

4.7 SOILS AND AGRICULTURAL RESOURCES

This Section describes the current conditions relating to the soils and agricultural resources of the Planning area. Also included in this Section is an analysis evaluating the impacts to soils and agricultural resources associated with implementation of the Metropolitan Bakersfield General Plan Update, relative goals and policies, and specified mitigation measures to reduce the significance of Project impacts.

ENVIRONMENTAL SETTING

SOILS

Soils in the Planning area are derived from three physiographic regions: alluvial fans which comprise more than 80 percent of the area, flat basin areas of the Buena Vista Lakebed, Kern Island and associated sloughs which constitute 15 to 18 percent of the area, and rolling or hilly areas that comprise less than three percent of the area.

Based upon their physiographic position, soils of the area are placed into four groups: soils of the foothills; soils of recent alluvial fans and flood plains; soils of the older alluvial fans and terraces; and soils of the basins and alkali flats. Table 4.7-1, *Soil Classifications*, outlines the soil types present in these four geographic areas.

Soils of the foothills are found at the smaller alluvial fans located along the southern and southeastern foothills. Soil types derived from recent alluvial fans and floodplains are found west and south of the urbanized portions of Bakersfield. The Kern River, which originates in the Sierra Nevada Mountains, is the only continuously flowing stream entering the Planning area. The Kern River alluvial fan includes an area of approximately 300 square miles. It consists of a network of old channels, indicating that the river has changed its course many times and has branched out during high floods into many channels. Substantial acreage to the north of the Planning area is derived from the river channel sediments outwashed from the Kern River drainage. Non-arable soils identified as riverwash and rough, broken lands are found within the stream channel and adjacent to the historic and current alignment of the Kern River. Soil types derived from older alluvial fans and terraces are found north and east of the Planning area. The clay-rich soils of the basins and alkali flats are found to the south and east of the Planning area.

Soil Erodability

Soil erosion is defined as the detachment and movement of soil particles by the erosive forces of wind or water. Soil detached and transported away from one location is often deposited at some other place. While soil erosion can be controlled, it is almost impossible to completely stop. The majority of eroded soil (about 70 percent) is eroded from agricultural land. Soil erosion can occur naturally or can be accelerated through the activities of human beings.

**TABLE 4.7-1
SOILS CLASSIFICATIONS**

Soil Series	
Soils of the Foothills	
Kettleman Series Kettleman loam Kettleman loam, rough broken series	Caliente Series Caliente clay
Kern Series Kern sandy clay loam	
Soils of the Recent Alluvial Fans and Floodplains	
Cajon Series Cajon sandy loam Cajon fine sandy loam Cajon fine sandy loam, shallow phase	Foster Series Foster loamy sand Foster sandy loam Foster sandy loam, gravelly phase Foster fine sandy loam Foster loam Foster clay loam
Hanford Series Hanford sandy loam Hanford loam sand Hanford gravelly sand Hanford stony sand Hanford loamy sand, stony phase	Chino Series Chino loam Chino loam, wet phase Chino clay loam
Hesperia Series Hesperia sandy loam Hesperia loamy sand, shallow phase Hesperia loamy fine sand Hesperia sandy loam Hesperia fine sandy loam Hesperia fine sandy loam, shallow phase Hesperia loamy sand, gravelly phase Hesperia loamy sand, stony phase	Panoche Series Panoche loamy sand Panoche sandy loam Panoche fine sandy loam Panoche loam Panoche loam, shallow phase Panoche clay loam
San Emigdio Series San Emigdio loamy sand San Emigdio sandy loam San Emigdio fine sandy loam San Emigdio sandy clay loam San Emigdio sandy clay loam, gravelly phase San Emigdio sandy loam, stony phase	Cajon Series Cajon loam Cajon clay loam Cajon sand Cajon sand, gravelly phase Cajon sand, stony phase Cajon fine sand Cajon fine sand, dune phase
Soils of Older Alluvial Fans and Terraces	
Adelanto Series Adelanto sand Adelanto sand, deep phase Adelanto loamy sand Adelanto loamy sand, deep phase Adelanto loam Adelanto sandy clay loam Adelanto sandy clay loam, gravelly phase	Edison Series Edison sandy loam Edison loam Cuyama Series Cuyama loam Cuyama sandy loam

**TABLE 4.7-1 - CONTINUED
SOILS CLASSIFICATIONS**

Soil Series	
Soils and Older Alluvial Fans and Terraces – Continued	
Delano Series Delano loamy sand Delano sandy loam Delano clay loam Delano clay loam Delano sandy clay loam, hummocky phase	Merriam Series Merriam loam Merriam loam stony phase
Soils of the Basins and Alkali Flats	
Milham Series Milham sand Milham sandy loam Milham fine sandy loam Milham loam	Traver Series Traver loam Traver clay loam Traver fine sand Traver sandy loam Traver fine sandy loam
Bishop Series Bishop clay loam	Tulare Series Tulare loam Tulare clay loam
Merced Series Merced clay loam Merced clay loam, overwash phase Merced clay	Sacramento Series Sacramento clay
Temple Series Temple silty clay loam	Pond Series Pond Fine sandy loam Pond loam Pond clay loam
Fresno Series Fresno sandy loam Fresno loam Fresno clay loam	Miscellaneous Soils and Land Types Hesperia-Cajon Complex Riverwash Rough broken land
Source: USDA Soil Conservation Service.	

The characteristics of soils within the Planning area are illustrated in Exhibit 4.7-1, *Soil Erodability/Permeability*. Soils with high erodability are located in the northeastern portion of the Planning area. A soil survey prepared by the United States Department of Agriculture, Soil Conservation Services, revealed that four highly erodible soil types are present in the Planning area. These soils are Elkhills sandy loam, Elkhills-Torriorthents stratified eroded complex, rock outcrop-Lode variant complex 50 to 75 percent slopes and Xeric Torriorthents stratified Cuyama complex.

Wind Erosion. Wind erosion is a common phenomenon occurring mostly in flat, bare areas; dry, sandy soils; or anywhere the soil is loose, dry, and finely granulated. Wind erosion damages land and natural vegetation by removing soil from one place and depositing it in another. It causes soil loss, dryness and deterioration of soil structure, nutrient and productivity losses, air pollution, and sediment transport and deposition. The quantity of soil moved is dependent upon the particle size, the cloddiness of particles, and wind velocity itself.

Water Erosion. Water erosion is one of the most significant agricultural problems in the Planning area. This erosion occurs due to the energy of water as it falls toward the earth and flows over the surface. Almost any area where crops are grown and food is produced has to deal with this problem. The main variables affecting water erosion are precipitation and surface runoff. Raindrops, the most common form of precipitation, can be very destructive as they splash grains of soil into the air and wash out seeds. Surface runoff then carries away the detached soil, may detach additional soils, and ultimately deposits sediment elsewhere.

Soil Permeability

As illustrated in Exhibit 4.7-1, the majority of soils in the Planning area have been shown to exhibit fast and moderate rates of soil permeability. However, areas containing soils with slow rates of permeability have been identified in the northeast and northwest portions of the Planning area, as well as throughout the southern portion of the Planning area. Soils with poor permeability include a variety of clay loams and soils derived from granitic rock. The Delano variant clay loam and the Garces silt loam have been described as exhibiting “slow” and “very slow” rates of permeability, respectively.

Salinity

There are two types of salinity: dryland and irrigation. Dryland salinity is classified as either primary or secondary. Primary salting occurs naturally while secondary salting is induced by human activities such as agriculture. Secondary salinity is an insidious problem that may be undetected for years until saline discharge is discovered at the soil surface.¹ The extent and severity of salinity in an area depends on land use, vegetation, geology, soils, climate, hydrology and salt sources. Each of these factors affects the rate of recharge (the percolation of excess water into the groundwater), which influences the rate of discharge in an area.

¹ The term discharge refers to water leaving the groundwater system as flow to streams and rivers or as seepage and springs at the soil surface.

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Soil Erodability/Permeability
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Salinity through irrigation resembles dryland salinity, except that groundwater accession is induced through irrigation water rather than rainfall alone. Problems arise when the volume of irrigation water exceeds evaporation and transpiration by plants. The excess water percolates into groundwater (termed recharge) causing water-tables to rise. Groundwater within two meters of the soil surface can seep further up the soil profile into the plant root zone. If groundwater accession continues, water will discharge at the soil surface or into surrounding streams, creeks and rivers, often carrying dissolved salts that were previously stored in the soil and rock. Evaporation leaves these salts to accumulate on soil surfaces.

Groundwater discharging in this fashion increases the salt content of surrounding water sources. This exacerbates the problem in some areas, as the water used for irrigation becomes salt-laden. Continually irrigated land will allow ongoing agricultural production as salt is leached out of the root zone, but only at the expense of adjacent infrequently irrigated land, where salt will accumulate in the topsoil.

AGRICULTURAL RESOURCES

Agriculture in the Bakersfield area has been extensive since the introduction of livestock in the 1860's. Livestock raising on large land grants and some production of grain under dry-farming methods were the chief agricultural pursuits until about 1880. Rapid agricultural development occurred after 1880 due to the development of irrigation (harnessing the uncontrolled flow of water from the Kern River), inexpensive land, favorable crop yields, the advent of two railroads, the development of the petroleum industry and access to markets. A review of the California Department of Food and Agriculture Annual Crop Reports indicates a history of high agricultural production for many crops over the years and continuing to the present time. Factors which have in the past influenced high agricultural productivity and continue today include climate, availability of water, dependable market demand and good soils.

Agricultural land uses within the Planning area boundaries are controlled by the General Plan and City and County zoning ordinances. These documents identify the type of land uses permitted in agricultural zones, and call out the development parameters within each agricultural land use category. The General Plan Update Land Use Map designates a total of approximately 108,667 acres (or approximately 42 percent of Planning area) within the following three agricultural categories:

- Intensive Agriculture (R-IA): Minimum 20-acre parcel size; and
- Extensive Agriculture (R-EA): Minimum 20 acre parcel size (lands under Williamson Act: minimum 80 acre parcel).

It is difficult to accurately estimate the area under cultivation in the Planning area at any one time. Market fluctuations result in agricultural land being brought in or taken out of cultivation from season to season, there is no governmental agency which is specifically charged with keeping track of cultivated acreage within the Planning area. The current General Plan designations for the Plan area indicate approximately 200,000 acres as Open Space, which is a category that includes agriculture, parks, and oil production uses. However, existing land uses do not necessarily conform to General Plan designations, and the precise amount of land devoted to agricultural production is not certain. As illustrated on Exhibit 3-3, *Metropolitan Bakersfield General Plan Update*, agricultural lands/open space within

the Planning area represent the majority (approximately 58 percent) of the total Planning area. This agriculture/open space is primarily devoted to agricultural uses consisting of both row and tree crops, and to large tracts of land devoted to oil explorations.

Agriculture provides the backbone of Kern County's economy, as well as that of the Planning area's. Agriculture is responsible for employing a large segment of the labor force and injecting millions of dollars into the local economy. According to the California Department of Food & Agriculture's Agriculture Statistical Review, agricultural production in 1999 had a total value of \$2.1 billion, positioning Kern County into fourth place among California counties.² Kern County produces over 250 different crops: over 30 types of fruits and nuts, over 40 types of vegetables, over 20 field crops, as well as lumber, nursery stock, livestock, poultry and dairy products. The County's leading crops included grapes, cotton and processed cottonseed, all citrus, all milk, and almonds and by-products. Table 4.7-2, *1999 Top Ten Leading Commodities in Kern County*, outlines Kern County's 1999 top ten crops, their total value and their ranking in 1998:

**TABLE 4.7-2
1999 TOP TEN LEADING COMMODITIES IN KERN COUNTY**

Commodities	Value of Production (\$1,000's)	1998 Rank
Grapes	491,269	1
Cotton and Processed Cottonseed	233,485	5
Citrus, All	173,887	2
Milk, All	163,985	4
Almonds and By-Products	143,303	3
Carrots, All	107,711	6
Nursery Crops	99,129	8
Cattle and Calves	85,162	10
Hay, Alfalfa	82,396	9
Potatoes, All	75,295	11

Source: California Department of Food & Agriculture Resource Directory 2000, County Statistical Data.

Kern County alone outranks the agricultural production of 20 states. However, there are secondary benefits of a strong agricultural community which outweigh the direct value of agricultural production. A single dollar generated by agricultural production results in three to four dollars in the County's gross domestic product. Additionally, approximately ten percent of the jobs throughout the County are directly linked to agriculture.

Agricultural Soils

The principal factors in determining the agricultural suitability of a particular area are the physical properties of the soils. Other factors which also contribute in determining the agricultural suitability of an area include climatic conditions, water availability (and its cost), drainage, taxes and land development pressures.

² It should be noted that County of Kern totals were provided as opposed to Planning area totals since this data is not readily available.

There are a variety of methods currently used to rate agricultural soils. In California (as in the Planning area), the two most commonly used systems are the Storie Index Rating System and the Soil Conservation Service's Land Use Compatibility Classification. These systems are widely used because the California Land Conservation Act of 1965, also known as the Williamson Act (refer to discussion below), uses these ratings in its definition of "prime agricultural land".

The Storie Index is a rating system which gives a numerical value indicating the relative suitability of a soil group for general agricultural practices. Four factors are evaluated separately on a percentage basis: the relative quality of the soil profile; the soil surface texture, the slope, and any other condition which may affect the soil. For a "prime" rating, a given soil unit must receive a Storie Index score of between 80 and 100.

The Soil Conservation Service's Land Use Compatibility Classifications indicate the suitability of soils for agriculture. The soils are grouped primarily by their capability for sustained production of cultivated crops and pasture plants. They are grouped by levels to indicate the degree and kind of major soil limitations. Class I includes soils having few limitations for cultivation, while Class II includes soils having some limitations for cultivation and requiring certain soil management and conservation practices. To receive a "prime" rating, a given soil unit must meet the criteria for either Class I or Class II.

The extent of prime soils in the Planning area is substantial, covering a significant portion of the area's 408 square miles. Exhibit 4.7-2, *Prime Agricultural Lands*, illustrates the distribution of prime and non-prime soils in the Planning area, as well as the extent of prime soils which have been lost to urbanization.

Williamson Act. Lands under the California Land Conservation Act of 1965 (LCA) contract, commonly referred to as the Williamson Act, face land use restrictions aimed at avoiding the conversion of agricultural lands to other uses beyond those identified by the City and County.

The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value. Local governments receive an annual subvention of forgone property tax revenues from the state via the Open Space Subvention Act of 1971.

The criteria used for determining "prime agricultural lands" within the Planning area is as defined by the Williamson Act and is as follows:

- All land that qualifies for rating as Class I or Class II in the Soil Conservation Service Land Use Compatibility Classifications;
- Land which qualifies for rating 80 through 100 in the Storie Index Rating;

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Prime Agricultural Lands
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- Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture;
- Land planted with fruit- or nut-bearing trees, vines, bushes or crops which have a non-bearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre.
- Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.

Countywide, in 1998 a total of 903,099 acres of prime farmland and 802,632 acres of nonprime farmland were enrolled in Williamson Act Contracts. Exhibit 4.7-3, *Agricultural Lands Under Land Conservation Act Contract*, illustrates the locations of both prime and non-prime agricultural lands under LCA contract. As is evidenced in Exhibit 4.7-3, these lands are concentrated in the rural portions of the Planning area: the northwest, southwest, south, and southeast.

Farmland Security Zones. A Farmland Security Zone (FSZ) is an area created within an agricultural preserve³ by a board of supervisors upon request by a landowner or group of landowners. A FSZ involves a contract between a private landowner and a county that enforceably restricts land to agricultural or open space uses. The minimum initial term is 20 years. FSZ's must be at least three miles from a City's Sphere of Influence.

FSZ benefit landowners by offering greater property tax reduction. Land restricted by an FSZ contract is valued for property assessment purposes at 65% of its Williamson Act valuation (or 65% of its Proposition 13 valuation, whichever is lower). To be eligible for a farmland security zone contract, the subject land must be designated on the Important Farmland Series maps as predominantly one of the following:

- Prime Farmland;
- Farmland of Statewide Importance;
- Unique Farmland; and
- Farmland of Local Importance.

There are presently 85,000 acres enrolled in FSZ contracts.

³ An agricultural preserve defines the boundary of an area within which a city or county will enter into Williamson Act contracts with landowners. The boundary is designated by resolution of the board or city council having jurisdiction. Agricultural preserves must generally be at least 100 acres in size.

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Agricultural Lands Under Land Conservation Act Contract
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Agricultural Conservation Easements. The long-term private stewardship of agricultural lands is encouraged through agricultural conservation easements. Grant funding is provided through the California Farmland Conservancy Program (CFCP) for projects which use and support agricultural conservation easements for protection of agricultural lands. An agricultural conservation easement is a voluntary, legally recorded deed restriction that is placed on a specific property used for agricultural production. The goal of an agricultural conservation easement is to maintain agricultural land in active production by removing the development pressures from the land. Such an easement prohibits practices which would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect, even when the land changes ownership.

Resource Conservation Districts (RCD). RCDs are special districts of the state of California, set up under California law to be locally governed by agencies with their own locally appointed or elected, independent boards of directors. There are currently 103 RCDs in California, including one in the Kern Valley. The RCDs implement projects on public and private lands and educate landowners and the public about resource conservation.

STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA

In accordance with CEQA, the effects of a Plan are evaluated to determine if they will result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria, or standards, used to determine the significance of impacts may vary depending on the nature of the project.

Agricultural Resources and Soils impacts resulting from implementation of the General Plan Update could be considered significant if they cause any of the following results:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; and/or

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water (refer to Section 10, *Effects Found Not To Be Significant*).

Based on these standards, the effects of the proposed project have been categorized as either a “less than significant impact” or a “potentially significant impact.” If a potentially significant impact cannot be reduced to a less than significant level through the application of goals, policies, standards or mitigation, it is categorized as a significant and unavoidable impact.

IMPACTS AND MITIGATION MEASURES

□ PLAN IMPLEMENTATION MAY RESULT IN THE CONVERSION OF PRIME FARMLAND TO NON-AGRICULTURAL USE.

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: Historically, land use patterns of low density growth have contributed to the conversion of prime farmlands in Bakersfield. Table 4.7-3, Summary of *Prime Farmland Conversion*, outlines the extent of Kern County⁴ prime farmland converted to another land use for the 1996 to 1998 mapping cycle⁵. As is evidenced in Table 4.7-3, a total of 2,523 acres of prime farmland were converted to non-agricultural uses (urban/built-up land and other land) between 1996 and 1998. This resulted in a net total of 534,509 acres of remaining prime farmland in 1998.

Overall, a total of 4,153 acres of agricultural lands, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance and Grazing Land, were committed to nonagricultural use between 1996 and 1998.⁶

As is evidenced by the data outlined above, a significant amount of Kern County “prime farmland” has been taken out of cultivation in the recent past. Further, according to Table 6, *County Conversion Ranking*, of the California Farmland Conversion Report 1996-1998, Kern County ranked third in top ten urbanizing counties (Riverside and Orange Counties ranked first and second, respectively). This trend is anticipated to continue as a result of the subdivision of lands associated with the Planning area’s forecasted growth. Project implementation has the potential to result in the removal of a substantial amount of prime agricultural land from production. This is deemed an almost “unavoidable” effect of future development since a vast amount of land in the Metropolitan Bakersfield area is defined as “prime agricultural land”. In effect, given the extent of prime agricultural land in the Planning area, the impact of the conversion of prime farmland to non-agricultural use is directly related to the designation of land uses (i.e., the General Plan’s Land Use Map). A comparative analysis of Exhibit 4.7-2, *Prime Agricultural Soils*, and the Land Use Map indicates that the conversion of prime farmland to other land uses would

⁴ It should be noted that County of Kern totals were provided as opposed to Planning area totals since this data is not readily available.

⁵ The Farmland Conversion Report for the 1998 to 2000 mapping cycle is not yet available for Kern County.

⁶ Table A-45 of the California Farmland Conversion Report 1996-1998, Kern County-Important Farmland Area (1996-1998 Land Use Conversion).

occur. More specifically, a significant amount of land defined as prime agricultural land could potentially be converted to other proposed land uses. Land subdivision, the construction of buildings, and the installation of infrastructure would permanently commit these lands to urbanization. This conversion of prime agricultural land to urban uses would be considered a significant and unavoidable impact since the proposed conversion would represent a substantial irretrievable commitment of a limited agricultural resource.

**TABLE 4.7-3
SUMMARY OF PRIME FARMLAND CONVERSION
(Kern County)**

Land Use Category	Acres ⁵ Converted	Acres Gained	Net Acres Changed
Total Prime Farmland in 1998			537,032
Farmland of Statewide Importance	(28)	36	8
Unique Farmland ¹	(61)	203	142
<i>Farmland of Local Importance</i>	0	0	0
Important Farmland Subtotal	(89)	239	150
Grazing Land ²	(1,265)	1,546	281
<i>Agricultural Land Subtotal</i>	<i>(1,354)</i>	<i>1,785</i>	<i>431</i>
Urban and Built-Up Land ³	(1,491)	56	(1,435)
Other Land ⁴	(2,705)	1,186	(1,519)
Water Area	0	0	0
<i>Total Converted to Another Use</i>	<i>(5,550)</i>	<i>3,027</i>	<i>(2,523)</i>
Net Prime Farmland in 1998			534,509
Source: Table A-45 of the California Farmland Conversion Report 1996-1998, <i>Kern County-Important Farmland Area</i> (1996-1998 Land Use Conversion).			
NOTES:			
¹ Conversions between Prime Farmland and Unique Farmland primarily due to soil line corrections along the Kern River Flood Channel.			
² The Grazing Land mapping category includes land on which the existing vegetation is suited to the grazing of livestock. Conversion of Prime Farmland to Grazing Land was primarily due to land left idle for three update cycles on the Emigrant Hill and Lost Hills NW quadrangles.			
³ The Urban/Built-Up mapping category includes land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10.0-acre parcel. Conversion of Urban/Built-Up Land to Prime Farmland was primarily due to urban line corrections on the Stevens Quadrangle.			
⁴ The Other Land mapping category includes land which does not meet the criteria of any other category. Conversion of Other Land to Prime Farmland primarily due to newly irrigated agricultural areas in northwestern Kern County.			
⁵ Acres converted in Farmland Conversion Report does not mean agricultural use stops. Agricultural use may continue even in an urban area.			

In addition, the conversion of prime agricultural soils in the Planning area could result in the conversion of marginal farmland to active farming in order to compensate for lost prime farmlands. The benefits to be obtained from the development of prime farmland may not be worth the risks that must be assumed. The destruction of prime farmland is almost entirely irrevocable, and the production of crops on non-prime farmland generally requires much more fertilizer, energy, and irrigation inputs compared with production on prime farmlands.

Beyond land development pressures, water availability (and its cost) is also a factor which contributes to determining the agricultural suitability of an area. A significant portion of the land located in the northeastern portion of the Planning area experiences deficient groundwater conditions and inadequate surface water transmission facilities. Due to these conditions, the land in the northeastern portion of the Planning area is not suitable for intensive agricultural production.

The General Plan Update has identified goals and policies which are intended to provide for the planned management, conservation, and wise utilization of agricultural land in the Planning area. While these goals and policies are successful in reducing the significance of the impact of converting prime farmland to non-agricultural use, the degree of impact continues to be considered significant.

Mitigation has been outlined below with respect to buffers and right-to-farm ordinances. Implementation of the General Plan Update's goals and policies, as well as the specified mitigation measures, are anticipated to decrease the rate of the conversion of agricultural land to non-agricultural uses and encourage the conservation of agricultural resources. However, based on the Planning area's trend toward farmland conversion and the General Plan Update's forecasted growth, this impact would not be entirely eliminated. Therefore, this impact would be considered significant and unavoidable.

Goals and Policies in the General Plan Update: The Land Use and Conservation Elements contain the following goals and policies:

- | | |
|------------|--|
| LU-P-77 | Allow for the continuance of agricultural uses in areas designated for future urban growth. |
| LU-P-80 | Assure that General Plan Amendment proposals for the conversion of designated agricultural lands to urban development occur in an orderly and logical manner giving full consideration to the effect on existing agricultural areas. |
| CON/SA-G-1 | Provide for the planned management, conservation, and wise utilization of agricultural land in the planning area. |
| CON/SA-G-2 | Promote soil conservation and minimize development of prime agricultural land as defined by the following criteria: <ul style="list-style-type: none">• Capability Class I and/or II irrigated soils,• 80-100 Storie Index rating,• Gross crop return of \$200 or more per acre per year, and• Annual carrying capacity of 1 animal unit per acre per year. |

- CON/SA-G-3 Establish urban development patterns and practices that promote soil conservation and that protect areas of agricultural production of food and fiber crops, and nursery products.
- CON/SA-P-1 Determine the extent and location of all prime agricultural land within the study area.
- CON/SA-P-2 Review projects that propose subdividing or urbanizing prime agricultural land to ascertain how continued commercial agricultural production in the project vicinity will be affected.
- CON/SA-P-3 Protect areas designated for agricultural use, which include Class I and II agricultural soils having surface delivery water systems, from the encroachment of residential and commercial subdivision development activities.
- CON/SA-P-4 Monitor the amount of prime agricultural land taken out of production for urban uses or added within the plan area.
- CON/SA-P-5 Encourage coordination between the Soil Conservation Service and local planning agencies.
- CON/SA-P-9 Protect prime agricultural lands against unplanned urban development by adopting agricultural zoning, agricultural land use designations, and by encouraging use of the Williamson Act and the Farmland Security Zone Program and policies that provide tax and economic incentives to ensure the long-term retention of agricultural lands.
- CON/SA-P-10 Encourage landowners to retain their lands in agricultural production.
- CONS/SA-P-14 When considering proposal to convert designated agricultural lands to non-agricultural use, the decision making body of the City and County shall evaluate the following factors to determine the appropriateness of the proposal:
- Soil quality
 - Availability of irrigation water
 - Proximity to non-agricultural uses
 - Proximity to intensive parcelization
 - Effect on properties subject to “Williamson Act” land use contracts.
 - Ability to be provided with urban services (sewer, water, roads, etc.)
 - Ability to effect the application of agricultural chemicals on nearby agricultural properties
 - Ability to create a precedent-setting situation that leads to the premature conversion of prime agricultural lands
 - Demonstrated project need
 - Necessity of buffers such as lower densities, setbacks, etc.

Mitigation Measures:

4.7-1 Buffers such as setbacks, berms, greenbelts, and open space areas shall be established to separate farmland from incompatible urban uses.

4.7-2 Right-to-farm ordinances shall be implemented.

Level of Significance After Policies/Mitigation: Significant and Unavoidable Impact.

- **IMPLEMENTATION OF THE GENERAL PLAN UPDATE MAY CONFLICT WITH EXISTING ZONING FOR AGRICULTURAL USE OR A WILLIAMSON ACT CONTRACT.**

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: As illustrated in Exhibit 4.7-3, *Agricultural Lands Under Land Conservation Act Contract*, the majority of the lands under LCA contracts are situated in the rural areas in the northwest, southwest, south, and southeast. As a result, it is anticipated that the majority of the land under LCA contracts would not be impacted by the growth forecasted in the General Plan Update. However, by overlaying Exhibit 4.7-3 with the proposed Land Use Map, it is evident that some of the lands under LCA contracts would be lost to future development. Examples of LCA lands designated for uses other than agriculture include Rosedale Ranch situated in the northwest portion of the Planning area, and McAllister Ranch situated in the southwest portion. Removal of LCA contract protection lifts the restrictions specifically aimed at avoiding the conversion of agricultural lands to other uses. With this barrier to development removed, the pressure to develop placed upon neighboring LCA contract lands is further increased. Additionally, landowners would no longer have the benefit of reduced property tax assessments. This lost benefit would create an incentive for the landowner to utilize their property for a more intensive land use such as urban development.

The Conservation Element (Soils and Agriculture) has identified an implementation program with respect to LCA Contracts. More specifically, this program requires that use of Land Conservation Act contracts be encouraged in areas designated for agricultural land uses. Additionally, goals and policies have been established in the General Plan Update which encourage the use of LCA contracts. Although goals, policies and implementation programs are successful in reducing the significance of this impact, this impact is anticipated to remain significant even after compliance with the goals/policies. Therefore, the conflict with LCA contract lands resulting from Project implementation is considered a significant and unavoidable impact.

Goals and Policies in the General Plan Update: Refer to the goals and policies outlined in the *Conversion of Prime Farmland* section above.

Mitigation Measures: No feasible mitigation measures have been identified.

Level of Significance After Policies/Mitigation: Significant and Unavoidable Impact.

- **DEVELOPMENT IN ACCORDANCE WITH THE GENERAL PLAN UPDATE MAY RESULT IN CHANGES TO THE EXISTING ENVIRONMENT WHICH, DUE TO THE LOCATION OR NATURE, COULD RESULT IN AFFECTS AND/OR CONVERSION OF FARMLAND.**

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: As discussed above, the Planning area's forecasted growth is anticipated to result in the direct removal of a substantial amount of prime agricultural land from production. This direct conversion of farmland to non-agricultural uses is anticipated to result in secondary impacts upon agricultural operations located at the proposed urban-agricultural land use interface. Consequently, the secondary impacts are contributing factors in creating pressures for agricultural lands to convert to urban uses.

It is at the urban-agricultural land use interface locations where land use conflicts would have the potential to arise. The degree of conflict is relevant to the sensitivity of the proposed land use: the development of residential uses has the potential to result in greater land use compatibility issues than would the development of non-residential uses (i.e., industrial or commercial).

Existing farming operations may be adversely impacted by residential land uses. The development of new residential uses introduces people, animals, and vehicles into areas generally void of their presence. Consequently, adverse effects upon farming operations are introduced including citizen complaints, pests, disease and weeds, increased flooding and siltation, as well as increased traffic, vandalism/trespassing, and theft. More specifically, farming operations may experience an increase in complaints regarding the adverse effects associated with noise and air quality from on-going agricultural operations. Residential landscaping and ornamental trees may harbor pests and diseases and function as vectors for pest and disease outbreaks potentially resulting in widespread crop damage. Farmlands located adjacent to heavily traveled roadways may experience trespassing, crop pilferage and damage to irrigation equipment. Additionally, high-value crops and farm equipment may become prime targets for theft by the encroaching urban population.

Conversely, the new residential land uses may experience adverse effects associated with noise and air quality from ongoing agricultural operations. More specifically, the new residents would experience noise from spraying, cultivating and harvesting equipment and the diesel engines associated with irrigation and typical tractor use. Dust generated by harvesting and other farming operations may pose a health hazard to adjacent residents since dust particles can cause various respiratory ailments. Also, the application of pesticides may extend beyond the target (i.e, farmland) contaminating adjacent residential areas.

Unlike the residential uses, industrial and commercial uses have the ability to operate in proximity to agricultural operations. Non-residential uses are not likely to experience adverse effects experienced by residential uses (i.e., noise and air quality from ongoing agricultural operations). However, existing farming operations may experience adverse affects from industrial or commercial uses similar to those created by residential uses including increased traffic, vandalism/trespassing, and theft due to the introduction of people and vehicles into the area.

Because much agricultural land within the Planning area is found at the urban fringe, there exists a potential for conflicts between urban and agricultural uses as development at the urban fringe occurs. These potential conflicts may be especially troubling in the Planning area because the General Plan would not require new urban uses to be contiguous with other urban uses. The possibility clearly exists that small islands of urban development may arise, surrounded essentially by a sea of agricultural uses. Although the economic incentives for converting agricultural land will increase as the availability of necessary urban infrastructure increases, temporary and potentially long-term hazards and nuisances may result from urban areas being interspersed with agricultural uses.

Overall, the greater the activity occurring at the urban fringe, the greater the pressures for the urbanization of farmlands. Thus, forecasted growth may result in changes to the environment that would result in the conversion of farmland to a non-agricultural use. This potential impact would be most significant at locations where a considerable amount of new development is proposed at the urban fringe. This potential impact would be considered significant unless mitigated. The General Plan Update has identified goals and policies for the avoidance of conflicts between agricultural and non-agricultural uses. The goals and policies, along with the specified mitigation, would reduce this impact to a less than significant level.

Goals and Policies in the General Plan Update: The Land Use and Conservation Elements contain the following goals and policies:

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| LU-P-80 | Assure that General Plan Amendment proposals for the conversion of designated agricultural lands to urban development occur in an orderly and logical manner giving full consideration to the effect on existing agricultural areas. |
| CON/SA-G-3 | Establish urban development patterns and practices that promote soil conservation and that protect areas of agricultural production of food and fiber crops, and nursery products. |
| CON/SA-P-1 | Determine the extent and location of all prime agricultural land within the study area. |
| CON/SA-P-2 | Review projects that propose subdividing or urbanizing prime agricultural land to ascertain how continued commercial agricultural production in the project vicinity will be affected. |
| CON/SA-P-3 | Protect areas designated for agricultural use, which include Class I and II agricultural soils having surface delivery water systems, from the encroachment of residential and commercial subdivision development activities. |
| CON/SA-P-4 | Monitor the amount of prime agricultural land taken out of production for urban uses or added within the plan area. |
| CON/SA-P-9 | Protect prime agricultural lands against unplanned urban development by adopting agricultural zoning, agricultural land use designations, and by encouraging use of the Williamson Act and the Farmland Security Zone Program and policies that provide tax |

and economic incentives to ensure the long-term retention of agricultural lands.

CON/SA-P-10 Encourage landowners to retain their lands in agricultural production.

Mitigation Measures:

- 4.7-3 Future development which involves in-fill of the urban area as opposed to development on the urban fringes shall be encouraged.
- 4.7-4 Sensitive subdivision design of lands near or adjacent to agricultural areas shall be conducted with consideration given to the impacts of non-agricultural uses on agricultural uses.
- 4.7-5 To reduce the potential for conflicts between agricultural and non-agricultural uses. Sensitive subdivision design of lands near or adjacent to agricultural areas shall be conducted including provisions for buffer zones (i.e., a road, canal, wall, easement, or setback).

Level of Significance After Policies/Mitigation: Less than Significant Impact.

IMPLEMENTATION OF THE GENERAL PLAN UPDATE MAY RESULT IN SUBSTANTIAL SOIL EROSION OR THE LOSS OF TOPSOIL.

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: As previously noted, four highly erodible soil types are present in the Planning area. Soil erosion is a continuing long term problem which can occur naturally or can be accelerated through the activities of human beings, such as with agricultural activities. One such example of an agricultural activity which accelerates erosion is soil tillage. This process, which involves cutting loose, granulating, and turning over the soil, greatly reduces the soil's overall resistance to detachment, through destruction of the soil structure and organic matter (particularly live and dead roots which bind the soil particles together. When fertile soil is removed, along with it go the nutrients and organic matter which are significant to the growth of plants and crops. Without this soil, plants and crops will not survive. Thus, it's easy to see that a reduction in this protective cover will only expose more soil to the detrimental effects of wind and water erosion.

The long-term effects of wind and water erosion which occur in the vacant and agriculturally active portions of the Planning area would be inversely related to the area's forecasted growth. More specifically, if the vacant and agriculturally active portions of the Planning area remain in their current condition and are not improved, it is assumed that erosion would continue as under the current conditions. Conversely, the erosion of soils in the Planning area is anticipated to decrease as the development of vacant and agricultural lands increases in response to the residential, commercial, and industrial land uses projected in the General Plan Update. This is considered a beneficial impact of Project implementation.

Goals and policies have been identified in the General Plan Update which promote soil conservation and which are intended to mitigate the long term effects of wind

and water erosion. Additionally, the Conservation Element (Soils and Agriculture) has identified implementation programs with respect to soil erosion. These programs require the periodic review/update of grading ordinances that take into account the potential for soil erosion and that the City and County coordinate with the Soil Conservation Service to provide technical assistance on improving or preserving soil conditions. With implementation of this program and the goals and policies outlined below, impacts with respect to soil erosion would be reduced to a less than significant level.

It should be noted that during the construction phase of future development, short-term wind and water erosion impacts are anticipated to occur. This impact would be considered significant unless mitigated. According to City of Bakersfield Municipal Code Section 16.16.100 and similar provisions in the County's Code of Building Regulations, an Erosion Control Plan would be required, prior to any grading activity, to ensure that erosion controls are implemented. Additionally, the General Plan Update has identified goals and policies intended to prevent soil erosion during and immediately after completion of the construction phase of future developments. Compliance with the General Plan and Municipal Code would reduce impacts in regards to short-term soil erosion to a less than significant level.

Goals and Policies in the General Plan Update: The Conservation Element contains the following goals and policies:

- CON/SA-G-2 Promote soil conservation and minimize development of prime agricultural land as defined by the following criteria:
- Capability Class I and/or II irrigated soils,
 - 80-100 Storie Index rating,
 - Gross crop return of \$200 or more per acre per year, and
 - Annual carrying capacity of 1 animal unit per acre per year.
- CON/SA-G-3 Establish urban development patterns and practices that promote soil conservation and that protect areas of agricultural production of food and fiber crops, and nursery products.
- CON/SA-P-6 Continue implementing land grading ordinances that reduce soil erosion/siltation commonly associated with land development.
- CON/SA-P-7 Land use patterns, grading, and landscaping practices shall be designed to prevent soil erosion while retaining natural water-courses when possible.
- CON/SA-P-8 Encourage agricultural uses to employ soil conservation measures to prevent erosion.
- CON/SA-P-11 Encourage property owners to improve or preserve soil conditions.
- CON/SA-P-12 Prohibit premature removal of ground cover in advance of development and require measures to prevent soil erosion during and immediately after construction.

Mitigation Measures: No mitigation measures are proposed.

Level of Significance After Policies/Mitigation: Less Than Significant Impact.

□ **PLAN IMPLEMENTATION COULD RESULT IN INCREASED SOIL AND WATER SALINITY.**

Salinity issue due to agricultural practices is beyond the scope of the City and County of Kern's authority. Farming and water agencies affect agricultural practices.

□ **LAND DEVELOPMENT ASSOCIATED WITH THE GENERAL PLAN UPDATE COULD BE LOCATED ON EXPANSIVE SOIL CREATING SUBSTANTIAL RISKS TO LIFE OR PROPERTY.**

Level of Significance Before Policies/Mitigation: Less Than Significant Impact.

Impact Analysis: The Planning area is not known to be comprised of soils with a high potential for soil expansion. Compliance with the policies of the General Plan Update, the City and County Development Code and the California Building Code would reduce potential site-specific impacts to less than significant levels. Additionally, the potential impact is further reduced through adherence to standard engineering practices and design criteria. Therefore, Plan implementation is not anticipated to create a substantial risk to life or property as a result of development on expansive soils.

Goals and Policies in the General Plan Update: No goals, policies and implementation within the General Plan Update apply to potential impacts resulting from expansive soils.

Mitigation Measures: No mitigation measures are proposed.

Level of Significance After Policies/Mitigation: Less Than Significant Impact.

UNAVOIDABLE SIGNIFICANT IMPACTS

The conversion of prime agricultural land to non-agricultural uses would be considered a significant and unavoidable impact since the proposed conversion would represent a substantial irretrievable commitment of a limited agricultural resource. Implementation of the General Plan's goals and policies, as well as the specified mitigation measures, are anticipated to decrease the rate of the conversion of agricultural land to non-agricultural uses and encourage the conservation of agricultural resources. However, based on the Planning area's trend toward farmland conversion and the General Plan Update's forecasted growth, this impact would not be entirely avoided.

Some of the lands under LCA contracts would be lost to future development. Removal of LCA contract protection lifts the restrictions specifically aimed at avoiding the conversion of agricultural lands to other uses. With this barrier to development removed, the pressure to develop placed upon neighboring LCA contract lands is further increased. This impact is anticipated to remain significant even after compliance with the goals/policies outlined in the General Plan. Therefore, the conflict with LCA contract lands resulting from Project implementation is considered a significant and unavoidable impact.