RECIRCULATED DRAFT PROGRAM EIR

REEDLEY GENERAL PLAN 2030

SCH #2010031106

PREPARED FOR

City of Reedley

October 10, 2013

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Recirculated Draft Program EIR

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PREPARED FOR

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SUMMARY

Summary of Alternatives

Project alternatives are presented, discussed, analyzed and compared in Section 4.0, Alternatives to the Proposed Project.

The following project alternatives were analyzed:

- Alternative 1: No Project Alternative
- Alternative 2: Proposed SOI and Land Use Changes Alternative
- Alternative 3: Additional SOI Acreage Reduction Alternative

Alternative 1: No Project Alternative

The No Project alternative addresses environmental effects that would result from continued implementation of the City's existing *City of Reedley General Plan 2012.* The proposed GPU includes plans to expand the City's existing SOI by approximately 2,983 acres with the intent that land within the expanded SOI would ultimately be annexed to the City and developed with urban uses. The vast majority of the land within the expanded SOI is currently in agricultural use and is designated and zoned by Fresno County for continued agricultural use. Under the No Project Alternative, land within the proposed expanded SOI would continue to be actively farmed; no urban development in that area would occur. The No Project Alternative would not meet any of the objectives included in the proposed GPU.

Alternative 2: Proposed SOI and Land Use Changes Alternative

To lessen several of the significant impacts and the significant and unavoidable impacts of the proposed GPU, a Proposed SOI and Land Use Changes Alternative was developed. This alternative consists of two primary components: 1) eliminating a net of approximately 641 acres from the SOI by making changes to the proposed SOI, and 2) making modifications to land uses proposed for several parcels.

The City considered reducing acreage within the proposed expanded SOI by modifying the boundary in large part to address questions about the cost and feasibility of extending water, sanitary sewer, ~~and~~ storm drainage infrastructure, and unnecessary conversion of agricultural land currently under Williamson Act contract. The changes would result in a net of 641 acres being removed from the proposed expanded SOI, which equates to an approximate ~~21~~ 8.1 percent reduction in acreage, the majority of which was proposed for residential use. The total area within the proposed SOI would be reduced to 7,272 acres. Residential uses would decline by a total of approximately 470 acres, Community Commercial uses would increase by about 13 acres, Light Industrial use would decline by about 29 acres, and Open Space use would decline by approximately 145 acres relative to the land use plan included in the proposed GPU.

Alternative 2, Proposed SOI and Land Use Changes Alternative, would result in a substantial reduction in urban use development capacity relative to the proposed GPU, with a corresponding reduction in population holding capacity. The Proposed SOI and Land Use Changes Alternative would meet all of the objectives included in the proposed GPU.

Alternative 3: Additional SOI Acreage Reduction Alternative

To further lessen several of the significant impacts and the significant and unavoidable impacts of the proposed GPU with a focus on reduced agricultural resource and groundwater resource impacts, Alternative 3, Additional SOI Acreage Reduction Alternative, consists of eliminating a net of approximately 826 acres from the proposed SOI. Relative to Alternative 2, this alternative reduces the size of the proposed SOI by an additional 185 acres. Relative to Alternative 2, additional acreage reductions occur primarily in the westernmost portion of the proposed SOI along Manning Avenue where areas designated Community Commercial and Light Industrial in the GPU have also been eliminated from the proposed SOI. Elimination of the 826 acres reduces the size of the proposed SOI by 10.4 percent to a total of 7,087 acres. The proposed GPU designates 721 of the 826 acres for development with urban uses and the remaining 105 acres as Open Space.

Alternative 3, Additional SOI Acreage Reduction, would result in a substantial reduction in urban use development capacity relative to the proposed GPU, with a corresponding reduction in population holding capacity. The Additional SOI Acreage Reduction Alternative would meet all of the objectives included in the proposed GPU.

Comparison of Alternatives

The No Project alternative is environmentally superior to the proposed GPU, as no new development would occur within the proposed expanded SOI. Continued agricultural use of land within the proposed expanded SOI as permitted under the current County land use and zoning designations would avoid or reduce most of the impacts identified for the proposed GPU. While the No Project Alternative is environmentally superior, it would not meet any of the City's objectives for updating its existing 2012 General Plan.

In accordance with the CEQA Guidelines Section 15126.6 (e)(2), if the No Project Alternative is identified as the environmentally superior alternative, an environmentally superior alternative must then be selected from the remaining alternatives. Nearly all of the significant impacts associated with the proposed GPU would be reduced with a reduction in acreage proposed for urban development. Alternative 3 would result in approximately 222 fewer acres of urban development than does Alternative 2. Hence, its implementation would further reduce the full range of environmental impacts associated with Alternative 2. Further, Alternative 3 meets all of the City's objectives in updating its existing 2012 General Plan. Therefore, Alternative 3 is environmentally superior to Alternative 2.

~~The Proposed SOI and Land Use Changes Alternative is also considered environmentally superior to the proposed GPU, as its implementation would result in the reduction of nearly all impacts identified for the proposed GPU. Further, the Proposed SOI and Land Use Changes Alternative meets all of the City's objectives in updating its existing 2012 General Plan.~~

The general environmental effects of Alternative 1, No Project Alternative; Alternative 2, Proposed SOI and Land Use Changes Alternative; and Alternative 3, Additional SOI Acreage Reduction Alternative; relative to the proposed GPU (the proposed project) are summarized in the Comparison of Alternatives to the Proposed GPU table below. The term "Avoided/Reduced" suggests that the alternative either avoids or has a reduced effect relative to the proposed GPU. The term "Similar" suggests that the effect of the alternative would be similar to the proposed GPU.

Comparison of Alternatives to the Proposed GPU

Environmental Topic	Alternative 1: No Project Alternative	Alternative 2 Proposed SOI and Land Use Changes ~~Alternative~~	Alternative 3: Additional SOI Acreage Reduction
Aesthetics	Avoided	Reduced	Reduced
Agricultural Resources	~~Avoided/~~Reduced	Reduced	Reduced
Air Quality	Reduced	Reduced	Reduced
Biological Resources	Avoided/ Reduced	Reduced	Reduced
Climate Change	Avoided/ Reduced	Reduced	Reduced
Cultural Resources	Reduced	Reduced	Reduced
Geology and Soils	Avoided/ Reduced	Reduced	Reduced
Hazards/Hazardous Materials	Similar	Similar	Similar
Hydrology/Water Quality	Similar	Reduced	Reduced
Mineral Resources	Similar	Similar	Similar
Noise	Reduced	Reduced	Reduced
Population and Housing	Avoided	Reduced	Reduced
Public Services	Avoided	Reduced	Reduced
Traffic and Transportation	Avoided	Reduced	Reduced
Utilities and Service Systems	Avoided	Reduced	Reduced

Table S-1 Significant Impacts and Mitigation Measure Summary

Impact	Proposed GPU Goals and Policies or other Actions that Avoid or Reduce Potential Impacts	Significance without Mitigation	Mitigation Measure	Resulting Level of Significance[1]
Agricultural Resources[2]				
AG-1: Conversion of approximately 2,9834,180 acres of Prime Farmland, Unique Farmland or Farmland of Statewide Importance to non-agricultural use	Policies LU 2.5.1 through 2.5.18 and ~~2.5.2, 2.5.4, 2.5.7 to 2.5.9, 2.5.11, and 2.5.12~~ Policies COSP 4.3.1 through 4.3.4	Significant and Unavoidable	None available to further reduce or avoid impact	Significant and Unavoidable Cumulatively Significant and Unavoidable
Hydrology and Water Quality				
HYD-1: Violation of water quality standards/waste discharge requirements	Policy CIR 3.10.17~~6~~ and 3.10.18 Policies COSP 4.2.3, 4.2.4, 4.2.6, 4.2.7 and 4.14.18 Applicable City Municipal Code regulations	Less than Significant	None required	Less than Significant
HYD-2: Increased demand for groundwater extracted from the overdrafted Kings Basin will worsen overdraft conditions	Policy ~~LU 2.7.7~~ Policies CIR ~~3.10.3~~ 3.10.1 to 3.10.14, 3.10.18, 3.10.19, and 3.10.20 ~~3.10.5, 3.10.7 to 3.10.10~~ Policies COSP 4.2.3, 4.2.6, 4.2.7 and 4.2.10	Significant and Unavoidable	~~HYD 1: The City will prepare a water supply plan to identify alternative sources of water supply to substantially reduce impacts of increased demand on groundwater overdraft in the Kings Basin~~ ~~None required~~ None available to further reduce or avoid impact	Cumulatively Significant and ~~Potentially~~ Unavoidable

Source: EMC Planning Group Inc. 2013

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1.0 INTRODUCTION

1.1 BACKGROUND

The City of Reedley (City) has prepared an update to its 2012 general plan entitled *Draft City of Reedley General Plan 2030* (City of Reedley 2012) (hereinafter "proposed project" or "GPU"). The proposed GPU would modify the existing *City of Reedley General Plan 2012* (City of Reedley)(hereinafter "2012 General Plan"), and expand the City's existing sphere of influence (SOI) by approximately 2,983 acres. The proposed GPU includes a substantially greater level of development potential than does the 2012 General Plan. Once adopted by the City, the GPU would be the principal policy document for guiding development of the City through the year 2030.

Although the GPU addresses a long-term planning horizon through 2030, it also provides overall direction for decision-making on development proposals and day-to-day actions of the City's elected officials and staff. The GPU includes goals and policies designed to implement the community's vision for Reedley's future. The policies are intended for use by the City to guide everyday decision making and to ensure progress toward the attainment of the goals outlined in the GPU. The content of the proposed GPU is described in Section 1.3, General Plan Update Project Description, in the DEIR.

The City determined that the proposed project may result in significant adverse environmental effects, including impacts on agricultural resources, air quality, hydrology and water quality, and climate change, as defined by the California Environmental Quality Act (CEQA) Guidelines section 15064. Therefore, the City prepared the *Draft Program EIR – City of Reedley General Plan 2030* (DEIR)(EMC Planning Group 2012). The DEIR is identified by California State Clearinghouse #2010031106.

The DEIR was circulated for public review for 45-days pursuant to CEQA Guidelines Section 15105(a). The public review period extended from January 17, 2013 to March 4, 2013. The City received comments from the following six agencies/interests:

- Central Valley Flood Protection Board
- Alta Irrigation District
- O'Neil Vintners
- San Joaquin Valley Air Pollution Control District
- Consolidated Irrigation District
- California Department of Transportation

1.2 PURPOSE AND CONTENT OF RECIRCULATED DRAFT EIR

As a result of comments provided by the Consolidated Irrigation District (CID) on the DEIR, the City determined that new supplemental information should be developed for inclusion and consideration as part of the environmental review process for the proposed project.

New Supplemental Information Available

The CID raised concerns about a number of issues in its comments on the DEIR. Generally, the comments which pertain to topics within the CID's area of expertise address information about groundwater production and consumption, groundwater overdraft, and clarification and definition of potential impacts and mitigation measures for hydrology and agricultural land conversion effects of implementing the proposed GPU. To address concerns raised by CID, as well as several comments from other commenters, the City has assembled and analyzed historical data and prepared new information for incorporation into the DEIR. Key new supplemental information includes the following:

- Addition of modified and new GPU policies pertaining to water supply/groundwater management, wastewater, storm water facilities, agricultural resources, and growth management patterns. These modified/new policies can be found in Appendix A;
- A new report entitled *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence* (Schmidt and Associates 2013), which is contained in Appendix B;

- A new report entitled *2010 Draft Urban Water Management Plan* (HDR 2013); and
- A new project alternative.

The City has elected to recirculate portions of the DEIR to ensure that the new supplemental information is available for review and comment by the public pursuant to CEQA Guidelines Section 15088.5(a) and 15088.5(c) which read:

> (a) A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification. As used in this section, the term "information" can include changes in the project or environmental setting as well as additional data or other information. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement. "Significant new information" requiring recirculation includes, for example, a disclosure showing that:
>
> (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
>
> (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
>
> (3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
>
> (4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (Mountain Lion Coalition v. Fish and Game Com. (1989) 214 Cal.App.3d 1043)

(b) Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

(c) If the revision is limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified.

Note that none of the modified or new information results in identification of new significant impacts or results in changes to the severity of impacts as identified in the DEIR.

Recirculated Draft EIR Content and Identification of Modifications

As noted above, the supplemental information developed by the City pertains primarily to agricultural resources, water supply/groundwater (including the related issues of wastewater and storm water management), and alternatives. To incorporate the information into the environmental review process, modifications have been made only to the relevant sections of the DEIR. This recirculated draft EIR (RDEIR) includes additions and modifications to the following sections of the DEIR:

- Summary

  Modifications are limited only to the specific DEIR Summary text that has been modified.

- Section 2.2, Agriculture and Forest Resources

  Modifications are limited to text beginning in the Impacts and Mitigation Measures subsection.

- Section 2.9, Hydrology and Water Quality

  Nearly all of this section of the DEIR is included; modifications are made throughout much of the section.

- Section 3.0, Cumulative Impacts

  Background and context information from section 3.0, Cumulative Impacts, of the DEIR is included though no modifications to this information have been made; modifications are confined to specific text that addresses cumulative Hydrology and Water Quality impacts.

- Section 4.0, Alternatives

  Background and context information from Section 4.0, Cumulative Impacts, of the DEIR is included though no modifications to this information have been made; modifications are confined to inclusion of text regarding a new alternative and a graphic of the alternative, the discussion of the comparative merits of the alternatives, and to the discussion of the environmentally superior alternative.

- Section 6.0, References

  Modifications are limited only to inclusion of new references described in this RDEIR.

Reference should be made to the DEIR as needed for project information not addressed in this RDEIR.

Modifications that result in deletions of DEIR text are shown in ~~strikethrough~~ font and new additions to the DEIR text are shown as underlined font.

New tables included in this RDEIR are identified as "RDEIR Table X", while new figures are identified as "RDEIR Figure X".

1.3 PUBLIC COMMENTS LIMITED TO INFORMATION CONTAINED IN THE RECIRCULATED DRAFT EIR

CEQA Guidelines Section 15088.5(f)(2) describes the limits of public comment on an EIR that is revised only in part as is this case with this RDEIR:

> (2) When the EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated EIR. The lead agency need only respond to (i) comments received during the initial circulation period that relate to chapters or portions of the document that were not revised and recirculated, and (ii) comments received during the recirculation period that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The lead agency's request that reviewers limit the scope of their comments shall be included either within the text of the revised EIR or by an attachment to the revised EIR.

Pursuant to these guidelines, the City requests that the public limit the scope of its comments on this RDEIR that are shown herein as revisions to the DEIR. As part of the final EIR process, the City will respond to comments received during the public review period for the DEIR on information in the DEIR that has not been modified as described in this RDEIR. The City will also respond to public comments on the RDEIR where the comments are limited to the modifications described herein.

2.2 AGRICULTURAL RESOURCES

Impacts and Mitigation Measures

Impact AG-1: Conversion of Prime Farmland, Unique Farmland, and/or Farmland of Statewide Importance to Non-Agricultural Use

Level of Significance: Significant and Unavoidable

Discussion. Under the GPU, future development within the proposed SOI would result in the direct conversion of approximately 2,983 ~~4,180~~ acres of additional Important Farmland (comprised of Prime Farmland, Farmland of Statewide Significance, and Unique Farmland) to non-agricultural use.

GPU Goals and Policies. The GPU contains a range of goals and policies which will minimize the potential for premature conversion of important farmland within the proposed SOI through a range of growth management and agricultural land conservation policies. These goals and policies include:

- LU 2.5.1: Within areas outside the city limits, the City should encourage Fresno County to:

  (a) Maintain an exclusive agricultural zone district.

  (b) Maintain a minimum permitted lot size for agricultural land which assures that the land can be used for agricultural purposes.

- ~~LU 2.5.2: Development standards shall incorporate measures to protect and preserves agricultural land.~~

- ~~LU 2.5.4: Adopt a right to farm ordinance.~~

- ~~LU 2.5.5 Consider evaluating and adopting an agricultural land mitigation policy.~~

- ~~LU 2.5.7: Require contiguous development within the Sphere of Influence unless it can be demonstrated that the development of contiguous property is infeasible.~~

- ~~LU 2.5.8: Implement an annexation policy that is based on annexing land for residential development only when at least 80 percent of the residentially designated land inside city limits is developed.~~

- ~~LU 2.5.9: Work with Fresno County and Fresno LAFCO to maintain agricultural designations in areas outside the planning area and the Reedley Sphere of Influence.~~

- ~~LU 2.5.11: The Plan should foster the establishment of a concentrated urban development pattern, with land outside the planned urban area being designated exclusively for Agriculture.~~

- ~~LU 2.5.12: New urban development should occur in an orderly manner with initial development occurring on the available undeveloped properties which are closer to the built-up area.~~

- LU 2.5.2: New development opportunities in the City shall be sequential and contiguous to existing development to ensure the orderly extension of municipal services and unnecessary conversion of agricultural land. Development standards shall incorporate measures to protect and preserve agricultural land.

- LU 2.5.3: The City shall oppose formation of new land conservation contracts on land adjacent to the City's boundaries. The City shall also work with owners of land within the SOI who wish to file for non-renewal of Williamson Act contracts in advance of urban development.

- LU 2.5.4: Within one year of the adoption of the GPU, the City shall consider adoption of a right-to-farm ordinance which will require purchasers of residential, industrial and/or commercial properties within close proximity to existing agricultural uses to acknowledge that their land borders, or is in close proximity to, agricultural land and will endure the potential impacts of that interface. The goal of this proposed ordinance is to promote and protect existing agriculture operations, allowing farmers/ranchers to conduct operations when urban land uses extend into natural resource areas or are side-by-side, and, address the subject of frequent nuisance complaints. This Ordinance shall be implemented through a right-to-farm covenant to be recorded against the dominant and subordinate properties.

- LU 2.5.5: The City shall discourage the development of peninsulas of urban development into agricultural lands.

- LU 2.5.6: In cooperation with Fresno County, Fresno Local Agency Formation Commission (LAFCO), community and agricultural industry stakeholders, the City shall adopt and maintain a SOI consistent with the goals and policies of this GPU. The sphere of influence shall serve the mutual interest of the County and City by preserving agricultural uses from incompatible or unplanned urban uses.

- LU 2.5.7: Require contiguous development within the SOI unless it can be demonstrated that the development of contiguous property is infeasible. An analysis of the fiscal, public utilities, surface transportation and service impacts shall be required as part of the application to annex new territory into the City.

- LU 2.5.8: The City shall not support annexing land for residential development until at least 65 percent of the existing residentially designated land inside the city limits is developed.

- LU 2.5.9: Work with Fresno County and Fresno LAFCO to maintain agricultural designations in areas outside the Reedley SOI.

- LU 2.5.10: Continue to maintain a Memorandum of Understanding (MOU) with Fresno County which clearly sets forth the following:

  a) The County shall not approve any discretionary development permit for new urban development within the City's SOI unless that development has first been referred to the City.

  b) That the development is orderly.

  c) County shall require development standards of the City of Reedley, when development is within the existing SOI.

  d) The City application for the annexation of any new territory be consistent with the Cortese-Knox Act.

  e) City initiated annexation shall have development eminent, with at least 50% of the proposed area having an approved site plan and/or tentative map.

- LU 2.5.11: The Plan should foster the establishment of a concentrated urban development pattern, with land outside the planned urban area being designated exclusively for Agriculture.

- LU 2.5.12: New urban development should occur in an orderly manner with initial development occurring on the available undeveloped properties within the City's limits which would be considered in-fill, by-passed parcels or in parcels in close proximity to the urban core, places of employment and established neighborhoods.

- LU 2.5.13: The City should promote and provide urban services to development within the City as a means of controlling and directing growth.

- LU 2.5.14: Initial development shall incorporate the necessary infrastructure to accommodate future development for the surrounding area consistent with the goals and objectives of the GPU. Reimbursement agreements or other mechanisms may be provided to the developer as a means to share the equitable burden of costs.

- LU 2.5.15: Provide transitional design between land use types and high quality urban uses.

- LU 2.5.16: The City shall encourage in-fill projects that incorporate pedestrian-oriented design.

- LU 2.5.17: The City shall propose plan areas and zone districts that can accommodate mixed use planning that will provide a combination of residential, commercial services and employment opportunities all within close proximity.

- LU 2.5.18: From the adoption date of this GPU, the City shall annex a maximum of five hundred (500) acres from within the existing SOI (@1,797-acres). Only when a Farmland Preservation Program is adopted for implementation shall the City propose additional lands for orderly annexation. The Farmland Preservation Program is discussed in great detail in Section 4.3 Agriculture.

- COSP 4.3.1: Support the efforts of the County of Fresno and agricultural and community stakeholders to preserve and protect farmlands outside the centralized core of the City.

- COSP 4.3.2: Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operations and to prevent parcelization into rural residential or ranchette developments.

- COSP 4.3.3: The City shall prepare and adopt a Farmland Preservation Plan (FPP). This plan shall include a set of policies, standards and measures to avoid the unnecessary conversion of agricultural lands.

  For each policy, standard or measure, the plan shall include a discussion of the following: (1) How the policy would minimize a potential detrimental effect caused by urban development; (2) Whether and how the policy would assist in avoiding the premature conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance; (3) How the policy, standard or measure would be integrated into the entitlement process; and, (4) How the policy, standard or measure would be enforced through the regulatory environment.

The FPP shall include the following policies:

a) The City shall strive to protect agriculturally designated areas, and direct urban growth away from productive agricultural lands into urbanized or underdeveloped portions of the City.

b) The City shall strive to collaborate with the Fresno County Local Area Formation Commission (LAFCO), Fresno County and land owners to encourage minimum parcel sizes of 20 acres or more for land designated for agriculture and/or evidence of commercial agricultural use prior to entering into new Williamson Act contracts.

c) The City shall not protest the renewal of Williamson Act Contracts with regard to land located within the City's SOI, but not adjacent or in close proximity to the City's current boundary, where the land's minimum parcel size is at least 20 acres and the land owner has provided evidence satisfactory to the City that the land is currently being used for commercial agricultural operations.

d) The City shall support the efforts of public, private, and non-profit organizations to preserve Prime Farmland, Unique Farmland or Farmland of Statewide Importance located in Fresno County through the dedication of conservation easements and the preservation of range land held as environmental mitigation.

e) The City shall encourage the installation of solar and wind energy production facilities in agricultural areas so long as they do not result in a tax burden to Fresno County, do not result in permanent water transfers from productive agricultural land, do not hinder agricultural operations on adjacent land, or do not require cancellation of Williamson Act contracts. In addition, these facilities should include dedications of agricultural land and habitat mitigation, measures to control erosion, and assurances for financing decommissioning activities.

f) The City shall actively collaborate with landowners, cities, state and federal agencies, colleges, universities, stakeholders, and community-based organizations to continue to expand agricultural preservation in the surrounding Fresno County area.

g) The City shall discourage public agencies from locating facilities, especially schools, in existing agricultural areas.

h) The City shall encourage the voluntary merger of antiquated subdivision lots that conflict with adjacent agricultural uses.

The FPP shall include the following implementation measures:

a) A provision designating the Community Development Department as the department responsible for the preparation and implementation of the FPP, once adopted and directing the Department to prepare annual reports to the City Council describing progress made toward the preparation, adoption and implementation of the final FPP.

b) The creation of a community outreach program to encourage current agricultural land owners' continued participation in programs that preserve farmland, including the Williamson Act, conservation easements, and USDA-funded conservation practices.

c) The identification of various amendments to the Reedley Municipal Code that would be adopted within twelve (12) months of the adoption of the FPP, such as the following:

- Amend the zoning ordinance to require a minimum 100-foot buffer between new residential development and existing agricultural operations, and to establish design/maintenance guidelines for developers and property owners. The 100-foot buffer will create an appropriate transitional space between urban and agricultural land uses so as to facilitate continued agricultural operations.

- Amend Chapter 10-6A, the Residential Estate (RE) District section, which is intended to provide living areas that combine both the urban and rural setting, to add provisions to prevent premature conversion of agricultural land, which could cause incompatible land uses and potential conflicts.

- Amend the subdivision ordinance to facilitate the voluntary merger of antiquated subdivision lots that conflict with adjacent agricultural uses.

- Amend the zoning ordinance to include provisions requiring that environmental review expressly analyze the potential for a proposed entitlement or permit to create incompatibilities with agricultural uses through traffic generation, groundwater contamination, storm-water drainage disposal and/or the deterioration of air quality.

d) Provisions to ensure that the City manages the extension of sewer lines, water lines, or other urban infrastructure into areas designated for agricultural use to avoid premature farmland conversion and as necessary to protect public health, safety, and welfare.

- COSP 4.3.4: In conjunction with the preparation, adoption and implementation of the Farmland Preservation Plan described in Policy COSP 4.3.3, the City shall develop and consider the adoption of a program that shall require new development within the SOI to fund farmland preservation efforts. The goal of this program is to preserve designated Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (together "Farmland") that otherwise runs the risk of being converted to urbanized development. This program shall act as a mitigation program in response to the necessary agricultural land conversion that occurs as a result of the City's expansion into its SOI. The City shall not support the annexation of lands in excess of a total of 500 acres within the City's existing SOI until this program, or a program that accomplishes the same goals, has been adopted and other actions and approvals necessary to the implementation of the program have been completed. Among other provisions, the program shall include the following evaluation and performance requirements:

  a) Program Goal: As Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within the City's SOI is converted to urban uses, secure the permanent preservation of other Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within Fresno County on a 1 for 1 basis.

  b) Evaluation Process: To accomplish the program goal, as part of the entitlement application process Farmland proposed for conversion will be evaluated using the Land Evaluation and Site Assessment (LESA) model issued by the California Department of Conservation. The LESA model provides an analytical approach for rating the relative quality of land resources based upon specific factors, such as soils, site acreage, water availability, and surrounding land uses. The LESA model worksheets are provided in Appendix A, Evaluation and Site Assessment (LESA) Model, California Department of Conservation.

  c) Fee Program: The City shall develop and adopt a fee program consistent with the requirements of the Mitigation Fee Act that will require applicants seeking to annex Farmland within the City's SOI to pay a fee to the City of Reedley equivalent to the cost of preserving Important Farmland on a 1 to 1 basis with land converted to urban uses. The City shall use the fees to fund an irrevocable instrument (e.g. deed restriction or easement) to permanently preserve farmlands via a Trust for Farmland Funds Disbursements.

  d) Alternative to Payment of Fee: As an alternative to the payment of the fee described in subsection (c), applicant shall provide documentation satisfactory to the City that demonstrates that applicant has entered into a binding agreement with one or more property owners or a third-party organization acceptable to the City of Reedley (e.g.

Fresno County Farm Bureau or the American Farmland Trust) to permanently preserve farmland equivalent in acreage to the Farmland proposed for annexation into the City. The agreement shall identify an irrevocable instrument that will be recorded against the preserved property.

e) This program will also involve the City maintaining a current list of organizations and owners of Farmland that can facilitate the acquisition of conservation easements so as not to unduly delay the annexation of the land into the City and completion of the proposed development.

Agriculture is a prominent economic segment of the City of Reedley, with a long history reaching back to the turn of the century. Agriculture continues to play a key role in shaping our local economy and unique characteristics of Reedley. As urbanization expands, a key ingredient to our financial viability is to strive toward balancing natural lands and non-resource lands. This coupled with the comments provided by the Consolidated Irrigation District has alerted the City to needing greater embellishment of its agricultural policies.

Through three General Plans (1964, 1977 and 2012), the City has successfully implemented a strategy whereby the SOI was the primary tool to direct compact growth away from prime agricultural lands. Not only is this claim evident by looking at how compact the City's growth has been, but by looking at the actual number of acres of agricultural lands that have been actually been converted to an urban use (691-acres). In 2013, the City's incorporated area represents approximately sixty-two percent (62 percent) of land within the existing SOI. If the historical growth pattern were applied to the end of the planning horizon (2030), seventy-five percent (75 percent) of the SOI would be incorporated. See Table RDEIR 1, Land Availability, below which reflects the City's growth since 1977, the resulting conversion of agricultural lands.

Table RDEIR 1 Land Availability

Land Availability – Incorporated/Unincorporated Land Acreage				
	1977*	**1992***	**2013**	**2030**
City Boundaries	1,836 acres	2,469 acres	3,133 acres	3,797 acres
Sphere of Influence	4,763 acres	5,053 acres	7,091 acres*	7,091 acres*
Available Ag Land	2,927 acres	691 acres	2,161 acres	1,512 acres

* Reedley General Plan, 1977

* City of Reedley, General Plan 2012

* City of Reedley, Proposed Land Use Additions and Changes (Alternative II)

The proposed Reedley 2030 General Plan Update (GPU) goals and policies specifically address the conversion of agricultural land in an orderly way which allows for community expansion and minimizes premature agricultural land conversions within the proposed SOI Boundary. The integrity of the GPU as it relates to the agricultural character of the area is reflected in the rational, logical and reasonable and contiguous extension of land uses and strategies from the previous GPUs and the existing urbanized pattern.

The above-noted policies are collectively ~~largely~~ part of the growth management component of the GPU that will minimize the premature conversation of agricultural lands. ~~Bym~~Managing growth and development patterns which are side-by-side with ~~into~~ agricultural areas in a measured way and ensuring that agricultural uses ~~of land~~ within the proposed SOI remain viable until the land is annexed and developed for non-agricultural use. ~~the policies will serve to limit the premature conversion of important farmland.~~ For example, the combination of Policies LU 2.5.8 and ~~LU 2.5.5, "Consider evaluating and adopting an agricultural land mitigation policy" would provide some mitigation relief to the significant loss of farmland~~ COSP 4.3.3 are only one facet ~~the focus~~ of the City's comprehensive approach to mitigating impacts from loss of farmland. These two policies ~~requires~~ regulate and direct development inward toward existing and or by-passed parcels prior to sprawling into new territories. Secondly these policies also direct the course of action once the capacity threshold is met and prescribe how development may proceed.

In effect, the result of these policies will delay for several years the unnecessary conversation of prime agriculture lands within the existing and proposed SOI and prior to annexation. When conversation of agricultural land is necessary to support eventual urbanization, ~~creation of~~ a Farmland Mitigation Plan will direct such development which occurs outside of the existing SOI. ~~that must be implemented prior to the annexation of any land outside the existing sphere if influence. H~~ However, even with implementation of the above-listed policies, ~~an agricultural land mitigation policy that includes a fee or permanent conservation easement requirements,~~ the loss is still considered significant. Therefore, implementation of the policies will not prevent the ultimate conversion of such farmlands and the impact of conversion would be significant and unavoidable.

Additional Mitigation. No additional mitigation required. ~~None.~~

Impact AG-2: Conflict with Existing Zoning or Williamson Act Contracts

Level of Significance: Significant and Unavoidable

Discussion. County-zoned agricultural land within the proposed SOI would be converted to non-agricultural land uses as a result of implementing the GPU. This conflict with existing County zoning would be resolved through the annexation and pre-zoning process that project applicants would be required to undertake through the City and LAFCO. The pre-zoning process would be used to identify and establish new zoning on such lands that is consistent with the proposed land use as designated in the GPU. Approval of annexation and pre-zoning requests by LAFCO would result in the removal of County zoning from the subject lands.

A large number of properties within the proposed SOI are currently under Williamson Act contract (including contested contracted lands and contracted lands for which non-renewal of the contract may have already been initiated). Most of these properties consist of agricultural land that is classified as Important Farmland (Prime Farmland or Farmland of Statewide Importance), the conversion of which is generally considered to be a significant impact under CEQA. ~~Some owners of land~~ Landowners with property ~~that is~~ located within the proposed expanded SOI and that is under Williamson Act contract may already have filed a Notice of Non-Renewal. This action would result in removal of the land from the contract within 10 years of the date the notice was filed. Owners of other contracted land could file such notices over the short- to mid-term. In either case, provided these contracts have been terminated through non-renewal prior to the contracted land being developed, no conflict with Williamson Act contracts would occur.

It is not uncommon for owners of farmland under Williamson Act contract to seek cancellation of their contract through the cancellation provisions of the Williamson Act (rather than termination of their contracts through the non-renewal process) when the financial benefits of doing so are perceived to outweigh the costs. Because land values for urban uses are higher than for agricultural uses, owners of farmland that have not previously filed for contract non-renewal can initiate a contract cancellation process to remove contract constraints to developing their land with urban uses. This action would conflict with the intended purpose of the Williamson Act and would constitute a significant impact.

Policy COSP 4.3.2 requires a minimum 20-acre parcel size for agricultural land to encourage viable agriculture. If and when the City applies for and LAFCO approves the proposed SOI expansion, active agricultural lands would remain within that expanded sphere and their subdivision that would facilitate conversion to non-agricultural uses would be constrained by COSP 4.3.2. It is assumed that agricultural uses within the expanded SOI would continue until such time as the City or future project developers request that such land be annexed into the City. Growth management policies in the GPU would be implemented to avoid premature conversion of agricultural land to urban use.

Policy COSP 4.3.3 requires creation and adoption of a Farmland Preservation Plan within twenty-four months after the adoption of the General Plan Update. The ~~of a comprehensive Farmland Mitigation~~ Plan shall ~~that~~ include measures that support retention of existing and expansion of new Williamson Act contracts. Through collaboration with the County of Fresno Local Area Formation Commission, Fresno County and land owners, there will be more consideration of the size and use of any parcels entering into new Williamson Act contracts or having renewed contracts. The less favorable criteria for Williamson Act contract land will be larger parcels (minimum 20 or more acres) that are either already under contract or have the potential to be. The more favorable criteria for renewal of Williamson Act contract land will be smaller parcels (20 acres or less) that are not being actively cultivated. ~~Through collaboration with the County of Fresno Local Area Formation Commission, Fresno County and land owners to encourage larger parcel size minimums (20 or more acres) and/or evidence of commercial agricultural use prior to entering into new Williamson Act contracts, on smaller parcels (20 acres or less) not devoted to commercial agriculture.~~ This policy will turn the focus of preservation to the larger parcels devoted to commercial agriculture.

Through COSP 4.3.3 the City shall develop a policy statement indicating ~~their~~ its position to not protest ~~such~~ renewals of preferred Williamson Act contract land. The formal policy shall be adopted within twenty-four months after the adoption of the General Plan Update and/or prior to annexation of any land outside the existing Sphere of Influence.

GPU Goals and Policies. The collective implementation of the range of GPU policies identified under impact AG-1 above will serve to minimize premature and unnecessary development of agricultural lands within the SOI. Since a significant amount of land within the newly proposed expanded SOI is under Williamson Act contract, avoiding premature development of such land would reduce conflicts with existing contracts. Avoiding premature conversion would also provide enhanced opportunities for owners of contracted land to file for a Notice of Non-Renewal such that contracts may be terminated before the subject properties are proposed for development. Nevertheless, out of an abundance of caution the City assumes for the purposes of environmental review that conflicts between possible development opportunities and Williamson Act contracts may occur. It may also be ~~it is possible that conflicts with Williamson Act contracted land may occur as it is also~~ possible that some landowners would seek cancellation of their contracts in anticipation of the economic benefit to be derived from converting their land to urban uses. The decisions of that land owner are clearly beyond the purview of the City. However, recognizing this possibility affirms that the ~~This~~ impact of conflicting zoning and Williamson Act contracts ~~w~~could be significant and unavoidable even with implementation of GPU policies.

Additional Mitigation. No additional mitigation required. ~~None.~~

Impact AG-3: Other Changes that Could Result in Conversion of Farmland to Non-Agricultural Use

Level of Significance: Less than Significant

Discussion. The GPU would result in new urban development being constructed immediately adjacent to actively farmed agricultural land. Incompatibility between these uses can lead to nuisances involving noise, dust, chemical use/drift, vandalism and traffic hazards. Nuisance issues can in turn pressure farm operators to alter practices that in turn reduce agricultural productivity/profitability. Rising land values resulting from enhanced valuation of nearby developed properties can also motivate owners of agricultural land to cease agricultural operations in light of economic benefit that can accrue from urban development.

GPU Goals and Policies. The GPU collectively contains a range of goals and policies which will serve to mitigate this impact to a less than significant level. Implementation of the range of GPU policies identified under impact AG-1 above will serve to minimize premature development of agricultural lands within the proposed SOI and reduce potential urban/agricultural land use conflicts. Particularly important among the noted policies are policies LU 2.5.4: Adopt a right-to-farm ordinance and LU 2.5.2: Development standards shall incorporate measures to protect and preserve agricultural land. By adopting a right-to-farm ordinance, the City would put the residents/business owners within new development located adjacent to active agricultural operations on notice that they may be exposed to and must acknowledge nuisances associated with those operations. Policy LU 2.5.2 would focus new development on site design standards that can be employed to reduce conflicts with adjacent agricultural operations. Policy COSP 4.3.3 requires creation and adoption of a comprehensive Farmland Preservation Plan that includes measures such as creation of buffers to reduce potential conflicts between non-agricultural and agricultural uses. Implementation of these and the additional policies noted above would reduce land use conflicts that could lead to premature conversion of agricultural lands to non-agricultural use to a less than significant level.

Additional Mitigation. No additional mitigation required. ~~None.~~

2.9 HYDROLOGY AND WATER QUALITY

This section summarizes information on existing surface and groundwater hydrology and water quality conditions, flooding and flood hazards, and storm water management within the proposed SOI. Potential impacts of buildout under the proposed GPU are then evaluated.

No comments related to hydrology and water quality were received in response to the NOP.

Standards of Significance

CEQA Guidelines Appendix G indicates that a project may have a significant effect on the environment if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche, tsunami, or mudflow.

Policy and Regulatory Setting

Federal Clean Water Act and State Porter-Cologne Water Quality Control Act

Water quality objectives for all waters in the State of California are established under applicable provisions of Section 303 of the Federal Clean Water Act and the state Porter-Cologne Water Quality Control Act. These laws seek to control the addition of source and non-source pollutants to surface waters and to protect the integrity of wetlands.

Section 303 of the Clean Water Act requires states to adopt water quality standards for all surface waters. Section 304(a) requires the U.S. Environmental Protection Agency (U.S. EPA) to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in the water.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers programs to address flood hazards. FEMA manages the National Flood Insurance Administration program for this purpose. The insurance program provides federal flood insurance and federally financed loans for property owners in flood prone areas. For local property owners to qualify for federal flood insurance, the City must identify flood hazard areas and implement a system of protective controls. For this purpose, FEMA produces Flood Insurance Rate Maps (FIRMs) that define areas subject to inundation by flooding. The protective controls that must be implemented to reduce flood hazards and damage to property are generally incorporated onto a flood hazard management program and general plan policies of local jurisdictions. These tools assist cities in mitigating flooding hazards through land use planning and building permit requirements.

National Pollutant Discharge Elimination System

The EPA has published regulations establishing storm water permit application requirements under the Clean Water Act. The National Pollutant Discharge Elimination System (NPDES) program controls and reduces pollutants to water bodies from point and non-point discharges. The EPA has published regulations establishing storm water permit application requirements under the Clean Water Act. The NPDES program controls and reduces pollutants to water bodies from point and non-point discharges.

Projects that disturb more than one acre of land during construction are required to file a notice of intent to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activities. The NPDES construction permit requires

implementing both construction and post construction phase storm water pollution best management practices. The State NPDES General Construction Permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that uses storm water "Best Management Practices" to control runoff, erosion, and sedimentation from the site both during and after construction. The SWPPP has two major objectives: 1) to help identify the sources of sediments and other pollutants that affect the quality of storm water discharges; and 2) to describe and ensure the implementation of practices to reduce sediment and other pollutants in storm water discharges.

Regional Water Quality Control Board

The State Water Resources Control Board and the nine Regional Water Quality Control Boards are responsible for assuring implementation and compliance with the provisions of the Clean Water Act and the Porter-Cologne Water Quality Control Act. The state board and regional boards are designated as lead agencies in implementing the Clean Water Act and Porter-Cologne Water Quality Control Act. Fresno County falls within the Central Valley Region, which regulates water quality in streams and aquifers throughout Fresno County. It encompasses 60,000 square miles, or about 40 percent of the State's total area, and includes 38 of the state's 58 counties. The state board protects water quality through designation of beneficial uses, establishment of water quality objectives, and administration of the NPDES permit program for storm water and construction site runoff. Regional boards are also responsible for providing permits under Section 401 of the Clean Water Act.

Urban Water Management Plans and California Senate Bills 610 and 221

Many water supply coordination issues for new development are addressed in the state's Water Code through requirements for the preparation and approval of Urban Water Management Plans every five years and as a result of Senate Bill 610 and Senate Bill 221.

The Urban Water Management Planning Act (UWMP Act) was created by Assembly Bill 797, which was signed into law in September 1983. Since then the UWMP Act has been amended by Assembly Bill 2661 (July 1990), Assembly Bill 1869 (October 1991), and Assembly Bill 11X (October 1991). The UWMP Act requires that urban water suppliers (i.e. municipal water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually) prepare and adopt an Urban Water Management Plan (UWMP) which reports, describes, and evaluates water deliveries and uses, water supply sources, efficient water uses, and demand management measures.

The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands. Urban water suppliers are required to assess current demands and supplies over a 20-year planning horizon and consider various drought scenarios. The UWMP Act also requires water shortage contingency planning and drought response actions to be included in a UWMP (HDR 2013).

SB 610 and 221 are intended to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and 221 are companion measures which are intended to promote more collaborative planning between local water suppliers and cities and counties. The changes in the Water Code also require verification of sufficient water supplies as a condition of approval for development; compel urban water suppliers to provide more information on groundwater reliability if used as a supply; and require average and drought year conditions be addressed.

SB 610 as codified in Water Code Section 10910, et. seq. and confirmed in CEQA Guidelines Section 15155, City or County Consultation with Water Agencies, requires a water supply assessment for any development project meeting the definition of a "water-demand project". Pursuant to the CEQA Guidelines, the characteristics of such projects are; ~~or related land use plan~~ a residential development of more than 500 housing units, 500,000 square feet of retail floor space ~~use~~, commercial office space measuring 250,000 square feet of floor space~~, office use,~~ a 500 room hotel/motel ~~rooms~~, 40 acres of land , 650,000 square feet of industrial/manufacturing or processing plant, ~~business park use~~ or a mixed-use project with any combination equal to the scale noted above. The water supply assessment needs to be part of any CEQA document prepared for the project (EIR or negative declaration). If there is not adequate water to reliably supply the project (and all the other present and future water demands anticipated) in normal, dry, and multiple dry years, new water sources need to be identified.

SB 221 prohibits any land use agency from approving a subdivision map of more than 500 housing units (or a proposed subdivision of less than 500 units if the project represents 10 percent or more of all connections of a smaller water purveyor - one with fewer than 5,000 connections) unless there is written verification from a water provider that a sufficient and reliable water supply is available.

City of Reedley Plans and Regulations

City of Reedley Urban Water Management Plan. The City recently adopted, consistent with State law, an updated Urban Water Management Plan (UWMP) entitled *2010 Urban Water Management Plan – City of Reedley* (HDR 2013). The 2010 UWMP includes substantial analysis of the City's water supply system and water supplies and addresses all UWMP Act-mandated water

supply topics. The 2010 UWMP will serve as an important basis for water supply and development planning in the City as envisioned in the GPU. The substantive chapters of the 2010 UWMP address the description of the City's water supply system, demands on the system including water demand projections in five-year increments to the year 2035, existing and projected future sources of water (which are planned to be exclusive to groundwater), water supply reliability, and demand management measures.

As described on page 3-10 of the UWMP, the City plans to achieve compliance with the water use targets through water conservation, including metering with commodity rates. The recent implementation of metering and use of commodity rates resulted in a significant reduction in per capita use from approximately 249 gallons per capita per day in 2006 to 180 gallons per day per capita in 2011.The City adopted a tiered rate structure which became effective May 1, 2010. The inclining block structure encourages conservation and discourages waste of potable water supplies by charging higher prices from excessive water uses. This 28 percent reduction in water demand exceeds the State mandated 20 percent reduction by 2020, pursuant to the Water Conservation Bill of 2009.

Of particular interest is the UWMP discussion of water supplies found in Chapter 4 of the document, of which portions are described later in this section.

Storm Water Management Implementation Plan. The City's *Storm Water Management Implementation Plan* (Starr Engineering 2007), represents the five-year management strategy for controlling the discharge of pollutants to the "maximum extent practicable" in storm water runoff from the City urban area during the first NPDES storm water permit term. The plan was prepared in support of the City's application for a Municipal Storm Water (MS4) Permit to the Central Valley Regional Water Quality Control Board. The plan includes information on federal, state, and local storm water quality regulations, storm water quality control strategies and programs to be implemented in Reedley, storm water quality monitoring and assessment, and plan implementation requirements. The City is currently in compliance with all State Storm Water regulations and in the process of updating its Storm Drainage Master Planning Report. It is anticipated that the Master Plan will be complete during the early part of 2014.

Reedley Municipal Code – Water Conservation. Section 8-1-12 of the Municipal Code codifies the City's regulations for water conservation. The goal of this Municipal Code section is to minimize water use and reduce unnecessary use of potable water supplies of the City of Reedley (RMC 8-1-12(A). This section provides a definition of "waste of water", irrigation design, watering schedules and the enforcement process and penalties. ~~specifies restrictions on actions that result in waste of water and on landscape irrigation.~~

Reedley Municipal Code – Storm Water Management. Section 8-5-1 of the Municipal Code codifies the City's regulations for implementing storm water quality management strategies consistent with its General Construction permit from the Central Valley Regional Water Quality Control Board. The regulations are applicable to all storm water generated on any developed or undeveloped urban land within the City or conveyed by the public storm drain system. The critical component of the regulations is as follows:

> All persons engaged in activities which will or may reasonably be expected to result in pollutants entering the public storm drain system shall undertake best management practices (BMPs) to minimize such pollutants, shall provide protection from accidental discharge of pollutants to the public storm drain system and comply with cleanup and notification requirements of this chapter. Such measures shall include the requirements imposed by federal, state, county, or local authorities. BMPs are site specific and are described in the documents "Storm Water Best Management Practice Handbook: Construction"; "Storm Water Best Management Practice Handbook: New Development And Redevelopment"; "Storm Water Best Management Practice Handbook: Industrial And Commercial"; "Storm Water Best Management Practice Handbook: Municipal"; or other guidance documents available from EPA and/or RWQCB.

Reedley Storm Drainage Master Planning Report. The City's *Storm Drainage Master Planning Report* was prepared in 1982. The purpose of the report was to evaluate the existing storm drainage system and to identify future storm water collection and disposal infrastructure needs given anticipated growth in the City. A combination of pipelines for storm water collection, pump stations, drainage basins, and discharges to the Kings River were identified as the key system components needed to meet demand for storm water management within the then undeveloped portions of the City in which future development was anticipated at that time.

Reedley Municipal Code – Flood Hazard Management. Chapters 10 and 12 of City's Municipal Code contain a range of flood hazard management regulations that implement the City's overall flood hazard management program. The Municipal Code regulations address purposes and application of the program, flood hazard regulations that specify measures which must be implemented by new development projects to minimize impacts of flooding on the development and minimize potential for new development to intensify existing floods hazards, and flood hazard program administration requirements.

Environmental Setting

As stated in the GPU, the City's water, sewer, and storm drain master plan updates are being completed as part of the GPU. As noted above, the City had ~~also~~ anticipated adopting a 2010 UWMP by the end of 2013. However, the City completed this task ahead of schedule. The City has also completed a detailed assessment of groundwater conditions in the area entitled *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence* (Schmidt and Associates 2013). These two documents are critical pieces of analysis that ~~has been~~ are now ~~were~~ incorporated into this document. The City recently expanded the capacity of the wastewater treatment plant, an increase that will accommodate anticipated growth for the next 20 years. The City maintains storm water facilities (drains and ponding basins) within existing rights-of-way.

Surface and Groundwater Quality

Surface Water. The surface hydrology of the Reedley area is dominated by the Kings River. There are no other significant natural surface water features in the area and all other surface water channels and reservoirs in and around Reedley are manmade. These include the East Reedley Ditch and the Buttonwillow Ditch, which both provide irrigation water to surrounding agricultural properties. These water channels are typically piped and covered during the course of development within the city limits, unless the water channel would not be significantly affected by a proposed development. Water quality within the Kings River is generally very good as it conveys flows from snow melt in the Sierra Nevada Mountains.

The Kings River is also a major source of groundwater replenishment for the Kings Basin, the groundwater basin within which the City is located and from which the City extracts its domestic water supply. Because water quality in the Kings River is generally very good, groundwater quality in the Reedley vicinity is also generally good. In *City of Reedley 2011 Water Quality Report* (City of Reedley 2011), the City reported that after testing for over 100 constituents, the City's groundwater supply met all health related standards established by the California Department of Public Health, and the U.S. Environmental Protection Agency.

Groundwater. The City's potable water source is groundwater. The City relies on groundwater pumped from the Kings Basin. The City is located entirely within the Kings Basin. The City is located within the boundary of two different irrigation districts. Approximately 2,919 acres of the 3,133 acres within the exiting city limits are ~~and is~~ within the boundary of the Alta Irrigation District (~~"irrigation district"~~ AID), and the remaining approximately 214 acres, located in the western portion of the City, are located within the boundary of the Consolidated Irrigation District (CID). Within the approximately 4,930-acre existing SOI, about 4,498 acres are within the ~~irrigation district~~ AID boundary and 432 acres within the CID boundary. Within the

proposed SOI boundary, approximately 6,260 acres are within the AID and 831 acres within the CID. Each of these irrigation districts ~~which~~ manages surface and groundwater resources in a portion of the Kings Basin. They are two of the ~~irrigation district is one of~~ many water purveyors that extracts groundwater from the Kings Basin.

As described in the 2010 UWMP, the City relies on groundwater pumped from the Kings Basin as its sole source of supply (UWMP, p. 4-1). As stated on page 4-2 of the UWMP:

> Groundwater recharge comes from river, stream, and canal seepage, percolation of irrigation water, and intentional recharge. For the most part, the groundwater table in the Reedley area is dependent on snow melt and runoff in canals and ditches of the Alta Irrigation District as well as recharge from the Kings River. Snow pack in the Sierra Nevada to the east is variable and therefore total water supply to the area is subject to wide fluctuations in volume. Groundwater pumping is inversely proportional to the surface water supply available in the region, and in years when there is limited surface water available for irrigation, the groundwater levels experience a decline.

~~irrigation district~~ AID's *Amended Groundwater Management Plan* (Alta Irrigation District 2010) includes a summary of groundwater conditions in the Kings Basin and more specifically, within the boundary of the ~~irrigation district~~ AID, which is entirely within the Kings Basin. Pursuant to ~~The Kings Basin has been designated by~~ the California Department of Water Resources, Bulletin 118-80, Ground Water Basins in California, published in 1980, the Kings Basin is identified as being in a critical condition of overdraft. "The overdraft of the Kings Basin was previously estimated by the Kings River Conservation District (KRCD) to be an average of 161,000 acre feet per year from 1964-2004. KRCD models project that overdraft will average around 122,000 acre-feet per year through 2035 (HDR 2013, p. 4-4). ~~as being critically overdrafted.~~ Overdraft occurs when the net groundwater extractions from the basin exceed the replenishment of groundwater in the basin through percolation of surface water and rainfall. Water level measurements taken by the ~~irrigation district~~ AID over time show a continued downward trend in the depth to groundwater of that portion of the basin that is within the irrigation district's boundary. The average overdraft is approximately 22,000 acre-feet per year. An acre-foot of water is equal to about 325,850 gallons. AID has developed storage, recharge and banking programs to minimize the overdraft conditions.

Demand for groundwater with the basin is generally considered to be inversely proportional to the availability of surface water supplies from irrigation districts and other water purveyors. Surface water supply is in turn largely dependent on the volume of snowpack in the Sierra Nevada Mountains that feeds rivers and canals, including the Kings River, which provide

significant supply for the Alta Irrigation District and other water purveyors. When surface water availability is low, cumulative demand for groundwater increases, with agricultural users generating the dominant demand for both surface and groundwater supplies.

The City operates seven active water wells (with an additional standby well), two water storage towers, and an additional water storage tower facility is under construction. The *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence* report, included in Appendix B, was completed in part to better understand the relationship between water production, user consumption and recharge.

The City has not actively pursued a surface water treatment plant partly because of its reliance on the CID Groundwater Management Plan, which states, "there is no current imperative to develop municipal surface water treatment plants in CID Cities, but this may be necessary in the future. If urban lands continue to develop and rely exclusively on groundwater, and if recharge facilities are not developed to help meet future urban demands, treatment of surface water for municipal use in lieu of groundwater may be needed" (CID 2009, p. ES-5). After discussing with the engineering firm preparing the master utility (water, sewer, storm drainage) plans, the City believes that the cost to upsize the entire water distribution system to accommodate a force system is infeasible at this time. The City does not have the financial means to incur the cost of constructing a surface water treatment plant. The City also believes that to simply pass the cost along to the development community would significantly inhibit development in the community.

Drainage and Storm Water Disposal. The existing topography of the study area is generally flat. Storm water runoff drains generally in a westerly direction, through a surface and subsurface collection system, and is ultimately disposed of in a Kings River and to various City-owned retention basins and to several canals owned and operated by the ~~irrigation district~~ AID.

The City maintains and services a system of storm drainage improvements. The City has 10 drainage zones, nine permanent ponding basins, underground storm drains, storm drain inlets, a drainage ditch, and a pump station distributed throughout the City. Storm water flows into street collections systems and enters the storm drain inlets where it is conveyed to underground storm drains and the Buttonwillow Ditch on the east side of the City. Storm drains also carry water to one of the City's three ponding basins. The Camacho Park Ponding Basin is located at the northeast corner of North Avenue and Columbia. There is another ponding basin located at the end of Hemlock Avenue and Curtis Avenue. Both of these ponding basins are designed to use gravity to fill with water. Storm water is collected in these basins and percolates through the soil or evaporates into the air. The third ponding basin is located at the intersection of Washington Avenue and Caroline Avenue. Storm water from this basin is pumped to an irrigation canal.

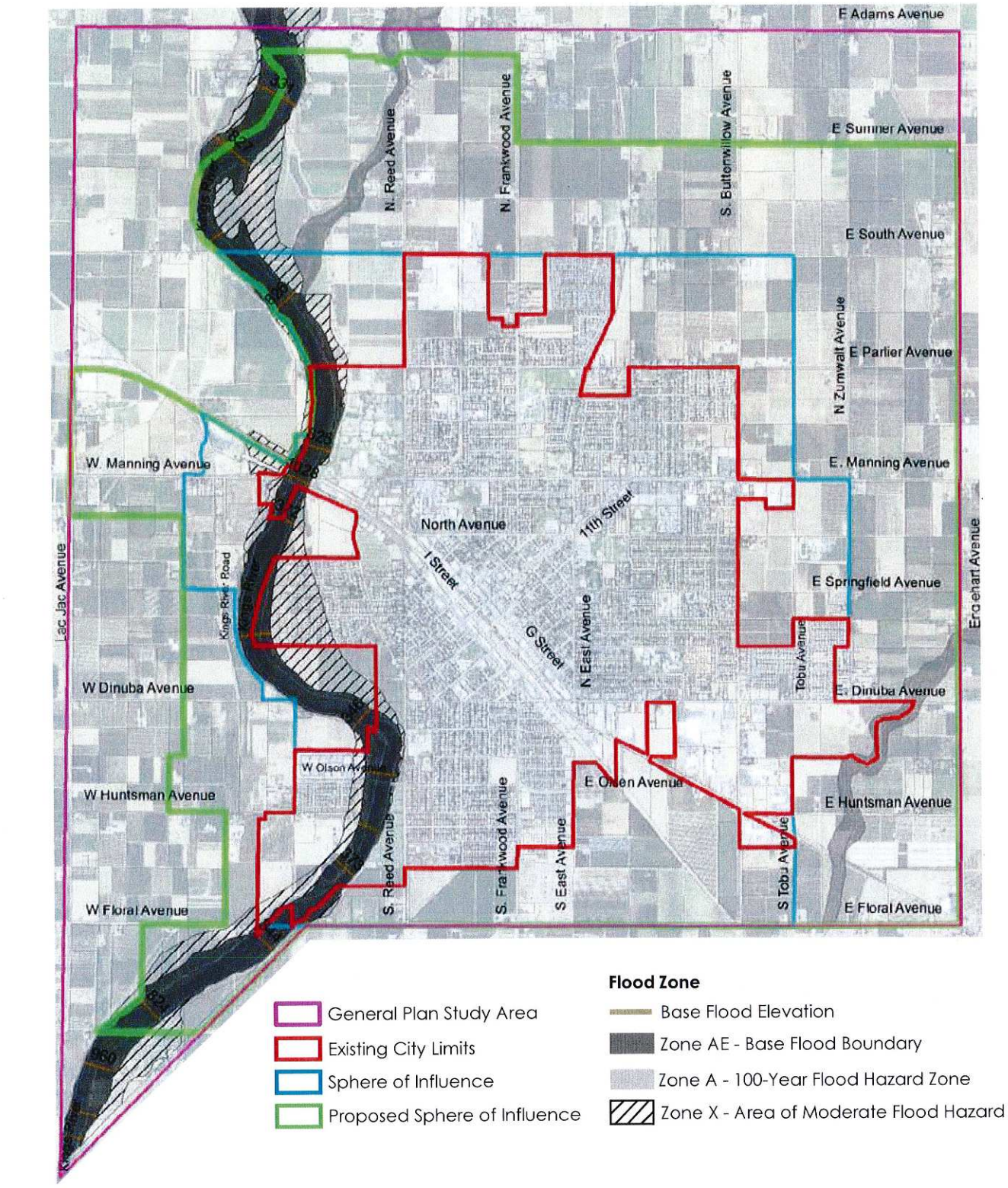
The NPDES Phase II Storm Water Program requires municipal separate storm sewer systems to obtain a permit and develop a storm water management program designed to prevent harmful pollutants from being washed by storm water runoff into local water bodies. The program must include public education, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control and pollution prevention, and good housekeeping.

Flooding and Dam Inundation

Flooding. The City has a history of flooding. Flooding in the Reedley area can occur due to high flows in the Kings River or as a result of local runoff from intense rainfall. The most damaging flood occurred in 1969 as a result of local runoff from intense rainfall. Flooding in the Reedley area has been documented in 1914, 1950, 1958, 1967, 1969, and 1978. In most cases the flooding was caused by high flows in the Kings River.

As described on page 5-2 of the proposed GPU Safety Element, FEMA has designated flood zones in specific areas of the proposed SOI as subject to inundation during a 100-year flood. A 100-year flood has a one percent chance of occurrence during any given year and is the flood magnitude which communities must protect against under Federal Insurance Administration regulations. Areas within the proposed SOI that are subject to inundation during a 100-year flood include lands along the margins of the Kings River in the eastern portion of the proposed SOI, areas along the margin of the Wahtoke Creek in the northern part of the proposed SOI, and areas along the margins of Travers Creek in the southeastern portion of the proposed SOI. The general location of the flood-prone areas within and adjacent to the proposed SOI is illustrated in Figure 11, 100-Year Flood Hazard Areas. Zones AE and A on Figure 11 show areas subject to inundation during a 100-year flood event. The Federal Emergency Management Agency's Flood Insurance Rate Maps from which the information in Figure 11 was updated in 2009.

Dam Failure. A portion of the GPU study area is also at risk of dam inundation from the Pine Flat Dam. Figure 12, Dam Failure Flood Inundation Areas, illustrates at general level, that an area along the Kings River west of Reed Avenue could be subject to inundation in the event that the dam were to fail. The Pine Flat Dam was completed in 1954 and impounds the Kings River at Pine Flat Reservoir, approximately 25 miles northeast of the City. The dam is constructed of concrete and built for flood control, irrigation, recreation, and water conservation, and is owned and regularly inspected and maintained by the U.S. Army Corps of Engineers. The reservoir has a storage capacity of approximately 1,000,000 acre-feet.



Source: City of Reedley 2011

Figure 11

100-Year Flood Hazard Areas

City of Reedley General Plan Update EIR

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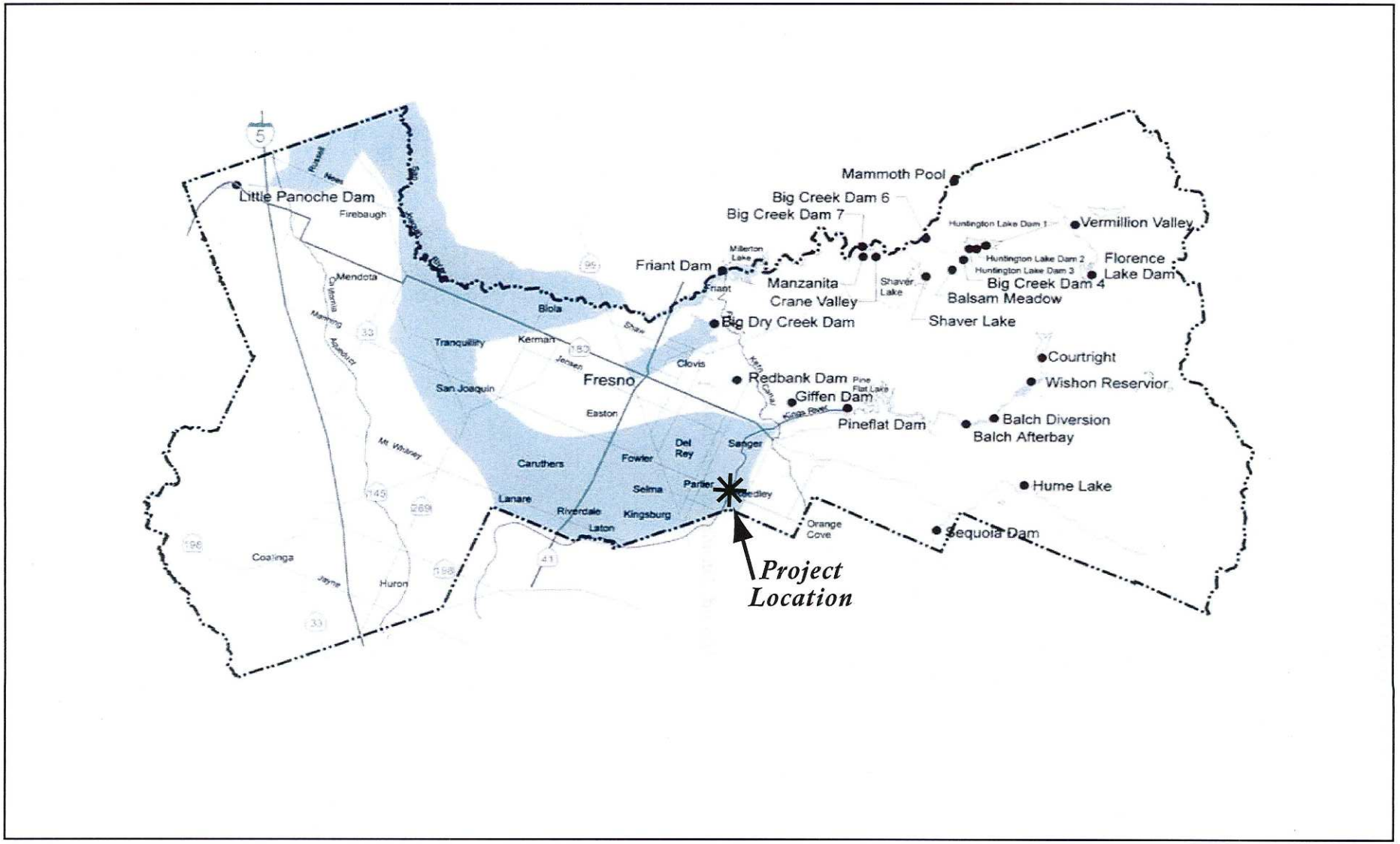

Source: Fresno County GIS Database 2012

Figure 12

Dam Failure Flood Inundation Areas

City of Reedley General Plan Update EIR

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Seiche, Tsunami, and Mudflow

Seiches, or waves generated in bodies of water similar to the back-and-forth sloshing of water in a tub, could possibly occur in swimming pools and water tanks. The only major water feature in the study area is the Kings River; however, the risk of a hazardous seiche from the river is unlikely. Reedley is not at risk from tsunami due to its inland location. Finally, the Reedley area is also not at risk of mudflows due to its relatively flat topography and distance from any hillsides.

Impacts and Mitigation Measures

This section discusses the potential impacts of implementation of the GPU on hydrology and water quality.

Impact HYD-1: Violation of Water Quality Standards/Waste Discharge Requirements

Level of Significance: Less than Significant

Discussion. Surface and groundwater quality degradation can result from a range of activities. The predominant types of development that would occur within the proposed SOI are potential sources of non-point water pollution that could result in degradation of water quality. Non-point sources of water pollution refer to those that are diffuse in nature and cannot be traced to a specific "end-of-pipe" location. Non-point sources of water quality pollution in urban environment that would be created with buildout of the proposed SOI generally consist of contaminants such as oil, grease, pesticides, fertilizer, solid waste and sediment that are deposited on impervious surfaces such as streets, parking lots, and driveways. These contaminants can be carried in storm water to directly surface water bodies or discharged via the City's storm water system to receiving waters. Construction activities are also a source of non-point contaminants such as sediment eroded from construction sites, oil, and grease. Most urban and construction activity contaminants also have potential to percolate through the soil and contaminate groundwater.

As new development occurs within the proposed SOI, the potential for increased surface and groundwater quality degradation will increase; new construction activities will take place, new development will bring an increase in use of contaminants that have potential to degrade water quality, and new impervious surfaces will be created that will result in increased storm water runoff that will be discharged directly to surface or ground water or indirectly through the City's storm water system, including to the Kings River and facilities operated by the ~~irrigation district~~ AID.

GPU Goals and Policies. The GPU contains a range of goals and policies whose implementation ~~which~~ will serve to avoid or reduce this impact to a less than significant level. These goals and policies include:

- ~~CIR 3.10.16: Update and implement the Storm Drain Master Plan. This plan will include water quality protection for areas where runoff may enter river, slough or groundwater. It also will include:~~

  ~~(a) Standards for limiting impervious surfaces to minimize runoff during storm event;~~

  ~~(b) Design and landscaping standards for storm water storage basins;~~

  ~~(c) An analysis of the feasibility of multi use water basins; and~~

  ~~(d) Financial mechanisms for construction and maintenance.~~

CIR 3.10.17: By March 2014, the City shall adopt an updated Storm Drain Master Plan; with implementation to commence as of its adoption date. Among other topics, this plan shall include measures for water quality protection for areas where runoff may enter river, slough or groundwater. It also will include the following:

a) The system capacity, which shall be designed based upon storm events and capacity needed to recharge groundwater.

b) Incorporation of a ground water monitoring well, when feasible, as part of the minimum design standards for storm water facilities in the City of Reedley.

c) Standards for limiting impervious surfaces to minimize runoff during storm events.

d) Design and landscaping standards for temporary and permanent storm water storage basins.

e) An analysis of the feasibility of multi-use water basins.

f) Funding mechanisms for construction, repair, and maintenance.

- Policy COSP 4.2.3: Protect areas of ground water recharge from land uses and disposal methods which would degrade water sources.
- Policy COSP 4.2.4: Provide public sewer service to new urban development as a means of protecting ground water resources.
- Policy COSP 4.2.6: Promote activities which combine stormwater control and water recharge.

- Policy COSP 4.2.7: The city will enhance groundwater recharge supply by requiring the installation of detention/retention ponds in new growth areas.
- COSP 4.14.18: In addition to open space preservation, explore development alternatives and standards to minimize impacts on open space areas. Such techniques may include grading standards and measures to improve the short-term and long-term quality of stormwater run-off.

Policy CIR 3.10.16~~7~~ will ensure that water quality protection measures are comprehensively considered as part of the development process for storm water management. Policy COSP 4.2.3 also supports protection of water resources through managing storm water disposal. Policy CIR 3.10.17 assures that funding will be available to manage storm water quality via a consistent facility funding mechanism. Implementation of policies that incorporate best management practices for water quality protection such as use of detention facilities will also serve to reduce water quality impacts. Consequently, policies COSP 4.2.6 and 4.2.7, which require incorporation of storm water detention/percolation facilities, will provide added water quality protection.

In addition to implementation of the above policies, non-point source pollutants are currently regulated by Section 8-5-1 of the Municipal Code, which specifies the City's regulations for implementing storm water quality management strategies consistent with NPDES requirements. The City's *Stormwater Management Implementation Plan*, described previously, outlines all of the measures which must be implemented by the City and by future development to comply with the NPDES water quality protection requirements. In addition, the ~~irrigation district~~ AID will continue to regulate any municipal storm water discharged into its facilities through the City's storm water management system by enforcing the terms of permits granted to the City. Permit terms include requirements that discharged water meet RWQCB standards.

It should be noted that the City currently has minimal development on the west side of the Kings River, in the jurisdiction of CID. The City has no facilities at this time which are connected, or directly tied to any CID canal or ditch. It would also appear that there are no existing CID facilities in the proposed SOI that would be impacted. Any development in CID would be required to pay all storm water facilities impact fees and any applicable development impact fees and/or implement mitigation measures.

Through implementation of proposed GPU policies and required development consistency with the City Municipal Code and NPDES requirements, impacts on water quality from implementation of the GPU would be less than significant.

Regarding waste discharge requirements, please refer to Section 2.13, Utilities, for a discussion of the City of Reedley Wastewater Treatment Plant and conformance with waste discharge requirements that apply to that facility.

Additional Required Mitigation. No additional mitigation required. ~~None.~~

Impact HYD-2: Substantially Deplete Groundwater Supplies or Interfere with Groundwater Recharge

Level of Significance: Cumulatively Significant and ~~Potentially~~ Unavoidable ~~with Mitigation Incorporated~~

Discussion. Impacts of groundwater extraction are generally not localized within a project site or in the case of the proposed GPU, within the boundaries of the proposed expanded SOI. Rather, such impacts are cumulative in nature as the boundaries of an affected groundwater basin are typically significantly broader than that of the subject project being evaluated for its impacts on groundwater. Hence, this discussion of the impacts of the proposed GPU is inherently focused on its incremental, cumulative contribution to impacts on groundwater conditions within the much broader Kings Basin. The information contained in this discussion is also referenced in the Section 3.0, Cumulative Impacts.

As described previously, the Kings Basin from which the City draws all of its water supply is in an overdraft condition. The depth to groundwater of sufficient quality to meet State Water Quality standards has been decreasing over time and can be expected to continue to decrease as demand for groundwater increases. The three main factors contributing to the cumulative overdraft conditions include: 1) groundwater pumping to meet agricultural water demand when surface water diversions are inadequate to fully meet the crop water requirements; 2) high reliance on groundwater for all demands in much of the western parts of Kings Basin; and 3) urban development and reliance on groundwater once lands are converted to urban use from agricultural uses.

A range of efforts are underway by individual water purveyors and water users within the Kings Basin to address the cumulative groundwater overdraft problem. The initial ~~primary~~ comprehensive effort is described in the *Upper Kings River Basin Integrated Regional Water Management Plan* (~~Rime~~ WRIME 2007). Numerous water purveyors, users, and regional and state agencies have come together to identify groundwater conditions, groundwater management strategies, and groundwater replenishment/conservation projects whose implementation would help to reduce intensity of overdraft. Part of this effort has been preparation of technical analyses and modeling that identifies existing groundwater conditions and projects future groundwater conditions in the year 2030 both with and without implementation of mitigating strategies and projects. The City and the ~~irrigation district~~ AID have actively participated in this integrated water resources planning process. The 2007 plan has since been updated. The current *Upper Kings River Integrated Water Management Plan* contains new information based on updated requirements from the California Department of Water Resources, describes the new basin governance structure, reflects changes in policies and procedures, and includes information on new stakeholders and their input on water management issues (Kings Basin Water Authority 2012).

While efforts are underway throughout the Kings Basin to address the overdraft problem, it is unlikely that the measures being implemented will be sufficient to bring the basin into equilibrium ~~through~~ within the year 2030 time horizon for which modeling has been conducted. Groundwater levels in the Kings Basin will generally continue to decline, though the degree of decline would vary across areas within the basin (WRIME 2007, Figure 4-12). Additional cumulative urban demand through the year 2030 would result in lower groundwater levels when compared to existing conditions. Since agriculture relies mostly on surface water, the difference between existing groundwater levels and levels in 2030 is not significant where land use remains predominantly agricultural (WRIME 2007, Figure 4-12).

The City has historically provided domestic water supply solely through groundwater extraction. The City's historic extraction of groundwater is illustrative of one of the three main causes of cumulative groundwater overdraft in the Kings Basin as noted above – urban development that is reliant on groundwater for water supply, agricultural needs and lack of recharge. While the City's historic contribution to the cumulative regional overdraft condition has been small, the contribution within an overdrafted groundwater basin is notable. ~~As described previously, groundwater overdraft within the smaller boundary of the irrigation district within which the vast majority of the City is located, has been estimated at about 22,000 acre-feet per year and the City's historic use of groundwater has contributed to overdraft at this more localized scale.~~

The Kings River is the main river that runs through Fresno County and runs along the western border of the City. The Kings River is also a major source of groundwater replenishment for the Kings Basin. The Kings River is the best and most prominent riparian and wetland habitat in the County of Fresno. "The Kings River, its tributaries, and sloughs are the lifeline of riverine-riparian habitat that links the Sierra Nevada Mountains to the foothills, to the valley floor" (Kings River Water Basin Authority 2012, p. 3-3).

The overdraft of the Kings Basin was previously estimated by the Kings River Conservation District (KRCD) to be an average of 161,000 acre-feet per year from 1964-2004. KRCD models project that overdraft will average around 122,000 acre-feet per year through 2035 (HDR 2013, p. 4-4). Comparatively speaking, the City near-term and long-term average water deficit would be conservatively less than five percent of the total overdraft condition. As described previously, groundwater overdraft within the AID, within which the vast majority of the City is located, has been estimated at about 22,000 acre-feet per year and the City's historic use of groundwater has contributed to overdraft at this more localized scale. According to CID's Groundwater Management Plan, "The average surface water supply is approximately 238,000 acre-feet, but can vary from the low of 13,500 acre-feet in 1976, to a high of 616,000 acre-feet in 1967. Average recharge is approximately 30,000 acre-feet, ranging from zero in the driest of years, to a maximum of 187,000 acre-feet (CID 2009, p. 4). Groundwater overdraft conditions in the Reedley area reflect cumulative overdraft conditions within the broader groundwater basin within which the ~~irrigation district~~ AID, CID, and the City are located.

The *Groundwater Pumping, Recharge, and Consumptive Use in the proposed City of Reedley Sphere of Influence, Final Draft Report* (Schmidt and Associates 2013)(hereinafter "groundwater report") provides a more detailed understanding of the City's current consumptive use of groundwater resources and the projected future consumptive use that would result under buildout of the proposed SOI. The groundwater report is contained in Appendix B. Generally, "consumptive use" means the amount of groundwater extracted that is not returned to the underground aquifer, or the volume of water extracted that is consumed. Examples of consumptive uses include water used for irrigation and transpired to the atmosphere by plants, water incorporated into products or crops, and water consumed by people or animals. Extracted groundwater that is not consumed may be returned to the underground aquifer by percolation via agricultural irrigation, agricultural irrigation ditches, landscape irrigation, percolation of treated wastewater, or percolation of stormwater.

The groundwater report describes existing consumptive use within the existing City urban area, the existing SOI, and the proposed expanded SOI. Within the existing urban area of the City, total annual consumptive use is estimated at 2,150 acre-feet per year, of which about 1,000 acre-feet per year is intentionally recharged to the underground aquifer. As such, water demand within the City results in a net decrease or deficit of 1,150 acre-feet of groundwater per year. Table RDEIR 2, Existing Groundwater Consumptive Use, summarizes the information provided in the groundwater report about existing consumptive use. The groundwater report states, "The amount of stormwater recharged in basins in the City, delivered to AID canals, or discharged to the Kings River was about 1,000 acre-feet per year in 2012. Although the City doesn't directly benefit from this canal and river discharge, that water is eventually used or recharged, and benefits the Kings Basin (Schmidt and Associates 2013, p. 3).

Within the existing SOI (land within the city limits plus land outside the city limits but within the existing SOI boundary), consumptive use is estimated at 5,650 acre-feet per year. The groundwater deficit is estimated to be 2,650 acre-feet per year. (Schmidt and Associates 2013, p. 4).

In the GPU buildout year of 2030, with the buildout of the proposed expanded SOI, the City's consumptive use of groundwater from urban uses increases to 6,800 acre-feet per year (Schmidt and Associates 2013, p. 5) and the total groundwater deficit would be 6,300 acre-feet per year. Consequently, buildout of the proposed SOI as guided by the GPU would result in an increase in the groundwater deficit of 3,650 acre-feet per year relative to the existing deficit of 2,650 acre-feet per year within the existing City SOI. This significant increase is due in large part to the piping of miles of canals which through seepage currently provide a valuable opportunity for recharge of the underground aquifer. Implementation of the proposed GPU would; therefore, exacerbate existing groundwater overdraft conditions by increasing extraction of groundwater by 3,650 acre-feet per year. Table RDEIR 3, Future 2030 Groundwater Consumptive Use, summarizes this information.

Table RDEIR 2 Existing Groundwater Consumptive Use

Direct Consumptive Use - Existing Condition			
1. Existing Urban Area (City Limits)			
Outdoor Water Use (Urbanized)			
City Pumpage	5,000		
Wastewater flow	-2,000		
Total Outdoor Water Use		*3,000*	
Estimated Consumption Urbanized Use for Outdoor Irrigation (65% of Outdoor Water Use)	1,950		
Annual Evaporation Rate (2.8 acre-feet per acre per year)	200		
Total Urban Consumption		*2,150*	
2. Existing SOI (Rural Uses)			
Average consumptive use (Rural Irrigation)	3,500		
Total Rural Irrigation Consumption		*3,500*	
Total Urban and Rural Consumptive Use			5,650
3. Recharge (Canal Seepage & Storm runoff)			
Average Canal or Ditch	1,600		
Canal Ditch Seepage	1,150		
Additional Storm Runoff	250		
		3,000	
Total Direct Recharge			3,000
AVERAGE WATER DEFICIT EXISTING URBAN AND SOI	-	-	**-2,650**
Indirect Consumptive Use - Existing Condition			
Indirect Discharge to AID, canals & Kings River	1,000		
Basin Recharge	250		
Total Indirect Recharge		*1,250*	
Direct & Indirect Total Consumptive Use			-1,400

Notes:

1. Numbers are in acre-feet per year.
2. All values have been rounded to nearest 50 acre-feet per year.

Source: Groundwater Pumping. Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence, Kenneth D. Schmidt and Associates Groundwater Quality Consultants, May 2013

Table RDEIR 3 Future 2030 Groundwater Consumptive Use

Direct Consumptive Use - Future Condition 2030			
1. Existing Urban Area (City Limits)			
Outdoor Water Use (Urbanized)			
City Pumpage	17,200		
Wastewater flow	-8,000		
Total Outdoor Water Use		*9,200*	
Estimated Consumption Urbanized Use for Outdoor Irrigation (65% of Outdoor Water Use)	6,000		
Annual Evaporation rate (2.8 acre-feet per acre per year)	800		
Storm water Runoff	-500		
Total Urban Consumption		*6,300*	
2. Existing SOI (Rural Uses)			
Average consumptive use (Rural Irrigation)	3,500		
Total Rural Irrigation Consumption		*0*	
Total Urban and Rural Consumptive Use			6,300
3. Recharge (Canal Seepage & Storm runoff)			
Average Canal or Ditch	0		
Canal ditch Seepage	0		
Additional storm runoff	0		
		0	
Total Direct Recharge			*0*
AVERAGE WATER DEFICIT	-	-	**-6,300**
Indirect Consumptive Use - Existing Condition			
Indirect Discharge to AID, canals & Kings River	2,750		
Open Space Recharge & Kings River	1,000		
Total Indirect Recharge		*3,750*	
Direct & Indirect Total Consumptive Use			-2,550

Notes:

1. All values are in acre-feet and have been rounded to nearest 50 acre-feet per year.
2. Presuming full build-out by 2030, the City will have jointly developed with Alta I.D. a recharge basin of sufficient size to recharge the water deficit.

Source: Groundwater Pumping. Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence, Kenneth D. Schmidt and Associates Groundwater Quality Consultants, May 2013

The groundwater report notes that groundwater is pumped by the City from wells, all of which are all west of the Kings River within the AID. No groundwater is pumped from within the boundary of the CID. It is also noted that groundwater conditions within the boundary of the CID significantly and disproportionally benefit by percolation of treated effluent from the City's wastewater treatment plant that is located west of the Kings River. The percolation volume is predicted to reach about 7,200 acre-feet under full buildout of the proposed SOI. Nevertheless, the groundwater report also concludes that the existing and projected water deficits impact the CID by decreasing groundwater flows into the CID that would otherwise occur (Schmidt and Associates 2013, p. 8).

The groundwater report concludes that most of the increased water deficit under proposed SOI buildout conditions is due to the loss of seepage from canals and ditches that would be replaced with urban uses and from the loss of deep percolation from irrigation water placed on agricultural land that would be converted to urban use. The report goes on to state that the increased deficit could be off-set by working with the AID to enable percolation of canal or ditch water in City storm water basins with some also used for park or other landscape irrigation. Other alternatives include City participation in development of recharge facilities within the AID and/or increasing the volume of storm water captured and recharged to groundwater through storm water percolation basins.

GPU Goals and Policies. The GPU contains a range of goals and policies whose implementation will ~~serve to~~ facilitate the gathering of data related to management of the existing water supply, reduce the City's demand for groundwater resources, and enhance groundwater replenishment/recharge to off-set impacts from groundwater overdraft. These goals and policies include:

- ~~Policy LU-2.7.7: Ponding basins shall be developed at appropriate locations to help recharge the groundwater basin. Properly designed, ponding basins can also function as local parks.~~

- CIR 3.10.1: The City shall adopt the 2010 Urban Water Management Plan in accordance with California Water Code, Division 6, by January 2014:

  a) The Plan shall be prepared in accordance with Article 1, Sections 10620- 10621.

  b) The contents of this Plan shall be consistent with Article 2. Contents of Plans, Sections 10630-10634.

  c) The implementation of the Plan shall be in accordance with Article 3. Adoption and Implementation of Plans, Sections 10640-10645.

d) After the adoption of the 2010 Urban Water Management Plan, the City shall prepare and adopt the 2015 Urban Water Management Plan, pursuant to the California Water Code, Division 6.

e) Should the Plan expire at any time, pursuant to State Law, the City shall not support the approval of any annexation of unincorporated territory, General Plan amendment, zone change and/or tentative tract map entitlement applications.

- ~~Policy CIR 3.10.3: Periodically review and update development impact fees, water connection charges, and monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities~~

- CIR 3.10.3: The City Council shall annually review and adopt updates of development impact fees, water connection charges, and volume-based monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities for delivery, monitoring, and storage.

- ~~Policy CIR 3.10.4: Support efforts to expand surface water supply and storage that benefits the City. These efforts should include water banking and treatment.~~

- CIR 3.10.4: The City shall actively support efforts to expand surface water supply and storage that benefits the City. These efforts should include, but not be limited to, coordination with Alta Irrigation District for water banking, WWTP effluent recycling and percolation.

- ~~Policy CIR 3.10.5: Require that necessary water supply infrastructure and storage facilities are in place coincident with new development, and approve development plans only when a dependable and adequate water supply to serve the development is assured.~~

- CIR 3.10.5: The City shall require that necessary water supply infrastructure is available prior to constructing new development, and approve development plans when there is assurance of a dependable and adequate water supply that will serve the development.

- ~~CIR 3.10.6: A water supply assessment studymay be required for individual projects that were not anticipated by the City.~~

- CIR 3.10.6: Any development project which meets the definition of a "water-demand project", pursuant to CEQA Guidelines Section 15155, will require the preparation of a "water assessment" in accordance with Water Code Sections 10910 & 10915. The City Council shall formally consider approval of the assessment within the time period required by applicable law and prior to the approval of any development entitlements for the development project.

- ~~Policy CIR 3.10.7: Cooperate with surrounding water management and irrigation districts in a comprehensive water management and recharge program with the long term goal of stabilizing the groundwater basin.~~

- CIR 3.10.7: The City shall cooperate with surrounding water management authorities and irrigation districts to develop a comprehensive water management and recharge program which addresses the long-term stabilization of the Kings Basin and the transfer of excess WWTP effluent recycled water for use by the districts for recharge or use by their constituents.

- ~~Policy CIR 3.10.8: Continue to require water meters in all new development.~~

- CIR 3.10.8: Through the entitlement process described in the Reedley Municipal Code, the City shall require as a condition of approval that new development will be required to install water meters which meet the City's standards.

- ~~Policy CIR 3.10.9: Encourage private sector use of alternative water sources to achieve a water balance, including reclaimed water for irrigation and landscaping purposes.~~

- CIR 3.10.9: The City shall encourage and cooperate with the private sector to incorporate alternative methods of water reuse into new development, such as reclaimed water from irrigation, landscaping and purple pipe systems.

- ~~Policy CIR 3.10.10: Establish a comprehensive program for water conservation consistent with State law.~~

- CIR 3.10.10A: The City Council shall initiate the preparation and then consider adoption of a performance based Water Conservation Program ("WCP") that addresses water consumption to help ensure an adequate water supply to accommodate the projected growth and development patterns proposed within this GPU. The policies and implementation measures contained in the WCP shall set performance standards for sustainable management of Reedley's water production. The WCP, or a similar program that accomplishes the goals set forth below, shall be adopted and in effect prior to the implementation deadlines set forth in any of the policies set forth below.

  For each policy, standard and implementation measure identified below for inclusion in the WCP there shall be a discussion of the following: (1) How the policy, standard or implementation measure shall reduce per capita potable water consumption; (2) Whether and how the policy, standard or implementation measure would be integrated into the development entitlement process; and (3) how the policy, standard or implementation measure would be enforced through the regulatory environment.

The policies listed below have been assigned a date of anticipated implementation or completion. Those dates were determined by operational necessity and compliance, complexity of task and staffing capacity.

GOAL: To reduce per capita potable water consumption by an additional twenty (20) percent by the year 2020.

COMPLIANCE MONITORING AND REPORTING: After the adoption of the WCP, the Community Development Department shall provide an annual report to the City Council progress made toward overall implementation of the WCP.

The WCP shall include the following policies and implementation measures:

a) The WCP shall include a public education component that addresses various topics related to groundwater production, consumption, recharge and recycling. The public education activities listed below will occur annually at various times throughout the year:

   1) The annual water quality report, prepared by the Public Works Department, which includes statistics related to annual water consumption, discharge and containment, shall be presented to the City Council for its consideration of approval. After Council approval, the report shall be submitted to the State Department of Water Resources.

   2) The Public Works Department shall prepare an annual report that identifies, at a minimum, the amount of water used to irrigate the open space and the projected amount of groundwater recharge that has occurred. The City shall use industry standards to establish a formula to calculate the balancing of production to groundwater recharge.

   3) All water quality reports prepared by the Public Works Department that are required by the Regional Water Quality Board shall be presented to the City Council for its consideration of approval.

   4) The City shall develop publications and other forms of communication to City water customers to inform them regarding the City's efforts to reduce water consumption and ways the customers can assist with achieving the City's goals.

b) By March 2014, City Council shall consider the adoption of a water utility plan to implement a city-wide public water system through the year 2030. The implementation of this plan will assist the City in identifying locations for future delivery and recharge infrastructure. The Plan will serve as a basis for the development of impact fees necessary for implementation of the plan.

c) Within one (1) year of the adoption of the GPU, the City Council shall complete a thorough review of the City's development impact fee program and shall consider the adoption of a comprehensive update of the various fees included in the program.

1) This review shall include, but not be limited to, Storm Drainage, Water Distribution, Groundwater Recharge, Water Supply/Holding and Waste Water Collection and Treatment.

2) Within each topic area, the review shall include the analysis of existing conditions, proposed new development, need necessitated by future development and proportional cost attributed to land use development.

d) Within one (1) year of the adoption of the GPU, the City Council shall consider the amendment of RMC, Section 8-1-12 and other relevant provisions of the RMC related to Water Conservation, to include additional water conservation provisions and implementation measures to assist in implementing the provisions of Senate Bill No. 407 and State Building Code provisions related to water conserving plumbing fixtures and fittings, so as to meet or exceed a twenty (20) percent reduction in water consumption. Specific requirements added to the RMC would include, at a minimum, the following:

1) Shower head fixtures and fittings shall be designed and installed so that they will not exceed a water supply flow rate of 1.75 gallons per minute.

2) Faucets at kitchens, lavatories, wet bars, laundry sinks, or other similar use fixtures shall be WaterSense labeled and installed so that they will not exceed a water supply flow rate of 1.5 gallons per minute.

3) Toilet fixtures and fittings shall have an average consumption that does not exceed 1.1 gallons of water per flush.

4) New residential dwellings that are equipped with clothes washers shall install washers that are ENERGY STAR qualified.

5) The water pressure in a single family home shall not exceed 60 pounds per square inch (psi), with no detectable water leaks. Multifamily and midrise projects are exempt from the water pressure testing criterion but shall meet the requirements as stated in 1) through 4) above (Source: U.S. Green Building Council).

e) The City shall strive to implement best management practices ("BMP") developed by the California Urban Water Conservation Council and provide annual reports to the City Council and the California Urban Water Conservation Council regarding its progress in implementing the BMP.

f) The City shall consider the adoption of a Water Efficient Landscaping Ordinance that is as effective as, or more effective than, the Model Water Efficient Landscape Ordinance adopted by the California Department of Water Resources. The Ordinance shall contain applicability, definitions, provisions for new construction or rehabilitated landscapes, application requirements, water efficient landscape and certification.

To further reduce outdoor water consumption, encourage water efficient landscaping practices through the reduction of turf grass by at least 40 percent and increasing the amount of plants that are native or adapted to the region by at least 25 percent (Source: U.S. Green Building Council).

g) The City shall work with utility service providers such as PG&E who have rebate programs available to City's water customers to inform customers of the programs and to encourage them to utilize the programs to replace current water consuming appliances with water conserving appliances that are Energy Star rated.

h) The City shall measure irrigation water used for parks/open space through the installation of standard water meters on all large park/open space areas, which may be creditable for recharge purposes. The installation of the meters will be completed within one year after the adoption of the GPU.

i) The City shall systematically replace failing irrigation controllers at City parks, median islands and other City facilities with landscape irrigation systems with irrigation controllers equipped with, at a minimum, rain and evapotranspiration sensors, with the goal of reducing water used for landscape irrigation by twenty (20) percent to forty (40) percent, as supported by studies performed in the industry. This replacement program shall commence when the GPU is adopted.

j) The City shall work cooperatively with land owners, local and regional water agencies, and irrigation districts which rely upon the Kings Basin as a source of water to identify and implement infrastructure projects and other programs that serve to reduce the use of groundwater and/or facilitate the recharge of the aquifer.

k) The City shall continue to work with the Upper Kings Basin Integrated Regional Water Management Authority in developing a strong coalition of water agencies, cities, counties and environmental groups to address local water issues.

- CIR 3.10.10B: As part of the City's formulation of its annual budget, City staff shall identify a list of capital facilities improvement projects, with proposed budgetary allocations necessary to implement further reductions of water consumption and/or maintain service.

- CIR 3.10.11: By March 2014, the City shall adopt a Wastewater System Master Plan to address the collection and treatment system. The implementation of this Plan will assist the City in identifying general locations for future infrastructure. The Plan will also be vital to the development of impact fees which are necessary for implementation.

- CIR 3.10.12: The master plan shall include analysis of the treatment needs as well as collector system disposal measures and financial mechanisms.

- CIR 3.10.13: The City shall acquire adequate land to be used for reclamation purposes.

- CIR 3.10.14: The City shall periodically review and update development impact fees, wastewater connection charges, and monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities.

- CIR 3.10.18: The City shall prepare and present to the City Council for consideration of adoption of a comprehensive set of policies to ensure an adequate storm water drainage system to support the growth and development patterns proposed within this GPU. These policies shall set performance standards for sustainable management of Reedley's storm water drainage system. The policies, including those set forth below, shall be adopted such that their provisions are implemented by the deadlines set forth in the proposed policies. If the policy does not contain a specific deadline for its implementation, it shall be considered for adoption within twelve (12) months of the GPU's adoption. After the adoption of the GPU, the Community Development Department shall provide an annual report to the City Council describing progress made toward the development, adoption and overall implementation of these policies.

  The staff analysis supporting each policy shall include a discussion of the following: (1) How the policy would minimize potential detrimental effect caused by the percolation of storm water; (2) Whether and how the policy would assist in the City's efforts to recharge the underground aquifer; (3) How the policy would be integrated into the entitlement process; and, (4) How the policy would be enforced through the regulatory environment. The policies shall include the following:

  a) The City shall develop and implement a public education component that addresses various topics related to collection and disposal of storm water and shall include periodic reports to the City Council and the public regarding its progress in implementing the policies. Specifically, this component shall include the following actions by the City Council:

     1) All legally required storm drainage reports prepared by the Public Works Department shall be presented to the City Council for consideration of adoption.

2) All legally required National Pollutant Discharge Elimination System (NPDES) program reports, prepared by the Public Works Department shall be presented to the City Council for consideration of adoption.

3) By March 2014, City Council shall consider the adoption of the Storm Drain Master Plan. The plan will assist the City in identifying locations for future infrastructure and ground water recharge opportunities. The Plan will also serve as basis for the development of updates to the impact fees which are necessary for implementation.

b) The City shall develop standard operating procedures for vegetation management in storm water basins to ensure the basins' structure and capacity is not compromised. The formal procedure shall be adopted within eighteen months after the adoption of the GPU.

c) The City shall develop standard operating procedures for storm water measurement and for recording water levels in the basins. These procedures shall be adopted within eighteen months after the adoption of the GPU.

d) The City shall develop standard operating procedures for documentation of interceptor monitoring and clean-out. The formal procedures shall be adopted within eighteen months after the adoption of the GPU.

e) The City shall develop standard operating procedures for the bottom ripping of all storm water basins to ensure continual and optimal percolation. The procedures shall be adopted within eighteen months after the adoption of the GPU.

f) As the City collects storm drainage development impact fees, and those fees become available, the City shall install measuring devices (e.g. flow meters, visually marked measuring poles) on drain inlets to measure storm events, which will be used to quantify Reedley's efforts to increase groundwater recharge.

g) On an on-going basis, the City shall strive to work with the irrigation districts to identify the most suitable locations for storm water basins based on soil type, elevation, and other factors.

- CIR 3.10.18B: As part of the City's formulation of its annual budget, City staff shall identify a list of capital facility improvement projects, with proposed budgetary allocations, necessary to increase the use of collected storm water for the City's groundwater recharge efforts.

- CIR 3.10.19A: The City shall prepare and present to the City Council for consideration of adoption a comprehensive set of policies to ensure an adequate city-wide program for the recharge of ground water to support the growth and development patterns proposed within this GPU. These policies shall set performance standards for sustainable management of Reedley's use of groundwater and promote efforts to increase groundwater recharge. The policies, including those set forth below, shall be adopted such that their provisions are implemented by the deadlines set forth in the proposed policies. If the policy does not contain a specific deadline for adoption or implementation, it shall be considered for adoption within twelve (12) months of the GPU's adoption. After the adoption of the GPU, the Community Development Department shall provide an annual report to the City Council describing progress made toward the development, adoption and overall implementation of these policies.

The staff analysis supporting each policy shall include a discussion of the following: (1) How the policy would help to reduce consumptive use; (2) Whether and how the policy would assist in the City's efforts to recharge the underground aquifer; (3) How the policy would be integrated into the entitlement process; and, (4) How the policy would be enforced through the regulatory environment. The policies shall include the following:

a) The City shall develop and implement a public education component that addresses various topics related to the consumptive use of groundwater as well as efforts to recharge the underground aquifer and shall include periodic reports to the City Council and the public regarding its progress in implementing the policies.

b) The City shall work cooperatively with land owners, local and regional water agencies, and irrigation districts which rely upon the Kings Basin as a source of water to identify and implement infrastructure projects and other programs that serve to reduce the use of groundwater and/or facilitate the recharge of the aquifer.

c) The City shall work cooperatively with the irrigation districts to develop and implement new strategies to expand upon current efforts directed toward groundwater recharge. These strategies may include:

i) Exploring the feasibility of joint water banking.

ii) Exploring opportunities to jointly participate in studies that will be used to facilitate new or expand waste water recycling and reclamation opportunities.

d) Develop a methodology for early consultation (CEQA Section §21080.3) with the irrigation districts as part of the environmental review process when an entitlement application that involves annexing new land into the City is submitted. The comments received from the District will be fundamental to the development of conditions of approval applied to said projects. This process could be developed and implemented within one year after the adoption of the GPU.

e) On an on-going basis, the City shall strive to work with the irrigation districts to identify the most suitable locations for storm water basins based on soil type, elevation, and other factors.

f) The City shall continue to work with the Upper Kings Basin Integrated Regional Water Management Authority in developing a strong coalition of water agencies, cities, counties and environmental groups to address local water issues.

g) The City shall continue to work with the Kings River Conservation District to identify projects that would directly and efficiently increase groundwater recharge and to identify funding sources for said project, with the goal of submitting a grant application to the District for such a project by January 15, 2015.

h) Within one (1) year of the adoption of the GPU, the City Council shall complete a thorough review of the City's development impact fee program and shall consider the adoption of a comprehensive update of the various fees included in the program.

1) This review shall include, but not be limited to, Storm Drainage, Water Distribution, Groundwater Recharge, Water Supply/Holding and Waste Water Collection and Treatment.

2) Within each topic area, the review shall include the analysis of existing conditions, proposed new development, need necessitated by future development and proportional cost attributed to land use development.

i) By 2020, the City shall prepare an updated Groundwater Pumping, Recharge, and Consumptive Use Analysis report using the same methodology as the 2013 report. Part of this report will include policies, recommendations, and implementation measures. The analysis and recommendations shall be presented to the City Council for its consideration.

j) All annual reports, prepared by the Public Works Department related to water quality, water supply and delivery, and groundwater recharge shall be presented to the City Council for its consideration of adoptions.

k) The City shall continue to strive to develop and implement best management practices and strategies in compliance with State law and regulatory permits/ requirements related to water quality and supply and groundwater recharge, and report annually to the California Urban Water Conservation Council on its progress in developing and implementing said practices.

l) The Public Works Department shall prepare an annual report that identifies, at a minimum, the amount of water used to irrigate the open space and the projected

amount of groundwater recharge that has occurred. The City shall use industry standards to establish a formula to calculate the balancing of production to groundwater recharge.

- CIR 3.10.20B: As part of the City's formulation of its annual budget, City staff shall identify capital facility improvement projects, with proposed budgetary allocations, necessary to implement the City's groundwater recharge efforts.

- COSP 4.2.3: Protect areas of ground water recharge from land uses and disposal methods which would degrade water sources.

- COSP 4.2.6: Promote activities which combine stormwater control and water recharge.

- COSP 4.2.7: The City will enhance groundwater recharge supply by requiring the installation of detention/retention ponds in new growth areas.

- COSP 4.2.10: Continue to encourage water conservation.

Implementation of the above-noted policies will ~~incrementally~~ substantially lessen ~~reduce~~ the City's incremental cumulative impact on groundwater by ~~encouraging~~ enhancing groundwater recharge, limiting development where a demonstrated source of water is not available, ensuring continued participation in regional integrated water resources planning and project development, facilitating water conservation, ~~and~~ protecting groundwater quality, and identifying and assuring adequate funds are available to implement related measures. Implementation of policy CIR 3.10.10A will be of particular importance for lessening impacts on groundwater. This policy describes specific actions, responsibilities, and timing for preparing and implementing a comprehensive Groundwater Management Plan that includes a range of actions that among other things, reduce demand for groundwater resources and enhance groundwater recharge. Implementation of policy CIR 3.10.10B will assure that facilities needed to reduce impacts on groundwater are identified and funded as part of the City's budgeting process. Implementation of policies CIR 3.10.18, 3.10.19, 3.10.20A and 3.10.20B will facilitate improved groundwater recharge and ensure that funding for doing so is considered and programmed by the City.

The addition of key GPU policies to address water demand and groundwater management, which include preparation of a Groundwater Management Plan, respond to recently raised issues, and would result in tangible reduction in water consumption as development occurs. These GPU policies were vetted by the City with other local agencies and acknowledged as being comprehensive.

The City conducted a preliminary analysis of several policies to determine whether their intended purpose to reduce water demand could be achieved. This analysis showed that the City could realize a water production savings of approximately 6.6 million gallons per year. This amount is based upon the full buildout in 2030, which is unlikely to be reached. For example, by

installing in all new residential and commercial units the water usage volumes of more efficient shower heads, sinks and toilet fixtures, daily water consumption can be significantly reduced (U.S. Green Building Council at: http://www.usgbc.org/node/2612793?return=/credits/homes/v4-draft/water-efficiency and HDR 2013). Another example is the systematic replacement of failing irrigation controllers in parks/open space systems. The replacement controllers will, at a minimum, have rain and evapotranspiration sensors. These controllers shall be installed with the goal of reducing water consumption by 20 percent to 40 percent as supported by studies performed in the industry. The tentative results reflect a potential reduction of daily water consumption by 5,650 gallons per day. Lastly, the proposed policies would result in tangible reductions in groundwater demand, the City evaluated potential water reductions that could be realized through implementation of CIR Policies 3.10.10(c)(1) through CIR Policy 3.10.10(c)(3). These policies address enhanced water conservation requirements and creation/implementation of a model water efficient landscaping ordinance. At GPU buildout in 2030, the City estimates that installation of water conserving fixtures in residential, commercial, and industrial uses and improved water efficient landscaping could result in an annual water savings of about 20 acre-feet (City of Reedley Memorandum 2013).

The GPU policies and Groundwater Management Plan address water consumption, groundwater recharge through the WWTP plant, stormwater basin percolation, and recharge seepage through irrigation ditches and open space. The Groundwater Management Plan will also serve as mitigation and set performance standards for sustainable management of the City's groundwater production, as of the adoption of the GPU. The Groundwater Management Plan will be fully developed prior to the annexation of any new territory that lies beyond the existing Sphere of Influence as of the adoption of the GPU.

However, even with implementation of GPU policies, buildout of the proposed SOI would likely ~~substantially~~ increase the City's demand for groundwater resources that are being extracted from an overdrafted groundwater basin. ~~by agricultural and urban uses~~. Buildout of the proposed SOI would exacerbate existing cumulative overdraft conditions ~~are generally expected to incrementally worsen through the year 2030~~, by increasing annual groundwater demand by about 3,650 acre-feet per year. ~~the same planning horizon as used in the proposed GPU. Overdraft conditions are expected to worsen in significant part due to increased urban demand.~~ Implementation of the noted policies would not likely completely off-set the City's impact on overdraft of groundwater resources; the impact may be substantially lessened, but would not be reduced to a less than significant level. Consequently, implementation of the proposed GPU would result in a significant and unavoidable impact from depletion of groundwater resources. ~~Mitigation would be required to avoid or reduce the City's additional contribution to groundwater overdraft impacts.~~

Additional Required Mitigation. No additional mitigation required. ~~None.~~

~~To further reduce the incremental contribution of GPU buildout on groundwater resources resulting from groundwater overdraft, the City would be required to find alternative sources of water supply to meet water demand from new development within the expanded SOI. Alternative sources would not include groundwater extraction. By replacing groundwater with other sources of domestic water supply, the City would avoid its incremental contribution to worsening groundwater overdraft conditions. Implementation of the following mitigation measure would reduce impacts of the proposed GPU on cumulative groundwater overdraft to less than significant:~~

~~HYD-1. The City will update its Urban Water Master Plan or prepare a separate water supply plan to identify how the City will avoid or substantially reduce the impacts of increased demand for groundwater resources on groundwater depletion and overdraft of the Kings Basin resulting from implementation of the proposed GPU. The plan should include, but may not be limited to the following components:~~

~~(a) Inventory of existing water demands, supplies, and providers, water use efficiency, recycling, transfers, and conjunctive use.~~

~~(b) Analysis of future water demands based on general plan land use at buildout.~~

~~(c) Assessment of future opportunities for enhanced water use conservation (which could include an update of the City's water conservation ordinance), recycling of water, water transfers, conjunctive use of groundwater and surface water, additional storage or water development projects, and other potential increases in water entitlements and supply.~~

~~(d) Assessment of any shortfalls in future water demands based on wet, normal, dry, and multiple dry year types and contingency plans for drought conditions.~~

~~(e) Identification of alternative water sources that will be utilized as needed to supplement groundwater extraction as the City's only source of urban water supply in order to avoid or substantially reduce impacts from overdraft of the Kings Basin.~~

~~Implementation of mitigation measure HYD-1 could reduce or avoid the potentially significant impact that would result from increased pumping of groundwater from a groundwater basin that is in overdraft condition. However, until such time as the City prepares a water supply plan, it is uncertain whether provision of sufficient alternative water sources is technically or financially feasible. Consequently, this impact would be significant and potentially unavoidable.~~

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3.0
CUMULATIVE IMPACTS

3.1 CEQA REQUIREMENTS

CEQA Guidelines Section 15130 requires a discussion of cumulative impacts when the project's incremental effect is cumulatively considerable, as defined in section 15065(a)(3), which states, "The project has possible environmental effects that are individually limited but cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." In the analysis of cumulative effects of the proposed GPU, the proposed project is the sum total of new development that would be enabled with implementation of the proposed GPU. A cumulative impact consists of an impact that is created as a result of the combination of the proposed GPU together with other projects causing related impacts. The incremental contribution of development under the proposed GPU is evaluated relative to the combined effects of other existing development and probable future new development as a whole (cumulative development) within a specified area or boundary. If the individual contribution of the proposed GPU to the whole of a cumulative effect is substantial, the proposed GPU's contribution is considered to be cumulatively significant. Both qualitative and quantitative standards are used to determine whether the proposed GPU's contribution to a cumulative effect is substantial, and therefore, cumulatively significant.

Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulative considerable. An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR. When the combined cumulative impacts associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting its conclusion that the cumulative impact is less than significant.

A lead agency may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and therefore, is not significant. Pursuant to CEQA Guidelines Section 15130(a)(3), a project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

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

CEQA requires a cumulative development scenario to consist of either:

- a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or
- a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.

3.2 CUMULATIVE DEVELOPMENT SCENARIO

The proposed project is the GPU. At the time this EIR was prepared there are no new major development projects being processed and development of major future projects is considered to be speculative at this time. However, implementation of the GPU would, over time, likely result in the construction of new development projects within the proposed SOI boundary. These future individual projects do not constitute the "list of projects" on which a cumulative impact analysis can be based in the case of implementation of a general plan. Rather, the incremental effects of implementing the GPU itself in the context of cumulative development within existing communities in the Reedley vicinity and in the unincorporated portions of Fresno County and Tulare County within in the immediate Reedley vicinity is generally the appropriate cumulative development scenario. This scenario is consistent with CEQA regarding analysis of the combined effect of "closely related" projects. In this case, the closely related projects constitute existing development within these communities as well as probable future development in these communities as could occur and be guided by the general plans of each community and each county.

Because cumulative impacts may occur over different geographic areas depending on the type of impact being evaluated, the cumulative scenario is not the same for every environmental topic being analyzed. For example, in assessing cumulative air quality impacts, all development within the air basin contributes to regional emissions of criteria pollutants. Therefore, the cumulative scenario would be a project's contribution to air emissions within the applicable air basin. Similarly, in evaluating cumulative transportation impacts, the appropriate cumulative scenario would be the project's contribution to impacts within the area addressed in the regional transportation plan.

The analysis of cumulative impacts for individual topic areas provided below generally assumes that the cumulative development scenario is existing and probable future development within the City as would be enabled by the proposed GPU, combined with existing and probable future development in communities in the vicinity, or within about seven miles of the City. These communities include Parlier, Orange Cove, Sanger and Selma in Fresno County, and the nearby City of Dinuba in Tulare County. Table 25, Projected Population for Cities in the Reedley Vicinity, provides basic context for the anticipated population growth in the vicinity over the next 15 to 20 years. Where the cumulative scenario for a particular topic differs from this scenario, the change is noted as part of the discussion of the topic. While an incremental amount of growth could occur in the unincorporated portions of Fresno and Tulare counties located in the vicinity, the vast majority of new development would be expected within growing urban areas. Therefore, growth in the unincorporated areas would not be expected to contribute substantially to cumulative environmental effects.

As described previously, a cumulative impact consists of an impact that is created as a result of the combination of the proposed GPU together with other projects causing related impacts. Existing and future development in other cities and nearby unincorporated areas of Fresno County and Tulare County constitutes the "other projects causing related impacts". The impacts of existing and future development within the City pursuant to the proposed GPU are compared to cumulative impacts caused by the other similar projects as a whole to determine whether the incremental contribution of impacts from the proposed GPU is cumulatively considerable.

Note that if implementation of the proposed GPU results in a cumulatively significant impact, this does not imply that the City or future project applicants within the City will be responsible for providing direct mitigation within other communities. However, as described above, a project's contribution to a cumulative effect is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. For example, if a program or plan exists to alleviate cumulative impacts to which an individual project contributes (e.g. a regional transportation improvement program) and the program requires individual project applicants to provide fare-share fees for regional traffic improvements, payment of the fees would serve to mitigate a project's contribution to its incremental cumulative traffic effects.

Table 25 Projected Populations for Cities in the Reedley Vicinity

City	Estimated Current Population[1]	Approximate Population[2](projection year)
Reedley	24,622[3]	47,000 (2030)
Parlier	14,826	38,000 (2030)
Selma	23,687	57,000 (2030)
Sanger	24,638	30,000 (2025)
Orange Cove	9,319	20,000 (2025)
Dinuba	22,614	33,700 (2026)
Totals	**119,706**	**225,700[4]**

Source: EMC Planning Group 2012

Note: [1]California Department of Finance, E-1: City/County Population Estimates with Annual Percent Change, 2012. Estimated population 1/1/2012.
[2]Projected populations generally obtained from general plan documents for each city or the California Department of Finance. Rounded to the nearest thousand.
[3]Represents about 21 percent of the projected growth with the cumulative scenario.
[4]88.5 percent increase.

3.3 CUMULATIVE IMPACTS AND THE PROPOSED PROJECT'S CONTRIBUTION

Hydrology and Water Quality

Existing development within vicinity cities and unincorporated areas has contributed to degradation of surface water quality over time through contribution of sediments and urban pollutants contained in storm water runoff. Future development will be required to comply with increasingly stringent state and local water quality standards (based on NPDES requirements) designed to reduce hydromodification effects, that is, to reduce impervious surface areas and incorporate best management practices such as low impact development that are designed to reduce impacts on surface water quality and receiving waters. Implementation of the proposed GPU will contribute to incremental degradation of surface water quality resulting from sediments and urban pollutants contained in stormwater runoff from new impervious surfaces. However, all new development will be conditioned to be consistent with water quality regulations designed to substantially improve water quality in receiving waters through the NPDES permit process. Consequently, the contribution of the GPU to the cumulative impact is not cumulatively considerable and less than cumulatively significant.

Risks from flood hazards will likely increase in the future as new development could be located in flood hazard areas and new development could contribute to flood hazards by generating increased storm water runoff. However, local, state and federal regulations implemented by all cities and counties are designed to reduce risks to public safety and improvements from flood hazards by controlling land use and conditioning new development to minimize impacts. Consequently, this risk is not cumulatively significant. Implementation of City of Reedley Zoning Code regulations and policies contained in the proposed GPU, which implement state and federal regulations, will serve to substantially reduce the proposed GPU's flood related hazards such that its contribution to cumulative flooding hazards is less than cumulatively considerable and less than cumulatively significant.

As discussed in Section 2.9, Hydrology and Water Quality, the Kings Basin from which cities in the vicinity generally obtain domestic water supply is in overdraft condition. Continued extraction of groundwater by municipal water purveyors, water districts, and individual users in unincorporated areas needed to support new development will worsen impacts on groundwater overdraft in the Kings Basin. Implementation of the proposed GPU will result in a substantial increase in demand for groundwater resources as at present, the City's sole source of domestic water supply is groundwater pumped from the Kings Basin.

To get a better understanding of the cumulative hydrological impact, the City's contribution to that impact and the Kings Basin on the whole, the City authorized and had produced *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence* (Schmidt and Associates 2013). The groundwater report is included in Appendix B. The groundwater report describes consumptive use within the existing City urban area, the existing SOI, and the proposed SOI. Within the existing SOI boundary (including land within the city limits), consumptive use is estimated at 5,650 acre-feet per year. The groundwater deficit is estimated to be 2,650 acre-feet per year (Schmidt and Associates, p. 4). With the increase in demand for groundwater from urban uses at buildout of the proposed SOI, consumptive use increases to 6,800 acre-feet per year in the buildout year of 2030 (Schmidt and Associates, p. 5) and the total groundwater deficit would be 6,300 acre-feet per year. Consequently, buildout of the proposed SOI as guided by the GPU would result in an increase in the groundwater deficit of 3,650 acre-feet per year relative to the existing deficit of 2,650 acre-feet per year within the existing City SOI.

The groundwater report concludes that most of the increased water deficit under proposed SOI buildout conditions is due to the loss of seepage from canals and ditches that would be replaced with urban uses and from the loss of deep percolation from irrigation water placed on agricultural land that would be converted to urban use. This significant increase is due in large part to the piping of miles of canals which through seepage provided a valuable opportunity for recharge of the underground aquifer. Implementation of the proposed GPU would; therefore, exacerbate existing groundwater overdraft conditions by increasing net extraction of groundwater by 3,650 acre-feet per year.

The report also states, "The amount of stormwater recharged in basins in the City, delivered to AID canals, or discharged to the Kings River was about 1,000 acre-feet per year in 2012. Although the City doesn't directly benefit from this canal and river discharge, that water is eventually used or recharged, and benefits the Kings Basin (Schmidt and Associates 2013, p. 3). This recharged stormwater does reduce the cumulative impact on groundwater to some degree, but it is not sufficient enough to mitigate to a less than significant level.

The overdraft of the Kings Basin was previously estimated by the Kings River Conservation District (KRCD) to be an average of 161,000 acre-feet per year from 1964-2004. KRCD models project that overdraft will average around 122,000 acre-feet per year through 2035 (HDR 2013, p. 4-4). Comparatively speaking, the City near-term and long-term average water deficit would be conservatively less than five percent of the total overdraft condition. As described previously, groundwater overdraft within the AID, within which the vast majority of the City is located, has been estimated at about 22,000 acre-feet per year and the City's historic use of groundwater has contributed to overdraft at this more localized scale.

According to CID's Groundwater Management Plan, "The average surface water supply is approximately 238,000 acre-feet, but can vary from the low of 13,500 acre-feet in 1976, to a high of 616,000 acre-feet in 1967. Average recharge is approximately 30,000 acre-feet, ranging from zero in the driest of years, to a maximum of 187,000 acre-feet (Consolidated Irrigation District 2009, p. 4).

The GPU contains a range of policies (outlined in Section 2.9, Hydrology and Water Quality) whose purpose, among other things, is to reduce impacts on groundwater by reducing demand, expanding recharge potential, and requiring plans and funding to implement groundwater management actions. As described in Section 2.9, the City has conducted a preliminary analysis of several policies and determined that the proposed policies will produce tangible reductions in consumptive use over the life of the GPU. This analysis showed that the City could realize a water production savings of approximately 6.6 million gallons per year. For example, tangible water use reductions would accrue from installing more efficient shower heads, sinks and toilet fixtures in all new residential and commercial units; from systematic replacement of failing irrigation controllers in parks/open space systems; and from installation of water efficient landscaping.

While the City may further reduce its own average water deficit (overdraft) through ~~While~~ implementation of ~~the~~ GPU policies that will tangibly reduce the City's consumptive use of groundwater, the City's demand for groundwater will increase with buildout of the City as guided by the GPU. Consequently, implementation of the GPU ~~is expected to reduce growth induced impacts on groundwater production and consumption, the proposed project would still~~ will have a cumulatively considerable ~~substantial and cumulatively significant and unavoidable~~

impact from depletion of groundwater in a groundwater basin that is already in overdraft. ~~implementation of the policies is expected to reduce the impact~~ It is unlikely that the impact can ~~will~~ be reduced to a less than cumulatively substantial level and the impact would be cumulatively significant and unavoidable.

~~Mitigation measure HYD-1 in Section 2.9requires the City to prepare a water supply plan for the purpose of identifying alternative water supply strategies that would avoid or substantially lessen impacts from groundwater overdraft. However, until the City can identify and secure one or more sources of alternative water supply or that alternative supplies are either technically or economically feasible, there is no assurance at present that implementation of an alternative water supply plan would reduce this impact to less than cumulatively substantial. Therefore, the impact would remain cumulatively considerable and cumulatively significant.~~

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4.0
ALTERNATIVES TO THE PROPOSED PROJECT

4.1 CEQA REQUIREMENTS

CEQA Guidelines Section 15126.6(a) requires a description of a reasonable range of alternatives to the proposed project, or to the location of the project, which could feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. It also requires an evaluation of the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project, but must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The following are key considerations in the selection and evaluation of alternatives as described in the CEQA Guidelines.

- Section 15126.6(b) of the Guidelines further requires that the discussion of alternatives focus on those alternatives capable of avoiding or substantially lessening any significant adverse environmental impacts or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.
- CEQA Guidelines Section 15126.6(c) establishes that the range of potential alternatives include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. An EIR should also identify alternatives that were considered but rejected as infeasible, and briefly explain the reasons for the determination.

- CEQA Guidelines Section 15126(f) addresses the "Rule of Reason in selecting alternatives for evaluation. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR needs to examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making.

- CEQA Guidelines Section 15126.6(d) requires the EIR to present sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

- CEQA Guidelines Section 15126.6(e) stipulates that a no project alternative be evaluated along with its impacts. Section 15126.6(e) also requires the identification of an environmentally superior alternative. If the "No Project" alternative is the environmentally superior alternative, then the environmentally superior alternative amongst the remaining alternatives must be identified.

- According to CEQA Guidelines Section 15126.6(f)(1), among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).

- In regard to considering alternative project locations, CEQA Guidelines Section 15126.6(f)(2) states that a key question and first step in alternatives analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in an EIR. Again, as discussed above, the proposed project does not result in any significant unavoidable effects.

4.2 SUMMARY OF PROJECT IMPACTS AND PROJECT OBJECTIVES

As noted previously, CEQA Guidelines Section 15126.6(b) requires that the discussion of alternatives focus on those alternatives capable of avoiding or substantially lessening any significant adverse environmental impacts or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly. To set the context for the alternatives evaluation, it is therefore important to identify the significant impacts of the proposed GPU as well as the City's GPU project objectives.

Summary of Project Impacts

Based on the analysis provided in this EIR, implementation of the proposed GPU would have a range of significant impacts. Many of these impacts would be reduced to a less than significant level through implementation of the goals and policies contained in the GPU. However, for several significant impacts that would not be reduced to less than significant with implementation of GPU policies, mitigation measures are proposed to further lessen or avoid the significant impact. Further, for a range of significant impacts identified in this EIR, neither the GPU policies nor proposed mitigation would avoid or reduce the impacts to a less than significant level; these impacts are significant and unavoidable.

The discussion of alternatives summarizes impacts of the alternatives, the extent to which the alternatives avoid or substantially lessen impacts identified for the proposed GPU, and the extent to which the alternatives accomplish the objectives of the proposed GPU. The impacts of the proposed GPU that are described in the discussion of alternatives include: 1) significant impacts which require additional mitigation measures, and 2) significant cumulative impacts. These impacts are listed below in Table 26, Summary of Significant Impacts of the Proposed GPU. In Table 26, the term "Individually" refers to impacts of implementing the proposed GPU as an individual project.

Table 26 Summary of Significant Impacts of the Proposed GPU[1]

Topic	Impact	Level of Significance
Agriculture	Conversion of approximately 2,983 ~~4,180~~ acres of Important Farmland non-agricultural use	Individually and Cumulatively Significant & Unavoidable
	Conflict with Williamson Act contracts	Individually Significant & Unavoidable
Air Quality	Conflict with applicable air quality management plan	Individually and Cumulatively Significant & Unavoidable
	Cumulative increase in criteria pollutants for which the region is in non-attainment	Individually and Cumulatively Significant & Unavoidable
Biological Resources	Direct and indirect impacts on special-status plant and animal species	Significant but Mitigable
Climate Change	Conflict with an applicable plan, policy, or regulation for reducing GHG emissions	Cumulatively Significant & Unavoidable
Hydrology & Water Quality	Substantial depletion of groundwater in a groundwater basin in overdraft condition	Cumulatively Significant and ~~Potentially~~ Unavoidable
Noise	Exposure of noise sensitive uses to noise levels that exceed standards in the GPU	Significant but Mitigable
Transportation	Increased hazards at at-grade rail crossings	Significant but Mitigable

Source: EMC Planning Group 2012

Note: [1]Implementation of the proposed GPU would have other potentially significant and significant impacts which can be reduced to less than significant with implementation of proposed GPU policies. The impacts in this table are those that also require mitigation measures and/or are significant and unavoidable.

Summary of Project Objectives

The objectives of the proposed GPU as described in Section 1.3, General Plan Update Project Description, are as follows:

1. Establish a long range plan and vision for the community that reflects the needs and desires of the citizens;

2. Maintain Reedley's small town atmosphere;

3. Incorporate the Reedley Specific Plan, the Rail Corridor Master Plan, and the Southeast Reedley Industrial Area Specific Plan;

4. Ensure more walkable, neighborhood oriented subdivisions;

5. Provide more opportunities for mixed use projects;

6. Preserve and expand the core of Reedley;

7. Encourage more variety and blends of housing types;

8. Provide adequate educational facilities; and

9. To provide economic stability, encourage a diversified job base, expand local economy while enhancing local and regional shopping opportunities.

To optimize the City's opportunities to meet these goals additional sources were considered during the development of these overarching goals. There are two additional noteworthy resources the City considered which through common tenants promote infill development and increased ~~Additionally, in~~ densities. In 2010, the San Joaquin Valley Blueprint Council adopted 12 growth principles that reflect the regional vision for the future of the San Joaquin Valley. The City utilized the adopted growth principles to develop or update many of its GPU policies. The growth principles are listed in Section 1.4, Consistency with Local and Regional Plans, of the DEIR.

The City also reviewed and applied suitable components of the Fresno Council of Governments' "Model Farmland Conservation Program for Fresno County". The City accomplished this through requiring that 65 percent of the residentially designated land inside the City be developed prior to annexation as described in policy LU 2.5.8 and by increasing residential density ranges for residential and commercial planned land use designations relative to the 2012 General Plan.

4.3 ALTERNATIVES ANALYZED

Implementation of the proposed GPU would result in potentially significant, significant, and significant and unavoidable impacts. The range of alternatives discussion includes the No Project alternative, as mandated by the CEQA Guidelines, the project itself, ~~and~~ a Proposed SOI and Land Use Changes alternative, and a Reduced Proposed SOI alternative. ~~Both of t~~These alternatives are described, compared to the proposed GPU to assess the relative extent to which each has potential to avoid or reduce environmental impacts identified for the proposed GPU, and compared to the objectives for the proposed GPU to determine the extent to which each meets those objectives.

Other alternatives were considered, but further analysis of these alternatives was not conducted as described below in Section 4.5, Alternatives Considered but Not Analyzed.

Alternative 1: No Project

CEQA Guidelines Section 15126.6(e) requires the EIR to evaluate potential environmental impacts of a No Project alternative. The No Project alternative analysis must discuss the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the proposed GPU were not approved, based on current plans and consistent with available infrastructure and community services.

No Project Alternative Description

The No Project alternative describes the environmental conditions that exist at the time that the environmental analysis commences (CEQA Guidelines, Section 15126.6 (e)(2)). The No Project alternative addresses environmental effects that would result if the GPU was not adopted and the City continued to implementation of the City's 2012 General Plan. In this case, development would proceed within the existing city limits and within the existing SOI consistent with the land use designations and densities included in the 2012 General Plan and as guided by the goals and policies in the 2012 General Plan. As described in Table 1, Existing 2012 General Plan Land Use Designations by Acreage found in Section 1.2, Project Location and Setting, of the DEIR, there are a total of approximately 4,930 acres of land within the existing city limits and the existing SOI. Future development would be limited to that which can be accommodated on vacant or redeveloped parcels of land within the existing city limits and existing SOI. Much of the future development would occur on land that would be annexed to the City that is now in agricultural use.

The proposed GPU includes plans to expand the existing SOI by approximately 2,983 acres with the intent that land within the expanded SOI would ultimately be annexed to the City and developed with urban uses. Please refer back to Figure 3, GPU Planning Boundaries, for reference to the area included in the expanded SOI, which is shaded light green and described as the Proposed Sphere of Influence. The vast majority of the land within the expanded SOI is currently in agricultural use and is designated and zoned by Fresno County for continued agricultural use. Under the No Project Alternative, land within the expanded SOI as proposed in the GPU, would continue to be actively farmed; no urban development would occur. The environmental effects of the No Project alternative are discussed below by individual topic.

No Project Alternative Effects

The environmental effects of the No Project alternative with reference to the proposed GPU are summarized by topic area below.

Agricultural Resources. The No Project alternative would result in the continued ~~existing~~ conversion of agricultural uses within the existing city limits and existing SOI ~~expanded SOI~~. The significant and unavoidable impact of converting approximately 1,797 ~~4,180~~ acres of Important Farmland to non-agricultural use and the significant impact resulting from conflict with Williamson Act contracts as previously analyzed in the *Final Environmental Impact Report, City of Reedley, General Plan Update, 2012* (Quad Consulting 1992)(hereinafter "2012 General Plan FEIR") would still occur.

Air Quality. The No Project alternative would not result in a substantial increase in criteria air emissions because no new sources of construction, mobile or stationary sources of air emissions would be created from future development on 2,983 acres within the proposed expanded SOI. The significant and unavoidable impact of the proposed GPU resulting from conflict with the applicable air quality management plans and from a substantial increase in criteria air emissions (ozone and PM_{10}) for which the air basin is in non-attainment would not occur. Impacts on air quality from future development of vacant land within the existing city limits and existing SOI as guided by the 2012 General Plan would still occur as previously evaluated in the 2012 General Plan FEIR.

Biological Resources. The No Project alternative would generate no new potential sources of impacts on biological resources because no development would occur on the 2,983 acres within the proposed expanded SOI that could adversely affect special-status plant or animal species, sensitive communities, or wetlands. The No Project alternative would; therefore, avoid the significant impacts of the proposed GPU on special-status species. However, impacts on biological resources from future development of vacant land within the existing city limits and existing SOI as guided by the 2012 General Plan would still occur as previously evaluated in the 2012 General Plan FEIR.

Climate Change. The No Project alternative would have no new impact on climate change because it would not result in creation of new sources of GHG emissions from new development on 2,983 acres within the proposed expanded SOI. The No Project alternative may ~~would~~ avoid the significant unavoidable impact of the proposed project on climate change caused by generation of a substantial volume of new GHG emissions from mobile, stationary, and indirect sources such as electricity consumption and natural gas combustion within the proposed expanded SOI.

Because the science of climate change was not developed at the time the 2012 General Plan FEIR was prepared and evaluation of climate change in CEQA documents was also not required at that time, impacts on climate change from development as guided by the 2012 General Plan were not evaluated in the 2012 General Plan FEIR. However, it can be assumed that future development of remaining vacant lands within the existing city limits and the existing SOI

would generate a substantial volume of GHG emissions. It is probable that per current CEQA climate change impact analysis and mitigation practices, buildout per the 2012 General Plan would have a significant and likely unavoidable impact on the environment.

Cultural Resources. The No Project alternative would result in no new potential impacts on cultural resources from development within the proposed expanded SOI because there would be no new land disturbance other than that created by existing agricultural uses. Continued agricultural activities within the expanded SOI are not anticipated to result in any impacts on subsurface pre-historic or historic-era archeological resources. Consequently, the No Project alternative would avoid any adverse effects on cultural resources that could occur with implementation of the proposed GPU. However, impacts on cultural resources from future development of vacant land within the existing city limits and existing SOI as guided by the 2012 General Plan would still occur as previously evaluated in the 2012 General Plan FEIR.

Geology and Soils. The No Project alternative would have no adverse effects resulting from exposure of people or development to risk of injury or damage from geologic/seismic or soils hazards that exist within the proposed expanded SOI because there would be no new development of buildings or other structures within the boundary of that area. No increase in soil erosion potential would occur relative to existing conditions. Consequently, the No Project Alternative would avoid all related adverse geologic and soils effects identified for the proposed GPU. However, geologic and soils impacts from future development of vacant land within the existing city limits and existing SOI as guided by the 2012 General Plan would still occur as previously evaluated in the 2012 General Plan FEIR.

Hazards and Hazardous Materials. Implementation of the proposed GPU would result in an increase in the use, storage, transport, and disposal of hazardous materials associated with new residential, commercial, and industrial uses on the 2,983 acres within the proposed SOI. The No Project alternative would avoid potential adverse effects of accidental release of such materials by households, commercial businesses, and industries within this area. However, the No Project alternative would result in the continued use of pesticides and other agricultural chemicals consistent with historical practices on lands within the proposed expanded SOI. Consequently, the No Project alternative would likely have similar adverse potential impacts as would implementation of the proposed project. The No Project alternative would not avoid hazards and hazardous materials impacts from development of vacant land within the existing city limits and existing SOI as guided by the 2012 General Plan as previously evaluated in the 2012 General Plan FEIR.

Hydrology and Water Quality. The No Project alternative would have no new adverse effects on existing hydrological conditions within the proposed expanded SOI because under this alternative there would be no change to the existing drainage patterns, infiltration rates, or run-

off volumes within the proposed expanded SOI. However, adverse water quality effects resulting from contamination of surface water with sediments and agricultural chemicals contained in irrigation water runoff would continue. Implementation of the proposed GPU would eliminate existing agricultural sources of water quality impacts within the proposed expanded SOI, but introduce new sources of water quality impacts from sediments and urban pollutants. Consequently, the No Project alternative and the proposed GPU are assumed to generally have similar impacts on water quality from future development within the proposed expanded SOI. With the No Project Alternative, water quality impacts from future development of vacant land within the existing city limits and existing SOI as guided by the 2012 General Plan would still occur as previously evaluated in the 2012 General Plan FEIR.

Existing agricultural uses within the area are typically supplied with irrigation water from surface water sources when surface water supplies are available. Groundwater is used for irrigation when surface water supplies are insufficient to meet agricultural demand; existing agricultural uses contribute to the depletion of groundwater within the Kings Basin, which is overdrafted, to a degree that varies annually. As described in Section 2.9, Hydrology and Water Quality, of this RDEIR, implementation of the proposed GPU would have a significant unavoidable impact from exacerbating existing groundwater overdraft by ~~substantially~~ increasing the volume of water extracted by the City to supply future urban demand generated by future development within the proposed expanded SOI. ~~Agricultural uses typically demand more groundwater than do developed urban uses. However, because agricultural use of groundwater and its impacts on groundwater overdraft fluctuates widely over time, it is assumed that the No Project alternative and the proposed GPU would have similar impacts from depletion of groundwater.~~

The *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence* (Schmidt and Associates 2013) report contained in Appendix B describes consumptive use within the existing City urban area, the existing SOI, and the proposed SOI. Within the existing urban area of the City, total annual consumptive use is estimated at 2,150 acre-feet per year (Schmidt and Associates, p. 3), of which about 1,000 acre-feet per year is intentionally recharged to the underground aquifer. As such, water demand within the City results in a net decrease or deficit of 1,150 acre-feet of groundwater per year. Therefore, it has been assumed that the full buildout within the existing SOI would have similar and possibly no greater impact from depletion of groundwater.

Mineral Resources. The No Project alternative would have no effect on availability of mineral resources within the proposed expanded SOI, as no designated mineral resources are known to exist within the proposed expanded SOI. Similarly, the proposed GPU project would have no impact on the availability of mineral resources. The No Project alternative would not avoid effects of development on the availability of mineral resources within the existing city limits and

existing SOI as guided by the 2012 General Plan and previously evaluated in the 2012 General Plan FEIR. ~~The effects of the No Project alternative and the proposed GPU on mineral resources are the same~~.

Noise. The No Project alternative would have no effect on noise conditions within the proposed expanded SOI because under this alternative no new temporary or permanent noise sources would be generated from existing agricultural activities within the expanded SOI. Implementation of the proposed GPU could result in a significant impact on noise sensitive receptors located within the City, the existing SOI, and the proposed expanded SOI by introducing new sensitive receptors and new sources of transportation and stationary noise, the intensity of which could exceed standards described in the proposed GPU. However, implementation of mitigation measures contained in the proposed GPU would reduce this impact to less than significant.

While agricultural uses operating under the No Project alternative would continue to be sources of temporary noise from equipment use within the proposed expanded SOI, few sensitive uses are located within the proposed expanded SOI and noise volumes from agricultural uses generally do not exceed typical noise exposure standards. Consequently, the No Project alternative would avoid the significant noise impacts expected to occur with implementation of the proposed GPU that would result from intensification of development within the city limits and existing SOI combined with new development that would occur within the proposed expanded SOI.

The No Project alternative would not avoid noise impacts within the existing city limits and existing SOI from development as guided by the 2012 General Plan and previously evaluated in the 2012 General Plan FEIR.

Population and Housing. The No Project alternative would result in no new population growth, nor result in displacement of homes or people relative within the proposed expanded SOI. ~~to the proposed GPU.~~ The impacts of the proposed GPU resulting from population growth over and above that which would occur with continued implementation of the existing 2012 General Plan are described in the analysis of other environmental topics. In general, the No Project Alternative would avoid or lessen the population related impacts of the proposed GPU as described elsewhere in this EIR.

The No Project alternative would not avoid effects of continued population growth within the existing city limit and existing SOI as guided by the 2012 General Plan and previously evaluated in the 2012 General Plan FEIR.

Public Services. Implementation of the No Project Alternative would not result in substantial sources of new demand for public services resulting from new development within the proposed expanded SOI. ~~, as would the proposed GPU.~~ Therefore, ~~unlike the proposed GPU,~~ the No Project alternative would not result in potential for significant adverse effects from construction of new facilities needed to meet increased demand for public services from such development. ~~the No Project alternative would have less impact than would the proposed GPU.~~ The No Project alternative would not avoid effects of constructing new facilities needed to meet increased demand for public services resulting from future growth within the existing city limits and existing SOI as guided by the 2012 General Plan and previously evaluated in the 2012 General Plan FEIR.

Traffic and Transportation. The No Project alternative would have no effect on traffic and transportation; no new development would occur with the proposed expanded SOI and a substantial increase in vehicle trips would be avoided. The proposed GPU would have a significant impact resulting from increased hazards at at-grade rail crossings due to new growth within the proposed expanded SOI. The No Project alternative would avoid this impact.

The No Project alternative would not avoid traffic and circulation impacts resulting from future development within the existing city limits and existing SOI as guided by the 2012 General Plan and previously evaluated in the 2012 General Plan FEIR.

Utilities. Under the No Project alternative there would be no effect on utilities and service systems due to new growth within the proposed expanded SOI. The No Project alternative would not require the provision of any new utilities or solid waste disposal capacity other than that needed to meet demand from future development within the existing city limits and existing SOI as guided by the 2012 General Plan and previously evaluated in the 2012 General Plan FEIR. No new impacts from construction of wastewater facilities or storm drainage facilities would occur. The No Project alternative would avoid the incremental impact of the proposed GPU resulting from increased demand for solid waste disposal capacity by new development and new population growth within the proposed expanded SOI. Consequently, the No Project Alternative would have fewer adverse environmental effects related to utilities and solid waste than would the proposed project.

Relationship of No Project Alternative to Proposed GPU Objectives

The No Project Alternative would not achieve any of the City's goals and/or objectives in proposing an update to its existing 2012 General Plan. The No Project alternative would not afford the City an opportunity to address its need to accommodate increasing population and new development growth over the entire planning horizon of the GPU, and to do so in a way that meets the City's vision for its desired character, nor would it enable the City to integrate

progressive planning tools designed to improve the quality of life of its residents and to accommodate growth in a more environmentally responsible manner. The No Project Alternative does not meet the objectives of the proposed GPU.

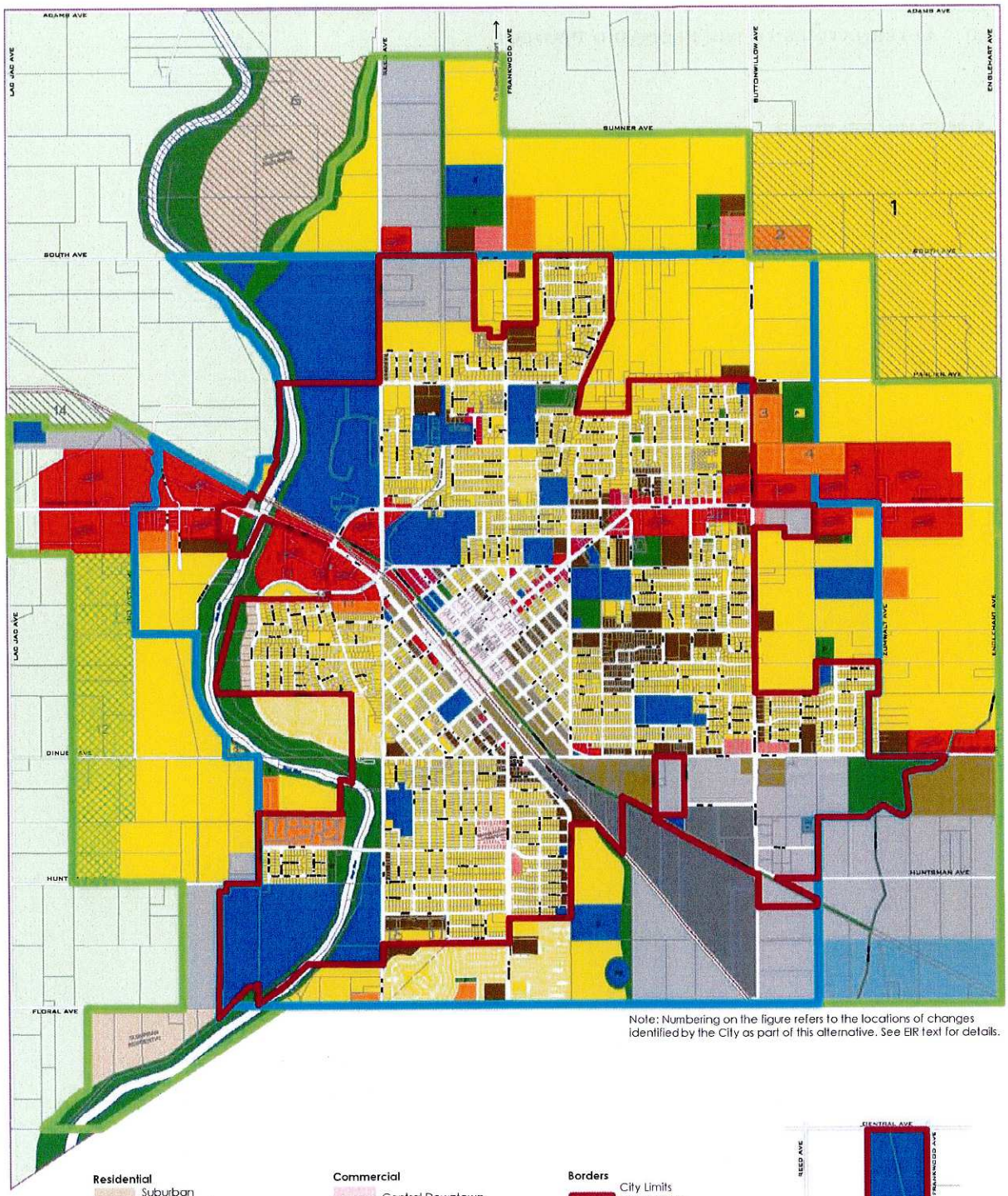
Alternative 2: Proposed SOI and Land Use Changes Alternative

Description

To lessen several of the significant impacts and the significant and unavoidable impacts of the proposed GPU, a Proposed SOI and Land Use Changes Alternative was developed. This alternative consists of two primary components: 1) eliminating a net of approximately 641 acres from the SOI by making changes to the proposed SOI, and 2) making modifications to land uses proposed for several parcels.

The City has considered reducing acreage within the SOI by modifying the proposed SOI boundary in large part to address questions about the cost and feasibility of extending water, sanitary sewer, ~~and~~ storm drainage infrastructure, and unnecessary conversion of agricultural land currently under Williamson Act contract. Initial analyses being conducted as part of the City's effort to update its water and sewer master plans suggest that there may be cost feasibility constraints to extending these utilities to two large areas in the northwest and northeast portions of the proposed SOI, and to one smaller area in the western portion of the proposed SOI. Figure 13, SOI and Land Use Changes Alternative, illustrates the range of changes to the proposed GPU Land Use Map. Areas 1 and 6 are the noted large areas and Area 14 is the smaller area. All three areas (shown with hatching) would be removed from the proposed SOI due to the potential constraints noted above.

A total of approximately ~~883~~ 847 acres would be removed from the proposed SOI. However, Area 12, located in the southwest portion of the SOI and comprising about 206 acres, would be added to the proposed SOI. This addition also offset residential development capacity lost with the removal of Areas 1 and 6, which were designated for low-density and suburban residential use, respectively. Area 12 can be more readily served with the above-mentioned infrastructure. The remaining call-out numbers shown on Figure 13 are locations where other changes in land use are proposed as part of this alternative based on requests from property owners. City staff has reviewed these requests and found them to be consistent with the proposed GPU objectives.



Note: Numbering on the figure refers to the locations of changes identified by the City as part of this alternative. See EIR text for details.

Residential
- Suburban (1-4 du/acre)
- Low (4-8 du/acre)
- Medium (8-20 du/acre)
- High (20-30 du/acre)

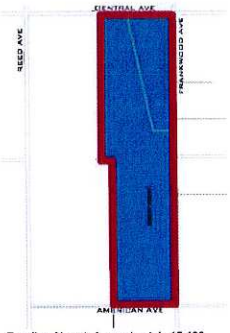
Other
- Open Space
- Public/Institutional Facility
- Remainder of Study Area
- Community Buffer

Commercial
- Central Downtown
- Neighborhood Commercial
- Community Commercial
- Office
- Service Commercial

Industrial
- Heavy Industrial
- Light Industrial

Borders
- City Limits (3,133 acres)
- Existing Sphere of Influence (4,930 acres)
- Proposed Sphere of Influence (7,276 acres)
- General Plan Study Area (10,620 acres)

Misc
- P — Proposed Facility/Park
- S — Proposed School
- PB — Proposed Ponding Basin



Reedley Airport: Approximately 15,400 Ft. (2.9 Miles) North from the Intersection of Frankwood and South Avenues.

0 2,000 feet

Source: City of Reedley 2012

Figure 13
SOI and Land Use Changes Alternative
City of Reedley General Plan Update EIR

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Table 27, Summary of Changes to the Proposed SOI, shows the net outcomes of the changes to the proposed SOI. The changes would result in a net of 641 acres being removed from the proposed expanded SOI, which equates to an approximate 21 percent reduction in acreage, the majority of which was proposed for residential use. Of the 641 acres, approximately 499 acres would otherwise have been developed with urban uses; the remaining 142 acres would have been retained in open space, and would have had no urban development potential. Table 28, Other Land Use Changes, shows the other land use changes proposed in response to landowner requests. The acreage in residential use would remain similar, while a minor amount of Community Commercial acreage would be added and a very minimal amount of Open Space acreage eliminated. Table 29, Alternative 2 – Net Acreage Changes~~– Proposed SOI and Land Use Changes Alternative~~, shows that residential uses would decline by a total of approximately 470 acres, Community Commercial uses would increase by about 13 acres, Light Industrial use would decline by about 29 acres, and Open Space use would decline by approximately 145 acres relative to the land use plan included in the proposed GPU. The Proposed SOI and Land Use Changes Alternative would result in a substantial reduction in urban use development capacity relative to the proposed GPU and a significant reduction in the population holding capacity of the proposed GPU. The total acreage of the proposed SOI would be reduced from approximately 7,913 acres as proposed in the GPU to approximately 7,272 acres.

Table 27 Summary of Changes to the Proposed SOI[1]

Land Use Designation	SOI Acres Removed	SOI Acres Added	Net Change in SOI Acres
Residential - Suburban	- 202	0	-202
Residential – Low Density	- 451	206	- 245
Residential - Med. Density	- 17	0	- 17
Residential – High Density	- 6	0	- 6
Light Industrial	- 29	0	- 29
Open Space	- 142	0	- 142
Total	**-847**	**206**	**- 641**

Source: City of Reedley Proposed Land Use Alternative Table 2012

Note: [1]All numbers rounded to nearest acre

Table 28 Summary of Other Land Use Changes[1]

Land Use Designation	Acres Removed	Acres Added	Net Change
Residential – Low Density	- 47	3	- 44
Residential - Med. Density	0	41	41
Community Commercial	0	13	13
Open Space	2	0	-2
Total	**49**	**57**	**8**

Source: City of Reedley Proposed Land Use Alternative Table 2012

Note: [1]All numbers rounded to nearest acre

Table 29 ~~Net Acreage Changes–~~Alternative 2 – Net Acreage Changes[1]~~ProposedSOI and Land Use Changes Alternative~~

Land Use Designation	Acreage Change
Residential - Suburban	- 202
Residential – Low Density	- 286
Residential - Med. Density	24
Residential – High Density	- 6
Community Commercial	13
Light Industrial	- 29
Open Space	- 145

Source: City of Reedley Proposed Land Use Alternative Table 2012

Note: [1]All numbers rounded to nearest acre

Proposed SOI and Land Use Changes Alternative Effects

The environmental effects of the Proposed SOI and Land Use Changes Alternative, with reference to the proposed GPU are summarized by topic area below. In general, this alternative would result in a reduction of the intensity of all adverse impacts identified for the proposed GPU.

Agricultural Resources. Under the Proposed SOI and Land Use Changes Alternative, approximately 641 fewer acres of existing agricultural land would be converted to urban or open space use relative to the proposed GPU. Much of the 641 acres is classified as Important Farmland. Consequently, this alternative would result in an incremental reduction in the significant and unavoidable impact of the proposed GPU, as it would result in conversion of significantly fewer acres of Important Farmland. Nevertheless, the impact would remain significant and unavoidable.

Air Quality. The Proposed SOI and Land Use Changes Alternative would result in a significant total reduction in vehicle trips and vehicle miles traveled as compared to the proposed GPU. Consequently, the volume of air emissions associated with buildout under this alternative would be significantly lower than under buildout per the proposed GPU. The significant and unavoidable impact of the proposed GPU resulting from conflict with the applicable air quality management plans and from a substantial increase in criteria air emissions (ozone and PM_{10}) for which the air basin is in non-attainment would be incrementally reduced. However, even with the incremental reduction in air emissions, the total volume of emissions generated would be substantial and the impact would remain significant and unavoidable.

Biological Resources. The Proposed SOI and Land Use Changes Alternative would result in approximate 641 acres of agricultural land remaining in agricultural use rather than being converted to urban or open space use and less new urban development would occur along the short segments of the Kings River and Watoke Creek located in the northwestern corner of the proposed SOI (within area #6 as shown in Figure 13, SOI and Land Use Changes Alternative). Implementation of this alternative would reduce incrementally reduce the potential for significant impacts on biological resources relative to the proposed GPU.

Climate Change. The Proposed SOI and Land Use Changes Alternative would incrementally reduce impacts on climate change by reducing urban development potential. The uses that would be eliminated would be potential sources of GHG emissions from mobile sources (largely passenger vehicles), potentially stationary sources, and indirect sources such as electricity use and natural gas combustion. The Proposed SOI and Land Use Changes Alternative would incrementally reduce the significant unavoidable impact of the proposed GPU project on climate change, but the impact would remain significant and unavoidable.

Cultural Resources. The Proposed SOI and Land Use Changes Alternative would reduce potential adverse impacts by eliminating land disturbance (grading, trenching, etc.) associated with urban development on a net of about 499 acres. Land disturbance has potential to impact subsurface cultural resources. Potential impacts on historic resources would also be avoided on about 499 acres. While continued agricultural uses in the areas to be eliminated from the proposed SOI also have potential to impact cultural resources, that potential is considered to be

lower than for urban development. Consequently, the Proposed SOI and Land Use Changes Alternative would incrementally reduce potential impacts on cultural resources relative to the proposed GPU.

Geology and Soils. The Proposed SOI and Land Use Changes Alternative would reduce risk of injury or damage to people or development from geologic/seismic or soils hazards because significantly fewer people and development would be exposed to such risks. While agricultural uses can result in soil erosion, by eliminating urban development on 499 acres, this alternative has equal potential to reduce potential soil erosion on those same lands. Consequently, the Proposed SOI and Land Use Changes Alternative would incrementally reduce potential geologic and soils impacts relative to the proposed GPU.

Hazards and Hazardous Materials. Implementation of the proposed GPU would result in an increase in the use, storage, transport, and disposal of hazardous materials associated with new residential, commercial, and industrial uses. The Proposed SOI and Land Use Changes Alternative would reduce the risk of accidental release of hazardous materials because it would eliminate potential adverse effects of accidental release of such materials by reducing 499 acres of development capacity for residential, commercial businesses, and industrial uses. However, the Proposed SOI and Land Use Changes Alternative would result in the continued use of pesticides and other agricultural chemicals 641 consistent with historical practices on the 641 acres of land that would not be developed with urban and open space uses. The Proposed SOI and Land Use Changes Alternative would likely have similar potential impacts as would implementation of the proposed GPU.

Hydrology and Water Quality. The Proposed SOI and Land Use Changes Alternative would reduce potential adverse hydrological and water quality impacts. This alternative would eliminate urban development on 499 acres that otherwise would be a source potential sediments and urban pollutants. However, existing agricultural sources of water quality contamination (i.e. pesticide and fertilizers carried in storm water runoff) would not be avoided.

Impermeable surface area would be reduced such that potential for localized flooding from stormwater runoff would be reduced. Potential hazards associated with exposure of people to flood hazards or potential for new development to exacerbate flood flows would also be incrementally reduced with a smaller population and because a portion of the area to be eliminate from the proposed SOI is within a 100-year flood hazard zone.

Existing agricultural uses within the area are typically supplied with irrigation water from surface water sources when surface water supplies are available. Groundwater is used for irrigation when surface water supplies are insufficient to meet agricultural demand. Hence, existing agricultural uses contribute to the depletion of groundwater within the Kings Basin, which is overdrafted, to a degree that varies annually. Implementation of this alternative would reduce demand for additional groundwater to meet demand generated by urban development and open space uses on 641 acres.

As described in the report *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence,* the consumptive use (demand) of groundwater from urban uses in the City averages 1.0 acre-foot per acre per year, while the average volume of water applied for rural irrigation within the existing SOI is 2.5 acre-feet per acre per year ((Schmidt and Associates 2013, pp. 3-4). If no other use factors were considered, conversion of agricultural land to urban use would result in a net decrease in demand for groundwater. However, two sources of groundwater recharge would be lost with conversion of existing agricultural land within the proposed expanded SOI to urban use. First, agricultural canals and ditches within proposed expanded SOI provide a significant source of groundwater recharge. These sources of recharge would be lost with conversion to urban use as they would be converted from open bottoms to piped systems. Second, a significant volume of irrigation water applied to agricultural lands percolates back to groundwater, providing another important source of recharge that would be lost with conversion of agricultural land to urban use. The loss of groundwater recharge outweighs the fact that demand for groundwater by urban uses is lower than for agricultural uses. Consequently, with urbanization of the proposed SOI, groundwater overdraft would increase. The findings of the report are discussed in Section 2.9, Hydrology and Water Quality, and the report is contained in Appendix B for reference.

~~Agricultural uses typically demand more groundwater than do developed urban uses. However, because agricultural use of groundwater and its impacts on groundwater overdraft fluctuates widely over time, it is assumed that the Proposed SOI and Land Use Changes Alternative, which would retain approximately 641 acres of existing agricultural use, would have similar impacts on groundwater depletion. Therefore, the Proposed SOI and Land Use Changes Alternative would not likely incrementally reduce the significant and unavoidable impact of the proposed GPU resulting from groundwater depletion.~~

Based on the information above, removal of approximately 499 acres of urban uses from the proposed SOI would result in a reduction in demand for water service, which in turn would reduce the demand for groundwater relative to the proposed project. Further, loss of groundwater recharge from canals and agricultural recharge resulting from urbanization of the proposed SOI would be reduced. The Proposed SOI and Land Use Changes Alternative would; therefore, lessen the significant and unavoidable impact of the proposed GPU resulting from groundwater depletion. However, the reduction in demand would not be sufficient to reduce this impact to less than significant and the impact would remain significant and unavoidable.

Mineral Resources. The Proposed SOI and Land Use Changes Alternative would have no effect on availability of mineral resources, as no designated mineral resources are known to exist within the 641 acres of the proposed SOI that would be eliminated. Similarly, the proposed GPU project would have no impact on the availability of mineral resources. The effects of the Proposed SOI and Land Use Changes Alternative and the proposed GPU on mineral resources are similar.

Noise. The Proposed SOI and Land Use Changes Alternative would result in reduced sources of transportation noise as fewer vehicle trips would be generated and may result in reduced potential for introduction of stationary noise sources. It would also result in reduced exposure of noise sensitive uses to elevated noise levels because approximately 470 fewer acres of residential development would occur. Existing agricultural sources of temporary noise from equipment use within the 641 acres would remain. However, few sensitive uses are located within the 641 acres and noise volumes from agricultural uses generally do not exceed typical noise exposure standards. Consequently, the Proposed SOI and Land Use Changes Alternative would incrementally reduce significant noise impacts expected to occur with implementation of the proposed GPU.

Population and Housing. The Proposed SOI and Land Use Changes Alternative would result in lower population growth. The impacts of the proposed GPU resulting from population growth are described in the analysis of other environmental topics. In general, the Proposed SOI and Land Use Changes Alternative would incrementally lessen the population related impacts of the proposed GPU as described elsewhere in this EIR.

Public Services. Implementation of the Proposed SOI and Land Use Changes Alternative would incrementally reduce demand for public services. As a result, the Proposed SOI and Land Use Changes Alternative would result in reduced potential impacts from constructing public services facilities and infrastructure needed to support new growth. The Proposed SOI and Land Use Changes Alternative would have an incrementally lower potential to create significant impacts relative to the proposed GPU.

Traffic and Transportation. The Proposed SOI and Land Use Changes Alternative would eliminate urban development potential on approximately 499 acres. It would therefore, result in lower traffic volumes than would the proposed GPU and would lessen the significant impact resulting from increased traffic hazards at rail crossings.

Utilities. Under the Proposed SOI and Land Use Changes Alternative, demand for utilities would be reduced as urban development would occur on about 499 fewer acres than under the proposed GPU. Consequently, this alternative would result in reduced potential impacts from construction and operation of storm drainage facilities. The Proposed SOI and Land Use Changes alternative would also result in an incremental decrease in demand for solid waste disposal capacity relative to the proposed GPU. Consequently, the Proposed SOI and Land Use Changes Alternative would have fewer potential adverse environmental effects related to utilities than would the proposed GPU.

Relationship of Proposed SOI and Land Use Changes Alternative to Proposed GPU Objectives

The Proposed SOI and Land Use Changes Alternative would achieve all of the City's goals and objectives in proposing an update to its existing 2012 General Plan. The Proposed SOI and Land Use Changes Alternative would afford the City an opportunity to address its need to accommodate new growth and to do so in a way that meets the City's vision for its desired character. This alternative would also enable the City to integrate progressive planning tools designed to improve the quality of life of its residents and to accommodate growth in a more environmentally responsible manner. This alternative would not provide the same overall development capacity as would the proposed GPU, especially for residential uses. However, this fact is not inconsistent with the City's proposed GPU objectives and may support a key smart growth objective of improving the City's overall jobs to housing ratio at buildout.

Alternative 3: Additional SOI Acreage Reduction Alternative

Description

In response to the nature of the comments received from the CID and further evaluation of the proposed GPU goals and policies, the City determined that an additional feasible alternative should be considered which would better foster informed decision-making and further lessen significant adverse environmental impacts of the proposed GPU, and that would feasibly attain all of the objectives of the project. Alternative 3, Additional SOI Acreage Reduction Alternative has been developed in part to reduce the area of land included in the proposed GPU that lies within the boundary and jurisdiction of the CID.

Alternative 3 consists of eliminating a net of approximately 826 acres from the proposed expanded SOI. Figure RDEIR 1, Additional SOI Acreage Reduction Alternative, shows the alternative. Note that the call-out numbers shown on Figure RDEIR 1 are the same as those described for Alternative 2. Relative to Alternative 2, which reduces the size of the proposed expanded SOI by 641 acres, Alternative 3 reduces the size of the proposed expanded SOI by an additional 185 acres. Relative to Alternative 2, additional acreage reductions occur primarily in the westernmost portion of the proposed expanded SOI along Manning Avenue where areas designated Community Commercial and Light Industrial in the GPU have also been eliminated from the proposed SOI. Alternative 3 would further lessen a range of significant impacts of the proposed GPU relative to Alternative 2, including significant and unavoidable impacts to groundwater resources and agricultural resources.

Table 30, Alternative 3 - Acreage Changes, shows the net outcomes of the changes to the proposed SOI. Elimination of 826 acres reduces the size of the proposed expanded SOI by 10.4 percent to a total of 7,087 acres. As proposed in the GPU, 721of the 826 acres are planned for development with urban uses, with the remaining 105 acres planned as Open Space.

Table 30 Alternative 3–Acreage Changes[1]

Land Use Designation	Acres Removed from the SOI
Residential - Suburban	- 202
Residential – Low Density	- 288
Residential - Med. Density	- 24
Residential – High Density	- 6
Community Commercial	-115
Light Industrial	- 86
Open Space	- 105
Total	**-826**

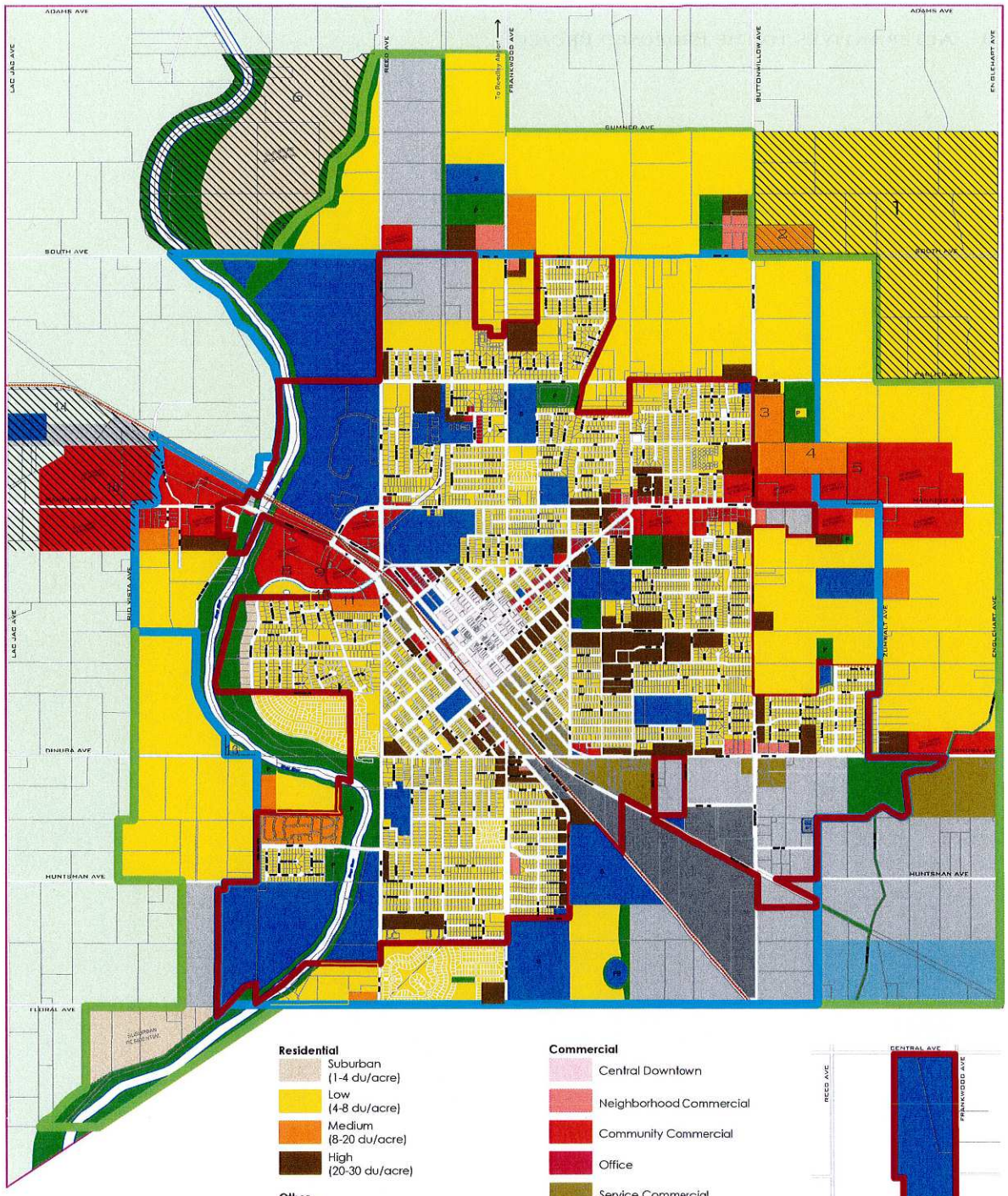
Source: City of Reedley Alternatives Land Use Summary Tables 2013

Note: [1]All numbers rounded to nearest acre

Additional SOI Acreage Reduction Alternative Effects

The environmental effects of Alternative 3 relative to the proposed GPU are summarized by topic area below. In general, this alternative would result in a reduction of the intensity of all adverse impacts identified for the proposed GPU and for Alternative 2.

Agricultural Resources. With some exceptions in areas located along Manning Avenue in the western portion of the SOI, all of the land that is eliminated from the proposed SOI under Alternative 3 is in agricultural use. Hence, it is assumed that approximately 800 fewer acres of existing agricultural land would be converted to urban or open space use relative to the proposed GPU. Most of the 800 acres is classified as Important Farmland. Consequently, this alternative would result in a major reduction in the significant and unavoidable impact from conversion of Important Farmland to non-agricultural use that would result with implementation of the proposed GPU. Nevertheless, the impact would remain significant and unavoidable.



Source: City of Reedley 2013

RDEIR Figure 1

Additional SOI Acreage Reduction Alternative

Recirculated City of Reedley General Plan Update EIR

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Air Quality. The Additional SOI Acreage Reduction Alternative would result in a significant total reduction in air emissions compared to the proposed GPU, as it would eliminate approximately 721 acres of urban uses that would generate vehicle trips and increase total vehicle miles traveled. Consequently, the volume of air emissions associated with this alternative would be significantly lower than the proposed GPU. The significant and unavoidable impact of the proposed GPU resulting from conflict with the applicable air quality management plans and from a substantial increase in criteria air emissions (ozone and PM_{10}) for which the air basin is in non-attainment would be reduced. However, the total volume of emissions generated would remain substantial and the impact would remain significant and unavoidable.

Biological Resources. The Additional SOI Acreage Reduction Alternative would result in approximately 800 acres of agricultural land remaining in agricultural use rather than being converted to urban or open space use and less new urban development would occur along Manning Avenue in the western portion of the proposed SOI. Implementation of this alternative would reduce the potential for significant impacts on biological resources relative to the proposed GPU, especially for species that utilize agricultural land as habitat.

Climate Change. The Additional SOI Acreage Reduction Alternative would reduce impacts from climate change by reducing 721 acres of urban development potential. The uses eliminated would be sources of GHG emissions from mobile sources (largely passenger vehicles), potentially stationary sources, and indirect sources such as electricity use and natural gas combustion. The Additional SOI Acreage Reduction Alternative would reduce the significant unavoidable impact of the proposed GPU project on climate change, but the impact would remain significant and unavoidable.

Cultural Resources. The Additional SOI Acreage Reduction Alternative would reduce potential adverse impacts by eliminating land disturbance (grading, trenching, etc.) associated with urban development on approximately 721 acres. Land disturbance has potential to impact subsurface cultural resources. Potential impacts on historic resources would also be reduced. While continued agricultural uses in the areas to be eliminated from the proposed SOI also have potential to impact cultural resources, that potential is considered to be lower than for urban development. Consequently, the Additional SOI Acreage Reduction Alternative would reduce potential impacts on cultural resources relative to the proposed GPU.

Geology and Soils. The Additional SOI Acreage Reduction Alternative would reduce risk of injury or damage to people or development from geologic/seismic or soils hazards because significantly fewer people and significantly less development would be exposed to such risks. While agricultural uses can result in soil erosion, by eliminating urban development on 721 acres, this alternative has equal potential to reduce potential soil erosion on those same lands. Consequently, the Additional SOI Acreage Reduction Alternative would reduce potential geologic and soils impacts relative to the proposed GPU.

Hazards and Hazardous Materials. Implementation of the proposed GPU would result in an increase in the use, storage, transport, and disposal of hazardous materials associated with new residential, commercial, and industrial uses. The Additional SOI Acreage Reduction Alternative would reduce the risk of accidental release of hazardous materials because it would eliminate potential adverse effects of accidental release of such materials by reducing 721 acres of development capacity for residential, commercial businesses, and industrial uses. However, the Additional SOI Acreage Reduction Alternative would result in the continued use of pesticides and other agricultural chemicals on land that would not be developed with urban and open space uses. The Additional SOI Acreage Reduction Alternative would likely have similar potential impacts as would implementation of the proposed GPU.

Hydrology and Water Quality. The Additional SOI Acreage Reduction Alternative would reduce adverse hydrological and water quality impacts of the proposed GPU. This alternative would eliminate urban development on 721 acres that otherwise would be a source of potential sediments and urban pollutants. However, existing agricultural sources of water quality contamination (i.e. pesticide and fertilizers carried in storm water runoff) would not be avoided.

Impermeable surface area would be reduced such that potential for localized flooding from stormwater runoff would be reduced. Potential hazards associated with exposure of people to flood hazards or potential for new development to exacerbate flood flows would also be reduced with a smaller population and because a portion of the area to be eliminated from the proposed SOI is within a 100-year flood hazard zone.

Existing agricultural uses within the area are typically supplied with irrigation water from surface water sources when surface water supplies are available. Groundwater is used for irrigation when surface water supplies are insufficient to meet agricultural demand. Hence, existing agricultural uses contribute to the depletion of groundwater within the overdrafted Kings Basin to a degree that varies annually. Implementation of this alternative would reduce demand for additional groundwater to meet demand generated by urban development and open space uses on 826 acres.

As described in the report *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence,* the consumptive use (demand) of groundwater from urban uses in the City averages 1.0 acre-foot per acre per year, while the average consumptive use of water applied for rural irrigation within the existing SOI is 2.5 acre-feet per acre per year ((Schmidt and Associates 2013, pp. 3-4). The findings of the report are discussed in Section 2.9, Hydrology and Water Quality, and the report is contained in Appendix B for reference.

As described in the report *Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence,* the consumptive use (demand) of groundwater from urban uses in the City averages 1.0 acre-foot per acre per year, while the average volume of water applied for

2013, pp. 3-4). If no other use factors were considered, conversion of agricultural land to urban use would result in a net decrease in demand for groundwater. However, two sources of groundwater recharge would be lost with conversion of existing agricultural land within the proposed expanded SOI to urban use. First, agricultural canals and ditches within proposed expanded SOI provide a significant source of groundwater recharge. These sources of recharge would be lost with conversion to urban use as they would be converted from open bottoms to piped systems. Second, a significant volume of irrigation water applied to agricultural lands percolates back to groundwater, providing another important source of recharge that would be lost with conversion of agricultural land to urban use. The loss of groundwater recharge from canals and agricultural irrigation outweighs the fact that demand for groundwater by urban uses is lower than for agricultural uses. Consequently, with urbanization of the proposed SOI, groundwater overdraft would increase. The findings of the report are discussed in Section 2.9, Hydrology and Water Quality, and the report is contained in Appendix B for reference.

Based on the information above, removal of approximately 721 acres of urban uses from the proposed SOI would result in a reduction in demand for water service, which in turn would reduce the demand for groundwater relative to the proposed project. Further, loss of groundwater recharge from canals and agricultural recharge resulting from urbanization of the proposed SOI would also be reduced. The Additional SOI Acreage Reduction Alternative would; therefore, reduce the significant and unavoidable impact of the proposed GPU resulting from groundwater depletion. However, the reduction in demand would not be sufficient to reduce this impact to less than significant and the impact would remain significant and unavoidable.

Mineral Resources. The Additional SOI Acreage Reduction Alternative would have no effect on availability of mineral resources, as no designated mineral resources are known to exist within the 826 acres of the proposed SOI that would be eliminated. Similarly, the proposed GPU project would have no impact on the availability of mineral resources. The effects of the Additional SOI Acreage Reduction Alternative and the proposed GPU on mineral resources are similar.

Noise. The Additional SOI Acreage Reduction Alternative would result in reduced sources of transportation noise as fewer vehicle trips would be generated. This alternative may also result in reduced potential for introduction of stationary noise sources. It would also result in reduced exposure of noise sensitive uses to elevated noise levels because approximately 520 fewer acres of residential development would occur. Existing sources of temporary noise from equipment use on the approximately 800 acres that would remain in agricultural production would remain. However, few sensitive uses are located within the 800 acres and noise volumes from agricultural uses generally do not exceed typical noise exposure standards. The Additional SOI Acreage Reduction Alternative would reduce significant noise impacts expected to occur with implementation of the proposed GPU.

Population and Housing. The Additional SOI Acreage Reduction Alternative would result in lower population growth. The impacts of the proposed GPU resulting from population growth are described in the analysis of other environmental topics. In general, the Additional SOI Acreage Reduction Alternative would incrementally lessen the population related impacts of the proposed GPU as described elsewhere in this EIR.

Public Services. Implementation of the Additional SOI Acreage Reduction Alternative would reduce demand for public services. As a result, the Proposed SOI and Land Use Changes Alternative would result in reduced potential impacts from constructing public services facilities and infrastructure needed to support new growth. The Additional SOI Acreage Reduction Alternative would have less potential to create significant impacts relative to the proposed GPU.

Traffic and Transportation. The Additional SOI Acreage Reduction Alternative would eliminate urban development potential on approximately 721 acres. It would therefore, result in lower traffic volumes than would the proposed GPU and would lessen significant impacts resulting from increased traffic hazards at rail crossings.

Utilities. Under the Additional SOI Acreage Reduction Alternative, demand for utilities would be reduced as urban development would occur on about 721 fewer acres than under the proposed GPU. Consequently, this alternative would result in reduced potential impacts from construction and operation of utility infrastructure. The Additional SOI Acreage Reduction Alternative would also result in an incremental decrease in demand for solid waste disposal capacity relative to the proposed GPU. Consequently, implementation of the Additional SOI Acreage Reduction Alternative would lessen potential adverse environmental effects related to utilities than would the proposed GPU.

Relationship of the Additional SOI Acreage Reduction Alternative to Proposed GPU Objectives

The Additional SOI Acreage Reduction Alternative would achieve all of the City's goals and objectives in proposing an update to its existing 2012 General Plan. The Additional SOI Acreage Reduction Alternative would afford the City an opportunity to address its need to accommodate new growth and to do so in a way that meets the City's vision for its desired character. This alternative would also enable the City to integrate progressive planning tools designed to improve the quality of life of its residents and to accommodate growth in a more environmentally responsible manner. This alternative would not provide the same overall development capacity as would the proposed GPU, especially for residential uses. However, this fact is not inconsistent with the City's proposed GPU objectives and may support a key smart growth objective of improving the City's overall jobs to housing ratio at buildout.

4.4 COMPARISON OF ALTERNATIVES

The effects of Alternative 1, No Project Alternative; ~~and~~ Alternative 2, Proposed SOI and Land Use Changes Alternative; and Alternative 3, Additional SOI Acreage Reduction Alternative; relative to the proposed GPU (the proposed project) are summarized Table ~~30~~31, Comparison of Alternatives to the Proposed GPU. The term "Avoided/Reduced" suggests that the alternative either avoids or has a reduced effect relative to the proposed GPU. The term "Similar" suggests that the effect of the alternative would be similar to the proposed GPU. As can be seen from the table, there is no situation where any of the alternatives has ~~either the No Project or the Proposed SOI and Land Use Changes Alternative have~~ the potential to result in a greater number or increased intensity of effects or impacts identified for the proposed GPU.

Table ~~30~~31 Comparison of Alternatives to the Proposed GPU

Environmental Topic	Alternative 1: No Project Alternative	Alternative 2 Proposed SOI and Land Use Changes ~~Alternative~~	Alternative 3: Additional SOI Acreage Reduction
Aesthetics	Avoided	Reduced	Reduced
Agricultural Resources	~~Avoided/~~Reduced	Reduced	Reduced
Air Quality	Reduced	Reduced	Reduced
Biological Resources	Avoided/ Reduced	Reduced	Reduced
Climate Change	Avoided/ Reduced	Reduced	Reduced
Cultural Resources	Reduced	Reduced	Reduced
Geology and Soils	Avoided/ Reduced	Reduced	Reduced
Hazards/Hazardous Materials	Similar	Similar	Similar
Hydrology/Water Quality	Similar	Reduced	Reduced
Mineral Resources	Similar	Similar	Similar
Noise	Reduced	Reduced	Reduced
Population and Housing	Avoided	Reduced	Reduced
Public Services	Avoided	Reduced	Reduced
Traffic and Transportation	Avoided	Reduced	Reduced
Utilities and Service Systems	Avoided	Reduced	Reduced

Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126.6 (e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states that if the environmentally superior alternative is the No Project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The No Project Alternative is in effect the continued implementation of the City's existing 2012 General Plan.

The No Project alternative is environmentally superior to the proposed GPU. Continued agricultural use of land within the proposed expanded SOI as is permitted under the current County land use and zoning designations would avoid or reduce most of the impacts identified for the proposed GPU. While the No Project Alternative is environmentally superior, it would not meet any of the City's goals and objectives for updating its existing 2012 General Plan.

In accordance with the CEQA Guidelines, if the No Project Alternative is identified as the environmentally superior alternative, an environmentally superior alternative must then be selected from the remaining alternatives. Alternative 3, Additional SOI Acreage Reduction, ~~The Proposed SOI and Land Use Changes Alternative~~ is also considered environmentally superior to the proposed GPU, as its implementation would result in the reduction of nearly all impacts identified for the proposed GPU. Nearly all of the significant impacts associated with the proposed GPU would be reduced with a reduction in acreage proposed for urban development. Alternative 3 would result in approximately 222 fewer acres of urban development than does Alternative 2. Hence, its implementation would incrementally lessen the full range of environmental impacts associated with Alternative 2. Alternative 3 also meets all of the City's objectives in updating its existing 2012 General Plan. Therefore, Alternative 3 is environmentally superior to Alternative 2.

4.5 ALTERNATIVES CONSIDERED BUT NOT ANALYZED

As noted above, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, do not avoid or substantially reduce any significant environmental effects, or are speculative. The following alternatives were considered, but rejected for further consideration for one or more reasons as described.

Increased Residential Density Alternative

This alternative would consist primarily of increasing residential densities within the city limits, existing SOI, and proposed SOI while retaining much if not all of the residential development capacity included in the proposed GPU. This alternative would result in reduced land consumption for residential uses and as a result, serve to incrementally reduce a full range of environmental impacts of the proposed GPU.

This alternative was dismissed for further evaluation for two reasons. First, as part of the proposed GPU, the City has already increased the average densities for all residential land use categories relative to designations contained in the existing 2012 General Plan. This was done in significant part to improve the environmental sustainability of the proposed GPU consistent with smart growth principles in general and in response to the City's consideration of the principles included in the San Joaquin Valley Blueprint. Second, this alternative would not likely substantially differ from the impact avoidance/reduction characteristics of the Proposed SOI and Land Use Changes alternative that was evaluated in detail.

Alternative Project Site

Analysis of an alternative project site is commonly considered as part of an alternatives analysis in an EIR. An alternative site should be considered if the project proponent has a reasonable potential to obtain control of an alternative site (part of the determination about whether an alternative is feasible) and development of an alternative site would avoid or lessen the impacts of the proposed project.

In the case of a general plan update, an alternative location for the proposed GPU is infeasible. The proposed project must by definition be associated with development with and around the existing city limits and existing SOI.

Distributed Growth Alternative

It is assumed that the No Project alternative results in none of the growth anticipated by the proposed GPU for the expanded SOI. Since the expanded SOI is designed to accommodate new growth anticipated by the City, if the City does not provide opportunity for that new development, it could be displaced to other locations in the vicinity, region, state, or beyond. Because of the uncertainty involved in projecting how much growth would occur elsewhere, the locations where growth would occur, and the environmental conditions in other locations that would receive the displaced growth, it would be speculative to evaluate impacts of such an alternative. Pursuant to CEQA Guidelines Section 15145, impacts that are speculative do not require discussion.

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6.0
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6.1 SOURCES

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APPENDIX A

NEW AND MODIFIED REEDLEY GENERAL PLAN UPDATE 2030 POLICIES

The City of

REEDLEY

California

GENERAL PLAN 2030

Recirculated Sections
September 2013

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City of Reedley
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TO: Ron Sissem, Environmental Consultant
EMC

FROM: Kevin E. Fabino, Director
Community Development Department

SUBJECT: Revisions to General Plan Update Sections (Urban Growth Management, Agriculture and Public Utilities)

DATE: September 10, 2013

Over the past several months the City has diligently and comprehensively addressed the comments received during the public comment period for the General Plan Update ("GPU"), Draft Environmental Impact Report. The City's inclusion of historical information, additional data and analysis of the existing conditions and new technical studies has resulted in significant modifications to primarily three sections of the GPU: Urban Growth Management, Agriculture and Public Utilities. The goal of these modifications was not only to provide additional information but also further articulate Program goals, evaluation processes and expected outcomes. We hope the additional information and policies will provide the public, stakeholders and decision-makers with a better understanding as to how and why the policies will facilitate accomplishing the specific goals as well as the desired project outcomes, and will serve to reduce the project's potential environmental impacts.

We believe this effort has produced significant improvements to the GPU. Therefore, attached are the revisions to the Urban Growth Management, Agriculture and Public Utilites Sections that will be incorporated into the Reedley General Plan Update.

Chapter Two
Land Use Element

2.5 URBAN GROWTH MANAGEMENT

This General Plan Update (GPU) anticipates future population and economic growth in the City's Sphere of Influence (SOI) which will necessitate some demand for potential conversion or re-use of agricultural land to a more urbanized use. The City's strategy for growth management can best be described as the prudent location and timing of new development to maximize the efficient use of urban facilities and services, while recognizing the important contributionsprovided by our agricultural community.The City also recognizes the management of urban growth and the ensuing conversion of individual agricultural properties has a potential to cause adjoining parcels to be converted to non-agricultural uses because of various economic conditions such as rising land values, conflicts with other land uses, and the inhibiting effect of increased numbers of people on normal agricultural operations. Therefore, the policies in this Section seekto ensure an orderly growth pattern when extending urbanized areas, while minimizing the premature and unplanned conversion of agriculture.

The City of Reedley is committed to managing its urban growth pattern. Through three General Plans (1964, 1977 and 2012),the City has successfully implemented a strategy whereby the SOI was the primary tool to direct compact growth inward and away from prime agricultural lands. This strategy has been effective when looking at how compact the City has grown over several decades. Development has not leap-frogged, sprawled or created peninsulas.Over this very long planning period the actualnumber of Prime, Unique, and Farmland of Statewide Importanceconverted to urban use was 691 acres. In 2013, the City's incorporated area represents approximately sixty-two percent (62%) of land within the existing SOI. Again, containing and managing the urban growth pattern has effectively reduced the premature conversion of the surrounding agricultural landscape.

If the historical growth pattern were applied to the end of this planning horizon (2030), seventy-five percent (75%) of the SOI would be incorporated. Table 2-1, Land Availability, illustrates the City's growth since 1977 and the resulting conversion of agricultural lands.

Table 2-1, Historical and Future Effects of SOI Expansion and Annexations on Ag Lands

Land Availability – Incorporated/Unincorporated Land Acreage				
	1977*	1992**	2012***	2030****
City Boundaries	1,836acres	2,469acres	3,133acres	3,797acres
Sphere of Influence	4,763acres	5,053acres	5,343acres*	7,091acres*
Remaining Ag Land	@2,927acres	@691acres	@2,210acres	@1,512acres

Sources:
* Reedley General Plan, 1977
** City of Reedley, General Plan 1992
*** City of Reedley, General Plan 2012
**** City of Reedley, Proposed Land Use Additions and Changes (Alternative II)

The GPU goals and policies representthe official City position regarding the desirable nature, disposition and quality of development within the community, but also an assessment of the type,

quantity and timing of future development. To effectively manage urban growth in the future, this 2030General Plan Update includes numerous goals and policies promoting compact development, in-fill development, and significant increases to residential and commercial density ranges. By design, these tools are to ensure a managed, controlled and orderly growth pattern over the entire planning horizon. Implementation of all of the growth management related polices will not wholly mitigate the loss of, or potential for the conversion of, agricultural lands. These measures will significantly reduce the impact by a rational approach that affects the City of Reedley on various levels.

Goals

LU 2.5A - Support agricultural industries within and surrounding the City by establishing urban growth management policies which seek to minimize the premature conversion of productive agricultural landto more urbanized uses.

LU 2.5B - Minimize leap-frogging, low density, automobile dependent development beyond the edge of service and employment areas, or the creation of peninsula development greater than ¼ mile from existing urban uses.

LU 2.5C - Facilitate orderly transition from rural/agricultural uses to urban land uses.

LU 2.5D - Designate growth areas that can be served by existing and planned infrastructure.

LU2.5E - Encourage a concentrated urban land use patternthat prioritizes development of in-fill and by-passed parcels,provides for the economically efficient provision of urban services, and maintains Downtown as the core of the City.

Policies

LU 2.5.1: In areas outside the city limits, the City shallencourage FresnoCounty to:

a) Maintain an exclusive agricultural zone district.
b) Maintain a minimum permitted lot size for agricultural land which ensures that the land can be used for commercial agricultural purposes.

LU 2.5.2: New development opportunities in the City shall be sequential and contiguous to existing development to ensure the orderly extension of municipal services and unnecessary conversion of agricultural land. Development standards shall incorporate measures to protect and preserve agricultural land.

LU 2.5.3: The City shall oppose formation of new land conservation contracts on land adjacent to the City's boundaries. The City shall also work with owners of land within the SOI who wish to file for non-renewal of Williamson Act contracts in advance of urban development.

LU 2.5.4: Within one year of the adoption of the GPU, the City shall consider adoption of a right-to-farm ordinance which will require purchasers of residential, industrial and/or commercial properties within close proximity to existing agricultural uses to acknowledge that their land borders, or is in close proximity to, agriculturalland and will endure the potential impacts of that interface. The goal of this proposed

ordinance is to promote and protect existing agriculture operations, allowing farmers/ranchers to conduct operations when urban land uses extend into natural resource areas or are side-by-side, and, address the subject of frequent nuisance complaints. This Ordinance shall be implemented through a right-to-farm covenant to be recorded against the dominant and subordinateproperties.

LU 2.5.5: The City shall discourage the development of peninsulasof urban development into agricultural lands.

LU 2.5.6: In cooperation with Fresno County, Fresno Local AgencyFormationCommission (LAFCO), community and agricultural industry stakeholders, the City shall adopt and maintain a SOI consistent with the goals and policies of this GPU. The sphere of influence shall serve the mutual interest of the Countyand City by preserving agricultural uses from incompatible or unplanned urban uses.

LU 2.5.7: Require contiguous development within the SOI unless it can be demonstrated that the development of contiguous property is infeasible.An analysis of the fiscal, public utilities, surface transportation and service impacts shall be required as part of the application to annex new territory into the City.

LU 2.5.8: The City shall not support annexing land for residential development until at least sixty-five (65) percent of the existing residentially designated land inside the city limits is developed.

LU 2.5.9: Work with Fresno County and Fresno LAFCO to maintain agricultural designations in areas outside theReedley SOI.

LU 2.5.10: Continue to maintain a Memorandum of Understanding (MOU) with Fresno County which clearlysets forth the following:

a) The County shall not approve any discretionary development permit for new urban development within the City's SOI unless that development has first been referred to the City.

b) That the development is orderly.

c) County shall require development standards of the City of Reedley, when development is within the existing SOI.

d) The City application for the annexation of any new territory be consistent with the Cortese-Knox Act.

e) City initiated annexation shall have development eminent, with at least fifty (50) percent of the proposed area having an approved site plan and/or tentative map.

LU 2.5.11: The Plan should foster the establishment of a concentrated urban development pattern, with land outside the planned urban area being designated exclusively for Agriculture.

LU 2.5.12: New urban development should occur in an orderly manner with initialdevelopment occurring on the available undeveloped properties within the City's limits which would be considered in-fill, by-passed parcels or in parcels in close proximity to the urban core, places of employment and established neighborhoods.

LU 2.5.13: The City should promote and provide urban services to development withinthe City as a means of controlling and directing growth.

LU 2.5.14: Initial development shall incorporate the necessary infrastructure to accommodate future development for the surrounding area consistent with the goals and objectives of the GPU. Reimbursement agreements or other mechanisms may be provided to the developer as a means to share the equitable burden of costs.

LU 2.5.15: Provide transitional design between land use types and high quality urban uses.

LU 2.5.16: The City shall encourage in-fill projects that incorporate pedestrian-orienteddesign.

LU 2.5.17: The City shall propose plan areas and zone districts that can accommodatemixed use planning that will provide a combination of residential, commercial services and employment opportunities all within close proximity.

LU 2.5.18: From the adoption date of this GPU, the City shall annex a maximum of five hundred(500) acres from within the existingSOI (@1,797-acres). Only when a Farmland Preservation Program is adopted for implementation shall the City propose additional lands for orderly annexation. The Farmland Preservation Programis discussed in great detail in Section 4.3 Agriculture.

Chapter Three
Circulation

3.10 PUBLIC UTILITIES

The capacity of public utilities (water, waste water, and storm water) that serve a community can affect the quality of life of the residents of the community. Many public utility services require a significant investment in infrastructure. The City of Reedley provides water, sewer, storm water services and groundwater recharge for the citizens of Reedley. The City is in the process of updating its Water, Waste Water and Storm Drain Master Plans. As information is available it is being incorporated into the General Plan Update (GPU) as part of the analysis.

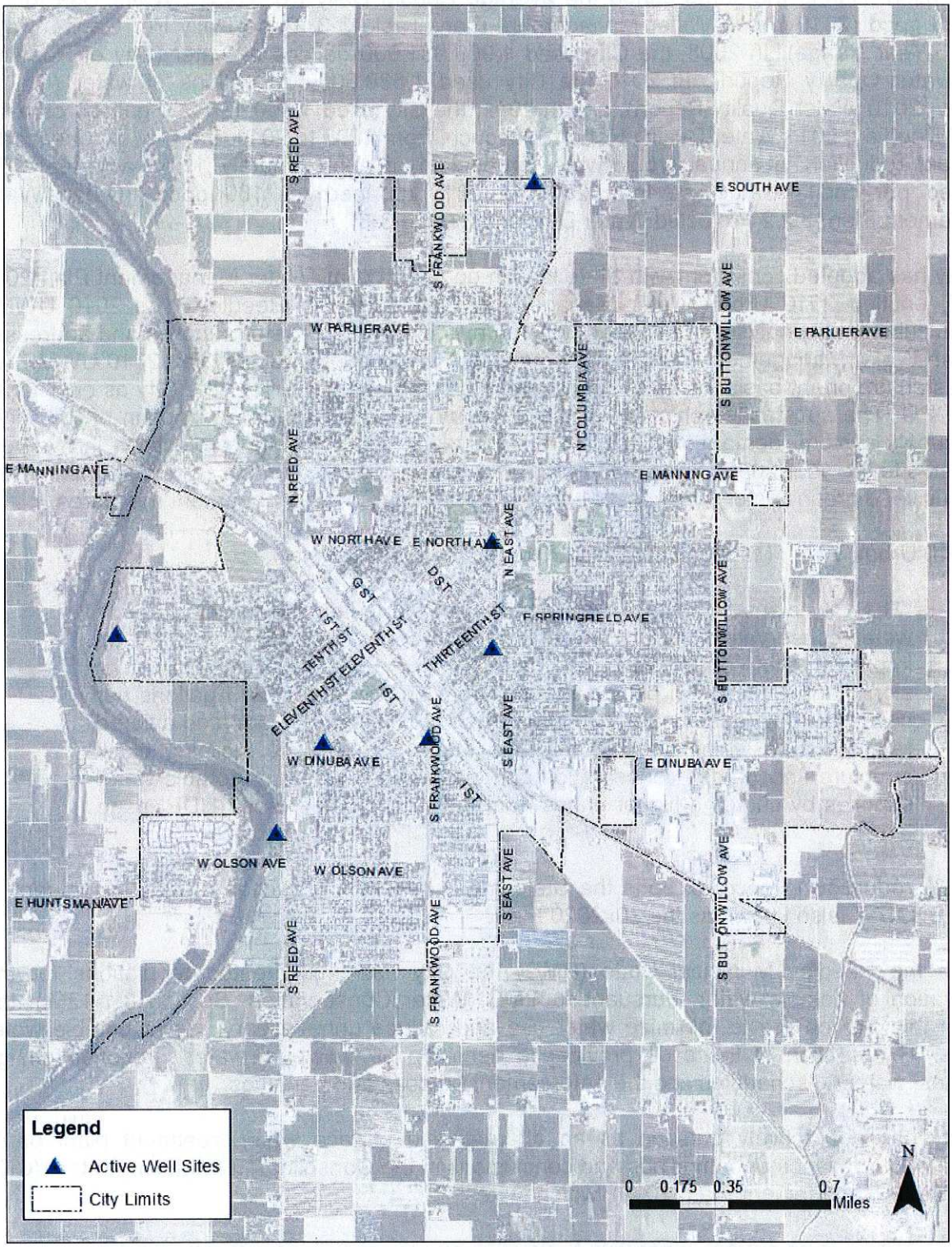
Water

The City of Reedley lies directly over the Kings Basin from which the City extracts its domestic water supply. The Kings Basin is a large groundwater subbasin located within the southern part of the San Joaquin Valley Basin, in the Central Valley of California. The groundwater basin covers an area of 1,530 square miles.

The City of Reedley depends entirely on groundwater pumping from the Kings Basin. The topography of the Reedley area is relatively flat, and the primary slopes within the SOI are those found within the Kings River corridor. Subsurface lateral movement of runoff from the Sierra Nevada Mountains to the east and some general surface runoff in creeks, irrigation ditches and open space, percolation ponds and the Kings River are all a source of replenishment of the groundwater table. The City's groundwater supply is pumped from wells located entirely on the eastern side of the Kings River. The City does not pump or operate any groundwater wells on the westerly side of the Kings River.

The City has historically provided domestic water supply solely through groundwater extraction. The City operates seven active water wells (with an additional well under construction as of September 2013) and two water storage towers. An additional water storage tower facility is under construction.See Figure 3.1 for a map of the City of Reedley's active well sites. It is common practice for the City to drill its water production wells at depths greater than 800-feet to ensure sufficient supply and meet State Water Quality standards. This is because water quality in the Kings Basin is generally very good and groundwater quality in the Reedley vicinity is also generally good. In the City of Reedley 2011 Water Quality Report, the City reported that after testing for over 100 constituents, the City's groundwater supply met all health related standards established by the California Department of Public Health, and the U.S. Environmental Protection Agency.

Figure 3.1 – City of Reedley Active Well Sites



The City of Reedley produced from 2003-2007, 11,474,563,400 gallons of water for public consumption. During the same period the average Annual Daily Per Capita Water Use (gpcd) was 290 gpcd (2010 Urban Water Management Plan, Table 3-3, Base Daily Per Capita Water Use – 5-Year Range). In 2008, the City used 1,959,531,000 gallons of water (City of Reedley, 2008 Water Quality Report). In 2010 the City used 1,538,500,000 gallons of water (City of Reedley, 2010 Water Quality Report), and in 2011, the City used 1,450,120,000 gallons of water (City of Reedley, 2011 Water Quality Report). As such, from 2008 to 2011, the City experienced a significant reduction in annual groundwater production of approximately 1,563 acre-feet. The projected per capita water use from 2008 to 2011 dropped to "180 gpcd" (Urban Water Management Plan, 3.2.2 Projected Water Deliveries, Page 3-6).

The City has adopted,consistent with State law,an updated Urban Water Management Plan(2010 UWMP) entitled 2010 Urban Water Management Plan – City of Reedley. The 2010 UWMP includes substantial analysis of the City's water supply system and water supplies and addresses all Urban Water Management Planning Act-mandated water supply topics. The 2010 UWMP will serve as an important basis for water supply and development planning in the City as envisioned in the GPU. The substantive chapters of the 2010 UWMP address the description of the City's water supply system, demands on the system including water demand projections in five-year increments to the year 2035, existing and projected future sources of water (which are planned to be exclusive to groundwater), water supply reliability, and demand management measures.

The 2010 Urban Water Management Plan (2013) states the following:

> "The City plans to achieve compliance with the water use targets through water conservation, including metering with commodity rates. The recent implementation of metering and use of commodity rates resulted in a significant reduction in per capita use, from approximately 249 gallons per capita per day (gpcd) in 2006 to 180 gpcd in 2011. The City adopted a tiered rate structure which became effective May 1, 2010. The inclining block structure encourages conservation and discourages waste of potable water supplies by charging higher prices from excessive water uses. (HDR, page 3-10)

This 28% reduction in gpcd exceeds the State mandated 20% reduction by 2020, pursuant to Senate Bill X7-7, also known as the 20x2020 Plan.

Through the Reedley Municipal Code (RMC) the City has implemented regulations for the conservation of potable water. Pursuant to RMC, Water Conservation, Section 8-1-12(A), the goals of this section are to minimize water use and reduce unnecessary use of potable water supplies. This section of the code provides a definition of "waste of water", irrigation design guidelines, watering schedules and the enforcement process and penalties.

The City has not actively pursued as an alternative a surface water treatment plant partly because of our reliance upon findings and conclusions in the Consolidated Irrigation District (CID) Groundwater Management Plan (2009), which states:

> "There is no current imperative to develop municipal surface water treatment plants in CID Cities, but this may be necessary in the future. If urban lands continue to develop and rely exclusively on groundwater, and if recharge facilities are not developed to help meet future urban demands, treatment of

surface water for municipal use in lieu of groundwater may be needed." (GEI, page ES-5)

After discussing with the engineering firm preparing the master utility (water, sewer, storm drainage) plans, the City believes that the cost to upsize the entire water distribution to accommodate a force system is economically infeasible at this time. The City does not have the financial means to incur the cost of constructing a surface water treatment plant. The City also believes that to simply pass the cost along to the development community would significantly inhibit new development in our community. Therefore, the City has opted to invest in recharge facilities.

The GPU goals, policies, RMC and supporting plans (UMWP) represent an effort to effectively manage a valued resource. To effectively manage this finite resource the GPU includes numerous goals and policies promoting public education and transparency, conservation and collaboration with other governmental agencies. Implementation of all of these water polices will not wholly mitigate the critical overdraft of the Kings Basin. However, the collective Public Utilities Goals and Policies were specifically designed as a comprehensive set of tools to ensure the avoidance of a critical overdraft and ensure the City's diligent oversight, management and use of a finite water resource.

Goals

CIR 3.10A - Provide adequate water services to the City of Reedley.

Policies

CIR 3.10.1 The City shall adopt the 2010 Urban Water Management Plan in accordance with California Water Code, Division 6, by January 2014;

a) The Plan shall be prepared in accordance with Article 1, Sections 10620-10621.

b) The contents of this Plan shall be consistent with Article 2. Contents of Plans, Sections 10630-10634.

c) The implementation of the Plan shall be in accordance with Article 3. Adoptionand Implementation of Plans, Sections 10640-10645.

d) After the adoption of the 2010 Urban Water Management Plan, the City shall prepare and adopt the 2015 Urban Water Management Plan, pursuant to the California Water Code, Division 6.

e) Should the Plan expireat any time, pursuant to State Law, the City shall not support the approval of unincorporated territory,General Plan,zone change and/or tentative tract mapentitlement applications.

CIR 3.10.2 The City shall identify capital facilities necessary to maintain service in the City of Reedley as the City expands.

CIR 3.10.3 The City Council shall annually review and adopt updates of development impact fees, water connection charges, and volume-based monthly servicecharges to ensure that adequate funds are collected to operate and maintainexistingfacilities and to construct new facilities for delivery, monitoring, and storage.

CIR 3.10.4 The City shall activelysupportefforts to expand surface water supply and storage that benefits the City.These efforts should include, but not be limited to, coordination with Irrigation Districts for water banking, andWWTP effluent recycling and percolation.

CIR 3.10.5 The City shall require that necessary water supply infrastructure is available prior to constructing new development, and approve development entitlements onlywhen there is assurance of a dependable and adequate water supply that will serve the development.

CIR 3.10.6 Any development project which meets the definition of a "water-demand project", pursuant to the CEQA Guidelines, Section 15155, shall be required topreparea "water assessment" in accordance with Water Code Sections10910 & 10915. The City Council shall formally consider approval of the assessment within the time period required by applicable law and prior to the approval of any development entitlements for the development project.

CIR 3.10.7 The City shall cooperate with surrounding water management authorities and irrigation districts to develop a comprehensive water management and recharge program which addresses the long-term stabilization of the Kings Basin and the transfer of excess WWTP effluent recycled water for use by the districts for recharge or use by their constituents.

CIR 3.10.8 Through the entitlement process described in the RMC, the City shall require asa condition of approval that new development will be required to install water meters which meet the City's standards.

CIR 3.10.9 The City shall encourage and cooperate with the private sector, as appropriate, to incorporate alternative methods of water reuse into new development, such as reclaimed water from irrigation, landscaping and purple pipe systems.

CIR 3.10.10A The City Council shall initiate the preparation and then consider adoption of a performance based Water Conservation Program ("WCP") that addresses water consumption to help ensure an adequate water supply to accommodate the projected growth and development patterns proposed within this GPU. The policies and implementation measures contained in the WCP shall set performance standards for sustainable management of Reedley's water production. The WCP, or a similar program that accomplishes the goals set forth below,shall be adopted and in effect prior to the implementation deadlines set forth in any of the policies set forth below.

For each policy, standard and implementation measure identified below for inclusion in the WCP there shall be a discussion of the following: (1) How the policy, standard or implementation measure shall reduce per capita potablewater consumption; (2) Whether and how the policy, standard or implementation measure

would be integrated into the development entitlement process; and (3) how the policy, standard or implementation measure would be enforced through the regulatory environment.

The policies listed below have been assigned a date of anticipated implementation or completion. Those dates were determined by operational necessity and compliance, complexity of task and staffing capacity.

GOAL: To reduce per capita potable water consumption by an additional twenty (20) percent by the year 2020.

COMPLIANCE MONITORING AND REPORTING: After the adoption of the WCP, the Community Development Department shall provide an annual report to the City Council progress made toward overall implementation of the WCP.

The WCP shall include the following policies and implementation measures:

a) The WCP shall include a public education component that addresses various topics related to groundwater production, consumption, recharge and recycling. The public education activities listed below will occur annually at various times throughout the year:

    1) The annual water quality report, prepared by the Public Works Department, which includes statistics related to annual water consumption, discharge and containment, shall be presented to the City Council for its consideration of approval.After Council approval, the report shall be submitted to the State Department of Water Resources.

    2) The Public Works Department shall prepare an annual report that identifies, at a minimum, the amount of water used to irrigate the open space and the projected amount of groundwater recharge that has occurred. The City shall use industry standards to establish a formula to calculate the balancing of production to groundwater recharge.

    3) All water quality reports prepared by the Public Works Departmentthat are required by the Regional Water Quality Boardshall be presented to the City Council for its consideration of approval.

    4) The City shall develop publications and other forms of communication to City water customers to inform them regarding the City's efforts to reduce water consumption and ways the customers can assist with achieving the City's goals.

b) By March 2014, City Council shall consider the adoption of a water utility plan to implement a city-wide public water system through the year 2030. The implementation of this plan will assist the City in identifying locations for future delivery and recharge infrastructure. The Plan will serve as a basis for

the development of impact fees necessary for implementation of the plan.

c) Within one (1) year of the adoption of the GPU, the City Council shall complete a thorough review of the City's development impact fee program and shall consider the adoption of a comprehensive update of the various fees included in the program.

    1) This review shall include, but not be limited to, Storm Drainage, Water Distribution, Groundwater Recharge, Water Supply/Holding and Waste Water Collection and Treatment.

    2) Within each topic area, the review shall include the analysis of existing conditions, proposed new development, need necessitated by future developmentand proportional cost attributed to land use development.

d) Within one (1) year of the adoption of the GPU, the City Council shall consider the amendment of RMC, Section 8-1-12 and other relevant provisions of the RMC related to Water Conservation, to include additional water conservation provisions and implementation measures to assist in implementing the provisions of Senate Bill No. 407 and State Building Code provisions related to water conserving plumbing fixtures and fittings, so as to meet or exceed a twenty (20) percent reduction in water consumption. Specific requirements added to the RMC would include, at a minimum, the following:

    1) Shower head fixtures and fittings shall be designed and installed so that they will not exceed a water supply flow rate of 1.75 gallons per minute.

    2) Faucets at kitchens, lavatories, wet bars, laundry sinks, or othersimilar use fixtures shall be WaterSense labeled and installed so that they will not exceed a water supply flow rate of 1.5 gallons per minute.

    3) Toilet fixtures and fittings shall have an average consumption that does not exceed 1.1 gallons of water per flush.

    4) New residential dwellings that are equipped with clothes washers shall install washers that are ENERGY STAR qualified.

    5) The water pressure in a single family home shall not exceed 60 pounds per square inch (psi), with no detectable water leaks. Multifamily and midrise projects are exempt from the water pressure testing criterion but shall meet the requirements as stated in 1) through 4) above (Source: U.S. Green Building Council).

e) The City shall strive to implement best management practices ("BMP") developed by the California Urban Water Conservation Council and provide annual reports to the City Council and the California Urban Water Conservation Council regarding its progress in implementing the BMP.

f) The City shall consider the adoption of a Water Efficient Landscaping Ordinance that is as effective as, or more effective than, the Model Water Efficient Landscape Ordinance adopted by the California Department of Water Resources. The Ordinance shall contain applicability, definitions, provisions for new construction or rehabilitated landscapes, application requirements, water efficient landscape and certification.

To further reduce outdoor water consumption, encourage water efficient landscaping practices through the reduction of turf grass by at least 40% and increasing the amount of plants that are native or adapted to the region by at least 25% (Source: U.S. Green Building Council).

g) The City shall work with utility service providers such as PG&E who have rebate programs available to City's water customers to inform customers of the programs and to encourage them to utilize the programs to replace current water consuming appliances with water conserving appliances that are Energy Star rated.

h) The City shall measure irrigation water used for parks/open space through the installation of standard water meters on all large park/open space areas, which may be creditable for recharge purposes. The installation of the meters will be completed within one year after the adoption of the GPU.

i) The City shall systematically replace failing irrigation controllers at City parks, median islands and other City facilities with landscape irrigation systems with irrigation controllers equipped with, at a minimum, rain and evapotranspiration sensors, with the goal of reducing water used for landscape irrigation by twenty (20) percent to forty (40) percent, as supported by studies performed in the industry. This replacement program shall commence when the GPU is adopted.

j) The City shall work cooperatively with land owners, local and regional water agencies, and irrigation districts which rely upon the Kings Basin as a source of water to identify and implement infrastructure projects and other programs that serve to reduce the use of groundwater and/or facilitate the recharge of the aquifer.

j) The City shall continue to work with the Upper Kings Basin Integrated Regional Water Management Authority in developing a strong coalition of water agencies, cities, counties and environmental groups to address local water issues.

CIR 3.10.10B As part of the City's formulation of its annual budget, City staff shall identify a list of capital facilities improvement projects, with proposed budgetary allocations, necessary to implement further reductions in water consumption and/or maintain service.

Waste Water

The City currently operates its own wastewater treatment plant (WWTP) located at 1701 West Huntsman Avenue, Reedley, California. The WWTP Phase 1 project was recently completed which expanded the plant's capacity to 5.0 million gallons per day (mgd) and constructed new percolation ponds. The waste water plant has also been designed to readily expand to a total capacity of 7.0 mgd. At total plant build-out the plant could accommodate the anticipated growth for the next 20 years. The plant is currently operating at approximately 2.3 mgd.

Additionally the WWTP site contains three additional stormwater basins. According to the City of Reedley, Waste Water Treatment Plant Draft Environmental Impact Report (2006), "New percolation ponds (approximately 20 acres total) which will be constructed within the WWTP boundary, and will enable the plant to continue to provide 100 percent effluent reclamation via percolation" (Page 2-7). It is also noteworthy that part of the City's permit for the WWTP is that the City is required to discharge effluent reclamation waters between October and May, into three specific ponding basins for recharge purposes. According to WWTP records, the five-year average of effluent discharge used for percolation purposes is 704.4 million gallons;and, in 2012, 654.0 million gallons were discharged into these percolation ponds for groundwater recharge.

According to orders and permits issued by the California Water Quality Control Board for the City's WWTP, certain limits have been placed on discharge flows to percolation ponds and the Kings River. The WWTP is limited to a monthly average discharge flow of 3.5 million gallons per day (mgd) of waste water to approximately 39 acres of percolation ponds. The City is also limited to a monthly average discharge flow of 1.75 mgd of waste water into the Kings River. According to the Alta Irrigation District's Amended Groundwater Management Plan (2010), "effluent discharge by the City of Reedley ('Agency') from its sewer treatment plant into the Kings River should not be considered to be the prohibited exportation of groundwater, if such effluent recharges or benefits underground supplies available to landowners in the District" (page 21).

The GPU goals, policies, and current regulatory permits ensure the public's health and safety from discharge treatment. These measures will significantly reduce future potential impacts to the collection and treatment system.

Goals

CIR 3.10B - Ensure wastewater collection and treatment services are available to meet existing and future needs of the City.

Policies

CIR 3.10.11 By March 2014, City Council shall adopt a Waste Water Master Plan to address collection and treatment system. The implementation of this plan will assist the City in identifying general locations for future infrastructure. The Plan will also be vital to the development of impact fees which are necessary for implementation.

CIR 3.10.12 The master plan will include analysis of the treatment needs as well as collector system disposal measures and funding mechanisms.

CIR 3.10.13 The City shall acquire adequate land to be used for reclamation purposes.

CIR 3.10.14 The City shall periodically review and update development impact fees, wastewater connection charges, and monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities.

CIR 3.10.15 In partnership with County, State and federal agencies, the City shall work to prevent illegal wastewater disposal or chemical disposal practices.

CIR 3.10.16A The City Council shall initiate the preparation and consider the adoption of performance based policies that address collection and treatment of waste water to ensure an adequate waste water treatment system necessary to support the growth and development patterns proposed within this GPU. The policies set forth shall be adopted and in full force prior to the annexation of any new territory that lies beyond the existing Sphere of Influence as of the adoption of this GPU.

Each policy initiated for development will be completed within one of three timeframes: set dates identifying the month and year of completion, annual and ongoing actions associated with City Council adoption, and actions that must be implemented prior to annexations of any new territory that lies beyond the existing Sphere of Influence.

a) After the adoption of the GPU, the Community Development Department shall annually prepare report to the City Council regarding progress made toward overall implementation of these policies.

b) These public utility system policies shall include the implementation of a public education component that addresses various topics related to collection, treatment, recharge and recycling. The reporting to City Council will commence with the adoption of the GPU. Each activity listed below will occur at various times throughout the year on an ongoing basis. The following shall include, but not be limited to:

1) All legally required annual waste water reports prepared by the Public Works Department shall be presented to the City Council for its consideration of approval.

2) The City shall work with industrial customers that use significant amounts of water as part of their operations to develop systems for measuring and monitoring their effluent discharge water for percolation purposes.

CIR 3.10.16B As part of its preparation of its annual budget, the City shall identify a list of capital facilityimprovement projects, with proposed budgetary allocations necessary to maintain operationally efficient collection and treatment of waste water system.

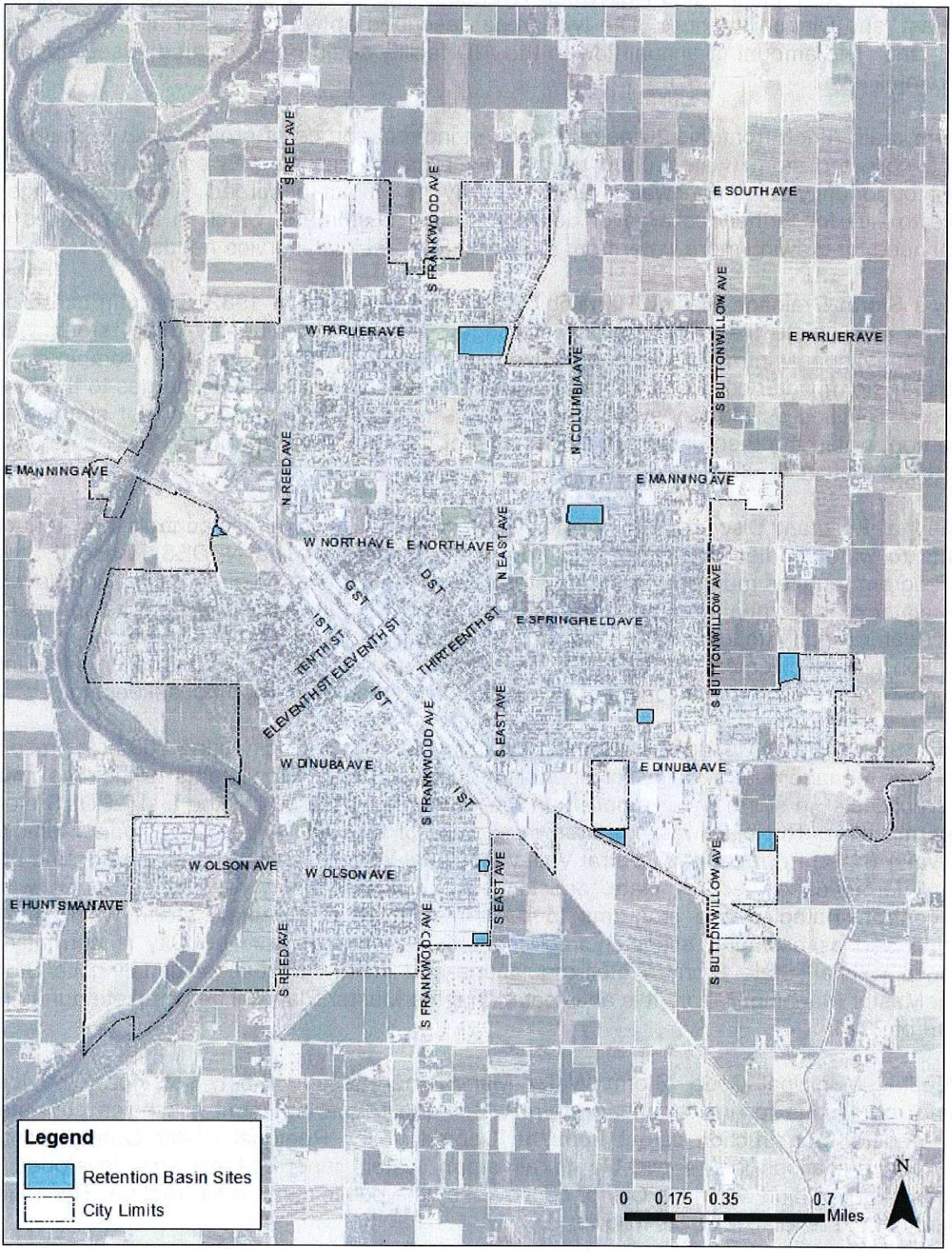
Storm Water Facilities

Storm water flows into street collection systems and enters the storm drain inlets where it is

conveyed through sub-surface drainage piping to one of several storm water retention basins located throughout the City of Reedley. The design of the storm drainage collection system is based upon the peak flow that the pipeline collection system can carry and the topographic slope (or gradient) available in the area. The design of a storm water retention basin is based upon the total volume of runoff that the retention basin must be capable of storing. The estimate of peak flow and total runoff volumes includes calculations utilizing hydrological principals.

The City has ten drainage zones, nine permanent storm water retention basins, underground storm drains, storm drain inlets, a drainage ditch, and a pump station distributed throughout the City. For example, the Buttonwillow Irrigation Ditch is located on the east side of the City. Storm drains also carry water to one of three retention basins. The Camacho Park Retention Basin is located at the northeast corner of North Avenue and Columbia. Another retention basin is located at the end of Hemlock Avenue and Curtis Avenue, adjacent to the Reedley Parkway. Both of these retention basins are designed to use gravity to fill with water. Storm water is collected in these basins and percolates through the soil or evaporates into the air. The third retention basin is located at the intersection of Washington Avenue and Carolyn Lane. Storm water from this basin is pumped to an irrigation canal. See Figure 3.2 - Map of Retention Basin Sites.In addition, the Waste Water Treatment Plant is a significant source of groundwater recharge, as previously discussed above in the Public Utilities - Waste Water section.

Figure 3.2 - Map of Retention Basin Sites



There are also two well-defined areas in the City of Reedley that collect stormwater runoff, which flows directly to Alta Irrigation District (AID) facilities. The northern area is generally bound by Parlier, Frankwood, Manning and Hollywood Avenues. The second area is generally bound by North, East, and Dinuba Avenues. The two areas described above consist of approximately 20 acres of land. The amount of annual flow to the AID facility could be calculated based upon the annual rainfall level.

The storm drain runoff from this 20 acre area is an indirect source of groundwater recharge for AID. The collected storm water runoff drains into irrigation ditches and canals which are an excellent opportunity for groundwater recharge. Any runoff not absorbed through seepage is available to AID for further recharge or delivery to their customers, which in turn reduces the potential need for drawing more water from the Basin for remaining service needs.

The City's Storm Drainage Master Planning Report was prepared in 1982. The purpose of the report was to evaluate the existing storm drainage system and to identify future storm water collection and disposal infrastructure needs given anticipated growth of the City. A combination of pipelines for storm water collection, pump stations, drainage basins, and discharges to the Kings River were identified as the key system components needed to meet demand for storm water management within the then undeveloped portions of the City in which future development was anticipated at that time.

The National Pollutant Discharge Elimination System (NPDES) program controls and reduces pollutants to water bodies from point and non-point discharges. The NPDES Phase II Storm Water Program requires municipal separate storm sewer systems to obtain a permit and develop a storm water management program designed to prevent harmful pollutants from being washed by storm water runoff into local water bodies. The program must include public education, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control and pollution prevention, and good housekeeping.

The City's Storm Water Management Implementation Plan (Starr Engineering 2007), represents the five-year management strategy for controlling the discharge of pollutants to the "maximum extent practicable" in storm water runoff from the City urban area during the first NPDES storm water permit term. The plan was prepared in support of the City's application for a Municipal Storm Water (MS4) Permit to the Central Valley Regional Water Quality Control Board. The plan includes information on federal, state, and local storm water quality regulations, storm water quality control strategies and programs to be implemented in Reedley, storm water quality monitoring and assessment, and plan implementation requirements. The City is currently in compliance with all State Storm Water regulations and in the process of updating its Storm DrainageMaster Planning Report. It is anticipated that the Master Plan will be complete during the early part of 2014.

The Reedley Municipal Code, Storm Water ManagementSection 8-5-1, sets forth the local governing regulations for implementing storm water quality management strategies consistent with its General Construction permit from the Central Valley Regional Water Quality Control Board. The regulations are applicable to all storm water generated on any developed or undeveloped urban land within the City or conveyed by the public storm drain system. The critical component of the regulations is as follows:

> All persons engaged in activities which will or may reasonably be expected to result in pollutants entering the public storm drain system shall undertake

best management practices (BMPs) to minimize such pollutants, shall provide protection from accidental discharge of pollutants to the public storm drain system and comply with cleanup and notification requirements of this chapter. Such measures shall include the requirements imposed by federal, state, county, or local authorities. BMPs are site specific and are described in the documents "Storm Water Best Management Practice Handbook: Construction"; "Storm Water Best Management Practice Handbook: New Development And Redevelopment"; "Storm Water Best Management Practice Handbook: Industrial And Commercial"; "Storm Water Best Management Practice Handbook: Municipal"; or other guidance documents available from EPA and/or RWQCB. (Reedley Municipal Code, Section 8-5-1)

To support these and other storm drainage facilities the City has created and implemented an impact fee program (Update of Development Impact Fee, dated January 17, 2005). The current drainage system is comprised of street gutters and underground pipes that convey the storm event runoff to detention basins, irrigation canals and the Kings River. $11,721,700 of the total cost constructing and maintaining the drainage system has been allocated to new development projects and is being spread to the various land uses in proportion to their need for storm water runoff capacity based on the following table of storm drainage runoff coefficients (Update of Development Impact Fee, dated January 17, 2005).The development impact fee is now being charged and collected at the time a building permit is issued.

Table 3-1 - Storm Drainage Runoff Coefficients

Land Use Designation	**"C" Factor**
Low Density Residential (Single Family)	0.25
Medium Density Residential (Single Family)	0.28
Medium High Density Residential (Multi-Family)	0.40
Commercial	0.70
Industrial	0.65
Schools:	
Primary	0.25
Secondary	0.30
Parks and Open Space	0.12

Source: Blair, Church and Flynn Consulting Civil Engineers, 1982

Goals

CIR 3.10C - Provide a comprehensive system for storm drainage to protect life and property.

Policies

CIR 3.10.17 By March 2014, the City shall adopt an updated Storm Drain Master Plan; with implementation to commence as of itsadoption date.Among other topics, this plan shall include measures for water quality protection for areas where runoff may enter river, slough or groundwater. It also will include the following:

a) The system capacity, which shall be designed based upon storm events and capacity needed to recharge groundwater.

b) Incorporation of a ground water monitoring well, when feasible, as part of the minimum design standards for storm water facilities in the City of Reedley.

c) Standards for limiting impervious surfaces to minimize runoff during storm events.

d) Design and landscaping standards for temporary and permanent storm water storage basins.

d) An analysis of the feasibility of multi-use water basins.

e) Funding mechanisms for construction, repair, and maintenance.

CIR 3.10.18 The City shall prepare and present to the City Council for consideration of adoption of a comprehensive set of policies to ensure an adequate storm water drainage system to support the growth and development patterns proposed within this GPU. These policies shall set performance standards for sustainable management of Reedley's storm water drainage system. The policies, including those set forth below, shall be adopted such that their provisions are implemented by the deadlines set forth in the proposed policies. If the policy does not contain a specific deadline forits implementation, it shall be considered for adoption within twelve (12) months of the GPU's adoption.After the adoption of the GPU, the Community Development Department shall provide an annual report to the City Council describing progress made toward the development, adoption and overall implementation of these policies.

The staff analysis supporting each policy shall include a discussion of the following: (1) How the policy would minimize potential detrimental effect caused by the percolation of storm water; (2) Whether and how the policy would assist in the City's efforts to recharge the underground aquifer; (3) How the policy would be integrated into the entitlement process; and, (4) How the policy would be enforced through the regulatory environment. The policies shall include the following:

a) The City shall develop and implement a public education component that addresses various topics related to collection and disposal of stormwater and shall include periodic reports to the City Council and the public regarding its progress in implementing the policies. Specifically, this component shall include the following actions by the City Council:

1) All legally required storm drainage reports prepared by the Public Works Department shall be presented to the City Council for consideration of adoption.

2) All legally required National Pollutant Discharge Elimination System (NPDES) program reports, prepared by the Public Works Department shall be presented to the City Council for consideration of adoption.

3) By March 2014, City Council shall consider the adoption of the Storm Drain Master Plan. The plan will assist the City in identifying locations for future infrastructure and ground water recharge opportunities. The Plan will also serve as basis for the development of updates to the impact fees which are necessary for implementation.

b) The City shall develop standard operating procedures for vegetation management in storm water basins to ensure the basins structure and capacity is not compromised. The formal procedure shall be adopted within eighteen months after the adoption of the GPU.

c) The City shall develop standard operating procedures for storm water measurement and for recording water levels in the basins. These procedures shall be adopted within eighteen months after the adoption of the GPU.

d) The City shall develop standard operating procedures for documentation of interceptor monitoring and clean-out. The formal procedures shall be adopted within eighteen months after the adoption of the GPU.

e) The City shall develop standard operating procedures for the bottom ripping of all storm water basins to ensure continual and optimalpercolation. The procedures shall be adopted within eighteen months after the adoption of the GPU.

f) As the City collects storm drainage development impact fees, and those fees become available, the City shall install measuring devices (e.g. flow meters, visually marked measuring poles) on drain inlets to measure storm events, which will be used to quantify Reedley's efforts to increase groundwater recharge.

g) On an on-going basis, the City shall strive to work with the irrigation districts to identify the most suitable locations for storm water basins based on soil type, elevation, and other factors.

CIR 3.10.18B As part of the City's formulation of its annual budget, City staff shall identify a list of capital facility improvement projects, with proposed budgetary allocations, necessary to increase the use of collected storm water for the City's groundwater recharge efforts.

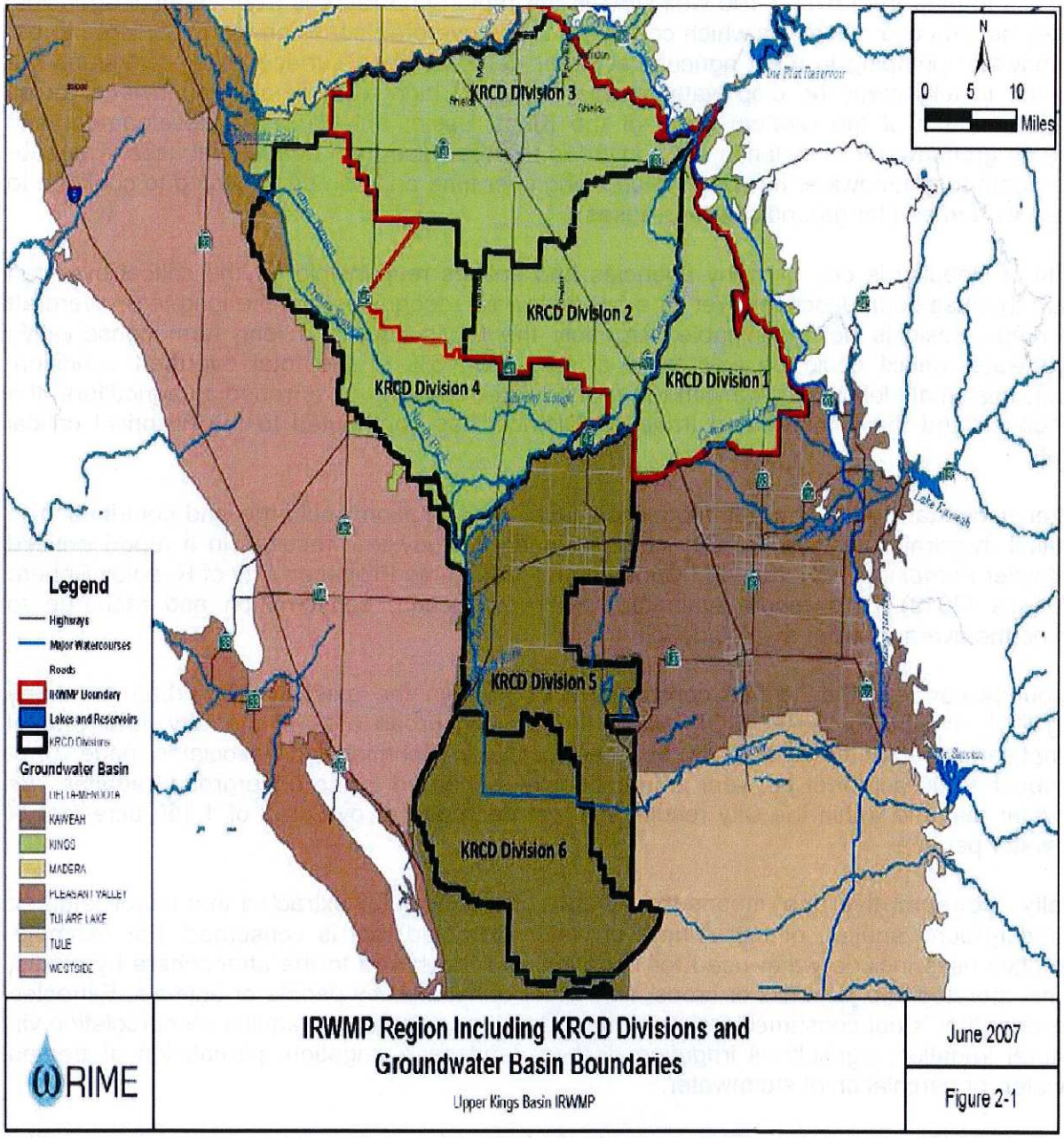
Groundwater Recharge

As described previously, the Kings Basin is the City of Reedley's source of groundwater. There are many land owners, local and regional water agencies, and irrigation districts which overlie the Kings Basin and rely on the Kings Basin as a significant source of water. The basin, consisting primarily of lands served by Alta Irrigation District (AID), Consolidated Irrigation District (CID), the Fresno Irrigation District (FID), and account for a large percentage of the groundwater pumping in the region. The Upper Kings Basin has a total groundwater storage capacity of 35 million AF to an average depth of about 500 feet (Kings River Conservation District, 1993).

The City is located within the boundaries of two irrigation districts. Approximately 2,919 of the 3,133 acres within the exiting city limits are within the boundaries of the Alta Irrigation District (AID). The remaining approximately 214 acres, located in the western portion of the City, are located within the boundaries of the Consolidated Irrigation District (CID). Within the approximately 4,930-acre existing SOI, about 4,498 acres are within AID boundaries and 432 acres within the CID boundaries. Within the proposed future SOI boundary, approximately 6,260 acres are within the AID and 831 acres are within the CID. Each of these irrigation districts manages surface and groundwater resources in a portion of the Kings Basin. TheCity's wells are all located east of the Kings River within AID territory. The City does not pump any groundwater west of the Kings River, within the jurisdictional territory of CID.

The Department of Water Resources (DWR) estimates that the groundwater storage for the entire Kings Basin is about 93 million acre-feet (AF) to a depth of more than 1,000 feet (DWR Bulletin 118, 2003). The Upper Kings River Basin refers to approximately the northeastern two-thirds of the Basin and the Lower Kings Basin refers to the southwestern one-third (See below Figure 3.7 - Integrated Regional Water Management Plan Area-2007). The overdraft of the Kings Basin was previously estimated by the Kings River Conservation District (KRCD) to be an average of 161,000 ac-ft./yr. from 1964-2004. According to the City of Reedley 2010 Urban Water Management Plan (2013), KRCD models project that overdraft will average around 122,000 ac-ft./yr. through 2035 (HDR, page 4-4).

Figure 3.3 - Integrated Regional Water Management Plan Area-2007



The Kings River is the main river that runs through Fresno County and runs along the western border of the City of Reedley. The Kings River is also a major source of groundwater replenishment for the Kings Basin. The River is the best and most prominent riparian and wetland habitat in the County of Fresno. According to the Kings Basin Integrated Regional Water Management Plan (2012), "the Kings River, its tributaries, and sloughs are the lifeline of riverine-riparian habitat that links the Sierra Nevada Mountains to the foothills, to the valley floor" (Kings Basin Water Authority, Kings Basin Integrated Water Management Plan, Adopted October 17, 2013, Page 3-3).

Despite the active management of the subbasin and Kings River, the basin is considered to be in critical overdraft. This situation is well documented by the Kings River Conservation District which has access to data from over 1,100 well-sites in the region and records from 19 local agencies. The three general characteristics which contribute to the overdraft condition are considered to be: 1) groundwater pumping to meet agricultural water demand when surface water diversions are inadequate to fully meet the crop water requirements; 2) high reliance on groundwater for all demands in much of the western parts of the Kings Basin; and 3) urban development and reliance on groundwater once lands are converted to urban use from agricultural uses. The sub-surface depth to groundwater has been decreasing over time and can be expected to continue to decrease as demand for groundwater increases.

The City of Reedley is one of many agencies and entities responsible for the critical overdraft condition that has been described, yet as a good steward recognizes that the long-term overdraft of the Kings Basin is not sustainable. Arguably the City's near and long term conservative average water deficit could be calculated at less than 5% of the total overdraft condition. However, this small deficit coupled with the groundwater pumping of surrounding agriculture, the Alta Irrigation and the Consolidated Irrigation Districts has contributed to the historical critical overdraft.

To better understand annual water production, user consumption, recharge and contribution to this critical overdraft condition the City commissioned a study that resulted in a report entitled Groundwater Pumping, Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence (2013). This report evaluated water production, consumption and recharge to determine the average water surplus/deficit.

The groundwater report describes consumptive use within the existing City urban area, the existing SOI, and the proposed SOI. Within the existing urban area of the City, total annual consumptive use is estimated at 2,150 acre-feet per year (Schmidt and Associates, page 3), of which about 1,000 acre-feet per year is intentionally recharged to the underground aquifer. As such, water demand within the City results in a net decrease or overdraft of 1,150 acre-feet of groundwater per year.

Generally, "**consumptive use**" means the amount of groundwater extracted that is not returned tothe underground aquifer, or the volume of water extracted that is consumed. For example, consumptive uses include water used for irrigation and transpired to the atmosphere by plants, water incorporated into products or crops, and water consumed by people or animals. Extracted groundwater that is not consumed may be returned to the underground aquifer by percolation via agricultural irrigation, agricultural irrigation ditches, landscape irrigation, percolation of treated wastewater, or percolation of stormwater.

The report (2013) also states, "The amount of stormwater recharged in basins in the City, delivered to AID canals, or discharged to the Kings River was about 1,000 acre-feet per year in 2012. Although the City doesn't directly benefit from this canal and river discharge, that water is eventually used or recharged, and benefits the Kings Basin (Schmidt and Associates, page 3).

Within the existing SOI (land within the city limits plus land outside the city limits but within the existing SOI boundary), consumptive use is estimated at 5,650 acre-feet per year. The groundwater deficit is estimated to be 2,650 acre-feet per year (Schmidt and Associates, page 4).

Table 3-2 - Direct Consumptive Use - Existing Condition

1. Existing Urban Area (City Limits)			
Outdoor Water Use (Urbanized)			
City Pumpage	5,000		
Wastewater flow	-2,000		
Total Outdoor Water Use		*3,000*	
Estimated Consumption Urbanized Use for Outdoor Irrigation (65% of Outdoor Water Use)	1,950		
Annual Evaporation rate (2.8 acre-feet per acre per year)	200		
Total Urban Consumption		*2,150*	
2. Existing SOI (Rural Uses)			
Average consumptive use (Rural Irrigation)	3,500		
Total Rural Irrigation Consumption		*3,500*	
Total Urban and Rural Consumptive Use			5,650
3. Recharge (Canal Seepage & Storm runoff)			
Average Canal or Ditch	1,600		
Canal ditch Seepage	1,150		
Additional storm runoff	250		
		3,000	
Total Direct Recharge			3,000
AVERAGE WATER DEFICIT			**-2,650**
Indirect Consumptive Use - Existing Condition			
Indirect Discharge to AID, canals & Kings River	1,000		
Basin Recharge	250		
Total Indirect Recharge		*1,250*	
Direct & Indirect Total Consumptive Use			-1,400

Note:

1. Numbers are in acre-feet per year.
2. All values have been rounded to nearest 50 acre-feet per year.

Source Documents:

Groundwater Pumping. Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence, Kenneth D. Schmidt and Associates Groundwater Quality Consultants, May 2013

With the increase in demand for groundwaterfrom urban uses at build out of the proposed SOI, consumptive use is projected to increase to 6,800 acre-feet per year in the build out year of 2030 (Schmidt and Associates, page 5) and the total groundwater deficit would be 6,300 acre-feet per year. Consequently, build out of the proposed SOI as guided by the GPU would result in an increase in the groundwater deficit of 3,650 acre-feet per year relative to the existing deficit of 2,650 acre-feet per year within the existing City SOI. This significant increase is due in large part to the piping of miles of canals which, through seepage, provided a valuable opportunity for recharge of the underground aquifer. Implementation of the proposed GPU would; therefore, exacerbate existing groundwater overdraft conditions by increasing extraction of groundwater by 3,650 acre-feet per year.

Table 3-3 - Direct Consumptive Use - Future Condition, 2030

1. Existing Urban Area (City Limits)			
Outdoor Water Use (Urbanized)			
City Pumpage	17,200		
Wastewater flow	-8,000		
Total Outdoor Water Use		*9,200*	
Estimated Consumption Urbanized Use for Outdoor Irrigation (65% of Outdoor Water Use)	6,000		
Annual Evaporation rate (2.8 acre-feet per acre per year)	800		
Storm water Runoff	-500		
Total Urban Consumption		*6,300*	
2. Existing SOI (Rural Uses)			
Average consumptive use (Rural Irrigation)	3,500		
Total Rural Irrigation Consumption		*0*	
Total Urban and Rural Consumptive Use			6,300
3. Recharge (Canal Seepage & Storm runoff)			
Average Canal or Ditch	0		
Canal ditch Seepage	0		
Additional storm runoff	0		
		0	

Total Direct Recharge			0
AVERAGE WATER DEFICIT			**-6,300**
Indirect Consumptive Use - Existing Condition			
Indirect Discharge to AID, canals & Kings River	2,750		
Open Space Recharge & Kings River	1,000		
Total Indirect Recharge		*3,750*	
Direct & Indirect Total Consumptive Use			-2,550

Note:

1. All values are in acre-feet and have been rounded to nearest 50 acre-feet per year.
2. Presuming full build-out by 2030, the City will have jointly developed with Alta I.D. a recharge basin of sufficient size to recharge the water deficit.

Source Document: Groundwater Pumping. Recharge, and Consumptive Use in the Proposed City of Reedley Sphere of Influence, Kenneth D. Schmidt and Associates Groundwater Quality Consultants, May 2013

The groundwater report concludes that most of the increased water deficit under proposed future SOI build out conditions is due to the loss of seepage from canals and ditches that would be replaced with urban uses and from the loss of deep percolation from irrigation water placed on agricultural land that would be converted to urban use. The report goes on to state that the increased deficit could be off-set by working with the AID to enable percolation of canal or ditch water in City storm water basins with some also used for park or other landscape irrigation.Other alternatives include City participation in development of recharge facilities within the AID and/or increasing the volume of storm water captured and recharged to groundwater through storm water percolation basins.

It is also noted that groundwater conditions within the boundary of the CID significantly and disproportionally benefit by percolation of treated effluent from the City's wastewater treatment plant that is located west of the Kings River. The percolation volume is predicted to reach about 7,200 acre-feet under full build out of the proposed SOI. Nevertheless, the groundwater report also concludes that the existing and projected water deficits impact the CID by decreasing groundwater flows into the CID that would otherwise occur (groundwater report, page 8).

The City wants to continue to be good stewards of a finite water resource and has developed a set of goals and policies to achieve water balance to help reduce a critical overdraft condition. The City is committed to an effort that ensures the current public water system provides water quality that protects the health and welfare of the community. It is also committed to ensuring that future development does not adversely contribute or substantially affect the current water system and/or urban user, while providing the same quality and sufficient water supply for future development.

The collective Public Utility goals and policies (water, waste water, storm drainage and groundwater recharge) were specifically designed to comprehensively address the significant

issues associated with water quality and supply facing the City of Reedley as it seeks to develop as proposed in the GPU.

These goals and policies will not wholly, or substantially reduce the Kings Basin cumulative critical overdraft condition, however, will significantly reduce the City's localized impact on the Kings Basin as its primary source of groundwater.

Goals

CIR 3.10D–The City shall reduce by 15% its consumptive use by 2030.

Policies

CIR 3.10.19A The City shall prepare and present to the City Council for consideration of adoption a comprehensive set of policies to ensure an adequate city-wide program for the recharge of ground water to support the growth and development patterns proposed within this GPU. These policies shall set performance standards for sustainable management of Reedley's use of groundwater and promote efforts to increase groundwater recharge. The policies, including those set forth below, shall be adopted such that their provisions are implemented by the deadlines set forth in the proposed policies. If the policy does not contain a specific deadline for adoption or implementation, it shall be considered for adoption within twelve (12) months of the GPU's adoption. After the adoption of the GPU, the Community Development Department shall provide an annual report to the City Council describing progress made toward the development, adoption and overall implementation of these policies.

The staff analysis supporting each policy shall include a discussion of the following: (1) How the policy would help to reduce consumptive use; (2) Whether and how the policy would assist in the City's efforts to recharge the underground aquifer; (3) How the policy would be integrated into the entitlement process; and, (4) How the policy would be enforced through the regulatory environment. The policies shall include the following:

a) The City shall develop and implement a public education component that addresses various topics related to the consumptive use of groundwater as well as efforts to recharge the underground aquifer and shall include periodic reports to the City Council and the public regarding its progress in implementing the policies.

b) The City shall work cooperatively with land owners, local and regional water agencies, and irrigation districts which rely upon the Kings Basin as a source of water to identify and implement infrastructure projects and other programs that serve to reduce the use of groundwater and/or facilitate the recharge of the aquifer.

c) The City shall work cooperatively with the irrigation districts to develop and implement new strategies to expand upon current efforts directed toward groundwater recharge. These strategies may include:

1) Exploring the feasibility of joint water banking.

2) Exploring opportunities to jointly participate in studies that will be used to facilitate new or expand wastewater recycling and reclamation opportunities.

d) Develop a methodology for early consultation (CEQA Section §21080.3) with the irrigation districts as part of the environmental review process when an entitlement application that involves annexing new land into the City is submitted. The comments received from the District will be fundamental to the development of conditions of approval applied to said projects. This process could be developed and implemented within one year after the adoption of the GPU.

e) On an on-going basis, the City shall strive to work with the irrigation districts to identify the most suitable locations for storm water basins based on soil type, elevation, and other factors.

f) The City shall continue to work with the Upper Kings Basin Integrated Regional Water Management Authority in developing a strong coalition of water agencies, cities, counties and environmental groups to address local water issues.

g) The City shall continue to work with the Kings River Conservation District to identify projects that would directly and efficiently increase groundwater recharge and to identify funding sources for said project, with the goal of submitting a grant application to the District for such a project by January 15, 2015.

h) Within one (1) year of the adoption of the GPU, the City Council shall complete a thorough review of the City's development impact fee program and shall consider the adoption of a comprehensive update of the various fees included in the program.

1) This review shall include, but not be limited to, Storm Drainage, Water Distribution, Groundwater Recharge, Water Supply/Holding and Waste Water Collection and Treatment.

2) Within each topic area, the review shall include the analysis of existing conditions, proposed new development, need necessitated by future development and proportional cost attributed to land use development.

i) By 2020, the City shall prepare an updated Groundwater Pumping, Recharge, and Consumptive Use Analysis report using the same methodology as the 2013 report. Part of this report will include policies, recommendations, and implementation measures. The analysis and recommendations shall be presented to the City Council for its consideration.

j) All annual reports, prepared by the Public Works Department related to water quality, water supply and delivery, and groundwater recharge shall be presented to the City Council for its consideration of adoptions.

k) The City shall continue to strive to develop and implement best management practices, strategies, in compliance with State law, and regulatory permits/requirements related to water quality and supply and groundwater recharge and report annually to the California Urban Water Conservation Council on its progress in development and implementing said practices.

l) The Public Works Department shall prepare an annual report that identifies, at a minimum, the amount of water used to irrigate the open space and the projected amount of groundwater recharge that has occurred. The City shall use industry standards to establish a formula to calculate the balancing of production to groundwater recharge.

CIR 3.10.20B As part of the City's formulation of its annual budget, City staff shall identify a capital facility improvement projects, with proposed budgetary allocations, necessary to implement the City's groundwater recharge efforts.

General Utilities

Utilities such as electricity, natural gas, telephone, internet and cable services are important components of daily life for the citizens of Reedley. It is necessary for the City of Reedley to ensure adequate provision of these services in order to maintain a competitive business climate and a quality of life for the citizens.

Goals

CIR 3.10E - Continue to work with Pacific Gas and Electric (PG&E) to improve the appearance of transmission line corridors.

Policies

CIR 3.10.21 Continue to require that new development underground all on-site utility lines.

CIR 3.10.22 Review proposed new public utilities, to ensure that the design and facility location will not have adverse impacts on neighborhoods, or residents.

Chapter Four
Conservation, Open Space, Parks and Recreation Element

4.3 AGRICULTURE

Agriculture is a prominent economic segment of the City of Reedley, with a long history reaching back to the turn of the century. Agriculture continues to play a key role in shaping our local economy while Reedley maintains its unique rural characteristics. Undeveloped lands surrounding the existing City boundaries are predominantly agricultural lands, which are more likely to be converted to urban uses as near term development is eminent.

The conservation and preservation of agricultural lands within the Reedley area is in large part a function of protection of existing agricultural uses within the City's Sphere of Influence (SOI) as urban development approaches said land and avoidingthe unnecessary or premature conversion of agricultural lands to urban uses. The conservation of agricultural lands within the current SOI has already been studied and mitigated through both the 1977 and 1992 General Plan updates. Those Plans directed growth in such a manner that the built environment reflects a compact development pattern which has not leap-frogged, sprawled or unnecessarily intruded into agricultural areas. Notwithstanding, predictability of development opportunities in today's economic climate is speculative and it is difficult to determine exactly when and how much agricultural land may be converted to urban uses in the near term or during this Plan's planning horizon.

Land contained within the newly proposed expanded sphere of influence is also predominantly agricultural lands. A complete build-out of the proposed GPU whereby all available agricultural lands are converted to urban uses by 2030 is highly unlikely. The conversion of all of the available lands in the proposed SOI shall be environmentally evaluated as a worst case scenario. However, this in no way suggests that future agricultural viability be dismissed or compromised simply for the purpose of urban development.

This GPU continues the long history of goals and policies that promote compact development and encourage development of in-fill and/orby-passed parcels in close proximity to theurban core. This General Plan's Land Use Element promotes increases in residential and commercial density ranges which allows for community expansion, the anticipated growth in population, and minimizes premature agricultural land conversions within the proposed SOI boundary.

The City has constructed a set of policies (Farmland Preservation Plan) focused on addressing development standards and requirements that facilitate farmland preservation. For example, the Right-to-Farm Ordinance, interface standards, updating the Reedley Municipal Code to address the combination of urban and rural uses in less intense zone districts, and support for or opposition to Williamson Act contracts, are policies designed toward directing development, while minimizing and possibly preventing the premature conversion of productive agricultural lands surrounding the City.

The City is also imposing a Farmland Preservation Program which will address the permanent preservation of identified Prime Farmland, Unique Farmland, and Farmland of Statewide

Importance that might otherwise be converted to urbanized development. The Program includes an evaluation component and various preservation approaches.

Lastly, the City has also proposed to self-regulate urban growth, which has a direct impact on premature and unnecessary conversion of agricultural lands, by committing to annexing a maximum of five hundred (500) acres from within the existing SOI of 1797-acres (See Policy LU 2.5.19) before implementing the Farmland Preservation Program.

The integrity of the GPU as it relates to the agricultural character of the area is reflected in the rational, logical and reasonable and contiguous extension of land uses and strategies from the previous GPUs and the existing urbanized pattern. The collective Land Use, Urban Growth Management and Agriculture Goals and Policies were specifically designed as a comprehensive set of tools to ensure the avoidance or premature conversion of agricultural land, which will not wholly mitigate the loss of potential agricultural lands, but will significantly reduce the impact.

Goals

COSP 4.3A - To preserve as long as possible the prime farmland, farmland of statewide importance and farmland of local importance within the GPU Sphere of Influence.

COSP 4.3B - To provide a greenbelt around the City's perimeter to maintain the physical separation between the City of Reedley and the Cities of Dinuba and Parlier as well as existing agricultural uses within the County of Fresno but outside the City's Sphere of Influence.

Policies

COSP4.3.1 Support the efforts of the County of Fresno and agricultural and community stakeholders to preserve and protect farmlands outside the centralized core of the City.

COSP4.3.2 Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operations and to prevent parcelization into rural residential or ranchette developments.

COSP4.3.3: The City shall prepare and adopt a Farmland Preservation Plan (FPP). This plan shall include a set of policies, standards and measures to avoid the unnecessary conversion of agricultural lands.

For each policy, standard or measure, the plan shall include a discussion of the following: (1) How the policy would minimize a potential detrimental effect caused by urban development; (2) Whether and how the policy would assist in avoiding the premature conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance; (3) How the policy, standard or measure would be integrated into the entitlement process; and, (4) How the policy, standard or measure would be enforced through the regulatory environment.

The FPP shall include the following policies:

a) The City shall strive to protect agriculturally designated areas, and direct urban growth away from productive agricultural lands into urbanized or underdeveloped portions of the City.

b) The City shall strive to collaborate with the Fresno County Local Area Formation Commission (LAFCo). Fresno County and land owners to encourage minimum parcel sizes of 20 acres or more for land designated for agriculture and/or evidence of commercial agricultural use prior to entering into new Williamson Act contracts.

c) The City shall not protest the renewal of Williamson Act Contracts with regard to land located within the City's SOI, but not adjacent or in close proximity to the City's current boundary, where the land's minimum parcel size is at least 20 acres and the land owner has provided evidence satisfactory to the City that the land is currently being used for commercial agricultural operations.

d) The City shall support the efforts of public, private, and non-profit organizations to preserve Prime Farmland, Unique Farmland or Farmland of Statewide Importance located in Fresno County through the dedication of conservation easements and the preservation of range land held as environmental mitigation.

e) The City shall encourage the installation of solar and wind energy production facilities in agricultural areas so long as they do not result in a tax burden to Fresno County, do not result in permanent water transfers from productive agricultural land, do not hinder agricultural operations on adjacent land, or do not require cancellation of Williamson Act contracts. In addition, these facilities should include dedications of agricultural land and habitat mitigation, measures to control erosion, and assurances for financing decommissioning activities.

f) The City shall actively collaborate with landowners, cities, state and federal agencies, colleges, universities, stakeholders, and community-based organizations to continue to expand agricultural preservation in the surrounding Fresno County area.

g) The City shall discourage public agencies from locating facilities, especially schools, in existing agricultural areas.

h) The City shall encourage the voluntary merger of antiquated subdivision lots that conflict with adjacent agricultural uses.

The FPP shall include the following implementation measures:

a) A provision designating the Community Development Department as the department responsible for the preparation and implementation of the FPP, once adopted and directing the Department to prepare annual reports to the City Council describing progress made toward the preparation, adoption and implementation of the final FPP.

b) The creation of a community outreach program to encourage current agricultural land owners' continued participation in programs that preserve farmland, including the Williamson Act, conservation easements, and USDA-funded conservation practices.

c) The identification of various amendments to the Reedley Municipal Code that would be adopted within twelve (12) months of the adoption of the FPP, such as the following:

1) Amend the zoning ordinance to require a minimum 100-foot buffer between new residential developmentand existing agricultural operations, and to establish design/maintenance guidelines for developers and property owners. The 100-foot buffer will create an appropriate transitional space between urban and agricultural land uses so as to facilitate continued agricultural operations.

2) Amend Chapter 10-6A, the Residential Estate (RE) District section, which is intended to provide living areas that combine both the urban and rural setting, to add provisions to prevent premature conversion of agricultural land, which could cause incompatible land uses and potential conflicts.

3) Amend the subdivision ordinance to facilitate the voluntary merger of antiquated subdivision lots that conflict with adjacent agricultural uses.

4) Amend the zoning ordinance to include provisions requiring that environmental review expressly analyze the potential for a proposed entitlement or permit to create incompatibilities with agricultural uses through traffic generation, groundwater contamination, storm-water drainage disposal and/or the deterioration of air quality.

d) Provisions to ensure that the City manages the extension of sewer lines, water lines, or other urban infrastructure into areas designated for agricultural use to avoid premature farmland conversion and as necessary to protect public health,safety, and welfare.

COSP 4.3.4: In conjunction with the preparation, adoption and implementation of the Farmland Preservation Plan described in Policy COSP 4.3.3, the City shall develop and consider the adoption of a program that shall require new development within the SOI to fund farmland preservation efforts. The goal of this program is to preserve designated Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (together "Farmland") that otherwise runs the risk of being converted to urbanized development. This program shall act as a mitigation program in response to the necessary agricultural land conversion that occurs as a result of the City's expansion into its SOI. The City shall not support the annexation of lands in excess of a total of 500 acres within the City's existing SOI until this program, or a program that accomplishes the same goals, has been adopted and other actions

and approvals necessary to the implementation of the program have been completed. Among other provisions, the program shall include the following evaluation and performance requirements:

a) Program Goal: As Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within the City's SOI is converted to urban uses, secure the permanent preservation of other Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within Fresno County on a 1 for 1 basis.

b) Evaluation Process: To accomplish the program goal, as part of the entitlement application process Farmland proposed for conversion will be evaluated using the Land Evaluation and Site Assessment (LESA) model issued by the California Department of Conservation. The LESA model provides an analytical approach for rating the relative quality of land resources based upon specific factors, such as soils, site acreage, water availability, and surrounding land uses. The LESA model worksheets are provided in Appendix A, Evaluation and Site Assessment (LESA) Model, California Department of Conservation.

c) Fee Program: The City shall develop and adopt a fee program consistent with the requirements of the Mitigation Fee Act that will require applicants seeking to annex Farmland within the City's SOI to pay a fee to the City of Reedley equivalent to the cost of preserving Important Farmland on a 1 to 1 basis with land converted to urban uses. The City shall use the fees to fund an irrevocable instrument (e.g. deed restriction or easement) to permanently preserve farmlands via a Trust for Farmland Funds Disbursements.

d) Alternative to Payment of Fee: As an alternative to the payment of the fee described in subsection (c), applicant shall provide documentation satisfactory to the City that demonstrates that applicant has entered into a binding agreement with one or more property owners or a third-party organization acceptable to the City of Reedley (e.g. Fresno County Farm Bureau or the American Farmland Trust) to permanently preserve farmland equivalent in acreage to the Farmland proposed for annexation into the City. The agreement shall identify an irrevocable instrument that will be recorded against the preserved property.

e) This program will also involve the City maintaining a current list of organizations and owners of Farmland that can facilitate the acquisition of conservation easements so as not to unduly delay the annexation of the land into the City and completion of the proposed development.

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Daniel O'Connor, San Joaquin Valley Field Representative, American Farmland Trust, in-person meeting with Kevin Fabino, September 26, 2013.

APPENDIX A:

LAND EVAULATION AND SITE ASSESSMENT (LESA) MODEL INSTRUCTION MANUAL - 1997

CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual

For further information, please contact:

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CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual
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Department of Conservation
Office of Land Conservation

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EXECUTIVE SUMMARY

Land Evaluation and Site Assessment (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 (Chapter 812 /1993), which charges the Resources 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. Such an amendment 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 Agricultural LESA Model is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment 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 this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds. This Manual provides detailed instructions on how to utilize the California LESA Model, and includes worksheets for applying the Model to specific projects.

INTRODUCTION

Defining the LESA System

The Land Evaluation and Site Assessment (LESA) system is a point-based approach that is generally used for rating the relative value of agricultural land resources. In basic terms, a given LESA model is created by defining and measuring two separate sets of factors. The first set, Land Evaluation, includes factors that measure the inherent soil-based qualities of land as they relate to agricultural suitability. The second set, Site Assessment, includes factors that are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land. While this dual rating approach is common to all LESA models, the individual land evaluation and site assessment factors that are ultimately utilized and measured can vary considerably, and can be selected to meet the local or regional needs and conditions for which a LESA model is being designed to address. In short, the LESA methodology lends itself well to adaptation and customization in individual states and localities. Considerable additional information on LESA may be found in *A Decade with LESA - the Evolution of Land Evaluation and Site Assessment* (8).

Background on LESA Nationwide

In 1981, the federal Natural Resources Conservation Service (NRCS), known then as the Soil Conservation Service, released a new system that was designed to provide objective ratings of the agricultural suitability of land compared to demands for nonagricultural uses of lands. The system became known as Land Evaluation and Site Assessment, or LESA. Soon after it was designed, LESA was adopted as a procedural tool at the federal level for identifying and addressing the potential adverse effects of federal programs (e.g., funding of highway construction) on farmland protection. The Farmland Protection Policy Act of 1981 (5) spells out requirements to ensure that federal programs, to the extent practical, are compatible with state, local, and private programs and policies to protect farmland, and calls for the use of LESA to aid in this analysis. Typically, staff of the NRCS is involved in performing LESA scoring analyses of individual projects that involve other agencies of the federal government.

Since its inception, the LESA approach has received substantial attention from state and local governments as well. Nationwide, over two hundred jurisdictions have developed local LESA methodologies (7). One of the attractive features of the LESA approach is that it is well suited to being modified to reflect regional and local conditions. Typical local applications of LESA include assisting in decision making concerning the sitting of projects, changes in zoning, and spheres of influence determinations. LESA is

also increasingly being utilized for farmland protection programs, such as the identification of priority areas to concentrate conservation easement acquisition efforts.

Because of the inherent flexibility in LESA model design, there is a broad array of factors that a given LESA model can utilize. Some LESA models require the measurement of as many as twenty different factors. Over the past 15 years, the body of knowledge concerning LESA model development and application has begun to indicate that LESA models utilizing only several basic factors can capture much of the variability associated with the determination of the relative value of agricultural lands. In fact, LESA models with many factors are increasingly viewed as having redundancies, with different factors essentially measuring the same features, or being highly correlated with one another. Additional information on the evolution and development of the LESA approach is provided in, A *Decade with LESA -The Evolution of Land Evaluation and Site Assessment* (8).

Development of the California Agricultural LESA Model

In 1990 the Department of Conservation commissioned a study to investigate land use decisions that affect the conversion of agricultural lands in California. The study, conducted by Jones and Stokes Associates, Inc., was prepared in response to concerns about agricultural land conversion identified in the *California Soil Conservation Plan* (1) (developed by the ad hoc Soil Conservation Advisory Committee serving the Department of Conservation in 1987). Among these concerns was the belief that there was inadequate information available concerning the socioeconomic and environmental implications of farmland conversions, and that the adequacy of current farmland conversion impact analysis under the California Environmental Quality Act (CEQA) was not fully known. The findings of this study are included in the publication, *The Impacts of Farmland Conversion in California* (2).

Currently, neither CEQA nor the State CEQA Guidelines contains procedures or specific guidance concerning how agencies should address farmland conversion impacts of projects. The only specific mention of agricultural issues is contained in Appendix G of the State CEQA Guidelines, which states that a project will normally have a significant effect on the environment if it will "convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land".

Among the conclusions contained in *The Impacts of Farmland Conversion in California* study was that the lack of guidance in how lead agencies should address the significance of farmland conversion impacts resulted in many instances of no impact analysis at all. A survey of environmental documents sent to the Governor's Office of Planning and Research (OPR) between 1986 and 1988 was performed. The survey

showed that among projects that affected at least 100 acres of land and for which agriculture was a project issue, nearly 30 percent received Negative Declarations, and therefore did not did not receive the environmental impact analysis that would be provided by an Environmental Impact Report (EIR).

Of those projects involving the conversion of agricultural lands and being the subject of an EIR, the study found a broad range of approaches and levels of detail in describing the environmental setting, performing an impact analysis, and providing alternative mitigation measures. The only agricultural impacts found to be significant in the EIRs were those involving the direct removal of prime agricultural lands from production by the project itself. The focus on prime farmland conversion in the projects surveyed was deemed to be related to the narrow direction provided in Appendix G of the State CEQA Guidelines.

The formulation of a California LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, to develop an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Such an amendment 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). This legislation authorizes the Department of Conservation to develop a California LESA Model, which can in turn be adopted as the required amendment to Appendix G of the CEQA Guidelines.

Presentation of the California LESA Model

The California LESA Model is presented in this Manual in the following sections:

Section I. provides a listing of the information and tools that will typically be needed to develop LESA scores for individual projects.

Section II. provides step-by-step instructions for scoring each of the six Land Evaluation and Site Assessment factors that are utilized in the Model, with an explanation of the rationale for the use of each factor.

Section III. defines the assignment of weights to each of the factors relative to one another, and the creation of a final LESA score for a given project.

Section IV. assigns scoring thresholds to final LESA scores for the purpose of determining the significance of a given project under CEQA where the conversion of agricultural lands is a project issue.

Additionally:

Appendix A. provides an abridged set of step-by-step LESA scoring instructions that can be used and reproduced for scoring individual projects.

Appendix B. demonstrates the application of the California LESA Model to the scoring of a hypothetical project.

The California Agricultural LESA Model

Section I. Required Resources and Information

The California Land Evaluation and Site Assessment (LESA) Model requires the use and interpretation of basic land resource information concerning a given project. A series of measurements and calculations is also necessary to obtain a LESA score. Listed below are the materials and tools that will generally be needed to make these determinations.

Land Evaluation and Site Assessment calculations will require:

1. A calculator or other means of tabulating numbers

2. An accurately scaled map of the project area, such as a parcel map

3. A means for making acreage determinations of irregularly shaped map units. Options include, from least to most technical:

    - A transparent grid-square or dot-planimeter method of aerial measurement
    - A hand operated electronic planimeter
    - The automatic planimetry capabilities of a Geographic Information System (GIS)

4. A modern soil survey, generally produced by the USDA Natural Resources Conservation Service, which delineates the soil-mapping units for a given project. [Note: If modern soil survey information is not available for a given area of study, it may be necessary to draw upon the services of a professional soil scientist to perform a specific project survey].

5. Maps that depict land uses for parcels including and surrounding the project site, such as the Department of Conservation's Important Farmland Map series, the Department of Water Resources Land Use map series, or other appropriate information.

6. Maps or information that indicate the location of parcels including and surrounding the project site that are within agricultural preserves, are under public ownership, have conservation easements, or have other forms of long term commitments that are considered compatible with the agricultural use of a given project site.

Section II. Defining and Scoring the California Land Evaluation and Site Assessment Model Factors

This section provides detailed step-by-step instructions for the measurement and scoring of each of the Land Evaluation and Site Assessment factors that are utilized in the California Agricultural LESA Model, and is intended to serve as an introduction to the process of utilizing the Model. Once users are familiar with the Model, a more streamlined set of instructions and scoring sheets is available in Appendix A. In addition, the scoring of a hypothetical project is presented using these scoring sheets in Appendix B.

Scoring of Land Evaluation Factors

The California LESA Model includes two Land Evaluation factors that are separately rated:

1. The Land Capability Classification Rating
2. The Storie Index Rating

The information needed to make these ratings is typically available from soil surveys that have been conducted by the federal Natural Resources Conservation Service (formerly known as the Soil Conservation Service). Consultation should be made with NRCS staff (field offices exist in most counties) to assure that valid and current soil resource information is available for the project site. Copies of soil surveys are available at local field offices of the NRCS, and may also be available through libraries, city and county planning departments, the Cooperative Extension, and other sources. In addition, a Certified Professional Soil Scientist (CPSS) may also be consulted to obtain appropriate soil resource information for the project site. A directory of CPSS registered soil consultants is available through the Professional Soil Scientists Association of California, P.O. Box 3213, Yuba City, CA 95992-3213; phone: (916) 671-4276.

1) The USDA Land Capability Classification (LCC) - The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receive the highest rating (Class I). Specific subclasses are also utilized to further characterize soils. An expanded explanation of the LCC is included in most soil surveys.

2) The Storie Index - The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are

considered in the index rating. The factors are: profile characteristics, texture of the surface layer, slope, and other factors (e.g., drainage, salinity).

In some situations, only the USDA Land Capability Classification information may be currently available from a given published soil survey. However, Storie Index ratings can readily be calculated from information contained in soil surveys by qualified soil scientists. Users are encouraged to seek assistance from NRCS staff or Certified Professional Soil Scientists to derive Storie Index information for the soils as well. If, however, limitations of time or resources restrict the derivation of Storie Index ratings for the soils within a region, it may be possible to adapt the Land Evaluation by relying solely upon the LCC rating. Under this scenario the LCC rating would account for 50 percent of the overall LESA factor weighting.

Identifying a Project's Soils

In order to rate the Land Capability Classification and Storie Index factors, the evaluator must identify the soils that exist on a given project site and determine their relative proportions. A **Land Evaluation Worksheet** (Table 1A.) is used to tabulate these figures, based upon the following:

Step 1.
Locate the project on the appropriate map sheet in the Soil Survey.

Step 2.
Photocopy the map sheet and clearly delineate the project boundaries on the map, paying close attention to the map scale.

Step 3.
Identify all of the soil mapping units existing in the project site (each mapping unit will have a different map unit symbol) and enter the each mapping unit symbol in **Column A** of the **Land Evaluation Worksheet** (Table 1A).

Step 4.
Calculate the acreage of each soil mapping unit present within the project site using any of the means identified in **Section 1**, **Required Resources and Information**, and enter this information in **Column B**.

Step 5.

Divide the acres of each soil mapping unit by the total project acreage to determine the proportion of each unit that comprises the project, and enter this information in Column C.

1. Land Evaluation - The Land Capability Classification Rating

Step 1.
In the Guide to Mapping Units typically found within soil surveys, identify the Land Capability Classification (LCC) designation (e.g., IV-e) for each mapping unit that has been identified in the project and enter these designations in **Column D** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
From Table 2., **The Numeric Conversion of Land Capability Classification Units**, obtain a numeric score for each mapping unit, and enter these scores in **Column E**.

Step 3.
Multiply the proportion of each soil mapping unit (**Column C**) by the LCC points for each mapping unit (**Column E**) and enter the resulting scores in **Column F**.

Step 4.
Sum the LCC scores in **Column F** to obtain a single LCC Score for the project. Enter this LCC Score in **Line 1** of the **Final LESA Worksheet** (Table 8)

Table 2. Numeric Conversion of Land Capability Classification Units

Land Capability Classification	LCC Point Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Totals		(Must Sum to 1.0)		***LCC Total***		***Storie Index Total***	

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
Total Acres			
Project Size Scores			

Highest Project Size Score |

2. Land Evaluation - The Storie Index Rating Score

Step 1.
From the appropriate soil survey or other sources of information identified in Appendix C, determine the Storie Index Rating (the Storie Index Rating is already based upon a 100 point scale) for each mapping unit and enter these values in **Column G** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
Multiply the proportion of each soil mapping unit found within the project (**Column C**) by the Storie Index Rating (**Column G**), and enter these scores in **Column H**.

Step 3.
Sum the Storie Index Rating scores in **Column H** to obtain a single Storie Index Rating score for the project. Enter this Storie Index Rating Score in **Line 2** of the **Final LESA Worksheet** (Table 8)

Scoring of Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated:

1. **The Project Size Rating**
2. **The Water Resources Availability Rating**
3. **The Surrounding Agricultural Land Rating**
4. **The Surrounding Protected Resource Land Rating**

1. Site Assessment - The Project Size Rating

The Project Size Rating relies upon acreage figures that were tabulated under the Land Capability Classification Rating in Table 1A. The Project Size rating is based upon identifying acreage figures for three separate groupings of soil classes within the project site, and then determining which grouping generates the highest Project Size Score.

Step 1.
Using information tabulated in **Columns B** and **D** of the **Land Evaluation Worksheet** (Table 1A), enter acreage figures in **Site Assessment Worksheet 1. - Project Size** (Table 1B) using either **Column I, J,** or **K** for each of the soil mapping units in a given project.

Step 2.
Sum the entries in **Column I** to determine the total acreage of Class I and II soils on the project site.

Sum the entries in **Column J** to determine the total acreage of Class III soils on the project site.

Sum the entries in **Column K** to determine the total acreage of Class IV and lower rated soils on the project site.

Step 3.
For each of the three columns, apply the appropriate scoring plan provided in Table 3, **Project Size Scoring**, and enter the **Project Size Score** for each grouping in the **Site Assessment Worksheet 1. - Project Size** (Table 1B). Determine which column generates the highest score. The highest score becomes the overall **Project Size Score**. Enter this number in **Line 3** of the **Final LESA Scoresheet** (Table 8).

Table 3. Project Size Scoring

LCC Class I or II soils		LCC Class III soils		LCC Class IV or lower	
Acres	***Score***	***Acres***	***Score***	***Acres***	***Score***
80 or above	100	160 or above	100	320 or above	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
fewer than 10	0	20-39	30	fewer than 40	0
		10-19	10		
		fewer than 10	0		

Explanation of the Project Size Factor

The Project Size factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3).

The inclusion of the measure of a project's size in the California Agricultural LESA Models is a recognition of the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Certain economies of scale for equipment and infrastructure can also be more favorable for larger operations. In addition, larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon support industries (e.g., fertilizers, farm equipment, and shipping) and food processing industries.

While the size of a given farming operation may in many cases serve as a direct indicator of the overall economic viability of the operation, The California Agricultural LESA Model does not specifically consider the issue of economic viability. The variables of economic viability for a specific farm include such factors as the financial management and farming skills of the operator, as well as the debt load and interest rates being paid by an individual operator, which are issues that cannot readily be included in a statewide LESA model.

In terms of agricultural productivity, the size of a farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide a greater economic return per unit acre. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided into three acreage groupings based upon the Land Capability Classification ratings that were previously determined in the Land Evaluation analysis. Under the Project Size rating, relatively fewer acres of high quality soils are required to achieve a maximum Project Size score. Alternatively, a maximum score on lesser quality soils could also be derived, provided there is a sufficiently large acreage present. Acreage figures utilized in scoring are the synthesis of interviews that were conducted statewide for growers of a broad range of crops. In the interviews growers were queried as to what acreage they felt would be necessary in order for a given parcel to be considered attractive for them to farm.

The USDA LCC continues to be the most widely available source of information on land quality. Project Size under this definition is readily measurable, and utilizes much of the same information needed to score a given project under the Land Evaluation component of the methodology. This approach also complements the LE determination, which, while addressing soil quality, does not account for the total acreage of soils of given qualities within a project.

This approach allows for an accounting of the significance of high quality agricultural land as well as lesser quality agricultural lands, which by virtue of their large area can be considered significant agricultural resources. In this way, no single acreage figure for a specific class of soils (e.g., soils defined as "prime") is necessary.

2. Site Assessment - The Water Resources Availability Rating

The Water Resources Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. **Site Assessment Worksheet 2. - Water Resources Availability Worksheet** (Table 4) is used to tabulate the score.

Step 1.
Identify the different water resource types that are used to supply the proposed project site (for example, irrigation district water, ground water, and riparian water are considered to be three different types of water resources). Where there is only one water source identified for the proposed project, skip to Step 4.

Step 2.
Divide the proposed project site into portions, with the boundaries of each portion being defined by the irrigation water source(s) supplying it. A site that is fully served by a single source of water will have a single portion, encompassing the entire site. A site that is fully served by two or more sources that are consistently merged together to serve a crop's needs would also have a single portion. (e.g., a portion of the proposed project may receive both irrigation district and groundwater). If the project site includes land that has no irrigation supply, consider this acreage as a separate portion as well. Enter the water resource portions of the project in **Column B** of Table 4, **Site Assessment Worksheet 2. - Water Resources Availability**.

[As an example, a hypothetical project site is determined to have four separate water supply portions:

Portion 1 is served by irrigation district water only;
Portion 2 is served by ground water only;
Portion 3 is served by *both* irrigation district water and ground water;
Portion 4 is not irrigated at all.]

Step 3.
Calculate the proportion of the total project area that is represented by each water resource portion, and enter these figures in **Column C** of **Site Assessment Worksheet 2. - Water Resources Availability**, verifying that the sum of the proportions equals 1.0.

Table 4. Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1				
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	

Step 4.
For each water resource supply portion of the project site, determine whether irrigated and dryland agriculture is *feasible*, and if any *physical* or *economic restrictions* exist, during both *drought* and *non-drought* years. These italicized terms are defined below:

- A *physical restriction* is an occasional or regular interruption or reduction in a water supply, or a shortened irrigation season, that forces a change in agricultural practices -- such as planting a crop that uses less water, or leaving land fallow. (This could be from cutbacks in supply by irrigation and water districts, or by ground or surface water becoming depleted or unusable. Poor water quality can also result in a physical restriction -- for example by requiring the planting of salt-tolerant plants, or by effectively reducing the amount of available water.)

- An *economic restriction* is a rise in the cost of water to a level that forces a reduction in consumption. (This could be from surcharge increases from water suppliers as they pass along the cost of finding new water supplies, the extra cost of pumping more ground water to make up for losses in surface water supplies, or the extra energy costs of pumping the same amount of ground water from deeper within an aquifer.)

- Irrigated agricultural production is *feasible* when:

  1) There is an existing irrigation system on the project site that can serve the portion of the project identified in Step 2;

  2) *Physical* and/or *economic restrictions* are not severe enough to halt production; and

  3) It is possible to achieve a viable economic return on crops though irrigated production.

(A major question that should be considered is, if there is an irrigated crop that can be grown within the region, can it actually be grown on the project site? Depending upon the jurisdiction, some typical crops that have a large water demand may not be feasible to grow on the project site, while others that require less water are feasible. Information to aid in making this determination can be obtained from county agricultural commissioners, the UC Cooperative Extension, irrigation districts, and other sources.)

- *Dryland production* is *feasible* when rainfall is adequate to allow an economically viable return on a nonirrigated crop.

- A *drought year* is a year that lies within a defined drought period, as defined by the Department of Water Resources or by a local water agency. Many regions of the state are by their arid nature dependent upon imports of water to support irrigated agriculture. These regions shall not be considered under periods of drought unless a condition of drought is declared for the regions that typically would be providing water exports.

Step 5.
Each of the project's water resource supply portions identified in **Step 2** is scored separately. Water Resources Availability scoring is performed by identifying the appropriate condition that applies to each portion of the project, as identified in Table 5., **Water Resource Availability Scoring**. Using Table 5, identify the option that best describes the water resource availability for that portion and its corresponding water resource score. Option 1 defines the condition of no restrictions on water resource availability and is followed progressively with increasing restrictions to Option 14, the most severe condition, where neither irrigated nor dryland production is considered feasible. Enter each score into **Column D** of Table 4.

Step 6.
For each portion of the project site, determine the section's weighted score by multiplying the portion's score (**Column D**), by its proportion of the project area (**Column C**), and enter these scores in **Column E**, the weighted Water Availability Score. Sum the **Column E** scores to obtain the total Water Resource Availability Score, and enter this figure in **Line 4** of the **Final LESA Score Sheet** (Table 8).

Table 5. Water Resource Availability Scoring

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Explanation of the Water Resource Availability Rating

The Water Resource Availability factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3). During the development of this factor it became apparent that certain conditions unique to California would need to be represented in this system.

First, it was decided to classify water reliability based upon the *effects* on agricultural production (such as being forced to change to lower-value crops, putting in groundwater pumps, or cutting back on the acreage farmed) rather than the actual *type* of limitation (such as a limitation on the quantity, frequency, or duration of water delivery). LESA systems have traditionally focused on the latter. However, it was found that the many types of limitations are too varied in California to adequately represent in the LESA system. In the Statewide LESA system, these effects are referred to as *restrictions*.

Second, the factor had to include an interrelation with cost. The historical shortages and unreliability of California water use has led to the establishment of various interconnected and dual systems. Probably more than any other state, reliability is related with cost -- a more reliable water supply can sometimes be obtained, but at a greater cost. Therefore, *restrictions* were classified into two major categories -- *physical* and *economic*. These are separated because, generally, a physical restriction is more severe than an economic restriction and this should be reflected in the LESA system.

Third, the factor had to include the effects of the drought cycle in California. During the drought of 1987 to 1992, many agricultural areas of the state experienced water shortages. The impact of these shortages resulted in a number of different actions. Some areas were able to avoid the worst effects of the drought simply by implementing water conservation measures. Other areas were able to obtain additional water supplies, such as by securing water transfers or simply pumping more groundwater, but at an increase in the overall price of water. Other options included shifting crops, replanting to higher value crops to offset the increase in water prices, or leaving land fallow. A project site that experiences restrictions during a drought year should not be scored as high as a similar project site that does not.

The easiest way to make determinations of irrigation feasibility and the potential restrictions of water sources is to investigate the cropping history of the project site. For instance, was the water supply to the project site reduced by the local irrigation district during the last drought? If the site has a ground water supply, do area ground water levels sometimes drop to levels that force markedly higher energy costs to pump the water?

If the history of the project site is unavailable (including when the site has recently installed an irrigation system), look at the history of the general area. However, remember that the project site may have different conditions than the rest of the region. For instance, the project site could have an older water right than others in the region. Although certain areas of the state had severe restrictions on water deliveries during the last drought, some parcels within these areas had very secure deliveries due to more senior water rights. If this was the case in the region of the project site, check the date of water right and compare it with parcels that received their total allotment during the last drought. The local irrigation district should have information on water deliveries.

The scoring of water resource availability for a project site should not just reflect the adequacies of water supply in the past -- it should be a *prediction* of how the water system will perform in the future. For instance, a local jurisdiction might find that the allocation of flows to stream and river systems has been recently increased for environmental reasons, which will decrease the future available surface water supply. In this case, the past history of the site is not an adequate representation of future water supply and water system performance.

3. Site Assessment - The Surrounding Agricultural Land Rating

Determination of the surrounding agricultural land use rating is based upon the identification of a project's "Zone of Influence" (ZOI), which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced by, the agricultural land use of the subject project site. The determination of the ZOI is described below, and is illustrated with an example in Figure 1.

Defining a Project's "Zone of Influence"

Step 1.
Locate the proposed project on an appropriate map and outline the area and dimensions of the proposed project site.

Step 2.
Determine the smallest rectangle that will completely contain the project site (Rectangle A).

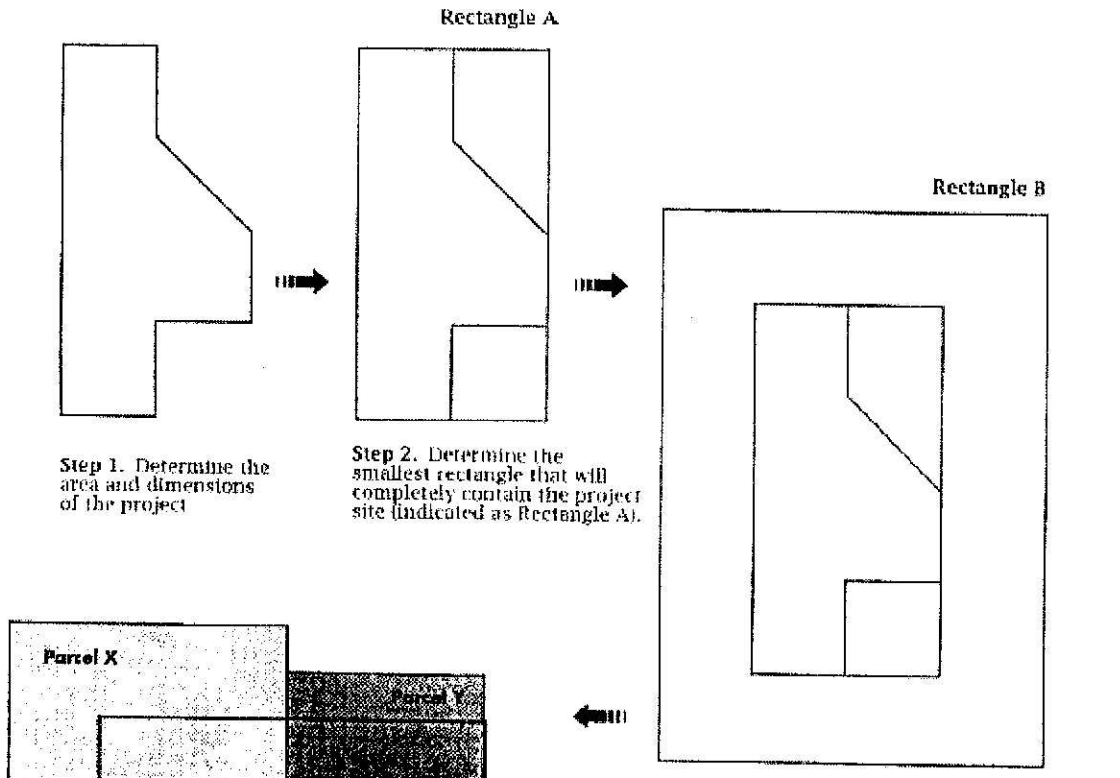
Step 3.
Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.

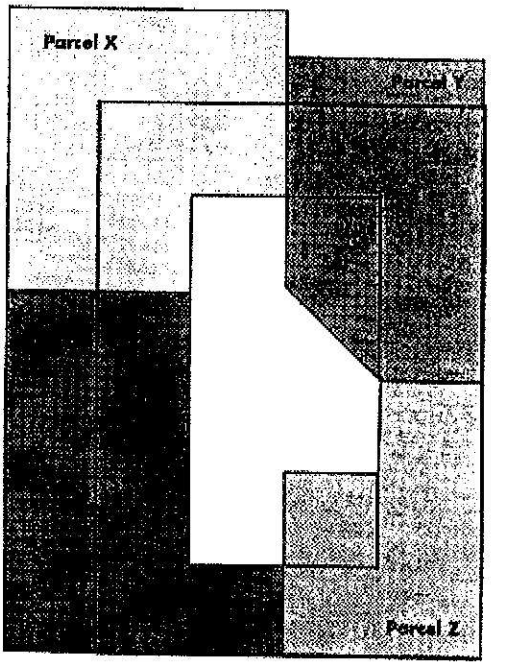
Step 4.
Identify all parcels that are within or are intersected by Rectangle B.

Step 5.
Define the project site's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

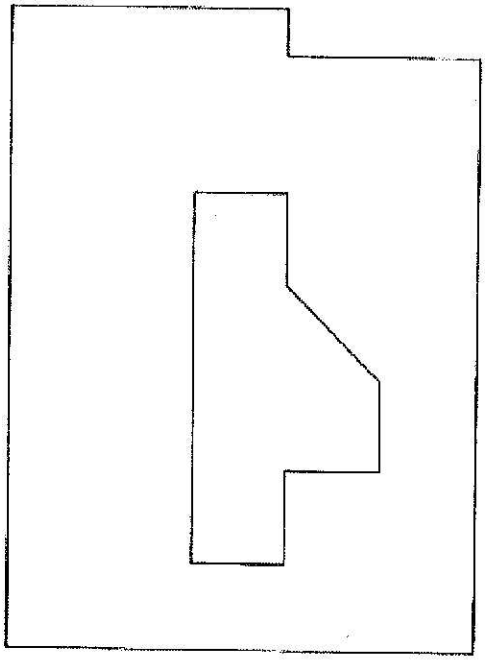
[In the illustration provided in Figure 1, Parcels W, X, and Y extend beyond Rectangle B and are therefore included in their entirety in defining the project site's Zone of Influence.]

Figure 1: Defining a Project's Zone of Influence





Step 4. Identify all parcels that are within or are intersected by Rectangle B.



Step 5. Define the project's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

In this example, parcels W, X, and Y extend beyond Rectangle B and are therefore included in the their entirety in defining the project's zone of influence.

Measuring Surrounding Agricultural Land

Step 1.
Calculate the percentage of the project's Zone of Influence that is currently producing agricultural crops. [This figure can be determined using information from the Department of Conservation's Important Farmland Map Series, the Department of Water Resources' Land Use Map Series, locally derived maps, or direct site inspection. For agricultural land that is currently fallowed, a determination must be made concerning whether the land has been fallowed as part of a rotational sequence during normal agricultural operations, or because the land has become formally "committed" to a nonagricultural use. Land that has become formally committed, whether fallow or not, should not generally be included in determining the proportion of the Zone of Influence that is agricultural land. For further information on the definition of Committed Land, refer to the following Explanation of the Surrounding Agricultural Land Rating.]

Step 2.
Based on the percentage of agricultural land in the ZOI determined in Step 1, assign a Surrounding Agricultural Land score to the project according to Table 6, and enter this score in **Line 5** of the **Final LESA Scoresheet** (Table 8) .

Table 6. Surrounding Agricultural Land Rating

Percent of Project's Zone of Influence in Agricultural Use	Surrounding Agricultural Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Explanation of the Surrounding Agricultural Land Rating

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands in close proximity to a subject project. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. The definition of a "Zone of Influence" that accounts for surrounding lands up to a minimum of one quarter mile from the project boundary is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use. In a simple example, a single one quarter mile square project (160 acres) would have a Zone of Influence that is a minimum of eight times greater (1280 acres) that the parcel itself.

Land within a Zone of Influence that is observed to be fallow will require a case by case determination of whether this land should be considered agricultural land. The Department of Conservation's Important Farmland Maps may be of assistance in making this determination. In addition, land currently in agricultural production may be designated as being "committed" to future nonagricultural development. The Department of Conservation's Farmland Mapping and Monitoring Program has a land use designation of Land Committed to Nonagricultural Use, and is defined as "land that is permanently committed by local elected officials to nonagricultural development by virtue of decisions which cannot be reversed simply by a majority vote of a city council or county board of supervisors. The "committed" land must be so designated in an adopted local general plan, and must also meet the requirements of either (a) or (b) below:

(a). It must have received one of the following final discretionary approvals:

1. Tentative subdivision map (approved per the Subdivision Map Act);
2. Tentative or final parcel map (approved per the Subdivision Map Act);
3. Recorded development agreement (per Government Code §65864);
4. Other decisions by a local government which are analogous to items #1-3 above and which exhibit an element of permanence. Zoning by itself does <u>not</u> qualify as a permanent commitment.

<u>Or</u>

(b) It must be the subject of one of the final fiscal commitments to finance the capital improvements specifically required for future development of the land in question as shown below:

1. Recorded Resolution of Intent to form a district and levy an assessment;
2. Payment of assessment;
3. Sale of bonds;
4. Binding contract, secured by bonds, guaranteeing installation of infrastructure;
5. Other fiscal commitments which are analogous to items #1-4 above and exhibit an element of permanence."

Lead agencies are encouraged to identify Land Committed to Nonagricultural Use within a project's ZOI and make the determination whether this land, while still in agricultural production, be considered nonagricultural land for the purposes of the calculation performed here.

4. Site Assessment - The Surrounding Protected Resource Land Rating

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

Instructions for the Surrounding Protected Resource Land Rating

Step 1.
Utilizing the same "Zone of Influence" (ZOI) area calculated for a project under the Surrounding Agricultural Land Rating, calculate the percentage of the ZOI that is Protected Resource Land, as defined above.

Step 2.
Assign a Surrounding Protected Resource Land score to the project according to Table 7, and enter this score on **Line 6** of the **Final LESA Scoresheet** (Table 8).

Table 7. Surrounding Protected Resource Land Rating

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Section III. Weighting of Factors and Final LESA Scoring

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors, and 50 percent from the Site Assessment factors. Individual factor weights are listed below, with the sum of the factor weights required to equal 100 percent.

Land Evaluation Factors

Land Capability Classification	25%
Storie Index Rating	25%
Land Evaluation Subtotal	**50%**

Site Assessment Factors

Project Size	15%
Water Resource Availability	15%
Surrounding Agricultural Lands	15%
Surrounding Protected Resource Lands	5%
Site Assessment Subtotal	**50%**
Total LESA Factor Weighting	**100%**

Each factor is measured separately (each on 100 point scale) and entered in the appropriate line in **Column B** of the **Final LESA Scoresheet** (Table 8). Each factor's score is then multiplied by its respective factor weight, resulting in a weighted factor score in **Column D** as indicated in Table 8. The weighted factor scores are summed, yielding a Total LESA Score (100 points maximum) for a given project, which is entered in **Line 7** of **Column D**.

Table 8. Final LESA Scoresheet

A	B		C		D
Factor Name	Factor Rating (0-100 points)	X	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
Land Evaluation					
1. Land Capability Classification	<Line 1>_____	X	0.25	=	_____
2. Storie Index Rating	<Line 2>_____	X	0.25	=	_____
Site Assessment					
1. Project Size	<Line 3>_____	X	0.15	=	_____
2. Water Resource Availability	<Line 4>_____	X	0.15	=	_____
3. Surrounding Agricultural Lands	<Line 5>_____	X	0.15	=	_____
4. Protected Resource Lands	<Line 6>_____	X	0.05	=	_____
			Total LESA Score (sum of weighted factor ratings)		<Line 7>_____

Section IV. California Agricultural LESA Scoring Thresholds - Making Determinations of Significance Under CEQA

A single LESA score is generated for a given project after all of the individual Land Evaluation and Site Assessment factors have been scored and weighted as detailed in Sections 2 and 3. Just as with the scoring of individual factors that comprise the California Agricultural LESA Model, final project scoring is based on a scale of 100 points, with a given project being capable of deriving a maximum of 50 points from the Land Evaluation factors and 50 points from the Site Assessment factors.

The California Agricultural LESA Model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the Initial Study phase of the CEQA review process. 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 (i.e., a site with a very high LE score, but a very low SA score, or vice versa). Table 9 presents the California Agricultural LESA scoring thresholds.

Table 9. California LESA Model 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 to 79 Points	Considered Significant unless either LE or SA subscore is less than 20 points
80 to 100 Points	Considered Significant

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3. *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors*. Prepared by Nichols - Berman, for the Department of Conservation. 1995.

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NOTES

Calculation of the Land Evaluation (LE) Score

Part 1. Land Capability Classification (LCC) Score:

(1) Determine the total acreage of the project.
(2) Determine the soil types within the project area and enter them in **Column A** of the **Land Evaluation Worksheet** provided on page 2-A.
(3) Calculate the total acres of each soil type and enter the amounts in **Column B**.
(4) Divide the acres of each soil type (**Column B**) by the total acreage to determine the proportion of each soil type present. Enter the proportion of each soil type in **Column C**.
(5) Determine the LCC for each soil type from the applicable Soil Survey and enter it in **Column D**.
(6) From the LCC Scoring Table below, determine the point rating corresponding to the LCC for each soil type and enter it in **Column E**.

LCC Scoring Table

LCC Class	I	IIe	IIs,w	IIIe	IIIs,w	IVe	IVs,w	V	VI	VII	VIII
Points	100	90	80	70	60	50	40	30	20	10	0

(7) Multiply the proportion of each soil type (**Column C**) by the point score (**Column E**) and enter the resulting scores in **Column F**.
(8) Sum the LCC scores in **Column F**.
(9) Enter the LCC score in box <1> of the **Final LESA Score Sheet** on page 10-A.

Part 2. Storie Index Score:

(1) Determine the Storie Index rating for each soil type and enter it in **Column G**.
(2) Multiply the proportion of each soil type (**Column C**) by the Storie Index rating (**Column G**) and enter the scores in **Column H**.
(3) Sum the Storie Index scores in **Column H** to gain the Storie Index Score.
(4) Enter the Storie Index Score in box <2> of the **Final LESA Score Sheet** on page 10-A.

Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Totals		(Must Sum to 1.0)		***LCC Total Score***		***Storie Index Total Score***	

Site Assessment Worksheet 1.

Project Size Score

I	J	K
LCC Class I - II	LCC Class III	LCC Class IV - VIII
Total Acres		
Project Size Scores		

Highest Project Size Score [ ]

NOTES

Calculation of the Site Assessment (SA) Score

Part 1. Project Size Score:.

(1) Using **Site Assessment Worksheet 1** provided on page 2-A, enter the acreage of each soil type from **Column B** in the **Column - I, J or K** - that corresponds to the LCC for that soil. (Note: While the Project Size Score is a component of the Site Assessment calculations, the score sheet is an extension of data collected in the Land Evaluation Worksheet, and is therefore displayed beside it).
(2) Sum **Column I** to determine the total amount of class I and II soils on the project site.
(3) Sum **Column J** to determine the total amount of class III soils on the project site.
(4) Sum **Column K** to determine the total amount of class IV and lower soils on the project site.
(5) Compare the total score for each LCC group in the Project Size Scoring Table below and determine which group receives the highest score.

Project Size Scoring Table

Class I or II		**Class III**		**Class IV or Lower**	
Acreage	Points	Acreage	Points	Acreage	Points
>80	100	>160	100	>320	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
10<	0	20-39	30	40<	0
		10-19	10		
		10<	0		

(6) Enter the **Project Size Score** (the highest score from the three LCC categories) in box <3> of the **Final LESA Score Sheet** on page 10-A.

NOTES

Part 2. Water Resource Availability Score:

(1) Determine the type(s) of irrigation present on the project site, including a determination of whether there is dryland agricultural activity as well.

(2) Divide the site into portions according to the type or types of irrigation or dryland cropping that is available in each portion. Enter this information in **Column B** of **Site Assessment Worksheet 2. - Water Resources Availability**.

(3) Determine the proportion of the total site represented for each portion identified, and enter this information in **Column C**.

(4) Using the Water Resources Availability Scoring Table, identify the option that is most applicable for each portion, based upon the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. Enter the applicable Water Resource Availability Score into **Column D**.

(5) Multiply the Water Resource Availability Score for each portion by the proportion of the project area it represents to determine the weighted score for each portion in **Column E**.

(6) Sum the scores for all portions to determine the project's total Water Resources Availability Score

(7) Enter the Water Resource Availability Score in box <4> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1				
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	

Water Resource Availability Scoring Table

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

NOTES

Part 3. Surrounding Agricultural Land Use Score:

(1) Calculate the project's Zone of Influence (ZOI) as follows:

(a) a rectangle is drawn around the project such that the rectangle is the smallest that can completely encompass the project area.

(b) a second rectangle is then drawn which extends one quarter mile on all sides beyond the first rectangle.

(c) The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself.

(2) Sum the area of all parcels to determine the total acreage of the ZOI.

(3) Determine which parcels are in agricultural use and sum the areas of these parcels

(4) Divide the area in agriculture found in step (3) by the total area of the ZOI found in step (2) to determine the percent of the ZOI that is in agricultural use.

(5) Determine the Surrounding Agricultural Land Score utilizing the Surrounding Agricultural Land Scoring Table below.

Surrounding Agricultural Land Scoring Table

Percent of ZOI in Agriculture	Surrounding Agricultural Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Surrounding Agricultural Land Score in box <5> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 3.
Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)	Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)

NOTES

Part 4. Protected Resource Lands Score:

The Protected Resource Lands scoring relies upon the same Zone of Influence information gathered in Part 3, and figures are entered in Site Assessment Worksheet 3, which combines the surrounding agricultural and protected lands calculations.

(1) Use the total area of the ZOI calculated in Part 3. for the Surrounding Agricultural Land Use score.
(2) Sum the area of those parcels within the ZOI that are protected resource lands, as defined in the California Agricultural LESA Guidelines.
(3) Divide the area that is determined to be protected in Step (2) by the total acreage of the ZOI to determine the percentage of the surrounding area that is under resource protection.
(4) Determine the Surrounding Protected Resource Land Score utilizing the Surrounding Protected Resource Land Scoring Table below.

Surrounding Protected Resource Land Scoring Table

Percent of ZOI Protected	Protected Resource Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Protected Resource Land score in box <6> of the **Final LESA Score Sheet** on page 10-A.

LESA Worksheet (cont.)

NOTES

Final LESA Score Sheet

Calculation of the Final LESA Score:

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.
(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1>	0.25	
Storie Index	<2>	0.25	
LE Subtotal		***0.50***	
SA Factors			
Project Size	<3>	0.15	
Water Resource Availability	<4>	0.15	
Surrounding Agricultural Land	<5>	0.15	
Protected Resource Land	<6>	0.05	
SA Subtotal		***0.50***	
		Final LESA Score	

For further information on the scoring thresholds under the California Agricultural LESA Model, consult Section 4 of the Instruction Manual.

Appendix B. California LESA Project Scoring Example

California LESA Model - Worksheet for Scoring

UPLANDS ESTATES EXAMPLE

Uplands Estates is a fictitious 200 acre proposed project. Four soil mapping units have been identified on the site: Cc, Ll, Si and Lt. Using an electronic planimeter, the acreage of each was found to be 30, 120, 10 and 40 acres, respectively.
The acreage of each soil type is divided by the total project acreage, 200 acres, to determine the proportion of each.
The LCCs for the four soil types are found in the County Soil Survey to be: Cc-Class IVe, Ll-Class I, Si-Class IIIe and Lt-Class IIe.

Calculation of the Land Evaluation (LE) Score

Part 1. Land Capability Classification (LCC) Score:

(1) Determine the total acreage of the project.
(2) Determine the soil types within the project area and enter them in **Column A** of the **Land Evaluation Worksheet** provided on page 2-B.
(3) Calculate the total acres of each soil type and enter the amounts in **Column B**.

(4) Divide the acres of each soil type (**Column B**) by the total acreage to determine the proportion of each soil type present. Enter the proportion of each soil type in **Column C**.

(5) Determine the LCC for each soil type from the applicable Soil Survey and enter it in **Column D**.
(6) From the LCC Scoring Table below, determine the point rating corresponding to the LCC for each soil type and enter it in **Column E**.

LCC Scoring Table

LCC Class	I	IIe	IIs,w	IIIe	IIIs,w	IVe	IVs,w	V	VI	VII	VIII
Points	100	90	80	70	60	50	40	30	20	10	0

From the LCC Scoring Table the LCC point scores for the four soils are found to be 40, 100, 70 and 90, respectively. The proportion of each soil type represented is multiplied by its point score in Column F, and is summed to get a total LCC Score of 87.5 points, which is then entered in box <1> of the Final LESA Score Sheet.

(7) Multiply the proportion of each soil type (**Column C**) by the point score (**Column E**) and enter the resulting scores in **Column F**.
(8) Sum the LCC scores in **Column F**.
(9) Enter the LCC score in box <1> of the **Final LESA Score Sheet** on page 10-B.

Part 2. Storie Index Score:

Storie Index ratings for each soil type, 34, 86, 66 and 75, were determined from the County Soil Survey. The Storie Index ratings are multiplied by the proportion for each soil type and Column H is summed to get a total Storie Index Score of 75 points, which is then entered in box <2> of the Final LESA Score Sheet

(1) Determine the Storie Index rating for each soil type and enter it in **Column G**.
(2) Multiply the proportion of each soil type (**Column C**) by the Storie Index rating (**Column G**) and enter the scores in **Column H**.
(3) Sum the Storie Index scores in **Column H** to gain the Storie Index Score.
(4) Enter the Storie Index Score in box <2> of the **Final LESA Score Sheet** on page 10-B.

Land Evaluation Worksheet - Uplands Estates Example

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Cc	30	0.15	IVs	40	6	34	5.1
Ll	120	0.6	I	100	60	86	51.6
Si	10	0.05	IIIe	70	3.5	66	3.3
Lt	40	0.2	IIe	90	18	75	15
Totals	200	(Must Sum to 1.0)		***LCC Total Score***	87.5	***Storie Index Total Score***	75

Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
			30
	120		
		10	
	40		
Total Acres	160	10	30
Project Size Scores	100	10	0

Highest Project Size Score 100

UPLANDS ESTATES EXAMPLE (cont.)

Calculation of the Site Assessment (SA) Score

Part 1. Project Size Score:.

(1) Using **Site Assessment Worksheet** 1 provided on page 2-B, enter the acreage of each soil type from **Column B** in the **Column - I, J or K** - that corresponds to the LCC for that soil. (Note: While the Project Size Score is a component of the Site Assessment calculations, the score sheet is an extension of data collected in the Land Evaluation Worksheet, and is therefore displayed beside it).

Column I sums to 160 acres, Column J sums to 10 acres, and Column K sums to 30 acres.

(2) Sum **Column I** to determine the total amount of class I and II soils on the project site.

(3) Sum **Column J** to determine the total amount of class III soils on the project site.

(4) Sum **Column K** to determine the total amount of class IV and lower soils on the project site.

Column I - 160 acres of class I-II soils corresponds to a score of 100 points.
Column J - 10 acres of class III soils in corresponds to a score of 10 points.
Column K - 30 acres of class IV or lower soils corresponds to a score of 0 points.
The highest score is for column I; 100 points.

(5) Compare the total score for each LCC group in the Project Size Scoring Table below and determine which group receives the highest score.

Project Size Scoring Table

Class I or II		Class III		Class IV or Lower	
Acreage	Points	Acreage	Points	Acreage	Points
>80	100	>160	100	>320	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
10<	0	20-39	30	40<	0
		10-19	10		
		10<	0		

100 points is entered in box <3> of the Final LESA Score Sheet.

(6) Enter the **Project Size Score** (the highest score from the three LCC categories) in box <3> of the **Final LESA Score Sheet** on page 10-B.

UPLANDS ESTATES EXAMPLE (cont.)

There are two types of irrigation on the site; groundwater and water district water. The site is divided into three portions according to irrigation availability:
Portion I - both irrigation district and groundwater -- 50% of the site;
Portion II - irrigation district only - 25%. of the site; and
Portion III - unirrigated - 25% of the site.

Portion I - While irrigation is always feasible, economic and physical restrictions become evident in drought years (Option 5) yielding a score of 80 points.

Portion II - While irrigation is always feasible, economic restrictions become evident during drought years (Option 2) yielding a score of 95 points.

Portion III - irrigation is not feasible and dryland farming is only feasible in non-drought years (Option 13), yielding a score of 20 points.; subtract 75 points. Dryland farming is not feasible in non-drought years; subtract 5 points.

Portion I - (80 points)(0.5) = 40.0 points
Portion II - (95 points)(0.25) = 23.7 points
Portion III - (20 points)(0.25) = 5.0 points
Portion I + Portion II + Portion III = 68.7 points, which is entered in box <4> of the Final LESA Score Sheet.

Part 2. Water Resource Availability Score:

(1) Determine the type(s) of irrigation present on the project site, including a determination of whether there is dryland agricultural activity as well.

(2) Divide the site into portions according to the type or types of irrigation or dryland cropping that is available in each portion. Enter this information in **Column B** of **Site Assessment Worksheet 2. - Water Resources Availability**.

(3) Determine the proportion of the total site represented for each portion identified and enter this information in **Column C**.

(4) Using the Water Resources Availability Scoring Table, identify the option that is most applicable for each portion, based upon the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. Enter the applicable Water Resource Availability Score into **Column D**.

(5) Multiply the Water Resource Availability Score for each portion by the proportion of the project area it represents to determine the weighted score for each portion in **Column E**.

(6) Sum the scores for all portions to determine the project's total Water Resources Availability Score

(7) Enter the Water Resource Availability Score in box <4> of the **Final LESA Score Sheet** on page 10-B.

Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Irrigation district and groundwater	.50	80	40
2	Irrigation district only	.25	95	23.7
3	not irrigated	.25	20	5.0
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	68.7

Water Resource Availability Scoring Table

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

UPLANDS ESTATES EXAMPLE (cont.)

Upland Estates is surrounded by 4 parcels: parcels W, X, Y and Z, 200, 180, 150 and 100 acres, respectively. The total acreage of the ZOI is the sum of these parcels or 630 acres.

Parcels W, X, and Y are in agriculture. The amount of the ZOI in agriculture is 530 acres.
The percent of the ZOI in agriculture is 530 acres divided by 630 acres, or 84%. Eighty-four percent of the ZOI in agriculture corresponds to a score of 90 points.

Part 3. Surrounding Agricultural Land Use Score:

(1) Calculate the project's Zone of Influence (ZOI) as follows:
(a) a rectangle is drawn around the project such that the rectangle is the smallest that can completely encompass the project area.
(b) a second rectangle is then drawn which extends one quarter mile on all sides beyond the first rectangle.
(c) The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself.
(2) Sum the area of all parcels to determine the total acreage of the ZOI.
(3) Determine which parcels are in agricultural use and sum the areas of these parcels

(4) Divide the area in agriculture found in step (3) by the total area of the ZOI found in step (2) to determine the percent of the ZOI that is in agricultural use.
(5) Determine the Surrounding Agricultural Land Score utilizing the Surrounding Agricultural Land Scoring Table below.

Surrounding Agricultural Land Scoring Table

Percent of ZOI in Agriculture	Surrounding Agricultural Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

90 points is entered in box <5> of the Final LESA Score Sheet.

(5) Enter the Surrounding Agricultural Land Score in box <5> of the **Final LESA Score Sheet** on page 10-B.

Site Assessment Worksheet 3.
Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)	Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)
630	530	380	84	60	90	50

UPLANDS ESTATES EXAMPLE (cont.)

Parcels W and X are under Williamson Act contract. The sum of these parcels' areas is 380 acres. The area under protection divided by the total acreage of the ZOI (380/630 acres) gives the percent of the surrounding area under protection, or 60%,

corresponding to a Protected Resource Land Score of 50 points.

Part 4. Protected Resource Lands Score:

The Protected Resource Lands scoring relies upon the same Zone of Influence information gathered in Part 3, and figures are entered in Site Assessment Worksheet 3, which combines the surrounding agricultural and protected lands calculations.

(1) Use the total area of the ZOI calculated in Part 3. for the Surrounding Agricultural Land Use score.

(2) Sum the area of those parcels within the ZOI that are protected resource lands, as defined in the California Agricultural LESA Guidelines.

(3) Divide the area that is determined to be protected in Step (2) by the total acreage of the ZOI to determine the percentage of the surrounding area that is under resource protection.

(4) Determine the Surrounding Protected Resource Land Score utilizing the Surrounding Protected Resource Land Scoring Table below.

Surrounding Protected Resource Land Scoring Table

Percent of ZOI Protected	Protected Resource Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

50 points is entered in box <6> of the Final LESA Score Sheet.

(5) Enter the Protected Resource Land score in box <6> of the **Final LESA Score Sheet** on page 10-B.

UPLANDS ESTATES EXAMPLE (cont.)

Final LESA Score Sheet

Calculation of the Final LESA Score:

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.
(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

The component LE and SA factors have been entered into the Final LESA Score Sheet.

The LE factor scores are multiplied by the factor weights to determine the weighted score for each.

The weighted LE factor scores are summed to determine the LE portion of the Final LESA score

The SA factor scores are multiplied by the factor weights to determine the weighted score for each.

The weighted SA factor scores are summed to determine the SA portion of the Final LESA score

The LE and SA subtotals are summed to determine the Final LESA score

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1> 87.5	0.25	21.9
Storie Index	<2> 75.0	0.25	18.7
LE Subtotal		***0.50***	**40.6**
SA Factors			
Project Size	<3> 100.0	0.15	15.0
Water Resource Availability	<4> 68.7	0.15	10.3
Surrounding Agricultural Land	<5> 90.0	0.15	13.5
Surrounding Protected Resource Land	<6> 50.0	0.05	2.5
SA Subtotal		***0.50***	**41.3**
		Final LESA Score	**81.9**

Because the Uplands Estates example attained a score above the 80 point threshold, the project would automatically be determined to be significant without a further review of the Land Evaluation or Site Assessment subscores. For further information on the scoring thresholds under the California Agricultural LESA Model, consult Section 4 of the Instruction Manual.

APPENDIX B

GROUNDWATER PUMPING, RECHARGE, AND CONSUMPTIVE USE REPORT

GROUNDWATER PUMPING, RECHARGE, AND CONSUMPTIVE USE IN THE PROPOSED CITY OF REEDLEY SPHERE OF INFLUENCE

Final Draft Report

Prepared for
Community Development Department
City of Reedley
Reedley, California

by
Kenneth D. Schmidt and Associates
Groundwater Quality Consultants
Fresno, California

May 2013

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LIST OF TABLES

GROUNDWATER PUMPING, RECHARGE, AND CONSUMPTIVE USE IN THE PROPOSED CITY OF REEDLEY SPHERE OF INFLUENCE

INTRODUCTION

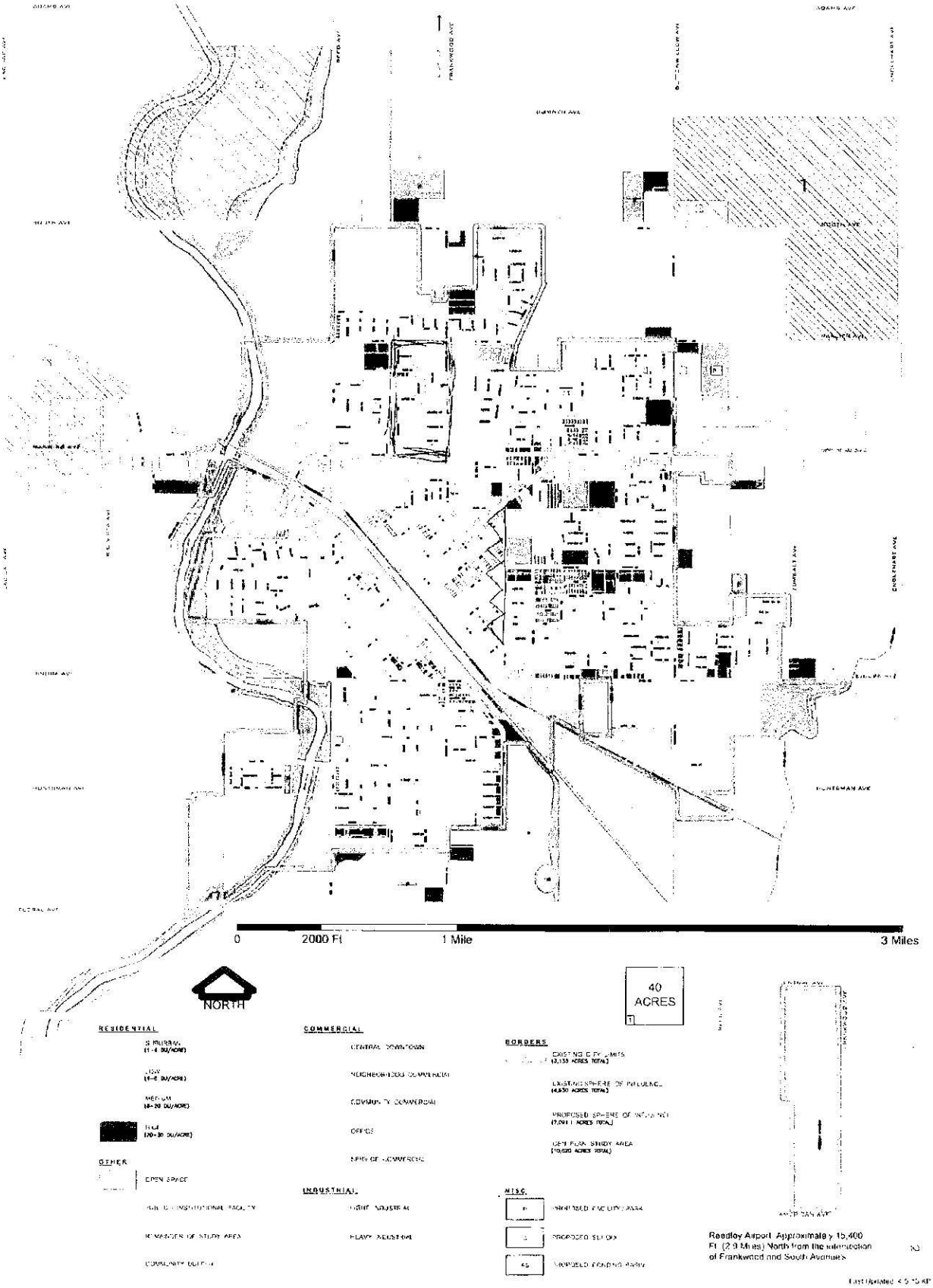
Figure 1 shows the existing City of Reedley urban area, the existing sphere of influence (SOI), and the proposed SOI. Full buildout of the proposed SOI is projected by 2030. There are about 2,150 acres of land that are now urbanized. The existing City SOI comprises 4,931 acres and the proposed City SOI comprises 7,091 acres. This evaluation focuses on City groundwater pumping, recharge, and consumptive use for existing conditions and for full development of the proposed SOI. Appendix A contains information on City pumpage and wastewater flows to the WWTF in 2012. In addition, this appendix contains HDR projections of the pumpage and wastewater flows for full buildout of the proposed SOI. In this report, all values in acre-feet per year have been rounded to the nearest 50 acre-feet per year.

EXISTING URBAN AREA

In 2012, the City pumpage was 5,000 acre-feet per year and the wastewater flows were 2,000 acre-feet per year. The difference between these two is considered to be the outdoor water use, which was 3,000 acre-feet per year. The estimated consumptive use for outdoor urban irrigation is estimated to be 65 percent of

GENERAL PLAN UPDATE
CITY OF REEDLEY
OFFICIAL WORKING DOCUMENT

CITY OF REEDLEY
PROPOSED LAND USE ADDITIONS AND CHANGES (ALTERNATIVE II)



this value, or 1,950 acre-feet per year. There is some evaporation from the City WWTF ponds. Using an average of 70 acres of wetted area for the ponds, and a net evaporation rate of 2.8 acre-feet per acre per year, the annual evaporation from these ponds is about 200 acre-feet per year. Thus the total urban consumptive use was 2,150 acre-feet per year in 2012. This averaged 1.0 acre-foot per acre per year of urban land. The amount of stormwater recharged in basins in the City, delivered to Alta I.D. canals, or discharged to the Kings River was about 1,000 acre-feet per year in 2012. An average of about 250 acre-feet per year of this were recharged in basins in the City. There are four discharge points where storm runoff is discharged to the river. Although the City doesn't directly benefit from this canal or river discharge, that water is eventually used or recharged, and benefits the Kings Basin.

EXISTING SPHERE OF INFLUENCE

A total of 4,499 acres of land in the existing SOI are in the Alta I. D. and 432 acres are in the Consolidated I.D. About 1,100 acres of land are along the Kings River floodplain and will not be developed. A crop survey for the Reedley Area for 2010 was obtained from the California EPA. Deciduous trees were the most predominant crop in the irrigated rural part of the existing

SOI, which comprises about 1,400 acres. The average consumptive use of water applied for rural irrigation was 2.5 acre-feet per acre, or a total of 3,500 acre-feet per year (rounded). Thus the total consumptive use in the existing SOI (excluding the river floodplain) was 5,650 acre-feet per year in 2012. The average amount of canal or ditch water applied for irrigation was 1.5 acre-feet per acre per year on about 1,060 acres, or 1,600 acre-feet per year (Appendix B). The canal and ditch seepage is estimated to average about 140 acre-feet per year per mile, based primarily on information in the Alta Irrigation District Amended Groundwater Management Plan (2010). There are about eight and a half miles of canals and ditches in the existing City SOI. The recharge from this seepage is estimated to average about 1,150 acre-feet per year. Added to the 1,600 acre-feet per year of applied water, this totals about 2,750 acre-feet per year of canal or ditch water delivered to or recharged in the existing SOI. In addition, there is an estimated 250 acre-feet per year of storm runoff recharged. If the amount of canal or ditch water and storm runoff recharge is equal to the consumptive use, then the groundwater system is in balance. Comparing the total of 3,000 acre-feet per year to the total consumptive use of 5,650 acre-feet per year indicates an average water deficit of about 2,650 acre-feet per year in the existing SOI.

PROPOSED SPHERE OF INFLUENCE

A total of 6,260 acres in the proposed SOI are in the Alta I. D. and 831 acres are in the Consolidated I.D.. The City pumpage under full urban development of the proposed SOI was projected by HDR (2013) to be 17,200 acre-feet per year. The projected wastewater flow was projected to be 8,000 acre-feet per year. The outside water use is the difference between these two values, or 9,200 acre-feet per year. The consumptive use, assuming an irrigation efficiency of 65 percent, would be 6,000 acre-feet per year. The estimated evaporation from City wastewater ponds would be about 800 acre-feet per year. The total consumptive use would be about 6,800 acre-feet per year. The amount of storm runoff recharged in basins would be about 500 acre-feet per year. There would be no deep percolation from irrigated crop land or canal seepage, as the City plans to pipe all these canals and ditches. The net deficit would thus be 6,300 acre-feet per year, or 3,650 acre-feet per year greater than the existing deficit. This would have a significant impact over the long-term, because the average rate of water-level decline in the City would be increased to about one foot per year.

Table 1 shows the water budget items for the existing and proposed SOI. In order to keep the water deficit the same as in 2012, about 3,650 acre-feet per year of canal water or ditch

TABLE 1- WATER BUDGET ITEMS FOR
CITY SPHERE OF INFLUENCE

Item	Amount (Acre-Feet per Year)	
	Existing SOI	Proposed SOI
Canal & Ditch Seepage	1,150	0
Canal & Ditch Water Used for Agr. Irrigation	1,600	0
Urban Storm Runoff Recharge	250	500
Sum of Ditch and Canal Water & Storm Runoff Recharge	3,000	500
Urban Consumptive Use	2,150	6,800
Rural Consumptive Use	3,500	0
Total Consumptive Use	5,650	6,800
Water Deficit	2,650	6,300

water would need to be used or recharged in the proposed SOI by 2030. This could be done in cooperation with the Alta I.D. Some of this water could be recharged in City storm runoff basins during the annual canal run. In addition, some untreated canal or ditch water could be used for irrigation of parks and possibly other landscaping in the City. Also, it may be possible to recharge more storm runoff in the future within the proposed SOI to decrease the amount of canal water or ditch water to be used or recharged.

DIRECTION OF GROUNDWATER FLOW AND WATER-LEVEL TRENDS

The California Department of Water Resources has prepared annual water-level elevation maps for the area including the City of Reedley. These maps for recent years have shown a southwesterly direction of groundwater flow beneath the City of Reedley and the vicinity. Water-level measurements were obtained from the California Department of Water Resources website. Long-term records are available for eight wells in or near the City (Appendix C). These records indicate an average annual water-level decline of 0.4 foot per year. This decline is attributed to pumping by the City wells and irrigation wells. In order to estimate the change in groundwater storage, a specific yield of 0.20 is

used. Beneath the existing SOI, this water-level decline would result in a groundwater overdraft of about 350 acre-feet per year. The difference between the calculated water deficit (3,000 acre-feet per year) and the overdraft in the existing SOI as of 2012 is attributed primarily to groundwater inflow into the SOI from the north, east, and south (upgradient of the City).

IMPACTS OF CITY ACTIVITIES ON CID

Pumpage from City wells is all east of the Kings River and in the Alta I.D. This area is indicated to be upgradient of the Consolidated I.D. In contrast, WWTF effluent percolation is west of the river in the CID. The direction of shallow groundwater flow beneath the WWTF percolation ponds has normally been to the west. Water deficits in the City SOI impact the CID because less groundwater flows into the CID than would otherwise occur. Effluent percolation is projected to be about 7,200 acre-feet per year under full development of the proposed SOI, which would benefit the CID.

CONCLUSIONS

Full development of the proposed SOI would create an average water deficit of about 3,650 acre-feet per year beyond the existing deficit. This increase would be due to 1) the loss of

canal seepage from canals and ditches, and 2) the loss of deep percolation from applied canal or ditch water on formerly irrigated lands. Presently, the City recharges a large amount of wastewater effluent in the Consolidated I.D. If an agreement can be made with the Alta I.D., some canal or ditch water could be recharged in City storm runoff basins, and some used for irrigation of parks and other landscaping. Another alternative would be for the City to participate in development of an intentional recharge facility in the Alta I.D. It may also be possible to recharge more of the City storm water in the City in the future.

REFERENCES

Alta Irrigation District, 2010, "Amended Groundwater Management Plan", 28p.

GEI Consultants, 2009, "Consolidated Irrigation District Groundwater Management Plan, 125p.

Summers Engineering, Inc., 2007, "Consolidated Irrigation District, Urban Impacts Study", 54p.

HDR, 2013, "Projected Water Demands and Wastewater Flows in City of Reedley".

California Environmental Protection Agency, 2010, "Fresno County Land Use Map", Department of Pesticide Regulation.

APPENDIX A

CITY PUMPAGE AND WASTEWATER AMOUNTS

MONTH

YEAR

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL IN MG	
1999	78.03	67.03	99.01	111.37	159.97	214.51	231.88	213.46	199.43	162.05	113.73	99.86	1750.33	DATA TAKEN FROM DWR REPORTS -NOT VERIFIED
2000	87.00	80.00	104.00	138.00	192.00	198.00	104.00	243.00	216.00	131.00	86.00	51.00	1630.00	
2001	20.00	72.00	102.00	140.00	198.00	222.00	219.00	259.00	190.00	165.00	87.00	78.00	1752.00	
2002	86.00	83.00	97.00	149.00	194.00	199.10	258.40	229.60	186.50	240.70	102.80	84.80	1910.90	
2003	88.35	14.87	63.20	102.42	165.93	1037.59	251.97	1856.34	207.60	148.09	94.28	154.43	4185.05	
2004	135.52	73.75	111.56	129.42	370.44	283.44	261.03	215.00	212.65	127.20	104.30	88.58	2112.87	
2005	80.45	78.99	89.88	124.07	150.36	214.18	230.92	253.24	193.69	201.78	47.45	89.43	1754.44	
2006	110.00	87.00	88.00	101.00	207.00	242.00	286.00	248.00	285.00	157.00	120.00	68.00	1999.00	
2007	8.33	79.48	114.24	153.39	218.89	243.61	265.25	260.22	181.62	180.12	105.22	98.36	1908.72	
2008	94.44	87.93	109.93	138.70	207.42	231.59	248.83	248.19	206.58	171.42	120.46	94.04	1959.53	
2009	84.96	78.33	105.65	153.18	181.74	206.40	250.43	224.96	189.15	140.04	109.17	88.89	1812.90	
2010	73.8	64.6	92.9	99.7	138.4	192.8	212	200.4	175.2	122.2	92.7	73.8	1538.50	DATA VERIFIED
2011	62.9	57.57	46.23	110.68	146.11	168.49	215.31	215.96	172.69	115.72	87.09	51.37	1450.12	DATA VERIFIED
2012	83.70	77.64	84.44	51.10	200.82	209.86	201.00	214.67	176.08	160.81	97.18	75.24	1632.54	DATA VERIFIED

CITY OF REEDLEY WWTP
FIVE YEAR TOTAL FLOW MONITORING (MG)
2008-2012

Month	2008	2009	2010	2011	2012
January	73.3126	66.142	62.7344	54.668	45.2297
February	67.948	60.07	58.0575	49.2442	44.4789
March	70.3224	65.653	63.912	55.0786	54.1771
April	66.7026		63.2184	53.4323	53.9877
May	69.6582		65.9322	47.1952	56.9577
June	67.6135	68.5382	66.5788	55.8412	56.2674
July	71.7549	71.7627	65.0326	58.345	59.1484
August	70.765	72.3806	63.566	59.8687	60.8374
September	52.7267	70.7507	60.396	58.3904	58.5237
October	68.6486	71.5036	59.6103	58.0185	57.3291
November	55.2024	66.9095	56.9651	52.1194	53.7851
December	67.0633	63.6336	57.7036	45.7895	53.285
Totals	801.7182	677.3439	743.7069	647.991	654.0072

CITY OF REEDLEY WWTP
FIVE YEAR TOTAL RAINFALL MONITORING (INCHES)
2008-2012

Year	2008	2009	2010	2011	2012
Totals	2.67	11.05	22.1	19.79	11.47

Summary of Demands and Sanitary Flows per Scenario – Alternative II

Assumed water loss in distribution system
10%

General Plan Land Use	Water System					Collection System					
		2020 Scenario		2030 Scenario			2020 Scenario		2030 Scenario		
	Duty Factor (gpd/acre)	Acres	ADD (gpd)	Acres	ADD (gpd)	Return Rate	ADD without distribution system losses (gpd)	DWF (gpd)	ADD without distribution system losses (gpd)	DWF (gpd)	Sanitary Flow Generation Rate (gpd/acre)
Residential											
Suburban Residential	2,110	9.5	20,053	73.9	155,974	60%	18,048	10,835	140,331	84,243	1,140
Low Residential	2,820	1,231.6	3,473,250	2,965.4	8,362,465	60%	3,125,925	1,872,107	7,526,218	4,507,428	1,520
Medium Residential	2,740	40.7	111,427	124.0	339,822	60%	100,284	60,167	305,840	183,554	1,480
High Residential	4,200	202.0	848,503	245.2	1,029,892	60%	763,653	458,596	926,903	556,632	2,270
Commercial and Industrial											
Central Downtown	2,990	40.0	119,696	40.0	119,696	50%	107,726	54,043	107,726	54,043	1,350
Community Commercial	2,530	113.6	287,418	352.5	891,934	50%	258,676	129,509	802,741	401,899	1,140
Neighborhood Commercial	2,840	11.7	33,161	33.0	93,679	50%	29,845	14,946	84,312	42,222	1,280
Service Commercial	2,670	78.1	208,573	129.3	345,284	50%	187,670	93,718	330,755	165,184	1,200
Office	2,090	16.5	34,536	16.5	34,536	50%	31,082	15,533	31,082	15,533	940
Light Industrial	1,650	225.0	371,208	749.9	1,237,378	50%	334,087	166,481	1,113,640	554,945	740
Heavy Industrial	2,850	202.0	575,770	177.2	505,119	50%	518,193	258,591	454,607	226,860	1,280
Other											
Community Buffer	-	-	-	-	-	0%	-	-	-	-	-
Open Space	3,180	184.0	585,196	439.3	1,396,870	0%	526,676	-	1,257,183	-	-
Public/Institutional Facility	1,270	466.2	592,060	666.4	846,307	50%	532,854	265,728	761,576	379,839	570
Remainder of the Study Area	-		-	-	-	0%	-		-		-
System-Wide Total		2,821	7,260,601	6,013	15,358,904			3,400,273		7,162,381	

APPENDIX B

ALTA IRRIGATION DISTRICT CANAL WATER DELIVERIES IN CITY SPHERES OF INFLUENCE

Cheryl Lassotovitch <classotovitch@gmail.com>

FW: City of Reedley SOI 2.xlsx

Fabino, Kevin <Kevin.Fabino@reedley.ca.gov> Tue, Jun 11, 2013 at 3:26 PM
To: "Cheryl Lassotovitch (classotovitch@gmail.com)" <classotovitch@gmail.com>

From: Luis Rios [mailto:]
Sent: Tuesday, June 11, 2013 11:06 AM
To: Fabino, Kevin
Subject: City of reedley SOI 2.xlsx

Kevin.

Attached is a spreadsheet of the information you wanted. Inside you will find a list of Key#, Acres and Page Numbers. If you would like to referrer back to the page number, please contact me to obtain the Page by PDF. The page numbers are too large to be sent in an email so we will have to find another means of delivery.

All Key numbers listed, are active users of water. The acreage of these users are highlighted in Green and blue

If you have any questions feel free to contact me.

[illegible]

3 attachments

City of reedley SOI 2.xlsx
14K

Alta Mapbook Page 033.pdf
2954K

GPU Land Use Map Alternative II.pdf
753K

Key#	Acres	Page #
538	14.33	34
544	14.5	34
543.2	20.1	34
542	39.09	34
534.1	25.5	34
534	28.94	34
533	19.25	34
547.2	18.8	34
547.1	17.54	34
545	18.8	34
546	18.8	34
531	36.32	34
532	36.38	34
548	35.35	34
549	38.5	34
	382.2	

Key#	Acres	Page #
508	77.9	33
509	40	33
510	6.56	33
511	8.84	33
512	3.16	33
515	14.17	33
519.2	7.16	33
521	18.75	33
520	3.5	33
522	3	33
520.1	6	33
524	44.92	33
525	10	33
527	20	33
526	10	33
528	10	33
529	20	33
	303.96	

Key#	Acres	Page #
752	98.93	37
757	39	37
756	38.76	37
759.2	74	37
760	38.25	37
761	38.02	37
	326.96	

Key#	Acres	Page #
554	121.11	35
556	9.1	35
556.1	8.8	35
562.1	6.24	35
570	9.25	35
571	19.25	35
	173.75	

Key#	Acres	Page #
624	9.96	36
630	8.86	36
615	6.24	36
616	9.94	36
617.3	5	36
612	17.16	36
610	19.86	36
611	39.7	36
642	15.64	36
647	17.87	36
654	3.96	36
659	4.96	36
658	4.96	36
	164.11	

Key#	Acres	Page #
753	38.6	37
753.1	19.83	37
754	37.48	37
755.1	33.32	37
	129.23	

Key#	Acres	Page #
765	39.67	38
767	19.64	38
812	34.73	38
768	19.87	38
810	19.01	38
807	13.95	38
799	19.88	38
	166.75	

Key#	Acres	Page #
1190	19	43
1189	17.61	43
	36.61	

Key# are properties that are actively taking water

Acres	Acres
1700.91	1059.2

Key#	Acres	Page #
764	35.86	38
759	19.97	38
762	19.78	38
766	19.88	38
766.2	19.88	38
766.1	19.87	38
766	19.87	38
805	18.64	38
804	19.88	38
800	4.3	38
802	14.91	38
803	16.34	38
803.1	2	38
771	38.29	38
769	20.72	38
775	5	38
787	4.59	38
	299.78	

Key#	Acres	Page #
1187	22.07	43
1187.1	26.53	43
1178	42.52	43
1179	36.62	43
1177.4	5	43
1175	19.61	43
1177.1	4.8	43
1177.2	4.8	43
1177.3	4.8	43
1173	24.13	43
1174	80.15	43
1172	25.74	43
1170	31.22	43
1169	13.03	43
1167	14.94	43
1166.1	32.05	43
	388.01	

Key#	Acres	Page #
1152	43	42
1150	61.95	
1157	46	
1149	24.55	
1156	40	
1159	21.31	
1160	20.12	
1161	17	
1154	34.97	
1155	12.85	
	321.75	

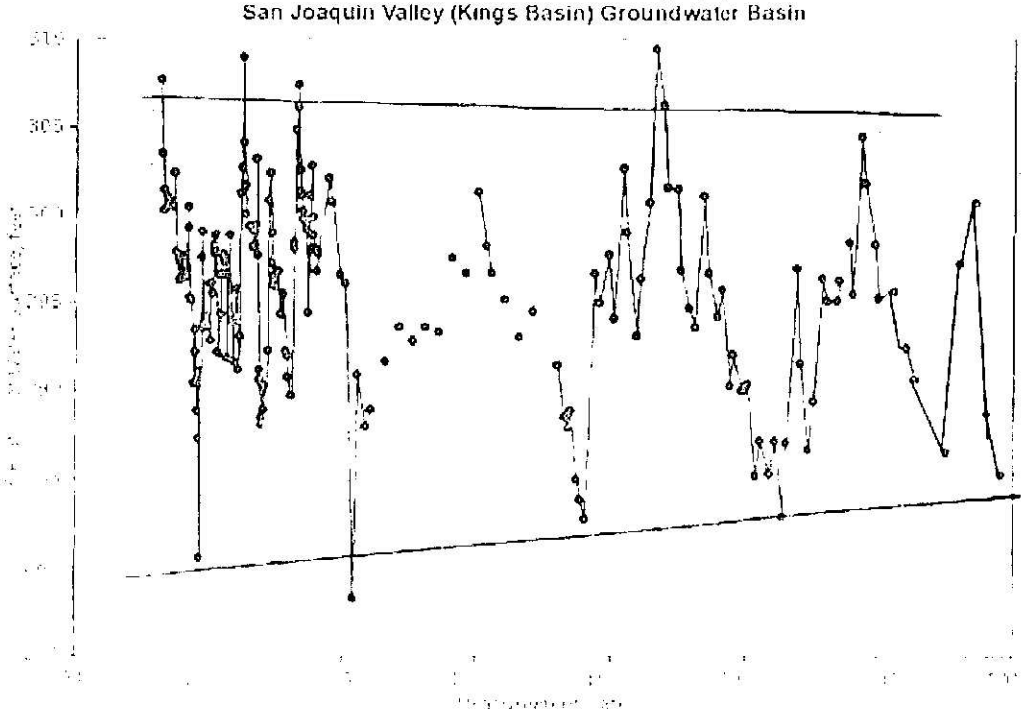
Key#	Acres	Page #
1102	57	41
1118	10	41
	67	

APPENDIX C

LONG-TERM WATER-LEVEL HYDROGRAPHS

Groundwater Level Data for Well 15S23E21Q001M

Your selection returned a total of **197** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.

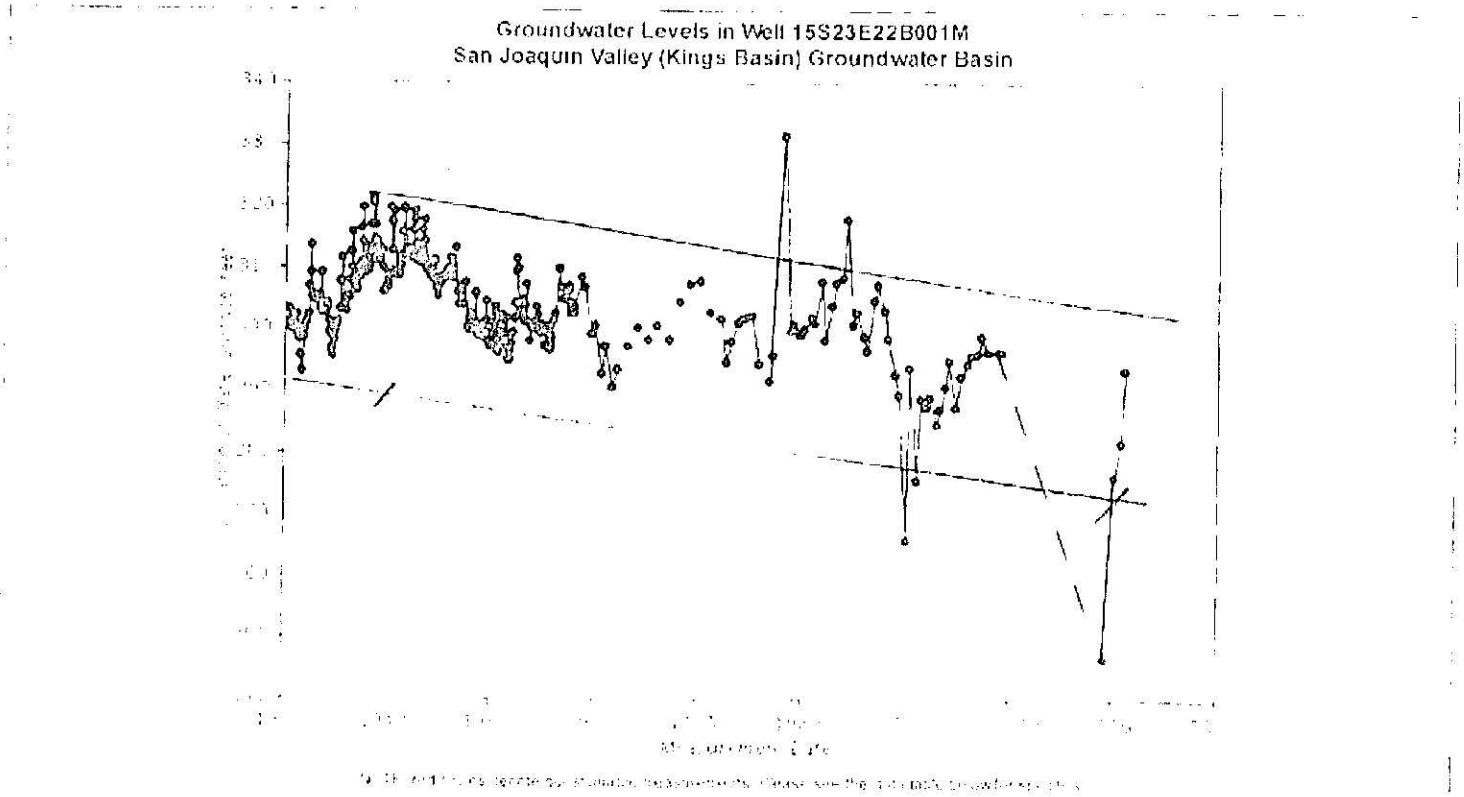


Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
06-01-1946	345.3	345.3	37.6	307.7	37.6			5636	
07-01-1946	345.3	345.3	41.8	303.5	41.8			5636	
08-01-1946	345.3	345.3	43.9	301.4	43.9			5636	
09-01-1946	345.3	345.3	45.1	300.2	45.1			5636	
11-01-1946	345.3	345.3	44.7	300.6	44.7			5636	
12-01-1946	345.3	345.3	44.3	301.0	44.3			5636	
02-01-1947	345.3	345.3	44.6	300.7	44.6			5636	
04-01-1947	345.3	345.3	44.9	300.4	44.9			5636	
06-01-1947	345.3	345.3	42.9	302.4	42.9			5636	
08-01-1947	345.3	345.3	47.4	297.9	47.4			5636	
10-01-1947	345.3	345.3	49.0	296.3	49.0			5636	
11-01-1947	345.3	345.3	47.9	297.4	47.9			5636	
12-01-1947	345.3	345.3	47.6	297.7	47.6			5636	
01-01-1948	345.3	345.3	47.6	297.7	47.6			5636	
02-01-1948	345.3	345.3	48.5	296.8	48.5			5636	
03-01-1948	345.3	345.3	48.9	296.4	48.9			5636	
04-01-1948	345.3	345.3	48.7	296.6	48.7			5636	
05-01-1948	345.3	345.3	48.7	296.6	48.7			5636	
06-01-1948	345.3	345.3	44.9	300.4	44.9			5636	
07-01-1948	345.3	345.3	46.0	299.3	46.0			5636	
09-01-1948	345.3	345.3	50.0	295.3	50.0			5636	
10-01-1948	345.3	345.3	50.2	295.1	50.2			5636	
11-01-1948	345.3	345.3	54.9	290.4	54.9			5636	
12-01-1948	345.3	345.3	53.1	292.2	53.1			5636	

Groundwater Level Data for Well 15S23E22B001M

Your selection returned a total of **350** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.



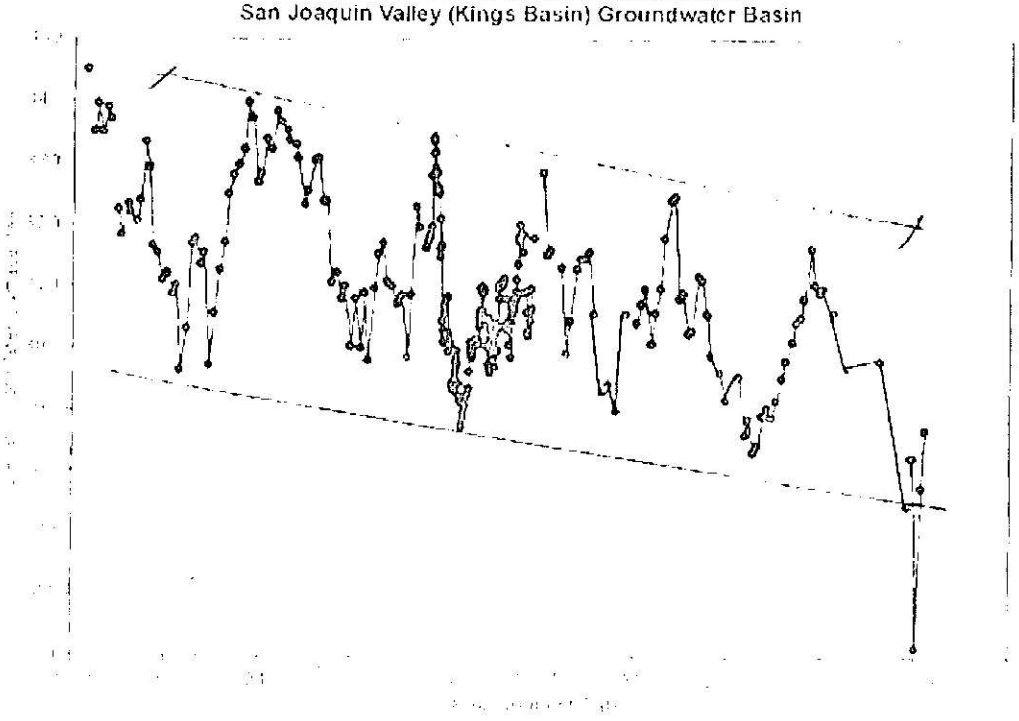
Continuous time-series data are available for this

Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
06-02-1930	354.0	354.0	53.1	300.9	53.1			5637	
07-03-1930	354.0	354.0	50.9	303.1	50.9			5637	
08-01-1930	354.0	354.0	53.2	300.8	53.2			5637	
09-05-1930	354.0	354.0	53.6	300.4	53.6			5637	
10-01-1930	354.0	354.0	54.3	299.7	54.3			5637	
11-04-1930	354.0	354.0	52.5	301.5	52.5			5637	
12-02-1930	354.0	354.0	51.7	302.3	51.7			5637	
01-07-1931	354.0	354.0	51.6	302.4	51.6			5637	
02-02-1931	354.0	354.0	51.7	302.3	51.7			5637	
03-04-1931	354.0	354.0	51.6	302.4	51.6			5637	
04-03-1931	354.0	354.0	53.4	300.6	53.4			5637	
05-04-1931	354.0	354.0	55.5	298.5	55.5			5637	
06-06-1931	354.0	354.0	54.7	299.3	54.7			5637	
08-05-1931	354.0	354.0	58.3	295.7	58.3			5637	
10-05-1931	354.0	354.0	60.8	293.2	60.8			5637	
12-02-1931	354.0	354.0	55.7	298.3	55.7			5637	
02-01-1932	354.0	354.0	54.3	299.7	54.3			5637	
03-03-1932	354.0	354.0	53.1	300.9	53.1			5637	
04-02-1932	354.0	354.0	52.8	301.2	52.8			5637	
05-02-1932	354.0	354.0	51.6	302.4	51.6			5637	
06-01-1932	354.0	354.0	47.2	306.8	47.2			5637	
07-01-1932	354.0	354.0	40.5	313.5	40.5			5637	
08-01-1932	354.0	354.0	44.9	309.1	44.9			5637	

Groundwater Level Data for Well 15S23E23A002M

Your selection returned a total of **278** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. **Press the *New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.



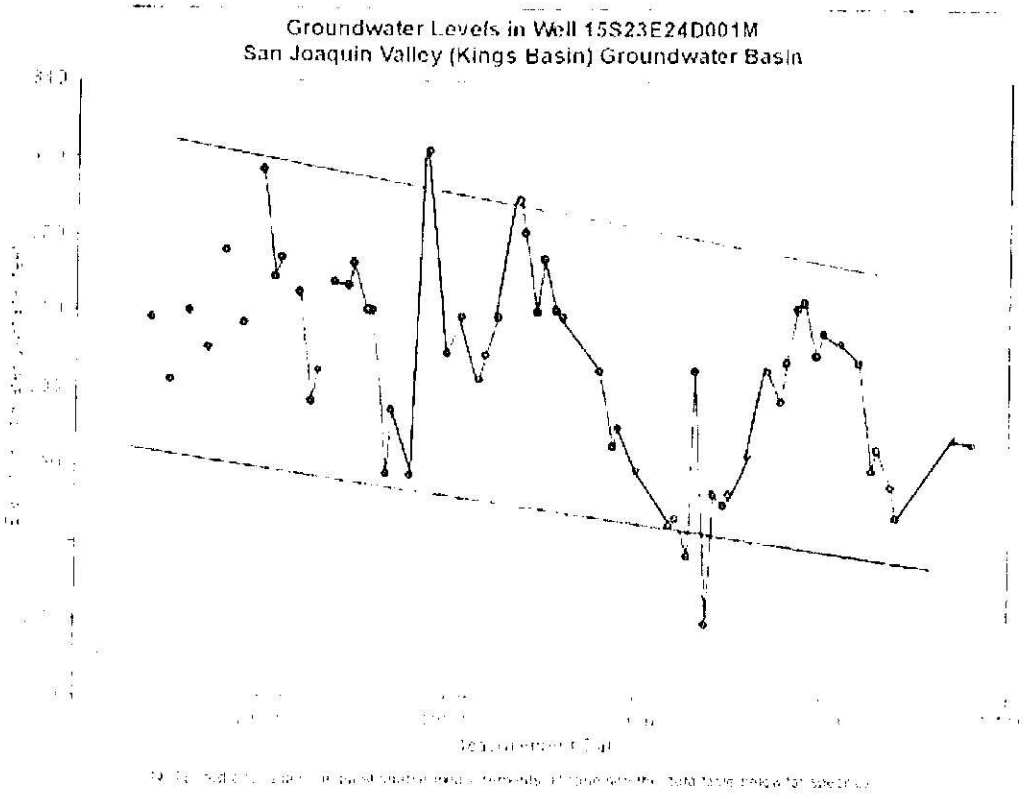
Continuous time series data are available for this ...

Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
07-14-1921	358.0	358.0	13.0	345.0	13.0			5637	
05-04-1922	358.0	358.0	23.0	335.0	23.0			5637	
09-16-1922	358.0	358.0	18.5	339.5	18.5			5637	
03-17-1923	358.0	358.0	23.0	335.0	23.0			5637	
10-19-1923	358.0	358.0	19.0	339.0	19.0			5637	
02-23-1924	358.0	358.0	21.0	337.0	21.0			5637	
11-27-1924	358.0	358.0	35.5	322.5	35.5			5637	
02-28-1925	358.0	358.0	39.8	318.2	39.8			5637	
11-25-1925	358.0	358.0	34.8	323.2	34.8			5637	
04-01-1926	358.0	358.0	36.2	321.8	36.2			5637	
11-10-1926	358.0	358.0	37.5	320.5	37.5			5637	
03-23-1927	358.0	358.0	34.1	323.9	34.1			5637	
09-26-1927	358.0	358.0	24.6	333.4	24.6			5637	
02-08-1928	358.0	358.0	28.8	329.2	28.8			5637	
08-21-1928	358.0	358.0	41.5	316.5	41.5			5637	
02-22-1929	358.0	358.0	42.7	315.3	42.7			5637	
09-20-1929	358.0	358.0	47.0	311.0	47.0			5637	
03-21-1930	358.0	358.0	46.0	312.0	46.0			5637	
09-05-1930	358.0	358.0	49.4	308.6	49.4			5637	
02-02-1931	358.0	358.0	47.8	310.2	47.8			5637	
07-31-1931	358.0	358.0	61.7	296.3	61.7			5637	
03-03-1932	358.0	358.0	54.9	303.1	54.9			5637	
10-03-1932	358.0	358.0	41.2	316.8	41.2			5637	

Groundwater Level Data for Well 15S23E24D001M

Your selection returned a total of **74** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.

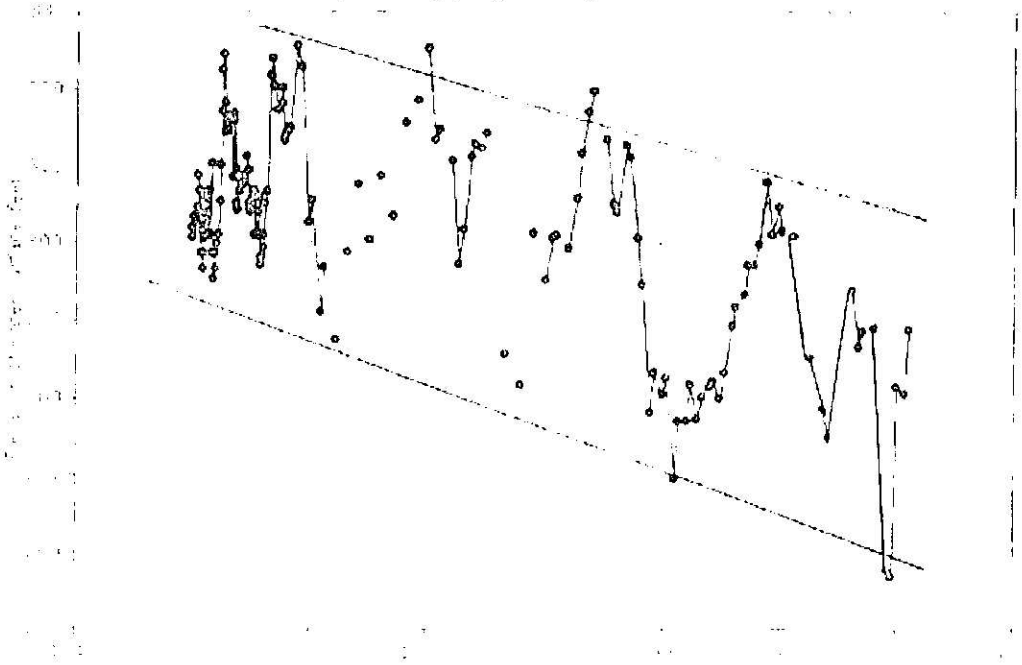


Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
02-06-1964	357.5	357.0	48.4	309.1	47.9			5001	
10-01-1964	357.5	357.0						5001	
02-04-1965	357.5	357.0	56.3	301.2	55.8			5001	
02-01-1966	357.5	357.0	47.5	310.0	47.0			5001	
02-08-1967	357.5	357.0	52.1	305.4	51.6			5001	
02-05-1968	357.5	357.0	39.6	317.9	39.1			5001	
02-06-1969	357.5	357.0	48.9	308.6	48.4			5001	
01-30-1970	357.5	357.0	29.0	328.5	28.5			5001	
09-25-1970	357.5	357.0	43.0	314.5	42.5			5001	
02-02-1971	357.5	357.0	40.4	317.1	39.9			5001	
09-29-1971	357.5	357.0						5001	
02-01-1972	357.5	357.0	45.0	312.5	44.5			5001	
09-29-1972	357.5	357.0	59.1	298.4	58.6			5001	
02-06-1973	357.5	357.0	55.0	302.5	54.5			5001	
01-28-1974	357.5	357.0	43.5	314.0	43.0			5001	
09-30-1974	357.5	357.0	44.1	313.4	43.6			5001	
01-20-1975	357.5	357.0	41.1	316.4	40.6			5001	
09-30-1975	357.5	357.0	47.2	310.3	46.7			5001	
01-20-1976	357.5	357.0	47.1	310.4	46.6			5001	
10-04-1976	357.5	357.0	68.4	289.1	67.9			5001	
01-20-1977	357.5	357.0	60.1	297.4	59.6			5001	
10-05-1977	357.5	357.0						5001	
01-18-1978	357.5	357.0	68.6	288.9	68.1			5001	
01-15-1979	357.5	357.0	26.5	331.0	26.0			5001	

Groundwater Level Data for Well 15S23E24N001M

Your selection returned a total of 160 records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.



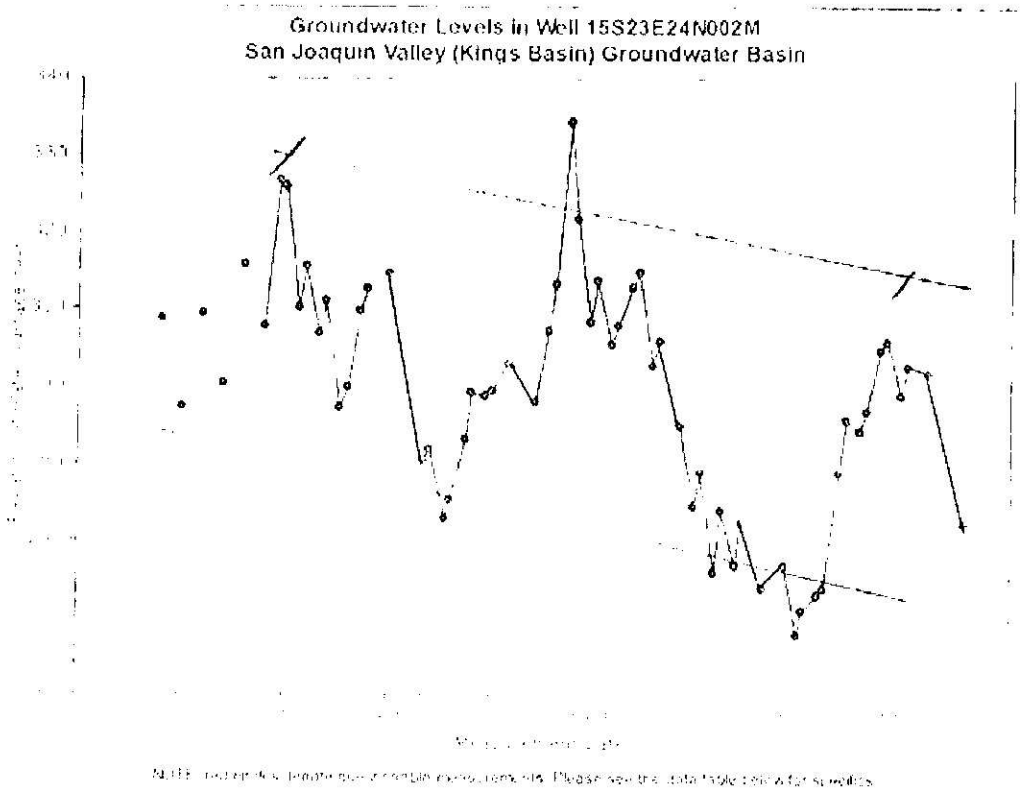
Continuous time series data are available for this

Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
12-01-1949	349.1	349.1	48.4	300.7	48.4			5637	
01-03-1950	349.1	349.1	47.1	302.0	47.1			5637	
03-01-1950	349.1	349.1	45.7	303.4	45.7			5637	
04-05-1950	349.1	349.1	47.2	301.9	47.2			5637	
05-02-1950	349.1	349.1	44.4	304.7	44.4			5637	
06-02-1950	349.1	349.1	40.2	308.9	40.2			5637	
07-07-1950	349.1	349.1	42.2	306.9	42.2			5637	
08-01-1950	349.1	349.1	46.8	302.3	46.8			5637	
09-01-1950	349.1	349.1	50.4	298.7	50.4			5637	
10-24-1950	349.1	349.1	52.3	296.8	52.3			5637	
12-05-1950	349.1	349.1	48.3	300.8	48.3			5637	
01-03-1951	349.1	349.1	45.1	304.0	45.1			5637	
02-01-1951	349.1	349.1	43.3	305.5	43.3			5637	
03-01-1951	349.1	349.1	42.4	306.7	42.4			5637	
03-28-1951	349.1	349.1	43.0	306.1	43.0			5637	
05-02-1951	349.1	349.1	48.0	301.1	48.0			5637	
06-01-1951	349.1	349.1	42.4	306.7	42.4			5637	
06-29-1951	349.1	349.1	38.7	310.4	38.7			5637	
08-01-1951	349.1	349.1	50.3	298.8	50.3			5637	
09-01-1951	349.1	349.1	53.8	295.3	53.8			5637	
10-01-1951	349.1	349.1	53.8	295.3	53.8			5637	
10-26-1951	349.1	349.1	52.3	296.8	52.3			5637	
12-05-1951	349.1	349.1	50.3	298.8	50.3			5637	

Groundwater Level Data for Well 15S23E24N002M

Your selection returned a total of **71** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.

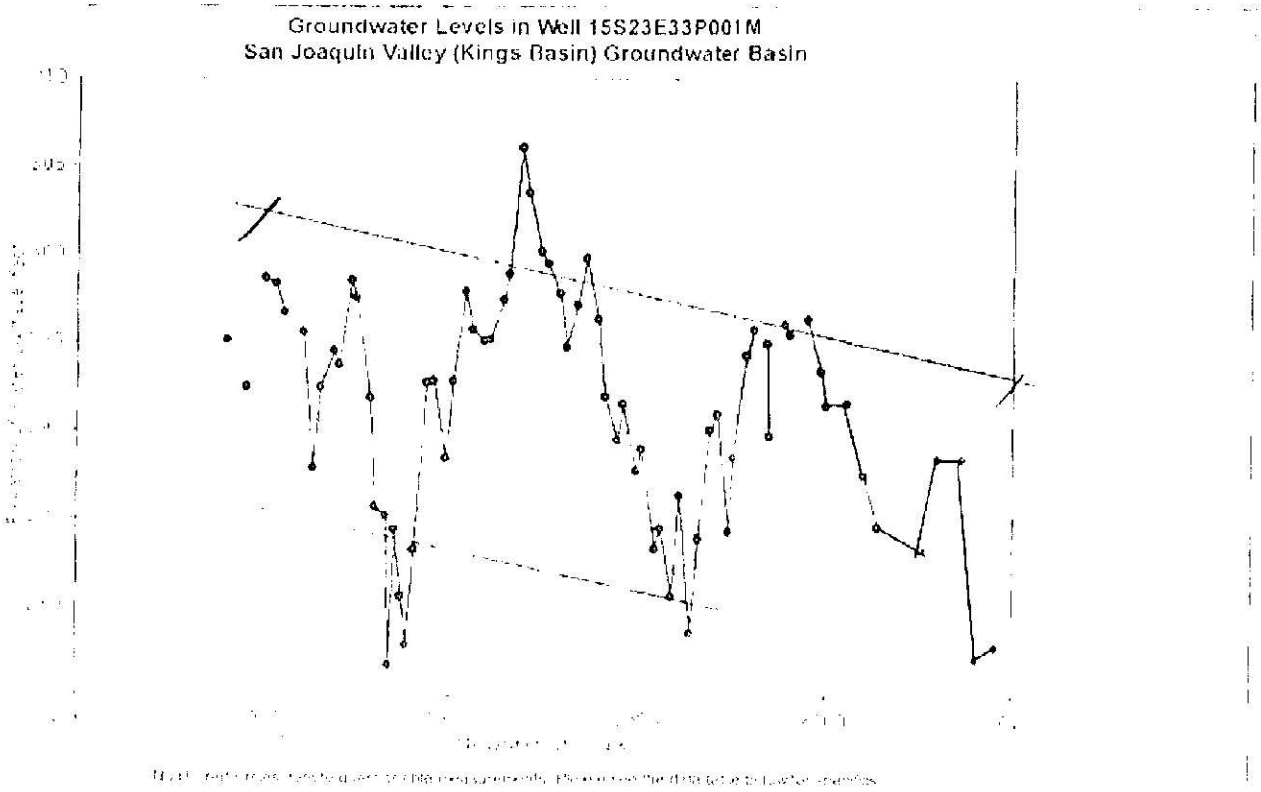


Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
02-06-1964	352.0	351.0	43.2	308.8	42.2			5001	
10-01-1964	352.0	351.0						5001	
02-04-1965	352.0	351.0	54.6	297.4	53.6			5001	
02-01-1966	352.0	351.0	42.7	309.3	41.7			5001	
02-09-1967	352.0	351.0	51.6	300.4	50.6			5001	
02-05-1968	352.0	351.0	36.0	316.0	35.0			5001	
02-06-1969	352.0	351.0	44.2	307.8	43.2			5001	
09-29-1969	352.0	351.0	25.0	327.0	24.0			5001	
01-30-1970	352.0	351.0	26.0	326.0	25.0			5001	
09-25-1970	352.0	351.0	41.8	310.2	40.8			5001	
02-02-1971	352.0	351.0	36.3	315.7	35.3			5001	
09-29-1971	352.0	351.0	45.0	307.0	44.0			5001	
02-01-1972	352.0	351.0	40.8	311.2	39.8			5001	
09-29-1972	352.0	351.0	54.7	297.3	53.7			5001	
02-06-1973	352.0	351.0	52.1	299.9	51.1			5001	
10-02-1973	352.0	351.0	42.2	309.8	41.2			5001	
01-28-1974	352.0	351.0	39.2	312.8	38.2			5001	
09-30-1974	352.0	351.0						5001	
01-20-1975	352.0	351.0	37.1	314.9	36.1			5001	
09-30-1975	352.0	351.0						5001	
01-20-1976	352.0	351.0						5001	
10-04-1976	352.0	351.0	61.4	290.6	60.4			5001	
01-20-1977	352.0	351.0	60.1	291.9	59.1			5001	
10-05-1977	352.0	351.0	69.0	283.0	68.0			5001	

Groundwater Level Data for Well 15S23E33P001M

Your selection returned a total of **71** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format

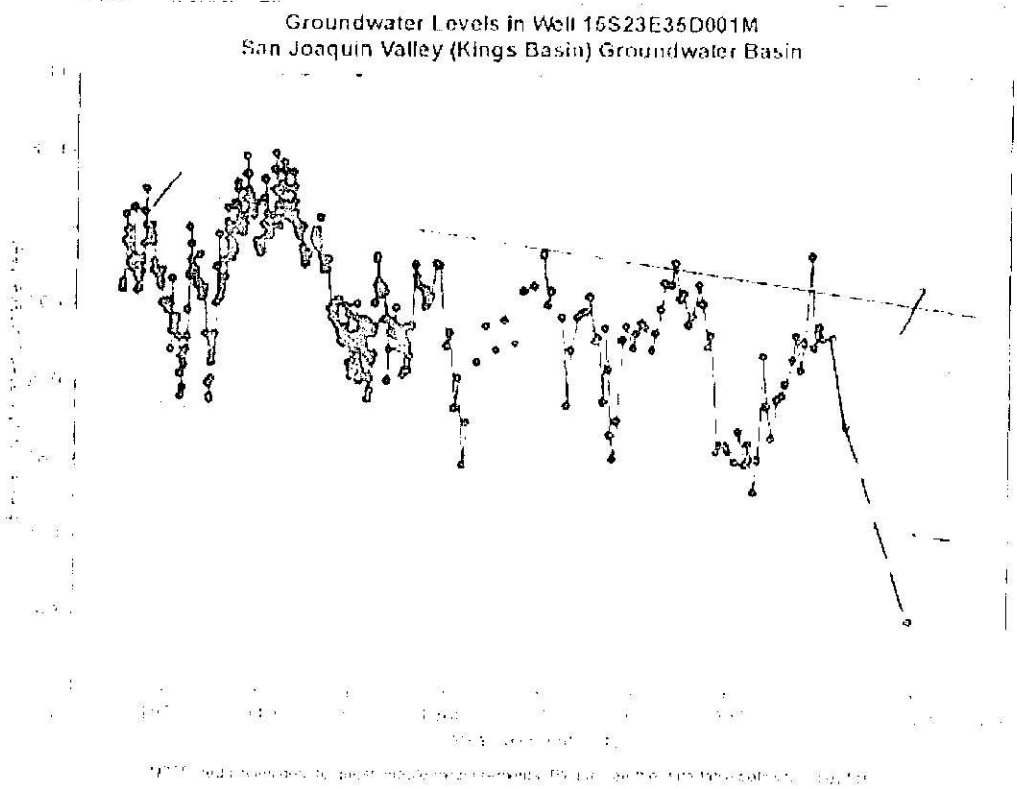


Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
03-01-1968	327.2	330.2	32.1	295.1	35.1			5636	
03-01-1969	327.2	330.2	34.7	292.5	37.7			5636	
03-01-1970	327.2	330.2	28.5	298.7	31.5			5636	
10-02-1970	327.2	330.2	28.8	298.4	31.8			5636	
03-01-1971	327.2	330.2	30.5	296.7	33.5			5636	
03-01-1972	327.2	330.2	31.6	295.6	34.6			5636	
10-06-1972	327.2	330.2	39.3	287.9	42.3			5636	
03-01-1973	327.2	330.2	34.7	292.5	37.7			5636	
11-01-1973	327.2	330.2	32.6	294.6	35.6			5636	
03-01-1974	327.2	330.2	33.4	293.8	36.4			5636	
10-01-1974	327.2	330.2	28.6	298.6	31.6			5601	
02-04-1975	327.2	330.2	29.6	297.6	32.6			5636	
10-01-1975	327.2	330.2	36.3	291.9	39.3			5636	
02-09-1976	327.2	330.2	41.5	285.7	44.9			5636	
08-10-1976	327.2	330.2	42.0	285.2	45.0			5636	
10-04-1976	327.2	330.2	50.5	276.7	53.5			5636	
02-02-1977	327.2	330.2	42.7	284.5	45.7			5636	
06-01-1977	327.2	330.2	46.6	280.6	49.6			5636	
10-01-1977	327.2	330.2	49.3	277.9	52.3			5636	
01-30-1978	327.2	330.2	43.9	283.3	46.9			5636	
10-04-1978	327.2	330.2	34.4	292.8	37.4			5636	
02-01-1979	327.2	330.2	34.3	292.9	37.3			5636	
10-01-1979	327.2	330.2	38.7	288.5	41.7			5636	
02-06-1980	327.2	330.2	34.3	292.9	37.3			5636	

Groundwater Level Data for Well 15S23E35D001M

Your selection returned a total of 412 records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format



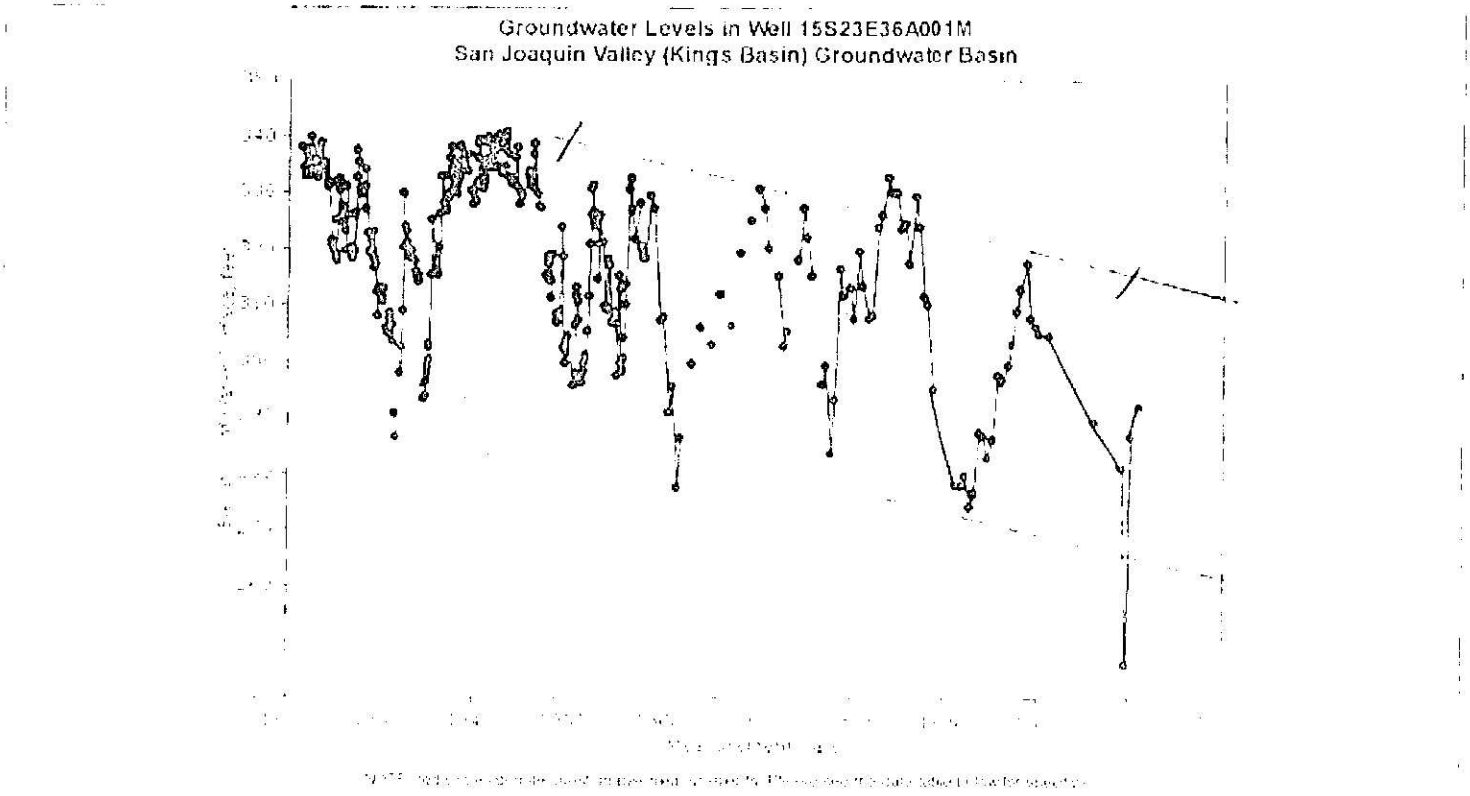
Continuous time-series data are available for this well

Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
01-02-1925	340.0	340.0	37.8	302.2	37.8			5637	
02-26-1925	340.0	340.0	37.5	302.5	37.5			5637	
03-26-1925	340.0	340.0	37.8	302.2	37.8			5637	
05-01-1925	340.0	340.0	37.0	303.0	37.0			5637	
06-04-1925	340.0	340.0	31.7	308.3	31.7			5637	
06-30-1925	340.0	340.0	28.3	311.7	28.3			5637	
07-15-1925	340.0	340.0	30.3	309.7	30.3			5637	
08-18-1925	340.0	340.0	32.1	307.9	32.1			5637	
09-18-1925	340.0	340.0	32.3	307.7	32.3			5637	
10-23-1925	340.0	340.0	30.0	310.0	30.0			5637	
11-25-1925	340.0	340.0	31.9	308.1	31.9			5637	
01-28-1926	340.0	340.0	34.3	305.7	34.3			5637	
02-27-1926	340.0	340.0	34.5	305.5	34.5			5637	
04-01-1926	340.0	340.0	35.1	304.9	35.1			5637	
04-27-1926	340.0	340.0	33.6	306.4	33.6			5637	
06-03-1926	340.0	340.0	27.3	312.7	27.3			5637	
06-25-1926	340.0	340.0						5637	
09-07-1926	340.0	340.0	38.1	301.9	38.1			5637	
10-08-1926	340.0	340.0	36.3	303.7	36.3			5637	
11-10-1926	340.0	340.0	36.8	303.2	36.8			5637	
12-07-1926	340.0	340.0	37.9	302.1	37.9			5637	
01-20-1927	340.0	340.0	35.7	304.3	35.7			5637	
02-16-1927	340.0	340.0	35.6	304.4	35.6			5637	

Groundwater Level Data for Well 15S23E36A001M

Your selection returned a total of 420 records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.



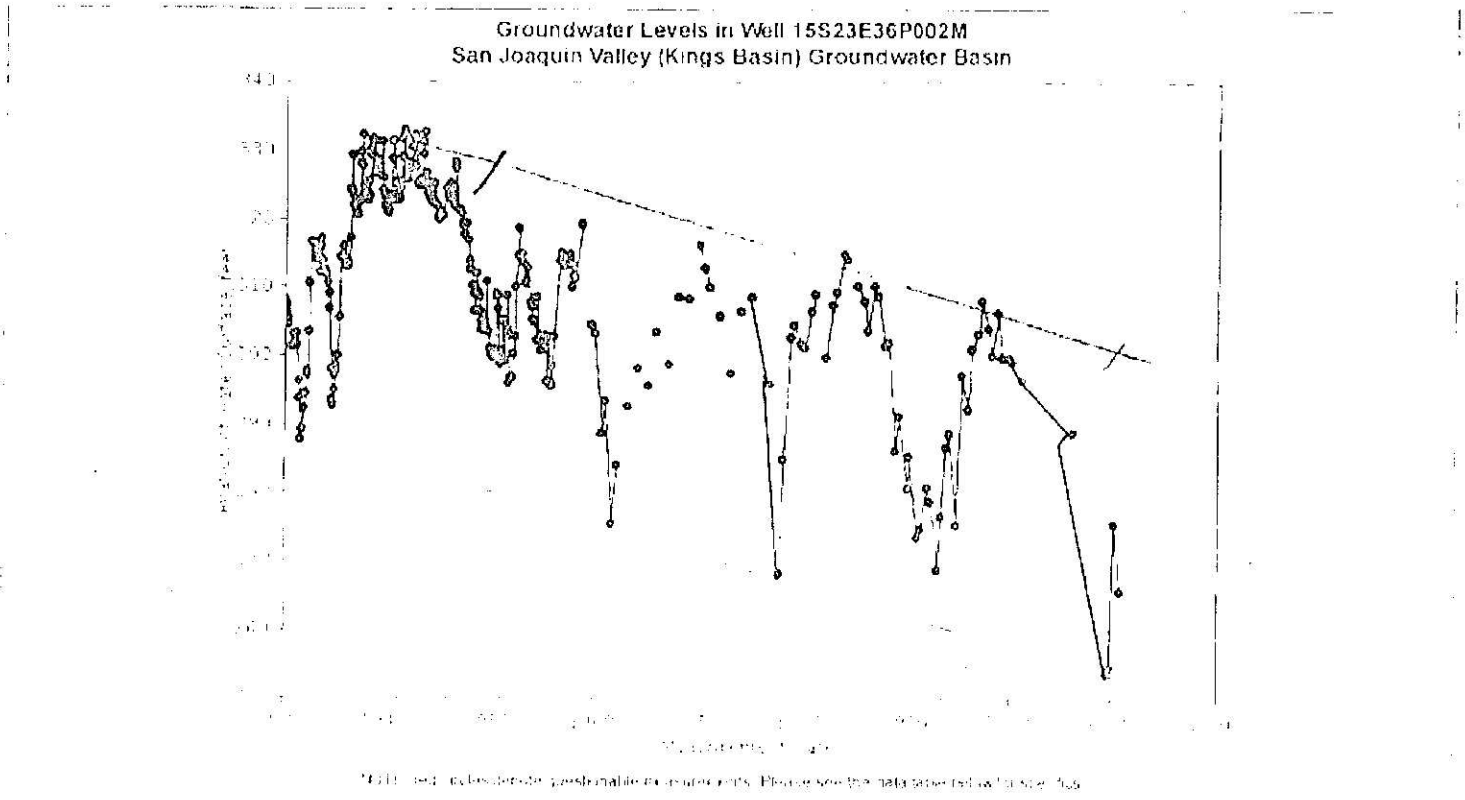
Continuous time-series data are available for this

Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
07-13-1921	346.0	346.0	8.0	338.0	8.0			5637	
09-15-1921	346.0	346.0	11.5	334.5	11.5			5637	
11-10-1921	346.0	346.0	13.1	332.9	13.1			5637	
01-23-1922	346.0	346.0	13.0	333.0	13.0			5637	
03-22-1922	346.0	346.0	12.6	333.4	12.6			5637	
05-04-1922	346.0	346.0	9.8	336.2	9.8			5637	
05-26-1922	346.0	346.0	8.3	337.7	8.3			5637	
07-06-1922	346.0	346.0	5.9	340.1	5.9			5637	
08-16-1922	346.0	346.0	11.8	334.2	11.8			5637	
01-15-1923	346.0	346.0	12.3	333.7	12.3			5637	
03-16-1923	346.0	346.0	13.4	332.6	13.4			5637	
05-09-1923	346.0	346.0	9.5	336.5	9.5			5637	
06-07-1923	346.0	346.0	8.7	337.3	8.7			5637	
07-07-1923	346.0	346.0	7.2	338.8	7.2			5637	
09-04-1923	346.0	346.0	11.2	334.8	11.2			5637	
10-16-1923	346.0	346.0	10.8	335.2	10.8			5637	
12-16-1923	346.0	346.0	10.7	335.3	10.7			5637	
02-22-1924	346.0	346.0	12.3	333.7	12.3			5637	
03-28-1924	346.0	346.0	15.0	331.0	15.0			5637	
04-24-1924	346.0	346.0	14.0	332.0	14.0			5637	
08-25-1924	346.0	346.0	24.4	321.6	24.4			5637	
10-11-1924	346.0	346.0	25.5	320.5	25.5			5637	
11-28-1924	346.0	346.0	26.5	319.5	26.5			5637	

Groundwater Level Data for Well 15S23E36P002M

Your selection returned a total of **340** records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.



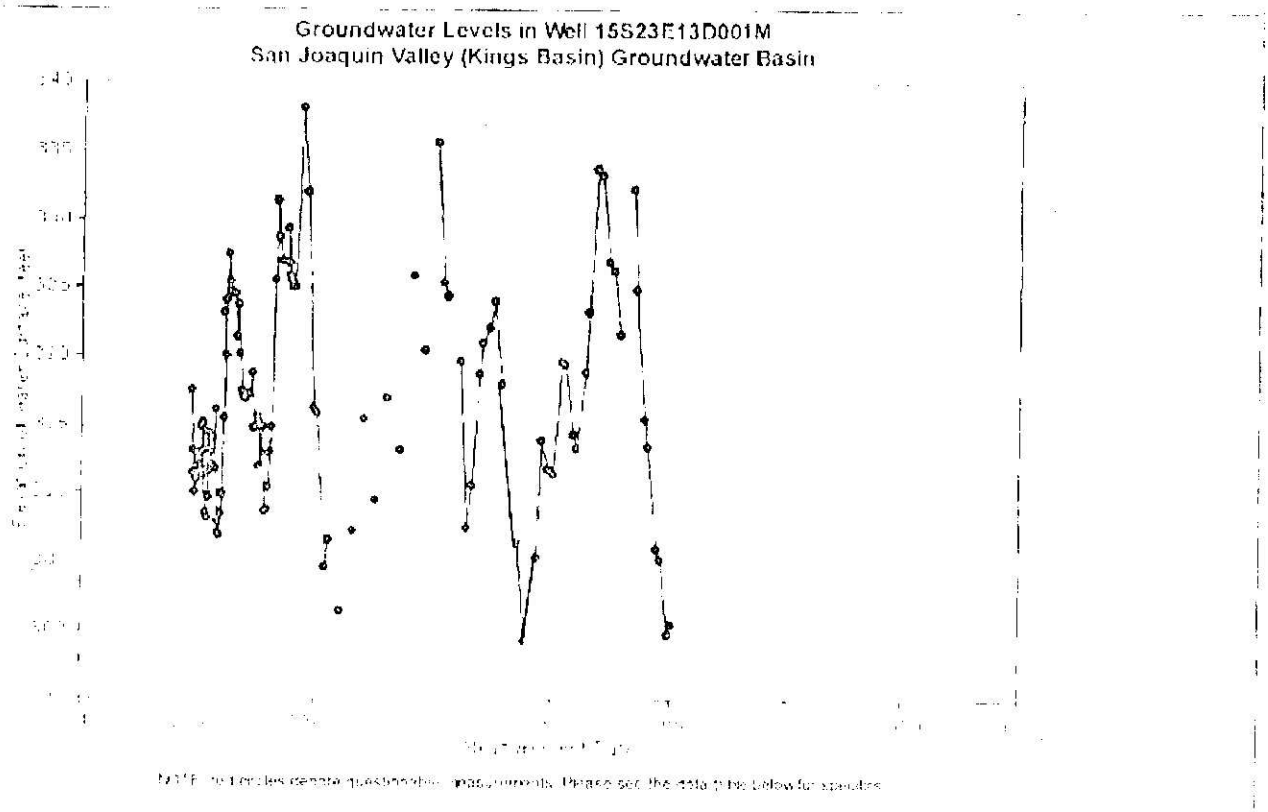
Continuous time-series data are available for this

Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
02-21-1930	335.0	335.0	27.0	308.0	27.0			5637	
03-21-1930	335.0	335.0	27.6	307.4	27.6			5637	
04-12-1930	335.0	335.0	29.0	306.0	29.0			5637	
05-06-1930	335.0	335.0	30.3	304.7	30.3			5637	
06-02-1930	335.0	335.0	29.4	305.6	29.4			5637	
07-03-1930	335.0	335.0						5637	
08-01-1930	335.0	335.0						5637	
09-05-1930	335.0	335.0						5637	
10-01-1930	335.0	335.0	33.7	301.3	33.7			5637	
11-04-1930	335.0	335.0	33.4	301.6	33.4			5637	
12-02-1930	335.0	335.0	31.9	303.1	31.9			5637	
01-07-1931	335.0	335.0	33.2	301.8	33.2			5637	
02-02-1931	335.0	335.0	32.9	302.1	32.9			5637	
03-04-1931	335.0	335.0	31.7	303.3	31.7			5637	
04-03-1931	335.0	335.0	33.5	301.5	33.5			5637	
05-04-1931	335.0	335.0	38.7	296.3	38.7			5637	
06-06-1931	335.0	335.0	41.3	293.7	41.3			5637	
08-05-1931	335.0	335.0	47.3	287.7	47.3			5637	
10-05-1931	335.0	335.0	45.7	289.3	45.7			5637	
12-03-1931	335.0	335.0	42.7	292.3	42.7			5637	
02-03-1932	335.0	335.0	40.4	294.6	40.4			5637	
03-04-1932	335.0	335.0	37.2	297.8	37.2			5637	
04-02-1932	335.0	335.0	37.7	297.3	37.7			5637	

Groundwater Level Data for Well 15S23E13D001M

Your selection returned a total of 135 records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Gnd System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text delimited format.

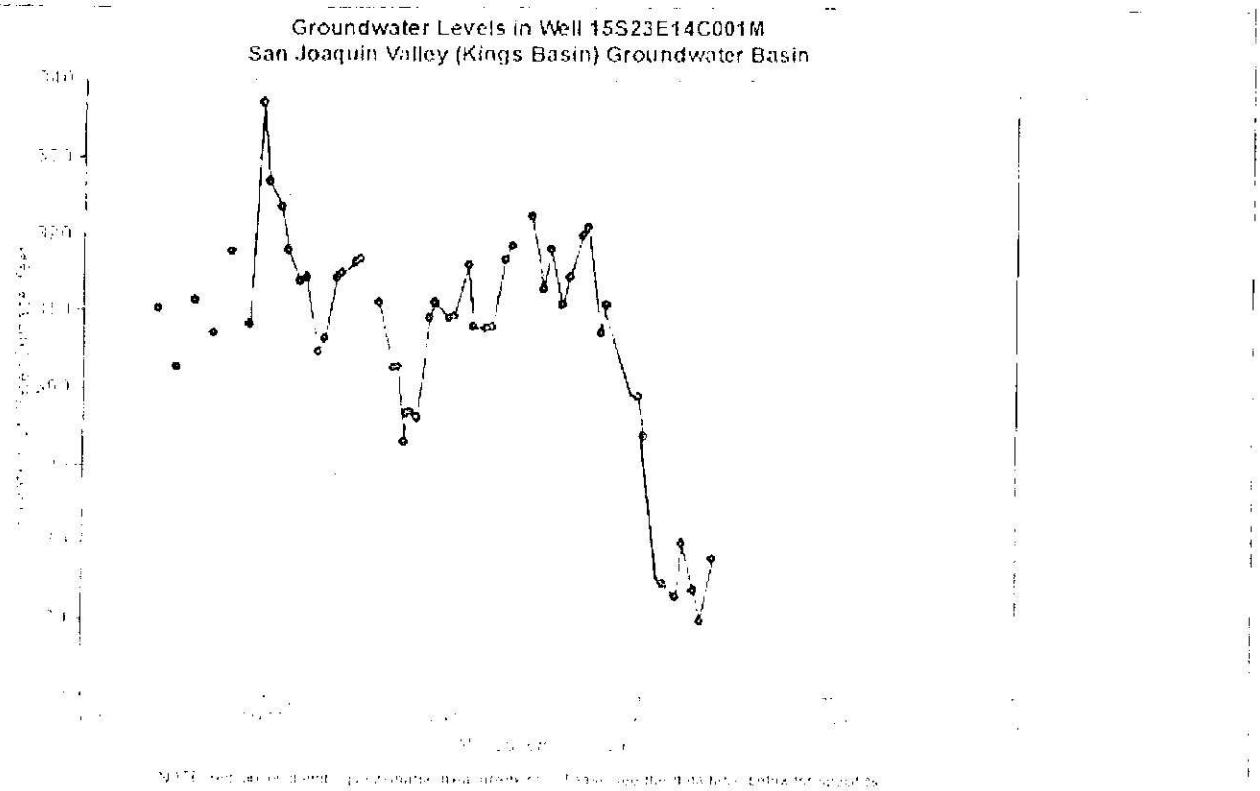


Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
07-06-1949	367.0	367.0	49.5	317.5	49.5			5637	
08-03-1949	367.0	367.0	53.9	313.1	53.9			5637	
09-02-1949	367.0	367.0	55.6	311.4	55.6			5637	
10-03-1949	367.0	367.0	57.0	310.0	57.0			5637	
11-02-1949	367.0	367.0	56.0	311.0	56.0			5637	
02-02-1950	367.0	367.0	54.7	312.3	54.7			5637	
03-02-1950	367.0	367.0	54.3	312.7	54.3			5637	
04-05-1950	367.0	367.0	55.4	311.6	55.4			5637	
05-02-1950	367.0	367.0	54.1	312.9	54.1			5637	
06-02-1950	367.0	367.0	52.2	314.8	52.2			5637	
07-07-1950	367.0	367.0	51.8	315.2	51.8			5637	
08-01-1950	367.0	367.0	55.7	311.3	55.7			5637	
09-02-1950	367.0	367.0	58.4	308.6	58.4			5637	
10-24-1950	367.0	367.0	58.8	308.2	58.8			5637	
12-05-1950	367.0	367.0	57.3	309.7	57.3			5637	
01-03-1951	367.0	367.0	55.4	311.6	55.4			5637	
02-01-1951	367.0	367.0	53.8	313.2	53.8			5637	
03-02-1951	367.0	367.0	52.7	314.3	52.7			5637	
03-28-1951	367.0	367.0	53.1	313.9	53.1			5637	
05-02-1951	367.0	367.0	55.1	311.9	55.1			5637	
06-01-1951	367.0	367.0	53.0	314.0	53.0			5637	
06-29-1951	367.0	367.0	50.9	316.1	50.9			5637	
08-01-1951	367.0	367.0	55.2	311.8	55.2			5637	
09-03-1951	367.0	367.0	59.1	307.9	59.1			5637	

Groundwater Level Data for Well 15S23E14C001M

Your selection returned a total of 80 records. Wells in the Department of Water Resources monitoring network are identified by a State Well Number, which is based on the Public Land Grid System. The table headings and records contain several codes and abbreviations. Press the ***New Search*** or ***Nearby Search*** buttons or at the bottom of the page to begin a new data retrieval. Data for this well can also be downloaded in MS Excel or text formatted format.



Groundwater Level Readings

Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	Comment
02-06-1964	367.0	366.0	56.8	310.2	55.8			5001	
09-30-1964	367.0	366.0						5001	
02-04-1965	367.0	366.0	64.2	302.8	63.2			5001	
02-01-1966	367.0	366.0	55.5	311.5	54.5			5001	
02-08-1967	367.0	366.0	59.8	307.2	58.8			5001	
02-05-1968	367.0	366.0	49.3	317.7	48.3			5001	
02-06-1969	367.0	366.0	58.7	308.3	57.7			5001	
09-29-1969	367.0	366.0	29.7	337.3	26.7			5001	
01-30-1970	367.0	366.0	40.0	327.0	39.0			5001	
09-25-1970	367.0	366.0	43.5	323.5	42.5			5001	
02-02-1971	367.0	366.0	49.1	317.9	48.1			5001	
09-29-1971	367.0	366.0	53.2	313.8	52.2			5001	
02-01-1972	367.0	366.0	52.7	314.3	51.7			5001	
10-03-1972	367.0	366.0	62.2	304.8	61.2			5001	
02-06-1973	367.0	366.0	60.6	306.4	59.6			5001	
10-02-1973	367.0	366.0	52.6	314.4	51.6			5001	
01-28-1974	367.0	366.0	52.0	315.0	51.0			5001	
09-30-1974	367.0	366.0	50.7	316.3	49.7			5001	
01-20-1975	367.0	366.0	50.1	316.9	49.1			5001	
09-30-1975	367.0	366.0						5001	
01-20-1976	367.0	366.0	55.6	311.0	54.6			5001	
10-04-1976	367.0	366.0	64.3	302.7	63.3			5001	
01-20-1977	367.0	366.0	64.0	303.0	63.0			5001	
05-31-1977	367.0	366.0	74.0	293.0	73.0			5001	