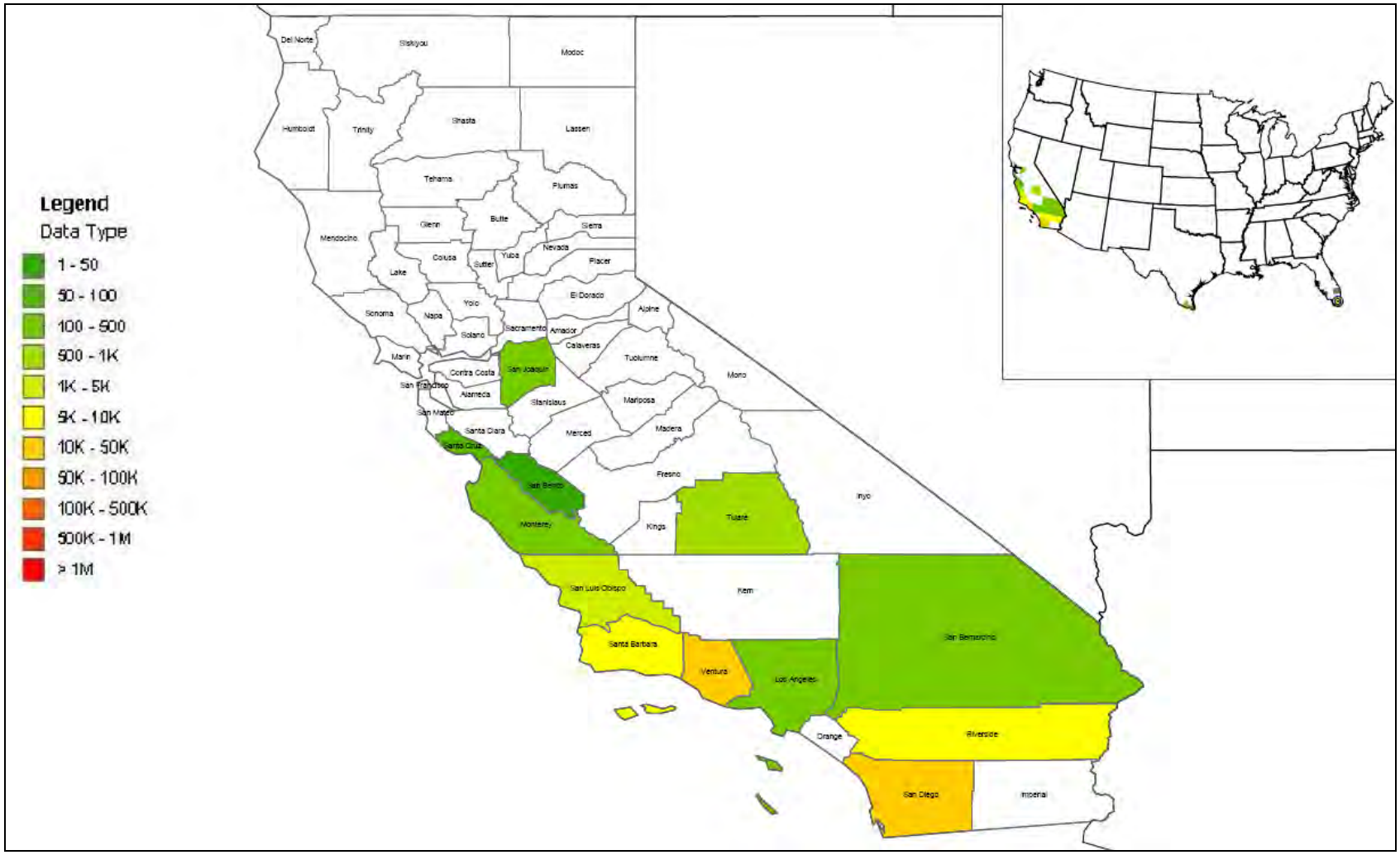


Figure 1. 2002 harvested acres for avocados based on USDA Census of Agriculture for California and conterminous United States (inset) Estimates do not include data for individual farms which NASS has excluded to protect the identify of individual farms.

Table 5. Avocado Bearing Soils of San Diego, Santa Barbara, and Ventura Counties (California) Ranked by Area.

Soil	Total Acreage	% Area	Drainage	Avocados-IrrYield (boxes)	Erodibility	Slopes (%)	pH	OM (%)	% Sand	% Silt	% Clay	Avocados -NIrrYield (boxes)
CIENEBA	332,986	37.12%	C	250-400	0.24-0.32	9-75	5.8-6.5	0.75	67.9-68.5	19-19.6	12.5	-
VISTA	74,863	8.35%	B	500-615	0.28-0.32	15-65	6.7	0.75	65.4-66.8	22.2-23.6	11	-
GAVIOTA	62,334	6.95%	D	250	0.28-0.55	5-75	6.3-7.6	0.75	66.1-66.8	19.2-19.9	14	-
TERRACE ESCARPMENTS	57,147	6.37%	--	375	-	9-75	-	0	-	-	-	-
MAYMEN	49,991	5.57%	D	200	0.28	15-75	5.3-5.8	0.75-1.5	43-68.8	16.2-39.5	15-17.5	-
ARNOLD	38,078	4.25%	A	325-825	0.17-0.28	5-75	5.6-6.7	0.75	78.5-96	1.5-16.5	2.5-5	-
MOCHO	34,528	3.85%	B	1000	0.17-0.28	0-9	8.2	3	18.1-68.8	16.2-50.9	15-31	-
FRIANT	34,451	3.84%	D	150	0.2	30-70	6.3	1.5	66.1	19.9	14	-
LINNE	26,767	2.98%	C	250	0.2-0.32	30-75	8.2	2-3.5	18.1-35.4	33.6-50.9	31	-
SAN BENITO	25,075	2.80%	B	300	0.17-0.2	9-50	7.2-7.6	2.5	35.4	33.6	31	-
CORRALITOS	21,924	2.44%	A	300-330	0.15-0.28	0-15	5.8-6.7	0.75	80.5-96	1.5-17	2.5	-
LOS OSOS	21,084	2.35%	C	250	0.17-0.28	30-50	6.1-6.1	2.5-3	35.4	33.6	31	-
BOTELLA	18,581	2.07%	B	400	0.2-0.28	0-15	6.5	3-4	34.2-41.6	33.6-37.4	21-31	-
NACIMIENTO	11,550	1.29%	C	325-1000	0.28-0.32	9-50	8.2	2-3	18.1	50.9	31	-
SAN ANDREAS	10,936	1.22%	B	325-350	0.24-0.28	9-45	5.8-6.5	2.5	70.5	16.5	13	-
MARINA	10,843	1.21%	B	450-470	0.24	0-9	5.8	0.75	96	1.5	2.5	-
PICO	9,622	1.07%	B	400	0.2	0-9	8.2	2.5	65.1	18.9	16	-
BALLARD	9,036	1.01%	B	800-900	0.28	0-15	5.6-6.1	2	68.8	16.2	15	-
ANACAPA	8,355	0.93%	B	900	0.28	0-9	7.2	2	67.9	19.6	12.5	-
AYAR	6,803	0.76%	D	200	0.2	30-75	7.7-8.2	2	26.1	28.9	45	-
TODOS	6,670	0.74%	D	250-900	0.24	9-50	6.3	3	35.4	33.6	31	-
GOLETA	5,652	0.63%	B	1000	0.24-0.28	0-9	7.2-7.5	3	45.4-70.5	16.5-41.6	13	-
ROUGH BROKEN LAND	4,520	0.50%	--	375	-	15-50	-	0	-	-	-	-
MILPITAS	3,626	0.40%	D	300	0.37	15-50	6.1-6.7	1.5	68.8	16.2	15	-
CAMARILLO	2,658	0.30%	C	250	0.24-0.43	0-2	8.2	2.5	18.1-66.8	19.2-50.9	14-31	-
DIABLO	2,458	0.27%	D	200	0.2-0.24	30-50	7.3-7.5	2.5	22.1-23.3	27.9-29.2	47.5-50	-

BALLARD VARIANT	1,254	0.14%	B	325	0.28	2-9	6.1	1.5	68.8	16.2	15	-
CORTINA	1,177	0.13%	B	325	0.28	9-15	6.7	0.75	67.2	15.3	17.5	-
ORTHENTS	1,039	0.12%	B	375	-	50-75	-	-	-	-	-	-
CAMARILLO VARIANT	903	0.10%	C	500	0.32	0-2	8.2	2.5	68.1	14.4	17.5	-
BOTELLA VARIANT	808	0.09%	B	1000	0.15-0.17	2-15	5.8	2.5	18.1-35.4	33.6-50.9	31	-
ESCARPMENT	629	0.07%	--	375	-	75-99	-	-	-	-	-	-
POSITAS	616	0.07%	D	300	0.37	30-50	5.8	1.5	67.5	21	11.5	-

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Meadowood Project, Fallbrook Community Planning Area
San Diego County, California

(GPA04-002; SPA04-001; R04-004, VTM5354RPL^2; S04-005; S04-006; S04-007; and ER No. 04-02-004)

AGRICULTURAL ANALYSIS

September, 2010

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Summary

A total of 210.4 acres of the Meadowood project site is actively farmed for citrus and avocado orchards. Over the past 60 years the site has been used for farming such crops as citrus, dry beans, avocados, gladioli bulbs, and barley crops. The properties in the project vicinity, support citrus, avocado, and field crop production, and contain several single-family residences. Land under the Williamson Act Contract exists within approximately one mile from the project site; however, none exists on-site.

The proposed project would convert approximately 160.6 acres of farmland currently in agricultural use to non-agricultural uses. The remainder, approximately 49.3 acres of citrus and avocado orchards would be retained in agricultural open space. Land to be converted would consist of 6.3 acres designated as Prime Farmland, 54.2 acres Farmland of Statewide Importance, 99.9 acres Unique Farmland, 11.5 acres of grazing land, and 43.1 acres Farmland of Local Importance.

The project site was analyzed using the California Agricultural Land Evaluation and Site Assessment (LESA) Model, which pursuant to Appendix G of the CEQA Guidelines, is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process," (Public Resources Code Section 21095). The LESA Model generated a score of 40.8 for the project site as a whole, with the subscores for Land Evaluation and Site Assessment totaling 13 points and 27.8 points, respectively. The LESA Model requires that the Model score is greater than or equal to 40.0, plus both subscores are greater than 20 points for the site to be considered a significant agricultural resource. Therefore, the Meadowood site is not considered to be significant. ~~Although less than significant under the LESA Model, impacts associated with conversion of farmland are determined to be significant due to the loss of defined lands under the FMMP. Mitigation measures include the retention of 49.3 acres of existing citrus and avocado orchards.~~

The project will amend the Regional Land Use Map to change the designation for Meadowood from Special Study Area (SSA) and Rural Development Area (RDA) to Current Urban Development Area (CUDA). In addition, the Fallbrook Community Plan would be amended to change the site from (21) Specific Plan and (18) Multiple Rural Use to (21) Specific Plan for the entire project site. The area currently designated by the General Plan as (21) Specific Plan Area is zoned S90, Holding Area Use Regulation. The area currently designated (18) Multiple Rural Use Area is zoned A70, Limited Agricultural Use Regulation. The project would not result in significant impacts related to conflicts with the Fallbrook Community Plan, the California Land Conservation Act, or existing and planned land uses. The Meadowood project includes project design measures to reduce potentially significant impacts associated with residential/agricultural

interface incompatibility including the dedication of a 49.3 acre agricultural open space area and a 122.4 acre natural open space area to serve as a natural buffer between the residential uses proposed and the agricultural lands and sensitive biological communities to the east. Additionally, the project is required by the San Diego County Agricultural Enterprises and Consumer Information Ordinance to provide disclosure statements in all sales documentation for all proposed residential units, if agricultural use is still in existence at the time new homes are constructed. The statement would notify potential owners that the adjacent property could potentially be used for agricultural operations such as cattle ranching and that there could be associated issues such as odors, noise, and vectors.

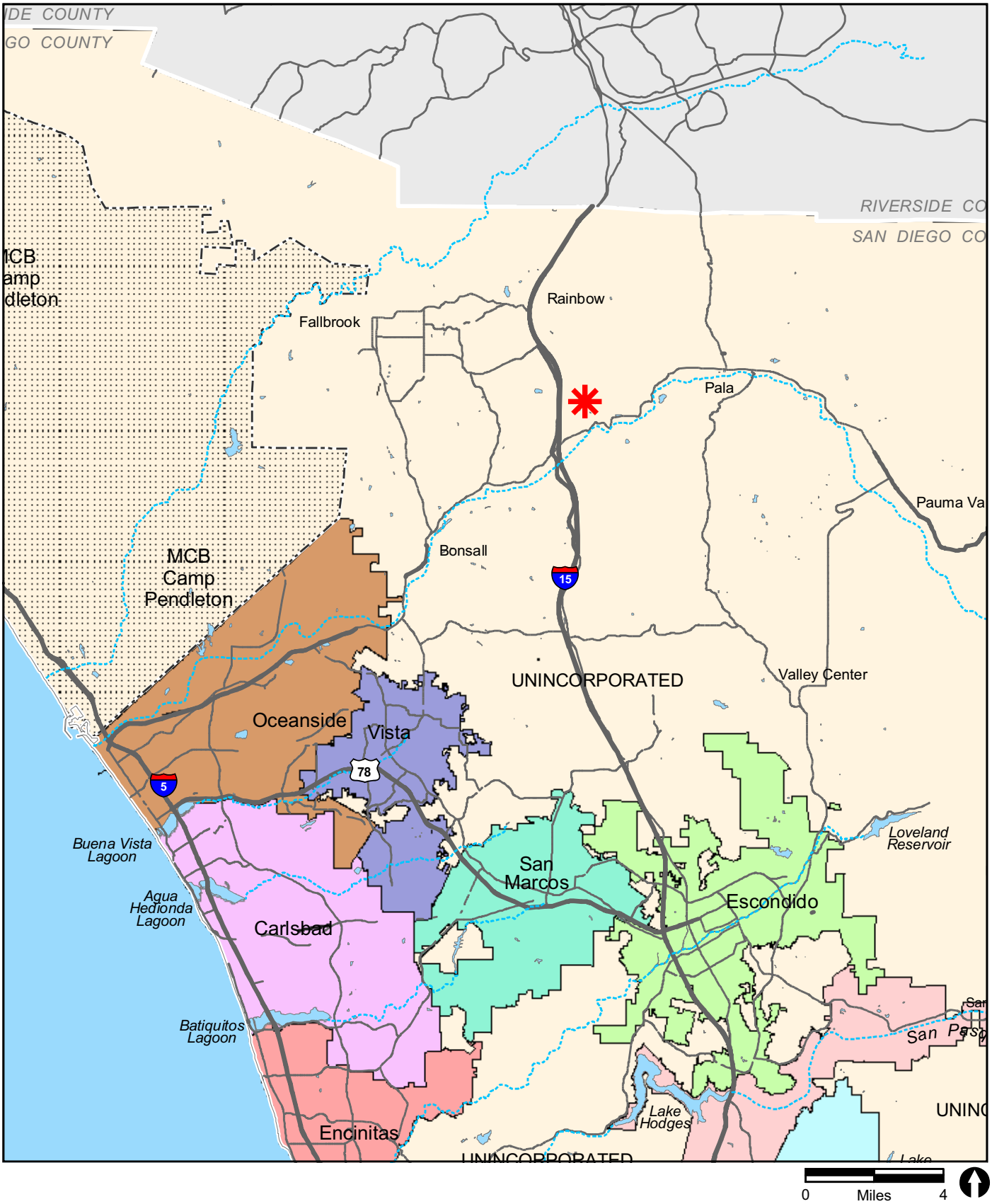
1.0 Introduction

1.1 Project Location

The Meadowood Specific Plan Area (SPA) is located approximately 45 miles north of downtown San Diego, 20 miles from the Pacific Ocean at Oceanside, about 13 miles from Temecula in Riverside County, and five miles south of the Riverside County line. More specifically, the 389.5-acre Meadowood project site (proposed project) is located east of Interstate 15 (I-15) and north of State Route 76 (SR-76) (Figure 1) in the unincorporated area of the County of San Diego within the Fallbrook Community Plan area (Figure 2). Pardee Homes proposes to develop a portion of Pankey Ranch located north of the San Luis Rey River, Section 36 of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle.

1.2 Site Description

The Meadowood project site occupies the eastern portion of a well-defined valley surrounded by steep hills. The site contains a variety of vegetation types and habitats as well as topographic features. The topography of the project site ranges from gently sloping, sparsely vegetated terrain approximately 280 feet above mean sea level (MSL) at the southwestern end of the site, nearest to the San Luis Rey River, to the steeply sloping ridgeline along the northeastern portion of the site, which is the southern flank of Monserate Mountain. The dominant features are Monserate Mountain, which runs along the eastern project boundary and Rosemary"s Mountain (elevation 992 feet) which abuts the project boundary to the southeast. The eastern boundary descends into Rice Canyon, most of which is farther to the east. The site generally drains to the south and west and eventually into the San Luis Rey River. The project area currently supports active agricultural uses, primarily the production of citrus and avocados on a majority of the site.



Project Location

FIGURE 1

Regional Location

RECON

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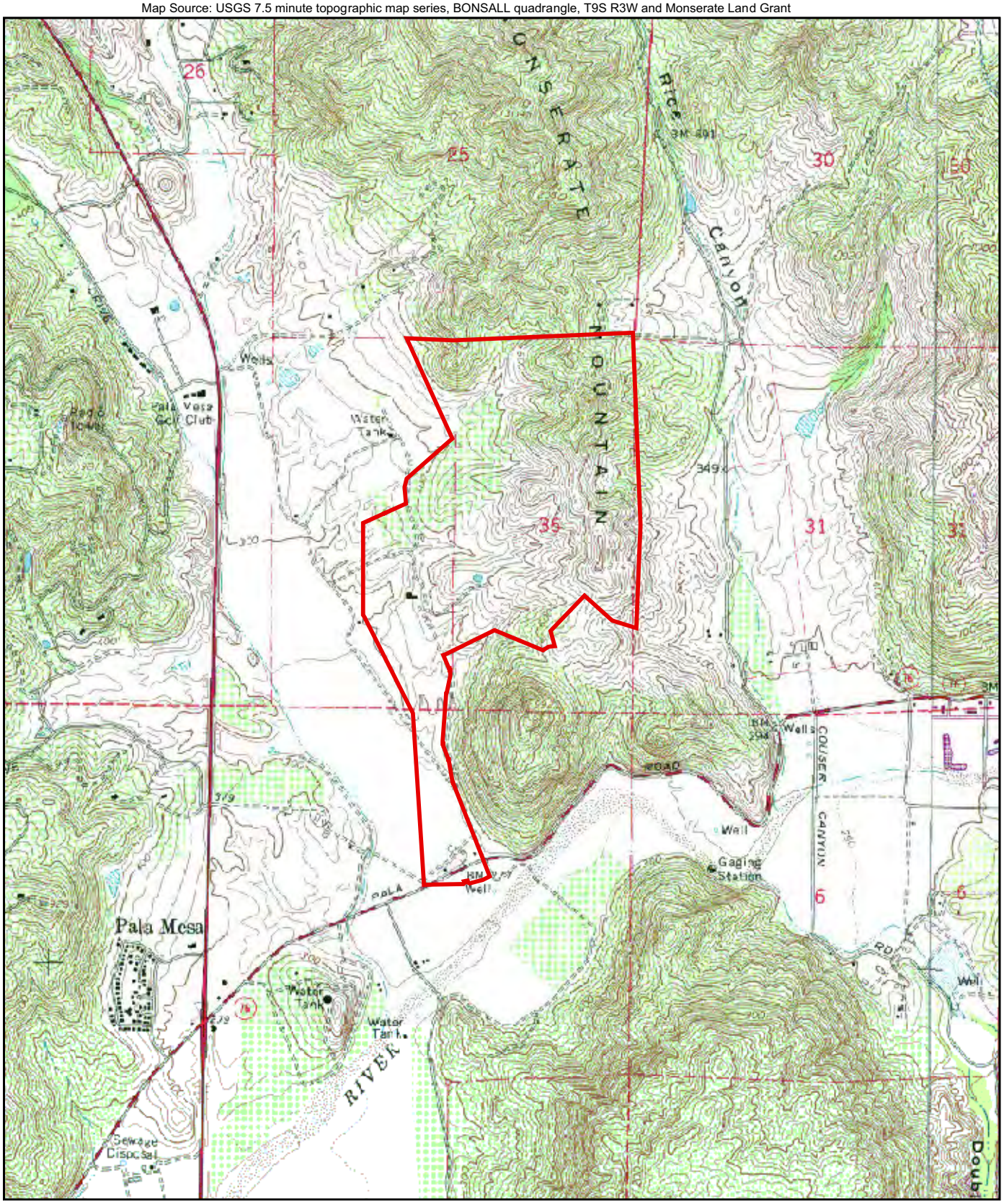
Map Source: USGS 7.5 minute topographic map series, BONSALL quadrangle, T9S R3W and Monserate Land Grant



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Project Boundary

RECON

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FIGURE 2

Project Location on USGS Map

1.3 Project Description

The project proposes the development of 844 residential units, both single- and multi-family, as well as 122.4 acres of natural open space, a park, and a school site. Additionally, the project proposes to retain 49.3 acres of the existing approximately 209.9 acres of agriculture (Figure 3) in the form of the citrus and avocado groves that would be retained as a biological and agricultural buffer. This buffer will create a separation between the project site and the sensitive biological communities and agricultural activities located to the east, which will minimize indirect impacts such as edge effects (discussed further in Sections 3.10 and 6.2). A wastewater treatment plant (WWTP) and wet weather ponds to provide wastewater services to the proposed project would be constructed within a two-acre area at the southernmost tip of Meadowood.

2.0 Regulatory Framework

This section discusses the following State and County agricultural regulations, plans, and policies and their relationship to the proposed project:

California Department of Conservation, Division of Land Resource Protection's Farmland Mapping and Monitoring Program (FMMP) - The goal of the Farmland Mapping and Monitoring Program (FMMP) is to provide consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California"s agricultural land resources. FMMP produces *Important Farmland Maps*, which are a hybrid of resource quality (soils) and land use information. Agricultural lands are rated according to soil quality and irrigation status, with Important Farmland maps updated every two years based on aerial photograph review, computer mapping analysis, public input, and field reconnaissance.

California Land Conservation (Williamson) Act - The California Land Conservation Act of 1965, better known as the Williamson Act (California Administrative Code §51200 et. seq.), has been the state"s premier agricultural land protection program since its enactment in 1965. The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict land to agricultural and open space uses. In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value, which saves landowners from 20 percent to 75 percent in property tax liability each year.

Contracts issued under the Williamson Act automatically renew each year for a new 10-year period, unless the landowner files a notice of non-renewal to terminate the contract at the end of the current 10-year period. During the 10-year cancellation period,

Figure 3, color/oversize

property taxes are gradually raised to the appropriate level for developable land. Agricultural preserves are generally intended to avoid areas where public utility improvements and related land acquisitions may be required. The Williamson Act does not specifically address the issue of compatible land uses in sites adjacent to agricultural preserves, other than to require that "[c]ities and counties shall determine the types of uses to be deemed „compatible uses" in a manner which recognizes that a permanent or temporary population increase often hinders or impairs agricultural operations." (California Administrative Code §51220.5).

San Diego County General Plan - The San Diego County General Plan (1996) is a comprehensive planning guide for unincorporated areas within the county. Related agricultural policies within the Regional Land Use, Open Space, and Conservation Elements as well as the Fallbrook Community Plan Area are summarized below:

1. **San Diego County General Plan, Regional Land Use Element -** The Regional Land Use Element regional categories for the Meadowood Project Site are SSA and RDA. The SSA designation is applied on an interim basis and for a specified period of time to areas in which development should be suspended or restricted pending completion of detailed review, study, or annexation to the County Water Authority. Lands within the RDA designation are outside the service boundaries of the County Water Authority. Areas within the RDA category are intended for agriculture or unimproved lands and remote pockets of residential development. The proposed Meadowood project is designated as an RDA since it is outside the County Water Authority boundary line. However, the Proposed Project proposes to designate the entire site as CUDA.

2. **San Diego County General Plan, Open Space Element –** It is the intent of the County General Plan Open Space Element to encourage the establishment of additional agricultural preserves and open space easements based on a systematic review of appropriate areas. Specifically, Section 2, Goal II(1) and (6) of the Element encourages "agricultural use of lands with soils which are highly suitable for the production of food or fiber" and "the use of agriculture to provide visually pleasing open space and variety within an urban environment."

   Agricultural preserves have been established throughout the county, which provide valuable open space. Procedures for acquiring agricultural preserves and open space easements are defined in San Diego County Board of Supervisors Policies I-38 and I-37, respectively.

3. **San Diego County General Plan, Conservation Element –** Policies and Action Programs related to agriculture in the Conservation Element include conducting an annual inventory of areas with high agricultural potential (including an assessment of the annual gain or loss or agricultural lands), amending the General Plan to include an Agriculture Element, identifying and implementing efforts to preserve agriculture

(e.g., encouraging additional preserves and publicizing the wildlife habitat preserve provisions of the Williamson Act), and incorporating the most detailed soil data available in environmental analyses.

The definition of agricultural lands is not based solely on soil characteristics. The Conservation Element states "the topic of soil is complex. The physical properties of soil are not necessarily the principal factor determining the agricultural suitability of a particular area. Climatic conditions, water availability, drainage, taxes and land development pressures are equally important."

4. **Fallbrook Community Plan –** Fallbrook has a unique village atmosphere characterized primarily by low density residential development and agriculture. The general goal is to perpetuate the existing rural charm and village atmosphere while accommodating growth in such a manner that it will complement the environment of Fallbrook. The Fallbrook Community Plan designates the Meadowood site as (21) Specific Plan and (18) Multiple Rural Use.

5. **~~San Diego County~~ Local Agency Formation Commission (LAFCO) –** The proposed project would require LAFCO action and it is the policy of ~~the San Diego County~~ LAFCO to discourage proposals that would convert prime agricultural or open space lands to other uses unless such an action would not promote the planned, orderly, efficient development of an area or the affected jurisdiction has identified all prime agricultural lands within its sphere of influence and adopted measures that would effectively preserve prime agricultural lands for agricultural use. Therefore, because the proposed project may have a potential adverse impact on agricultural lands, ~~San Diego~~ LAFCO~~'~~s adopted procedures to define agricultural and open space lands would be followed.

   LAFCO procedures include the following criteria that are considered when reviewing a proposal that could adversely affect agriculture and open space lands: (1) The use and value of the proposal area and surrounding parcels; (2) determination as to whether any of the proposal area is designated for agricultural preservation by adopted local plans, including Local Coastal Plans and the County Agricultural Element; (3) determining whether public facilities would be extended through or adjacent to any other agricultural lands to provide services to the development anticipated on the proposal property; (4) determining whether the proposal area is adjacent to or surrounded by existing urban or residential development; (5) determining whether surrounding parcels may be expected to develop to urban uses within the next five years; and (6) determining if natural or man-made barriers would serve to buffer the proposal area from existing urban uses.

6. **I-15/Highway 76 Interchange Master Specific Planning Area (MSPA) –** On June 1, 1988, the Board of Supervisors approved the MSPA amendment to the Fallbrook Community Plan. The Interstate 15 Corridor Subregional Plan extends

approximately 20 miles from the Escondido City limits to the Riverside County Line. It contains the viewshed area ranging from one-half acre to two miles in width on either side of the freeway. The intent of the plan is to promote orderly development, protect environmental and manmade resources, and implement the County"s objectives for growth management and governmental structure for the region.

The MSPA encompasses 1,086 acres of land located within the four quadrants of the I-15/SR-76 Interchange and includes eight property owners. The MSPA proposed an overall residential density of 0.81 dwelling unit per acre with a maximum of 956 dwelling units.

7. **San Diego County Zoning Ordinance –** The San Diego County Zoning Ordinance provides regulatory provisions. These provisions apply to all areas of the Meadowood Specific Plan Area and regulate buildings or structures and the construction, reconstruction, alteration, expansion, or relocation of any building, structure, or use on the site. The Zoning Ordinance regulates land use by designating zones to identify permitted uses based on present and potential conditions. Specific criteria regulated through zoning include animal regulations (i.e., controls on the keeping of various types of animals), development density, lot size, building types and dimensions, setbacks, and open space requirements. Zoning categories are designed to be consistent with land use designations described in both the General Plan and Community Plan. The current zoning on the western 92 acres is S90, Holding Area Use Regulations, which require a net minimum lot size of 20 acres. The current zone on the eastern 298 acres is A70, Limited Agriculture, Use Regulations, which require a net minimum lot size of two acres.

8. **County Board of Supervisors Policy I-38 –** The County Board of Supervisors is committed to supporting and encouraging farming in San Diego County through establishment of partnerships with landowners and other stakeholders to identify, secure, and implement incentives that support the continuation of farming as a major industry in San Diego. Specific elements of this policy include criteria for preserve establishment (e.g., eligibility and size), terms (i.e., contract duration), renewal/non-renewal and cancellation, as well as provisions for implementing eminent domain and fee/tax schedules.

9. **San Diego County Agricultural Enterprises and Consumer Information Ordinance, §63.401 et seq. -** This ordinance recognizes that the commercial agricultural industry in the county of San Diego is a significant element of the County's economy and a valuable open space/greenbelt resource for San Diego County residents. The ordinance also recognizes that a majority of agricultural operations within the county are family operated, and are located throughout the unincorporated area. To further this purpose, this ordinance recognizes that conflicts can occur between agriculture and certain other land uses, and it defines and limits the circumstances under which agricultural enterprises activities, operations, and

facilities constitute a nuisance. The ordinance requires that sellers of real property in unincorporated areas inform prospective buyers that the property could potentially be near an agricultural operation and may experience related inconveniences, irritations, and discomforts. These conditions include, but are not limited to, noise, odors, dust, insects, rodents, and chemicals.

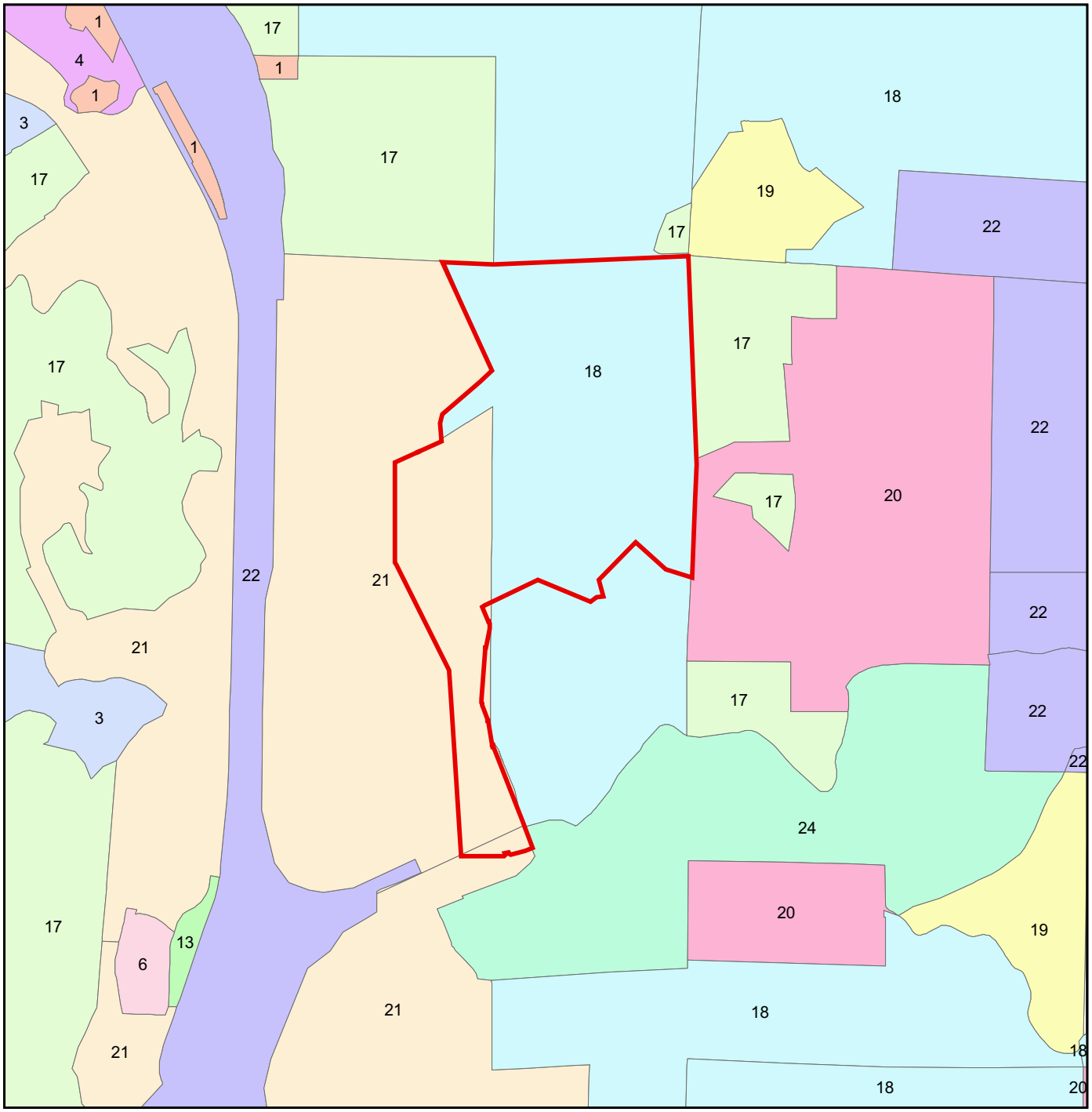
3.0 Environmental Setting

3.1 Land Use Designations and Zoning

The goals and policies that provide the overall policy framework for Meadowood are the San Diego County's General Plan, Regional Land Use Element, Fallbrook Community Plan, the I-15 Corridor Design Review Guidelines, and the Interstate 15/Highway 76 Master Specific Plan. The Meadowood project site is currently within both a SSA and RDA on the Regional Land Use Element Map. The SSA category is applied on an interim basis until the completion of a detailed review, study, or annexation. Lands within the RDA category are intended for agricultural or unimproved lands and remote pockets of residential development.

As part of this project, the Regional Land Use Map is proposed to be amended to designate Meadowood as a CUDA. The CUDA category is intended for near-term urban development and the SSA and RDA categories would be removed from the site. The Fallbrook Community Plan area, which designates Meadowood as (21) Specific Plan and (18) Multiple Rural Use, is proposed to be amended to allow for the development of a comprehensive Specific Plan Amendment by designating the entire 389.5-acre project area as (21) Specific Planning Area (Figure 4). This would allow for the preparation of a Specific Plan with a density of 2.5 units per acre, resulting in a maximum of ~~900~~ 886 dwelling units.

The area currently designated by the General Plan as (21) Specific Plan Area is zoned S90, Holding Area Use Regulation. The area currently designated (18) Multiple Rural Use Area is zoned A70, Limited Agricultural Use Regulation (Figure 5). The southwestern 92 acres of the project area are within the Interstate 15/Highway 76 Interchange Master Specific Plan Area (MSPA), which has been incorporated into the Fallbrook Community Plan. Development proposals within the MSPA must file a Specific Plan Amendment as part of a development application. The allowable overall density of the MSPA is 0.81 dwelling unit per acre, but the subject property within the MSPA is called out specifically to allow a density of 2.75 dwelling units per acre, thus allowing an additional 253 dwelling units.



Project Boundary

General Plan

- 1, RESIDENTIAL 1 DU/1,2,4 ACRES
- 3, RESIDENTIAL 2 DU/ACRE
- 4, RESIDENTIAL 2.9 DU/ACRE
- 6, RESIDENTIAL 7.3 DU/ACRE
- 13, GENERAL COMMERCIAL
- 17, ESTATE RESIDENTIAL 1 DU/2,4 ACRES
- 18, MULTIPLE RURAL USE 1 DU/4,8,20 ACRES
- 19, INTENSIVE AGRICULTURE 1 DU/4,8 ACRES
- 20, GENERAL AGRICULTURE
- 21, SPECIFIC PLAN AREA
- 22, PUBLIC/SEMI-PUBLIC LANDS
- 24, IMPACT SENSITIVE 1 DU/4,8,20 ACRES

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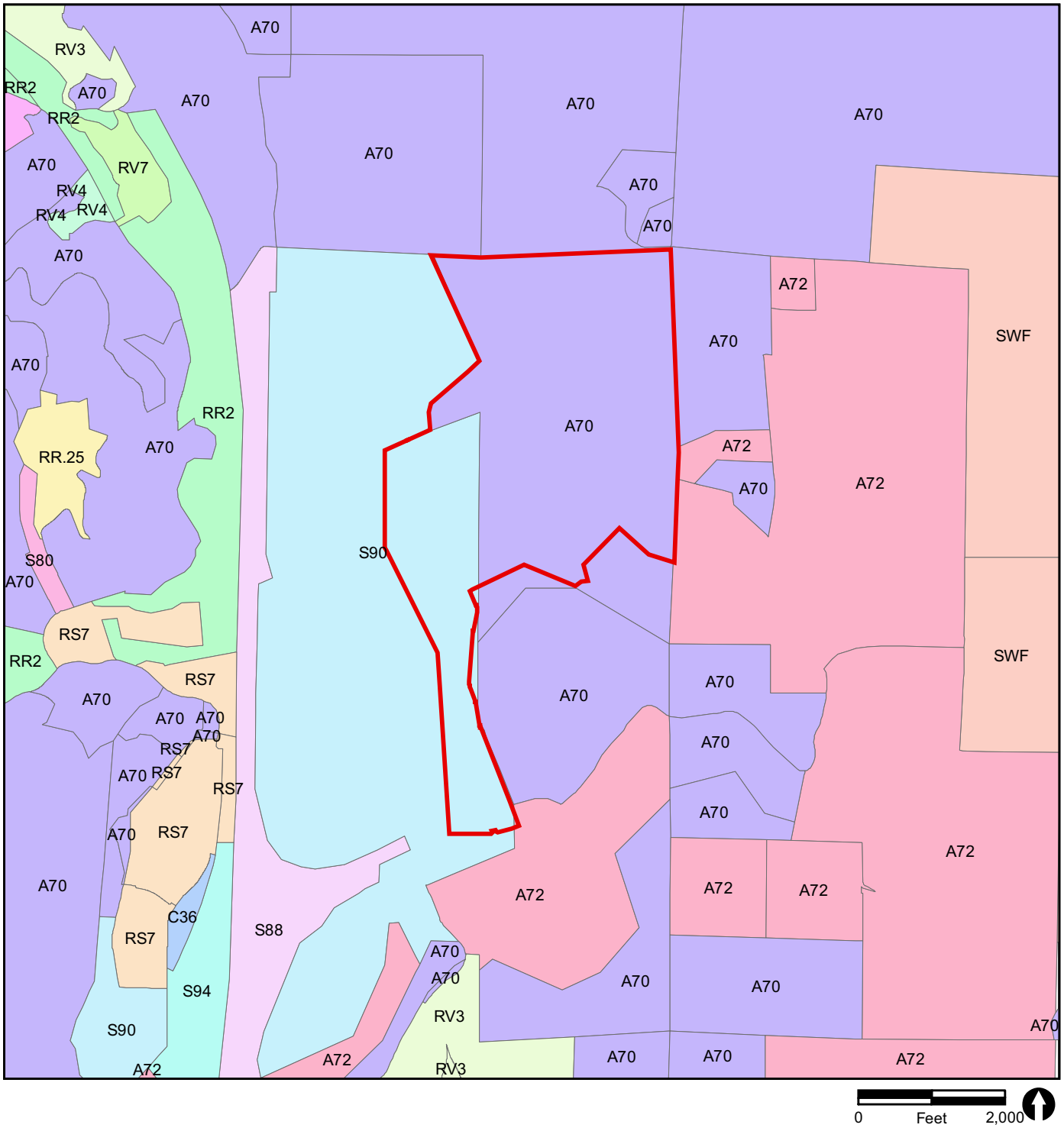
FIGURE 4

General Plan in Project Vicinity



0 Feet 2,000

Project Boundary

Zoning

- A70, Agriculture
- A72, Agriculture
- C36, Commercial and Office
- RR.25, Rural Residential
- RR1.5, Rural Residential
- RR2, Rural Residential
- RS7, Residential-Single
- RV3, Residential-Variable
- RV4, Residential-Variable
- RV7, Residential-Variable
- S80, Open Space
- S88, Specific Plan
- S90, Holding Area
- S94, Transportation and Utility
- SWF, Transportation and Utility

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FIGURE 5

Zoning in Project Vicinity

3.2 Williamson Act Contract Lands

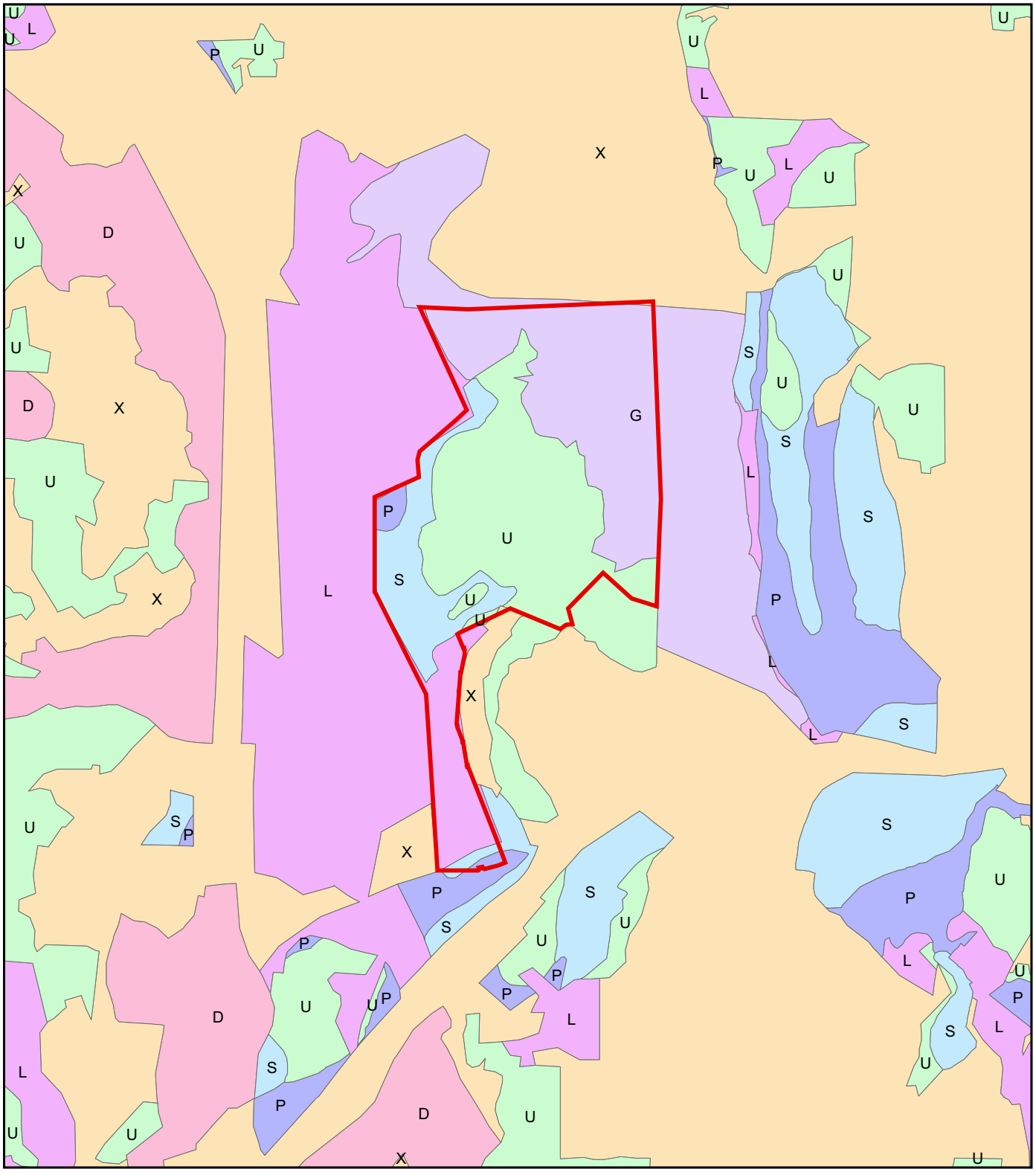
The California Land Conservation Act of 1965, also referred to as the Williamson Act, is an agricultural protection program that currently protects more than 16 million of the State"s 30 million acres of farm and ranch land. Under the act, a private landowner may voluntarily enter into a rolling term 10-year contract with the local government for the purpose of restricting specific parcels of land to agricultural or compatible open space use. Lands must be located within an agricultural preserve area and be a minimum of 100 acres in size, unless the local government authorizes a smaller size (California Department of Conservation 2005) The project site is not currently, nor historically, been within a designated Agricultural Preserve. Additionally, this project site"s land is not under a Williamson Act contract, but there is a Williamson Act Contract on the McCarthy Family Trust land (Williamson Act Contract #75-60; Preserve #15). This contract is not adjacent to the project site, however, and is located approximately one mile southeast of Meadowood and south of the San Luis Rey River.

3.3 Important Farmland Map Category

The Farmland Mapping and Monitoring Program (FMMP) is implemented by the State Department of Conservation, Division of Land Resource Protection, and recognizes the suitability of land for agricultural production. The FMMP is non-regulatory and was developed to inventory land and provide categorical definitions of important farmlands and consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California"s agricultural land resources. The program does not necessarily reflect local General Plan actions, urban needs, changing economic conditions, proximity to market and other factors that may be taken into consideration when government considers agricultural land use policies. *Important Farmland Maps*, which are a hybrid of resource quality (soils) and land use information, are produced by the FMMP. In addition, data is released in statistical formats--principally the biennial *California Farmland Conversion Report* (California Department of Conservation 2004).

Maps are updated every two years. The last statewide update was completed in 2002 and reflects land use changes to agriculture through the year 2004. Figure 6 shows the most recent farmland data within the project site and surrounding area. These include lands designated as Prime and Unique Farmlands, Farmland of Statewide and Local Importance, Grazing Land, Urban and Built-up, and Other Land (California Department of Conservation 2004).

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has published a soil survey for the San Diego area. The survey is used to determine the location and significance of Important Farmlands as mapped on Figure 6.



Project Boundary

FMMP Data (2004)

- P, Prime Farmland
- U, Unique Farmland
- S, Farmland of Statewide Imp
- L, Farmland of Local Importa
- G, Grazing Land
- X, Other Land
- D, Urban and Built-Up Land
- W, Water
- Z, Not Inventoried

0 Feet 2,000

FIGURE 6

Farmland Mapping and Monitoring Program in Project Vicinity

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Farmland categories are based on soil types, current use of the land, and availability of irrigation water.

The Important Farmland Map Categories and the acreage of the FMMP categories present on the project site are described below.

3.3.1 Prime Farmland

Prime Farmland has the most favorable combination of physical and chemical features, enabling it to sustain long-term production of agricultural crops. This land possesses the soil quality, growing season, and moisture supply needed to produce sustained high yields. In order to qualify for this classification, the land must have produced irrigated crops at some point during the two update cycles prior to Natural Resources Conservation Service (NRCS) mapping. The project area contains 6.3 acres designated Prime Farmland, All of the Prime Farmland on-site would be converted to non-agricultural uses by the implementation of the proposed project.

The U.S. Department of Agriculture"s Land Inventory and Monitoring (LIM) Project sets forth the soil criteria in units for the mapping of Prime Farmlands in San Diego. The Prime Farmland Soil criteria for the Fallbrook Community Plan area is slopes of sandy loam with a 2 to 5 percent and 5 to 9 percent slopes (Soil Survey of San Diego Area, California, December 1973, as revised 1995).

3.3.2 Farmland of Statewide Importance

Farmland of Statewide Importance is similar to Prime Farmland; however, it possesses minor shortcomings, such as greater slopes and/or less ability to store moisture. In order to qualify for this classification, the land must have produced irrigated crops at some point during the two update cycles prior to NRCS mapping. The project site contains approximately 54.2 acres designated Farmland of Statewide Importance, about 2.9 percent of the total project footprint .All of the land within this designation would be converted to non-agricultural uses as a result of the proposed project.

3.3.3 Unique Farmland

Unique Farmland is of lesser quality soils used for the production of the state"s leading agricultural crops. Unique Farmland includes areas that do not meet the above stated criteria for Prime Farmland or Farmland of Statewide Importance, but that have been used for the production of specific high economic value crops during the two update cycles prior to the mapping date. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to current farming methods. This land is usually irrigated, but may include non-irrigated 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. The project site contains approximately 147.6 acres designated as Unique Farmland, of which 99.9 acres would be converted to non-agricultural uses as a result of the proposed project.

3.3.4 Farmland of Local Importance

Farmland of Local Importance is important to the local agricultural economy, as determined by the County Board of Supervisors and a local advisory committee. The County of San Diego defines Farmland of Local Importance as land with the same characteristics as Prime Farmland or Farmland of Statewide Importance with the exception of irrigation. Approximately 43.1 acres of the project area is designated Farmland of Local Importance, all of which would be converted to non-agricultural uses as a result of the proposed project.

3.3.5 Grazing Land

Grazing Land is 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. The minimum mapping unit for Grazing Land is 40 acres. Approximately 136.3 acres of the project site is designated Grazing Land. Of this, approximately 11.5 acres will be converted to non-agricultural uses.

3.3.6 Urban and Built-up Land

This classification consists of 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. Currently, there is no land designated as Urban and Built-up in the project area.

3.3.7 Other Land

Other Land consists of 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. There is approximately 1.0 acre of land designated as Other Land in the project site.

Table 1 depicts the approximate acreage for each of the FMMP categories within the project site and shows them as a percentage of the total project site. According to the Important Farmlands Inventory Map, lands within the Meadowood project site contain Unique Farmland, Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Other Land. Unique Farmland and Grazing Land comprise the majority of the project site.

TABLE 1
ACRES OF FMMP FARMLAND ON-SITE AND
AS A PERCENT OF THE ENTIRE PROJECT AREA

Category	Total Acres	Total Percent of Project Area
Farmland of Statewide Importance	54.2	13.9
Farmland of Local Importance	43.1	11.3
Grazing Land	136.3	35.0
Other Land	1.0	0.2
Prime Farmland	6.3	2.9
Unique Farmland	147.6	37.9
TOTAL	389.5	100.0

3.4 Land Use

3.4.1 Existing On-Site Land Use

Most of the Meadowood site (approximately 209.9 acres) is currently and has historically been committed to various agricultural activities, with extensive areas supporting citrus and avocado orchards occupying the lower and mid-portions of ridges and slopes in the central portion of the site. These areas are irrigated, and the trees are maintained by periodic trimming, pruning, and replanting. The southern portion is used to grow seasonal crops. According to the Cultural Resources Survey of the property (ASM 2005), there are five residences, one cinder block building historically used to house workers, and four outbuildings used as garages or for storage. All of these buildings appear to be associated with the agricultural operation or are residences for the property owners.

There is a steep and rugged ridgeline that trends north-south along the eastern portion of the property. The ridgeline separates the agricultural areas from the northeastern and eastern areas of the site which contain primarily undisturbed native vegetation such as chaparral and coastal sage scrub.

3.4.2 Agricultural History

The Meadowood property was originally part of the Mexican land grant of Rancho Monserrate granted to Don Ysidro María Alvarado by Governor Pío Pico in 1846. From the 1870s through the 1920s, the property was part of a rural farming community typical of its time. Pioneer farmers of this era typically settled the river valley bottom lands and established communities tied together through a common school district, church, post office, and country store. Wheat became the chief crop during the initial settlement of the San Diego area, but experimental cultivation in the 1860s and 1870s found crops such as olives, oranges, and grapes that could be successfully grown and marketed. Fruit production quickly spread and by the end of the decade had become a major product. However, farmers in the area raised a large number of diverse crops with water taken from the San Luis Rey River in small ditches such as corn, pumpkins, alfalfa, sweet potatoes, and truck crops (ASM 2005).

The property changed hands numerous times until the 1930s when Charles Cooper purchased the (then) 3,000-acre property and invested a quarter of a million dollars in transforming it into a race horse breeding ranch. The San Luis Rey Ranch contained two half-mile tracks for exercising and training as well as alfalfa fields, barns, paddocks, living quarters for workers, and the ranch house where Charles and his wife lived. With the boom in the racing industry, San Luis Rey became a well known thoroughbred farm. When horse racing was put on hold in the 1940s because of World War II, the ranch began losing money and Cooper was forced to sell in 1943 (ASM 2005). The brothers Robert and Edgar Pankey obtained the farm in 1946. The project site has been farmed by the Pankey family for more than 60 years. Throughout this time, citrus, dry beans, avocados, gladioli bulbs, and barley crops have been produced with varying levels of success. Dry beans (blackeye), barley, Valencia orange, and tangerine crops have been grown on particular acres as well (Copley International Corporation [CIC] 1980).

3.4.3 Surrounding Land Use

The properties adjacent to the project site are zoned for agriculture, support citrus, avocado, and field crop production, and contain several single-family residences (Figure 7) The project site is situated adjacent to several planned and approved projects: the Campus Park SPA (currently used for cattle grazing) lies immediately adjacent to the west, along with the approved Palomar College Campus site. The Campus Park West property lies between Campus Park and I-15. Bordering the site on the southeast is the approved Rosemary Mountain Rock Quarry. To the north is undeveloped land consisting of abandoned pastures, citrus and avocado orchards, and natural open space. Northeast of the project site, located along Rice Canyon Road, are various small scale agricultural operations and rural residential land uses. Additional parcels (planted to field crops) under Pankey ownership but that are not part of the Meadowood project are located to the south.

Figure 7, color/oversize

The Fritz Family property occupies most of the relatively flat canyon floor to the east of Rice Canyon Road east of the project site (see Figure 7). This operation primarily grows truck crops. Avocado groves exist farther east. Pala Rey Ranch (McCarthy Family property) lies southeast of the project site, south of SR-76, and on both sides of Couser Canyon Road. The ranch headquarters is surrounded by a pasture that is seasonally grazed by cattle. The San Luis Rey Ranch (McCarthy Family property) is located to the east and west of Couser Canyon Road. There is no urban or built-up land in the project"s vicinity. The closest urban areas lie west of I-15 and south of Pala Road.

The Pala Preserve (Preserve #15) is located east and southeast of the eastern project boundary and encompasses the Fritz Family property along Rice Canyon Road. Part of the Pala Preserve also has a Williamson Act Contract in effect. The McCarthy Family Trust (Williamson Act Contract #75-60) parcels that comprise the San Luis Rey Ranch operation located along both sides of Couser Canyon Road south of the river are also part of the preserve.

3.5 Climate

The project area, like the rest of San Diego County"s inland valley areas, has a warm summer Mediterranean climate characterized by warm, dry summers and mild, wet winters. The mean annual temperature for the project area is 74 degrees Fahrenheit (F). The average annual precipitation is 13 inches, falling primarily from November to April. Winter low temperatures in the project area average about 44 degrees F, and summer high temperatures average about 81 degrees F (Weather.com 2006). Cool air drains into the valley from the surrounding hillsides. Frost often settles on the valley floor between the beginning of November and the end of March. Actual and potential freeze hazards restrict the growing season from 210 to 250 days. The project site is located in the "transitional" plant climate zone (University of California Extension 1970). Although soils are relatively poor for agricultural production, climatic conditions are favorable for a select set of crops such as avocados and citrus.

3.6 Soils

The U.S. Department of Agriculture Soil Conservation Service, replaced by the Natural Resources Conservation Service (NRCS) in 1994, developed a system to generally classify soil types. The land capability classification describes soils types, their physical characteristics and limitations, and their suitability for agriculture and other uses. The SCS grouped soils according to their general suitability for most kinds of field crops. The capability system groups all soils into three levels: the capability class, subclass, and unit. The capability class is designated by Roman numerals I through VIII. The numbers indicate progressively greater limitations and narrower choices for practical use. Soils with few limitations that restrict their use for agriculture are placed in Capability Class I.

Soils with very severe agricultural limitations, which would affect management or choice of crop, are placed in Capability Class IV. Some soils have limitations that render them agriculturally impractical, and are placed in Classes V through VIII.

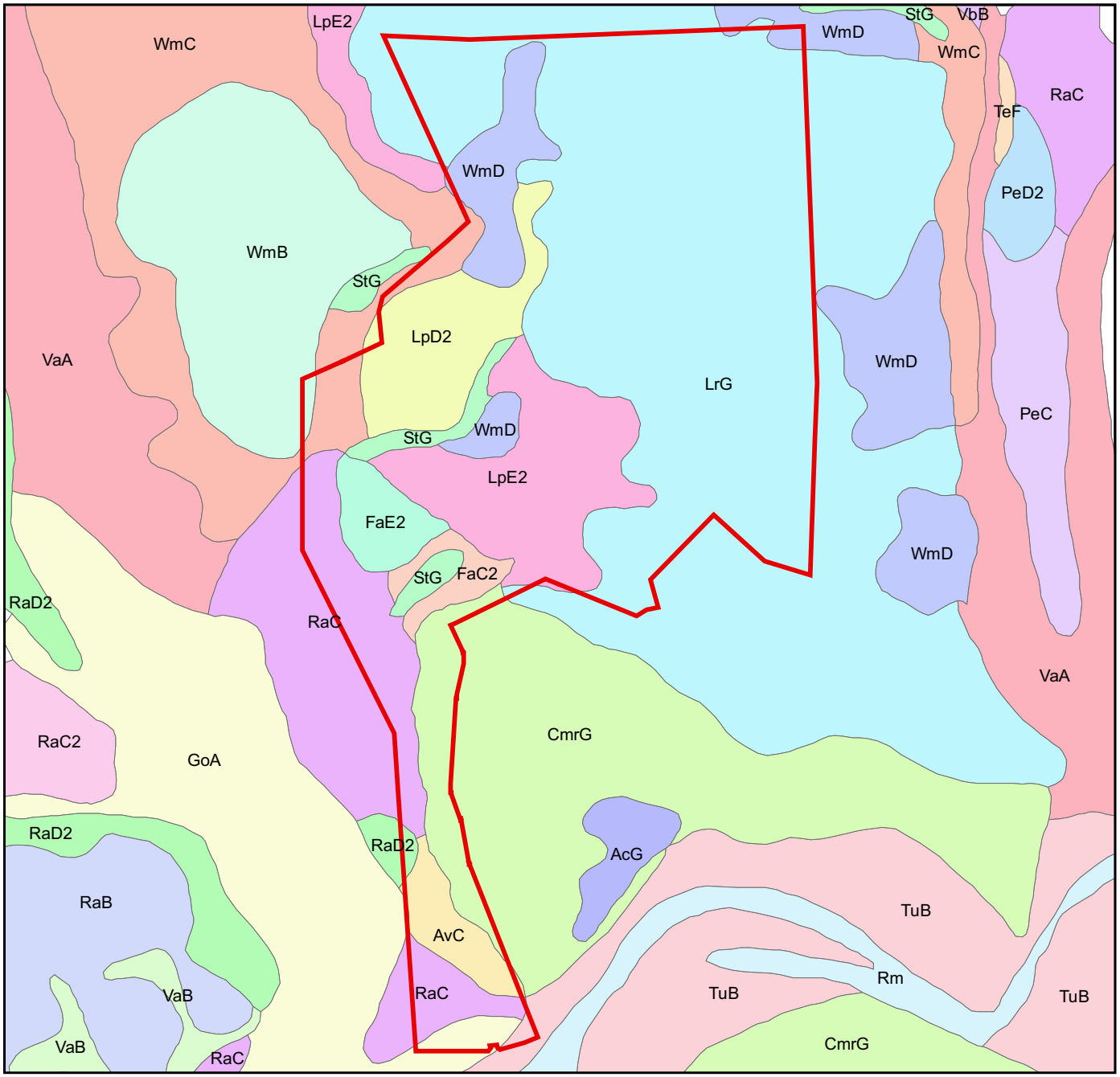
Capability subclasses, of which there are four, are soil groups within one class. Adding a small letter, e, w, s, or c, to the class numeral, for example, I-e, designates them. The letter e shows that the main hazard is the risk of erosion; w shows that water in or on the soil interferes with plant growth or cultivation; s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that climate, either very cold or very dry, is a limiting factor. According to the Williamson Act (California Government Code Section 51201[c]), soils in capability groups I and II are classified as “prime” soils. There are about 26,700 acres of Class I and 104,930 acres of Class II soils in San Diego County.

Capability units are soil groups within a subclass, which further define soil characteristics and/or limitations to their use. Adding an Arabic numeral to the subclass symbol, for example, IIe-4 and IIIe-6, generally designates capability units. Thus, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, and the Arabic numeral specifically identifies the capability unit within each subclass. These units are not given in all soil surveys.

The Storie Index provides another way to classify the value of agricultural soils. The Storie Index numerically expresses the relative degree of suitability and grade of a soil for intensive agriculture based on soil characteristics. Soils of grade 1 (i.e., index rating of 80 to 100) have few or no limitations restricting their use for crops. At the other end of the scale, grade six (i.e., index rating of less than 10) consists of soils that generally are not suited to farming. Storie Index Ratings of 80 and above give a soil the designation of Prime Agricultural soil.

The spatial distribution of soil types/units on the project site is shown in Figure 8 (SANDAG GIS Data 2004). These soils have been rated for agricultural capability. The on-site soils and their associated acreages, capability units, and Storie Index ratings are shown in Table 2. Their characteristics are taken from the USDA soil surveys for San Diego County (USDA 1973). An asterisk (*) next to the soil type indicates a Prime Farmland soil. A carrot (^) next to the soil type indicates a soil of Statewide Importance. Approximately 60.5 acres of the western portion of the project site contain soils that qualify for the Prime Farmland or Statewide Importance Farmland designations.

As indicated in Table 2, soils on the project site are diverse in capability and unit crop suitability. Of the eight capability classes, Classes I and V are absent from the project site. Class II soils comprise 14.45 acres of the project site, which have moderate limitations that restrict the choice of plants or that require moderate conservation practices. These soils consist of two types of Wyman Loam (10.82 acres), located in a small pocket along the northeastern border, and Grangeville fine sandy loam



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Project Boundary

Soil Classifications

- AcG, Acid igneous rock land
- AvC, Arlington coarse sandy loam, 2 to 9 percent slopes
- CmrG, Cienaba very rocky coarse sandy loam, 30 to 75 percent slopes
- FaC2, Fallbrook sandy loam, 5 to 9 percent slopes, eroded
- FaE2, Fallbrook sandy loam, 15 to 30 percent slopes, eroded
- GoA, Grangeville fine sandy loam, 0 to 2 percent slopes
- LpD2, Las Posas fine sandy loam, 9 to 15 percent slopes, eroded
- LpE2, Las Posas fine sandy loam, 15 to 30 percent slopes, eroded
- LrG, Las Posas stony fine sandy loam, 30 to 65 percent slopes
- PeC, Placentia sandy loam, 2 to 9 percent slopes
- PeD2, Placentia sandy loam, 9 to 15 percent slopes, eroded
- RaB, Ramona sandy loam, 2 to 5 percent slopes
- RaC, Ramona sandy loam, 5 to 9 percent slopes, eroded
- RaC2, Ramona sandy loam, 5 to 9 percent slopes, eroded
- RaD2, Ramona sandy loam, 9 to 15 percent slopes, eroded
- Rm, Riverwash
- StG, Steep gullied land
- TeF, Terrace escarpments
- TuB, Tujunga sand, 0 to 5 percent slopes
- VaA, Visalia sandy loam, 0 to 2 percent slopes
- VaB, Visalia sandy loam, 2 to 5 percent slopes
- VbB, Visalia gravelly sandy loam, 2 to 5 percent slopes
- WmB, Wyman loam, 2 to 5 percent slopes
- WmC, Wyman loam, 5 to 9 percent slopes
- WmD, Wyman loam, 9 to 15 percent slopes

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FIGURE 8

Soils Data in Project Vicinity

TABLE 2
ON-SITE SOIL RESOURCES

Soil Type/ Symbol	Soil Description	No. of Acres	Capability Unit	Storie Index
AvC ^	Arlington coarse sandy loam, 2 to 9 percent slopes	9.98	IIIe-8 (19)	47
CmrG	Cienaba very rocky coarse sandy loam, 30 to 75 percent slopes	16.70	VIIs-8 (19)	<5
FaC2 ^	Fallbrook sandy loam, 5 to 9 percent slopes, eroded	6.68	IIIe-1 (19)	51
FaE2	Fallbrook sandy loam, 15 to 30 percent slopes, eroded	10.71	VIe-1 (19)	35
GoA *	Grangeville fine sandy loam, 0 to 2 percent slopes	3.65	IIw-2 (19)	81
LpD2	Las Posas fine sandy loam, 9 to 15 percent slopes, eroded	28.54	IVe-1 (19)	33
LpE2	Las Posas fine sandy loam, 15 to 30 percent slopes, eroded	44.80	VIe-1 (19)	26
LrG	Las Posas stony fine sandy loam, 30 to 65 percent slopes	196.32	VIIe-7 (19)	8
RaC ^	Ramona sandy loam, 5 to 9 percent slopes	29.79	IIIe-1 (19)	58
RaD2	Ramona sandy loam, 9 to 15 percent slopes, eroded	0.85	IVe-1(19)	48
StG	Steep gullied land	7.56	VIIIe-1 (19)	<10
TuB ^	Tujunga sand, 0 to 5 percent slopes	0.78	IVs-4 (19)	39
WmB *	Wyman loam, 2 to 5 percent slopes	0.95	IIe-1 (19)	81
WmC ^	Wyman loam, 5 to 9 percent slopes	9.87	IIe-1 (19)	77
WmD	Wyman loam, 9 to 15 percent slopes	22.13	IIIe-1 (19)	69
Total Acres		**389.30**		-

*Prime Farmland Soil.
^Farmland of Statewide Importance Soil.

(3.65 acres) located on the southernmost tip of the project boundary. Wyman soil is used for citrus, truck crops, tomatoes, flowers, and range.

Another moderately large portion of the project site is Las Posas Fine Sandy Loam, 9 to 15 percent slopes, eroded, soil in Class VI. This soil comprises 28.54 acres close to the western project boundary north of the center. Class IV soils have very severe limitations that restrict the choice of plants or that require very careful management, or both. Capability Steep Gullied Land (StG) comprises 7.56 acres of the project site. This soil is in class VIII, with a steep landform and limitations that preclude commercial plant production, restricting its use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes. The northeast portion of the project site is Las Posas stony fine sandy loam, with 30 to 65 percent slopes, which comprises approximately 196.32 acres and is a Class VII soil. Class VII soils have very severe limitations that make it unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat. Approximately 44.80 acres of Las Posas fine sandy loam with 15 to 35 percent slopes, eroded, occupies the central portion of the project site. This soil type is of Class VI, which has severe limitations that make it generally unsuitable for cultivation and that also restrict uses mainly to pasture, rangeland, forestland, or wildlife habitat.

3.7 Water

3.7.1 Water Supply

The Project Site is currently irrigated with groundwater from on-site wells. No imported public water or waste water services are supplied to the site. The project will use recycled water for irrigation purposes as a means of reducing its need for imported water. Wastewater from the development will be treated to recycled water quality standards at the project‟s water recycling plant, and will be used on-site for irrigation of the project‟s common area landscaping, slopes, park, school field, and the retained citrus and avocado groves.

3.7.2 Water Quality

The Meadowood project area is underlain by both the western portion of the Pala Groundwater Basin and the eastern portion of the Bonsall Groundwater Basin. Water data is periodically gathered for both basins by the San Luis Rey Municipal Water District from monitor wells, one of which is in close proximity to the southeastern corner of the project site. The water quality of the groundwater in the Pala and easternmost Bonsall Groundwater Basin is characterized by relatively high total dissolved solids (TDS) concentrations. TDS is a measure of water‟s salinity and is expressed in terms of milligrams per liter or mg/l. TDS concentrations have been reported to be over 1,000 milligrams per liter (mg/l) for the Bonsall Groundwater Basin, and are generally at or

below 1,000 mg/l for the Pala Groundwater Basin. The average TDS concentration for the Pala and Bonsall Basins is estimated to be 600 and 1,200 mg/l respectively. Chloride and sulfate concentrations are typically at or above secondary maximum contaminant levels (MCLs) (San Luis Rey Municipal Water District 2006).

Water with a TDS greater than 500 mg/l is problematic to many of the subtropical crops grown in San Diego County because they do not produce well and irrigation management is more difficult when irrigated with high TDS water. Water with a TDS greater than 1,000 mg/l becomes problematic even for industrial uses and is virtually unusable for many crops (San Diego County Water Authority, Agricultural Water Management Plan). The project proposes the use of recycled water to irrigate the avocado groves that would be preserved. Recycled water can have up to 300 mg/l more TDS than non-recycled water. However, the wastewater technical report (RW Beck, 2009) states that the TDS concentration within the recycled water to be used for irrigation is expected to be between 900 and 1050 mg/l, which is lower than the Bonsall Groundwater Basin Plan requirement of 1,500 mg/l. Therefore, the proposed primary source of irrigation water for the agricultural open space easement will actually have improved water quality over existing groundwater use that has sustained the avocado orchards for more than 25 years. Consistent with current avocado irrigation system operations, additional water will be used as necessary to leach the soils and prevent accumulation of salts. Furthermore, as irrigation demand in the summer months exceeds WWTP effluent supply, it will likely be necessary to supplement with a potable water supply containing TDS concentrations below 700 mg/l. This water would be blended with the WWTP effluent to further improve the quality of irrigation water.

Research regarding the effect of TDS within irrigation water used on agricultural crops has shown that higher concentrations may result in lower crop productivity. However, the effect of TDS is directly dependent upon the type of agricultural crop being irrigated. According to the Irrigation Water Quality Standards and Salinity Management Strategies completed by the Texas Cooperative Extension, irrigation water with a TDS concentration of 1,100 mg/l will result in approximately 75 percent avocado crop productivity.

Based on the improved irrigation water quality and sufficient crop productivity, it is expected that the proposed method of irrigation will continue to support long-term viability of avocado orchards within the agricultural open space easement.

3.8 Crop Suitability

Crop suitability for a parcel of land depends on the combination of soil, water, and climate resources on the parcel. Climatic conditions allow agricultural production to occur year-round in most areas of western San Diego County; that is, the Coastal Plains

and the Foothills. However, the project site lies on the edge of the transitional climate zone and oceanic influences are minimal. Therefore, the frost-free growing season is only between 250 and 300 days long (CIC 1980). Elevations range from 265 feet AMSL to approximately 818 feet AMSL along the southern flank of the Monserate Mountains (NRC 2005).

Currently, the majority of the project site, approximately 209.9 acres of the 389.5-acre project site, is involved in the active production of agriculture, primarily citrus and avocado because they are suited to growing on the steep slopes that are less susceptible to the frost that usually settles within the valleys. Citrus is less sensitive to frost and slow permeability than avocados but is more difficult to manage on steeper slopes. Citrus is commonly grown on nearly level to moderately steep soils. Of the citrus crops, the parcel is most suited to oranges and grapefruit, as lemons are adapted to the cooler climates found near the ocean.

3.9 Site Limitations

While water places few limitations on agricultural production on the site, climate and soils somewhat restrict production options as a freeze hazard exists between the first of November and the end of March and most of the soils are only of below average to average quality. Spring and winter harvest crops are limited and even citrus and avocados will need frost protection devices such as wind machines or smudge pots during some winter nights. However, the soil restriction is a very minor one, as much of San Diego County agriculture is climate oriented (i.e., tending toward the production of crops that require a specialized climate, but that do well on the poor soils typically found on hillsides if the climate is favorable). The major crops grown in the region are avocados, citrus, truck crops, tomatoes, and flowers. The climate, soils, and topography on the project site are very suitable for citrus groves and are especially suited to grow avocados, as they do well on the hillsides which make up a large portion of the project site"s landscape.

3.10 Agricultural Interface

As discussed, the site has a long history of growing avocados and citrus, along with certain bean types and bulbs. Additionally, various agricultural productions occur within four miles of the project vicinity. Existing and surrounding land uses as well as historical agricultural uses are discussed in Section 3.4 and shown on Figure 7. The nearest agricultural operations consist primarily of citrus orchards, avocado groves, and indoor and outdoor flower crops. These agricultural operations and uses likely perform all or some of the following: cultivation; plowing; spraying; pruning; harvesting; and drying; which may generate dust, smoke, noise, pests (i.e., insects, rodents, etc.), odor, and the

use of pesticides. Potential interface impacts associated with the agricultural operations on the Fritz Family properties along Rice Canyon Road to the east and the field crop operations under Pankey ownership to the south are discussed in the following sections.

3.10.1 Odors, Noise, and Vectors

Agricultural production includes practices that may conflict with urban uses of adjacent land. Therefore, close proximity of urban land uses to agriculturally productive land may inhibit that agricultural production. Buffer zones located between urban and agricultural land will help to minimize the adverse impact that urban development can have on nearby agricultural production.

3.10.2 Site Contamination

The Department of Agriculture, Weights and Measures (DAWM) in the County of San Diego inventories pesticide use per land parcels. The agricultural chemical products used on the project site or within a four-mile radius of the project site within the last three years include the following (County of San Diego 2005a):

- Clean Crop Diazanon AG600 WBC
- M-Pede Insecticide
- Insecticidal Sosp 49.52 CF
- Pursuit Herbicide
- NO FOAM B
- Agri-Mek 0.15 EC Miticide/Insecticide
- Nu-Lure Insect Bait
- Diphacin rat and ground squirrel grain bait
- MON-35085
- MON-65005
- Roundup Pro Herbicide
- CLEAN CROP MALATHION 8E INSECTICIDE
- Leffingwell Supreme 415 Oil
- Omni Supreme Spray
- Princep Caliber 90 Heribcide
- Simazine 90-DF
- Wilco

A Phase I and limited Phase II hazardous materials investigation was conducted for the project site (Converse Consultants 2002). The investigations performed as part of the Phase I and Limited Phase II found that portions of the site were used for storage of tractor transmission parts and agricultural equipment and another portion used for the storage of pesticides, nutrients, and insecticides within aboveground storage tanks (ASTs). Additionally, as part of those investigations, Converse consulted with the San Diego Regional Water Quality Control Board, and the San Diego County Department of Environmental Health, Hazardous Materials Management Division, and the DAWM. No concerns were noted. A minor violation was filed at the DAWM for incorrect labeling and a lack of protective equipment for farm workers. This violation was corrected and there are no other violations or concerns on record at the DAWM. Smudge pots were also used on-site for the citrus operations and hydrocarbons were found on and around the storage area, but were deemed to be of low toxicity.

In summary, the construction of the project has the potential to emit hazardous materials through excavation and disposal of potentially hazardous materials from the site"s past agricultural uses. However, the results of the ESA found the concentration of total petroleum hydrocarbons (TPH) on-site to be of low risk, and the project will address potential impacts to hazards by incorporating project design features prior to the development of the project or land acquisition to further reduce risks of hazardous materials (Table 1-5 of the draft EIR).

4.0 Guidelines of Significance

For the purpose of this report, a significant impact to agricultural resources would occur as a result of project implementation if:

1. The project will convert California Department of Conservation (CDC) designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), to non-agricultural use.

2. The project would place or establish non-permitted uses in existing agricultural zones or on Williamson Act contract lands.

3. The project will involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

4. The project would conflict with any applicable plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

5.0 Methodology

The methodology used in this analysis includes the following steps in the analysis:

- Reviewing or using the following informational sources or documents: (1) CDC FMMP data bases; (2) Williamson Act contract records; (3) soil data bases (4) Phase I or II Environmental Site Assessment reports; (5) topographic quadrangle maps; (6) cultural resources reports; (7) aerial photographs; and (8) San Diego County General Plan, Community Plan, and Zoning Ordinance documents.

- Utilizing the California Land Evaluation and Site Assessment (LESA) Model pursuant to the California LESA Model Instruction Manual to evaluate and quantify the direct impacts that would result from project implementation, such as conversion of active agricultural lands and mapped farmland categories to a non-agricultural use.

- Indicate the percentage (or acreage) of significant agricultural lands, farmland, agricultural preserves, Williamson Act contract lands, and Important Farmland Map Categories to be converted to a non-agricultural use by the proposed development.

- Evaluate Williamson Act contract, agricultural preserve, or agricultural zoning conflicts.

- Evaluate indirect impacts on-site and off-site as a result of project implementation, and determine whether agricultural conversion will occur indirectly.

- Discuss the agriculture interface impacts that the project may have on surrounding agricultural resources and/or operations; determine whether agricultural conversion will occur as a result of these impacts and whether existing operations will be limited by the proposed project; describe the extent to which operations have been limited; and discuss any natural features such as bluffs, dense landscaping, or elevation changes that may help to reduce agriculture interface conflicts.

The cumulative impact analysis for agriculture defines the geographic scope of the cumulative impact study area and includes a discussion of the reasoning and justification for the chosen boundaries of the cumulative impact study area. This report analyzes the significance of any agricultural conversion on a cumulative level pursuant to CEQA Guidelines (§15130 and 15355).

This agricultural report discusses in detail any feasible mitigation measures that would reduce anticipated significant impacts to levels below significance, and where

appropriate, discusses any environmental design considerations. Finally, the report makes a clear statement indicating, whether the project will result in a significant adverse direct, indirect, or cumulative impact on agricultural resources and whether the impacts can be mitigated to a level below significance; recommends mitigation; and includes a brief summary conclusion.

6.0 Analysis of Project Effects and Significance Determination

6.1 Direct Impacts (Guidelines 1 and 3)

6.1.1 Evaluation Using the LESA Model

As noted above in Section 5.0, the LESA Model analysis was performed in order to assess potential direct agricultural impacts from implementation of the proposed project including the loss of Important Farmland Designations. LESA is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of a California Agricultural LESA Model is the result of Senate Bill 850, which charges the Resource Agency, in consultation with the Governor‟s Office of Planning and Research, with developing an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines concerning agricultural lands. The use of this model is based on the associated 1997 California Agricultural LESA Model Instruction Manual (http://www.consrv.ca.gov/DLRP/qu_lesa.htm). This manual, pursuant to Appendix G of the CEQA is intended “to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process,” (Public Resources Code Section 21095).

The California LESA Model is composed of six different factors. Two Land Evaluation (LE) factors are based upon measures of soil resource availability. Four Site Assessment (SA) factors provide measures of a given project‟s size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is the project score that becomes the basis for making a determination of a project‟s potential significance, based upon a range of established thresholds. The results of the LESA analysis are detailed below.

6.1.1.1 Land Evaluation Score

Each soil type within the project boundary was mapped and identified by acreage and percent of the entire project area (389.5 acres). The Land Capability Classification (LCC) rating and Storie Index were then calculated based on the scoring system established in the LESA model and the "Soil Survey: San Diego Area, California" (1973). The LCC Score and Storie Index Score were then calculated by multiplying the LCC Rating and Storie Index by the proportion of the project area by soil type. As shown in Table A-1 of Appendix A, the total LCC Score equaled **27.75** and the total Storie Index Score equaled **24.34**. Each of these scores represents 25 percent of the weighted factor rating in the LESA Model, with resulting scores of 6.9 for the Land Capability Classifications and 6.1 for the Storie Index ratings.

6.1.1.2 Site Assessment Score

Project Size Score

Each soil type was classified by the corresponding LCC for that soil. Soils were grouped by the following basis: LCC Class I and II Soils, LCC Class III Soils, and LCC Class IV through VIII. Each classification was given a corresponding score based on the total acreage of grouping (Table A-2 of Appendix A). The LESA Model project size scoring system requires the use of the highest group score. The highest score and therefore the project size score for the project was the classification LCC Class IV-VIII which equaled 80. The final score of 80 represents 15 percent of the weighted factor rating in the LESA Model, resulting in a weighted project size score of **12** (Table A-3 of Appendix A).

Water Resource Availability Score

The current agricultural production on-site is irrigated by well water. Of the 389.5-acre site, 209.9 acres (54 percent) is under agricultural production. Using the Water Resource Availability Scoring Table (Table A-4 of Appendix A), it was identified which option is most applicable for the irrigated portion of the Meadowood site, based upon the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. As the site is irrigated by groundwater from wells located on-site, there are no physical or economic restrictions with regard to water availability in non-drought years. However, in dry years, there are both physical and economic restrictions. The physical restriction pertains to the high level of dissolved salts in the well water in combination with the greater amount of water pumped versus falling naturally as precipitation. The economic restriction represents the higher electricity costs of pumping extra water because of the decreased rainfall.

Non-Drought Years:
Irrigated Production Feasible: Yes
Physical Restrictions: No

Economic Restrictions: No

Drought Years:
Irrigated Production Feasible: Yes
Physical Restrictions: Yes
Economic Restrictions: Yes

Using the above-mentioned Water Resource Scoring Table from the California LESA Model Instruction Manual, it appears that option five is the most appropriate. Therefore, the site was given a score of 80. The score of 80 was then multiplied by the portion of the project under irrigated agricultural production, equaling a water availability score of 45.2. The water resource availability score represents 15 percent of the weighted factor rating in the LESA Model, resulting in a weighted water resource availability score of **6.8**.

Surrounding Agricultural Land Use Score

To calculate the Zone of Influence (ZOI), the smallest rectangle was drawn around the project boundary to completely encompass the project area. A second rectangle was drawn around the project boundary, which extends one-quarter mile on all sides beyond the first rectangle. The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself (Figure 9).

The total ZOI acreage was calculated (using the LESA Instruction Manual, 1997) to be 1,716.3 acres. Land that was in current agricultural production within the ZOI equaled 880.7. This acreage was derived by calculating the total acreage of CDC Important Farmlands including the Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance categories. The total acres in agricultural production were divided by the total ZOI acreage to determine the percent of the ZOI in agricultural use (45.1 percent). Using the Surrounding Agricultural Land Use Score Table, a corresponding score was given to the ZOI. Based on the table, the Surrounding Agricultural Land Use Score for the Meadowood site is **60.**

Protected Resource Lands Score

To calculate the Protected Resource Lands Score, all lands within the ZOI (see Figure 9) that are “protected resource lands” as defined by the Agricultural Land Use Guidelines was totaled. The total acreage equaled approximately 455 acres using conservative criteria based on Williamson Contracts; publicly owned lands maintained as park, forest, or watershed resources; and lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses. That acreage was then divided by the total ZOI acreage equaling 35 percent. Using the Protected Resource Lands Score Table (Table A-7 of Appendix A), a corresponding score was given to the ZOI. Based on the table, the Protected Resource Lands Score for the Meadowood site is **0.**

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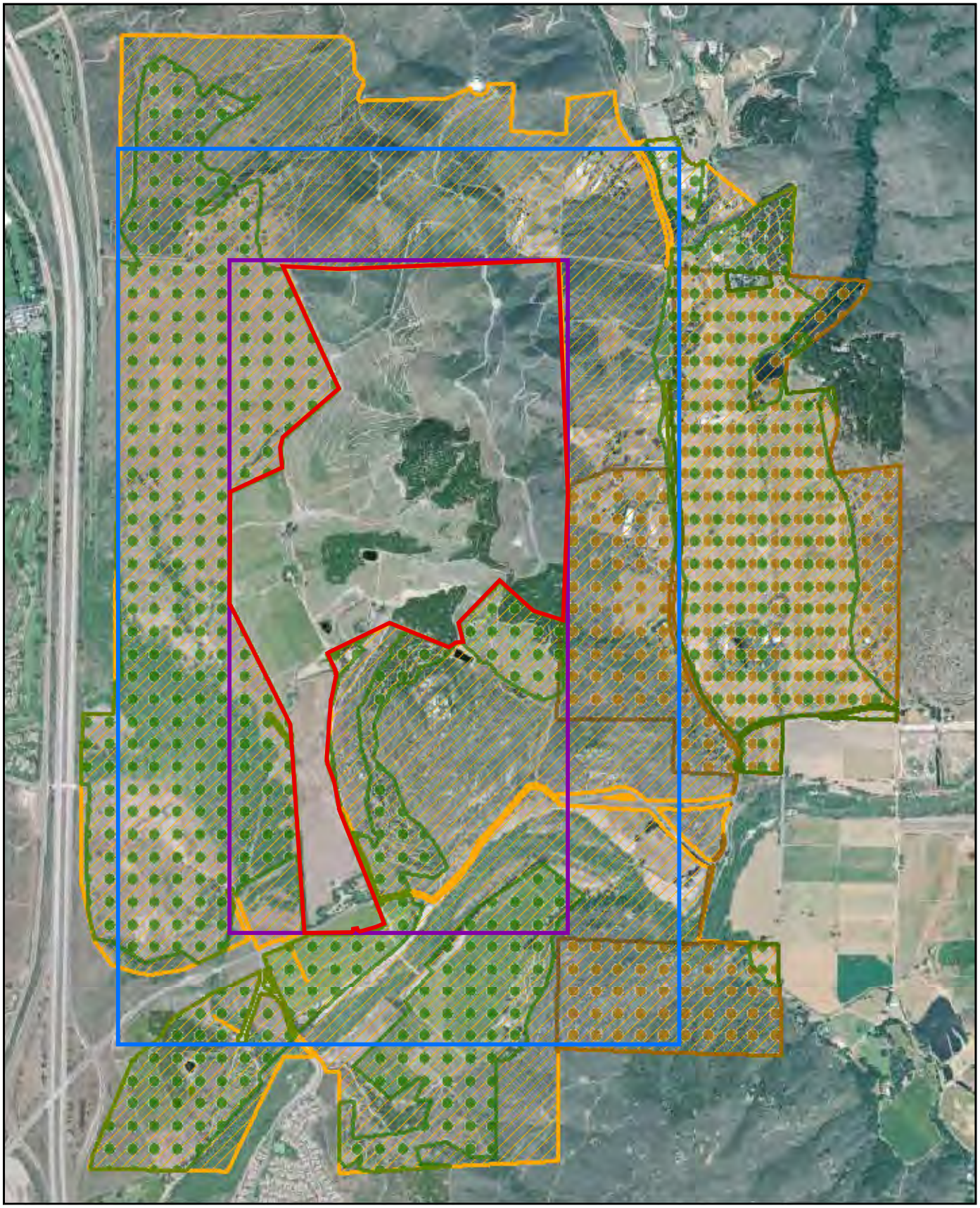

Project Boundary
Rectangle A
Rectangle B
Zone of Influence
Protected Resource Lands
Surrounding Agricultural Land

0 Feet 1,600

RECON

M:\jobs2\3706\common_gis\Ag_fig9.mxd 04/16/07

FIGURE 9
LESA Zone of Influence Exhibit

Total LESA Score Results

Table 3 presents the California Agricultural LESA scoring thresholds.

TABLE 3
LESA SCORING THRESHOLDS

Total LESA Score	Scoring Decision
0 to 39 Points	Not considered significant
40 to 59 Points	Considered significant only if LE and SA subscores are each greater than or equal to 20 points
60-79 Points	Considered significant unless either LE or SA subscore is less than 20 points
80 to 100 Points	Considered significant

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the LE factors (Land Capability and Storie Index), and 50 percent from the SA factors (Project Size, Water Resource Availability, Surrounding AG lands, and Protected Resource Land). A single LESA score is generated for a given project after all of the individual LE and SA factors have been scored and weighted as detailed in the table below. Just as with the scoring of individual factors, the final project scoring is based on a scale of 100 points, with a given project capable of deriving a maximum of 50 points from the LE factors and 50 points form the SA factors.

Scoring thresholds are based upon both the total LESA score as well as the component LE and SA subscores. In this manner the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (Table 4).

TABLE 4
FINAL LESA SCORESHEET

Factor Name	Factor Rating	Factor Weighting	Weighted Factor Rating
Land Capability Classification	27.75	0.25	6.9
Storie Index Rating	24.34	0.25	6.1
Project Size	80	0.15	12
Water Resource Availability	45.2	0.15	6.8
Surrounding AG Lands	60	0.15	9
Protected Resource Lands	0	0.05	0
TOTAL LESA SCORE			40.8

The Total LESA Score for the proposed Meadowood project is 40.8 for the project site as a whole, with the subscores for Land Evaluation and Site Assessment totaling 13 points and 27.8 points, respectively. The LESA Model requires that the Model score is greater than or equal to 40.0, plus both subscores are greater than 20 points for the site

to be considered a significant agricultural resource. Therefore, the Meadowood site is not considered to be significant.

Conversion of Important Farmland Categories

In addition to consideration of the LESA Model findings for a determination of significance, the conversion of Important Farmland Categories is considered in the determination of significance of direct impacts to agriculture. Table 1 and Figure 6 show the acreages of Important Farmland Categories on-site. Approximately 136.3 acres of the north and northeastern portion of the project site are considered grazing lands according to the FMMP. This area may have supported limited grazing in the past, but is primarily native vegetation. Approximately 147.6 acres of the central portion of the site is considered Unique Farmland, primarily where avocado production has occurred. Approximately 54.2 acres along the central western portion of the site where citrus crops have been grown is considered Farmland of Statewide Importance. The remainder of the site is classified as Farmland of Local Importance (approximately 43.1 acres); ~~.O~~other land (approximately 1.0 acre), and a small portion of the site (approximately 6.3 acres) is categorized as Prime Farmland.

Based on the proposed ~~project~~ design, the project would directly impact 161.1 acres of the project site"s agricultural uses, but would ~~permanently preserve~~retain 49.3 acres of existing citrus and avocado groves within agricultural easements. Given that 49.3 acres of land currently in agricultural use will be preserved permanently, ~~feature and farmland designations either though direct development impacts or impacts from placing biological restrictions over portions of the property. Many of these lands contain quality agricultural soils as defined by the FMMP. Therefore, the~~ impacts related to the conversion of agricultural land ~~Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance~~ to non-agricultural uses ~~are reduced to a level that is~~would be less than significant. ~~is considered a significant impact to agriculture.~~

6.1.2 Direct Impacts Related to Off-site Improvements

Development of the Proposed Project would require the removal of approximately 3.8 acres of agriculture to accommodate off-site improvements.

6.1.3 Summary of Direct Impacts

Approximately 209.9 acres of the Meadowood project site are in agricultural uses, primarily citrus and avocado groves. Development of the Meadowood project would convert approximately 161.1 acres to residential uses. ~~The remainder, 49.3 acres, would remain as citrus/avocado groves.~~ Also, as stated in Section 6.1.2 above, approximately 3.8 acres of agricultural land would be impacted by off-site improvements. The remainder, 49.3 acres, would ~~remain~~be retained as citrus/avocado groves under an

agricultural easement. ~~Although determined to be less than significant under the LESA model, these direct impacts represent a loss of agricultural production on land with quality soils as defined by the FMMP. Therefore, direct impacts to agricultural resources on- and off-site would be considered **significant** due to the conversion of agricultural land to a non-agricultural use.~~ . Impacts associated with the conversion of agricultural land to non agricultural use would be less than significant -for the following reasons:

1. Based on ~~T~~the LESA analysis the Project site does not contain significant agricultural resources.

2. As stated in the County Department of Agriculture – Weights and Measures Annual Crop Report (2008), "…the way agriculture is conducted on the County's approximately 5,255 farms differs greatly from agricultural operations in the majority of California. Economically productive agriculture is conducted on small farms with 63 percent of farms ranging from 1 to 9 acres in size, 77 percent of farmers living on their farms and 92 percent of farms being family owned. In contrast, the average size of farms statewide is 346 acres." This is due to a variety of factors including high land values and high production costs. In San Diego County, land value is typically linked to its residential development potential. There are no exclusive agricultural zones in the County which would limit the land values to agricultural use only. As a result, much of the local agriculture is conducted on subdivided parcels that have a residential component. The high cost of production, particularly high water costs, forces the production of high value crops. The result is that smaller scale, high value agriculture is characteristic in San Diego County. In addition, in San Diego County, farming "is allowed in any zone" and "typically occurs among residential land uses". Therefore, the 49.3 acre agricultural parcel of farmland would be sufficient acreage to continue viable agriculture.

   Another factor affecting viability of the retained agriculture is irrigation water availability. In general, irrigation water in San Diego County is expensive, but the retained groves within the Project Site would have access to inexpensive recycled water from the on-site WWTP.

3. The project design includes retention of 49.3 acres of ~~retained~~ agriculture within a ~~would not only be under a~~ conservation easement. The groves ~~, but~~ would be maintained~~operated~~ ~~under common ownership,~~ by the Meadowood HOA. This is an important factor because, as stated in the County Agricultural Guidelines, "preservation of agricultural resources ensures that the land would remain available for agricultural use; however, the choice to use the land for agriculture is the decision of the individual property owner". This means that a typical conservation easement cannot ensure that a parcel continues to be used for agriculture, and merely preserves the agricultural soils for future use. In contrast, the agricultural open space easement on the Proposed Project would remain in agricultural use because, as a

condition of Proposed Project approval, the HOA would be required to maintain the avocado/citrus groves.

4. In addition to the 49.3 acre agricultural preserve, the Proposed Project would preserve ~~128.5~~122.4 acres of natural open space, thereby preserving native soils (primarily classified as FMMP Grazing Land) and serving as a buffer to prevent indirect "edge" effects both to and from the adjacent agricultural lands. Together, the agricultural and natural open space would total ~~177.8~~171.7 acres along the eastern portion of the Project Site. The remaining development is "clustered" within the western portion of the Project Site.

5. Of the 160.6 acres of farmland to be impacted from development of the Proposed Project, only a small portion (6.4 acres) is designated as "Prime".

6.2 Indirect and Cumulative Impacts (Guideline 3)

6.2.1 Indirect Impacts

The proposed residential community would be adjacent to farmland. Agricultural practices on adjacent farmland may have to be modified due to the proximity of the proposed project. Examples of such changes might include techniques for applications of pesticides to avoid potential health effects to residents of the proposed project, limitations on grading and harvesting practices to minimize dust generation, and modifying hours of operation to reduce exposure to noisy farm equipment. Each of these changes increases the farming costs at the adjacent farmland properties. Therefore, maintenance of the agriculture adjacent to the project site could be impacted and could result in a significant indirect conversion of farmland.

Other indirect impacts of farmland conversions would result from edge effects. For example, residents from the proposed project may trespass, pilfer crops, or damage farm equipment. The pressure, inconvenience, and increased costs of operating the adjacent farm may render continued farming infeasible, or at least heighten the attractiveness of selling the farm for development. If this were to occur, eventually another indirect conversion could result from leapfrog or non-contiguous development pattern. Development approvals result in the grouping of viable agricultural parcels between urban land uses, the likely continuation of urban expansion often results in the conversion of the farmland area.

Development of the proposed project would result in the construction of residential units in close proximity to the cattle grazing occurring to the west and the field crop operations to the east and south. However, the project mitigation measures including proposed natural open space and agricultural open space easements, would create buffers (see Figure 7 providing separation between the project"s development area and offsite agricultural uses to the north and east. The buffer would be a minimum of 1,000 feet and up to approximately 2,500 feet at it"s widest. Also, as part of the project design, a landscape is proposed between the agricultural open space and the on-site residential areas providing additional buffering.

Pursuant to the County"s Right-to-Farm Ordinance, disclosure statements would be required in sales documentation for all proposed residential units. The statements would notify potential owners that the adjacent property could potentially be used for agricultural operations such as cattle ranching and that there could be associated issues such as odors, noise, and vectors. Pursuant to Guideline 3, indirect impacts would be less than significant as a result of the aforementioned buffer and landscaped areas. In addition, required disclosure statements would also ensure future residents are made aware of the potential for farming activities in the area and the ongoing rights of existing agricultural operations.

6.2.2 Cumulative Impacts

The following analysis includes an assessment of potential cumulative impacts based on the "List of Projects Method" identified in the CEQA Guidelines.

A cumulative impact study area and project list has been developed as part of the CEQA EIR process for this project, and a focused version (specifically tailored for agriculture) was used for the analysis within this report. A list of projects with a summary of project features and agricultural resources is provided in Table 5. The cumulative agricultural effects of the project were evaluated based on Table 5 and Figure 10.

The following projects could potentially have a cumulative impact on agricultural resources within the cumulative impact study area:

- TM 5338 (SP83-01) Campus Park (Passerelle) – This project proposes 1,084 residential units on 417 acres as well as retail space, offices, a sports complex and a neighborhood park. Approximately 85 acres of the Campus Park site are now owned by Palomar College, who plans to construct a new campus to serve 12,000 students. There are no Williamson Act contracts on the site, and the CDC Important Farmland designations on-site are Farmland of Local Importance and Other. The site contains 176 acres that is zoned A-70 and used for cattle grazing.

TABLE 5
MEADOWOOD - CUMULATIVE PROJECTS LIST

Project	Project Description	Project Reference Numbers	Location	Agricultural Resources Identified On-Site
1. Campus Park (Passerelle)	The Passerelle project proposes 1,000 residential units on 504.2 acres as well as retail space, offices, and a school.	GPA 03-004 SPA 03-008 Rezone 03-014 TM 5338	5090 Pala Rd 364 Pala Mesa Heights Rd	The site is designated as Farmland of Local Importance and Other. The site also contains 176 acres that are zoned A-70 and used for cattle grazing.
2. Campus Park West (Pappas)	Campus Park West is located adjacent to Campus Park West (Passerelle), approximately 0.5 mile west of the Meadowood project, and is an amendment to the previously approved 442 acre Specific Plan for Campus Park (Passerelle). The 118.5-acre project site proposes 566 residential units, commercial and office uses, a park, and open space.	SPA 05-001 GPA 05-003 Rezone 05-005 TM 5424	5050 Pala Rd 3135 S Old Highway 395	The project site contains Farmland of Local Importance. There are no Williamson Act Contracts within the project area. There are no ongoing agricultural operations on-site.
3. Prominence at Pala	The Prominence at Pala proposes 30 units on 347 acres that are designated Multiple Rural Use (18). There is no agriculture on-site.	TM 5321	36313 Pala Del Norte Rd.	None
4. Pala Mesa Highlands	130 residential units on approximately 86 acres, with 37 acres proposed to be preserved as biological/natural open space.	MUP 04-024 Rezone 99-020 SPA 99-005 TM 5187	4399 Pala Mesa Dr	None
5. Fernandez Minor Subdivision	3 lot parcel split	TPM 20936	3838 Foxglove Ln.	None

TABLE 5
MEADOWOOD - CUMULATIVE PROJECTS LIST
(continued)

Project	Project Description	Project Reference Numbers	Location	Agricultural Resources Identified On-Site
6. Crossroads Investors Minor Subdivision	Residential subdivision of 15.5 acres	TPM 20800	1248 Ranger Rd.	None
7. Fallbrook Oaks	The Fallbrook Oaks project site is zoned A70 and C36. The project proposes 19 lots on 27.2 acres.	GPA 05-006 Rezone 05-015 PAA 05-002 PAA 04-008 TM 5449	3918 Reche Rd	None
8. Los Willows Inn and Spa	This Major Use Permit would be used to add additional units to an existing Bed and Breakfast and would allow weddings and receptions to occur. The project site contains citrus trees on-site. However, the trees and groves are used for their scenic value and are not actively farmed. In addition, they would not be impacted by the proposed expansion to the Bed and Breakfast.	MUP 03-127	532 Stewart Canyon Rd.	None

TABLE 5
MEADOWOOD - CUMULATIVE PROJECTS LIST
(continued)

Project	Project Description	Project Reference Numbers	Location	Agricultural Resources Identified On-Site
9. Palisade Estates	This project proposes 51 lots on 408 acres. The project site has a Multiple Use (18) designation and RR-.25 zoning. The project site consists of steep slopes and native vegetation. There is no agriculture on-site.	TM 5158	3880 Dos Ninos Rd.	None
10. Rabuchin Minor Subdivisions	Four lot minor Subdivision encompassing a total of 9.9 acres	TPM 20944	4065 Calle Canonero	None
11. Pala Mesa Condos	59 detached single family units on 3 lots within 31 acres	TM 5231	Canonita Drive at Old Highway 395	None
12. Pala Minor Subdivision	5.6 acres to be split into 3 single family lots	TPM 20451	Canonita Drive	None
13. Pala Mesa Resort	Specific Plan Amendment and MUP to expand existing resort by 6 acres and construct new maintenance facilities, hotel units, and timeshare units as well as new wedding and reception area facilities	SPA 03-005 Rezone 04-007 MUP 03-006 MUP 04-005	2001 Old Highway 395 at Tecalote Drive	None
14. Rosemary's Mountain Quarry	Aggregate rock quarry and plants for concrete and asphalt. Originally approved in 1997, changed approved in 2006.	MUP 87-021	SR-76, 1.25 miles east of I-15	None
15. Tedder Subdivision	13 single family units on 29.5 acres	TM 4729	Pala Mesa Drive and Daisy Lane	The site is currently graded, but was previously comprised of groves.

TABLE 5
MEADOWOOD - CUMULATIVE PROJECTS LIST
(continued)

Project	Project Description	Project Reference Numbers	Location	Agricultural Resources Identified On-Site
16. San Luis Rey Municipal Water District Master Plan Update	Explores the various options for water storage and delivery.	N/A	Along the San Luis Rey River east of I-15	None
17. Palomar Community College District – North Education Center	Approximately 85 acres of what was previously Campus Park would be developed with administrative facilities, athletic fields, classrooms, parking, and open space.	N/A	East of I-15, between SR-76 and Pala Mesa Heights Drive	None
18. Envirepel Fallbrook Renewable Energy Facility (FREF)	Multi-purpose energy facility that would convert biomass into electricity with very low emissions	Being reviewed for adequacy with the California Energy Commission, no DPLU permits required	South of San Luis Rey River and east of Pankey Road	None
19. Unnamed Gas Station	Major Use Permit to construct a gas station and 4,950-square-foot convenience store on 3.5 acres.	N/A	4397 Pala Mesa Drive	None
20. Pipeline No. 6	Approximately 31 miles of water pipeline from Lake Skinner to Escondido; 6.5 miles of tunnel from County line to SR 76, then 12 miles of pipeline to the south.	Final EIR (1993)	San Diego County Portion from SR-76, across Couser Canyon, Lilac Road, and Gopher Canyon Road	None
21. SR-76 Road Widening / Re-alignment	Caltrans realignment and widening of roadway and improvements to northbound I-15 and ramps	N/A	From I-15 to west of Rice Canyon Road	None

TABLE 5
MEADOWOOD - CUMULATIVE PROJECTS LIST
(continued)

Project	Project Description	Project Reference Numbers	Location	Agricultural Resources Identified On-Site
22. Berezousky TPM	Minor Subdivision; 4 lots on approximately 3.1 acres.	TPM 20874	3956 Pala Mesa Drive~~311 Pala Mesa Drive~~	Project Denied. None
23. Bridge Pac West TPM	Minor subdivision; 4 lots plus one remainder lot on 15.9 acres	TPM 20841	3321 Sage Road	Although not actively farmed the site supports Unique Farmland and Farmland of local importance.. Due to the large size of parcels proposed, it is assumed approximately 5 acres of the 15.9 would likely be impacted since agriculture would remain viable on larger lots~~None~~
24. Chipman TPM	Minor subdivision; 4 lots plus one remainder lot on 13.5 acres	TPM 20440	East side of Citrus Lane between peony Drive and Dos Ninos	None
25. Bierman TPM	Minor subdivision; 4 lots plus one remainder lot on 9.9 acres	TPM 20484	4065 Calle Canonero	None
26. Fallbrook Ranch,	11 lot major subdivision on 12.8 acres.	TM5532	2365 S. Old Highway 395	Site supports Unique Farmlands and old orange groves.
27. Dimitri, Diffendale, and Kirk	4 lot minor subdivision	TPM 21075,	South of Monserate Hill Road	10 acres of groves.
28. The Monserate Minor Subdivision		TPM 21156	3624 Monserate Hill Road	19 acres of groves

TABLE 5
MEADOWOOD - CUMULATIVE PROJECTS LIST
(continued)

Project	Project Description	Project Reference Numbers	Location	Agricultural Resources Identified On-Site
29. Sumac Minor Subdivision		TPM 21076	Sumac Road	8 acres of agricultural land
30. Fernandez Minor Subdivision				4 acres of agricultural land (groves).

*Project numbers listed in this table correspond to the project's geographic location depicted in Figure 10 of this document.
SFR = Single-family residential.
N/A = Environmental Document not yet available.

Figure 10, color/oversize

- TM 5424 (PAA 04-003) - Campus Park West (Pappas) – The Campus Park West project is located adjacent to Campus Park West (Passerelle), approximately 0.5 mile west of the Meadowood project, and is an amendment to the previously approved 442-acre Specific Plan for Campus Park (Passerelle). The 118.5-acre project site proposes 369 residential units, commercial and office uses, a park, and open space. The project site contains Farmland of Local Importance. There are no Williamson Act Contracts within the project area. There is a small (approximately 10 acres) area of the site that was previously farmed, but which is reverting back to native vegetation. Based on field reconnaissance and a review of aerial photos, it was determined that there is no active agriculture on-site.

- Fallbrook Ranch, TM 5532 is an 11 lot subdivision at 2365 S. Old Highway 395 that contains Unique Farmlands and old orange groves. The project may impact approximately 12.8 acres of agricultural land.
- Dimitri, Diffendale, and Kirk,is a four lot minor subdivision, TPM 21075, located south of Monserate Hill Road. The property supports 10 acres of groves.

- The Monserate minor subdivision, TPM 21156 located at 3624 Monserate Hill Road has approximately 19 acres of groves.

- Sumac minor subdivision, at Sumac Road, TPM 21076 has approximately eight acres of agricultural land.

- Fernandez minor subdivision has approximately four acres of agricultural land (groves).

- Tedder Subdivision impacted approximately 13 acres of agricultural land. The siteis now graded, but previously supported groves.

- Bridge Pac West contains Unique Farmland and Farmland of Local Importance. Although not actively farmed, it is considered farmland. Due to the large size of parcels proposed, it is assumed approximately five acres of the 15.9 would likely be impacted since agriculture would remain viable on larger lots.

The climate and topography on the Meadowood project site make it very well suited to support agricultural production, specifically orchard crops. In particular, San Diego County"s climate enables avocados and citrus crops to grow well on the hillsides that make up a large portion of the project site"s landscape. For this reason, a cumulative analysis was performed in order to compare the agricultural potential of the site against total agricultural production of the county and within a two-mile radius.

Fruit and nut crops, of which avocados and citrus comprise 75 percent, are 17 percent of the total value produced by agriculture in the county and 16 percent (43,127 acres) of the total acreage. Approximately 40,305 acres of citrus and avocado crops were grown

in San Diego County in 2005; representing a slight increase (65 acres) in acreage grown in 2003 (County of San Diego 2005c). Cumulative impacts to agricultural lands within the cumulative impact study area results in the loss of approximately 485 acres. However, the project"s contribution toward this cumulative impact would be avoided through the preservation of the 49.3 acre agricultural open space area. No significant cumulative impacts would result.

~~This represents a cumulatively significant impact. The Proposed Project would account for the loss of 164.4 acres (160.6 on-site and 3.8 acres off-site). This contribution to the cumulative loss of agricultural resources would be considered significant. However, the Proposed Project"s preservation of 49.3 acres of agricultural open space would mitigate this cumulative impact to below a level of significant.~~

Cumulative impacts related to farmland conversion could also result from edge effects, including trespassing, pilfering of crops, and damaged farm equipment. The pressure, inconvenience, and increased costs of operating remaining farms in areas converting to other uses may render continued farming infeasible or, at least, heighten the attractiveness of selling other farms for development. However, the edge (indirect) effects and cumulative impacts associated with this project will be reduced to a level that is less than significant with the implementation of the environmental design considerations ~~and mitigation measure~~ proposed for this project.

6.3 Local Plans and Policies (Guidelines 2 and 4)

6.3.1 Existing Land Use Designations and Zoning

As part of this project, the Regional Land Use Map is proposed to be amended to change the designation for Meadowood from SSA and RDA to CUDA. The CUDA category is intended for near-term urban development. In addition, the Fallbrook Community Plan is proposed to be amended to change the site from (21) Specific Plan and (18) Multiple Rural Use to (21) Specific Plan for the entire project site. This would allow for the preparation of a Specific Plan Amendment with a density of 2.5 units per acre resulting in a maximum of 900 dwelling units.

Current zoning in the Multiple Rural Use is Limited Agriculture, A70.. The proposed project would rezone the entire site to the S-88 Specific Planning Area Use Regulation. The proposed rezoning would not represent a significant impact to agriculture because it would not result in any conflicts with zoning for agricultural use. In San Diego County, agriculture is allowed in any zone and there are no exclusive agricultural zones. The project"s proposed specific plan amendment and rezone would make the site"s zoning consistent with proposed use, while continuing to allow agriculture in the agricultural

open space areas and within residential lots where parcel sizes can accommodate agriculture. As a result, the proposed changes in land use designations and zoning would result in less than significant impacts to agricultural resources.

6.3.2 Local Agricultural Ordinances and Policies

California Land Conservation (Williamson) Act - Section 3.2 discusses the fact that there are no Williamson Act contract lands within the proposed project. As discussed, there is a Williamson Act contract located approximately one mile to the southeast of the project site. Although there are active agricultural uses occurring on the Williamson Act Contract land, potential indirect and cumulative impacts to agriculture (including the Williamson Act parcel) associated with the implementation of the proposed project were found to be less than significant pursuant to Guideline 3 analyzed in Section 6.2 above. As a result, pursuant to Guideline 2, there would be no significant direct, indirect, or cumulative impacts to Williamson Act contract lands.

San Diego County General Plan Policies - As discussed in Section 2.0, the San Diego County General Plan (1996) contains several policies that relate to agriculture in some way, such as land use, open space, and conservation as discussed below:

- **San Diego County General Plan, Regional Land Use Element –** As noted in Section 2.0, the land use designations for the entire site are proposed to be changed to (21) Specific Plan. A portion of the site that is currently designated (18) Multiple Rural Use would change to (21) Specific Plan. Neither the existing nor proposed land use designations include policies for the protection of agriculture, the (18) Multiple Rural Use category also indicates that the designation is applied in areas “not highly suited for intensive agricutlure”. As no land use designations preclude avocational agriculture on individual residential lots (i.e., small orchards on individual lots), the proposed change in land use designation would not present a conflict with agricultural policies and would not present any significant impacts related to agricultural resources pursuant to Guideline 4.

- **San Diego County General Plan, Conservation Element –** The Conservation Element promotes agriculture through such goals as conducting annual inventories of areas with high agricultural potential, encouraging new Williamson Act Contracts, identifying and implementing efforts to preserve agriculture, and incorporating the most detailed soil data available in environmental analyses. These goals and policies are primarily related to encouraging new agricultural uses or managing existing uses. As there are no Williamson Act Contracts on-site and the project has evaluated the potential agricultural impacts including an assessment of soil resources, therefore project is not in conflict with the goals and policies of the Conservation Element. Furthermore, the project‟s inclusion of 49.3 acres of agricultural open space would ensure onsite agriculture is retained and therefore, the

project would not create significant impacts associated with the implementation of policies related to the Conservation Element.

- **San Diego County General Plan, Open Space Element –** The Open Space Element policies in relation to agriculture are those that encourage directing development away from the most productive agricultural areas; minimizing conflicts between agricultural and non-agricultural areas due to developing residential uses within agricultural areas; and minimizing conflicts between agricultural and residential uses due to agricultural-related nuisances and hazards such as chemical applications, and the generation of noise, dust, odors, and pests. Potential impacts associated with the proposed project in all of these areas have been discussed throughout this report and were found to be less than significant or reduced to below a level of significance through project design measures and/or mitigation measures. Therefore, the project does not conflict with agricultural goals and policies of the open space element.

County Board of Supervisors Policy I-38 – This policy (described in Section 2.0) establishes criteria for implementing the Williamson Act. However, there are no Williamson Act Contract lands within the project site; thus, no impacts would occur resulting from the implementation of the proposed project.

San Diego County Agricultural Enterprises and Consumer Information Ordinance - This ordinance recognizes that the commercial agricultural industry in the county of San Diego is a significant element of the county's economy and limits the circumstances under which agricultural activities may constitute a nuisance. The Ordinance includes requirements such as providing noticing to prospective buyers in rural areas that agricultural activities may take place within the vicinity and that there are associated inconveniences, irritations, and discomforts that may occur as a result. As discussed in Section 3.8, there are agricultural operations occurring within the vicinity of the proposed project, such as the cattle grazing to the west and the field crop operations occurring to the east and south. As required by the ordinance, notice to prospective homebuyers will be provided to notify future residents that agricultural uses exist in the vicinity of the project and that these uses maintain certain rights to practice agriculture in accordance with normal and accepted practices.

In summary, no conflicts with local plans and policies related to agriculture have been identified that could result in significant impacts to agricultural use. Therefore, less than significant impacts would occur with respect to Guidelines 2 and 4.

7.0 ~~Mitigation Measures and~~ Environmental Design Considerations

As discussed in this report, agricultural impacts are considered less than significant with ~~the exception of the potential for significant direct impacts to on-site agricultural resources~~incorporation of project design measures that include agricultural easements and ~~such as landscape buffers and o~~open space ~~and~~buffers ~~agricultural easements~~. ~~Mitigation measures and~~ Project design elements are proposed consistent with this finding and are discussed below.

Project Design Measures:

~~Mitigation:~~ The project will retain 49.3 acres of agriculture in an agricultural open space easement that will provide for on-site retention of agricultural resources. This agricultural open space easement ~~will provide adequate mitigation~~would preclude significant impacts relative to ~~for~~ the loss of on-site agriculture based on the quality of agricultural land ~~on-site~~. The 49.3 acres of avocado and citrus groves would be maintained by the Meadowood Homeowners" Association and would be dedicated as a preserve in perpetuity.

~~Project Design Measures:~~ Agricultural production often includes various practices and operations that are not compatible with urban uses on adjacent parcels. Therefore, close proximity of urban uses to agricultural land may inhibit agricultural production. The project has been designed such that agricultural and natural open space easements create adequate buffers separating on-site non-agricultural uses from adjacent agricultural uses. Specifically, the combination of open space areas, including the agricultural open space ~~proposed as mitigation for~~for a design feature to preclude ~~direct agricultural impacts~~, would~~,~~ provide a large buffer of undeveloped land to separate the proposed residential uses from other more rural land to the north and east.

In addition, as part of the project design, a landscaped area between the agricultural open space and the on-site residential areas would be implemented to provide additional buffering to encourage the ongoing viability of the preserved agricultural areas.

Finally, as required by the Agricultural Enterprises and Consumer Information Ordinance, notice to prospective homebuyers will be provided to notify future residents that agricultural uses exist in the vicinity of the project and that these uses maintain certain rights to practice agriculture in accordance with normal and accepted practices.

8.0 Conclusions and Recommendations

The project proposes development of up to 886 residential units in the Fallbrook Community Plan area, which has agricultural and rural characteristics. Implementation of the proposed project would result in the direct conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance into non-agricultural uses. The LESA analysis prepared for this project resulted in a score indicating that the agricultural resources within the project site are not a significant resource. Further, the analysis ~~of~~ found that project design measures precluded significant impacts due to the ~~Despite this finding, the report concludes that The direct~~ conversion of ~~this~~ designated farmland ~~is considered significant a significant direct impact to agriculture~~. ~~Mitigation~~ The design feature, in the form of a 49.3 acre agricultural open space easement, ~~iis determined to be adequate to mitigate for the project's~~~~preclude~~ ensures that impacts would be less than ~~–si~~significant. ~~direct impacts based on the value of the resource onsite as determined by the LESA model~~. ~~The project would retain approximately 49.3 acres of active agricultural land as agricultural open space.~~

Additionally, the project proposes to implement other design features including ~~a~~ a notice to prospective homebuyers, inclusion of a 122.4 acre natural open space easement as a ~~adequate~~ buffer~~s~~ separating proposed on-site non-agricultural land uses from~~with~~ existing adjacent farming operations, and landscaped areas adjacent to the onsite agricultural open space. These design measures –would ensure that indirect impacts associated with edge effects would be less than significant. Further, the project would not result in conflicts with the Fallbrook Community Plan, the California Land Conservation Act, or existing and planned land uses.

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10.0 Certification

Lance Unverzagt

- County Agricultural Certification.
- Environmental Analyst, RECON Environmental, Inc.
- Master"s degree in Community and Regional Planning.
- Bachelor of Science degree in Business Administration, Major in Agribusiness.

PART I

SOIL SURVEY

San Diego Area, California

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service and Forest Service
in cooperation with
UNIVERSITY OF CALIFORNIA AGRICULTURAL EXPERIMENT STATION
UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Indian Affairs
DEPARTMENT OF THE NAVY
United States Marine Corps

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Major fieldwork for this survey was completed in the period 1960-67. Soil names and descriptions were approved in 1967. Unless otherwise indicated, statements in the publication refer to conditions in the San Diego Area in 1969.

This survey was made cooperatively by the Soil Conservation Service and Forest Service; the University of California Agricultural Experiment Station; the Bureau of Indian Affairs; the United States Marine Corps; the Department of Housing and Urban Development; the County of San Diego Planning Department; and the Comprehensive Planning Organization. It was partly financed by the County of San Diego and the Department of Housing and Urban Development, under the provisions of Section 701 of the Housing Act of 1954, amended. It is part of the technical assistance furnished to the Soil Conservation Districts of San Diego County.

Part I of this survey provides basic information about the soils of the San Diego Area. It also contains data on climate, facts about farming, a section that describes broad patterns of soils in the Area, and an explanation of how the soils formed and how they are classified.

Part I of the survey is to be used along with Part II. Part II provides facts about use and management of the soils. Both parts are to be used with the detailed soil map, which is in a separate box.

Cover picture: Landscape of ridges and valleys in San Diego Area showing young avocado grove on Fallbrook soils and navel orange groves on Placentia and Fallbrook soils.

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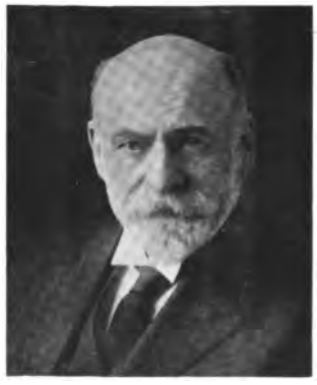

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SOIL SURVEY OF THE SAN DIEGO AREA, CALIFORNIA, PART I

(San Diego County excluding the Anza-Borrego and Cuyamaca State Parks)

BY ROY H. BOWMAN

SOILS SURVEYED BY ROY H. BOWMAN, ALAN A. HOUSE, GERALD KESTER, DAVID D. ESTRADA, JOHN K. WACHTELL, SOIL CONSERVATION SERVICE; GERALD L. ANDERSON, FOREST SERVICE; AND PAUL V. CAMPO, UNITED STATES MARINE CORPS

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE AND FOREST SERVICE, IN COOPERATION WITH THE UNIVERSITY OF CALIFORNIA AGRICULTURAL EXPERIMENT STATION, THE UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF INDIAN AFFAIRS, THE DEPARTMENT OF THE NAVY, UNITED STATES MARINE CORPS, THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, AND THE COUNTY OF SAN DIEGO PLANNING DEPARTMENT

SAN DIEGO COUNTY, the most southwesterly county in the continental United States, is bounded on the west by the Pacific Ocean, on the north by Orange and Riverside Counties, on the east by Imperial County, and on the south by Mexico. The county is roughly 70 miles from east to west and 60 miles from north to south. The elevation ranges from sea level to 6,533 feet.

The Area surveyed (fig. 1) is approximately 2,204,880 acres. It excludes the Anza-Borrego and the Cuyamaca State Parks but includes a small part of Riverside County north of Palomar Mountain. The physiography, the climate, and the vegetation vary widely.

The coastal plains rise sharply to nearly level terraces, dissected terraces, and rolling hills that support a natural cover of coastal chaparral and grassland. In the narrow winding valleys, oak is the dominant vegetation. In the center of the Area are the foothills, the narrow intermediate valleys, the mountains, and the plateaus of the Peninsular Range province. Chaparral, open woodland, and isolated areas of open grassland make up the typical plant cover. The eastern part of the Salton Basin province is one of wide valleys separated by low irregular hills and mountains of multicolored beds of sandstone, shale, and conglomerate. The vegetation in this part is mainly a sparse cover of desert shrubs, cactus, and bunchgrass.

The climate ranges from mild marine along the coast to hot arid in the desert.

Since World War II, suburban expansion has transformed much of the farmland in the western third of the Area into urban-fringe areas. As a result, taxes and the cost of labor and real estate have increased out of proportion to farm income. Another factor that has added to the increased overhead is the high cost of importing water for irrigation from the Colorado River. Consequently, the only crops grown are those that have high gross returns and do not compete with crops grown in other farming areas, or semitropical crops that are limited to a relatively frost-free climate, for example, avocados, citrus, flowers, tomatoes, truck crops, and other specialty crops.

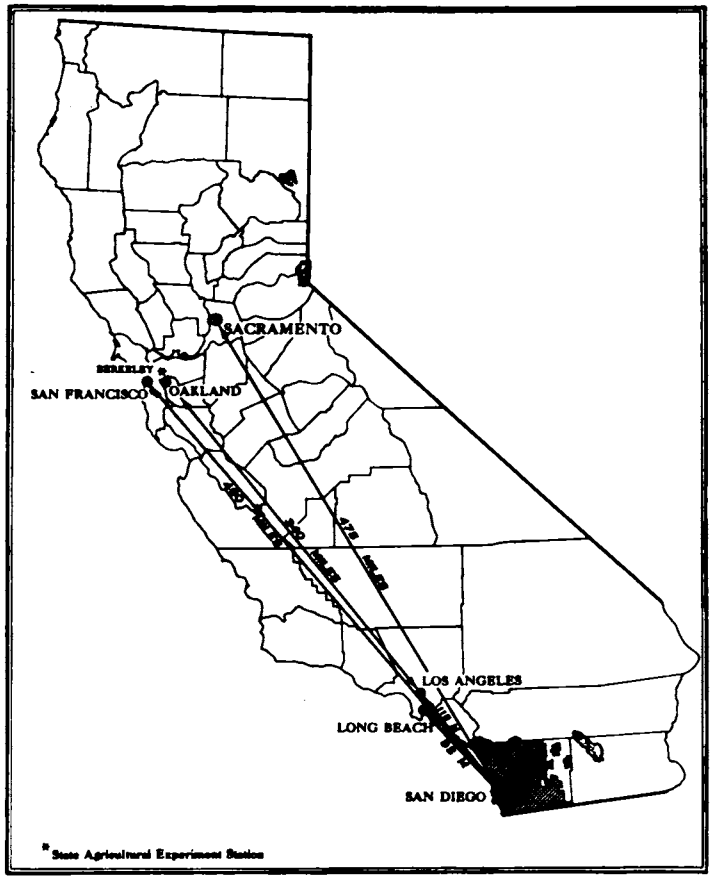

Figure 1.--Location of San Diego Area in California.

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pores; medium acid (pH 6.0); abrupt, smooth boundary.

C--10 inches, light reddish-brown and reddish-brown weathered granodiorite; generally several feet deep.

The A horizon ranges from brown to grayish brown in color, from coarse sandy loam to sandy loam in texture, and from 10 to 20 inches in thickness. This horizon is less than 1 percent organic matter. The C horizon is weathered granodiorite or tonalite.

Included with this soil in mapping are small areas of Fallbrook soils, Vista soils, and Las Posas soils. Also included are areas of rock outcrop.

Fertility is low. Permeability is rapid. The available water holding capacity is 1 to 2 inches. Runoff is medium to rapid, and the erosion hazard moderate to high. The rooting depth is 10 to 20 inches. Sheet and gully erosion are evident.

This soil is used mainly for range, wildlife habitat, recreational areas, and watershed. Small areas are used for avocados. Capability unit VIe-1 (19); Shallow Loamy range site.

Cieneba coarse sandy loam, 5 to 15 percent slopes, eroded (ClD2).--This soil is rolling to hilly. Runoff is slow to medium, and the erosion hazard slight to moderate. In other features, this soil is similar to Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded.

Included in mapping are small areas of Fallbrook soils, Vista soils, and Las Posas soils, and soils that have a subsoil of sandy clay loam.

This Cieneba soil is used for range, wildlife, watershed, and avocados. Capability unit VIe-1 (19); Shallow Loamy range site.

Cieneba coarse sandy loam, 30 to 65 percent slopes, eroded (ClG2).--This soil is steep to very steep. Runoff is rapid to very rapid, and the erosion hazard high to very high. In other features, this soil is similar to Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded.

Included in mapping are small areas of Vista soils, Las Posas soils, and unnamed soils that have a subsoil of sandy clay loam.

This Cieneba soil is used mainly for range, wildlife habitat, and watershed. Small areas are used for avocados. Capability unit VIIe-1 (19); Shallow Loamy range site.

Cieneba rocky coarse sandy loam, 9 to 30 percent slopes, eroded (CmE2).--In contrast with Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded, this soil is rolling to hilly, has rock outcrops on about 10 percent of the surface and very large granodioritic boulders on about 20 percent, and is only 5 to 15 inches deep over hard granodiorite. The available water holding capacity is 1 inch to 1.5 inches.

Included in mapping are small areas of Vista rocky coarse sandy loam and Las Posas rocky sandy loam.

This Cieneba soil is used for range, recreational areas, wildlife habitat, and watershed. Capability unit VIIs-8 (19); Shallow Loamy range site.

Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes (CmrG).--In contrast with Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded, this soil is steep to very steep, has rock outcrops on about 20 percent of the surface and very large granodioritic boulders on about 30 percent, and is only 5 to 15 inches deep over hard granodiorite. Runoff is rapid to very rapid, and the erosion hazard high to very high. The available water holding capacity is 1 inch to 1.5 inches.

Included in mapping are small areas of Vista rocky coarse sandy loam and Las Posas rocky sandy loam.

This Cieneba soil is used for wildlife habitat, recreational areas, watershed, and range. Capability unit VIIs-8 (19); Shallow Loamy range site.

Cieneba-Fallbrook rocky sandy loams, 9 to 30 percent slopes, eroded (CnE2).--This complex is about 55 percent Cieneba coarse sandy loam and 40 percent Fallbrook sandy loam. It occurs on uplands, at elevations of 200 to 3,000 feet. Rock outcrops cover about 5 percent of the surface, and large boulders about 10 percent.

Included in mapping are small areas of Vista rocky coarse sandy loam.

The Cieneba soil is brown coarse sandy loam about 10 inches deep over weathered granitic rock. Detailed information is given in the description of Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded.

The Fallbrook soil has a surface layer of brown sandy loam about 6 inches thick and a subsoil of reddish-brown sandy clay loam. It is underlain by decomposed granitic rock at a depth of about 24 inches. Detailed information about this soil is given in the description of Fallbrook sandy loam, 5 to 9 percent slopes, under the heading "Fallbrook Series."

Cieneba coarse sandy loam is excessively drained. Permeability is moderately rapid, and the available water holding capacity is 1 inch to 1.5 inches. Fertility is low.

Fallbrook sandy loam is well drained. Permeability is moderately slow in the subsoil, and the available water holding capacity is 3 to 5 inches in the 20 to 34 inches of effective rooting depth. Fertility is medium.

For both soils runoff is medium to rapid, and the erosion hazard moderate to high. Sheet erosion and gully erosion have been moderate.

These soils are used for avocados, wildlife habitat, recreational areas, and watershed. Capability unit VIe-7 (19) and Shallow Loamy range site for Cieneba soil; Capability unit VIe-7 (19) and Loamy range site for Fallbrook soil; Capability unit VIIIs-1 (19) for Rock outcrop.

Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded (CnG2).--This complex is

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about 55 percent Cieneba coarse sandy loam and 40 percent Fallbrook sandy loam. It occurs at elevations of 200 to 3,000 feet. Rock outcrops cover about 10 percent of the surface, and large boulders about 10 percent.

Included in mapping are small areas of Vista rocky coarse sandy loam.

Detailed information about the Cieneba soil is given in the description of Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded. Detailed information about the Fallbrook soil is given in the description of Fallbrook sandy loam, 5 to 9 percent slopes, under the heading "Fallbrook Series."

Cieneba coarse sandy loam is low in fertility, is excessively drained, is moderately rapidly permeable, and has 1 inch to 1.5 inches of water available in the 5 to 15 inches of effective rooting depth.

Fallbrook sandy loam is medium in fertility, is well drained, is slowly to moderately permeable in the subsoil, and has 3 to 5 inches of water available in the 20 to 34 inches of effective rooting depth.

For both soils, runoff is rapid to very rapid and the erosion hazard high to very high. Sheet and gully erosion have been moderate.

These soils are used for avocados, wildlife habitat, recreational areas, and watershed. Capability unit VIIe-7 (19) and Shallow Loamy range site for Cieneba soil; Capability unit VIIe-7 (19) and Loamy range site for Fallbrook soil; Capability unit VIIIs-1 (19) for Rock outcrop.

Clayey Alluvial Land

Clayey alluvial land (Co) consists of moderately well drained, very deep, very dark brown to black, neutral to mildly alkaline clay loams to clays. This land type occurs as nearly level areas in narrow swales and on terraces in the foothills section of the survey Area. In many places the subsoil is stratified with lenses of clay to fine sandy loam. In a few places the soil material is calcareous. The vegetation is mainly chaparral and annual grasses and forbs.

Fertility is medium. Permeability is slow. The erosion hazard is slight.

Clayey alluvial land occurs with small areas of saline soils. It is used for truck crops and for grazing. Capability unit IIs-5 (19).

Coastal Beaches

Coastal beaches (Cr) occurs as gravelly and sandy beaches along the Pacific Ocean where the shore is washed and rewashed by ocean waves. Part of this land type is likely to be covered with water during high tide and stormy periods. It supports no vegetation and is of no value for farming and ranching. Capability unit VIIIw-4 (19).

Corralitos Series

The Corralitos series consists of somewhat excessively drained, very deep loamy sands that formed in alluvium derived from marine sandstone. These soils are in narrow valleys and on small alluvial fans. They have slopes of 0 to 15 percent. The elevation ranges from 50 to 300 feet. The mean annual precipitation is between 12 and 14 inches, and the mean annual air temperature between 60° and 62° F. The frost-free season is 300 to 330 days. The vegetation is mainly red brome, ripgut brome, flattop buckwheat, and shrubs.

In a representative profile the surface layer is grayish-brown, slightly acid loamy sand about 9 inches thick. The next layers are brown and pale-brown, neutral loamy sand. At a depth of about 43 inches is very pale brown, neutral sand. This layer extends to a depth of more than 60 inches.

Corralitos soils are used mostly for flowers, avocados, and citrus. A few small areas are in dry-farmed barley and beans.

Corralitos loamy sand, 9 to 15 percent slopes (CsD).--This strongly sloping soil occurs in narrow valleys. Slopes are slightly concave and average 12 percent.

Representative profile: 20 feet west of Rancho Santa Fe Road, 1,400 feet north of intersection with San Marcos Road, NE 1/4 of SW 1/4 sec. 18, T. 13 S., R. 3 W.

Ap--0 to 9 inches, grayish-brown (10YR 5/2) loamy sand, dark grayish brown (10YR 4/2) moist; weak, fine, granular structure; soft, very friable, nonsticky, nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; slightly acid (pH 6.5); clear, smooth boundary.

C1--9 to 25 inches, brown (10YR 5/3) loamy sand, grayish brown (10YR 4/2) moist; massive and very weak, fine, granular structure; soft, very friable, nonsticky, nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; neutral (pH 7.0); gradual, smooth boundary.

C2--25 to 43 inches, pale-brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; common very fine and fine interstitial pores; stratified with a few lenses of sandy loam and sandy clay loam; neutral (pH 7.0); gradual, smooth boundary.

C3--43 to 72 inches, very pale brown (10YR 7/3) sand, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; common very fine and fine pores; neutral (pH 7.0).

The A horizon ranges from light brownish gray or pale brown to grayish brown or brown in color, from sand through loamy sand to sandy loam in texture,

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This Escondido soil is used for range and citrus. Capability unit VIe-8 (19); Loamy range site.

Escondido very fine sandy loam, deep, 5 to 9 percent slopes (EvC).--This soil is gently rolling, is not eroded, has a 14- to 25-inch surface layer and a 22- to 58-inch subsoil, and is 36 to 60 inches deep over rock. The available water holding capacity is 5.5 to 9 inches. Runoff is slow to medium, and the erosion hazard slight to moderate. In other features, this soil is similar to Escondido very fine sandy loam, 9 to 15 percent slopes, eroded.

Included in mapping are small areas of Fallbrook soils, Vista soils, and Friant soils.

This Escondido soil is used for citrus, avocados, truck crops, tomatoes, flowers, and range. Capability unit IIIe-1 (19); Loamy range site.

Exchequer Series

The Exchequer series consists of shallow and very shallow, well-drained silt loams that formed in material weathered from hard metabasic rock. These soils are on mountainous uplands and have slopes of 9 to 70 percent. The elevation ranges from 400 to 3,000 feet. The mean annual precipitation is between 14 and 20 inches, and the mean annual air temperature between 60° and 62° F. The frost-free season is 240 to 280 days. The vegetation is chiefly black sagebrush, California sagebrush, flattop buckwheat, sumac, and annual grasses and forbs.

In a representative profile the surface layer is yellowish-red, slightly acid silt loam about 10 inches thick. Below this is whitish and greenish hard metabasic rock that is slightly weathered in the uppermost 4 inches. Rock outcrop covers about 10 percent of the surface.

Exchequer soils are used for wildlife habitat and watershed. A limited acreage is used for range.

Exchequer rocky silt loam, 30 to 70 percent slopes (ExG).--This steep to very steep soil is on mountainous uplands. The slope averages 39 percent. Rock outcrop covers 2 to 10 percent of the surface.

Representative profile: 75 feet northeast of third set of power poles east of Santa Fe Road, about 20 feet north of trail, NE 1/4 of SW 1/4 sec. 32, T. 12 S., R. 3 W.

A11--0 to 3 inches, yellowish-red (5YR 5/6) silt loam, yellowish red (10YR 4/6) moist; weak, medium, angular blocky structure; slightly hard, friable, nonsticky, nonplastic; common very fine and fine random roots; common very fine and fine pores; slightly acid (pH 6.5); clear, smooth boundary.

A12--3 to 10 inches, yellowish-red (5YR 5/8) heavy silt loam, yellowish red (5YR 4/8) moist; weak, fine, angular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine and fine roots, very few medium roots; common very fine and fine pores; slightly acid (pH 6.3); abrupt, broken boundary.

R--10 inches, whitish and greenish hard metabasic rock; nearly vertically tilted cleavage planes; uppermost 3 to 4 inches weathered in places.

The A horizon ranges from yellowish red to reddish brown or strong brown in color, from silt loam to loam in texture, and from 8 to 13 inches in thickness.

Included with this soil in mapping are small areas of San Miguel soils, Friant soils, and Escondido soils. Also included on the very steep slopes are a very few areas of Metamorphic rock land.

Fertility is very low. Permeability is moderate. The available water holding capacity is 1 inch to 2 inches. Runoff is rapid to very rapid, and the erosion hazard high to very high. The rooting depth is 8 to 13 inches.

This soil is used mainly for wildlife habitat and watershed. A limited acreage is used for range. Capability unit VIIs-8 (19); Shallow Loamy range site.

Exchequer rocky silt loam, 9 to 30 percent slopes (ExE).--In contrast with Exchequer rocky silt loam, 30 to 70 percent slopes, this soil is on ridges and foot slopes, is strongly sloping to moderately steep, and is 8 to 17 inches deep over rock. Runoff is medium to rapid, and the erosion hazard moderate to high.

Included in mapping are small areas of San Miguel soils, Friant soils, and Escondido soils.

This Exchequer soil is used mainly for watershed and wildlife habitat. A limited acreage is used for range. Capability unit VIIs-8 (19); Shallow Loamy range site.

Fallbrook Series

The Fallbrook series consists of well-drained, moderately deep to deep sandy loams that formed in material weathered in place from granodiorite. These soils are on uplands and have slopes of 2 to 30 percent. The elevation ranges from 200 to 2,500 feet. The mean annual precipitation is between 14 and 18 inches, and the mean annual air temperature between 61° and 64° F. The frost-free season is 260 to 320 days. The winter growing season has only light frost. The vegetation is chiefly annual grasses, oak or broadleaf chaparral, and intermittent areas of chamise.

In a representative profile the surface layer is brown, slightly acid sandy loam about 6 inches thick. The subsoil is reddish-brown and light reddish-brown, slightly acid and neutral sandy clay loam and loam about 41 inches thick. Below this is decomposed granodiorite.

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Fallbrook soils are used for avocado and citrus orchards, tomatoes, flowers, truck crops, grain, grain hay, and pasture.

Fallbrook sandy loam, 5 to 9 percent slopes (FaC).--This moderately sloping soil is on uplands. The slope averages 8 percent.

Representative profile: 2 1/4 miles south of Fallbrook, NE 1/4 of SW 1/4 sec. 31, T. 9 S., R. 3 W.

A11--0 to 2 inches, brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak, fine, crumb structure; slightly hard, very friable, nonsticky, nonplastic; many very fine and medium roots; many very fine and fine random pores; slightly acid (pH 6.4); clear, smooth boundary.

A12--2 to 6 inches, brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; massive; hard, friable, nonsticky, nonplastic; common very fine to medium roots; common very fine and fine tubular and interstitial pores; slightly acid (pH 6.4); clear, smooth boundary.

B1--6 to 12 inches, reddish-brown (5YR 5/3) sandy loam, dark reddish brown (5YR 3/3) moist; weak, coarse, subangular blocky structure; hard, friable, slightly sticky, nonplastic; plentiful very fine and fine roots; common very fine and fine tubular pores; few thin clay films in pores and bridges; slightly acid (pH 6.3); gradual, smooth boundary.

B21t--12 to 20 inches, reddish-brown (5YR 5/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate, medium, angular blocky structure; very hard, firm, slightly sticky, slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; continuous thick clay films on ped faces; slightly acid (pH 6.4); gradual, smooth boundary.

B22t--20 to 28 inches, reddish-brown (5YR 5/4) sandy clay loam, dark reddish brown (5YR 3/4) moist; moderate, medium, angular blocky structure; very hard, firm, slightly sticky, slightly plastic; common very fine roots; few very fine tubular pores; continuous thick clay films on ped faces; slightly acid (pH 6.4); clear, wavy boundary.

B3--28 to 47 inches, light reddish-brown (5YR 6/4) loam, reddish brown (5YR 4/4) moist; weak, coarse, subangular blocky structure; hard, friable, slightly sticky, nonplastic; few very fine roots; few very fine tubular pores; common moderately thick clay films on ped faces; neutral (pH 6.6); gradual, smooth boundary.

C1--47 to 68 inches, light-red (2.5YR 6/6), reddish-brown (2.5YR 4/4), dark reddish-brown (5YR 3/2), and pinkish-gray (5YR 6/2) decomposed granodiorite; very few fine roots; slightly acid (pH 6.5); gradual, smooth boundary.

C2--68 to 85 inches, reddish-brown (5YR 5/4), pink (5YR 7/3), and black (N2) decomposed granodiorite; medium acid (pH 6.0); gradual, smooth boundary.

C3--85 to 90 inches +, white (N8), light brownish-gray (10YR 6/2), and black (N2) decomposed granodiorite; medium acid (pH 6.0); many feet thick.

The A horizon ranges from dark brown to brown or yellowish brown and light yellowish brown in color, from sandy loam to fine sandy loam in texture, and from 4 to 12 inches in thickness. The B horizon ranges from brown and light brown to reddish brown and reddish yellow in color, from loam to sandy clay loam in texture, and from 24 to 52 inches in thickness. In some places the decomposed granodiorite is at a depth of only 28 inches, and in other places at a depth of 60 inches or more.

Included with this soil in mapping are small areas of Vista soils, Cieneba soils, Las Posas soils, and Bonsall soils.

Fertility is medium. Permeability is moderate. The available water holding capacity is 4.5 to 8 inches. Runoff is slow to medium, and the erosion hazard slight to moderate. The rooting depth is 28 to 60 inches or more.

This soil is used for citrus, avocados, truck crops, tomatoes, flowers, dryfarmed grain, and range. A few scattered areas are used for housing developments. Clean cultivated areas are easily eroded. Erosion has been only slight in areas that are protected, irrigated, and planted to orchard crops. Capability unit IIIe-1 (19); Loamy range site.

Fallbrook sandy loam, 2 to 5 percent slopes (FaB).--This soil is gently sloping and is 32 to 60 inches deep over rock. The available water holding capacity is 5 to 8 inches. Runoff is slow, and the erosion hazard slight. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Bonsall soils, Vista soils, and Las Posas soils.

This Fallbrook soil is used mainly for avocados, citrus, truck crops, tomatoes, flowers, and dryfarmed grain. Small areas are used for housing developments. Capability unit IIe-1 (19).

Fallbrook sandy loam, 5 to 9 percent slopes, eroded (FaC2).--This soil is 27 to 57 inches deep over rock. Sheet and gully erosion have been moderate. The available water holding capacity is 4.5 to 7.5 inches. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Bonsall soils, Vista soils, Las Posas soils, and Cieneba soils.

This Fallbrook soil is used mainly for avocados, citrus, truck crops, tomatoes, flowers, dryfarmed grain, and range. Small areas are used for housing

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developments. Capability unit IIIe-1 (19); Loamy range site.

Fallbrook sandy loam, 9 to 15 percent slopes, eroded (FaD2).--This soil is strongly sloping and is 27 to 57 inches deep over rock. Sheet and gully erosion have been moderate. The available water holding capacity is 4.5 to 7.5 inches. Runoff is medium, and the erosion hazard moderate. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Bonsall soils, Vista soils, Las Posas soils, and Cieneba soils.

This Fallbrook soil is used mainly for avocados, citrus, tomatoes, flowers, dryfarmed grain, and range. Small areas are used for housing developments. Capability unit IVe-1 (19); Loamy range site.

Fallbrook sandy loam, 15 to 30 percent slopes, eroded (FaE2).--This soil is moderately steep and is 27 to 50 inches deep over rock. Rill and gully erosion have been moderate. The available water holding capacity is 4.5 to 6 inches. Runoff is medium to rapid, and the erosion hazard moderate to high. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Bonsall soils, Vista soils, Las Posas soils, and Cieneba soils.

This Fallbrook soil is used for avocados, citrus, and range. Capability unit VIe-1 (19); Loamy range site.

Fallbrook sandy loam, 9 to 30 percent slopes, severely eroded (FaE3).--This soil is strongly sloping to moderately steep and is 20 to 30 inches deep over rock. It has lost most of its original surface layer and in places as much as half the subsoil through rill and gully erosion. Fertility is low. The available water holding capacity is 3.5 to 4.5 inches. Runoff is medium to rapid, and the erosion hazard moderate to high. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Vista soils, Las Posas soils, and Cieneba soils.

This Fallbrook soil is used for range and vineyards. Persistent clean tillage of dryfarmed vineyards has resulted in severe loss of soil through erosion (pl. II). Capability unit VIIe-1 (19); Shallow Loamy range site.

Fallbrook rocky sandy loam, 5 to 9 percent slopes (FeC).--This soil is 20 to 36 inches deep over rock. Large boulders cover 10 to 25 percent of the surface, and rock outcrops 10 percent. Natural fertility is low. The available water holding capacity is 3 to 5 inches. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Cieneba soils, Las Posas soils, and Vista soils.

This Fallbrook soil is used mainly for range. Avocados and citrus are grown in areas where rocks and boulders are not too numerous. Capability unit VIe-7 (19); Loamy range site.

Fallbrook rocky sandy loam, 9 to 30 percent slopes (FeE).--This soil is strongly sloping to moderately steep and is 20 to 34 inches deep over rock. Large boulders cover 10 to 25 percent of the surface, and rock outcrops 10 percent. Natural fertility is low. The available water holding capacity is 3 to 5 inches. Runoff is medium to rapid, and the erosion hazard moderate to high. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Cieneba soils, Las Posas soils, and Vista soils.

This Fallbrook soil is used mainly for range. Avocados and citrus are grown in areas where rocks and boulders are not too numerous. Capability unit VIe-7 (19); Loamy range site.

Fallbrook rocky sandy loam, 9 to 30 percent slopes, eroded (FeE2).--This soil is strongly sloping to moderately steep and is 20 to 30 inches deep over rock. Sheet erosion has been moderate. Large boulders cover 10 to 25 percent of the surface, and rock outcrops 10 percent. Natural fertility is low. The available water holding capacity is 3 to 5 inches. Runoff is medium to rapid, and the erosion hazard moderate to high. In other features, this soil is similar to Fallbrook sandy loam, 5 to 9 percent slopes.

Included in mapping are small areas of Cieneba soils, Las Posas soils, and Vista soils.

This Fallbrook soil is used mainly for range. Avocados and citrus are grown in areas where rocks and boulders are not too numerous. Capability unit VIe-7 (19); Loamy range site.

Fallbrook-Vista sandy loams, 9 to 15 percent slopes (FvD).--This complex occurs on uplands, at elevations of 200 to 3,000 feet. It is about 50 percent Fallbrook sandy loam and 40 percent Vista sandy loam.

Included in mapping are small areas of Cieneba soils and Las Posas soils.

The Fallbrook soil has a surface layer of brown sandy loam about 8 inches thick. The subsoil is reddish-brown sandy clay loam and loam. Below this, at a depth of about 41 inches, is decomposed granitic rock. Detailed information is given in the description of Fallbrook sandy loam, 5 to 9 percent slopes.

The Vista soil has a surface layer of dark-brown sandy loam about 19 inches thick. The subsoil is dark-brown coarse sandy loam about 16 inches thick. The substratum is strongly weathered granitic rock. Detailed information about this soil is given in the description of Vista coarse sandy loam, 9 to 15 percent slopes, under the heading "Vista Series."

Fallbrook sandy loam is moderately permeable in the subsoil and has 4 to 7.5 inches of water

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Land Use Changes: Economic, Social, and Environmental Impacts

JunJie Wu

JEL Classifications: Q24, Q28

Major land–use changes have occurred in the United States during the past 25 years. The total area of cropland, pastureland and rangeland decreased by 76 million acres in the lower 48 states from 1982 to 2003, while the total area of developed land increased by 36 million acres or 48%. What are the potential economic, social, and environmental impacts of land use changes? How does land use change affect agriculture and rural communities? What are the important economic and environmental implications for commodity production and trade, water and soil conservation, open space preservation, and other policy issues? This article addresses some of these issues and their policy implications.

Socioeconomic Impacts

Land is one of three major factors of production in classical economics (along with labor and capital) and an essential input for housing and food production. Thus, land use is the backbone of agricultural economies and it provides substantial economic and social benefits. Land use change is necessary and essential for economic development and social progress.

Land use change, however, does not come without costs (see Table 1). Conversion of farmland and forests to urban development reduces the amount of lands available for food and timber production. Soil erosion, salinization, desertification, and other soil degradations associated with intensive agriculture and deforestation reduce the quality of land resources and future agricultural productivity (Lubowski et al. 2006).

Urbanization presents many challenges for farmers on the urban fringe. Conflicts with nonfarm neighbors and vandalism, such as destruction of crops and damage to farm equipment, are major concerns of farmers at the urban fringe (Lisansky, 1986). Neighboring farmers often cooperate in production activities, including equipment sharing, land renting, custom work, and irrigation system development. These benefits will disappear when neighboring farms are converted to development. Farmers may no longer be able to benefit from information sharing and formal and informal business relationships among neighboring farms. Urbanization may also cause the "impermanence syndrome" (i.e., a lack of confidence in the

Table 1. Socioeconomic Impacts of Land–Use Changes

- Conversion of farmland and forests to urban development reduces the amount of land available for food and timber production
- Soil erosion, salinization, desertification, and other soil degradations associated with agricultural production and deforestation reduce land quality and agricultural productivity
- Conversions of farmland and forests to urban development reduce the amount of open space and environmental amenities for local residents
- Urban development reduces the "critical mass" of farmland necessary for the economic survival of local agricultural economies
- Urban development patterns not only affect the lives of individuals, but also the ways in which society is organized
- Urban development has encroached upon some rural communities to such an extent that the community's identify has been lost
- Suburbanization intensifies income segregation and economic disparities among communities
- Excessive land use control, however, may hinder the function of market forces
- Land use regulations that aim at curbing land development will raise housing prices, making housing less affordable to middle– and low–income households
- Land use regulation must strike a balance between private property rights and the public interest

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stability and long–run profitability of farming), leading to a reduction in investment in new technology or machinery, or idling of farmland (Lopez, Adelaja, and Andrews, 1988).

As urbanization intensifies, agricultural and nonagricultural land use conflicts become more severe. This may lead to an increase in local ordinances designed to force farmers to pay for some of the negative impacts generated by agriculture. As the nearest input suppliers close because of insufficient demand for farm inputs, a farmer may have to pay more for inputs or spend more time to obtain equipment repairs (Lynch and Carpenter, 2003). Competition for labor from nonagricultural sectors may raise farmers' labor costs. When the total amount of farmland falls below a critical mass, the local agricultural economy may collapse as all agricultural supporting sectors disappear.

Urbanization also presents important opportunities to farmers. The emergence of a new customer base provides farmers new opportunities for selling higher value crops. For example, Lopez, Adelaja, and Andrews (1988) found that vegetable producers tend to receive higher prices in urbanized areas. The explosion of nurseries, vegetable farms, vineyards, and other high–value crop industries in many suburban areas illustrates how quickly agricultural economies can evolve. Many farmers have shown remarkable adaptability in adjusting their enterprises to take advantage of new economic opportunities at the urban fringe. They farm more intensively in areas with high population density (Lockeretz 1988). More than half the value of total U.S. farm production is derived from counties facing urbanization pressure (Larson, Findeis, and Smith 2001).

Urbanization has changed rural communities in many places. In some rural areas, urban sprawl has encroached to such an extent that the community itself has been lost. In other areas, the lack of opportunities has turned once–viable communities into ghost towns. Urban sprawl intensifies income segregation and economic disparities between urban and suburban communities (Wu, 2006). Cities tend to gain lower–income residents and lose upper–income population. Between 1969 and 1998, the share of low–income families in central cities grew from 21.9% to 25.5% compared with a decline from 18.3% to 16.6% for high–income households (U.S. Department of Housing and Urban Development 2000). The change in income mix led to a smaller tax base and the need for more social services in urban communities.

Suburbanization brings urban and rural people and problems together. Most land areas are rural, most watersheds are in rural places, and most of the atmosphere exists above rural space. Urbanites and agencies have legitimate concerns about the use and condition of rural natural resources, just as rural populations have legitimate concerns about urban–based pressures on the natural world. These shared interests in the natural environment have important economic, social, and political implications, which may profoundly impact society in the future.

In response to the increasing urbanization, many local governments have imposed strict land use control. Some of the efforts have been quite successful in slowing down development. For example, Wu and Cho (2007) found that local land use regulations reduced land development by 10% in the five western states between 1982 and 1997, with the largest percent reduction occurring in Washington (13.0%), followed by Oregon (12.6%), California (9.5%), Idaho (4.7%), and Nevada (2.8%). A potential consequence of land use regulation is higher housing prices, which make housing less affordable to middle– and low–income households. There is sufficient evidence to support the linkage between land use regulation and housing affordability. Two recent Harvard University studies found that land use regulation reduces housing affordability in the Greater Boston Area (Glaeser and Ward 2006; Glaeser and Gyourko 2002). Cho, Wu and Boggess (2003) analyzed the causes and consequences of land use regulations across counties in five western states and found that land use regulation increased average housing prices between 1.3 and 4.7%, depending on the intensity of land use regulations in a county.

Land use control must strike a balance between private property rights and the public interest. Oregon ballot measures 37 and 49 highlight the difficulty and controversy of the balancing act. In an attempt to protect private property rights from regulatory taking, Oregon voters passed Measure 37 in 2004. Measure 37 provides that the government must compensate the owner of private real property when a land use regulation reduces its "fair market value". In lieu of compensation, the government may choose to "remove, modify or not apply" the regulation. Measure 37 was ruled unconstitutional by a lower court, but was upheld by the Oregon State Supreme Court. By October 19, 2007, 6,814 claims had been filed, requesting almost $20 billion in compensation (Oregon Department of Land Conservation and Development 2007). In an effort to reverse or modify Measure 37, Oregon voters approved Measure 49 on Nov. 6, 2007 to "ensure that Oregon law provides just compensation for unfair burdens while retaining Oregon's protection for farm and forest land uses and the state's water resources" (ODLCD, 2008). Measure 49 essentially modifies Measure 37 by replacing "waivers" of regulations with authorizations to establish a limited number of home sites.

In sum, land use change provides many economic and social benefits,

but comes at a substantial economic cost to society. Land conservation is a critical element in achieving long–term economic growth and sustainable development. Land use policy, however, must strike a balance between private property rights and the public interest.

Environmental Impacts

Land–use change is arguably the most pervasive socioeconomic force driving changes and degradation of ecosystems. Deforestation, urban development, agriculture, and other human activities have substantially altered the Earth's landscape. Such disturbance of the land affects important ecosystem processes and services, which can have wide–ranging and long–term consequences (Table 2).

Farmland provides open space and valuable habitat for many wildlife species. However, intensive agriculture has potentially severe ecosystem consequences. For example, it has long been recognized that agricultural land use and practices can cause water pollution and the effect is influenced by government policies. Runoff from agricultural lands is a leading source of water pollution both in inland and coastal waters. Conversions of wetlands to crop production and irrigation water diversions have brought many wildlife species to the verge of extinction.

Forests provide many ecosystem services. They support biodiversity, providing critical habitat for wildlife, remove carbon dioxide from the atmosphere, intercept precipitation, slow down surface runoff, and reduce soil erosion and flooding. These important ecosystem services will be reduced or destroyed when forests are converted to agriculture or urban development. For example, deforestation, along with urban sprawl, agriculture, and other human activities, has substantially altered and fragmented the Earth's vegetative cover. Such disturbance can change the global atmospheric concentration of carbon dioxide, the principal heat–trapping gas, as well as affect local, regional, and global climate by changing the energy balance on Earth's surface (Marland et al. 2003).

Urban development has been linked to many environmental problems, including air pollution, water pollution, and loss of wildlife habitat. Urban runoff often contains nutrients, sediment and toxic contaminants, and can cause not only water pollution but also large variation in stream flow and temperatures. Habitat destruction, fragmentation, and alteration associated with urban development have been identified as the leading causes of biodiversity decline and species extinctions (Czech, Krausman and Devers 2000; Soulé 1991). Urban development and intensive agriculture in coastal areas and further inland are a major threat to the health, productivity, and biodiversity of the marine environment throughout the world.

Table 2. Environmental Impacts of Land–Use Changes

- Land use and land management practices have a major impact on natural resources including water, soil, air, nutrients, plants, and animals
- Runoff from agriculture is a leading source of water pollution both in inland and coastal waters
- Draining wetlands for crop production and irrigation water diversions has had a negative impact on many wildlife species
- Irrigated agriculture has changed the water cycle and caused groundwater levels to decline in many parts of the world
- Intensive farming and deforestation may cause soil erosion, salinization, desertification, and other soil degradations
- Deforestation adds to the greenhouse effect, destroys habitats that support biodiversity, affects the hydrological cycle and increases soil erosion, runoff, flooding and landslides.
- Urban development causes air pollution, water pollution, and urban runoff and flooding
- Habitat destruction, fragmentation, and alteration associated with urban development are a leading cause of biodiversity decline and species extinctions
- Urban development and intensive agriculture in coastal areas and further inland is a major threat to the health, productivity, and biodiversity of the marine environment throughout the world

Policy Implications

Land use provides many economic and social benefits, but often comes at a substantial cost to the environment. Although most economic costs are figured into land use decisions, most environmental externalities are not. These environmental "externalities" cause a divergence between private and social costs for some land uses, leading to an inefficient land allocation. For example, developers may not bear all the environmental and infrastructural costs generated by their projects. Farmland produces both agricultural commodities and open space. Although farmers are paid for the commodities they produce, they may not be compensated for the open space they provide. Thus, market prices of farmlands may be below their social values.

Such "market failures" provide a justification for private conservation efforts and public land use planning and regulation. Private trusts and non profit organizations play an important role in land conservation. For example, the American Farmland Trust claims that it has helped to protect more than one million acres of America's best farm and ranch land. The Nature Conservancy has protected more than 117 million acres of ecologically important lands. However, some have questioned whether private conservation efforts crowd out or complement public efforts for land conservation.

Land use regulation can take many different forms. The traditional command and control approach often involves zoning, density regulation, and other direct land use controls. Although these policies can be quite effective as regulatory tools, they could lead to substantial social welfare loss in the form of higher housing prices, smaller houses, and inefficient land use patterns (Cheshire and Sheppard 2002; Walsh 2007).

Incentive–based policies are increasingly used to influence private land use decisions. These policies may include development impact fees, purchases of development rights (PDRs), preferential property taxation, and direct conservation payments. From 1998 to 2006, voters approved 1,197 conservation initiatives in local and state referenda in the United States, providing a total $34 billion for land and open space preservation (Trust for Public Land 2007). The implementation of locally based, long–term conservation plans has been touted as a critical element in achieving "smart growth" (U.S. Environmental Protection Agency 2007).

The incentive–based approach has many advantages over direct land use control. For example, a development impact fee can be used to achieve both the optimal pace and pattern of land development, a shortcoming of zoning regulations (Wu and Irwin, 2008). However, zoning may be preferred from a practical viewpoint as well as in cases where the environmental costs of land conversion are highly uncertain. In situations where the natural and human systems interact in complex ways, thresholds and nonlinear dynamics are likely to exist, and the environmental costs could be very high and sensitive to additional development. In such cases, zoning may be preferred. The policy challenge, however, is to know when the system is in the neighborhood of such thresholds.

While federal spending on land–related conservation programs has increased substantially over the last twenty five years, the federal government has yet to articulate a clear vision of how land use should be managed (Daniels, 1999). Most land use controls are in the hands of local governments in the United States, and the level of control varies considerably across counties and municipalities. Some local governments have few land use controls, while others are actively involved in land use planning and regulation.

Land use regulation is a contentious issue in many communities, particularly those facing rapid urbanization. Proponents argue that land use planning protects farmland, forests, water quality, open space, and wildlife habitat and, at the same time, increases property value and human health. Conversely, uncontrolled development will destroy the natural environment and long–term economic growth. Critics of land use regulation call those fears overblown. They argue that urban development is an orderly market process that allocates land from agriculture to urban use, and that governments tend to over regulate because they rarely bear the costs of regulation. The stakes are high in this debate. Any policy measures that aim at curbing urban development will ultimately affect a key element of the American way of life, that is, the ability to consume a large amount of living space at affordable prices. Policymakers must resist the temptation to attribute all "irregular" land use patterns to market failures and impose stringent land use regulations that may hinder the function of market forces. They should try to identify the sources of market failures that cause "excessive development" and address problems at their roots. Land use regulation must strike a balance between private property rights and the public interest.

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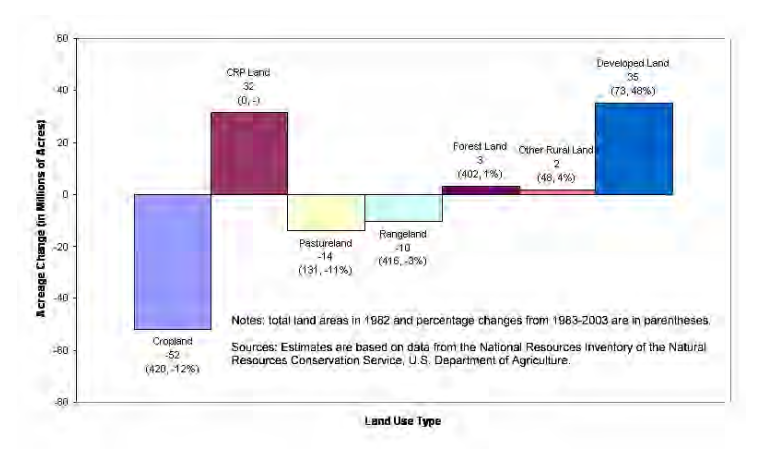
Figure 1. Changes in Major Land Cover/Use in the Contiguous United States 1982–2003



Getting the Drift on Chemical Trespass

Pesticide drift hits homes, schools and other sensitive sites throughout communities

By Kagan Owens and Jay Feldman

As suburban sprawl extends further into the countryside, the numbers of people who live, play and work near agricultural land is increasing. Due to pesticides drifting, thousands of individuals are directly affected by adjacent or surrounding agricultural fields where pesticide use totals nearly a million pounds a year. Pesticides used on lawns, ornamentals and trees also drift on to neighboring property. Both scenarios result in chemical trespass causing involuntary exposure. Government and independent studies show that drifting pesticides pose serious environmental and human health risks miles away from the treated fields.[1] With 77% of all pesticides in the U.S. being used in agriculture,[2] people, especially vulnerable high risk population groups like children, the elderly and infirm, are directly exposed to pesticides drifting on to homes, schools, health care facilities and other sensitive sites throughout communities.

According to the U.S. Environmental Protection Agency (EPA), "Each year, states receive about 2,500 complaints of drift from individuals."[3] In 2002, nearly half of the reported pesticide illness cases in California were individuals who were exposed as a result of pesticide drift.[4] Researchers believe that reported occurrences are a fraction of actual incidents.[5]

While EPA has proposed changes to product labels that will instruct users to "not allow spray to drift from the application site...,"[6] the health effects associated with drift exposure are not calculated or incorporated into agency risk assessments. Could EPA allow pesticides to be used if it had to calculate the real world impacts of drifting chemicals on people suffering cancer, neurological disease, asthma, etc.? Are there requirements EPA could impose on users to prohibit drift under penalty of law? Are drift reduction or mitigation strategies effective? Should the need to stop drift require the adoption of feasible non-toxic alternatives (e.g. organic)?

Photo by LSU Ag Center

What is pesticide drift?

Pesticide drift is an inevitable problem in pest management strategies that rely on spray and dust pesticide formulations. There are essentially two types of drift: particle drift (off-target movement during application) and vapor drift (off-target movement when a pesticide evaporates from a sprayed surface). EPA does not fully regulate particle drift, and it altogether ignores vapor drift in its regulatory definition of drift.[7] Vapor drift is known to travel much further than particle drift.[8]

Although pesticides can drift when applied from a truck or hand held applicator, of greatest concern is the aerial application of pesticides, where up to 40% of the pesticide is lost to drift.[9] It is estimated that less than 0.1% of an insecticide reaches the target pests. Therefore, more than 99% of the applied pesticide is released and left to impact the surrounding environment.[10] Even the newer ultra low volume technology (ULV) under ideal weather conditions results in only approximately 25% of an herbicide reaching the target area.[11]

Pesticides drift for miles

A 2001 study by Texas A&M University researchers shows that pesticides can volatilize into the gaseous state and be transported over long distances fairly rapidly through wind and rain.[12] A U.S. Geological Survey report reached similar conclusions, finding, "After they are applied, many pesticides volatilize into the lower atmosphere, a process that can continue for days, weeks, or months after the application, depending on the compound. In addition, pesticides can become airborne attached to wind-blown dust." The report also documents that pesticides in rainfall collected in Modesto, California exceeded state guidelines for the protection of aquatic life in most samples.[13]

In *Every Breathe You Take*, Environmental Working Group reports on independent scientific monitoring that finds dangerously high concentrations of the neurotoxin chlorpyrifos in the air that many residents breathe every day. Chlorpyrifos is an organophosphate pesticide whose residential uses are being phased out, but continues to be used in agriculture, for public health mosquito control and on golf courses. The report finds that more than 22,000 children in three counties attend school near sites of heavy use of toxic pesticides.[14]

Another report, *Secondhand Pesticides*, summarizes data collected throughout California and finds that airborne pesticide levels routinely exceed acceptable health standards miles from where they are used. More than 90% of pesticides used in California are prone to drift, and 34% of the 188 million pounds of pesticides used in 2000 in the state are considered highly toxic to humans, according to the report. Concentrations of the pesticides chlorpyrifos and diazinon, another organophosphate pesticide whose residential uses are being phased out, were found near spray areas in concentrations that exceeded acceptable health levels by 184 and 39 times, respectively. The report also reveals that for 45% of pesticides applied in California, the concentrations of pesticides in air peak long after the application is complete-between eight and 24 hours after an application starts. [15]

Photo by U.S. Department of Agriculture

Studies also show that pesticides drift indoors. For example, a 1991 EPA indoor pesticide study on children's exposure shows that for newer and older homes alike, "residues of many pesticides are found in and around the home even when there has been no known use of them on the premises."[16] In a 2003 study published in *Environmental Science and Technology* on indoor toxins in homes, researchers found varying and alarming levels of some of the most commonly used pesticides in dust concentrations in sampled homes. Most concerning is that 63% of the homes tested contain the commonly used herbicide 2,4-D,[17] showing that pesticides can be tracked indoors[18] or drift in through poorly sealed or open windows and doors.

Cause for concern

Because of documented exposure patterns resulting from drift, advocates for children and other sensitive population groups are particularly concerned. Adverse health effects, such as nausea, dizziness, respiratory problems, headaches, rashes, and mental disorientation, may appear even when a pesticide is applied according to label directions. Pesticide exposure can adversely affect the neurological, respiratory, immune, and endocrine systems, even at low levels. A recent study found organophosphate pesticides cause genetic damage linked to neurological disorders such as attention deficit hyperactivity disorder and Parkinson's disease.[19] Several pesticides, such as pyrethrins and pyrethroids, organophosphates and carbamates, are also known to cause or exacerbate asthma symptoms.[20] Because most of the symptoms of pesticide exposure, from respiratory distress to difficulty in concentration, are common in children and may also have other causes, pesticide-related illnesses often go unrecognized and unreported.[21]

Studies show that children exposed to pesticides suffer elevated rates of leukemia, brain cancer, and soft tissue sarcoma.[22] According to EPA's Guidelines for Carcinogen Risk Assessment, children receive 50 percent of their lifetime cancer risks in the first two years of life.[23]

A National Cancer Institute researcher who matched pesticide data and medical records in ten California agricultural counties recently reported that pregnant women living within nine miles of farms where pesticides are sprayed have an increased risk of losing an unborn baby to birth defects.[24] A 1996 study found that living within 2600 feet of an agricultural area increased the risk of developing brain cancer by two-fold, with astrocytoma increased by 6.7-fold.[25]

State preemption grew out of drift

In 1979, Mendocino County, California was among the first local jurisdiction in the country to pass an ordinance prohibiting the aerial application of phenoxy herbicides because of drift. The measure was passed after an incident in 1977 that resulted in herbicide drift on school buses nearly three miles away from the application site. After a California State Supreme Court decision upheld the right of citizens to adopt more protective standards than the state and federal government (*The People v. County of Mendocino*, 1984), the California legislature passed legislation taking away that right. The constitutionality of the law was upheld in the Court of Appeals for the Third Appellate District (1986).

Table 1. State Buffer Zone Requirements For Agricultural Pesticide Applications[32]

STATE	APPLICATION	DIMENSIONS	SITES
Alabama	Aerial application.	400 ft.	Schools, hospitals, nursing homes, places of worship.
Arizona	Certain odoriferous pesticides.	1/4 m.	Schools, daycares, health care institutions, 25+ residences adjoining field.
	Certain highly toxic pesticides.	400 ft.	Health care institutions.
	Certain highly toxic liquid pesticides.	100 ft (aircraft) or 50 ft (ground).	25+ residences adjoining field.
	Aerial application, certain highly toxic pesticides.	300 ft.	25+ residences adjoining field.
	Certain highly toxic pesticides.	1/4 m.	Schools, daycare centers.
Connecticut	Dust pesticides.	100 ft.	Public highway.
	Aerial application.	1/2 acre.	Municipal or private owned public parks, playgrounds, swimming areas.
Louisiana	Commercial aerial application.	1,000 ft.	Inhabited structure, school grounds during school hours.
Massachusetts	Aerial application.	150 ft.	Schools.
New Jersey	Aerial application.	300 ft.	Occupied schools, hospitals, nursing homes, places of religious worship, business or social buildings.
	Gypsy moth application.	2 m. (grade school), 2 1/2 m. (high school).	Schools, during commuting hours.
North Carolina	Aerial application.	300 ft.	Occupied schools, hospitals, nursing homes, places of worship, business or social buildings and properties.
	Aerial applications.	25 ft.	Public roads.
	Aerial applications.	100 ft.	Residences.

The issue of federal preemption of local ordinances made its way to the U.S. Supreme Court and it ruled in 1991 in *Wisconsin Public Intervenor v. Ralph Mortier* that federal law (the *Federal Insecticide, Fungicide and Rodenticide Act*) does not preempt local restrictions. The pesticide lobby then went to all states without preemption clauses seeking and getting, in most cases, amendments to state laws that specifically preempt local jurisdiction. Today, only ten states allow their local jurisdictions to restrict pesticide use.

Buffer zones

Buffer zones, areas where pesticide spray applications are prohibited, can reduce unconsented exposure from spray drift on to school property, residential areas and other sensitive sites. Seven states have recognized the importance of controlling drift by restricting pesticide applications around these sites. State required buffer zones range from 100 feet to 2 1/2 miles, depending on the application method, pesticide type and site to be protected from potential drift. (See Table 2)

The U.S. District Court in Seattle issued an injunction in January 2004, as a result of *Washington Toxics Coalition, et al. v. EPA*, that put in place no-spray zones of 100 yards for aerial applications and 20 yards for ground applications of more than 30 pesticides from "salmon-supporting waters" in west coast states. The judge's ruling in the case found EPA out of compliance with the *Endangered Species Act* for failing to protect salmon from harmful pesticides.[26]

Table 2. State Notification Requirements For Agricultural Pesticide Applications[33]

STATE	APPLICATION TYPE	NOTIFICATION TYPE, APPLICATION DISTANCE	SITE
California	Aerial application, phenoxy herbicides, timber production.	Post sign, 1 m.	All property owners.
	Aerial application, phenoxy herbicides, timber production.	Mail notice, 300 ft.	Residents requesting notice.
Connecticut	Restricted use pesticide.	Post sign.	Neighboring property.
	Aerial application.	Written consent, 200 ft. (helicopter), 300 ft. (fixed wing).	Landowners and residents.
Maine	Pesticide applications.	Request to be notified, 500 ft.	Residential buildings, school buildings, playgrounds, athletic fields; commercial buildings, places of worship; recreational areas.
Massachusetts	Aerial applications.	Post sign, 500 ft.	100 feet around structures (residential, commercial, municipal, hospitals, schools, gathering places), recreation areas.
New Jersey	Aerial applications.	Written consent, 100 ft.	Private residence.
Pennsylvania	All applications.	Registry, Contiguous land.	Residence.
Texas	Airblast and mistblowing applications.	Request notification, 1/4 m.	Daycare, schools, hospitals, clinics, nursing homes; those with chemical sensitivities reside and work.
Wisconsin	Aerial application.	Request notice, 1/4 m.	Residence.
	Aerial application.	Post notice, 300 ft.	Residence, labor camp, school, playground, daycare, health care, commercial or industrial facility, public recreation area.

Mitigating pesticide drift

EPA's standard pesticide label requirement, which instructs the user to avoid drift, is viewed as inadequate and unenforceable. Community members often advocate for sustainable, organic alternatives to pesticide use to avoid altogether the harmful effects of pesticide drift.

Technical fixes have limited ability to control drift. Despite improved engineering of nozzles and droplet size, real world experience demonstrates that applicators are often not trained to use the technology correctly and frequently spray in weather conditions that exacerbate drift. The fact that acute poisonings still occur with disturbing regularity (sub-acute or chronic poisonings are even more common) suggests that more of the same "technology enhancement" approaches will not solve the problem.[27]

- **Buffer Zones**. To protect against vapor chemical drift, meaningful buffer zones require a two-mile radius around the residential and school property and other sensitive sites. Aerial applications should have a larger buffer zone, at least three-miles encircling the designated property. No-deposit buffer zones, which reduce the impact of particle drift, should encompass a minimum of 400 feet.
- **Time of Day**. Ultimately, buffer zones should be in effect at all times of the day, especially for sensitive sites such as residential areas, schools and hospitals. For schools, it is critical for spray restrictions to be in place, at a minimum, during commuting times and while students and employees are on school property to protect against airborne exposure.
- **Communication**. Farmers should meet with nearby property owners, residents, and school officials to talk about which pesticides are planned for use, establish emergency plans for accidental exposure, and share schedules when certain sensitive sites, such as parks and schools, will be in use.
- **Notification.** Ideally, pesticide applicators should provide 48-hour prior notification to all occupants and users of sensitive sites within a three-mile radius. Notification, at a minimum, should include the time and location of the application, the pesticide product name, known ingredients,

and applicator contact information. Currently, eight states provide some type of notification of agricultural pesticides to nearby property occupants and users. (See Table 2). Twenty-one states provide some type of notification of lawn and landscape pesticide applications to abutting property. (See page 16).

- **Wind Breaks**. The use of natural or artificial wind shields or breaks can help deflect and contain spray drift away from sensitive areas.[28]

- **Pesticide Choice**. Because completely eliminating drift is virtually impossible, growers and pesticide applicators should use the least toxic substances. Products with label temperature restrictions should be avoided. Avoid using chemicals that volatilize rapidly from moist soil, such as butyul ester or butoxyethanol ester, because they are more likely to result in vapor drift. Application of the most toxic pesticides, including carcinogens, endocrine disruptors, reproductive toxins, developmental toxins, neurotoxins and pesticides listed by EPA as a toxicity category I or II pesticide, should be prohibited from use.

- **Application Equipment**. Drift increases significantly as boom height on spray equipment increases. When boom height doubles, drift increases 350%. Sprayers should be set up to produce the largest droplets (at least 200 microns). Large droplets are more likely to maintain momentum, actually reach the target pest, and not get carried away with air movement. Other equipment considerations include spray pressure, nozzle size, nozzle orientation, vehicle operating speed, shields on sprayers and nozzles and application rate. Ultimately, aerial and other problematic spray technologies should be prohibited altogether.

- **Weather**. Application of a pesticide should never take place when a sensitive area is downwind, no matter the wind speed. Drift potential decreases as wind speeds decrease. Technicians identify optimal conditions as three to ten miles per hour winds blowing away from sensitive areas. Other weather considerations include: air temperature, relative humidity, topography and atmospheric stability (check for temperature inversion which can cause small-suspended droplets to move long distances).[29]

- **Enforcement of Pesticide Regulations**. State pesticide lead agency inspectors should routinely inspect planes, equipment, and application sites to ensure that regulations are being followed, and to prevent potentially damaging exposure to drift from pesticide applications.[30] Drift incidents should be reported to state enforcement agencies, which must, under federal pesticide law, conduct an investigation and a response within 30 days.

Detecting Drift

There are several ways to identify whether a pesticide has drifted on to non-target property. The obvious would be if a cloud of pesticide drift was visually evident or if there are damaged crops or vegetation. But drift is usually invisible. Therefore, drift can be documented through the use of cards, filters, panels, plastic, and air sampling equipment.

After collecting drift samples, it is best to know what chemicals are being used and collected because analytical laboratories evaluating the samples charge per pesticide. (Find a lab through the American Association of Laboratory Accreditation at www.a2La.org.) If cards are used, knowing whether the pesticide is water or oil based will guide which type of card to use. It is also important that the collecting device be placed appropriately on the property. In addition, samples need to be collected as soon as possible after the suspected drift, preferably within two hours, and placed in a sealed plastic bag and in a cold, dry place in order to preserve the pesticide before it begins to breakdown. Due to the complexities and costs associated with detecting pesticides, please contact Beyond Pesticides for advice on identifying which methods are most appropriate and a strategy for where and how to set up the detection unit.

- **Cards.** Water and oil-sensitive cards can show pesticide droplet size and distribution Simply attach cards to wherever drift may be taking place, such as along the property's fence line, trees, garden or structure. Drawbacks: These cards are sensitive to not only pesticides. Very fine droplets may not get detected. (50 cards per pack, $39.95 for water-sensitive, $34.95 for oil-sensitive, www.gemplers.com)

- **Filters**. Filter paper can be used to capture the pesticide and sent to a lab to identify the pesticide concentration. Because you will not be able to see if the filter captures pesticide drift, it should be placed next to cards. Drawbacks: Filters need to be carefully placed and handled. (Whatman Grade No.1, 100 filter papers, $4.59, www.sargentwelch.com)

- **Panels**. Drive a stake in the ground and attach a 12"X12" piece of cardboard covered with a sheet of aluminum foil to the top with a small roofing nail. Use caution and spray the upper surface with a little sticky tack. The acetone carrier will dry in a few seconds leaving a film that will trap pesticides. Once the pesticide has been collected, roll the foil up and carefully store it. Drawbacks: Same as with filters.

- **Plastic**. Black plastic garbage bags can be placed around the property as a way to detect pesticide droplets. It is easy and probably the least expensive way to detect drift. Drawbacks: Whether or not a pesticide will show depends on the droplet size.

- **Air Sampling Equipment**. Air sampling equipment to detect pesticides can be rented or purchased. (SKC, Inc., www.skcinc.com) Available to select community groups only, the Drift Catcher is being used by the Pesticide Action Network North America to collect and measure air samples. Drawbacks: Equipment is very expensive.

If drift has harmed you

If pesticide drift is suspected as causing harm to you or your property: 1) evacuate the area; 2) get medical attention; 3) find out what chemicals were used; and 4) contact the state's lead pesticide agency and file a complaint while requesting that it send an investigator to take residue samples. It is important to file a written complaint with copies to elected officials. The state is then responsible for carrying out an investigation and taking an enforcement action (or deciding not to) within 30 days. If the state fails to do this, it becomes the EPA's responsibility. Follow up on all phone conversations with a letter confirming what was discussed. Send around copies of letters, listing at the bottom of the letter, all those to whom the letter was distributed, including, U.S. EPA, the Governor and elected officials. This is critical if the lead agency is not helpful. See *What To Do In A Pesticide Emergency* on the Beyond Pesticides website, www.beyondpesticides.org[31] Contact Beyond Pesticides at 202-543-5450, info@beyondpesticides.org.

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(For a fully cited version of this article, see www.beyondpesticides.org)

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LEED 2009 FOR NEIGHBORHOOD DEVELOPMENT

For Public Use and Display

LEED 2009 for Neighborhood Development Rating System

Created by the Congress for the New Urbanism, Natural Resources Defense Council, and the U.S. Green Building Council

(Updated October 2012)

LEED-ND™

PREFACE FROM USGBC

The built environment has a profound impact on our natural environment, economy, health, and productivity. Through its Leadership in Environmental and Energy Design (LEED®) certification programs, the U.S. Green Building Council (USGBC) is transforming the built environment. The green building movement offers an unprecedented opportunity to respond to the most important challenges of our time, including global climate change, dependence on nonsustainable and expensive sources of energy, and threats to human health. The work of innovative building planning professionals is a fundamental driving force in the green development movement. Such leadership is a critical component to achieving USGBC's mission of a sustainable built environment for all within a generation.

USGBC MEMBERSHIP

USGBC's greatest strength is the diversity of our membership. USGBC is a balanced, consensus-based nonprofit with more than 20,000 member companies and organizations representing the entire building industry. Since its inception in 1993, USGBC has played a vital role in providing a leadership forum and a unique, integrating force for the building industry. USGBC's programs have three distinguishing characteristics:

Committee-based

The heart of this effective coalition is our committee structure, in which volunteer members design strategies that are implemented by staff and expert consultants. Our committees provide a forum for members to resolve differences, build alliances, and forge cooperative solutions for influencing change in all sectors of the building industry.

Member-driven

Membership is open and balanced and provides a comprehensive platform for carrying out important programs and activities. We target the issues identified by our members as the highest priority. We conduct an annual review of achievements that allows us to set policy, revise strategies, and devise work plans based on members' needs.

Consensus-focused

We work together to promote green buildings and neighborhoods, and in doing so, we help foster greater economic vitality and environmental health at lower costs. We work to bridge ideological gaps between industry segments and develop balanced policies that benefit the entire industry.

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The Congress for the New Urbanism and the Natural Resources Defense Council collaborated with the U.S. Green Building Council in creating the LEED for Neighborhood Development Rating System. USGBC's consensus-focused approach to rating system development was furthered by these organizations' expertise in New Urbanism and smart growth strategies.

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The LEED 2009 for Neighborhood Development Rating System is the work of members of the LEED for Neighborhood Development Core Committee, both those who have worked on this version and those who helped create previous versions. In addition, staff would like to thank Criterion Planners, Urban Advantage, and AECOM for the graphics.

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LEED 2009 FOR NEIGHBORHOOD DEVELOPMENT PROJECT CHECKLIST

Smart Location and Linkage — 27 possible points

☑	Prerequisite 1	Smart Location	Required
☑	Prerequisite 2	Imperiled Species and Ecological Communities	Required
☑	Prerequisite 3	Wetland and Water Body Conservation	Required
☑	Prerequisite 4	Agricultural Land Conservation	Required
☑	Prerequisite 5	Floodplain Avoidance	Required
☐	Credit 1	Preferred Locations	10
☐	Credit 2	Brownfield Redevelopment	2
☐	Credit 3	Locations with Reduced Automobile Dependence	7
☐	Credit 4	Bicycle Network and Storage	1
☐	Credit 5	Housing and Jobs Proximity	3
☐	Credit 6	Steep Slope Protection	1
☐	Credit 7	Site Design for Habitat or Wetland and Water Body Conservation	1
☐	Credit 8	Restoration of Habitat or Wetlands and Water Bodies	1
☐	Credit 9	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1

Neighborhood Pattern and Design — 44 possible points

☑	Prerequisite 1	Walkable Streets	Required
☑	Prerequisite 2	Compact Development	Required
☑	Prerequisite 3	Connected and Open Community	Required
☐	Credit 1	Walkable Streets	12
☐	Credit 2	Compact Development	6
☐	Credit 3	Mixed-Use Neighborhood Centers	4
☐	Credit 4	Mixed-Income Diverse Communities	7
☐	Credit 5	Reduced Parking Footprint	1
☐	Credit 6	Street Network	2
☐	Credit 7	Transit Facilities	1
☐	Credit 8	Transportation Demand Management	2
☐	Credit 9	Access to Civic and Public Spaces	1
☐	Credit 10	Access to Recreation Facilities	1
☐	Credit 11	Visitability and Universal Design	1
☐	Credit 12	Community Outreach and Involvement	2
☐	Credit 13	Local Food Production	1
☐	Credit 14	Tree-Lined and Shaded Streets	2
☐	Credit 15	Neighborhood Schools	1

Green Infrastructure and Buildings — 29 possible points

☑	Prerequisite 1	Certified Green Building	Required
☑	Prerequisite 2	Minimum Building Energy Efficiency	Required
☑	Prerequisite 3	Minimum Building Water Efficiency	Required
☑	Prerequisite 4	Construction Activity Pollution Prevention	Required

☐ Credit 1	Certified Green Buildings	5
☐ Credit 2	Building Energy Efficiency	2
☐ Credit 3	Building Water Efficiency	1
☐ Credit 4	Water-Efficient Landscaping	1
☐ Credit 5	Existing Building Reuse	1
☐ Credit 6	Historic Resource Preservation and Adaptive Use	1
☐ Credit 7	Minimized Site Disturbance in Design and Construction	1
☐ Credit 8	Stormwater Management	4
☐ Credit 9	Heat Island Reduction	1
☐ Credit 10	Solar Orientation	1
☐ Credit 11	On-Site Renewable Energy Sources	3
☐ Credit 12	District Heating and Cooling	2
☐ Credit 13	Infrastructure Energy Efficiency	1
☐ Credit 14	Wastewater Management	2
☐ Credit 15	Recycled Content in Infrastructure	1
☐ Credit 16	Solid Waste Management Infrastructure	1
☐ Credit 17	Light Pollution Reduction	1

Innovation and Design Process **6 possible points**

☐ Credit 1	Innovation and Exemplary Performance	1–5
☐ Credit 2	LEED® Accredited Professional	1

Regional Priority Credit **4 possible points**

☐ Credit 1	Regional Priority	1–4

LEED 2009 for Neighborhood Development Certification Levels

100 base points plus 6 possible Innovation and Design Process and 4 possible Regional Priority Credit points

Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

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INTRODUCTION

I. THE CASE FOR GREEN NEIGHBORHOOD DEVELOPMENTS

As the U.S. population continues to expand rapidly, consumption of land grows exponentially—currently, three times the rate of population growth. At this breathtaking pace, two-thirds of the development on the ground in 2050 will be built between now and then.[1] The way we grow—especially how and where we grow—will have a profound effect on our planet and on us.

Land use and neighborhood design patterns create a particular physical reality and compel behaviors that have a significant effect on the environmental performance of a given place. Segregated land uses accessed by high-speed roadways that necessitate the use of cars have been the predominant development pattern over the past 50 years. In the United States, transportation accounts for roughly one-third of greenhouse gas emissions, a large portion of which can be attributed to personal automobile use.[2] Burning fossil fuels for transportation increases air pollution and related respiratory diseases. Automobile-oriented neighborhoods tend to be hostile to pedestrians and unsupportive of traditional mixed-use neighborhood centers. Sprawling development patterns fragment habitat, endanger sensitive land and water bodies, destroy precious farmland, and increase the burden on municipal infrastructure.

In contrast, by placing residences and jobs proximate to each other, thoughtful neighborhood planning and development can limit automobile trips and the associated greenhouse gas emissions. Mixed-use development and walkable streets encourage walking, bicycling, and public transportation for daily errands and commuting. Environmentally responsible buildings and infrastructure are an important component of any green neighborhood, further reducing greenhouse gas emissions by decreasing energy consumption. Green buildings and infrastructure also lessen negative consequences for water resources, air quality, and natural resource consumption.

Green neighborhood developments are beneficial to the community and the individual as well as the environment. The character of a neighborhood, including its streets, homes, workplaces, shops, and public spaces, significantly affects the quality of life. Green neighborhood developments enable a wide variety of residents to be part of the community by including housing of varying types and price ranges. Green developments respect historical resources and the existing community fabric; they preserve open space and encourage access to parks. Green buildings, community gardens, and streets and public spaces that encourage physical activity are beneficial for public health. Combine the substantial environmental and social benefits and the case for green neighborhoods makes itself.

II. LEED® RATING SYSTEMS

Background on LEED®

Following the formation of the U.S. Green Building Council (USGBC) in 1993, the organization's members quickly realized that the sustainable building industry needed a system to define and measure "green buildings." USGBC began to research existing green building metrics and rating systems. Less than a year after formation, the members acted on the initial findings by establishing a committee to focus solely on this topic. The composition of the committee was diverse; it included architects, real estate agents, a building owner, a lawyer, an environmentalist, and

1 Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change* (Washington, D.C.: Urban Land Institute, 2008).
2 "Greenhouse Gases, Climate Change, and Energy" (Energy Information Administration, May 2008).

industry representatives. This cross section of people and professions added a richness and depth both to the process and to the ultimate product, the Leadership in Energy and Environmental Design (LEED) certification system.

The first LEED Pilot Project Program, also referred to as LEED Version 1.0, was launched at the USGBC Membership Summit in August 1998. After extensive modifications, LEED Green Building Rating System Version 2.0 was released in March 2000, with LEED Version 2.1 following in 2002 and LEED Version 2.2 following in 2005.

As LEED has evolved and matured, the program has undertaken new initiatives. In addition to a rating system specifically devoted to building operational and maintenance issues (LEED for Existing Buildings: Operations & Maintenance), LEED addresses the different project development and delivery processes that exist in the U.S. building design and construction market, through rating systems for specific building typologies, sectors, and project scopes: LEED for Core & Shell, LEED for New Construction, LEED for Schools, LEED for Retail, LEED for Healthcare, LEED for Homes, and LEED for Commercial Interiors. LEED for Neighborhood Development is the latest LEED certification system to be released.

The green building and neighborhood development field is growing and changing daily. New technologies and products are being introduced into the marketplace, and innovative designs and practices are proving their effectiveness. The LEED rating systems and reference guides will evolve as well. Project teams must comply with the version of the rating system that is current at the time of their registration. USGBC will highlight new developments on its website on a continual basis, at www.usgbc.org.

Background on LEED for Neighborhood Development

The U.S. Green Building Council (USGBC), the Congress for the New Urbanism (CNU), and the Natural Resources Defense Council (NRDC)—organizations that represent leading design professionals, progressive builders and developers, and the environmental community—have come together to develop a rating system for neighborhood planning and development based on the combined principles of smart growth, New Urbanism, and green infrastructure and building. The goal of this partnership is to establish a national leadership standard for assessing and rewarding environmentally superior green neighborhood development practices within the framework of the LEED® Green Building Rating System™.

Unlike other LEED rating systems, which focus primarily on green building practices and offer only a few credits for site selection and design, LEED for Neighborhood Development places emphasis on the site selection, design, and construction elements that bring buildings and infrastructure together into a neighborhood and relate the neighborhood to its landscape as well as its local and regional context. The work of the LEED-ND core committee, made up of representatives from all three partner organizations, has been guided by sources such as the Smart Growth Network's ten principles of smart growth, the charter of the Congress for the New Urbanism, and other LEED rating systems. LEED for Neighborhood Development creates a label, as well as guidelines for both decision making and development, to provide an incentive for better location, design, and construction of new residential, commercial, and mixed-use developments.

Whereas the other LEED rating systems have five environmental categories, LEED for Neighborhood Development has three: Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Buildings. An additional category, Innovation and Design Process, addresses sustainable design and construction issues and measures not covered under the three categories. Regional bonus credits are another feature of LEED-ND. These credits acknowledge the importance of local conditions in determining best environmental design and construction practices as well as social and health practices.

The LEED 2009 minimum program requirements define the minimum characteristics that a project must possess to be eligible for certification under LEED 2009. These requirements do not apply to LEED for Neighborhood Development projects.

LEED Credit Weightings

In LEED 2009, the allocation of points among credits is based on the potential environmental impacts and human benefits of each credit with respect to a set of impact categories. The impacts are defined as the environmental or human effect of the design, construction, operation, and maintenance of the building, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, and indoor environmental conditions. In the LEED for Neighborhood Development Rating System, social and public health benefits were added to the impact categories, and the impact categories were then applied at the neighborhood scale. A combination of approaches, including energy modeling, life-cycle assessment, and transportation analysis, is used to quantify each type of impact. The resulting allocation of points among credits is called credit weighting.

LEED 2009 uses the U.S. Environmental Protection Agency's TRACI[3] environmental impact categories as the basis for weighting each credit. TRACI was developed to assist with impact evaluation for life-cycle assessment, industrial ecology, process design, and pollution prevention. LEED 2009 also takes into consideration the weightings developed by the National Institute of Standards and Technology (NIST); these compare impact categories with one another and assign a relative weight to each. Together, the two approaches provide a solid foundation for determining the point value of each credit in LEED 2009.

The LEED 2009 credit weightings process is based on the following parameters, which maintain consistency and usability across rating systems:

- All LEED credits are worth a minimum of 1 point.
- All LEED credits are positive, whole numbers; there are no fractions or negative values.
- All LEED credits receive a single, static weight in each rating system; there are no individualized scorecards based on project location.
- All LEED rating systems have 100 base points; Innovation and Design Process and Regional Priority credits provide opportunities for up to 10 bonus points.

Given the above criteria, the LEED 2009 credit weightings process involves three steps for LEED for Neighborhood Development:

1. A reference neighborhood is used to estimate the environmental impacts in 15 categories associated with a typical neighborhood development pursuing LEED certification.
2. The relative importance of neighborhood impacts in each category is set to reflect values based on the NIST weightings.[4]
3. Data that quantify neighborhood impacts on environmental and human health are used to assign points to individual credits.

Each credit is allocated points based on the relative importance of the neighborhood-related impacts that it addresses. The result is a weighted average that combines neighborhood impacts and the relative value of the impact categories. Credits that most directly address the most important impacts are given the greatest weight, subject to the system design parameters described above. Credit weights also reflect a decision by LEED to recognize the market implications of point allocation.

The details of the weightings process vary slightly among individual rating systems. For example, LEED for Neighborhood Development includes credits related to infill development but LEED for New Construction does not. This results in a difference in the portion of the environmental footprint addressed by each rating system and the relative allocation of points.

3 Tools for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) (U.S. Environmental Protection Agency, Office of Research and Development, http://www.epa.gov/nrmrl/std/sab/traci/).

4 Relative impact category weights based on an exercise undertaken by NIST (National Institute of Standards and Technology) for the BEES program, http://www.bfrl.nist.gov/oae/software/bees/.

The weightings process for each rating system is fully documented in a weightings workbook. The credit weightings process will be reevaluated over time to incorporate changes in values ascribed to different neighborhood impacts and neighborhood types, based on both market reality and evolving knowledge related to buildings and neighborhood design. A complete explanation of the LEED credit weightings system is available on the USGBC website, at www.usgbc.org.

III. OVERVIEW AND PROCESS

The LEED 2009 for Neighborhood Development Rating System is a set of performance standards for certifying the planning and development of neighborhoods. The intent is to promote healthful, durable, affordable, and environmentally sound practices in building design and construction.

Prerequisites and credits in the rating system address five topics:

- Smart Location and Linkage (SLL)
- Neighborhood Pattern and Design (NPD)
- Green Infrastructure and Buildings (GIB)
- Innovation and Design Process (IDP)
- Regional Priority Credit (RPC)

When to Use LEED for Neighborhood Development

The LEED for Neighborhood Development Rating System responds to land use and environmental considerations in the United States. It is designed to certify exemplary development projects that perform well in terms of smart growth, urbanism, and green building. Projects may constitute whole neighborhoods, portions of neighborhoods, or multiple neighborhoods. There is no minimum or maximum size for a LEED-ND project, but the core committee's research has determined that a reasonable minimum size is at least two habitable buildings and that the maximum area that can appropriately be considered a neighborhood is 320 acres, or half a square mile. A project larger than 320 acres is eligible but may find documenting certain credits difficult and may want to consider dividing the area into separate LEED-ND projects, each smaller than 320 acres. Although projects may contain only a single use, typically a mix of uses will provide the most amenities to residents and workers and enable people to drive less and safely walk or bike more. Small infill projects that are single use but complement existing neighboring uses, such as a new affordable-housing infill development in a neighborhood that is already well served by retail and commercial uses, are also good candidates for certification.

This rating system is designed primarily for the planning and development of new green neighborhoods, whether infill sites or new developments proximate to diverse uses or adjacent to connected and previously developed land. Many infill projects or projects near transit will be in urban areas, which helps direct growth into places with existing infrastructure and amenities. LEED-ND also promotes the redevelopment of aging brownfield sites into revitalized neighborhoods by rewarding connections beyond the site, walkable streets within the site, and the integration of any historic buildings and structures that will give the new neighborhood development a unique sense of place.

Existing neighborhoods can also use the rating system, and its application in this context could be especially beneficial in urban areas and historic districts. It is, however, important to point out that the owner or owners applying for certification should already own, have title to, or have significant control over a majority of the land within the project boundary and the plan for new construction or major renovation for the majority of the project's square footage. The new construction could take place on vacant land within the boundary, and the major renovations could involve existing buildings, recent or historic, within the project. In addition to guiding infill development opportunities, LEED-ND has additional relevance for existing neighborhoods, as a tool to set

performance levels for a group of owners wanting to retrofit their homes, offices, or shops, and finally for shaping new green infrastructure, such as sidewalks, alleys, and public spaces. Many prerequisites or credits have a specific compliance path for existing buildings; this is highlighted in the rating system, and more detail is provided in the reference guide.

LEED-ND also can be used in suburban locations. There are tremendous opportunities to retrofit the suburbs, whether this involves reviving old shopping centers and their surrounding parking lots or adding new units and vibrant walkable town centers to existing subdivisions. Increasingly, many suburbs are well served by transit and thus should be considered good candidates for creating mixed-use, walkable developments with the potential to decrease residents' and workers' dependence on personal automobiles.

LEED for Neighborhood Development was not designed as a rating system for existing campuses, such as colleges, universities, and military bases. Many campuses have circulation patterns and building forms and placement that differ from the strategies outlined in LEED-ND. As a result, the rating system may not be appropriate for such facilities, but it could be applied in certain situations. For example, LEED-ND could be used for a civilian-style development on or adjacent to a military base, especially now that there is increased interest in developing mixed-use main streets as a focal point for new residential development in military bases. In addition, with many installations facing closure under the Base Realignment and Closure Act, LEED-ND could be used to guide the redevelopment of a base as it finds a new use. For colleges and universities, the program best lends itself to campuses that are expanding or undergoing major redevelopment. Increasingly, many universities are creating mixed-use development projects, often with local partners, to serve as catalytic projects in their communities, and LEED-ND could be a good framework and certification tool. Some universities are looking to their own campus lands for new development opportunities, particularly for housing that is affordable to faculty and staff but also walkable to campus and other amenities, and LEED-ND may be appropriate.

LEED for Neighborhood Development is not meant to be a national standard that replaces zoning codes or comprehensive plans, nor has it been designed to certify sector plans or other policy tools. Local development patterns and performance levels vary greatly across the country because land regulation is largely controlled by local governments. One city may be a leader in stormwater management, and another an innovator in traffic calming, but neither may be advanced in all areas covered by LEED-ND. The rating system should therefore not be considered a one-size-fits-all policy tool. Instead, LEED-ND is a voluntary leadership standard, and local governments should consider promoting its use by the development community or public-private partnerships. In addition, LEED-ND can be used to analyze whether existing development regulations, such as zoning codes, development standards, landscape requirements, building codes, or comprehensive plans are "friendly" to sustainable developments. By comparing a locality's development practices with the rating system, public officials and the planning department can better identify code barriers that make it onerous, costly, or even impossible to undertake some aspects of sustainable development. Finally, public sector projects (e.g., those sponsored by housing authorities, redevelopment agencies, or specialized development authorities) are eligible to use the rating system. Please visit the LEED for Neighborhood web page at www.usgbc.org for LEED-ND policy guidance for state and local governments.

"Neighborhood Development," Defined

Based on research on the origins of neighborhood design and current best practices for locating and designing new development, the LEED for Neighborhood Development core committee has developed a rating system for smart, healthy, and green neighborhood development. Although LEED-ND does not strictly define what constitutes a neighborhood, the prerequisites and credits are written to encourage a type of development that recalls the siting and design of traditional neighborhoods and promotes best practices in new neighborhood development today.

Since ancient times, cities around the world have been spatially divided into districts or neighborhoods. Excavations of some of the earliest cities reveal evidence of social neighborhoods. Urban scholar Lewis Mumford noted that "neighborhoods, in some primitive, inchoate fashion exist wherever human beings congregate, in permanent family dwellings; and many of the functions of the city tend to be distributed naturally—that is, without any theoretical preoccupation or political direction—into neighborhoods."[5] In basic terms, a neighborhood is an area of dwellings, employment, retail, and civic places and their immediate environment that residents and/or employees identify with in terms of social and economic attitudes, lifestyles, and institutions.

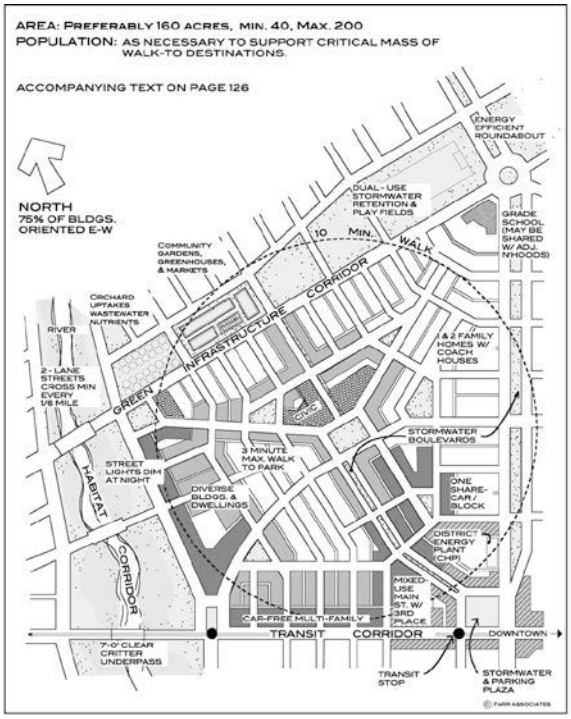
A neighborhood can be considered the planning unit of a town. The charter of the Congress for the New Urbanism characterizes this unit as "compact, pedestrian-friendly, and mixed-use."[6] By itself the neighborhood is a village, but combined with other neighborhoods it becomes a town or a city. Similarly, several neighborhoods with their centers at transit stops can constitute a transit corridor. The neighborhood, as laid out in LEED-ND, is in contrast to sprawl development patterns, which create podlike clusters that are disconnected from surrounding areas. Existing and new traditional neighborhoods provide an alternative to development patterns that characterize sprawl, such as the single-zoned, automobile-dominated land uses that have been predominant in suburban areas since the 1950s. Instead, traditional neighborhoods meet all those same needs—for housing, employment, shopping, civic functions, and more—but in formats that are compact, complete, and connected, and ultimately more sustainable and diverse.[7] The metrics of a neighborhood vary in density, population, mix of uses, and dwelling types and by regional customs, economies, climates, and site conditions. In general, they include size, identifiable centers and edges, connectedness with the surroundings, walkable streets, and sites for civic uses and social interaction.

Size is a defining feature of a neighborhood and is typically based on a comfortable distance for walking from the center of the neighborhood to its edge; that suggests an area of 40 to 160 acres. In the 1929 Regional Plan of New York and Environs, urban planner Clarence Perry outlined a neighborhood center surrounded by civic uses, parks, residential uses, a school, and retail at the edge, all within one-quarter mile—about a 5-minute walk. This amounts to an area or pedestrian "shed" of 125 acres, or if the land area is a square, 160 acres. Although Perry's diagram does not address many of the sustainable features of LEED-ND, such as access to multimodal transportation options, location of infrastructure, and building form, it serves as a reference point for the mix of uses and walkable scale of neighborhood development encouraged in the rating system. Most people will walk approximately one-quarter mile (1,320 feet) to run daily errands; beyond that, many will take a bicycle or car. Additional research shows that people will walk as far as a half-mile (2,640 feet) to reach heavy rail transit systems or more specialized shops or civic uses.[8] Since half a square mile contains 320 acres, the core committee has decided that this size should serve as guidance for the upper limit of a LEED-ND project.

5 Lewis Mumford, "The Neighbourhood and the Neighbourhood Unit," *Town Planning Review* 24 (1954): 256-270, p. 258.
6 Charter of the Congress for the New Urbanism, www.cnu.org/charter, 1996.
7 Ibid
8 H. Dittmar and G. Ohland, eds., *The New Transit Town: Best Practices in Transit-Oriented Development* (Washington, D.C.: Island Press, 2004), p. 120.

Figure 1. Clarence Perry's Neighborhood Unit, 1929. Source: Regional Plan Association

Figure 2. A "sustainable" update of Perry's neighborhood unit. Source: Douglas Farr, *Sustainable Urbanism*

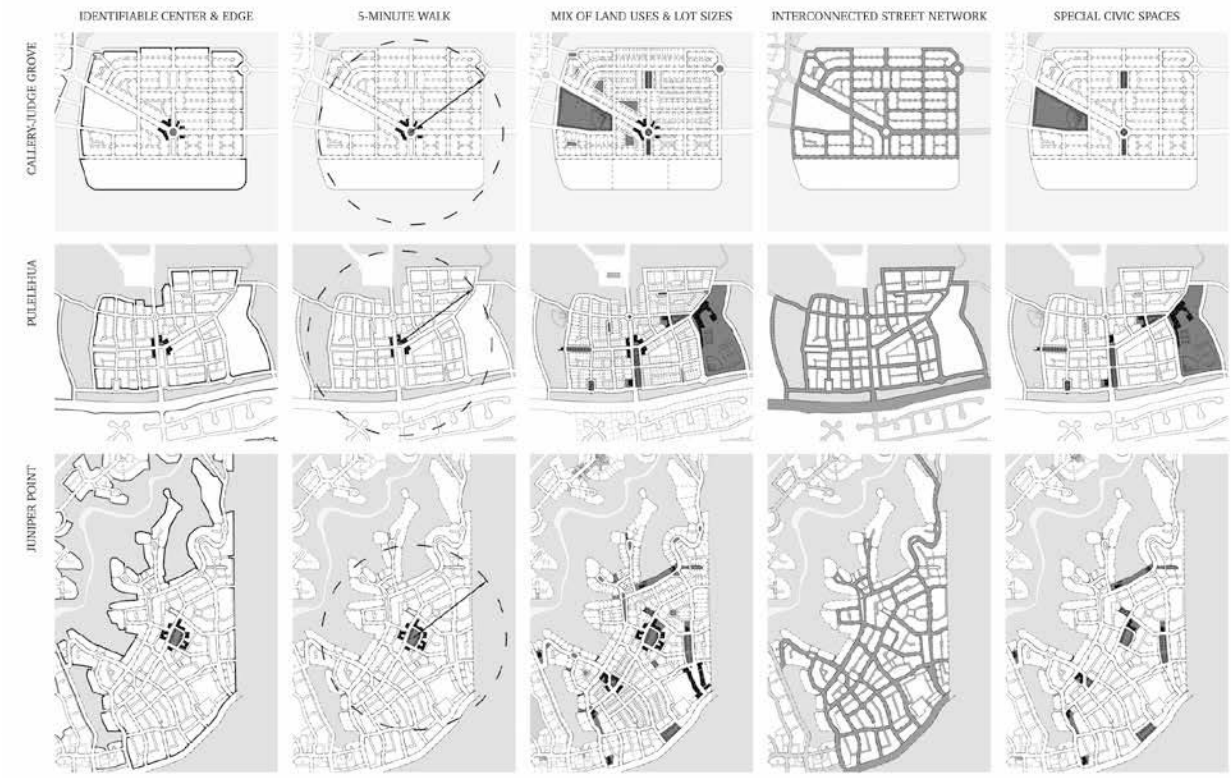


A neighborhood should have places where the public feels welcome and encouraged to congregate, recognizable as the heart of the community. A proper center has at least one outdoor public space for this purpose, designed with pedestrians in mind; this is the most well-defined outdoor "room" in the neighborhood. The best centers are within walking distance of the primarily residential areas, and typically some gradient in density is discernible from center to edge. The "center" need not be in the geographic center of the neighborhood; it can be along the edge, on an arterial or transit line. It is important for a neighborhood to have boundaries as well as a defined center, and this characteristic is often achieved through identifiable edges, either man-made or natural, such as adjacent farmland, parks, greenways, schools, major rights-of-way, or other uses.

When a neighborhood has a robust network of internal streets and good connections to surrounding communities, pedestrians, bicyclists, and drivers can move more efficiently and more safely. Multiple intersections and short blocks also give pedestrians a more interesting environment. The maximum average block perimeter to achieve an integrated network is 1,500 feet, with a maximum uninterrupted block face of ideally no more than 450 feet; intersecting streets are placed at intervals of 500 to 600 feet, and no greater than 800 feet apart along any single stretch.

The morphology of a sustainable neighborhood—the design of its blocks, streets, and buildings—can serve as the foundation of a walkable environment. Walkable streets have many features, and those elements deemed most important by the core committee are encouraged by the LEED-ND Rating System. These features, such as human-scaled buildings and street widths, wide sidewalks, buildings that are pulled up to the sidewalk to create a continuous street wall, retail storefronts and other uses, and interesting street furniture and trees, are meant to create a safe, inviting, and well-used public realm with visual interest. To keep loading docks, garage openings, and utilities away from sidewalks, neighborhoods with walkable streets often feature alleys.

Figure 3. Examples of neighborhood morphology. Source: Douglas Farr, *Sustainable Urbanism*



A mix of uses is often integral to the vitality of a neighborhood; the mix can include not only residential and commercial but also a variety of retail establishments, services, community facilities, and other kinds of "diverse uses," whether available within the neighborhood or adjacent. Urban theorist Ray Oldenburg would classify diverse uses as "Third Places"—small neighborhood grocers, coffee shops, pubs, or post offices that allow residents and workers to mingle and have social interactions. A mix of active and diverse retail uses on a walkable street can create a place that is alive day and night, and not closed down at 6 p.m.

Existing neighborhoods have the added benefit of historic buildings and events with cultural significance. Jane Jacobs argued that every neighborhood needed a mixture of newer and older buildings to allow for a variety of uses, income levels, and even ideas within the neighborhood.[9] New neighborhoods can bring some of the architectural diversity found in existing neighborhoods by including a mix of uses and housing types, each of which might need a different building type and design, thus generating visual interest. Finally, placing important civic buildings, such as churches, libraries, schools, or local government buildings at the termination of a street can create civic pride and also an interesting vista for pedestrians. With a focus on civic buildings and gathering places and the pedestrian experience in general, it is no surprise that walkable neighborhoods are often defined by the social interaction among people living and working near one another.

In conclusion, LEED for Neighborhood Development emphasizes the creation of compact, walkable, vibrant, mixed-use neighborhoods with good connections to nearby communities. In addition to neighborhood morphology, pedestrian scale, and mix of uses, the rating system also emphasizes the location of the neighborhood and the performance of the infrastructure and buildings within it. The sustainable benefits of a neighborhood increase when it offers proximity to transit and when residents and workers can safely travel by foot or bicycle to jobs, amenities,

9 Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), p. 187.

and services. This can create a neighborhood with a high quality of life and healthy inhabitants. Likewise, green buildings can reduce energy and water use, and green infrastructure, such as landscaping and best practices to reduce stormwater runoff, can protect natural resources. Together, well-located and well-designed green neighborhood developments will play an integral role in reducing greenhouse gas emissions and improving quality of life.

Certification

To earn LEED certification, the applicant project must satisfy all the prerequisites and qualify for a minimum number of points to attain the project ratings listed below. Having satisfied the basic prerequisites of the program, applicant projects are then rated according to their degree of compliance within the rating system.

LEED for Neighborhood Development certifications are awarded according to the following scale:

Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

Stages of Certification

LEED for Neighborhood Development involves projects that may have significantly longer construction periods than single buildings, and as a result the standard LEED certification process has been modified. To provide developers of certifiable projects with conditional approval at an early stage, LEED 2009 for Neighborhood Development certification is divided into a three-stage process. A land-use entitlement, referred to below, is the existing or granted right to use property for specific types and quantities of residential and nonresidential land uses.

Stage 1. Conditional Approval of a LEED-ND Plan. This stage is optional for projects at any point before the entitlement process begins, or when no more than 50% of a project's total new and/or renovated building square footage has land-use entitlements to use property for the specific types and quantities of residential and nonresidential land uses proposed, either by right or through a local government regulatory change process. Projects with more than 50% of new and/or renovated square footage already entitled must complete the local entitlement process for 100% of new and/or renovated square footage and apply under Stage 2. If conditional approval of the plan is achieved, a letter will be issued stating that if the project is built as proposed, it will be eligible to achieve LEED for Neighborhood Development certification. The purpose of this letter is to help the developer build a case for entitlement among land-use planning authorities, as well as attract financing and occupant commitments.

Stage 2. Pre-Certified LEED-ND Plan. This stage is available after 100% of the project's total new and/or renovated building square footage has been fully entitled by public authorities with jurisdiction over the project. The project can also be under construction or partially completed, but no more than 75% of the total square footage can be constructed; projects that are more than 75% constructed must finish and use Stage 3. Any changes to the conditionally approved plan that could affect prerequisite or credit achievement must be communicated as part of this submission. If precertification of the plan is achieved, a certificate will be issued stating that the plan is a Pre-Certified LEED for Neighborhood Development Plan and it will be listed as such on the USGBC website.

Stage 3. LEED-ND Certified Neighborhood Development. This final step takes place when the project can submit documentation for all prerequisites and attempted credits, and when certificates of occupancy for buildings and acceptance of infrastructure have been issued by public authorities with jurisdiction over the project. Any changes to the Pre-Certified LEED-ND Plan that could affect prerequisite or credit achievement must be communicated as part of this submission. If certification of the completed neighborhood development is achieved, a plaque or similar award for public display at the project site will be issued and it will be listed as certified on the USGBC website.

Since the location of a project cannot be changed, whereas its design and technologies can, a review is offered to determine a project's compliance with the Smart Location and Linkage (SLL) prerequisites and inform the team whether the location qualifies. If it does, a project team can proceed; if it doesn't, the team can end its participation in the program before investing more time. This optional review of the SLL prerequisites is available to projects in advance of a Stage 1, Stage 2, or Stage 3 application.

IV. EXEMPLARY PERFORMANCE

Exemplary performance strategies result in performance that greatly exceeds the performance level or expands the scope required by an existing credit. To earn an exemplary performance point, teams must meet the performance level defined by the next step in the threshold progression. For a credit with more than one compliance path, an Innovation and Design Process point can be earned by satisfying more than one compliance path if their benefits are additive.

The credits for which exemplary performance points are available are listed in the LEED Reference Guide for Green Neighborhood Development, 2009 Edition.

V. REGIONAL PRIORITY

To provide incentive to address geographically specific environmental issues, USGBC regional councils and chapters, the Congress for the New Urbanism chapters, and representatives of Smart Growth America's State and Local Caucus have identified 6 credits per rating system that are of particular importance to specific areas. Each Regional Priority credit is worth an additional 1 point, and a total of 4 additional points may be earned by achieving Regional Priority credits, with 1 point earned per credit. If the project achieves more than 4 Regional Priority credits, the team can choose the credits for which these points will apply. The USGBC website contains a searchable database of Regional Priority credits.

SMART LOCATION AND LINKAGE

SLL Prerequisite 1: Smart Location

Required

Intent

To encourage development within and near *existing* communities and public transit infrastructure. To encourage improvement and redevelopment of existing cities, suburbs, and towns while limiting the expansion of the *development footprint* in the region to appropriate circumstances. To reduce vehicle trips and *vehicle miles traveled* (VMT). To reduce the incidence of obesity, heart disease, and hypertension by encouraging daily physical activity associated with walking and bicycling.

Requirements

FOR ALL PROJECTS

Either (a) locate the *project* on a site served by existing *water and wastewater infrastructure* or (b) locate the project within a legally adopted, publicly owned, planned water and wastewater service area, and provide new water and wastewater infrastructure for the project.

AND

OPTION 1. Infill Sites

Locate the project on an *infill site*.

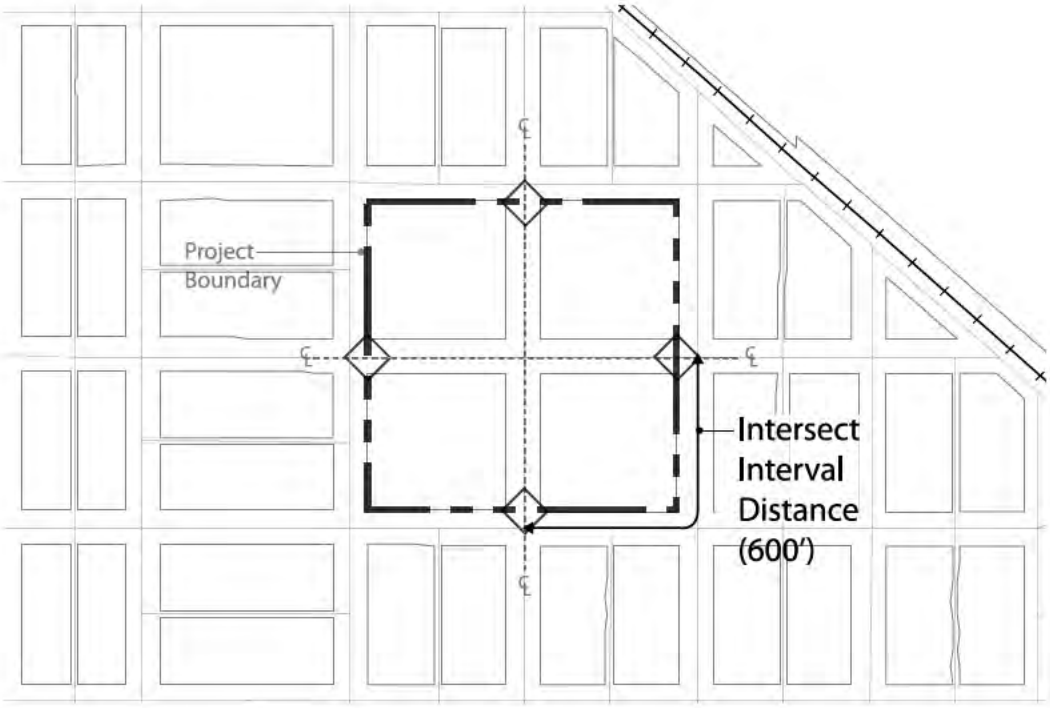
OR

OPTION 2. Adjacent Sites with Connectivity

Locate the project on an *adjacent site* (i.e., a site that is adjacent to *previously developed* land; see Definitions) where the *connectivity* of the site and adjacent land is at least 90 intersections/square mile as measured within a 1/2-mile distance of a continuous segment of the *project boundary*, equal to or greater than 25% of the project boundary, that is adjacent to previous development. Existing external and internal intersections may be counted if they were not constructed or funded by the project *developer* within the past ten years. Locate and/or design the project such that a through-*street* and/or nonmotorized right-of-way intersects the project boundary at least every 600 feet on average, and at least every 800 feet, connecting it with an existing street and/or right of way outside the project; nonmotorized rights-of-way may count for no more than 20% of the total. The exemptions listed in NPD Prerequisite 3, Connected and Open Community, do not apply to this option.

Figure 1. Adjacent and connected project site based on minimum 25% of perimeter adjacent to previously developed parcels and at least 90 eligible intersections per square mile within 1/2 mile of boundary segment adjacent to previous development

Figure 2. Project site with through-street right-of-way intersecting project boundary at least every 600 feet on average



OR

OPTION 3. Transit Corridor or Route with Adequate Transit Service

Locate the project on a site with existing and/or planned transit service such that at least 50% of *dwelling units* and nonresidential building entrances (inclusive of existing buildings) are within a 1/4 mile *walk distance* of bus and/or streetcar stops, or within a 1/2 mile walk distance of *bus rapid transit* stops, light or heavy rail stations, and/or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Table 1 (both weekday and weekend trip minimums must be met).

Weekend trips must include service on both Saturday and Sunday. Commuter rail must serve more than one *metropolitan statistical area* (MSA) and/or the area surrounding the core of an MSA.

Table 1. Minimum daily transit service

	Weekday trips	Weekend trips
Projects with multiple transit types (bus, streetcar, rail, or ferry)	60	40
Projects with commuter rail or ferry service only	24	6

If transit service is planned but not yet operational, the project must demonstrate one of the following:

a. The relevant transit agency has a signed full funding grant agreement with the Federal Transit Administration that includes a revenue operations date for the start of transit service. The revenue operations date must be no later than the occupancy date of 50% of the project's total building square footage.

b. For bus, streetcar, bus rapid transit, or ferry service, the transit agency must certify that it has an approved budget that includes specifically allocated funds sufficient to provide the planned service at the levels listed above and that service at these levels will commence no later than occupancy of 50% of the project's total building square footage.

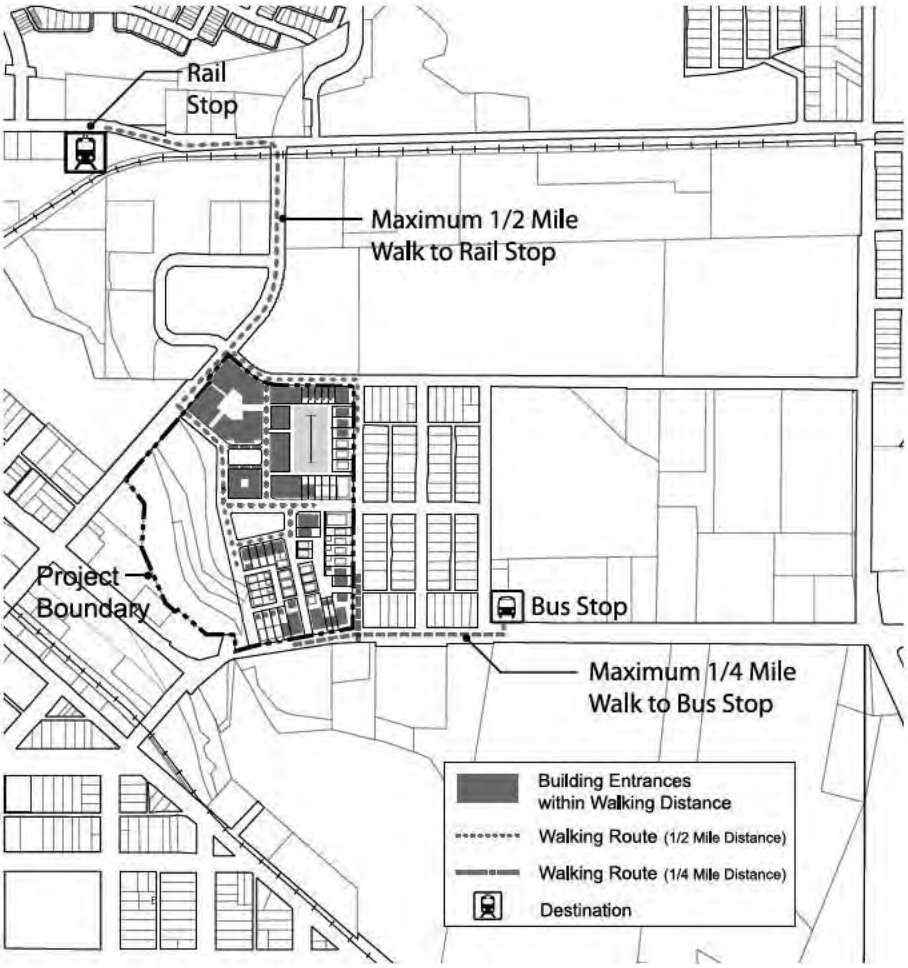
c. For rail service other than streetcars, the transit agency must certify that preliminary engineering for a rail line has commenced. In addition, the service must meet either of these two requirements:

   - A state legislature or local subdivision of the state has authorized the transit agency to expend funds to establish rail transit service that will commence no later than occupancy of 50% of the project's total building square footage.

   OR

   - A municipality has dedicated funding or reimbursement commitments from future tax revenue for the development of stations, platforms, or other rail transit infrastructure that will service the project no later than occupancy of 50% of the project's total building square footage.

Figure 3. Walking routes on pedestrian network showing distances from dwellings and nonresidential uses to transit stops



OR

OPTION 4. Sites with Nearby Neighborhood Assets

Include a residential component equaling at least 30% of the project's total building square footage (exclusive of portions of parking structures devoted exclusively to parking), and locate the project near existing neighborhood shops, uses, and facilities ("diverse uses"; see Appendix) such that the project boundary is within 1/4-mile walk distance of at least five diverse uses, or such that the project's geographic center is within 1/2-mile walk distance of at least seven diverse uses. In either case the qualifying uses must include at least one food retail establishment and at least one use from each of two other categories, with the following limitations:

a. A single establishment may not be counted in two categories (e.g., a place of worship may be counted only once even if it also contains a daycare facility, and a retail store may be counted only once even if it sells products in several categories).

b. Establishments in a mixed-use building may each count if they are distinctly operated enterprises with

separate exterior entrances, but no more than half of the minimum number of diverse uses can be situated in a single building or under a common roof.

c. Only two establishments in a single category may be counted (e.g., if five restaurants are within the required distance, only two may be counted).

Figure 4. Walking routes on pedestrian network showing distances from dwellings and nonresidential uses to diverse use destinations

Key Definitions

adjacent site a site having at least 25% of its boundary bordering parcels that are each at least 75% *previously developed*. A *street* or other right-of-way does not constitute previously developed land; instead, it is the status of the property on the other side of the street or right-of-way that matters. Any fraction of the boundary that borders waterfront other than a stream is excluded from the calculation. A site is still considered adjacent if the 25% adjacent portion of its boundary is separated from previously developed parcels by undeveloped, permanently protected land averaging no more than 400 feet in width and no more than 500 feet in any one place. The undeveloped land must be permanently preserved as natural area, riparian corridor, *park*, greenway, agricultural land, or designated *cultural landscape*. Permanent pedestrian paths connecting the project through the protected parcels to the bordering site may be counted to meet the requirement of SLL Prerequisite 1, Option 2 (that the *project* be connected to the adjacent parcel by a through-street or nonmotorized right-of-way every 600 feet on average, provided the path or paths traverse the undeveloped land at no more than a 10% grade for walking by persons of all ages and physical abilities).

Adjacent project site based on minimum 25% of perimeter adjacent to previously developed parcels, including allowance for permanently protected land between project boundary and previously developed parcels

connectivity the number of publicly accessible intersections per square mile, including any combination of streets, dedicated alleys, transit rights-of-way, and nonmotorized rights-of-way. If one must both enter and exit an area through the same intersection, such an intersection and any intersections beyond that point are not counted; intersections leading only to culs-de-sac are also not counted. The calculation of square mileage excludes water bodies, parks larger than 1/2 acre, public facility campuses, airports, rail yards, slopes over 15%, and areas nonbuildable under codified law or the rating system. Street rights-of-way may not be excluded.

infill site a site that meets any of the following four conditions:

a. At least 75% of its boundary borders parcels that individually are at least 50% *previously developed*, and that in aggregate are at least 75% previously developed.

b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.

c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile distance from the *project boundary* is previously developed.

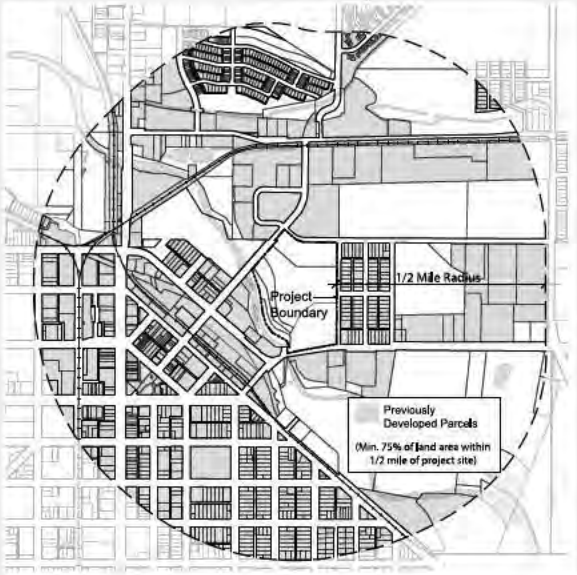
d. The lands within a 1/2 mile distance from the project boundary have a *preproject connectivity* of at least 140 intersections per square mile.

A *street* or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels

(b). Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels

(c). Infill project site based on minimum 75% of land area within 1/2 mile of project boundary being previously developed



(d). Infill project site based on minimum 140 intersections/sq.mi. within 1/2 mile of project boundary

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre; previous development on lots larger than 1 acre is defined as the *development footprint* and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

SLL Prerequisite 2: Imperiled Species and Ecological Communities Conservation

Required

Intent

To conserve imperiled species and ecological communities.

Requirements

FOR ALL PROJECTS

Consult with the state Natural Heritage Program and state fish and wildlife agencies to determine whether species listed as threatened or endangered under the federal Endangered Species Act, the state's endangered species act, or species or ecological communities classified by NatureServe as GH (possibly extinct), G1 (critically imperiled), or G2 (imperiled) have been or are likely to be found on the *project* site because of the presence of suitable habitat and nearby occurrences. If the consultations are inconclusive and site conditions indicate that imperiled species or ecological communities could be present, using a qualified biologist, perform biological surveys using accepted methodologies during appropriate seasons to determine whether such species or communities occur or are likely to occur on the site.

OPTION 1. Sites without Affected Species or Ecological Community

The prerequisite is satisfied if the consultation and any necessary biological surveys determine that no such imperiled species or ecological communities have been found or have a high likelihood of occurring.

OR

OPTION 2. Sites with Affected Species or Ecological Community: Habitat Conservation Plan

Comply with an approved habitat conservation plan under the Endangered Species Act for each identified species or ecological community.

OR

OPTION 3. Sites with Affected Species or Ecological Community: Habitat Conservation Plan Equivalent

Work with a qualified biologist, a nongovernmental conservation organization, or the appropriate state, regional, or local agency to create and implement a conservation plan that includes the following actions:

a. Identify and map the extent of the habitat and the appropriate buffer, not less than 100 feet, according to best available scientific information.

b. To the maximum extent practicable, protect the identified habitat and buffer in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust or relevant public agency.

c. If on-site protection can be accomplished, analyze threats from development and develop a monitoring and management plan that eliminates or significantly reduces the threats.

d. If any portion of the identified habitat and buffer cannot be protected in perpetuity, quantify the effects by acres or number of plants and/or animals affected, and protect from development in perpetuity habitat of similar or better quality, on-site or off-site, by donating or selling a conservation easement on it to an accredited land trust or relevant public agency. The donation or easement must cover an amount of land equal to or larger than the area that cannot be protected.

SLL Prerequisite 3: Wetland and Water Body Conservation

Required

Intent

To preserve water quality, natural hydrology, habitat, and biodiversity through conservation of *wetlands* and *water bodies*.

Requirements

Limit development effects on wetlands, water bodies, and surrounding buffer land according to the requirements below.

OPTION 1. Sites with No Wetlands, Water Bodies, Land within 50 Feet of Wetlands, or Land within 100 Feet of Water Bodies

Locate the *project* on a site that includes no wetlands, no water bodies, no land within 50 feet of wetlands, and no land within 100 feet of water bodies.

OR

OPTION 2. Sites with Wetlands, Water Bodies, Land within 50 Feet of Wetlands, or Land within 100 Feet of Water Bodies

a. Locate the project such that *preproject* wetlands, water bodies, land within 50 feet of wetlands, and land within 100 feet of water bodies is not affected by new development, unless the development is minor improvements or is on *previously developed* land.

OR

b. Earn at least 1 point under GIB Credit 8, Stormwater Management, and limit any impacts beyond minor improvements to less than the percentage of buffer land listed in Table 1.

Table 1. Maximum allowable area of impacts within buffer zone, by density

Residential density (DU/acre)*	Nonresidential density (FAR)*	Percentage of buffer land** where impacts beyond minor improvements are allowed
> 25	> 1.75	≤ 20%
> 18 and ≤ 25	> 1.25 to ≤ 1.75	≤ 15%
> 10 and ≤ 18	> .75 to ≤ 1.25	≤ 10%
≤ 10	≤ .75	≤ 5%
DU = dwelling unit; FAR = floor-area ratio.		
* For this option, a mixed-use project may use either its residential or its nonresidential *density* to determine the percentage of allowable impacts, regardless of which is higher.		
** For this option, buffer width may vary as long as the total buffer area is equal to the area within 50 feet of wetlands and/or within 100 feet of water bodies, minus excluded features (see below). The minimum buffer width, however, is 25 feet for wetlands and 50 feet for water bodies, measured from the edge. In the minimum buffer, only minor improvements and/or improvements that result in no ecological impairment of the wetland or water body, as determined by a qualified biologist, are allowed.		

AND

FOR ALL PROJECTS

Comply with all local, state, and federal regulations pertaining to wetland and water body conservation.

The following features are not considered wetlands, water bodies, or buffer land that must be protected for the purposes of this prerequisite:

a. Previously developed land.

b. Man-made water bodies (such as industrial mining pits, concrete-lined canals, or stormwater retention ponds) that lack natural edges and floors or native ecological communities in the water and along the edge.

c. Man-made linear wetlands that result from the interruption of natural drainages by *existing* rights-of-way.

d. Wetlands that were man-made incidentally and have been rated "poor" for all measured wetland functions. Wetland quality assessment must be performed by a qualified biologist using a method that is accepted by state or regional permitting agencies.

Minor improvements within the buffer may be undertaken to enhance appreciation for the wetland or water body, provided such facilities are open to public access. Only the following improvements are permitted:

a. Bicycle and pedestrian pathways no more than 12 feet wide, of which no more than 8 feet may be impervious.

b. Activities to maintain or restore native natural communities and/or natural hydrology.

c. One single-story structure not exceeding 500 square feet per 300 linear feet of buffer, on average.

d. Grade changes necessary to ensure public access.

e. Clearings, limited to one per 300 linear feet of buffer on average, not exceeding 500 square feet each, for tables, benches, and access for nonmotorized recreational watercraft. Off-street parking is not considered a minor improvement.

f. Removal of hazardous trees; up to 75% of dead trees; trees less than 6 inches diameter at breast height; trees under 40% condition rating; and up to 20% of trees more than 6 inches diameter at breast height with a condition rating of 40% or higher. The condition rating must be based on an assessment by an arborist certified by the International Society of Arboriculture (ISA) using ISA standard measures.

g. *Brownfield* remediation activities.

Direct impacts to wetlands and water bodies are prohibited, except for minimal-impact structures, such as an elevated boardwalk, that allow access to the water for educational and recreational purposes. Structures that protrude into wetlands or water bodies may be replaced, provided the replacement structure has the same or smaller footprint and a similar height.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre; previous development on lots larger than 1 acre is defined as the d*evelopment footprint* and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

SLL Prerequisite 4: Agricultural Land Conservation

Required

Intent

To preserve irreplaceable agricultural resources by protecting prime and unique soils on farmland and forestland from development.

Requirements

FOR ALL PROJECTS

Locate the *project* on a site that is not within a state or locally designated agricultural preservation district, unless any changes made to the site conform to the requirements for development within the district (as used in this requirement, district does not equate to land-use zoning).

AND

OPTION 1. Protected Soils Not Impacted

Locate the project *development footprint* such that it does not disturb *prime soils*, *unique soils*, or soils of state significance as identified in a state Natural Resources Conservation Service soil survey.

OR

OPTION 2. Infill Sites

Locate the project on an *infill site*.

OR

OPTION 3. Sites Served by Transit

Comply with SLL Prerequisite 1, Option 3, Transit Corridor or Route with Adequate Transit Service.

OR

OPTION 4. Development Rights Receiving Area

Locate the project within a designated receiving area for development rights under a publicly administered farmland protection program that provides for the transfer of development rights from lands designated for conservation to lands designated for development.

OR

OPTION 5. Sites with Impacted Soils

If development footprint affects land with prime soils, unique soils, or soils of state significance, as identified in a state Natural Resources Conservation Service soil survey, mitigate the loss through the purchase of easements providing permanent protection from development on land with comparable soils in accordance with the ratios based on densities per acre of *buildable land* as listed in Tables 1 and 2.

Table 1. Mitigation ratios for projects in metropolitan or micropolitan statistical areas, pop. 250,000 or more

Residential density (DU per acre of buildable land available for residential use)	Nonresidential density (FAR of buildable land available for nonresidential use)	Mitigation ratio (acres of easement : acres of project on prime, unique, or significant soil)
> 7 and ≤ 8.5	> 0.50 and ≤ 0.67	2 to 1
> 8.5 and ≤ 10	> 0.67 and ≤ 0.75	1.5 to 1
> 10 and ≤ 11.5	> 0.75 and ≤ 0.87	1 to 1
> 11.5 and ≤ 13	> 0.87 and ≤ 1.0	.5 to 1
> 13	> 1.0	No mitigation

Table 2. Mitigation ratios for projects in metropolitan or micropolitan statistical areas, pop. less than 250,000

Residential density (DU/acre of buildable land available for residential use)	Nonresidential density (FAR of buildable land available for nonresidential use)	Mitigation ratio (acres of easement : acres of project on prime, unique, or significant soil)
> 7 and ≤ 8	> 0.50 and ≤ 0.58	2 to 1
> 8 and ≤ 9	> 0.58 and ≤ 0.67	1 to 1
> 9 and ≤ 10	> 0.67 and ≤ 0.75	0.5 to 1
> 10	> 0.75	No mitigation
DU = dwelling unit; FAR = floor-area ratio.		

All off-site mitigation must be located within 100 miles of the project.

Up to 15% of the impacted soils area may be exempted from the *density* requirements if it is permanently dedicated for community gardens, and may also count toward the mitigation requirement for the remainder of the site. Portions of parking structures devoted exclusively to parking must be excluded from the numerator when calculating the *floor-area ratio* (FAR).

The mitigation ratio for a mixed-use project is calculated as follows:

1. Determine the total square footage of all residential and nonresidential uses.
2. Calculate the percentage residential and percentage nonresidential of the total square footage.
3. Determine the density of the residential and nonresidential components as measured in *dwelling units* per acre and FAR, respectively.
4. Referring to Tables 1 and 2, find the appropriate mitigation ratios for the residential and nonresidential components.
5. If the mitigation ratios are different, multiply the mitigation ratio of the residential component by its percentage of the total square footage, and multiply the mitigation ratio of the nonresidential component by its percentage.
6. Add the two numbers produced by Step 5. The result is the mitigation ratio.

Key Definitions

buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in *density* calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An *applicant* may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

AND

b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a *water body* or areas outside the *project boundary* that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

infill site a site that meets any of the following four conditions:

a. At least 75% of its boundary borders parcels that individually are at least 50% *previously developed*, and that in aggregate are at least 75% previously developed.

b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.

c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile distance from the *project boundary* is previously developed.

d. The lands within a 1/2 mile distance from the project boundary have a *preproject connectivity* of at least 140 intersections per square mile.

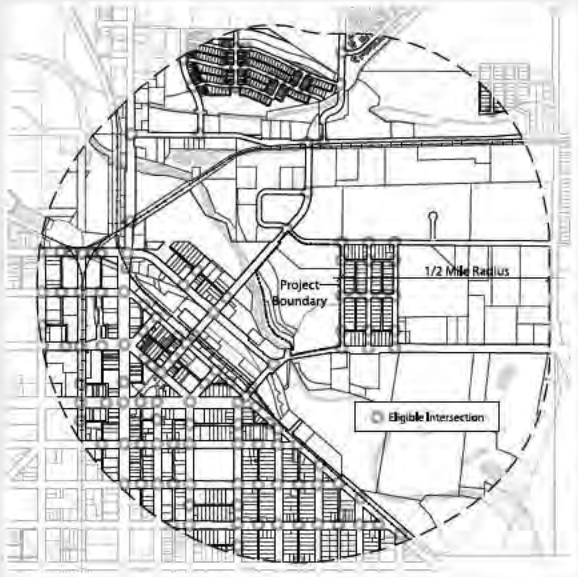
A *street* or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels

(b). Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels

(c). Infill project site based on minimum 75% of land area within 1/2 mile of project boundary being previously developed

(d). Infill project site based on minimum 140 intersections/sq.mi. within 1/2 mile of project boundary



SLL Prerequisite 5: Floodplain Avoidance

Required

Intent

To protect life and property, promote open space and habitat conservation, and enhance water quality and natural hydrological systems.

Requirement

OPTION 1. Sites without Floodplains

Locate on a site that does not contain any land within a 100-year high- or moderate-risk floodplain as defined and mapped by the Federal Emergency Management Agency (FEMA) or a state or local floodplain management agency, whichever is more recent.

OR

OPTION 2. Infill or Previously Developed Sites with Floodplains

Locate the *project* on an *infill site* or a *previously developed site* or in a nonconveyance area of river or coastal floodplain without storm surge potential where compensatory storage is used in accordance with a FEMA-approved mitigation plan. Comply with the National Flood Insurance Program (NFIP) requirements for developing any portions of the site that lie within a 100-year high-or moderate-risk floodplain, as defined in Option 1. If the project includes construction of any critical facility, such as a hospital, water and sewage treatment facility, emergency center, or fire or police station, the critical facility must be designed and built so as to be protected and operable during a 500-year event, as defined by FEMA.

OR

OPTION 3. All Other Sites with Floodplains

If any part of the site is located within a 100-year high- or moderate-risk floodplain, as defined above, develop only on portions of the site that are not in the floodplain, or that have been previously developed, or that are in a nonconveyance area of river or coastal floodplain without storm surge potential where compensatory storage is used in accordance with a FEMA-approved mitigation plan. Previously developed portions in the floodplain must be developed according to NFIP requirements. If development includes construction of any critical facility, as described above, the critical facility must be designed and built so as to be protected and operable during a 500-year event, as defined by FEMA.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

infill site a site that meets any of the following four conditions:

a. At least 75% of its boundary borders parcels that individually are at least 50% *previously developed*, and that in aggregate are at least 75% previously developed.

b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.

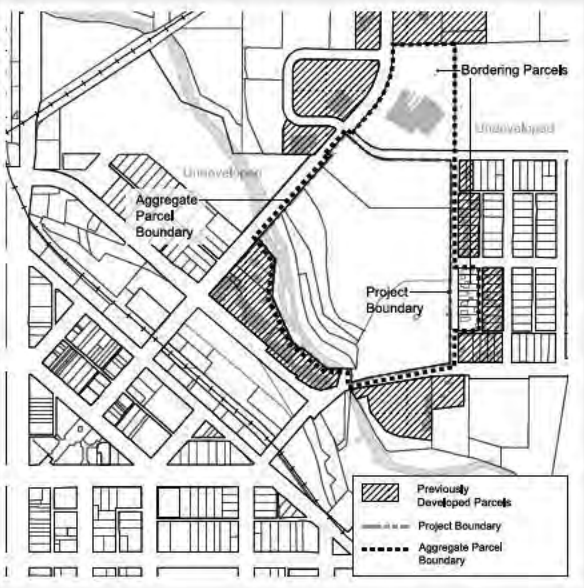
c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile distance from the *project boundary* is previously developed.

d. The lands within a 1/2 mile distance from the project boundary have a *preproject connectivity* of at least 140 intersections per square mile.

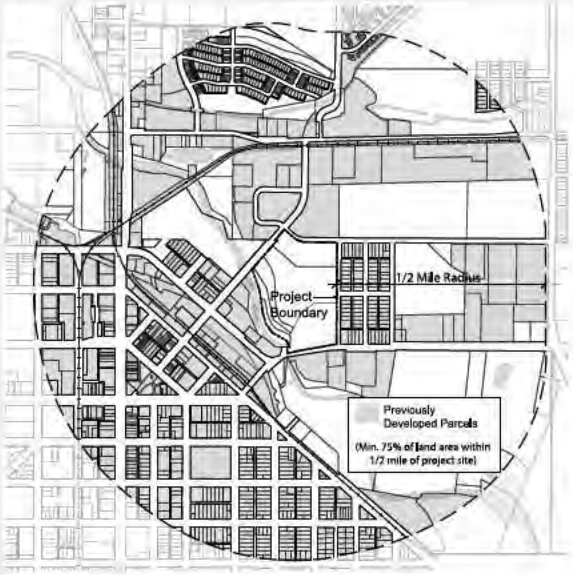
A *street* or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels

(b). Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels



(c). Infill project site based on minimum 75% of land area within 1/2 mile of project boundary being previously developed



(d). Infill project site based on minimum 140 intersections/sq.mi. within 1/2 mile of project boundary

SLL Credit 1: Preferred Locations

1–10 points

Intent

To encourage development within *existing* cities, suburbs, and towns to reduce adverse environmental and public health effects associated with sprawl. To reduce development pressure beyond the limits of existing development. To conserve natural and financial resources required for construction and maintenance of infrastructure.

Requirements

Achieve any combination of requirements in the following three options:

OPTION 1. Location Type

Locate the *project* in one of the following locations:

a. A *previously developed site* that is not an *adjacent site* or *infill site* (1 point).

b. An adjacent site that is also a previously developed site (2 points).

c. An infill site that is not a previously developed site (3 points).

d. An infill site that is also a previously developed site (5 points).

AND/OR

OPTION 2. Connectivity

Locate the project in an area that has existing *connectivity* within 1/2 mile of the *project boundary*, as listed to Table 1.

Table 1. Points for connectivity within 1/2 mile of project

Intersections per square mile	Points
≥ 200 and < 250	1
≥ 250 and < 300	2
≥ 300 and < 350	3
≥ 350 and < 400	4
≥ 400	5

Intersections within the site may be counted if the intersections were not constructed or funded by the *developer* within the past ten years.

AND/OR

OPTION 3. Designated High-Priority Locations

Achieve the following (3 points):

- Earn at least 2 points under NPD Credit 4, Mixed-Income Diverse Communities, Option 2, Affordable Housing.

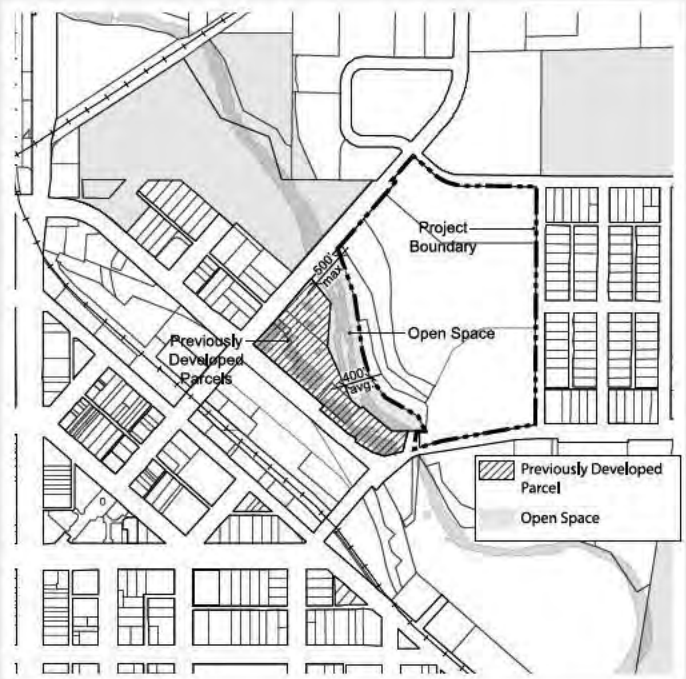
- In addition, locate the project in one of the following high-priority redevelopment areas: EPA National Priorities List, Federal Empowerment Zone, Federal Enterprise Community, Federal Renewal Community, Department of Justice Weed and Seed Strategy Community, Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program), or the U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA).

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

adjacent site a site having at least 25% of its boundary bordering parcels that are each at least 75% *previously developed*. A *street* or other right-of-way does not constitute previously developed land; instead, it is the status of the property on the other side of the street or right-of-way that matters. Any fraction of the boundary that borders waterfront other than a stream is excluded from the calculation. A site is still considered adjacent if the 25% adjacent portion of its boundary is separated from previously developed parcels by undeveloped, permanently protected land averaging no more than 400 feet in width and no more than 500 feet in any one place. The undeveloped land must be permanently preserved as natural area, riparian corridor, *park*, greenway, agricultural land, or designated *cultural landscape*. Permanent pedestrian paths connecting the project through the protected parcels to the bordering site may be counted to meet the requirement of SLL Prerequisite 1, Option 2 (that the *project* be connected to the adjacent parcel by a through-street or nonmotorized right-of-way every 600 feet on average, provided the path or paths traverse the undeveloped land at no more than a 10% grade for walking by persons of all ages and physical abilities).

Adjacent project site based on minimum 25% of perimeter adjacent to previously developed parcels, including allowance for permanently protected land between project boundary and previously developed parcels



connectivity the number of publicly accessible intersections per square mile, including any combination of streets, dedicated alleys, transit rights-of-way, and nonmotorized rights-of-way. If one must both enter and exit an area through the same intersection, such an intersection and any intersections beyond that point are not counted; intersections leading only to culs-de-sac are also not counted. The calculation of square mileage excludes water bodies, parks larger than 1/2 acre, public facility campuses, airports, rail yards, slopes over 15%, and areas nonbuildable under codified law or the rating system. Street rights-of-way may not be excluded.

infill site a site that meets any of the following four conditions:

a. At least 75% of its boundary borders parcels that individually are at least 50% *previously developed,* and that in aggregate are at least 75% previously developed.

b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.

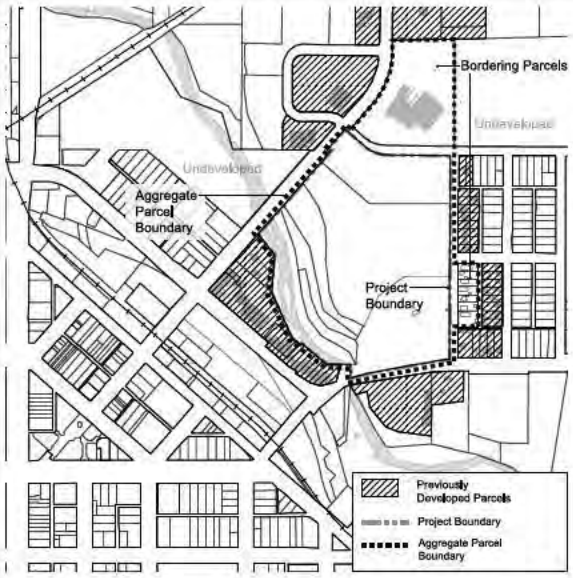
c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile distance from the *project boundary* is previously developed.

d. The lands within a 1/2 mile distance from the project boundary have a *preproject connectivity* of at least 140 intersections per square mile.

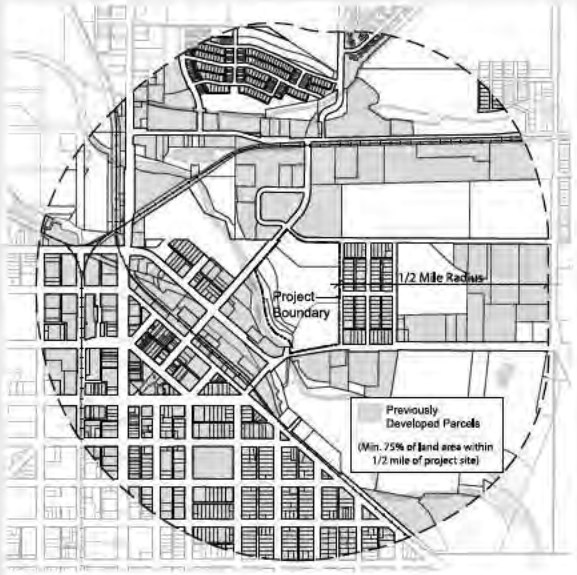
A *street* or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels

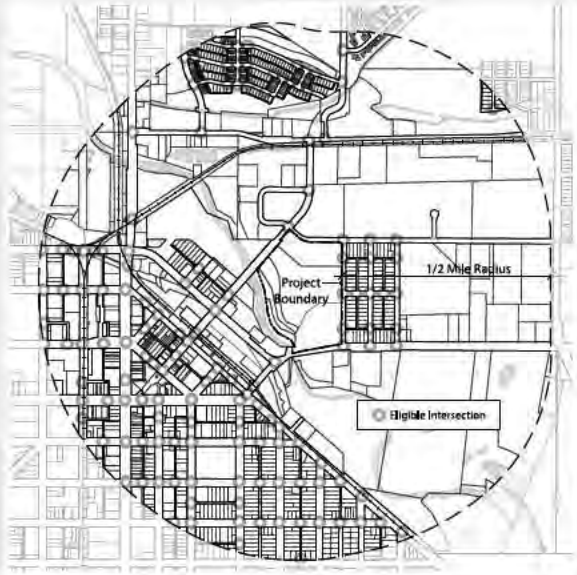
(b). Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels



(c). Infill project site based on minimum 75% of land area within 1/2 mile of project boundary being previously developed



(d). Infill project site based on minimum 140 intersections/sq.mi. within 1/2 mile of project boundary



SLL Credit 2: Brownfields Redevelopment

1–2 points

Intent

To encourage the reuse of land by developing sites that are complicated by environmental contamination, thereby reducing pressure on undeveloped land.

Requirements

OPTION 1. Brownfield Sites (1 point)

Locate the *project* on a site, part or all of which is documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program), or on a site defined as a *brownfield* by a local, state, or federal government agency; and remediate site contamination such that the controlling public authority approves the protective measures and/or cleanup as effective, safe, and appropriate for the future use of the site.

OR

OPTION 2. High-Priority Redevelopment Areas (2 points)

Achieve the requirements in Option 1;

AND

Locate the project in one of the following high-priority redevelopment areas: EPA National Priorities List, Federal Empowerment Zone, Federal Enterprise Community, Federal Renewal Community, Department of Justice Weed and Seed Strategy Community, Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program), or the U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA).

SLL Credit 3: Locations with Reduced Automobile Dependence

1–7 points

Intent

To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other adverse environmental and public health effects associated with motor vehicle use.

Requirements

OPTION 1. Transit-Served Location

Locate the *project* on a site with *existing* transit service such that at least 50% of *dwelling units* and nonresidential building entrances (inclusive of existing buildings) are within a 1/4-mile *walk distance* of bus or streetcar stops, or within a 1/2-mile walk distance of *bus rapid transit* stops, light or heavy rail stations, or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Tables 1 and 2. Both weekday and weekend trip minimums must be met to earn points at a particular threshold.

Projects larger than 125 acres can meet the requirements by locating on a site with existing transit service such that at least 40% of dwelling units and nonresidential building entrances (inclusive of existing buildings) are within a 1/4-mile walk distance of bus or streetcar stops, or within a 1/2-mile walk distance of bus rapid transit stops, lightor heavy rail stations, or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Tables 1 and 2 (both weekday and weekend trip minimums must be met to earn points at a particular threshold), as long as the 40% complies with NPD Prerequisite 2 and any portion of the project beyond the 1/4-mile and/or 1/2-mile walk distances meets SLL Prerequisite 1, Option 3-compliant planned transit service.

Projects greater than 500 acres can meet the requirements by locating on a site with existing transit service such that at least 30% of dwelling units and nonresidential building entrances (inclusive of existing buildings) are within a 1/4-mile walk distance of bus or streetcar stops, or within a 1/2-mile walk distance of bus rapid transit stops, light or heavy rail stations, or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Tables 1 and 2 (both weekday and weekend trip minimums must be met to earn points at a particular threshold), as long as the 30% complies with NPD Prerequisite 2 and any portion of the project beyond the 1/4-mile and/or 1/2-mile walk distances meets SLL Prerequisite 1, Option 3-compliant planned transit service.

For all projects, weekend daily trips must include service on both Saturday and Sunday. Commuter rail must serve more than one *metropolitan statistical area* (MSA) and/or the area surrounding the core of an MSA.

Table 1. Minimum daily transit service for projects with multiple transit types (bus, streetcar, rail, or ferry)

Weekday trips	Weekend trips	Points
60	40	1
76	50	2
100	65	3
132	85	4
180	130	5
246	150	6
320	200	7

Table 2. Minimum daily transit service for projects with commuter rail or ferry service only

Weekday trips	Weekend trips	Points
24	6	1
40	8	2
60	12	3

Projects served by two or more transit routes such that no one route provides more than 60% of the prescribed levels may earn 1 bonus point, up to the maximum 7 points.

Projects where existing transit service is temporarily rerouted outside the required distances for less than 2 years may meet the requirements if the local transit agency has committed to restoring the compliant routes with service at or above the prior level.

OR

OPTION 2. Metropolitan Planning Organization Location with Low VMT

Locate the project within a region served by a metropolitan planning organization (MPO) and within a transportation analysis zone (TAZ) where either a) the current annual home-based vehicle miles traveled (VMT) per capita (if TAZ is 100% residential) or b) the annual non-home-based VMT per employee (if TAZ is 100% non-residential) does not exceed 90% of the average of the equivalent metropolitan region value. The research must be derived from household or employment transportation surveys conducted by the MPO within ten years of the date of submission for LEED for Neighborhood Development certification. Additional credit may be awarded for increasing levels of performance, as indicated in Table 3. Mixed-use TAZs must use whichever TAZ VMT is greater, either residential per capita or non-residential per employee.

Table 3. Points for low-VMT location

Percentage of average regional VMT per capita	Points
81–90%	1
71–80%	2
61–70%	3
51–60%	4
41–50%	5
31–40%	6
30 or less	7
VMT = vehicle miles traveled.	

Points earned under Options 1 and 2 may not be combined.

SLL Credit 4: Bicycle Network and Storage

1 point

Intent

To promote bicycling and transportation efficiency, including reduced *vehicle miles traveled* (VMT). To support public health by encouraging utilitarian and recreational physical activity.

Requirements

BICYCLE NETWORK

Design and/or locate the *project* to meet at least one of the three requirements below:

a. An *existing bicycle network* of at least 5 continuous miles in length is within 1/4-mile bicycling distance of the *project boundary*.

b. If the project is 100% residential, an existing bicycle network begins within 1/4-mile bicycling distance of the project boundary and connects to a *school* or *employment center* within 3 miles' bicycling distance.

c. An existing bicycle network within 1/4-mile bicycling distance of the project boundary connects to at least ten diverse uses (see Appendix) within 3 miles' bicycling distance from the project boundary.

AND

BICYCLE STORAGE

Provide bicycle parking and storage capacity to new buildings as follows:

a. **Multiunit residential.** Provide at least one secure, enclosed bicycle storage space per occupant for 30% of the *planned occupancy* but no fewer than one per unit. Provide secure visitor bicycle racks on-site, with at least one bicycle space per ten *dwelling units* but no fewer than four spaces per project site.

b. **Retail.** Provide at least one secure, enclosed bicycle storage space per new retail worker for 10% of retail worker planned occupancy. Provide visitor or customer bicycle racks on-site, with at least one bicycle space per 5,000 square feet of retail space, but no fewer than one bicycle space per business or four bicycle spaces per project site, whichever is greater. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.

c. **Nonresidential other than retail.** Provide at least one secure, enclosed bicycle storage space per new occupant for 10% of planned occupancy. Provide visitor bicycle racks on-site with at least one bicycle space per 10,000 square feet of new commercial nonretail space but not fewer than four bicycle spaces per building. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.

Secure, enclosed bicycle storage areas must be locked and easily accessible to residents and/or workers. Provide informational signage on using the storage facilities.

Visitors' and customers' bicycle racks must be clearly visible from a main entry, located within 100 feet of the door, served with night lighting, and protected from damage from nearby vehicles. If the building has multiple main entries, bicycle racks must be proportionally dispersed within 100 feet of each.

Shower and changing facility requirements may be met by providing the equivalent of free access to on-site health club shower facilities, if the health club can be accessed without going outside. Provide informational signage on using the shower facilities.

SLL Credit 5: Housing and Jobs Proximity

1–3 points

Intent

To encourage balanced communities with a diversity of uses and employment opportunities.

Requirements

OPTION 1. Project with Affordable Residential Component (3 points)

Include a residential component equaling at least 30% of the *project*'s total building square footage (exclusive of parking structures), and locate and/or design the project such that the geographic center (or boundary if the project exceeds 500 acres) is within 1/2-mile *walk distance* of *existing* full-time-equivalent jobs whose number is equal to or greater than the number of *dwelling units* in the project; and satisfy the requirements necessary to earn at least one point under NPD Credit 4, Mixed-Income Diverse Communities, Option 2, Affordable Housing.

OR

OPTION 2. Project With Residential Component (2 points)

Include a residential component equaling at least 30% of the project's total building square footage (exclusive of parking structures), and locate and/or design the project such that the geographic center (or boundary if the project exceeds 500 acres) is within 1/2-mile walk distance of existing full-time-equivalent jobs whose number is equal to or greater than the number of dwelling units in the project.

OR

OPTION 3. Infill Project with Nonresidential Component (1 point)

Include a nonresidential component equaling at least 30% of the project's total building square footage (exclusive of parking structures), and locate on an *infill site* whose geographic center (or boundary if the project exceeds 500 acres) is within 1/2-mile walk distance of an existing rail transit, ferry, or tram stop and within 1/2-mile walk distance of existing dwelling units whose number is equal to or greater than 50% of the number of new full-time-equivalent jobs created as part of the project.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

infill site a site that meets any of the following four conditions:

a. At least 75% of its boundary borders parcels that individually are at least 50% *previously developed,* and that in aggregate are at least 75% previously developed.

b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.

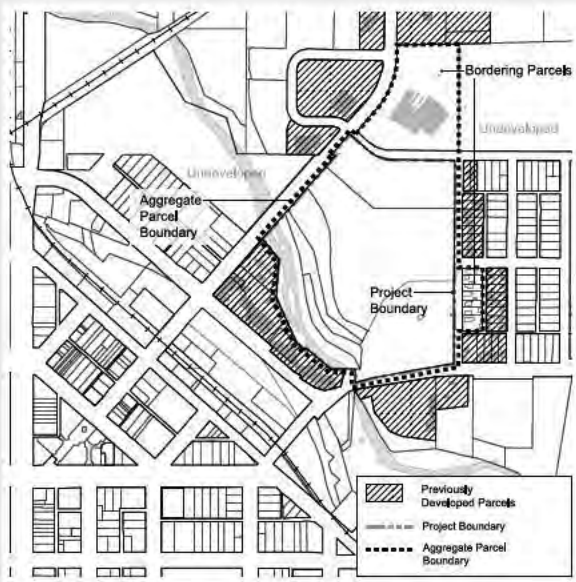
c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile distance from the *project boundary* is previously developed.

d. The lands within a 1/2 mile distance from the project boundary have a *preproject connectivity* of at least 140 intersections per square mile.

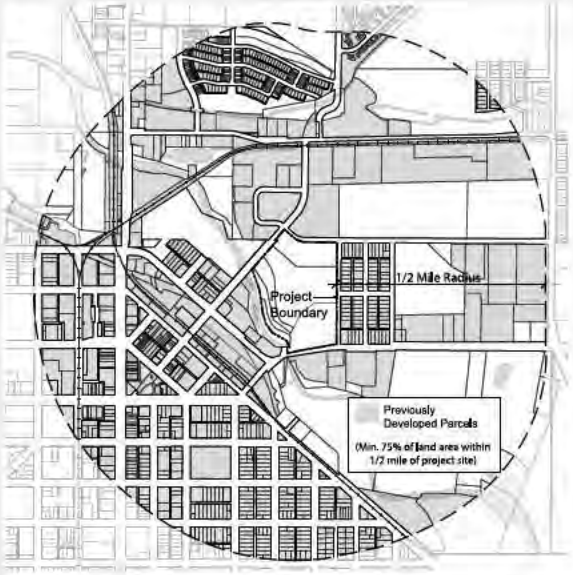
A *street* or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels

(b). Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels



(c). Infill project site based on minimum 75% of land area within 1/2 mile of project boundary being previously developed



(d). Infill project site based on minimum 140 intersections/sq.mi. within 1/2 mile of project boundary

SLL Credit 6: Steep Slope Protection

1 point

Intent

To minimize erosion to protect habitat and reduce stress on natural water systems by preserving steep slopes in a natural, vegetated state.

Requirements

FOR ALL PROJECTS

All options apply to *existing* natural or constructed slopes. Portions of *project* sites with slopes up to 20 feet in elevation, measured from toe (a distinct break between a 40% slope and lesser slopes) to top, that are more than 30 feet in any direction from another slope greater than 15% are exempt from the requirements, although more restrictive local regulations may apply.

OPTION 1. No Disturbance of Slopes Over 15%

Locate on a site that has no existing slopes greater than 15%, or avoid disturbing portions of the site that have existing slopes greater than 15%.

OR

OPTION 2. Previously Developed Sites with Slopes Over 15%

On portions of *previously developed sites* with existing slopes greater than 15%, restore the slope area with *native plants* or noninvasive *adapted plants* according to Table 1.

Table 1. Required restoration area of slope

Slope	Restoration
> 40%	100%
26% to 40%	60%
< 15% to 25%	40%

In addition, develop *covenants, conditions, and restrictions* (CC&R); development agreements; or other binding documents that will protect the specified steep slope areas in perpetuity. Comply with the requirements of Option 3 on any slope over 15% that has not been previously developed.

OR

OPTION 3. Sites Other than Previously Developed Sites with Slopes Over 15%

On sites that are not previously developed sites, protect existing slopes over 15% as follows:

a. Do not disturb slopes greater than 40% and do not disturb portions of the project site within 50 feet horizontally of the top of the slope and 75 feet horizontally from the toe of the slope.

b. Limit development to no more than 40% of slopes between 25% and 40% and to no more than 60% of slopes between 15% and 25%.

c. Locate development such that the percentage of the *development footprint* that is on existing slopes less than 15% is greater than the percentage of *buildable land* that has existing slopes less than 15%.

d. Develop CC&R, development agreements, or other binding documents that will protect steep slopes in perpetuity.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in *density* calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An *applicant* may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

AND

b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a *water body* or areas outside the *project boundary* that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

SLL Credit 7: Site Design for Habitat or Wetland and Water Body Conservation

1 point

Intent

To conserve *native plants*, wildlife habitat, *wetlands*, and *water bodies*.

Requirements

OPTION 1. Sites without Significant Habitat or Wetlands and Water Bodies

Locate the *project* on a site that does not have significant habitat, as defined in Option 2 of this credit, or land within 100 feet of such habitat, and fulfill the requirements of Options 1 or 2(a) under SLL Prerequisite 3, Wetland and Water Body Conservation.

OR

OPTION 2. Sites with Significant Habitat

Work with both the state's Natural Heritage Program and the state fish and wildlife agency to delineate identified significant habitat on the site. Do not disturb significant habitat or portions of the site within an appropriate buffer around the habitat. The geographic extent of the habitat and buffer must be identified by a qualified biologist, a nongovernmental conservation organization, or the appropriate state or regional agency. Protect significant habitat and its identified buffers from development in perpetuity by donating or selling the land, or a conservation easement on the land, to an accredited land trust or relevant public agency (a deed covenant is not sufficient to meet this requirement). Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that habitat is maintained in *preproject* condition or better for a minimum of three years after the project is built out. The requirement for identifying ongoing management activities may also be met by earning SLL Credit 9, Long-Term Conservation Management of Wetlands and Water Bodies.

Significant habitat for this credit includes the following:

a. Habitat for species that are listed or are candidates for listing under state or federal endangered species acts, habitat for species of special concern in the state, and/or habitat for those species and/or ecological communities classified as GH, G1, G2, G3, and/or S1 and S2 species by NatureServe.

b. Locally or regionally significant habitat of any size, or patches of predominantly native vegetation at least 150 acres (even if some of the 150 acres lies outside the *project boundary*).

c. Habitat flagged for conservation under a regional or state conservation or green infrastructure plan.

OR

OPTION 3. Sites with Wetlands and Water Bodies

Design the project to conserve 100% of all water bodies, wetlands, land within 100 feet of water bodies, and land within 50 feet of wetlands on the site. Using a qualified biologist, conduct an assessment, or compile *existing* assessments, showing the extent to which those water bodies and/or wetlands perform the following functions: (1) water quality maintenance, (2) wildlife habitat protection, and (3) hydrologic function maintenance,

including flood protection. Assign appropriate buffers (not less than 100 feet for water bodies and 50 feet for wetlands) based on the functions provided, contiguous soils and slopes, and contiguous land uses. Do not disturb wetlands, water bodies, and their buffers, and protect them from development in perpetuity by donating or selling the land, or a conservation easement on the land, to an accredited land trust or relevant public agency (a deed covenant is not sufficient to meet this requirement). Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that habitat is maintained in preproject condition or better for a minimum of three years after the project is built out. The requirement for identifying ongoing management activities may also be met by earning SLL Credit 9, Long-Term Conservation Management of Wetlands and Water Bodies. The project does not meet the requirements if it has negative effects on habitat for species identified in Option 2(a).

FOR ALL PROJECTS

The following features are not considered wetlands, water bodies, or buffer land that must be protected:

a. *Previously developed* land.

b. Man-made water bodies (such as industrial mining pits, concrete-lined canals, or stormwater retention ponds) that lack natural edges and floors or native ecological communities in the water and along the edge

c. Man-made linear wetlands that result from the interruption of natural drainages by existing rights-of-way.

d. Wetlands that were created incidentally by human activity and have been rated "poor" for all measured wetland functions. Wetland quality assessment must be performed by a qualified biologist using a method that is accepted by state or regional permitting agencies.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre; previous development on lots larger than 1 acre is defined as the *development footprint* and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

SLL Credit 8: Restoration of Habitat or Wetlands and Water Bodies

1 point

Intent

To restore *native plants*, wildlife habitat, *wetlands*, and *water bodies* that have been harmed by previous human activities.

Requirements

Using only native plants, restore *predevelopment* native ecological communities, water bodies, or wetlands on the *project* site in an area equal to or greater than 10% of the *development footprint*. Work with a qualified biologist to ensure that restored areas will have the native species assemblages, hydrology, and other habitat characteristics that likely occurred in predevelopment conditions. Protect such areas from development in perpetuity by donating or selling the land, or a conservation easement on the land, to an accredited land trust or relevant public agency (a deed covenant is not sufficient to meet this requirement). Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that restored areas are maintained for a minimum of three years after the project is built out or the restoration is completed, whichever is later. The requirement for identifying ongoing management activities may also be met by earning SLL Credit 9, Long-Term Conservation Management of Wetlands and Water Bodies. The project does not meet the requirements if it has negative effects on habitat for species identified in Option 2(a) of SLL Credit 7, Site Design for Habitat or Wetland and Water Body Conservation.

SLL Credit 9: Long-Term Conservation Management of Habitat or Wetlands and Water Bodies

1 point

Intent

To conserve *native plants*, wildlife habitat, *wetlands*, and *water bodies*.

Requirements

Create and commit to implementing a long-term (at least ten-year) management plan for new or *existing* on-site native habitats, water bodies, and/or wetlands and their buffers, and create a guaranteed funding source for management. Involve a qualified biologist or a professional from a natural resources agency or natural resources consulting firm in writing the management plan and conducting or evaluating the ongoing management. The plan must include biological objectives consistent with habitat and/or water resource conservation, and it must identify (1) procedures, including personnel to carry them out, for maintaining the conservation areas; (2) estimated implementation costs and funding sources; and (3) threats that the *project* poses for habitat and/or water resources within conservation areas (e.g., introduction of exotic species, intrusion of residents in habitat areas) and measures to substantially reduce those threats. The project does not meet the requirements if it has negative effects on habitat for species identified in Option 2(a) of SLL Credit 7, Site Design for Habitat or Wetland and Water Body Conservation.

NPD Prerequisite 1: Walkable Streets

Required

Intent

To promote transportation efficiency, including reduced *vehicle miles traveled* (VMT). To promote walking by providing safe, appealing, and comfortable *street* environments that support public health by reducing pedestrian injuries and encouraging daily physical activity.

Requirements

Design and build the *project* to achieve all of the following:

a. For 90% of new building frontage, a principal *functional entry* on the front façade faces a public space, such as a street, square, *park*, *paseo*, or *plaza*, but not a parking lot, and is connected to sidewalks or equivalent provisions for walking. The square, park, or plaza must be at least 50 feet wide at a point perpendicular to each entry.

b. At least 15% of *existing* and new street frontage within and bordering the project has a minimum building-height-to-street-width ratio of 1:3 (i.e., a minimum of 1 foot of building height for every 3 feet of street width).

- Nonmotorized rights-of-way may be counted toward the 15% requirement, but 100% of such spaces must have a minimum building-height-to-street-width ratio of 1:1.
- Projects with bordering street frontage must meet only their proportional share of the height-to-width ratio (i.e., only on the project side of the street).
- Street frontage is measured in linear feet.
- Building height is measured to eaves or the top of the roof for a flat-roof structure, and street width is measured façade to façade. For building frontages with multiple heights, use the weighted average height of all frontage segments based on each segment's height weighted by the segment's share of total building width.
- *Alleys* and driveways are excluded.

c. Continuous sidewalks or equivalent all-weather provisions for walking are provided along both sides of 90% of streets or frontage within the project, including the project side of streets bordering the project. New sidewalks, whether adjacent to streets or not, must be at least 8 feet wide on retail or mixed-use blocks and at least 4 feet wide on all other blocks. Equivalent provisions for walking include *woonerfs* and all-weather-surface footpaths. Alleys, driveways, and reconstructed existing sidewalks are excluded from these calculations.

d. No more than 20% of the street frontages within the project are faced directly by garage and service bay openings.

Projects in a designated *historic district* subject to review by a local historic preservation entity are exempt from (b), (c), and (d) if approval for compliance is not granted by the review body. Projects in historic districts listed in or eligible for listing in a state register or the National Register of Historic Places that are subject to review by a state historic preservation office or the National Park Service are exempt from (b), (c), and (d) if approval for compliance is not granted. If the public space is a square, park, or plaza, it must be at least 50 feet deep, measured at a point perpendicular to each entry.

NPD Prerequisite 2: Compact Development

Required

Intent

To conserve land. To promote livability, walkability, and transportation efficiency, including reduced *vehicle miles traveled* (VMT). To leverage and support transit investments. To reduce public health risks by encouraging daily physical activity associated with walking and bicycling.

Requirements

OPTION 1. Projects in Transit Corridors

For *projects* with e*xisting* and/or planned transit service (i.e., service with the funding commitments specified in SLL Prerequisite 1, Smart Location) that meets or exceeds the 2-point threshold in SLL Credit 3, Locations with Reduced Automobile Dependence, Option 1, build at the following densities, based on the *walk distances* to the transit service specified in SLL Credit 3:

a. For residential components located within the walk distances: 12 or more *dwelling units* per acre of buildable land available for residential uses.

b. For residential components falling outside the walk distances: 7 or more dwelling units per acre of buildable land available for residential uses.

c. For nonresidential components located within the walk distances: 0.80 *floor-area ratio* (FAR) or greater of buildable land available for nonresidential uses.

d. or nonresidential components falling outside the walk distances: 0.50 FAR or greater of buildable land available for nonresidential uses.

If the project location is served by a transit agency that has specified guidelines for minimum service densities that are greater than the densities required by this prerequisite, the project must achieve those service densities instead.

OR

OPTION 2. All Other Projects

Build any residential components of the project at a *density* of 7 dwelling units per acre of *buildable land* available for residential uses.

AND

Build any nonresidential components of the project at a density of 0.50 FAR or greater of buildable land available for nonresidential uses.

FOR ALL PROJECTS

Density calculations include all planned and existing buildings within the *project boundary*, excluding those portions of parking structures devoted exclusively to parking.

The specified density must be achieved within five years of the date that the first building of any type is occupied.

If one component of the project, residential or nonresidential, meets the minimum density requirement but the other component does not, include only the qualifying density. Use that component's dwelling units or nonresidential floor area in the numerator and the total buildable land area in the denominator. If the resulting density meets the minimum requirement, the prerequisite is achieved.

NPD Prerequisite 3: Connected and Open Community

Required

Intent

To promote *projects* that have high levels of internal *connectivity* and are well connected to the community at large. To encourage development within *existing* communities that promote transportation efficiency through multimodal transportation. To improve public health by encouraging daily physical activity.

Requirements

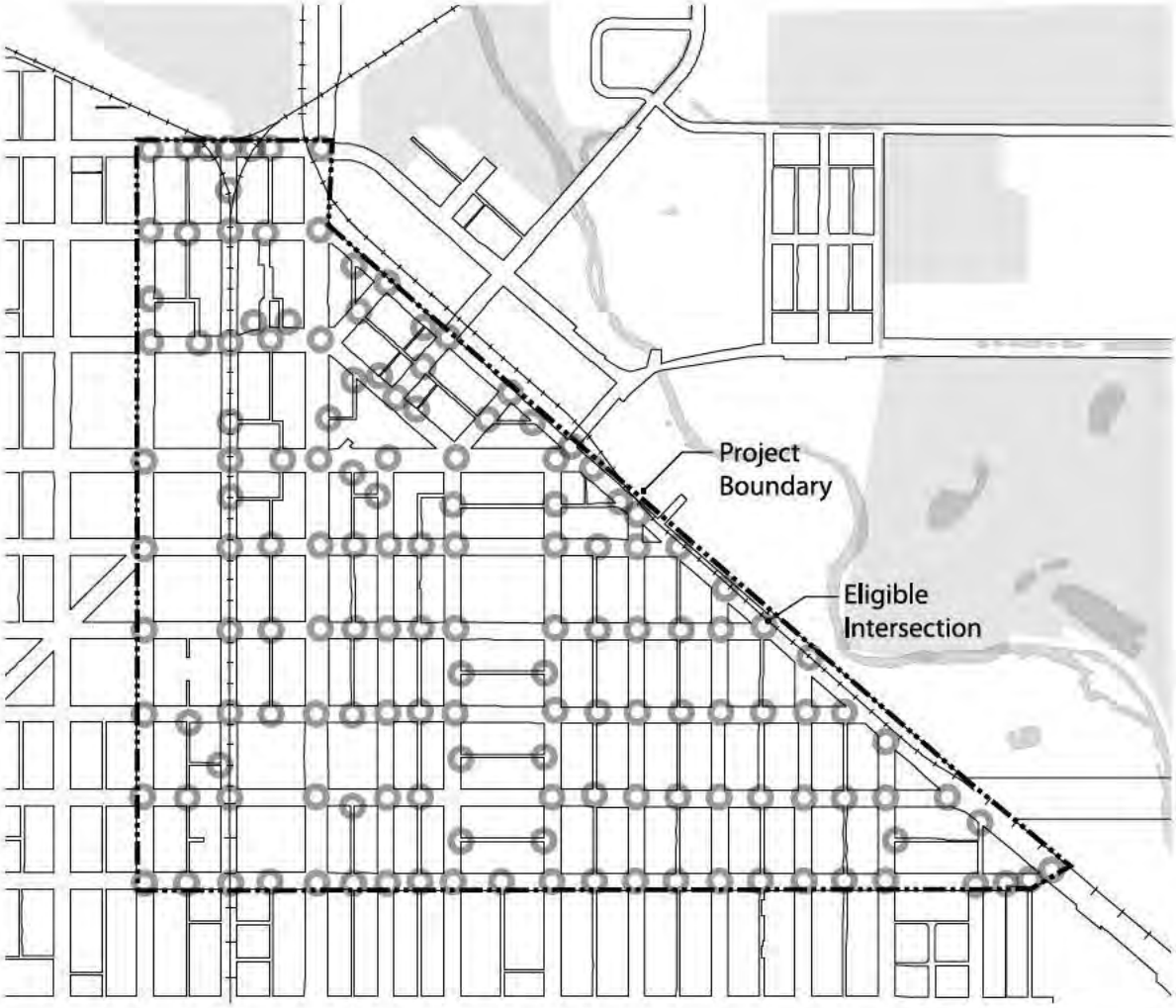
OPTION 1. Projects with Internal Streets

Design and build the project such that its internal connectivity is at least 140 intersections per square mile. All *streets* and sidewalks that are counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses and military bases where gates are used for security purposes.

AND

Design and build the project with at least one through-street and/or nonmotorized right-of-way intersecting or terminating at the *project boundary* at least every 800 feet, or at existing abutting street intervals and intersections, whichever is the shorter distance. Nonmotorized rights-of-way may count for no more than 20% of the total. This does not apply to portions of the boundary where connections cannot be made because of physical obstacles, such as prior platting of property, construction of existing buildings or other barriers, slopes over 15%, *wetlands* and *water bodies*, railroad and utility rights-of-way, existing limited-access motor vehicle rights-of-way, and parks and dedicated open space.

Figure 1. Project site design with 140 eligible intersections per square mile on streets that are not gated



OR

OPTION 2. Projects without Internal Streets

Locate the project such that the connectivity of the existing streets within 1/4 mile of the project boundary is at least 90 intersections per square mile. All streets and sidewalks that are counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses and military bases where gates are used for security purposes.

Figure 2. Project site with at least 90 eligible intersections per square mile within 1/4 mile of project boundary

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

connectivity the number of publicly accessible *street* intersections per square mile, including intersections of streets with dedicated *alleys* and transit rights-of-way, and intersections of streets with nonmotorized rights-of-way. If one must both enter and exit an area through the same intersection, such an intersection and any intersections beyond that point are not counted; intersections leading only to *culs-de-sac* are also not counted. The calculation of square mileage excludes *water bodies*, *parks* larger than 1/2 acre, public facility campuses, airports, rail yards, slopes over 15%, and areas nonbuildable under codified law or the rating system. Street rights-of-way may not be excluded.

NPD Credit 1: Walkable Streets

1–12 points

Intent

To promote transportation efficiency, including reduced *vehicle miles traveled* (VMT). To promote walking by providing safe, appealing, and comfortable *street* environments that support public health by reducing pedestrian injuries and encouraging daily physical activity.

Requirements

A *project* may earn a maximum of 12 points according to the schedule in Table 1:

Table 1. Points for walkable street features

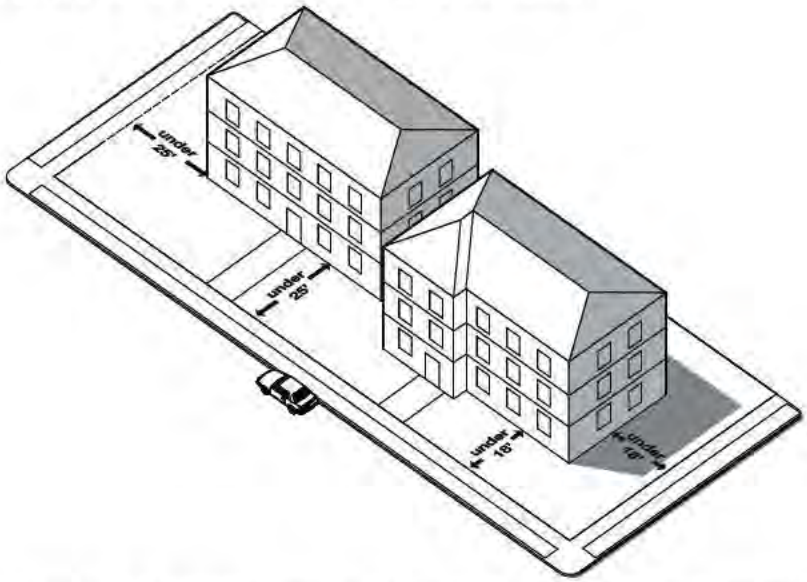
Items achieved	Points
2–3	1
4–5	2
6–7	3
8–9	4
10	7
11	8
12	9
13	10
14	11
15–16	12

Façades and Entries

a. At least 80% of the total linear feet of street-facing building façades in the project is no more than 25 feet from the property line.

b. At least 50% of the total linear feet of street-facing building façades in the project is no more than 18 feet from the property line.

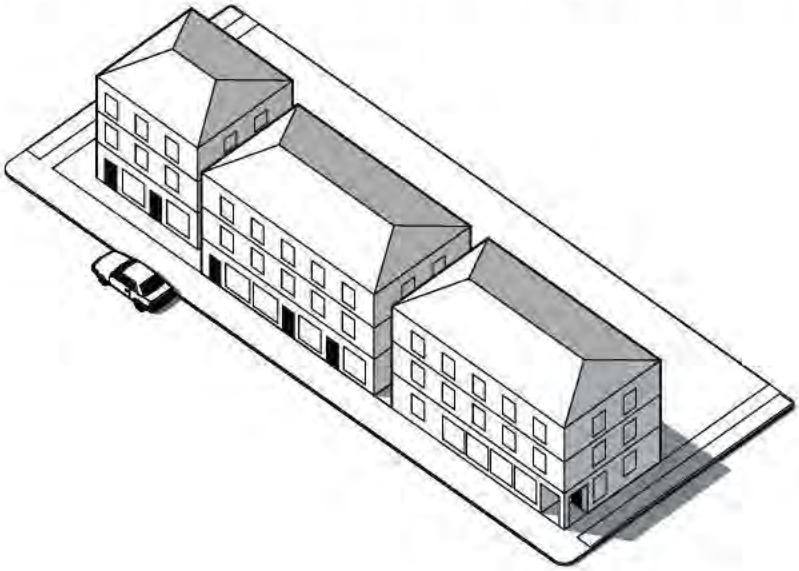
Figure 1. Minimal street-facing building façade setbacks



c. At least 50% of the total linear feet of mixed-use and nonresidential street-facing building façades in the project is within 1 foot of a sidewalk or equivalent provision for walking.

d. *Functional entries* to the building occur at an average of 75 feet or less along nonresidential or mixed-use buildings or *blocks*.

Figure 2. Functional building entries at minimum average distances along blocks



e. Functional entries to the building occur at an average of 30 feet or less along nonresidential or mixed-use buildings or blocks (items d and e are cumulative).

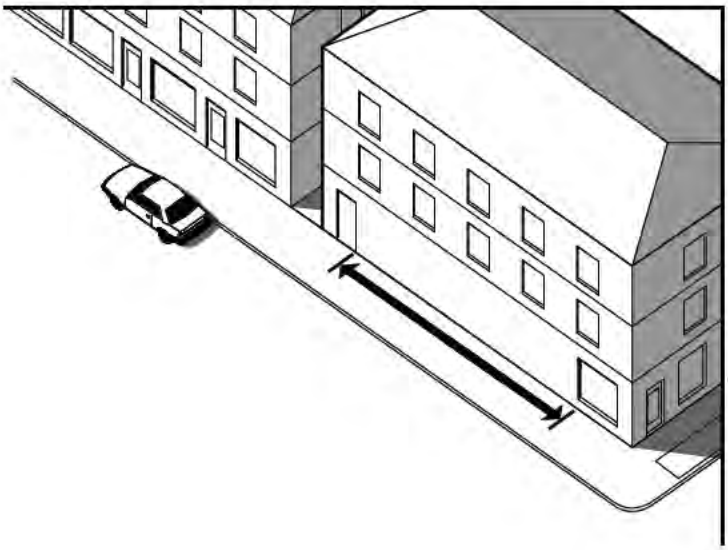
Ground-Level Use and Parking

f. All ground-level retail, service, and trade uses that face a public space have clear glass on at least 60% of their façades between 3 and 8 feet above grade.

Figure 3. Ground-level retail and service uses with minimum amounts of clear glass façades

g. If a façade extends along a sidewalk, no more than 40% of its length or 50 feet, whichever is less, is blank (without doors or windows).

Figure 4. Limits on length of blank walls along sidewalks

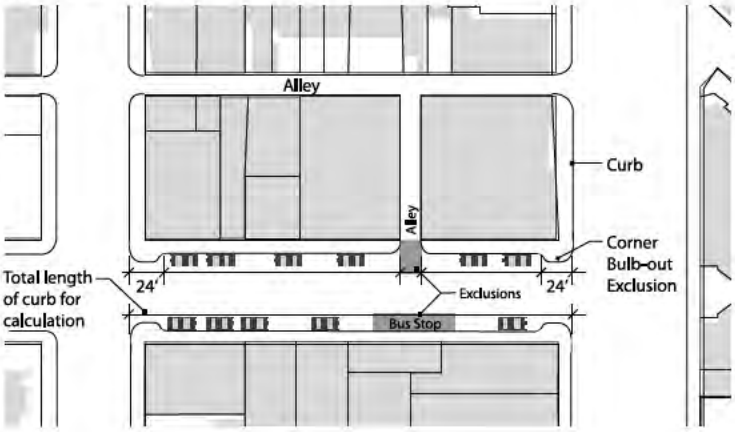


h. Any ground-level retail, service, or trade windows must be kept visible (unshuttered) at night; this must be stipulated in *covenants, conditions, and restrictions* (CC&R) or other binding documents.

i. On-street parking is provided on a minimum of 70% of both sides of all new and *existing* streets, including the project side of bordering streets. The percentage of on-street parking is calculated by dividing the length of

street designated for parking by the total length of the curb along each street, including curb cuts, driveways, and intersection radii. Space within the parking lane that is occupied by corner bulb-outs (within 24 feet of an intersection), transit stops, and motorcycle or bicycle parking may be counted as designated for parking in this calculation. *Woonerfs* are not considered streets for this subsection.

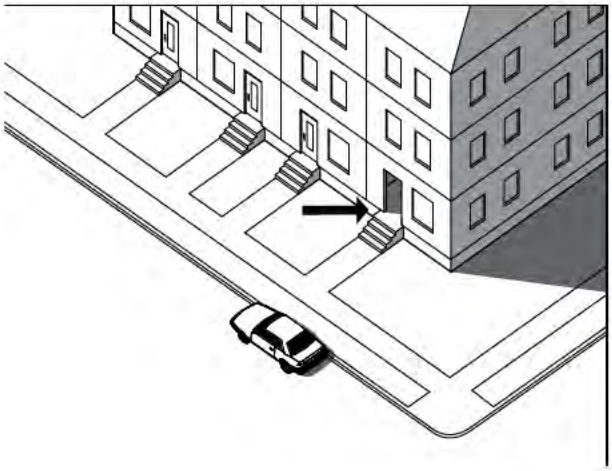
Figure 5. On-street parking requirements



j. Continuous sidewalks or equivalent provisions for walking are available along both sides of all streets within the project, including the project side of streets bordering the project. New sidewalks, whether adjacent to streets or not, must be at least 10 feet wide on retail or mixed-use blocks and at least 5 feet wide on all other blocks. Equivalent provisions for walking include woonerfs and all-weather-surface footpaths at least 5 feet wide. Note that these requirements specify wider sidewalks than required by NPD Prerequisite 1, Walkable Streets.

k. If the project has ground-floor *dwelling units*, the principal floor of at least 50% of those units must have an elevated finished floor no less than 24 inches above the sidewalk grade. Below-grade basement spaces and/or *accessory dwelling units* are exempt from this requirement.

Figure 6. Minimal above-grade entrance requirements



l. In nonresidential or mixed-use projects, 50% or more of the total number of office buildings include ground-floor retail along 60% of the length of the street-level façade; 100% of mixed-use buildings include ground-floor retail, live-work spaces, and/or ground-floor dwelling units along at least 60% of the street-level façade; and all businesses and/or other community services on the ground floor are accessible directly from sidewalks along a public space, such as a street, square, paseo, or plaza, but not a parking lot.

m. At least 40% of all street frontage within the project has a minimum building-height-to-street-width ratio of 1:3 (i.e., a minimum of 1 foot of building height for every 3 feet of street width).

- Nonmotorized rights-of-way may be counted toward the 40% requirement, but 100% of such spaces must have a minimum 1:1 ratio of building height to street width.
- Projects with bordering street frontage must meet only their proportional share of the height-to-width ratio (i.e., only on the project side of the street).
- Street frontage is measured in linear feet.
- Building height is measured to eaves or the top of the roof for a flat-roof structure, and street width is measured façade to façade. For building frontages with multiple heights, use the weighted average height of all frontage segments based on each segment's height weighted by the segment's share of total building width.
- *Alleys* and driveways are excluded.

Design Speeds for Safe Pedestrian and Bicycle Travel

n. 75% of residential-only streets within the project are designed for a target speed of no more than 20 mph (existing streets may be exempted from calculations).

o. 70% of nonresidential and/or mixed-use streets within the project are designed for a target speed of no more than 25 mph. A multiway boulevard, with travel lanes separated from access lanes by medians, may apply this requirement to its outer access lanes only (through-lanes are exempt), provided pedestrian crosswalks are installed across the boulevard at intervals no greater than 800 feet (existing streets may be exempted from calculations).

Sidewalk Intrusions

p. At-grade crossings with driveways account for no more than 10% of the length of sidewalks within the project.

NPD Credit 2: Compact Development

1–6 points

Intent

To encourage development in *existing* areas to conserve land and protect farmland and wildlife habitat. To promote livability, walkability, and transportation efficiency, including reduced *vehicle miles traveled* (VMT). To improve public health encouraging daily physical activity associated with alternative modes of transportation and compact development.

Requirements

Design and build the *project* such that residential and nonresidential components achieve the *densities* per acre of *buildable land* listed in Table 1 (excluding those portions of parking structures devoted to parking).

Table 1. Points for density per acre of buildable land

Residential density (DU/acre)	Nonresidential density (FAR)	Points
> 10 and ≤ 13	> 0.75 and ≤ 1.0	1
> 13 and ≤ 18	> 1.0 and ≤ 1.25	2
> 18 and ≤ 25	> 1.25 and ≤ 1.75	3
> 25 and ≤ 38	> 1.75 and ≤ 2.25	4
> 38 and ≤ 63	> 2.25 and ≤ 3.0	5
> 63	> 3.0	6
DU = dwelling unit; FAR = floor-area ratio.		

The specified densities must be achieved within five years of the date that the first building of any type is occupied.

The scoring of a mixed-use project is calculated with a weighted average, according to the following steps.

1. Determine the total square footage of all residential and nonresidential uses.
2. Calculate the percentage residential and percentage nonresidential of the total square footage.
3. Determine the density of each component as measured in *dwelling units* per acre and *floor-area ratio*, respectively.
4. Referring to Table 1, find the appropriate points for the densities of the residential and nonresidential components.
5. If the points are different, multiply the point value of the residential component by its percentage of the total square footage and multiply the point value of the nonresidential component by its percentage.
6. Add the two scores.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in *density* calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An *applicant* may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

AND

b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a *water body* or areas outside the *project boundary* that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

NPD Credit 3: Mixed-Use Neighborhood Centers

1–4 points

Intent

To cluster diverse land uses in accessible neighborhood and regional centers to encourage daily walking, biking, and transit use, reduce *vehicle miles traveled* (VMT) and automobile dependence, and support car-free living.

Requirements

FOR ALL PROJECTS

Locate and/or design the *project* such that 50% of its *dwelling units* are within a 1/4-mile *walk distance* of the number of diverse uses (see Appendix) in Table 1, including at least one use from each of the four categories. For projects with no dwellings, 50% of dwelling units within 1/4 mile of the *project boundary* must be within a 1/4-mile walk distance of the number of diverse uses specified in Table 1, including at least one food retail store and at least one establishment from each of two other categories. Establishments may be inside or outside the project and may be *existing* or *planned diverse uses*.

The specified number of diverse uses must be in place by the time of occupancy according to the percentages indicated in Table 1 (exclusive of portions of parking structures devoted to parking):

Table 1. Points for diverse uses within 1/4-mile walk distance, by time of occupancy

Diverse uses	Percentage occupancy of total square footage	Points
4–6	20%	1
7–10	30%	2
11–18	40%	3
≥ 19	50%	4

Per neighborhood center, the following restrictions apply:

a. A single establishment may not be counted in two categories or as two types of diverse use (e.g., a place of worship may be counted only once even if it also contains a daycare facility, and a retail store may be counted only once even if it sells products in several categories).

b. Establishments in a mixed-use building may each count if they are distinctly operated enterprises with separate exterior entrances, but no more than half of the minimum number of diverse uses can be situated in a single building or under a common roof.

c. Only two establishments of a single type may be counted (e.g., if five restaurants are within the required distance, only two may be counted).

FOR PROJECTS 40 ACRES OR GREATER

Cluster diverse uses into neighborhood centers as follows:

Table 2. Points for clustering of diverse uses

Diverse uses	Minimum uses per neighborhood center	Points
4–6	3	1
7–10	5	2
11–18	7	3
≥ 19	9	4

Within each neighborhood center, the principal entries of the establishments must be within a 300-foot walk distance from a single common point that represents the center of the cluster (1 or 2 points) or within a 400-foot walk distance (3 or 4 points).

Also, projects with multiple centers must determine points earned based on the number of uses in the centers weighted by the percentage of total dwelling units within a 1/4-mile walk distance from each center's common point.

AND

FOR PROJECTS WITH REGIONAL-SERVING RETAIL OF 150,000 OR MORE SQUARE FEET

Projects with retail uses totaling 150,000 or more square feet, if they have at least one retail establishment totaling 75,000 or more square feet, must also earn a minimum of 1 point under SLL Credit 3, Reduced Automobile Dependence, Option 1, Transit-Served Location (planned transit service can be counted), and for every additional 50,000 square feet of retail above 150,000 square feet, must earn 1 additional point under SLL Credit 3.

If transit service is planned but not yet operational, the project must demonstrate one of the following:

a. The relevant transit agency has a signed full funding grant agreement with the Federal Transit Administration that includes a revenue operations date for the start of transit service. The revenue operations date must be no later than the occupancy date of 50% of the project's total building square footage.

b. For bus, streetcar, *bus rapid transit*, or ferry service, the transit agency must certify that it has an approved budget that includes specifically allocated funds sufficient to provide the planned service at the levels listed above and that service at these levels will commence no later than occupancy of 50% of the project's total building square footage.

c. For rail service other than streetcars, the transit agency must certify that preliminary engineering for a rail line has commenced. In addition, the service must meet either of these two requirements:

- A state legislature or local subdivision of the state has authorized the transit agency to expend funds to establish rail transit service that will commence no later than occupancy of 50% of the project's total building square footage.

OR

- A municipality has dedicated funding or reimbursement commitments from future tax revenue for the development of stations, platforms, or other rail transit infrastructure that will service the project no later than occupancy of 50% of the project's total building square footage.

NPD Credit 4: Mixed-Income Diverse Communities

1–7 points

Intent

To promote socially equitable and engaging communities by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community.

Requirements

Meet the requirements of one or more options below.

OPTION 1. Diversity of Housing Types

Include a sufficient variety of housing sizes and types in the *project* such that the total variety of planned and *existing* housing within the project achieves a Simpson Diversity Index score greater than 0.5, using the housing categories below. Projects of less than 125 acres may calculate the Simpson Diversity Index for the area within 1/4 mile of the project's geographic center. The Simpson Diversity Index calculates the probability that any two randomly selected *dwelling units* in a project will be of a different type.

$$\text{Score} = 1 - \sum (n/N)^2$$

where n = the total number of dwelling units in a single category, and N = the total number of dwelling units in all categories.

Table 1. Points for housing diversity

Simpson Diversity Index score	Points
> 0.5 to < 0.6	1
≥ 0.6 to < 0.7	2
≥ 0.7	3

Housing categories are defined according to the dwelling unit's net square footage, exclusive of any garage, as listed in Table 2.

Table 2. Housing categories

Type	Square feet
Detached residential, large	> 1,250
Detached residential, small	≤ 1,250
Duplex or townhouse, large	> 1,250
Duplex or townhouse, small	≤ 1,250
Dwelling unit in multiunit building with no elevator, large	> 1,250
Dwelling unit in multiunit building with no elevator, medium	> 750 to ≤ 1,250
Dwelling unit in multiunit building with no elevator, small	≤ 750
Dwelling unit in multiunit building with elevator, 4 stories or fewer, large	> 1,250
Dwelling unit in multiunit building with elevator, 4 stories or fewer, medium	> 750 to ≤ 1,250
Dwelling unit in multiunit building with elevator, 4 stories or fewer, small	≤ 750
Dwelling unit in multiunit building with elevator, 5 to 8 stories, large	> 1,250
Dwelling unit in multiunit building with elevator, 5 to 8 stories, medium	> 750 to ≤ 1,250
Dwelling unit in multiunit building with elevator, 5 to 8 stories, small	≤ 750
Dwelling unit in multiunit building with elevator, 9 stories or more, large	> 1,250
Dwelling unit in multiunit building with elevator, 9 stories or more, medium	> 750 to ≤ 1,250
Dwelling unit in multiunit building with elevator, 9 stories or more, small	≤ 750
Live-work space, large	> 1,250
Live-work space, small	≤ 1,250
Accessory dwelling unit, large	> 1,250
Accessory dwelling unit, small	≤ 1,250

For the purposes of this credit, townhouse and live-work units may have individual ground-level entrances and/or be within a multiunit or mixed-use building. Double counting is prohibited; each dwelling may be classified in only one category. The number of stories in a building is inclusive of the ground floor regardless of its use.

AND/OR

OPTION 2. Affordable Housing

Include a proportion of new rental and/or for-sale dwelling units priced for households earning below the *area median income* (AMI). Rental units must be maintained at affordable levels for a minimum of 15 years. Existing dwelling units are exempt from requirement calculations. A maximum of 3 points may be earned by meeting any combination of thresholds in Table 3.

Table 3. Points for affordable housing

Rental dwelling units				For-sale dwelling units			
Priced up to 60% AMI		Priced up to 80% AMI		Priced up to 100% AMI		Priced up to 120% AMI	
Percentage of total rental units	**Points**	Percentage of total rental units	**Points**	Percentage of total for-sale units	**Points**	Percentage of total for-sale units	**Points**
5	**1**	10	**1**	5	**1**	8	**1**
10	**2**	15	**2**	10	**2**	12	**2**
15	**3**	25	**3**	15	**3**	--	**--**
AMI = area median income.							

AND/OR

OPTION 3. Mixed-Income Diverse Communities

A project may earn 1 additional point by earning at least 2 points in Option 1 and at least 2 points in Option 2 (at least one of which must be for providing housing at or below 100% AMI).

NPD Credit 5: Reduced Parking Footprint

1 point

Intent

To design parking to increase the pedestrian orientation of *projects* and minimize the adverse environmental effects of parking facilities. To reduce public health risks by encouraging daily physical activity associated with walking and bicycling.

Requirements

For new nonresidential buildings and *multiunit residential* buildings, either do not build new off-street parking lots, or locate all new off-street surface parking lots at the side or rear of buildings, leaving building frontages facing streets free of surface parking lots.

AND

Use no more than 20% of the total *development footprint* area for all new off-street surface parking facilities, with no individual surface parking lot larger than 2 acres. For the purposes of this credit, surface parking facilities include ground-level garages unless they are under *habitable building* space. Underground or multistory parking facilities can be used to provide additional capacity, and on-street parking spaces are exempt from this limitation.

AND

Provide bicycle parking and storage capacity to new buildings as follows:

a. **Multiunit residential.** Provide at least one secure, enclosed bicycle storage space per occupant for 30% of the *planned occupancy* but no fewer than one per unit. Provide secure visitor bicycle racks on-site, with at least one bicycle space per ten *dwelling units* but no fewer than four spaces per project site.

b. **Retail.** Provide at least one secure, enclosed bicycle storage space per new retail worker for 10% of retail worker planned occupancy. Provide visitor or customer bicycle racks on-site, with at least one bicycle space per 5,000 square feet of retail space, but no fewer than one bicycle space per business or four bicycle spaces per project site, whichever is greater. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.

c. **Nonresidential other than retail.** Provide at least one secure, enclosed bicycle storage space per new occupant for 10% of planned occupancy. Provide visitor bicycle racks on-site with at least one bicycle space per 10,000 square feet of new commercial nonretail space but not fewer than four bicycle spaces per building. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.

Secure, enclosed bicycle storage areas must be locked and easily accessible to residents and/or workers. Provide informational signage on using the storage facilities.

Visitors' and customers' bicycle racks must be clearly visible from a main entry, located within 100 feet of the door, served with night lighting, and protected from damage from nearby vehicles. If the building has multiple main entries, bicycle racks must be proportionally dispersed within 100 feet of each.

Shower and changing facility requirements may be met by providing the equivalent of free access to on-site health club shower facilities, if the health club can be accessed without going outside. Provide informational signage on using the shower facilities.

AND

Provide carpool and/or shared-use vehicle parking spaces equivalent to 10% of the total automobile parking for each nonresidential and mixed-use building on the site. Signage indicating such parking spots must be provided, and the parking spots must be within 200 feet of entrances to the buildings served.

NPD Credit 6: Street Network

1–2 points

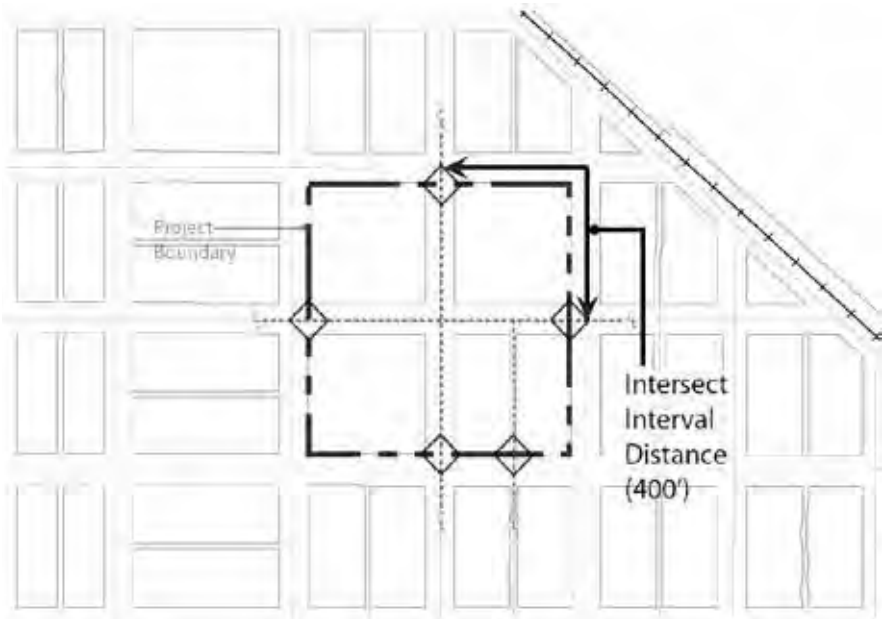
Intent

To promote *projects* that have high levels of internal connectivity and are well connected to the community at large. To encourage development within *existing* communities, thereby conserving land and promoting multimodal transportation. To improve public health by encouraging daily physical activity and reducing the negative effects of motor vehicle emissions.

Requirements

Design and/or locate the project such that a through-street and/or nonmotorized right-of-way intersects or terminates at the *project boundary* at least every 400 feet or at existing abutting street intervals and intersections, whichever is the shorter distance. Include a pedestrian or bicycle through-connection in at least 90% of any new *culs-de-sac*. This does not apply to portions of the boundary where connections cannot be made because of physical obstacles, such as prior platting of property, construction of existing buildings or other barriers, slopes over 15%, *wetlands* and *water bodies*, railroad and utility rights-of-way, existing limited-access motor vehicle rights-of-way, and parks and dedicated open space.

Figure 1. Project site with right-of-way intersects on project boundary at least every 400 feet



AND

Locate and/or design the project such that its internal *connectivity* and/or the connectivity within a 1/4-mile distance of the project boundary falls within one of the ranges listed in Table 1.

Table 1. Points for connectivity

Street intersections per square mile	Points
> 300 and ≤ 400	1
> 400	2

All streets and sidewalks that are counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses, and military bases where gates are used for security purposes.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

connectivity the number of publicly accessible intersections per square mile, including any combination of streets, dedicated alleys, transit rights-of-way, and nonmotorized rights-of-way. If one must both enter and exit an area through the same intersection, such an intersection and any intersections beyond that point are not counted; intersections leading only to culs-de-sac are also not counted. The calculation of square mileage excludes water bodies, parks larger than 1/2 acre, public facility campuses, airports, rail yards, slopes over 15%, and areas nonbuildable under codified law or the rating system. Street rights-of-way may not be excluded.

NPD Credit 7: Transit Facilities

1 point

Intent

To encourage transit use and reduce driving by providing safe, convenient, and comfortable transit waiting areas and safe and secure bicycle storage facilities for transit users.

Requirements

Work with the transit agency or agencies serving the *project* to identify transit stop locations within and/or bordering the *project boundary* where transit agency-approved shelters and any other agency-required improvements, including bicycle racks, will be installed no later than construction of 50% of total project square footage. At those locations, install approved shelters and any required improvements, or provide funding to the transit agency for their installation. Shelters must be covered, be at least partially enclosed to buffer wind and rain, and have seating and illumination. Any required bicycle racks must have a two-point support system for locking the frame and wheels and be securely affixed to the ground or a building.

AND

Work with the transit agency or agencies serving the project to identify locations within and bordering the project boundary where the agency determines that transit stops will be warranted within two years of project completion, either because of increased ridership on *existing* service resulting from the project or because of planned future transit. At those locations, reserve space for transit shelters and any required improvements, including bicycle racks. In lieu of or in addition to new stops, this requirement can be satisfied with a commitment from the transit agency to provide increased service to the transit stops that will have been installed at the time of 50% *build-out*.

AND

Work with the transit agency or agencies serving the project to provide kiosks, bulletin boards, and/or signs that display transit schedules and route information at each public transit stop within and bordering the project.

NPD Credit 8: Transportation Demand Management

1–2 points

Intent

To reduce energy consumption, pollution from motor vehicles, and adverse public health effects by encouraging multimodal travel.

Requirements

FOR ALL PROJECTS

Earn one point for every two options achieved below, for a maximum of two points. For the purposes of this credit, *existing* buildings and their occupants are exempt from the requirements.

OPTION 1. TDM Program

Create and implement a comprehensive transportation demand management (TDM) program for the *project* that reduces weekday peak-period motor vehicle trips by at least 20% compared with a baseline case, and fund the program for a minimum of three years following *build-out* of the project. The TDM program must be prepared by a qualified transportation professional. Any trip reduction effects of Options 2, 3, 4, or 5 may not be included in calculating the 20% threshold.

OR

OPTION 2. Transit Passes

Provide transit passes valid for at least one year, subsidized to be half of regular price or cheaper, to each occupant locating within the project during the first three years of project occupancy (or longer). Publicize the availability of subsidized transit passes are available to project occupants;

OR

OPTION 3. Developer-Sponsored Transit

Provide year-round, *developer*-sponsored private transit service (with vans, shuttles, buses) from at least one central point in the project to other major transit facilities, and/or other destinations such as a retail or *employment center*, with service no less frequent than 45 daily weekday trips and 30 daily weekend trips. The service must begin by the time the project total square footage is 20% occupied and must be guaranteed for at least three years beyond project build-out. Twenty percent occupancy is defined as residents living in 20% of the *dwelling units* and/or employees working in 20% of the total nonresidential square footage.

Provide transit stop shelters and bicycle racks adequate to meet projected demand but no less than one shelter and one bicycle rack at each transit stop. Shelters must be covered, be at least partially enclosed to buffer wind and rain, and have seating and illumination. Bicycle racks must have a two-point support system for locking the frame and wheels and must be securely affixed to the ground or a building.

OR

OPTION 4. Vehicle Sharing

Locate the project such that 50% of the dwelling units and nonresidential building entrances are within a 1/4 mile *walk distance* of at least one vehicle in a vehicle-sharing program. For each vehicle, dedicate one parking space accessible to vehicle-sharing members. Through signage and other means, publicize to project occupants the availability and benefits of the vehicle-sharing program. If the project has more than 100 dwelling units and/or employees and has a minimum transit service of 60 daily weekday trips and 40 daily weekend trips, at least one additional vehicle and parking space for every 100 dwelling units and/or employees must be available. If the project has more than 100 dwelling units and/or employees but does not have transit service at the frequencies specified above, at least one additional vehicle and parking space for every 200 dwelling units and/or employees must be available. Where new vehicle locations are created, a vehicle sharing program must begin by the time the project total square footage is 20% occupied; commit to providing vehicles to the locations for at least two years. Twenty percent occupancy is defined as residents living in 20% of the project dwelling units and/or employees working in 20% of the total nonresidential square footage of the project.

OR

OPTION 5. Unbundling of Parking

For 90% of *multiunit residential* units and/or nonresidential square footage, the associated parking spaces are sold or rented separately from the dwelling units and/or nonresidential square footage.

NPD Credit 9: Access to Civic and Public Space

1 point

Intent

To improve physical and mental health and social capital by providing a variety of open spaces close to work and home to facilitate social networking, civic engagement, physical activity, and time spent outdoors.

Requirements

Locate and/or design the *project* such that a civic or passive-use space, such as a square, *park*, or *plaza*, at least 1/6 acre in area lies within a 1/4-mile *walk distance* of 90% of planned and *existing dwelling units* and nonresidential building entrances. Spaces less than 1 acre must have a proportion no narrower than 1 unit of width to 4 units of length.

AND

For projects larger than 7 acres, locate and/or design the project such that the median size of civic or passive-use spaces within and/or contiguous to the project is at least 1/2 acre.

NPD Credit 10: Access to Recreation Facilities

1 point

Intent

To improve physical and mental health and social capital by providing a variety of recreational facilities close to work and home to facilitate physical activity and social networking.

Requirements

Locate and/or design the *project* so that a publicly accessible outdoor recreation facility at least 1 acre in area, or a publicly accessible indoor recreational facility of at least 25,000 square feet, lies within a 1/2-mile *walk distance* of 90% of new and *existing dwelling units* and nonresidential building entrances. Outdoor recreation facilities must consist of physical improvements and may include "tot lots," swimming pools, and sports fields, such as baseball diamonds.

NPD Credit 11: Visitability and Universal Design

1 point

Intent

To enable the widest spectrum of people, regardless of age or ability, to more easily participate in community life by increasing the proportion of areas usable by people of diverse abilities.

Requirements

OPTION 1. Projects with Dwelling Units

For each new *project dwelling unit* of the following residential building types, design to the applicable requirements specified:

Single dwelling unit buildings. Design a minimum of 20% of the dwelling units (and not less than one) in accordance with ICC/ANSI A117.1, Type C, Visitable Unit, each of which has an open-space plan for primary functions (an area for cooking, eating, and social gathering), as well as a sleeping area and a full bathroom.

Multiunit building with two or three dwelling units. Design a minimum of 20% of the dwelling units (and not less than one) in accordance with ICC/ANSI A117.1, Type C, Visitable Unit, each of which has a kitchen, dining area, living area, full bathroom, and bedroom on the accessible level. If a project has both attached and detached single dwelling unit buildings, the requirements apply to each type separately. Similarly, if a project has both 2- and 3- dwelling unit buildings, the requirements apply to each type.

Multiunit buildings with four or more dwelling units. This category includes mixed-use buildings with dwelling units. Design a minimum of 20% of the dwelling units (and not less than one) to incorporate the universal design requirements stated below, or comply with Option 2. Choose at least one of the following three strategies for universal design:

a. Throughout the home, include at least five of the following universal design features to facilitate universal function, access, and user ability:

- Easy-to-grip lever door handles.
- Easy-to-grip cabinet and drawer loop handles.
- Easy-to-grip locking mechanisms on doors and windows.
- Easy-to-grip single-lever faucet handles.
- Easy-touch rocker or hands-free switches.
- Motion-detector lighting at entrance, in hallways and stairwells, and in closets, and motion-detector light switches in garages, utility spaces, and basements.
- Large, high-contrast print for controls, signals, and the house or unit numbers.
- A built-in shelf, bench, or table with knee space below, located outside the entry door with weather protection overhead, such as porch or stoop with roof, awning, or other overhead covering.
- A minimum 32-inch clear door opening width for all doorways.

- Tread at the entrance, on stairs, and other areas where slipping is common, with color contrast difference between stair treads and risers.
- Interior floor surfaces (e.g., low-pile carpets, hard-surface flooring) that provide easy passage for a wheelchair or walker, with color contrast between floor surfaces and trim. No carpet is permitted in a kitchen, bathroom, or other wet areas of the dwelling unit.

OR

b. On the main floor of the home (or on another floor, if an elevator or stair lift is provided), provide a kitchen with hard-surface flooring, plumbing with single-lever controls, a 5-foot turning radius, and at least four of the following universal design features to facilitate universal function, access, and user-ability:

- Variable-height (28- to 42-inch) or adjustable work surfaces, such as countertops, sinks, and/or cooktops.
- Clear knee space under sink and cooktops (this requirement can be met by installing removable base cabinets or fold-back or self-storing doors), cooktops and ranges with front or side-mounted controls, and wall-mounted ovens at a height to accommodate a seated adult.
- A toe kick area at the base of lower cabinets with a minimum height of 9 inches, and full-extension drawers and shelves in at least half (by volume) of the cabinets.
- Contrasting color treatment between countertops, front edges, and floor.
- Adjustable-height shelves in wall cabinets.
- Glare-free task lighting to illuminate work areas without too much reflectivity.

OR

c. On the main floor of the building (or on another floor, if an elevator or stair lift is provided), include all of the following:

In at least one accessible bedroom,

- Size the room to accommodate a twin bed with a 5-foot turning radius around the bed.
- Install a clothes closet with a 32-inch clear opening with adjustable-height closet rods and shelves.

In at least one full bathroom on the same floor as the bedroom,

- Provide adequate maneuvering space with a 30-by-48-inch clear floor space at each fixture.
- Center the toilet 18 inches from any side wall, cabinet, or tub, and allow a 3-foot clear space in front.
- Install broad blocking in walls around toilet, tub, and/or shower for future placement and relocation of grab bars
- Provide knee space under the lavatory (this requirement may be met by installing removable base cabinets or fold-back or self-storing doors).
- Install a long mirror whose bottom is no more than 36 inches above the finished floor and whose top is at least 72 inches high.

In addition, all bathrooms must have hard-surface flooring, all plumbing fixtures must have single-lever controls, and tubs or showers must have hand-held shower heads.

OR

OPTION 2. Projects with Noncompliant Public Rights-of-Way or Accessible Travel Routes

For projects with only nonresidential components, or residential components that are not within the scope of Option 1, but have public rights-of-way or other publicly accessible travel routes within the project that are not in compliance with Americans with Disabilities Act (for private sector and local and state government facilities) or the Architectural Barriers Act (for federally funded facilities), design, construct, and/or retrofit 100% of the rights-of-way and/or travel routes in accordance with the ADA-ABA Accessibility Guidelines, as applicable.

NPD Credit 12: Community Outreach and Involvement

1–2 points

Intent

To encourage responsiveness to community needs by involving the people who live or work in the community in *project* design and planning and in decisions about how it should be improved or how it should change over time.

Requirements

OPTION 1. Community Outreach (1 point)

Meet with adjacent property owners, residents, business owners, and workers; local planning and community development officials; and any current residents or workers at the project site to solicit and document their input on the proposed project prior to commencing a design.

AND

Work directly with community associations and/or the local government to advertise an open community meeting, other than an official public hearing, to generate comments on project design from the beginning.

AND

Host an open community meeting, other than an official public hearing, to solicit and document public input on the proposed project at the beginning of project design.

AND

Modify the project's conceptual design as a direct result of community input, or if modifications are not made, explain why community input did not generate design modifications.

AND

Establish ongoing means for communication between the *developer* and the community throughout the design and construction phases and, in cases where the developer maintains any control during the postconstruction phase.

OR

OPTION 2. Charrette (2 points)

Comply with Option 1 and conduct a design charrette or interactive workshop of at least two days and open to the public that includes, at a minimum, participation by a representative group of nearby property owners, residents, business owners, and workers in the preparation of conceptual project plans and drawings.

OR

OPTION 3. Local Endorsement Pursuant to Evaluation Program (2 points)

Comply with Option 1 and obtain an endorsement from an ongoing local or regional nongovernmental program that systematically reviews and endorses smart growth development projects under a rating and/or jury system.

NPD Credit 13: Local Food Production

1 point

Intent

To promote community-based food production, improve nutrition through increased access to fresh produce, support preservation of small farms producing a wide variety of crops, reduce the negative environmental effects of large-scale industrialized agriculture, and support local economic development that increases the economic value and production of farmlands and community gardens.

Requirements

FOR ALL PROJECTS

Establish *covenants, conditions, and restrictions* (CC&R) or other forms of deed restrictions which state that the growing of produce is not prohibited in *project* areas, including greenhouses, any portion of residential front, rear, or side yards; or balconies, patios, or rooftops. Greenhouses but not gardens may be prohibited in front yards that face the *street*.

AND

OPTION 1. Neighborhood Farms and Gardens

Dedicate permanent and viable growing space and/or related facilities (such as greenhouses) within the project according to the square footage areas specified in Table 1 (exclusive of *existing* dwellings). Provide solar access, fencing, watering systems, garden bed enhancements (such as raised beds), secure storage space for tools, and pedestrian access for these spaces. Ensure that the spaces are owned and managed by an entity that includes occupants of the project in its decision making, such as a community group, homeowners' association, or public body.

Table 1. Minimum garden space, by project density

Project density (DU/acre)	Growing space (sf/DU)
> 7 and ≤14	200
> 14 and ≤ 22	100
> 22 and ≤ 28	80
> 28 and ≤ 35	70
> 35	60
DU = dwelling unit; sf = square feet.	

Established community gardens outside the *project boundary* but within a 1/2 mile *walk distance* of the project's geographic center can satisfy this option if the garden otherwise meets all of the option requirements.

OR

OPTION 2. Community-Supported Agriculture

Purchase shares in a *community-supported agriculture* (*CSA*) program located within 150 miles of the project site for at least 80% of *dwelling units* within the project (exclusive of existing dwelling units) for two years, beginning with each dwelling unit's occupancy until the 80% threshold is reached. Shares must be delivered to a point within 1/2 mile of the project's geographic center on a regular schedule not less than twice per month at least four months of the year.

OR

OPTION 3. Proximity To Farmers' Market

Locate the project's geographic center within a 1/2-mile walk distance of an existing or planned farmers' market that is open or will operate at least once weekly for at least five months annually. Farmers' market vendors may sell only items grown within 150 miles of the project site. A planned farmers' market must have firm commitments from farmers and vendors that the market will meet all the above requirements and be in full operation by the time of 50% occupancy of the project's total square footage.

NPD Credit 14: Tree-Lined and Shaded Streets

1–2 points

Intent

To encourage walking, bicycling, and transit use and discourage excessive motoring speeds. To reduce urban heat island effects, improve air quality, increase evapotranspiration, and reduce cooling loads in buildings.

Requirements

OPTION 1. Tree-Lined Streets (1 point)

Design and build the *project* to provide street trees on both sides of at least 60% of new and *existing streets* within the project and on the project side of bordering streets, between the vehicle travel way and walkway, at intervals averaging no more than 40 feet (excluding driveways and utility vaults).

AND/OR

OPTION 2. Shaded Streets (1 point)

Trees or other structures provide shade over at least 40% of the length of sidewalks on streets within or contiguous to the project. Trees must provide shade within ten years of landscape installation. Use the estimated crown diameter (the width of the shade if the sun is directly above the tree) to calculate the shaded area.

AND

FOR ALL PROJECTS INVOLVING STREET TREE PLANTINGS

Obtain a registered landscape architect's determination that planting details are appropriate to growing healthy trees, taking into account tree species, root medium, and width and soil volume of planter strips or wells, and that the selected tree species are not considered *invasive* in the project context according to USDA or the state agricultural extension service.

NPD Credit 15: Neighborhood Schools

1 point

Intent

To promote community interaction and engagement by integrating *schools* into the neighborhood. To support students' health by encouraging walking and bicycling to school.

Requirements

Include in the *project* a residential component that constitutes at least 30% of the project's total building square footage, and locate or design the project such that at least 50% of the *dwelling units* are within a 1/2-mile *walk distance* of an *existing* or new elementary or middle school building entrance or within a 1-mile walk distance of an existing or new high school building entrance. For any new school, the school district or equivalent organization must commit in a legally binding warrant that the school will be open by the time of occupancy of 50% of the project dwelling units.

Streets within and/or bordering the *project boundary* that lead from dwelling units to the school site must have a complete network of sidewalks on both sides and either bicycle lanes or traffic control and/or calming measures. If the school is planned as part of the project, it must be designed such that pedestrians and cyclists can easily reach building entrances without crossing bus zones, parking entrances, and student drop-off areas.

AND

New school campuses must not exceed the following:

- High schools, 15 acres.
- Middle schools, 10 acres.
- Elementary schools, 5 acres.

Schools combining grade levels from more than one category may use the grade level with the higher allowable acreage.

Facilities on the school site for which there is a formal joint-use agreement with another entity, such as athletic facilities, playgrounds, and multipurpose spaces in buildings, may be deducted from the total site area of the school.

GIB Prerequisite 1: Certified Green Building

Required

Intent

To encourage the design, construction, and retrofit of buildings that utilize green building practices.

Requirements

Design, construct, or retrofit one whole building within the *project* to be certified through LEED for New Construction, LEED for Existing Buildings: Operations & Maintenance, LEED for Homes, LEED for Schools, LEED for Retail: New Construction, or LEED for Core and Shell (with at least 75% of the floor area certified under LEED for Commercial Interiors or LEED for Retail: Commercial Interiors), or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have either been accredited by an IAF accreditation body to, or could demonstrate compliance to, ISO 17021 or ISO/IEC Guide 65, and, when subsequently available, ISO/IEC 17065.

GIB Prerequisite 2: Minimum Building Energy Efficiency

Required

Intent

To encourage the design and construction of energy-efficient buildings that reduce air, water, and land pollution and adverse environmental effects from energy production and consumption.

Requirements

The following requirement applies to 90% of the building floor area (rounded up to the next whole building) of all nonresidential buildings, mixed-use buildings, and *multiunit residential* buildings four stories or more constructed as part of the *project* or undergoing major renovations as part of the project.

New buildings must demonstrate an average 10% improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007 (with errata but without addenda). Buildings undergoing major renovations must demonstrate an average 5% improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007.

Projects must document building energy efficiency using one or a combination of the following:

a. Produce a LEED-compliant energy model following the methodology outlined in the LEED rating system appropriate to each building's scope, including demonstration by a whole building project computer simulation using the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1–2007. Appendix G requires that the energy analysis done for the building performance rating method include all energy costs associated with the building project. Projects in California may use Title 24–2005, Part 6, in place of ANSI/ASHRAE/IESNA Standard 90.1–2007.

b. Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide listed below, appropriate to each building's scope. Comply with all applicable criteria as established in the guide for the climate zone in which the project is located.

   - ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004 (office occupancy buildings less than 20,000 square feet).
   - ASHRAE Advanced Energy Design Guide for Small Retail Buildings 2006 (retail occupancy buildings less than 20,000 square feet).
   - ASHRAE Advanced Energy Design Guide for Small Warehouses and Self-Storage Buildings 2008 (warehouse or self-storage occupancy less than 50,000 square feet).
   - ASHRAE Advanced Energy Design Guide for K–12 School Buildings (K–12 school occupancy less than 200,000 square feet).

c. For buildings less than 100,000 square feet, comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute, as follows:

   - Comply with Section 1, Design Process Strategies, and Section 2, Core Performance Requirements, of the Core Performance Guide.
   - Health care, warehouse and laboratory projects are ineligible for this path.

If method (a) is used for all of the floor area evaluated in this prerequisite, the total percentage improvement is calculated as a sum of energy costs for each building compared with a baseline. If any combination of methods (a), (b), and (c) is used, the total percentage improvement is calculated as a weighted average based on building floor area. In determining the weighted average, buildings pursuing (a) will be credited at the percentage value determined by the energy model. Buildings pursuing (b) or (c) will be credited at 12% better than ANSI/ASHRAE/IESNA Standard 90.1–2007 for new buildings and 8% better for *existing* building renovations.

AND

For new *single-family residential* buildings and new multiunit residential buildings three stories or fewer, 90% of the buildings must meet ENERGY STAR or equivalent criteria. Projects may demonstrate compliance with ENERGY STAR criteria through the prescriptive requirements of a Builder Option Package, the *Home Energy Rating System* (*HERS*) index, or a combination of the two.

Project teams wishing to use ASHRAE-approved addenda for the purposes of this credit may do so at their discretion. Addenda must be applied consistently across all LEED credits.

GIB Prerequisite 3: Minimum Building Water Efficiency

Required

Intent

To reduce effects on natural water resources and reduce burdens on community water supply and wastewater systems.

Requirements

For nonresidential buildings, mixed-use buildings, and multifamily residential buildings four stories or more:

Indoor water usage in new buildings and buildings undergoing major renovations as part of the *project* must be an average 20% less than in baseline buildings. The baseline usage is based on the requirements of the Energy Policy Act of 1992 and subsequent rulings by the Department of Energy, the requirements of the Energy Policy Act of 2005, and the fixture performance standards in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code as to fixture performance. Calculations are based on estimated occupant usage and include only the following fixtures and fixture fittings (as applicable to the project scope): water closets (toilets), urinals, lavatory faucets, showers, kitchen sink faucets, and prerinse spray valves.

The water efficiency threshold is calculated as a weighted average of water usage for the buildings constructed as part of the project based on their conditioned square footage. Projects may also follow the LEED for Multiple Buildings and On-Campus Building Application Guide alternative calculation methodology to show compliance with this prerequisite.

Table 1. National efficiency baselines

Commercial fixtures, fittings, or appliances	Baseline water usage
Commercial toilet	1.6 gpf[1] Except blow-out fixtures, 3.5 gpf
Commercial urinal	1.0 gpf
Commercial lavatory (restroom) faucet	2.2 gpm at 60 psi, private applications only (hotel-motel guest rooms, hospital patient rooms) 0.5 gpm at 60 psi[2] all others except private applications 0.25 gallons per cycle for metering faucets
Commercial prerinse spray valve (for food service applications)	Flow rate ≤ 1.6 gpm (no pressure specified; no performance requirement)

[1] EPAct 1992 standard for toilets applies to both commercial and residential models.
[2] In addition to EPAct requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code.

Residential Fixtures, Fittings, and Appliances	Baseline water usage
Residential toilet	1.6 gpf[3]
Residential lavatory (bathroom) faucet	2.2 gpm at 60 psi
Residential kitchen faucet	
Residential showerhead	2.5 gpm at 80 psi per shower stall4

gpf = gallons per flush; psi = pounds per square inch.
Source: Adapted from information developed and summarized by the U.S. EPA Office of Water.
[3] EPAct 1992 standard for toilets applies to both commercial and residential models.
[4] Residential shower compartment (stall) in dwelling units: The total allowable flow rate from all flowing showerheads at any given time, including rain systems, waterfalls, bodysprays, bodyspas, and jets, shall be limited to the allowable showerhead flow rate as specified above (2.5-gpm) per shower compartment, where the floor area of the shower compartment is less than 2,500 sq.in. For each increment of 2,500 sq.in. of floor area thereafter or part thereof, an additional showerhead with total allowable flow rate from all flowing devices equal to or less than the allowable flow rate as specified above shall be allowed. Exception: Showers that emit recirculated non-potable water originating from within the shower compartment while operating are allowed to exceed the maximum as long as the total potable water flow does not exceed the flow rate as specified above.

The following fixtures, fittings, and appliances are outside the scope of the water use reduction calculation:

a. Commercial steam cookers.

b. Commercial dishwashers.

c. Automatic commercial ice makers.

d. Commercial (family-sized) clothes washers.

e. Residential clothes washers.

f. Standard and compact residential dishwashers.

AND

For new *single-family residential* buildings and new *multiunit residential* buildings three stories or fewer, 90% of buildings must use a combination of fixtures that would earn 3 points under LEED for Homes 2008 WE Credit 3, Indoor Water Use.

GIB Prerequisite 4: Construction Activity Pollution Prevention

Required

Intent

To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust generation.

Requirements

Create and implement an erosion and sedimentation control plan for all new construction activities associated with the *project*. The plan must incorporate practices such as phasing, seeding, grading, mulching, filter socks, stabilized site entrances, preservation of *existing* vegetation, and other best management practices (BMPs) to control erosion and sedimentation in runoff from the entire project site during construction. The plan must list the BMPs employed and describe how they accomplish the following objectives:

a. Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including but not limited to stockpiling of topsoil for reuse.

b. Prevent sedimentation of any affected stormwater conveyance systems or receiving streams.

c. Prevent polluting the air with dust and particulate matter.

The erosion and sedimentation control plan must describe how the project team will do the following:

a. Preserve vegetation and mark clearing limits.

b. Establish and delineate construction access.

c. Control flow rates.

d. Install sediment controls.

e. Stabilize soils.

f. Protect slopes.

g. Protect drain inlets.

h. Stabilize channels and outlets.

i. Control pollutants.

j. Control dewatering.

k. Maintain the BMPs.

l. Manage the erosion and sedimentation control plan.

The BMPs must be selected from the Washington State Department of Ecology's *Stormwater Management Manual for Western Washington, Volume II, Construction Stormwater Pollution Prevention* (2005 edition), or a locally approved equivalent, whichever is more stringent, and must comply with all federal, state, and local erosion and sedimentation control regulations.

GIB Credit 1: Certified Green Buildings

1–5 points

Intent

To encourage the design, construction, and retrofit of buildings that utilize green building practices.

Requirements

OPTION 1. Projects with 10 or Fewer Habitable Buildings

Design, construct, or retrofit one building as part of the *project*, beyond the prerequisite, to be certified under one of the following LEED green building rating systems: LEED for New Construction, LEED for Existing Buildings, LEED for Homes, LEED for Schools, LEED for Retail: New Construction, or LEED for Core & Shell (with at least 75% of the floor area certified under LEED for Commercial Interiors or LEED for Retail: Commercial Interiors) or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have either been accredited by an IAF accreditation body to, or could demonstrate compliance to, ISO 17021 or ISO/IEC Guide 65, and, when subsequently available, ISO/IEC 17065.

OR

OPTION 2. Projects of All Sizes

Design, construct, or retrofit a percentage of the total project building square footage, beyond the prerequisite requirement, to be certified under one of the LEED green building rating systems listed above or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have either been accredited by an IAF accreditation body to, or could demonstrate compliance to, ISO 17021 or ISO/IEC Guide 65, and, when subsequently available, ISO/IEC 17065.

Table 1. Points for green building certification

Percentage of square footage certified	Points
≥ 10% and < 20%	1
≥ 20% and < 30%	2
≥ 30% and < 40%	3
≥ 40% and < 50%	4
≥ 50%	5

AND

FOR ALL PROJECTS

Detached *accessory dwelling units* must be counted as separate buildings. Accessory dwellings attached to a main building are not counted separately.

GIB Credit 2: Building Energy Efficiency

2 points

Intent

To encourage the design and construction of energy-efficient buildings that reduce air, water, and land pollution and adverse environmental effects from energy production and consumption.

Requirements

The following requirement applies to 90% of the building floor area (rounded up to the next whole building) of all nonresidential buildings, mixed-use buildings, and *multiunit residential* buildings four stories or more constructed as part of the *project* or undergoing major renovations as part of the project.

New buildings must demonstrate an average 18% (1 point) or 26% (2 points) improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007 (with errata but without addenda). Buildings undergoing major renovations as part of the project must demonstrate an average 14% (1 point) or 22% (2 points) improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007.

Projects must document building energy efficiency using one or a combination of the following:

a. Produce a LEED-compliant energy model following the methodology outlined in the LEED rating system appropriate to each building's scope, including demonstration by a whole building project computer simulation using the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1–2007. Appendix G requires that the energy analysis done for the building performance rating method include all energy costs associated with the building project. Projects in California may use Title 24–2005, Part 6, in place of ANSI/ASHRAE/IESNA Standard 90.1–2007.

b. Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide listed below, appropriate to each building's scope. Comply with all applicable criteria as established in the guide for the climate zone in which the project is located.

   - ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004 (office occupancy buildings less than 20,000 square feet).
   - ASHRAE Advanced Energy Design Guide for Small Retail Buildings 2006 (retail occupancy buildings less than 20,000 square feet).
   - ASHRAE Advanced Energy Design Guide for Small Warehouses and Self-Storage Buildings 2008 (warehouse or self-storage occupancy less than 50,000 square feet).
   - ASHRAE Advanced Energy Design Guide for K–12 School Buildings (K–12 school occupancy less than 200,000 square feet).

c. For buildings less than 100,000 square feet, comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute, as follows:

   - Comply with Section 1, Design Process Strategies, and Section 2, Core Performance Requirements, of the Core Performance Guide.
   - Health care, warehouse and laboratory projects are ineligible for this path.

If method (a) is used for all of the floor area evaluated in this prerequisite, the total percentage improvement is calculated as a sum of energy costs for each building compared with a baseline. If any combination of methods (a), (b), and (c) is used, the total percentage improvement is calculated as a weighted average based on building floor area. In determining the weighted average, buildings pursuing (a) will be credited at the percentage value determined by the energy model. Buildings pursuing (b) or (c) will be credited at 12% better than ANSI/ASHRAE/IESNA Standard 90.1–2007 for new buildings and 8% better for *existing* building renovations.

AND

For new *single-family residential* buildings and new multiunit residential buildings three stories or fewer, 90% of the buildings must achieve a *Home Energy Rating System* (*HERS*) index score of at least 75.

Project teams wishing to use ASHRAE-approved addenda for the purposes of this credit may do so at their discretion. Addenda must be applied consistently across all LEED credits.

GIB Credit 3: Building Water Efficiency

1 point

Intent

To reduce effects on natural water resources and reduce burdens on community water supply and wastewater systems.

Requirements

For nonresidential buildings, mixed-use buildings, and multifamily residential buildings four stories or more:

Indoor water usage in new buildings and buildings undergoing major renovations as part of the *project* must be an average 40% less than in baseline buildings. The baseline usage is based on the requirements of the Energy Policy Act of 1992 and subsequent rulings by the Department of Energy, the requirements of the Energy Policy Act of 2005, and the fixture performance standards in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code as to fixture performance. Calculations are based on estimated occupant usage and include only the following fixtures and fixture fittings (as applicable to the project scope): water closets (toilets), urinals, lavatory faucets, showers, kitchen sink faucets, and prerinse spray valves.

The water efficiency threshold is calculated as a weighted average of water usage for the buildings constructed as part of the project based on their conditioned square footage. Projects may also follow the LEED for Multiple Buildings and On-Campus Building Application Guide alternative calculation methodology to show compliance with this credit.

Table 1. National efficiency baselines

Commercial fixtures, fittings, or appliances	Baseline water usage
Commercial toilet	1.6 gpf[1] Except blow-out fixtures, 3.5 gpf
Commercial urinal	1.0 gpf
Commercial lavatory (restroom) faucet	2.2 gpm at 60 psi, private applications only (hotel-motel guest rooms, hospital patient rooms) 0.5 gpm at 60 psi[2] all others except private applications 0.25 gallons per cycle for metering faucets
Commercial prerinse spray valve (for food service applications)	Flow rate ≤ 1.6 gpm (no pressure specified; no performance requirement)

[1] EPAct 1992 standard for toilets applies to both commercial and residential models.
[2] In addition to EPAct requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code.

Residential Fixtures, Fittings, and Appliances	Baseline water usage
Residential toilet	1.6 gpf[3]
Residential lavatory (bathroom) faucet	2.2 gpm at 60 psi
Residential kitchen faucet	
Residential showerhead	2.5 gpm at 80 psi per shower stall4

gpf = gallons per flush; psi = pounds per square inch.
Source: Adapted from information developed and summarized by the U.S. EPA Office of Water.
[3] EPAct 1992 standard for toilets applies to both commercial and residential models.
[4] Residential shower compartment (stall) in dwelling units: The total allowable flow rate from all flowing showerheads at any given time, including rain systems, waterfalls, bodysprays, bodyspas, and jets, shall be limited to the allowable showerhead flow rate as specified above (2.5-gpm) per shower compartment, where the floor area of the shower compartment is less than 2,500 sq.in. For each increment of 2,500 sq.in. of floor area thereafter or part thereof, an additional showerhead with total allowable flow rate from all flowing devices equal to or less than the allowable flow rate as specified above shall be allowed. Exception: Showers that emit recirculated non-potable water originating from within the shower compartment while operating are allowed to exceed the maximum as long as the total potable water flow does not exceed the flow rate as specified above.

The following fixtures, fittings, and appliances are outside the scope of the water use reduction calculation:

a. Commercial steam cookers.

b. Commercial dishwashers.

c. Automatic commercial ice makers.

d. Commercial (family-sized) clothes washers.

e. Residential clothes washers.

f. Standard and compact residential dishwashers.

AND

For new *single-family residential* buildings and new *multiunit residential* buildings three stories or fewer, 90% of buildings must use a combination of fixtures that would earn 5 points under LEED for Homes 2008 WE Credit 3, Indoor Water Use.

GIB Credit 4: Water-Efficient Landscaping

1 point

Intent

To limit or eliminate the use of *potable water* and other natural surface or subsurface water resources on *project* sites, for landscape irrigation.

Requirements

Reduce water consumption for outdoor landscape irrigation by 50% from a calculated midsummer baseline case. Reductions may be attributed to any combination of the following strategies, among others:

a. Plant species, plant density, and microclimate factor.

b. Irrigation efficiency.

c. Use of captured rainwater.

d. Use of recycled wastewater.

e. Use of water treated and conveyed by a public agency specifically for nonpotable uses.

f. Use of other nonpotable water sources, such as stormwater, air-conditioning condensate, and foundation drain water.

Projects with no new or *existing* landscape irrigation requirements automatically meet the credit requirements.

Groundwater seepage that is pumped away from the immediate vicinity of buildings slabs and foundations can be used for landscape irrigation and meet the intent of this credit. However, it must be demonstrated that doing so does not affect site stormwater management systems.

GIB Credit 5: Existing Building Reuse

1 point

Intent

To extend the life cycle of *existing* building stock to conserve resources, reduce waste, and reduce adverse environmental effects of new buildings related to materials manufacturing and transport.

Requirements

Reuse the existing *habitable building* stock, achieving the greater of the following two benchmarks (based on surface area):

a. 50% of one existing building structure (including structural floor and roof decking) and envelope (including exterior skin and framing but excluding window assemblies and nonstructural roofing material).

b. 20% of the total existing building stock (including structure and envelope, as defined above).

Hazardous materials that are remediated as a part of the *project* scope must be excluded from the calculations.

AND

FOR ALL PROJECTS

Do not demolish any *historic buildings*, or portions thereof, or alter any *cultural landscapes* as part of the project.

An exception is granted only if such action has been approved by an appropriate review body. For buildings listed locally, approval must be granted by the local historic preservation review board, or equivalent. For buildings listed in a state register or in the National Register of Historic Places, approval must appear in a programmatic agreement with the State Historic Preservation Office.

GIB Credit 6: Historic Resource Preservation and Adaptive Use

1 point

Intent

To encourage the preservation and adaptive use of *historic buildings* and *cultural landscapes* that represent significant embodied energy and cultural value, in a manner that preserves historic materials and character-defining features.

Requirements

To achieve this credit, at least one historic building or cultural landscape must be present on the *project* site.

Do not demolish any historic buildings, or portions thereof, or alter any cultural landscapes as part of the project.

An exception is granted only if such action has been approved by an appropriate review body. For buildings or landscapes listed locally, approval must be granted by the local historic preservation review board, or equivalent. For buildings or landscapes listed in a state register or in the National Register of Historic Places, approval must appear in a programmatic agreement with the State Historic Preservation Office.

If any historic building in the project site is to be rehabilitated, rehabilitate in accordance with local review or federal standards for rehabilitation, whichever is more restrictive, using one of the following approaches:

a. Obtain approval, in the form of a "certificate of appropriateness," from a locally appointed historic preservation commission or architectural review board for any exterior alterations or additions.

b. If federal funds are used for the project, obtain confirmation from a state historic preservation office or the National Park Service that the rehabilitation satisfies the Secretary of the Interior's Standards for Rehabilitation.

c. If a building or site is listed in or determined eligible for the National Register of Historic Places but is not subject to federal or local review board review, include on the project team a preservation professional who meets the federal qualifications for historic architect and attests to conformance to the Secretary of the Interior's Standards for the Treatment of Historic Properties.

GIB Credit 7: Minimized Site Disturbance in Design and Construction

1 point

Intent

To preserve *existing* noninvasive trees, *native plants*, and pervious surfaces.

Requirements

OPTION 1. Development Footprint on Previously Developed Land

Locate 100% of the *development footprint* on areas that are *previously developed* and for which 100% of the *construction impact zone* is previously developed.

OR

OPTION 2. Undeveloped Portion of Project Left Undisturbed

Depending on the *density* of the *project*, do not develop or disturb a portion of the land that has not been previously developed on the site, exclusive of any land preserved by codified law or a prerequisite of LEED for Neighborhood Development; or exempt areas designated as nonbuildable in land-use comprehensive plans and stipulate in *covenants, conditions, and restrictions* (CC&R) or other binding documents that the undisturbed area will be protected from development in perpetuity. Densities and minimum percentages are as follows (mixed-use projects must use the lowest applicable density or calculate a weighted average per the methodology in NPD Credit 2, Compact Development):

Table 1. Minimum undeveloped area, by project density

Residential density (DU/acre)	Nonresidential density (FAR)	Minimum area left undisturbed
< 15	< .50	20%
15 – 21	.50 – 1.0	15%
> 21	> 1.0	10%
DU = dwelling unit; FAR = floor-area ratio.		

For portions of the site that are not previously developed, identify construction impact zones that limit disturbance to a minimum of 40 feet beyond the building perimeter; 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond *street* curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater retention facilities, and playing fields) that require additional staging areas to limit compaction in the constructed zone.

AND

FOR ALL PROJECTS

Survey the site to identify the following:

a. Trees in good or excellent condition, as determined by an arborist certified by the International Society of Arboriculture (ISA).

b. Any heritage or champion trees of special importance to the community because of their age, size, type, historical association, or horticultural value, as defined by a government forester.

c. All trees larger than 6 inches in diameter at breast height (dbh, 4 feet 6 inches above ground).

d. Any *invasive* tree species present on the site, and whether those trees threaten the health of other trees to be preserved on the site, as determined by an ISA-certified arborist.

Preserve the following trees that are also identified as in good or excellent condition:

a. All heritage or champion trees and trees whose dbh exceeds 50% of the state champion dbh for the species.

b. A minimum of 75% of all noninvasive trees (including the above) larger than 18 inches dbh.

c. A minimum of 25% of all noninvasive trees (including the above) larger than 12 inches dbh if deciduous, and 6 inches dbh if coniferous.

Tree condition ratings must be based on assessment by an ISA-certified arborist using ISA-approved assessment measures.

Develop a plan, in consultation with and approved by an ISA-certified arborist, for the health of the trees, including fertilization and pruning, and for their protection during construction. The plan must include protective fencing located 1 foot for each 1-inch caliper from the trunk or at the tree drip line, whichever is larger, and specify that if trenching or other disturbance is necessary within the protected zone, this work must be done by hand. If disturbance includes a permanent excavation of 3 feet or deeper, the excavation must start from a point not closer than 15 feet from the tree's drip line. If an ISA-certified arborist has determined that any trees to be preserved are threatened by invasive vegetation, develop a plan to reduce the invasive vegetation to the maximum extent possible. Stipulate in CC&R or other binding documents that the undisturbed area of the preserved trees will be protected from development in perpetuity.

Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre; previous development on lots larger than 1 acre is defined as the *development footprint* and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

GIB Credit 8: Stormwater Management

1–4 points

Intent

To reduce pollution and hydrologic instability from stormwater, reduce flooding, promote aquifer recharge, and improve water quality by emulating natural hydrologic conditions.

Requirements

Implement a comprehensive stormwater management plan for the *project* that retains on-site, through infiltration, evapotranspiration, and/or reuse, the rainfall volumes listed in Table 1. Rainfall volume is based on the project's *development footprint*, any other areas that have been graded so as to be effectively impervious, and any pollution-generating pervious surfaces, such as landscaping, that will receive treatments of fertilizers or pesticides.

The percentile rainfall event (Table 1) is the total rainfall on a given day in the record that is greater than or equal to X percent of all rainfall events over a 20- to 40+-year period. For example, a 95th percentile event in a particular region might be 1.5 inches, which would then be the volume to retain. To determine the volume to be retained, projects may use NOAA's published national rainfall data, run an approved stormwater model, or independently gather local rain gauge data and rank rainfall events. One hundred percent of the water volume from rainfall events up to the X percentile event must not be discharged to surface waters unless the harvested and reused runoff is authorized for discharge or allowed to be discharged into sanitary treatment systems.

Table 1. Points for retaining stormwater on-site

Percentile rainfall event (determines total volume from development footprint to be retained)	Points
80th percentile	1
85th percentile	2
90th percentile	3
95th percentile	4

Projects that earn at least 2 points under this credit may earn 1 additional point by meeting one of the following site characteristics:

a. The project is located on a *previously developed site* (1 point).

b. The project is located on a site that meets the definition of *brownfield* in SLL Credit 2, Brownfields Redevelopment (1 point).

c. The project is designed to be transit ready by achieving the following (1 point):

- At least 2 points under NPD Credit 1, Walkable Streets.
- At least 2 points under NPD Credit 2, Compact Development.
- At least 2 points under NPD Credit 3, Mixed-Use Neighborhood Centers.

Select BMPs from the *Washington State Department of Ecology's Stormwater management Manual for Western Washington, Volume V, Run off Treatment* (*2005 edition*), or locally approved equivalent, whichever is more stringent. If

the BMPs are comparable in stringency, choose BMPs that are most appropriate to the project site and region. BMPs must also comply with all federal, state, and local regulations.

For stormwater reuse systems not on a combined stormwater and sewer system, the total water reused for indoor use must not exceed 90% of the average annual rainfall.

Stormwater BMPs (except cisterns) must be designed to drain down within 72 hours.

GIB Credit 9: Heat Island Reduction

1 point

Intent

To reduce heat islands to minimize effects on the microclimate and human and wildlife habitat.

Requirements

OPTION 1. Nonroof Measures

Use any combination of the following strategies for 50% of the nonroof site hardscape (including roads, sidewalks, courtyards, parking lots, parking structures, and driveways):

a. Provide shade from open structures, such as those supporting solar photovoltaic panels, canopied walkways, and vine pergolas, all with a solar reflectance index (SRI) of at least 29.

b. Use paving materials with an SRI of at least 29.

c. Install an open-grid pavement system that is at least 50% pervious.

d. Provide shade from tree canopy (within ten years of landscape installation).

OR

OPTION 2. High-Reflectance and Vegetated Roofs

Use roofing materials that have an SRI equal to or greater than the values in Table 1 for a minimum of 75% of the roof area of all new buildings within the *project*; or install a vegetated ("green") roof for at least 50% of the roof area of all new buildings within the project. Combinations of SRIcompliant and vegetated roofs can be used provided they satisfy the equation in Option 3.

Table 1. Minimum solar reflectance index value, by roof slope

Roof slope	SRI
Low (≤ 2:12)	78
Steep (> 2:12)	29

OR

OPTION 3. Mixed Nonroof and Roof Measures

Use any of the strategies listed under Options 1 and 2 that in combination meet the following criterion:

$$\frac{\text{Area of Nonroof Measures}}{0.5} + \frac{\text{Area of SRI Roof}}{0.75} + \frac{\text{Area of Vegetated Roof}}{0.5} \geq \text{Total Site Hardscape Area} + \text{Total Roof Area}$$

GIB Credit 10: Solar Orientation

1 point

Intent

To encourage energy efficiency by creating optimum conditions for the use of passive and active solar strategies.

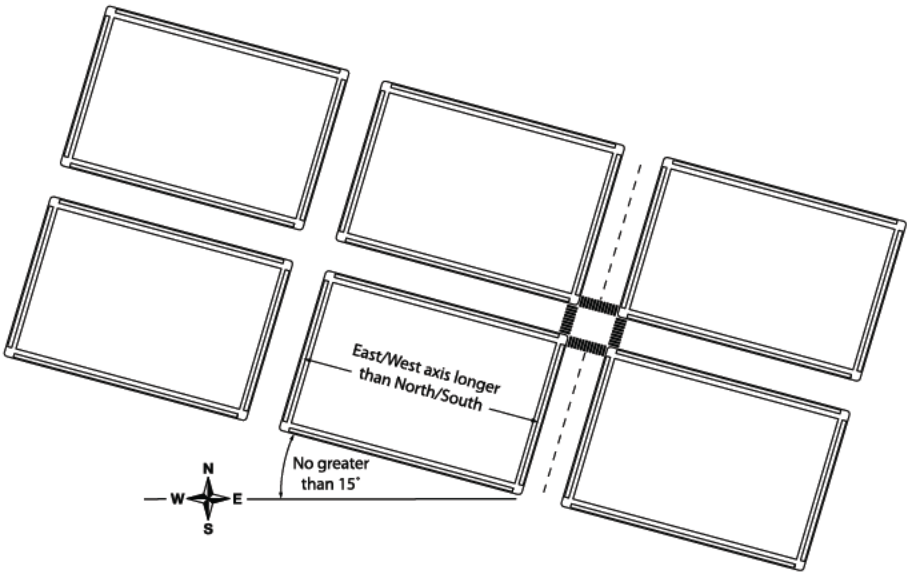
Requirements

OPTION 1. Block Orientation (For Projects Earning at Least 2 Points Under NPD Credit 2, Compact Development)

Locate the *project* on *existing blocks* or design and orient the project such that 75% or more of the blocks have one axis within plus or minus 15 degrees of geographical east-west, and the east-west lengths of those blocks are at least as long as the north-south lengths of the blocks.

Earn at least 2 points under NPD Credit 2, Compact Development.

Figure 1. Solar-oriented blocks with east-west lengths equal to or greater than north-south lengths, and east-west axis within 15 degrees of geographic east-west



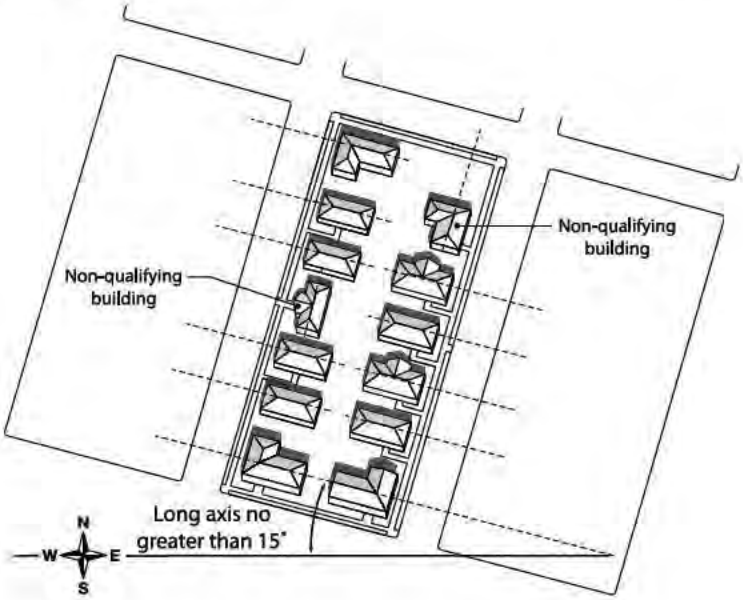
OR

OPTION 2. Building Orientation (Available For All Projects)

Design and orient 75% or more of the project's total building square footage (excluding existing buildings) such that one axis of each qualifying building is at least 1.5 times longer than the other, and the longer axis is within 15 degrees of geographical east-west. The length-to-width ratio applies only to walls enclosing conditioned spaces; walls enclosing unconditioned spaces, such as garages, arcades, or porches, cannot contribute to credit

achievement. The surface area of equator-facing vertical surfaces and slopes of roofs of buildings counting toward credit achievement must not be more than 25% shaded at the time of initial occupancy, measured at noon on the winter solstice.

Figure 2. Solar-oriented buildings with longer axis (at least 1.5 times length of other axis) within 15 degrees of geographic east-west



GIB Credit 11: On-Site Renewable Energy Sources

1–3 points

Intent

To encourage on-site renewable energy production to reduce the adverse environmental and economic effects associated with fossil fuel energy production and use.

Requirements

Incorporate on-site nonpolluting renewable energy generation, such as solar, wind, geothermal, small-scale or micro hydroelectric, and/or biomass, with production capacity of at least 5% of the *project's* annual electrical and thermal energy cost (exclusive of *existing* buildings), as points are awarded as listed in Table 1.

Table 1. Points for on-site renewable energy generation

Percentage of annual electrical and thermal energy cost	Points
5%	1
12.5%	2
20%	3

GIB Credit 12: District Heating and Cooling

2 points

Intent

To encourage the development of energy-efficient neighborhoods by employing district heating and cooling strategies that reduce energy use and adverse energy-related environmental effects.

Requirements

Incorporate a district heating and/or cooling system for space conditioning and/or water heating of new buildings (at least two buildings total) such that at least 80% of the *project's* annual heating and/or cooling consumption is provided by the district plant. *Single-family residential* buildings and *existing* buildings of any type may be excluded from the calculation.

Each system component that is addressed by ANSI/ASHRAE/IESNA Standard 90.1–2007 must have an overall efficiency performance at least 10% better than that specified by the standard's prescriptive requirements. Additionally, annual district pumping energy consumption that exceeds 2.5% of the annual thermal energy output of the heating and cooling plant (with 1 kWh of electricity equal to 3,413 Btus) must be offset by increases in the component's efficiency beyond the specified 10% improvement. Combined heat and power (CHP) district systems can achieve this credit by demonstrating equivalent performance.

GIB Credit 13: Infrastructure Energy Efficiency

1 point

Intent

To reduce adverse environmental effects from energy used for operating public infrastructure.

Requirements

Design, purchase, or work with the municipality to install all new infrastructure, including but not limited to traffic lights, *street* lights, and water and wastewater pumps, to achieve a 15% annual energy reduction below an estimated baseline energy use for this infrastructure. The baseline is calculated with the assumed use of lowest first-cost infrastructure items.

GIB Credit 14: Wastewater Management

1–2 points

Intent

To reduce pollution from wastewater and encourage water reuse.

Requirements

Design and construct the *project* to retain on-site at least 25% of the average annual wastewater generated by the project (exclusive of *existing* buildings), and reuse that wastewater to replace *potable water*. An additional point may be awarded for retaining and reusing 50%. Provide on-site treatment to a quality required by state and local regulations for the proposed reuse. The percentage of wastewater diverted and reused is calculated by determining the total wastewater flow using the design case after the GIB Prerequisite 3 calculations, and determining how much of that volume is reused on-site.

Table 1. Points for reusing wastewater

Percentage of wastewater reused	Points
25%	1
50%	2

GIB Credit 15: Recycled Content in Infrastructure

1 point

Intent

To use recycled and reclaimed materials to reduce the adverse environmental effects of extracting and processing virgin materials.

Requirements

Use materials for new infrastructure such that the sum of *postconsumer* recycled content, on-site reused materials, and one-half of the *preconsumer* recycled content constitutes at least 50% of the total mass of infrastructure materials.

Count materials in all of the following infrastructure items as applicable to the *project*:

a. Roadways, parking lots, sidewalks, unit paving, and curbs.

b. Water retention tanks and vaults.

c. Base and subbase materials for the above.

d. Stormwater, sanitary sewer, steam energy distribution, and water piping.

Recycled content is defined in accordance with ISO/IEC 14021, Environmental labels and declaration, Self-declared environmental claims (Type II environmental labeling).

GIB Credit 16: Solid Waste Management Infrastructure

1 point

Intent

To reduce the volume of waste deposited in landfills. To promote the proper disposal of hazardous wastes.

Requirements

Meet at least four of the following five requirements and publicize their availability and benefits:

a. Include as part of the *project* at least one recycling or reuse station, available to all project occupants, dedicated to the separation, collection, and storage of materials for recycling; or locate the project in a local government jurisdiction that provides recycling services. The recyclable materials must include, at a minimum, paper, corrugated cardboard, glass, plastics and metals.

b. Include as part of the project at least one drop-off point, available to all project occupants, for potentially hazardous office or household wastes; or locate the project in a local government jurisdiction that provides collection services. Examples of potentially hazardous wastes include paints, solvents, oil, and batteries. If a plan for postcollection disposal or use does not exist, establish one.

c. Include as part of the project at least one compost station or location, available to all project occupants, dedicated to the collection and composting of food and yard wastes; or locate the project in a local government jurisdiction that provides composting services. If a plan for postcollection use does not exist, establish one.

d. On every mixed-use or nonresidential *block* or at least every 800 feet, whichever is shorter, include recycling containers adjacent to other receptacles or recycling containers integrated into the design of the receptacle.

e. Recycle and/or salvage at least 50% of nonhazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and specifies whether the materials will be stored on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculations can be done by weight or volume but must be consistent throughout.

GIB Credit 17: Light Pollution Reduction

1 point

Intent

To minimize light trespass from *project* sites, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce adverse effects on wildlife environments.

Requirements

"Shared areas" of a project are spaces and facilities dedicated to common use (publicly or privately owned).

In residential areas, at least 50% of the external luminaires must have fixture-integrated lighting controls that use motion sensors to reduce light levels by at least 50% when no activity has been detected for 15 minutes.

AND

In all shared areas, install automatic controls that turn off exterior lighting when sufficient daylight is available and when the lighting is not required during nighttime hours; these lights must meet the total exterior lighting power allowance requirements in Table 3.

AND

Document which lighting zone or zones (Table 1) describe the project, and for all shared areas, follow the requirements in Table 2. If two or more different zones border the project, use the most stringent uplight requirements, and use light trespass requirements for the adjacent zone. Roadway lighting that is part of the project must meet the requirements for the appropriate zone.

For illuminance generated from a single luminaire placed at the intersection of a private vehicular driveway and public roadway accessing the site, project teams may use the centerline of the public roadway as the site boundary for a length of two times the driveway width centered at the centerline of the driveway when complying with the trespass requirements.

Compliance with the light trespass requirements may alternatively be met by using only luminaires that comply with Table 4 ratings for backlight and glare.

AND

Stipulate *covenants*, *conditions*, *and restrictions* (CC&R) or other binding documents to require continued adherence to the requirements.

Table 1. Lighting zones

Zone	Definition
LZ0	Undeveloped areas within national parks, state parks, forest land and rural areas and sites immediately adjacent to areas officially recognized as ecologically sensitive by the local zoning authority.
LZ1	Developed areas within national parks, state parks, forest land and rural areas.
LZ2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use, and residential mixed-use areas.
LZ3	All other areas not included in LZ0, LZ1, LZ2, or LZ4 (including commercial-industrial and high-density residential).
LZ4	High-activity commercial districts in major metropolitan areas (as designated by local jurisdiction, such as local zoning authority).

Table 2. Allowable light trespass and uplight, by lighting zone

Lighting zone	Maximum horizontal and vertical illuminance (fc) at site boundary	Maximum horizontal and vertical illuminance (fc) at specified distance beyond site boundary	Maximum percentage of fixture lumens emitted above 90° or higher from nadir (straight down)
LZ0	0	0 at 0 ft.	0%
LZ1	0.01	.01 at 0 ft.	0%
LZ2*	0.10	.02 at 10 ft.	1%
LZ3*	0.20	.05 at 15 ft.	2%
LZ4*	0.60	.05 at 15 ft.	5%

fc = footcandle.
* In LZ2, LZ3, and LZ4, for project boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the project boundary.

Table 3. Allowable lighting power densities, by lighting zone

	Lighting zone				
	LZ0	LZ1	LZ2	LZ3	LZ4
All exterior improved areas (except those listed below)	0.04 W/sf	0.04 W/sf	0.06 W/sf	0.10 W/sf	0.13 W/sf
Walkways	0.7 W/lf	0.7 W/lf	0.7 W/lf	0.8 W/lf	1.0 W/lf
Landscaping	No allowance	0.04 W/sf	0.05 W/sf	0.05 W/sf	0.05 W/sf
Entrance door (per linear foot of doorway)	20W	20W	20W	30W	30W
Entry canopy	0.25 W/sf	0.25 W/sf	0.25 W/sf	0.40 W/sf	0.40 W/sf
Illuminated building façade	No allowance	No allowance	2.5W/lf	3.75W/lf	5.0W/lf

sf = square feet; lf = linear feet.
Note: The total exterior lighting power density allowance for all shared exterior applications is the sum of the specified allowances for individual illuminated areas. The following lighting is exempted when its controls meet the above requirements and are independent of the controls for nonexempt lighting:

a. Specialized signal, directional, and marker lighting associated with transportation.
b. Advertising and directional signage.
c. Lighting integral to equipment or instrumentation and installed by its manufacturer.
d. Lighting for theatrical purposes, including performance, stage, film, and video.
e. Lighting for athletic playing fields.
f. Temporary lighting (installed for no more than 30 days and then removed for at least 30 days).
g. Lighting for industrial production, material handling, transportation sites, and associated storage areas.
h. Theme elements in theme or amusement parks.
i. Lighting to highlight features of public monuments and registered *historic buildings* or landmark structures.

Alternative method for meeting light trespass requirements in Table 2

A luminaire may be used if it is rated as follows according to the lighting zone of the site. If the luminaire is installed in other than the intended manner, the rating must account for the actual photometric geometry. An exception applies if at least 98% of a luminaire's emitted lumens are intercepted by man-made structures within the project. In either case, luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming in the field are not permitted.

Table 4. Allowable backlight and glare, by lighting zone

	Lighting zone				
Backlight luminaire rating	LZ0	LZ1	LZ2	LZ3	LZ4
> 2 mounting heights from property line	B0	B1	B2	B3	B4
1 to 2 mounting heights from property line and properly oriented*	B0	B1	B2	B3	B3
0.5 to 1 mounting height to property line and properly oriented*	B0	B0	B1	B2	B2
< 0.5 mounting height to property line adjacent to street and properly oriented*	B0	B0	B1	B2	B2
< 0.5 mounting height to property line and properly oriented*	B0	B0	B0	B1	B2
Glare luminaire rating	G0	G1	G2	G3	G4

* The luminaire must be mounted with backlight toward the property line.
Note: Backlight and glare ratings are defined based on specific lumen limits for IESNA TM-15-07 solid angles, Addendum A.

INNOVATION AND DESIGN PROCESS

IDP Credit 1: Innovation and Exemplary Performance

1–5 points

Intent

To encourage exemplary performance above the requirements set by the LEED for Neighborhood Development Rating System and/or innovative performance in green building, smart growth, or new urbanist categories not specifically addressed by the LEED for Neighborhood Development Rating System.

Requirements

In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach and strategies that might be used to meet the requirements.

One point is awarded for each IDP Credit 1 earned, up to a total of 5. No more than 3 exemplary performance credits will be awarded in the Innovation and Design Process category.

IDP Credit 2: LEED Accredited Professional

1 point

Intent

To support the integrated planning and design required for a LEED for Neighborhood Development *project* and to streamline the application and certification process.

Requirements

At least one principal member of the project team must be a LEED Accredited Professional.

OR

At least one principal member of the project design team must be a professional who is credentialed in smart growth as determined by the Natural Resources Defense Council in consultation with Smart Growth America.

OR

At least one principal member of the project design team must be a professional who is credentialed in new urbanism as determined by the Congress for the New Urbanism.

Note: A separate LEED Accredited Professional exam track for professionals wanting to specialize in the LEED for Neighborhood Development Rating System will be available in early 2010; this IDP credit can be achieved if a principal member of the project design team is accredited as a result of passing the exam.

REGIONAL PRIORITY CREDIT

RPC Credit 1: Regional Priority

1–4 points

Intent

To encourage strategies that address geographically specific environmental, social equity, and public health priorities.

Requirements

Earn up to four of the six Regional Priority credits. These credits have been identified by subject matter experts representing the U.S. Green Building Council (regional councils and chapters), the Congress for the New Urbanism (chapters and membership in regions without chapters), and Smart Growth America (members of Smart Growth America's State and Local Caucus or their designees) as having additional regional importance for the project's location. A database of Regional Priority credits and their geographic applicability will be available on the USGBC website, www.usgbc.org.

One point is awarded for each Regional Priority credit earned, up to a maximum of 4. Non-U.S. projects are not eligible for Regional Priority credits.

APPENDIX. DIVERSE USES

Food Retail

Supermarket
Other food store with produce

Community-Serving Retail

Clothing store or department store selling clothes
Convenience store
Farmer's market
Hardware store
Pharmacy
Other retail

Services

Bank
Gym, health club, exercise studio
Hair care
Laundry, dry cleaner
Restaurant, café, diner (excluding establishments with only drive-throughs)

Civic and Community Facilities

Adult or senior care (licensed)
Child care (licensed)
Community or recreation center
Cultural arts facility (museum, performing arts)
Educational facility (including K–12 school, university, adult education center, vocational school, community college)
Family entertainment venue (theater, sports)
Government office that serves public on-site
Place of worship
Medical clinic or office that treats patients
Police or fire station
Post office
Public library
Public park
Social services center

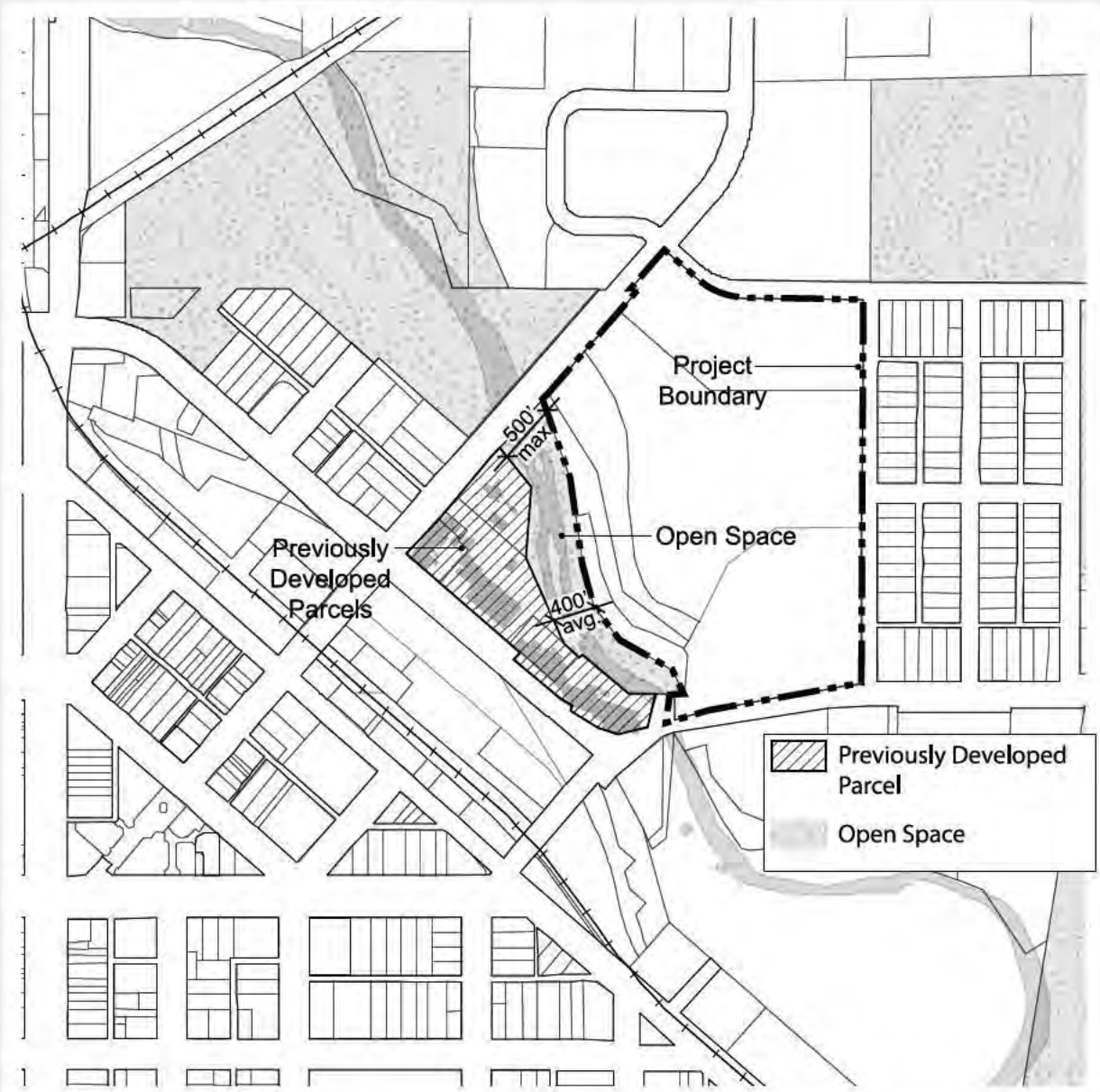
Adapted from Criterion Planners, INDEX neighborhood completeness indicator, 2005.

GLOSSARY

Key Definitions

adjacent site a site having at least 25% of its boundary bordering parcels that are each at least 75% *previously developed*. A *street* or other right-of-way does not constitute previously developed land; instead, it is the status of the property on the other side of the street or right-of-way that matters. Any fraction of the boundary that borders waterfront other than a stream is excluded from the calculation. A site is still considered adjacent if the 25% adjacent portion of its boundary is separated from previously developed parcels by undeveloped, permanently protected land averaging no more than 400 feet in width and no more than 500 feet in any one place. The undeveloped land must be permanently preserved as natural area, riparian corridor, *park*, greenway, agricultural land, or designated *cultural landscape*. Permanent pedestrian paths connecting the project through the protected parcels to the bordering site may be counted to meet the requirement of SLL Prerequisite 1, Option 2 (that the *project* be connected to the adjacent parcel by a through-street or nonmotorized right-of-way every 600 feet on average, provided the path or paths traverse the undeveloped land at no more than a 10% grade for walking by persons of all ages and physical abilities).

Adjacent project site based on minimum 25% of perimeter adjacent to previously developed parcels, including allowance for permanently protected land between project boundary and previously developed parcels



buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in *density* calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An *applicant* may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

AND

b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a *water body* or areas outside the *project boundary* that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

connectivity the number of publicly accessible *inter*sections per square mile, including any combination of streets, dedicated alleys, *transi*t rights-of-way, and nonmotorized rights-of-way. If one must both enter and exit an area through the same intersection, such an intersection and any intersections beyond that point are not counted; intersections leading only to culs-de-sac are also not counted. The cal*culation of* square mileage excludes water bodies, parks larger than 1/2 acre, *public facility ca*mpuses, airports, rail yards, slopes over 15%, and areas nonbuildable under codified law or the rating system. Street rights-of-way may not be excluded.

infill site a site that meets any of the following four conditions:

a. At least 75% of its boundary borders parcels that individually are at least 50% *previously developed,* and that in aggregate are at least 75% previously developed.

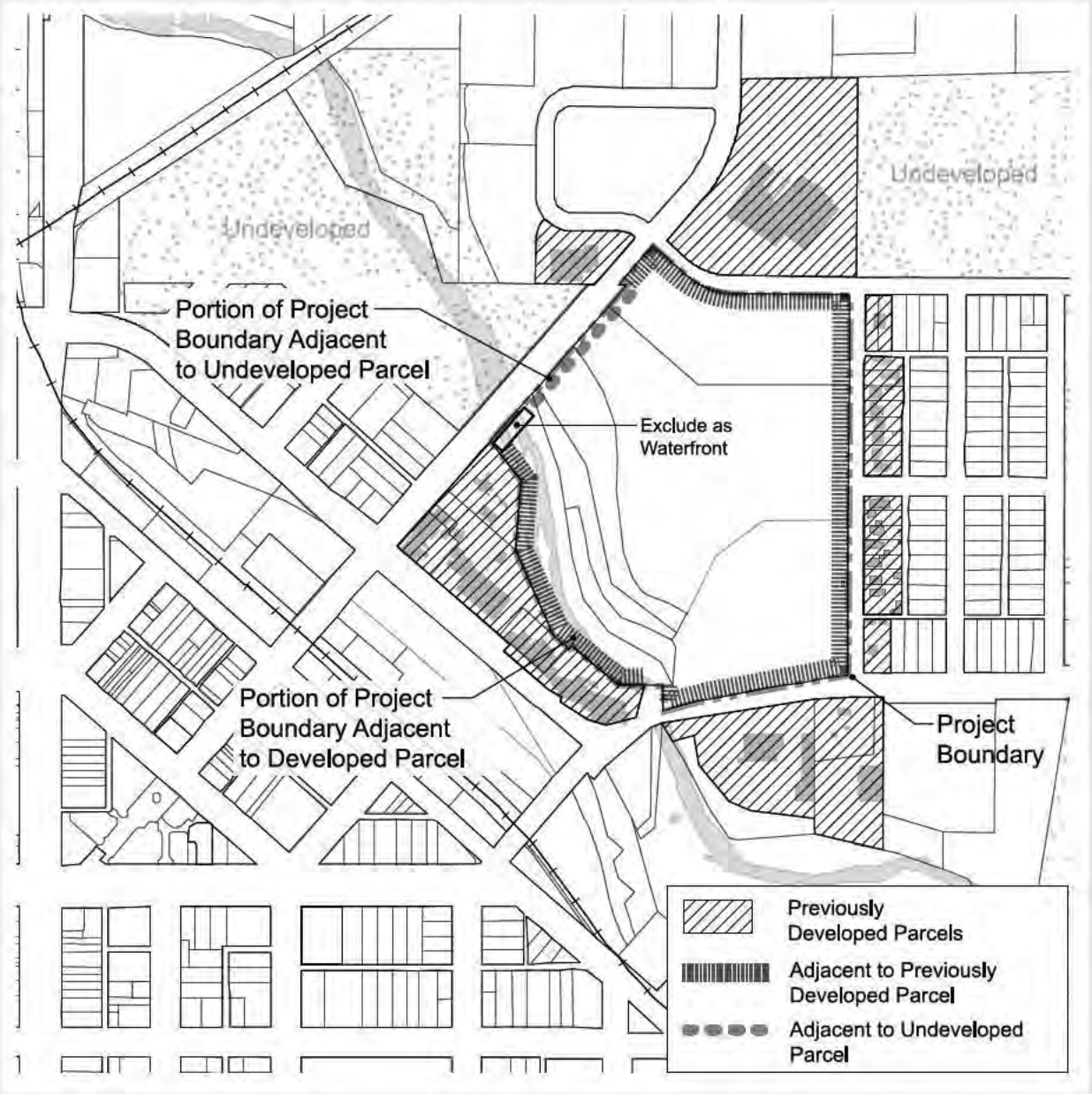
b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.

c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile distance from the *project boundary* is previously developed.

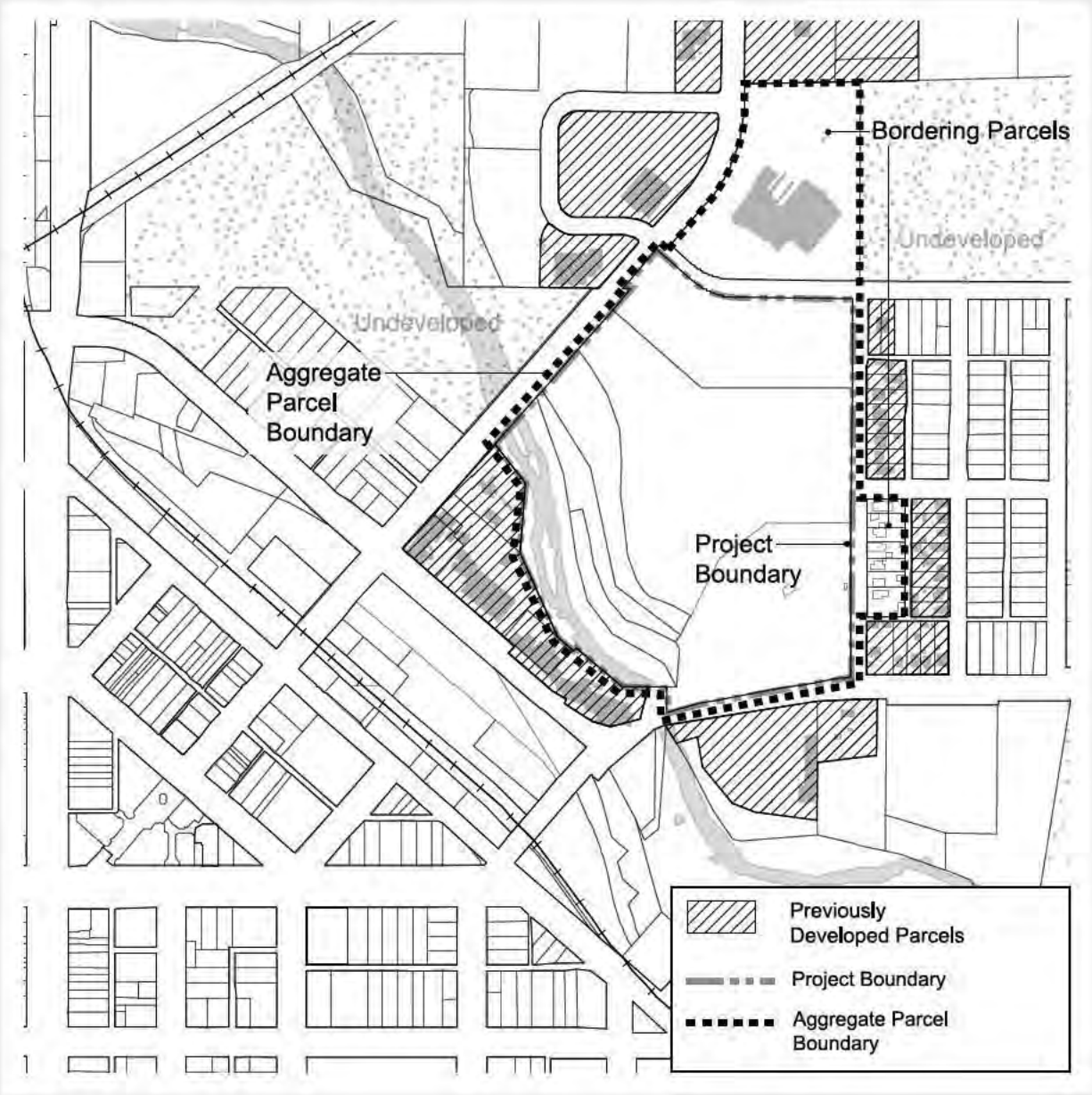
d. The lands within a 1/2 mile distance from the project boundary have a *preproject connectivity* of at least 140 intersections per square mile.

A *street* or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels



(b). Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels



(c). Infill project site based on minimum 75% of land area within 1/2 mile of project boundary being previously developed

(d). Infill project site based on minimum 140 intersections/sq.mi. within 1/2 mile of project boundary

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre; previous development on lots larger than 1 acre is defined as the *development footprint* and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

ADDITIONAL DEFINITIONS

accessory dwelling unit a subordinate *dwelling unit* that is attached to a principal building or contained in a separate structure on the same property as the principal unit.

adapted (**or introduced**) **plant** a species that reliably grows well in a given habitat with minimal attention from humans in the form of winter protection, pest protection, water irrigation, or fertilization once its root systems are established in the soil. Adapted plants are low maintenance but not invasive.

alley a publicly accessible right-of-way, generally located midblock, that can accommodate slow-speed motor vehicles, as well as bicycles and pedestrians. An alley provides access to the side or rear of abutting properties for loading, parking, and other service functions, minimizing the need for these functions to be located along streets. It may be publicly dedicated or privately owned and deeded in perpetuity for general public use.

applicant the entity that prepares the LEED-ND *project* submission and is responsible for project implementation. An applicant may be the *developer* or another cooperating entity.

area median income the median income of a county as determined by the U.S. Department of Housing and Urban Development.

bicycle network a continuous network consisting of any combination of physically designated in-*street* bicycle lanes at least 5 feet wide, off-street bicycle paths or trails at least 8 feet wide for a two-way path and at least 5 feet wide for a one-way path, and/or streets designed for a target speed of 25 miles per hour or slower.

block land bounded by the *project boundary*, transportation or utility rights-of-way that may be publicly dedicated or privately owned and deeded in perpetuity for general public use, waterfront, and/or comparable land division features.

brownfield real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or possible presence of a hazardous substance, pollutant, or contaminate.

build-out the time at which all *habitable buildings* on the *project* are complete and ready for occupancy.

bus rapid transit an enhanced bus system that operates on exclusive bus lanes or other transit rights-of-way; it is designed to combine the flexibility of buses with the efficiency of rail.

community-supported agriculture (**CSA**) a farm operation for which a community of individuals pledges support so that the farmland becomes, either legally or informally, the community's farm. The growers and consumers provide mutual support, sharing the risks and benefits of food production. Consumers receive portions of the farm's harvest throughout the growing season.

construction impact zone the *project's development footprint* plus the areas around the improvement where construction crews, equipment, and/or materials are staged and moved during construction.

covenants, conditions, and restrictions limitations that may be placed on a property and its use and are made a condition of holding title or lease.

cul-de-sac a *street* segment that terminates without intersecting another street segment.

cultural landscape an officially designated geographic area that includes both cultural and natural resources associated with a historic event, activity, or person or that exhibits other significant cultural or aesthetic values.

density the amount of building structures constructed on the *project site*, measured for residential buildings as *dwelling units* per acre of *buildable land* available for residential uses, and for non-residential buildings as the *floor-area ratio* of buildable land area available for nonresidential uses. In both cases, structured parking is excluded.

developer a public and/or private entity that controls a majority of the *project's buildable land* and is committed to making a majority of the investments required for the project implementation described in the LEED-ND submission.

development footprint the total land area of a *project* site covered by buildings, *streets*, parking areas, and other typically impermeable surfaces constructed as part of the project.

dwelling unit living quarters intended for long-term occupancy that provide facilities for cooking, sleeping, and sanitation. This does not include hotel rooms.

employment center a nonresidential area of at least 5 acres with a job density of at least 50 employees per net acre.

existing present on the date of submission of LEED-ND certification documents; similarly, an element or condition that **exists** is present on the date that LEED-ND certification documents are submitted.

floor-area ratio (**FAR**) the *density* of nonresidential land use, exclusive of parking, measured as the total nonresidential building floor area divided by the total *buildable land* area available for nonresidential structures. For example, on a site with 10,000 square feet of buildable land area, an FAR of 1.0 would be 10,000 square feet of building floor area. On the same site, an FAR of 1.5 would be 15,000 square feet of built floor area; an FAR of 2.0 would be 20,000 built square feet and an FAR of 0.5 would be 5,000 built square feet.

functional entry a building opening designed to be used by pedestrians and open during regular business hours. This does not include any door exclusively designated as an emergency exit, or a garage door not designed as a pedestrian entrance.

graywater untreated wastewater that has not come into contact with toilet waste. Graywater includes used water from bathtubs, showers, bathroom washbasins, and water from clothes washers and laundry tubs. It does not include wastewater from kitchen sinks or dishwashers, unless a graywater definition established by the authority having jurisdiction in the area has precedence.

habitable building a structure intended for living, working, or other types of occupancy. Habitable structures do not include stand-alone garages and utility structures such as pump stations.

heat island thermal gradient differences between developed and undeveloped areas.

historic building a building or structure listed or determined to be eligible as a historic structure or building or structure or as a contributing building or structure in a designated historic district, due to its historic, architectural, engineering, archeological, or cultural significance. The building or structure must be designated as historic by a local historic preservation review board or similar body, be listed in a state register of historic places, be listed in the National Register of Historic Places, or have been determined eligible for listing in the National Register.

historic district a group of buildings, structures, objects, and sites, of varying sizes, that have been designated as historically and architecturally significant and categorized as either contributing or noncontributing.

Home Energy Rating System (**HERS**) **index** a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores 100, and a net zero energy home scores 0. The lower a home's HERS Index, the more energy efficient it is.

invasive plant either an indigenous or nonindigenous species or strain that is characteristically adaptable, aggressive, has a high reproductive capacity, and tends to overrun the ecosystems it inhabits.

major renovations extensive alteration work in addition to work on the exterior shell of the building and/or primary structural components and/or the core and peripheral MEP and service systems and/or site work. Typically, the extent and nature of the work is such that the primary function space cannot be used for its intended purpose while the work is in progress and where a new certificate of occupancy is required before the work area can be reoccupied.

metropolitan (**metro**) and **micropolitan** (**micro**) **statistical area** a geographic entity defined by the U.S. Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. A metro area contains a core urban area with a population of 50,000 or more, and a micro area contains an urban core with a population between 10,000 and 50,000. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core. "Core-based statistical area" (CBSA) encompasses both metro and micro areas.

multiunit residential consisting of four or more residential units sharing a common entry.

native (**or indigenous**) **plant** a plant species that did or would have occurred on the site or within the subject county prior to the widespread land alterations that accompanied European settlement. Cultivars of native plants may be considered native plants.

park a publicly accessible area that is permanently maintained in a seminatural condition for human recreation and relaxation; it has soil, grass, water, flora, and/or recreation improvements.

paseo a publicly accessible pedestrian path, at least 4 feet wide and no more than 12 feet wide, that provides shortcuts between buildings and through the block, connecting *street* frontages to rear parking areas, midblock courtyards, *alleys*, or other streets. A paseo may be roofed for up to 50% of its length and may be privately owned or publicly dedicated.

planned diverse use a shop, service, or facility that has received a building permit and is under construction at the time of the first certificate of occupancy is issued for any building in the LEED-ND *project*.

planned occupancy the highest estimate of building occupants based on planned use(s) and industry standards for square foot requirements per employee (see USDOE EIA CBECS survey for suggested default nonresidential occupancies). The minimum planned occupancy for *multiunit residential* buildings is 1 person for a studio unit, 1.5 persons for a one-bedroom unit, and 1.25 persons per bedroom for a two- bedroom or larger unit.

plaza a publicly accessible gathering space that is integrated into the street network and allows vehicular, bicycle, and/or pedestrian travel. A plaza is generally paved, is spatially defined by building fronts paralleling at least two-thirds of its perimeter, and may be privately owned or publicly dedicated.

postconsumer generated by households or commercial, industrial, or institutional facilities in their role as end-users of a product, which can no longer be used for its intended purpose.

potable water water that meets or exceeds EPA's drinking water quality standards and is approved for human consumption by the state or local authorities having jurisdiction; it may be supplied from wells or municipal water systems.

preconsumer diverted from the waste stream during the manufacturing process. It does not include the reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

predevelopment before any development occurred on the site. Predevelopment conditions describe the natural conditions of the site prior to any human alteration, such as development of roads or buildings.

previously developed site a site that, *preproject*, consisted of at least 75% *previously developed* land.

preproject before the LEED-ND *project* was initiated, but not necessarily before any development or disturbance took place. Preproject conditions describe the state of the project site on the date the *developer* acquired rights to a majority of its *buildable land* through purchase or option to purchase.

prime soil earth with chemical, hydrographic, and topological properties that make it especially suited to the production of crops, as defined by the U.S. Natural Resources Conservation Service.

project the land, water, and construction that constitutes the project application. A project *applicant* does not have to own or control all land or water within a *project boundary*, but all the area within the project boundary must comply with prerequisites and attempted credits.

project boundary the platted property line of the *project* defining land and water within it. Projects located on publicly owned campuses that do not have internal property lines must delineate a sphere-of-influence line to be used instead. *Project site* is equivalent to the land and water inside the project boundary. The project must not contain noncontiguous parcels, but parcels can be separated by public rights-of-way. Projects may also have enclaves of nonproject properties that are not subject to the rating system, but such enclaves cannot exceed 2% of the total project area and cannot be described as certified.

school a kindergarten, elementary, or secondary institution for the academic instruction of children.

single-family residential any residential unit other than *multiunit residential*, including single, duplex, triplex, row house, townhouse and semiattached residential building types.

street a dedicated right-of-way that can accommodate one or more modes of travel, excluding *alleys* and *paseos*. A street is suitable for primary entrances and provides access to the front and/or sides of buildings and lots. A street may be privately owned as long as it is deeded in perpetuity for general public use. A street must be an addressable thoroughfare (for mail purposes) under the standards of the applicable regulating authority.

square (also **green**) a publicly accessible open area for gatherings that is wholly or partially bounded by segments of the *street* network. A square can be landscaped or landscaped and paved, is spatially defined by building fronts paralleling at least 45% of its perimeter, and may be privately owned or publicly dedicated.

unique soil earth with chemical, hydrographic, and topological properties that make it especially suited to specific crops, as defined by the U.S. Natural Resources Conservation Service.

walk distance the distance that a pedestrian must travel between origins and destinations without obstruction, in a safe and comfortable environment on a continuous network of sidewalks, all-weather-surface footpaths, crosswalks, *woonerfs*, or equivalent pedestrian facilities.

water body the surface water of a stream (first-order and higher, including intermittent streams), arroyo, river, canal, lake, estuary, bay, or ocean, excluding irrigation ditches

water and wastewater infrastructure publicly owned water and wastewater infrastructure; this excludes septic and mound wastewater treatment systems.

wetland an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas, but exclude irrigation ditches unless delineated as part of an adjacent wetland.

woonerf a *street*, also known as a home zone, shared zone, or living street, where pedestrians have priority over vehicles and the posted speed limit is no greater than 10 miles per hour. Physical elements within the roadway, such as shared surfaces, plantings, street furniture, parking, and play areas, slow traffic and invite pedestrians to use the entire right-of-way.

vehicle miles traveled (**VMT**) the number of miles driven by motorists in a specified time period, such as a day or a year, in absolute or per capita terms.