

BEFORE
THE BOARD OF SUPERVISORS
OF THE COUNTY OF MADERA
STATE OF CALIFORNIA

ORDINANCE NO. 627

AN ORDINANCE ADOPTING AN INFRASTRUCTURE MASTER PLAN
FOR THE GATEWAY VILLAGE AREA PLAN AND GATEWAY VILLAGE
SPECIFIC PLAN

The Board of Supervisors of the County of Madera, State of California, ordains
as follows:

RECITALS

1. The Gateway Village Infrastructure Plan is an integral component of the Gateway Village Area Plan and Gateway Village Specific Plan, the goals of which are:
 - 1.01 To create a self-sustaining and environmentally sensitive community where energy use and waste will be reduced, air quality improved and economic efficiency increased.
 - 1.02 To achieve a compact development that creates a sense of place and preserves land for permanent open space; encourages walking, the use of bicycles and public transit; provides affordable housing; is safe; and allows for cost-effective community services.
 - 1.03 To provide a mix of uses including residential, commercial, office, industrial and recreation, to ensure social cohesion and a balance between jobs and workers.
2. The Gateway Village Infrastructure Master Plan sets forth preliminary design standards for infrastructure within the Gateway Village Area Plan boundaries and establishes design standards for future development.
3. The Infrastructure Master Plan provides the conceptual framework for developing and phasing infrastructure for the Gateway Village project and requires that the design policies and standards contained in the Infrastructure Master Plan be a guide for the Root Creek Water District, its successors and the County for conditioning land use entitlement applications.
4. Prior to adopting the Infrastructure Master Plan, the Board of Supervisors certified an environmental impact report for the Gateway Village project of which the Infrastructure Master Plan is a part (SCH 2005091071).
5. The Infrastructure Master Plan implements and is consistent with the County's General Plan and Gateway Village Area Plan.

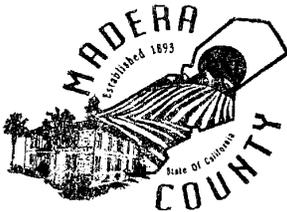
NOW THEREFORE, the Board of Supervisors of the County of Madera State of California adopts the Gateway Village Infrastructure Master Plan dated September 2006, a copy of which is attached to this ordinance as Exhibit "A."

This ordinance shall take effect thirty (30) days after its adoption.

* * * * *

The foregoing Ordinance was adopted this 11th day of SEPTEMBER, 2007, by the following vote.

Supervisor Bigelow voted: yes
Supervisor Moss voted: yes
Supervisor Dominici voted: yes
Supervisor Rodriguez voted: yes
Supervisor Wheeler voted: yes



[Signature]

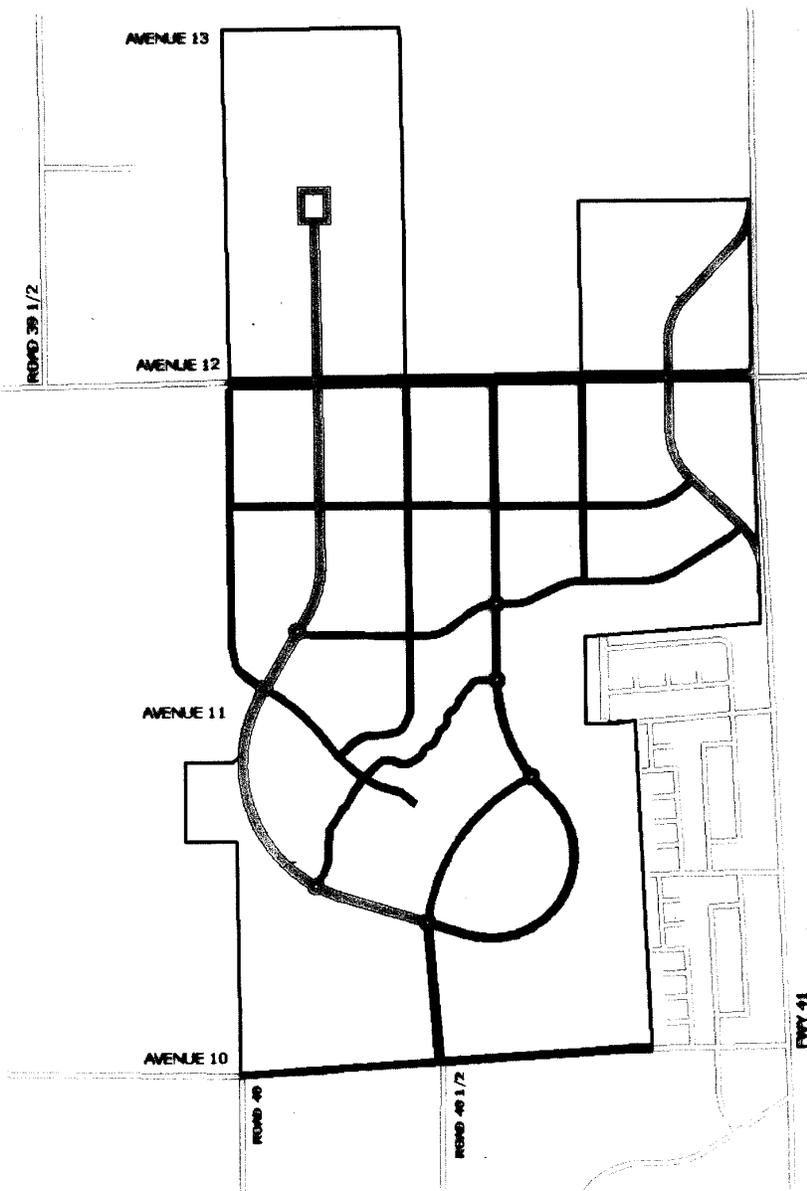
Chairman, Board of Supervisors

ATTEST:

[Signature]
Clerk, Board of Supervisors

Approved as to Legal form:
COUNTY COUNSEL

By [Signature]



Gateway Village

Infrastructure Master Plan

Castle & Cooke

September, 2006



286 West Cromwell Avenue
Fresno, California 93711-6162
Phone (559) 449-2700
Fax (559) 449-2715

Table of Contents

I. EXECUTIVE SUMMARY	1
II. INTRODUCTION	1
A. Project Location	1
B. Infrastructure Master Plan Concept and Objectives	3
C. Authority	5
D. Environmental Impact Reduction	5
III. ROOT CREEK WATER DISTRICT	6
A. General	6
B. Phasing of District Responsibilities	9
C. SB 610 and SB 221 Requirements	12
D. Environmental Impact Reduction	13
IV. OTHER SPECIAL DISTRICT FORMATION	13
A. General	13
B. CSA 22	13
C. New Community Services District	14
D. Sierra Foothills Public Utilities	14
E. Other Options	15
F. Public Safety	15
V. WATER SUPPLY, TREATMENT AND DISTRIBUTION	15
A. General	15
B. Municipal Water Supply	15
C. Water Quality	16
D. Groundwater Basin	17
E. Existing Water Supply Requirements	18
F. Expected Water Supply Requirements	18
G. Project Water Conservation Features	18
H. Water Supply System Redundancy	20
I. Water Conservation	21
J. Water Production and Distribution Standards	22
K. Water Storage	22
L. Water Distribution Requirements	24
M. Groundwater Treatment Facilities	25
N. Surface Water Treatment Facility	26
O. Phasing of Water System Improvements	26

P.	Additional Environmentally-Beneficial Project Features	26
VI.	GROUNDWATER RECHARGE	27
A.	General	27
B.	Direct Groundwater Recharge	27
C.	In-Lieu Groundwater Recharge.....	28
D.	Back-Up Water Supply	29
VII.	WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL	30
A.	General	30
B.	Collection Facilities	30
C.	Treatment Plant Phasing.....	33
D.	Treatment Processes.....	34
E.	Effluent Disposal and Reclamation	34
F.	Biosolids Disposal.....	35
G.	Environmentally-Beneficial Project Features	36
VIII.	GRADING, DRAINAGE, STORM WATER DETENTION AND DISPOSAL	36
A.	Introduction	36
B.	Grading Design	36
C.	Existing Drainages.....	37
D.	Storm Drainage Design	40
E.	National Pollution Discharge Elimination System (NPDES).....	41
F.	Madera Ranchos South and Root Creek Permit Requirements	42
G.	Flood Routing Drainage Concept.....	43
H.	Additional Root Creek Detention Facilities	44
I.	Interim Facilities.....	44
J.	Facility Design Criteria	44
K.	Storm Drainage Best Management Practices	45
L.	Streambed Restoration	45
M.	Environmentally Beneficial Project Features	46
IX.	PROJECT WATER BALANCE	47
A.	General	47
B.	Consumptive Water Use.....	47

C.	Groundwater I charge	47
D.	Effluent Reclamation	47
E.	Summary	47
X.	STREET AND CIRCULATION SYSTEM	48
A.	General	48
B.	Existing Road System	49
C.	Layout and Designation of Proposed Streets	50
D.	Roundabouts.....	52
E.	Proposed Street Sections	53
F.	Bikeways and Walking Paths.....	54
G.	Transit Center.....	54
H.	Park-and-Ride.....	55
I.	Landscaping.....	55
J.	Phasing of Roadway Construction.....	55
K.	Environmentally-Beneficial Project Features.....	58
XI.	IMPROVEMENTS TO CALTRANS-OWNED FACILITIES	58
XII.	OTHER UTILITIES	59
A.	Electric Power and Natural Gas.....	60
B.	Telephone/ Internet.....	60
C.	Intranet.....	60
D.	Cable TV	60
E.	Solid Waste Disposal.....	60
XIII.	FIRE PROTECTION	61
A.	General	61
B.	Fire Station 9	61
C.	Fire Station 19	61
D.	ISO Rating of the Fire Response System	61
E.	Proposed Facilities	62
F.	Development Triggers	64
XIV.	PUBLIC SAFETY	64
A.	General	64
B.	Proposed Facilities	64
C.	Development Triggers	64
D.	Environmental Compliance.....	64

XV. APPENDICES

- A. Project Water Demand**
- B Surface Water Treatment**
- C Groundwater Recharge Investigation**
- D In-Lieu Recharge Program**
- E. Groundwater Supply Capacity**
- F. Groundwater Quality Study**
- G. Wastewater Generation and Treatment**
- H. Wastewater Water Balance**
- I. Stormwater Hydrology & Hydraulics**
- K. Water Balance Spreadsheet**
- L. Traffic Impact Study**
- M. Cost Estimates**
- N. Contributors**

LIST OF FIGURES

Figure 1: Project Location	2
Figure 2: Overall Study Area	4
Figure 3: Root Creek Water District Boundary	7
Figure 4: Existing Agricultural Land Uses	9
Figure 5: Proposed Backbone Water System	17
Figure 6: Proposed Backbone Wastewater Facilities.....	29
Figure 7: Proposed Backbone Storm Drainage Facilities	35
Figure 8: Proposed Backbone Circulation Plan.....	46
Figure 9: Fire Response Times	57

LIST OF TABLES

Table 1 Average Daily Demand (ADD) for Water By Land Use (City of Clovis Information and General Plan Designations).....	20
Table 2 Projected Average Daily Demand for Water By Residence Type and Lot Size	20
Table 3 Permitted Utilization of Available Wells	21
Table 4 Minimum Required Fire Flow by Land Use	23
Table 5 Wastewater Treatment Plant Phasing	34
Table 6 Schedule for Construction of Improvements to Internal Road System.....	56
Table 7 Schedule for Construction of Improvements to County Road System.....	57
Table 8 Caltrans Schedule of State Route 41 Improvements.....	59

I. EXECUTIVE SUMMARY

This Infrastructure Master Plan report (IMP) sets forth the master plan for infrastructure improvements to support the Gateway Village development in Madera County, to a level of detail sufficient to evaluate individual development proposals within the project area as they are brought forward. It describes each major infrastructure system and the design parameters required, and presents a schematic layout of all infrastructure facilities.

The development itself is described in the Gateway Village Area Plan, a general-plan-level document describing proposed project land uses and character. Additional project details, including proposed zoning, zoning regulations, design guidelines and development standards are set forth in the Gateway Village Specific Plan, which implements the Area Plan and provides the legislative foundation for the zoning and land use regulations necessary to implement the vision of the Area Plan.

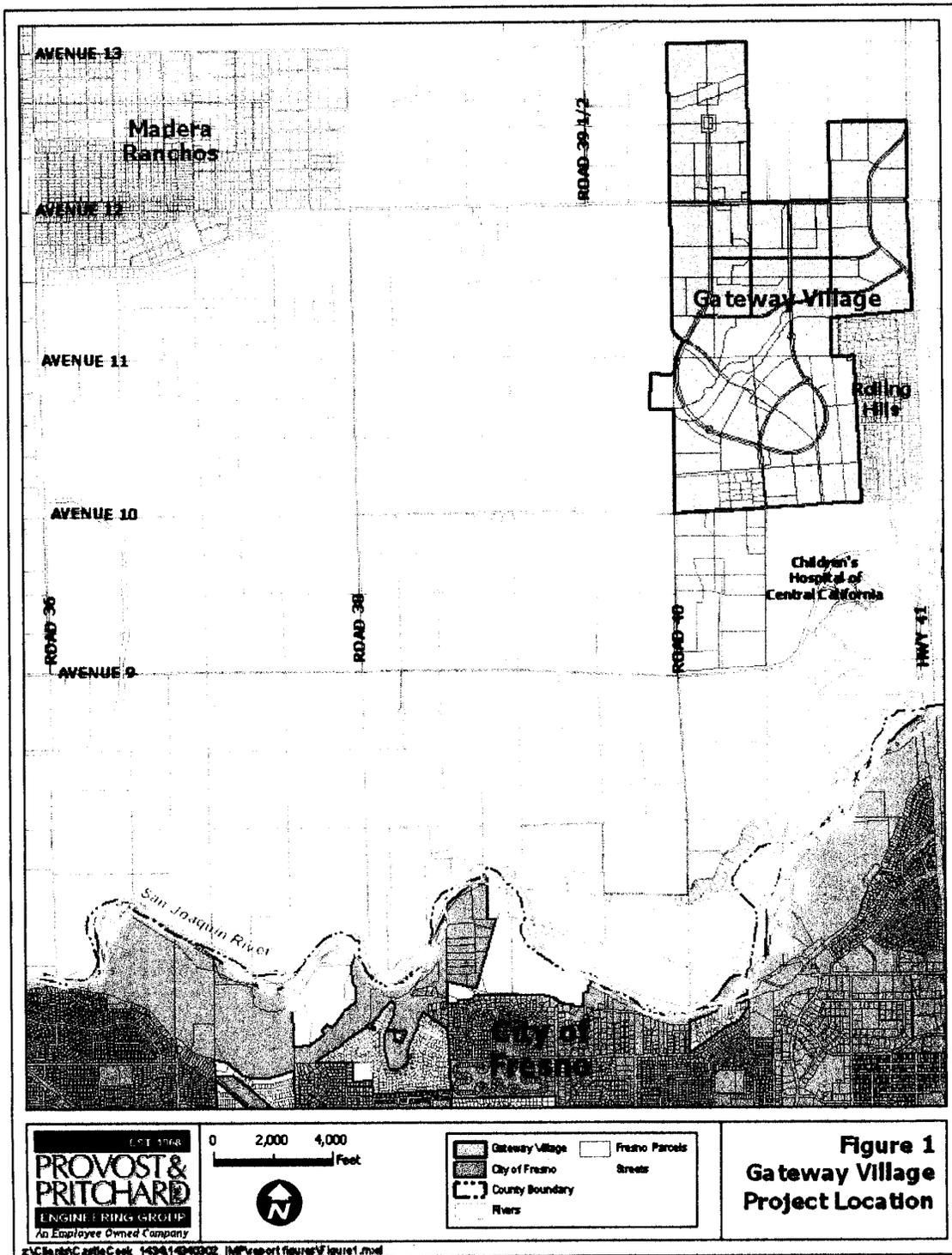
This Infrastructure Master Plan does for hard infrastructure what the Specific Plan does for zoning and land use. It sets forth preliminary designs for all the infrastructure within the Plan area, and sets design standards to be followed by future development, some of which vary from currently-adopted Madera County Standards. It does not contain complete design details for all necessary infrastructure, and is not to be treated as a construction document. Rather, the IMP is intended to serve as a conceptual framework; as an integral part of the Gateway Village Specific Plan. It is a coordinated plan for developing and phasing infrastructure for the project, and a guide to Root Creek Water District, its successors, and the County for conditioning land use entitlement applications. Future entitlement conditions shall conform to the design policies and standards set forth in the IMP.

The IMP is intended to be a living, evolving document, which may be amended from time to time as development plans are refined, and as estimated utility demands become more precisely quantified. Procedures for major and minor amendments are set forth within. The quantities, sizes, and capacities discussed in this report are conservative and have been estimated from the best available information, but are subject to revision as the project's detailed design evolves.

II. INTRODUCTION

A. Project Location

The Gateway Village plan area covers approximately 2,062 acres. Located in southeast Madera County, the site is generally bordered on the east by State Route 41 and the community of Rolling Hills, on the north by Avenues 12 and



12-1/2, on the south by Avenue 10 and on the west by Road 40. The project area is shown in **Figure 1**.

The site is approximately equidistant from the city of Madera and mid-town Fresno. Immediately south of the project area lies Children's Hospital of Central California and its surrounding medical offices. Four miles west on Avenue 12 is the community of Madera Ranchos.

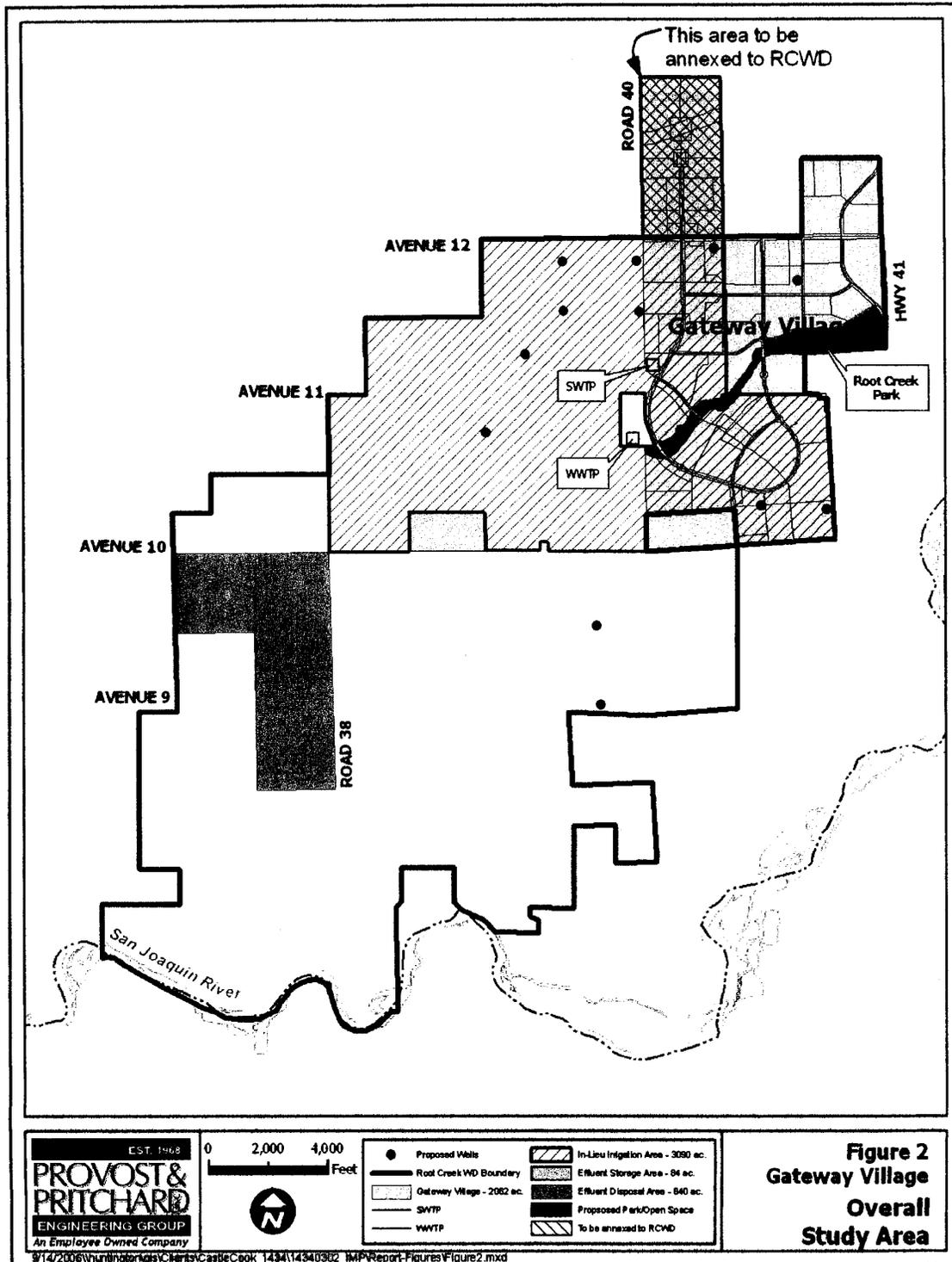
The site is generally flat, with large areas of gently rolling topography, and is roughly bisected by the Root Creek drainage, an ephemeral stream. No perennial streams flow through the property; however, other seasonal and ephemeral drainages tributary to Root Creek are visible on the topography map.

Certain infrastructure improvements related to Gateway Village will be constructed on lands outside of the Village boundary. These include improvements to State Route 41, domestic water wells, wastewater effluent storage and reclamation areas, direct groundwater recharge facilities, and an in-lieu groundwater recharge system. The overall study area is shown in **Figure 2**.

B. Infrastructure Master Plan Concept and Objectives

This Infrastructure Master Plan is intended to provide information about Gateway Village and set standards for future infrastructure improvements, thereby accomplishing several objectives.

- First, the IMP will provide information to those involved in the environmental review of the development, sufficient to assess the potential environmental impacts of the project and its various components.
- Second, the design standards within the IMP are intended to act as potential mitigation measures, so that any potential environmental impacts identified in the project EIR will be found to be mitigated to a level less than significant by the project's design.
- Third, the IMP and its design standards, together with the Gateway Village Area Plan and Gateway Village Specific Plan, will provide a framework for the County to use in its review of individual development proposals within the Specific Plan area, allowing approval of Tentative Maps and site developments within the various project phases and construction of required infrastructure in an efficient and cost-effective manner, while protecting the public health and safety.
- Fourth, the detail of the improvements set forth in the IMP will give the developer firm assurance regarding the work which will be required with each phase of the development, and will reduce uncertainty in planning future maps, site developments and phases.



To accomplish these objectives, this document analyses each infrastructure system required for the project, including potable water, wastewater treatment and disposal, storm drainage, streets and circulation, dry utilities, fire protection and public safety. Using industry-standard estimating techniques together with local area experience, demands for each utility are presented, standards for design and construction are set forth, and schematic designs for each utility system are included.

Each infrastructure system is planned for construction in phases along with the community itself, so that the project will not be burdened with construction of improvements not needed until later. Demand triggers, based upon population, constructed units or other measurable criteria, are included to allow objective evaluation of specific development proposals as they are brought forward.

C. Authority

Design criteria for each utility are included in this IMP, and are intended to govern the design of all development within the project. The Specific Plan incorporates further design standards for roadways, landscaping, street lights, street furniture and other visible improvements, assuring that the development will have a consistent visual appearance throughout what is planned to be a number of phases developed over many years.

Design criteria and standards set forth in this IMP and the Specific Plan supercede similar criteria and standards contained in the Madera County Standard Specifications, for all construction within the Gateway Village Specific Plan area.

D. Environmental Impact Reduction

To reduce the impacts of project-related construction upon the surrounding area, the following policies shall govern all work on infrastructure facilities and other construction activities in Gateway Village:

- Hours of construction shall be limited to between 7:00 a.m. and 6:00 p.m. on weekdays, and from 8:00 a.m. to 5:00 p.m. on weekends. These hours shall apply to all construction activities, including backbone infrastructure, in-tract improvements, and building trades.
- Construction equipment noise shall be limited by muffling and shielding intakes and exhaust on construction equipment in accordance with manufacturer's specification, and by shrouding or shielding impact tools. The developer and the jurisdictional agency (Madera County, Root Creek Water District and/or a future Special District) shall have on-going responsibility to implement these provisions.

- Construction staging areas shall be located as far from noise-sensitive uses as possible. Construction staging areas shall be proposed by the contractor for each of the various contracts that may be let over the course of the project. The location of the staging area will be subject to the approval of the developer and the County Planning department.
- Prior to all construction, the developer shall have prepared geotechnical engineering studies to determine the potential of the site for seismically induced liquefaction and settlement. The geotechnical engineer shall make appropriate recommendations to mitigate such settlement to acceptable levels, and all such recommendations shall be incorporated into subsequent construction drawings and specifications as appropriate.

III. ROOT CREEK WATER DISTRICT

A. General

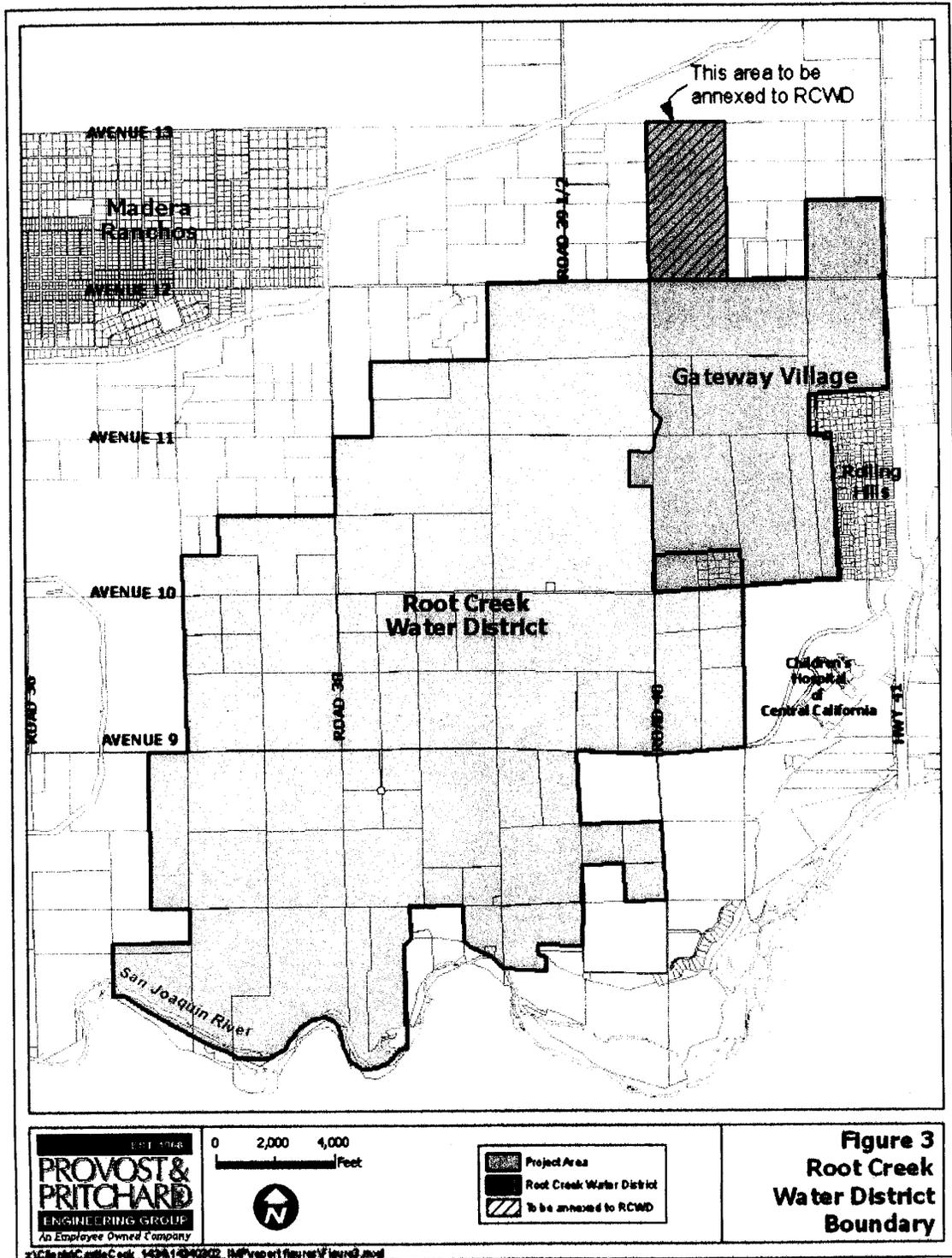
Nearly the entire Gateway Village lies within Root Creek Water District, a California Water District formed in 1996, which will be the potable water purveyor and will provide wastewater collection and treatment services for the project. The District boundary is shown on **Figure 3**. (Those portions of the Village lying outside the current RCWD boundaries will be annexed into the District after approval of development entitlements.) Virtually all lands within RCWD are now in agricultural uses.

RCWD does not currently have the facilities required to produce or distribute potable water or collect and treat wastewater or storm drainage. However, it has the authority under State law to assume those responsibilities and to construct or acquire the necessary infrastructure. The District has indicated its willingness to provide water, wastewater and storm drainage service to Gateway Village.

In order to make the transition from agricultural water supplier to urban utility, RCWD will first develop sources of groundwater for domestic use by constructing wells both within the project boundaries and on adjacent lands within RCWD, in areas where hydrogeology studies indicate the most favorable groundwater conditions. These generally lie in the northwest area of the project, southeast of Road 40 and Avenue 12, and outside the project boundaries to the south and west. See **Appendix E**. Water storage, pumping and transmission facilities will be designed and constructed by the developer as part of the project, and will be dedicated to the District for its ownership, operation and maintenance.

At the same time, the District will construct (or have the project developer construct) wastewater collection, treatment and disposal facilities as detailed below. Storm drainage collection, treatment and disposal facilities will be an

integral part of each project neighborhood, and are discussed in more detail in subsequent sections.



Additional capital facilities will be constructed by the project developer as development proceeds. Financing mechanisms may include private capital, commercial loans, assessment district proceedings, or Mello-Roos special district financing. Final decisions about financing methodology will be made at a later time.

The majority of the project area is now in cultivated, irrigated, agriculture. Of the project's 2,062 acres, roughly 1,900 are planted in citrus, pistachio, and olive orchards. The balance of the land is a combination of existing commercial and industrial uses and the Root Creek channel. See **Figure 4**.

Root Creek Water District will be responsible for providing water and sewer service to other developing properties within RCWD, and certain facilities within Gateway Village may need to be resized to accommodate that growth. Where those provisions appear necessary, they are noted herein. Final determination of the sizes of those facilities, as well as cost share allocations, would be subject to the size of the other proposed development.

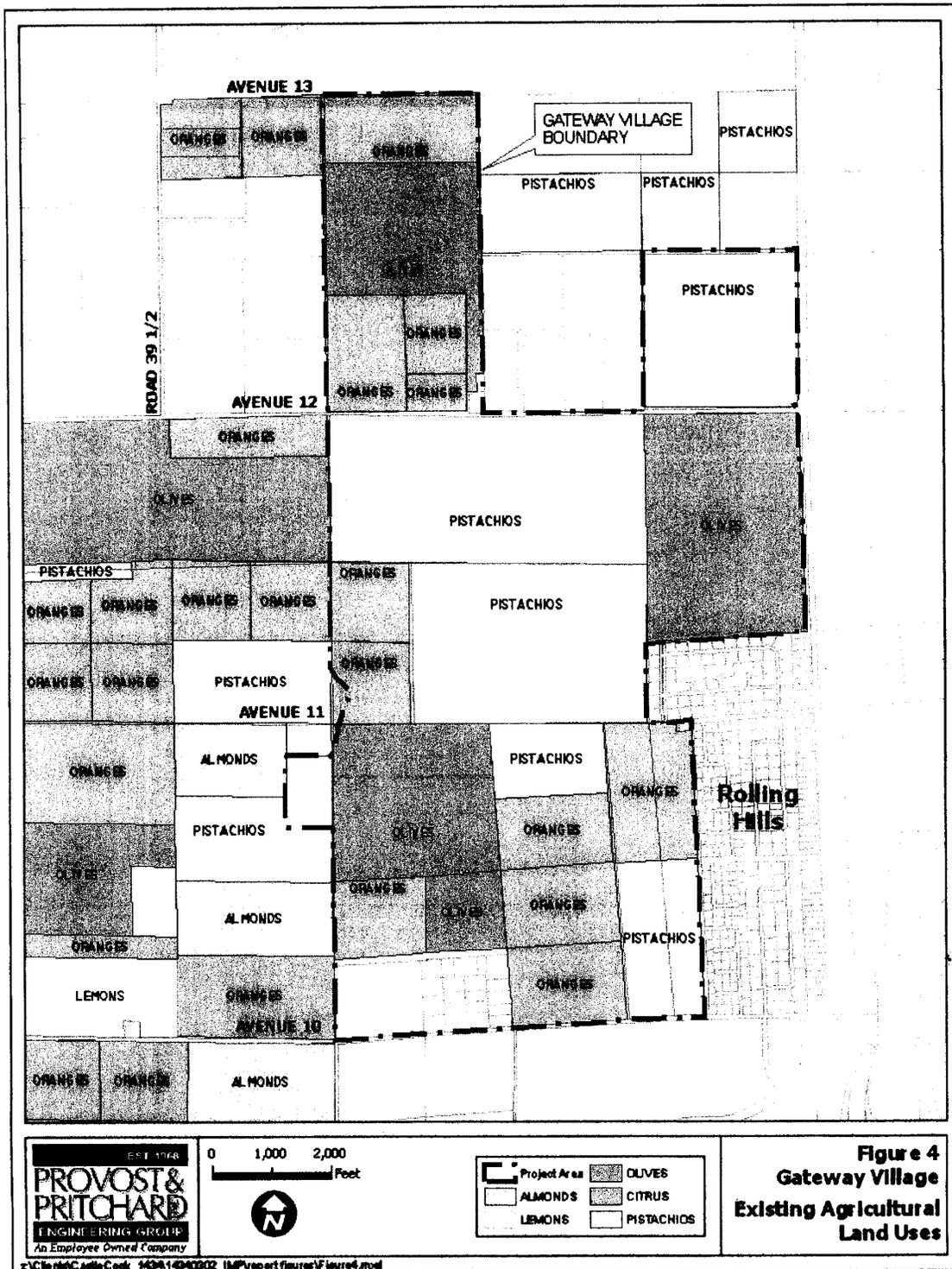
Similarly, certain developed areas adjacent to RCWD, in particular County Service Area No. 1 (SA-1) serving the Rolling Hills subdivision, might someday join with RCWD to provide water and/or sewer service within the SA-1 area. Provision of services to such adjacent areas would not be an obligation of RCWD, absent a petition from Rolling Hills and direction from LAFCo, however this IMP has analyzed the impact of such a connection and has summarized infrastructure upgrades required within Gateway Village to implement such an extension of RCWD's service area should that choice be made. This analysis is presented for the information of all involved, and is not a proposal of the applicant nor will it be a condition placed upon development of any phase of Gateway Village without official request for merger from Rolling Hills and approval of that request by LAFCo.

B. Phasing of District Responsibilities

In addition to serving as water purveyor, it is anticipated that Root Creek Water District will, under its organizational authority, initially serve as the public utility for sanitary sewerage and storm drainage disposal.

Once constructed by the developer, all water, sewer and drainage facilities will be acquired and operated by the District. As a subdivision of the State, the District has the authority to levy and collect fees for operations and maintenance of the various facilities under its charge. A pro-forma budget will be developed prior to start of initial construction, setting user charges for water and sewer, and Development Impact Fees for water, sewer and storm drainage for each of the land uses within the project.

The State Department of Health, Division of Drinking Water, will require preparation of a TMF (Technical, Managerial and Financial report detailing



RCWD's operational capabilities and financial standing, prior to approving operation of the water system. The developer will need to work closely with RCWD to assure that the District is provided with adequate resources at opening day to meet these critical requirements.

RCWD currently employs a limited number of operations staff, all of whom are geared to agricultural operations. This number would grow to accommodate the increasing demands of operating the Gateway Village infrastructure. Licensed operators would be required for domestic water treatment and distribution, and wastewater treatment and disposal. In lieu of hiring permanent staff, RCWD will consider contracting operations and maintenance to third-party firms, especially in early years when overall time demands are relatively light and full-time staff may not be cost-effective.

C. SB 610 and SB 221 Requirements

The Gateway Village meets the definition of a "project" under the provisions of SB 610 (Water Code Section 10910 et. seq.) and SB 221 (Government Code 66473.7, et. seq.) and so requires preparation of the two water supply reports mandated by these related pieces of legislation.

SB 610 Water Supply Assessment

SB 610, as codified in the Water Code, defines a "project" as any development of 500 or more dwelling units, and requires the water purveyor (in this case, the District) or the County itself to prepare a "Water Supply Assessment" prior to project approval. "Project approval" will mean approval of the Gateway Village Area Plan, Specific Plan and Infrastructure Master Plan and the associated Environmental Impact Report. In order for the project to be approved, the Water Supply Assessment must conclude that the supply of domestic water available to the development is adequate, and will be reliable over the next 20 years during normal, dry, and multiple-dry years.

Because Gateway Village will rely at first on groundwater supplies, the Water Supply Assessment must take into account the reliability of the groundwater aquifer and the local groundwater trends. As is discussed in detail below, the local aquifer has been in decline for many years. RCWD will not be able to certify a water supply assessment based upon a declining water table, unless there is assurance of a secondary water supply, available to supplement or even replace the groundwater supply, should it become necessary at any point in that 20-year verification time frame. Such a water supply has been secured. Details of the water supply and the water balance achieved are discussed in the Water Supply section, below.

The SB 610 Water Supply Assessment has been prepared and approved by the Root Creek Water District Board of Directors. The WSA concludes the water supply proposed for the project will be reliable over the required 20-year planning

horizon, under the circumstances required by the SB 610 law as set forth in State Water Code, Sections 10910, et seq.

SB 221 Verification of Water Supply

SB 221 defines a "project" as 200 or more dwelling units, and requires that a "Verification of Water Supply" be prepared by the District or the County. The primary difference between the requirements for this report and for an SB 610 Water Supply Assessment is that this report must be made at the time approval is sought for a Tentative Map for any phase of the project.

The Water Supply Assessment adopted by Root Creek Water District has been prepared to comply with the requirements of SB 221 as well, and will serve as the Water Supply Verification for the development.

D. Environmental Impact Reduction

In addition to providing a water supply that RCWD finds to be reliable in accordance with the requirements of the State Water Code, the project will construct and turn over to the District to operate facilities that will eliminate the existing overdraft within the Root Creek Water District boundary, in accordance with the agreement between RCWD, Madera Irrigation District, Chowchilla Water District, and the Friant Water Users Authority, in a manner which does not call for fallowing or permanent retirement of any agricultural lands within Madera County.

This requirement is addressed in this IMP by proposal of both direct and "in-lieu" groundwater recharge programs, which will make use of surface waters not currently available for use by domestic or agricultural customers within Madera County. Details are provided in subsequent sections below.

IV. OTHER SPECIAL DISTRICT FORMATION

A. General

Street lighting, park and landscape maintenance, and possibly fire protection services for Gateway Village will be provided under authority of a County Service Area (CSA), a Community Services District (CSD), or other similar special district with appropriate powers. The question of the form of special district best suited to this project remains open, and will be answered after continued discussions between the developer, County staff, and elected officials. The actual systems constructed and operated would not change due to the form of district governance chosen.

B. CSA 22

One option for these services would be to annex Gateway Village to the existing County Service Area 22, designating it as a separate zone of benefit. CSA 22 was created in the mid-90's to provide a finance mechanism for planning in the

Rio Mesa Area, and has never provided urban services of any kind. Both Board of Supervisors and LAFCo action would be required to amend the CSA boundaries and verify the authority of the CSA to provide the necessary services. These actions would be initiated by the developer after project approval, and will need the consent of the County Board of Supervisors.

The Board of Supervisors would continue to act as the Board of Directors for the CSA, approving budgets for capital outlay, maintenance and operations, and setting fees for service and development impact.

Over the long term, it would be possible for the citizens of Gateway Village to petition to form a Community Services District to assume all of these same responsibilities, under the guidance and direction of a locally-elected board of directors.

C. New Community Services District

A second option would be to form a Community Services District prior to opening day, and have Gateway Village be self-governed with respect to these infrastructure systems. Starting with a self-governed form of district offers some challenges as opposed to the County-governed CSA.

Directors of a standard CSD are elected by the registered voters within the District, and must be registered voters within the district themselves. While this is a simple requirement in any urban area, currently no registered voters reside within Gateway Village. In a few cases, counties have been successful in getting the state legislature to approve special legislation authorizing the local Board of Supervisors to act as a board of directors for the district until the district reaches a specified population. In some cases this has been as high as 1,000 residents, or about 350 houses. This is one possible model for Gateway Village to emulate.

D. Sierra Foothills Public Utilities

A third option would be to annex Gateway Village to the existing Sierra Foothills Public Utilities District, designating it as a separate zone of benefit. SFPUD was created to serve the Avenue 12 Village portion of the Rio Mesa plan area, east of Highway 41 and north of the San Joaquin river. Since that project has not yet moved forward, SFPUD does not actively operate any utility facilities at this time. However, this self-governed district remains active and legally empowered to provide a full spectrum of public services other than law enforcement.

SFPUD has an independent Board of Directors in place, and in informal meetings has expressed a willingness to annex Gateway Village. Madera County's LAFCO Executive Officer, Dave Herb, has indicated that he would be more in favor of expanding an existing district such as SFPUD rather than seeing a new Community Services District created.

E. Other Options

For simplicity, this IMP refers to Root Creek Water District and any potential successor as "the District."

Other infrastructure facilities, including parks, open spaces and roads, may initially be maintained by the District through a Homeowners' Association created by the developer and funded through a combination of property owner assessments and developer contributions.

F. Public Safety

Public safety services will be provided through the Madera County Sheriff's Department. This service will be added incrementally as the project grows and demand for additional service appears.

V. WATER SUPPLY, TREATMENT AND DISTRIBUTION

A. General

The water supply for Gateway Village will be designed to provide a reliable and adequate volume of healthful, potable water, meeting all applicable regulations, for use by residential and commercial customers within the Village. This will be done without adverse impact to the surrounding groundwater aquifer, .

The project has committed to making up a volume of groundwater (3,400 acre-feet per year) equivalent to the currently-estimated groundwater overdraft within the Root Creek Water District. Methods for meeting these recharge commitments are detailed below and in subsequent sections of this IMP.

B. Municipal Water Supply

Municipal water for the first three to four phases of the project will be provided from groundwater wells located within the project area. Later phases of the Village may be served by groundwater wells located on adjacent lands, or by imported surface water treated at a plant located within Gateway Village. Both scenarios appear technically feasible at this time; a final decision will be made by the project developer as build-out proceeds and more is known about the relative availability and pricing of groundwater, peak flow surface supplies, and guaranteed-availability surface supplies.

Experience with existing agricultural wells within the project area has shown the availability of quantities of drinking-quality water beneath the project area. Hydrogeological investigations conducted as part of this IMP indicate suitable water strata, especially in the northwesterly part of the project area, which can be reasonably estimated to produce drinking-quality water between 80 and 100 percent of the total consumptive water supply required for the project. (See

Appendix E) More groundwater can be produced if wells are located outside of this targeted area, but data indicate a higher possibility of chemical concentrations requiring treatment of some kind (filtration, chemical reaction or both) prior to municipal use.

Because of this potential shortfall in quality groundwater, a surface water treatment plant (SWTP) will be considered for construction along Road 40 near the in-lieu irrigation supply pipeline, as subsequent phases of the project develop. The need for and precise timing of the SWTP will depend upon the quality and quantity of water obtained from the groundwater wells. The hydrogeological projections make it appear likely that there will be adequate quality groundwater to serve the area north of Root Creek and south of Avenue 12 (phases 1 and 2) and may be adequate for phase 3 (area north of Avenue 12). It is anticipated that a SWTP could be required by the early stages of Phase 4 (the first phase south of Root Creek.)

At completion, the project's water supply will be a combination of groundwater and treated surface water. The proportion of groundwater to treated surface water is not known at this time, nor is it important to either the environmental analysis or the Infrastructure Master Plan. This is true because the project's groundwater balance will be the same no matter the source of domestic water. Imported surface water will be used either to recharge groundwater aquifers or will be treated and used directly for municipal needs. The quantity of surface water imported will be the same in either case.

In later phases of construction, economics may drive a decision to construct additional groundwater wells in the areas south of the Village's boundaries, even though it is expected that water treatment may be required. Whether those later wells are constructed or not, the project will be constructed so as to meet its commitment to water balance and to provide the quantities and quality of water set forth in this IMP.

C. Water Quality

Experience with existing agricultural and nearby municipal water wells such as those in the Rolling Hills subdivision, together with the water quality testing done for this project, makes it clear that drinking-water-quality groundwater is in limited supply in the project area. Known water quality problems in the project area include elevated levels of manganese, arsenic, and Heterotrophic Plate Count (HPC) in water from some wells. See **Appendix F** for an extended discussion and complete test results.

According to the test results, a well in this area may have high HPC, high Manganese and/or Arsenic, or a combination of the three, depending upon its location and the depths from which it draws water. Manganese and Arsenic are

most often found together in the southerly part of the project area, at depths of 500 feet or more.

HPC is a measure of organic activity and has been related to a bacterial "slime" that occurs in parts of the project area, primarily in the upper aquifers. These wells are concentrated in a band that covers the central area of Gateway Village, running from northeast to southwest.

No wells are planned in the area where there is a high probability of finding HPC together with Manganese and Arsenic. Where neither contaminant is found, and the water is otherwise acceptable according to DHS standards, no wellhead treatment will be required other than the disinfection required of all groundwater sources by Federal rule.

HPC can be controlled by chlorination of the water produced. There can, however, be difficulties with HPC "blooms" in the depths of the well itself, which requires chlorination to be performed in the aquifer. This is difficult to do, though possible, and the situation is not optimal. Wells potentially high in HPC will be avoided as much as practical.

Manganese and Arsenic can each be removed from a well supply using properly-designed filtration systems. Filter systems will be installed on project wells as required to meet DHS drinking water standards. Detailed well and well-head treatment design is deferred to the time of individual project construction, so that wells can be designed based upon actual test wells rather than generalized test data.

D. Groundwater Basin

The southeast Madera County area shares a common groundwater basin. Groundwater within the basin flows generally from east to west, and from south to north, from a ridge adjacent to the San Joaquin River toward a low spot below the community of Madera Ranchos. Numerous studies have shown the basin to be in overdraft. Most recently, a hydrogeological study completed in 2001 by Dr. Ken Schmidt and Provost & Pritchard Engineering Group, Inc. concluded that the Root Creek Water District, which is a sub-area of the groundwater basin, has an annual groundwater deficit of approximately 3,400 acre-feet. The total overdraft in the groundwater basin is presumably greater than that, but is affected by water uses far beyond the boundaries of Gateway Village or the Root Creek Water District.

To help assure the reliability of the project's water supply, a groundwater recharge program will be instituted to replace 3,400 acre-feet of water on a 5-year rolling average basis within Root Creek Water District. The recharge program will include a combination of direct recharge via land application and in-lieu recharge, where imported surface water is provided to agricultural users to

use instead of the groundwater they would otherwise pump, leaving that water in the aquifer. See Section V below for further discussion.

E. Existing Water Supply Requirements

Based upon published agronomic uptake rates and existing cropping patterns as illustrated in **Figure 4**, current water use within the project area has been calculated to be approximately 6,450 AF annually. Actual usage cannot be measured due to the lack of meters on existing wells. Current use reflects an average consumptive demand of 3.2 acre-feet which is reasonably typical of similar agricultural areas.

F. Expected Water Supply Requirements

Expected water demand for the development will be a composite of the specific water demands for the various types of land uses proposed. These demands are summarized in Table 1.

In addition to the project demands, the IMP presents data to demonstrate sufficient water supply and distribution capacity to support residential development on the 348-acre parcel bounded by Avenue 9 and 10, and Roads 40 and 40-1/2. That land, located within RCWD, has not been entitled at this time. The Gateway Village Area Plan would leave the parcel surrounded on three sides by land entitled for urban development, making entitlement of the land seem logical. Prudence argues for providing future capacity to this area in the Gateway Village plan.

G. Project Water Conservation Features

The project will incorporate a number of water-conserving features and policies. Municipal water for the project (residential and commercial) will be metered, with a tiered rate system in place to discourage excessive consumption. Development of a specific rate system will be deferred until more precise capital and operating costs are known. However, rates will rise with increasing use above a baseline, favoring conservation without unnecessarily burdening low-use customers.

Overall water usage patterns for proposed land uses and densities are expected to be similar to those of other Valley communities which have implemented water metering together with tiered rates. Since the City of Fresno has not done so, it has not been used as a basis for comparison. The City of Clovis was used for comparison due to its similarity and proximity to Gateway Village, and the abundance of data available from that system. See Table 1.

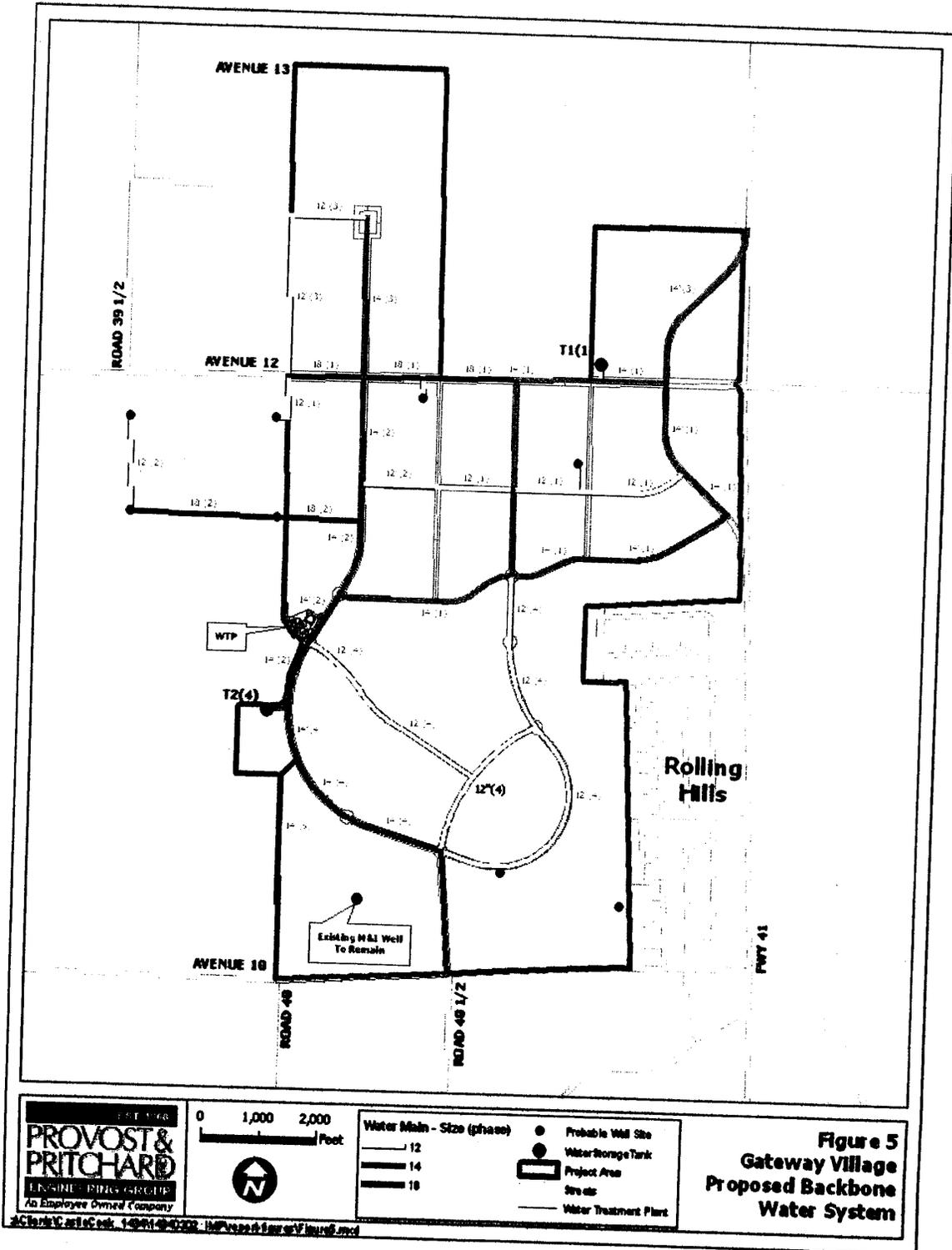


Table 1
Average Daily Demand (ADD) for Water By Land Use
(City of Clovis Information and General Plan Designations)

Land Use	ADD (gpm/ac)
Elementary School (ES)	2.56
Highway Commercial (HC)	0.76
Village Center	1.21
Employment Center (E)	1.36
Public (P)	1.21
Parks (PK) and Open Space (OS)	1.74

Zoning and land use classifications in Clovis are different than those proposed for Gateway Village. The 6578-unit limitation in the Village (the number of units proposed in the Area Plan) allows calculation of approximate average unit densities, which have been correlated with land use designations and used to select specific water use factors which are, presented in Table 2, below.

H. Water Supply System Redundancy

A fundamental criteria for municipal water supply is reliability. A key characteristic of supply reliability is redundancy of the supply facilities. Any facility may become subject to service or repair and may be forced out of production for a time. There must be margin within the overall system to allow for some percentage of the supply facilities to be out of service at any given time without compromising overall service delivery.

Table 2
Projected Average Daily Demand for Water By Residence Type and Lot Size

Land Use	ADD (gpm/du)
Lots 10,000 SF and larger	1500
Lots 6,000-10,000 SF	660
Lots less than 6,000 SF	660
Multi-family and attached	400

The criteria in Table 3 below shall be used to determine allowable utilization of municipal water wells. The objective is to create a system where any given water

well may be down for service or repair while the system continues to meet all planned demands.

Table 3
Permitted Utilization of Available Wells

Number of Wells	Allowable Utilization
1	50%
2	60%
3	66%
4 or more	75%

The contemplated surface water treatment plant may be utilized at up to 90% of design capacity. The surface water treatment plant, if implemented, must be designed to include multiple operating units, so as to limit the total production capacity taken off line when service or repair of any single unit is needed. Any combination of surface water treatment and groundwater supply must be sized and designed to meet consecutive Maximum Day demands utilizing the allowable percentage of available wells, and considering one treatment plant operating unit out of service.

To further enhance reliability, water wells and other critical supply facilities, including wellhead treatment equipment, must be equipped with internal-combustion-engine-driven backup power supplies. Fuel for these units will be selected based upon San Joaquin Valley Unified Air Pollution Control District criteria and regulations.

I. Water Conservation

Water conservation and reclamation will be emphasized in project design, in order to meet the water use goals stated in the Area Plan EIR and reduce groundwater overdraft attributable to the project. Water-conserving plumbing fixtures and conjunctive reuse of reclaimed water are principles central to the project design standards.

RCWD has not adopted any policies of its own concerning municipal water conservation. Should RCWD not adopt its own water conservation requirements prior to building occupancy, the project would be subject to Madera County's Water Conservation Ordinance No. 532 until such time as RCWD adopts its own ordinance or policies.

1. Reclaimed Water

Consideration will be given in project design for use of reclaimed water (treated, disinfected wastewater effluent) for irrigation of parks and publicly-maintained open spaces (trails, road medians, landscape easements) wherever practical and

economically feasible. This may mean that certain parks, medians, etc., are irrigated by reclaimed water while others are irrigated by the domestic supply or from agricultural wells converted for such use.

Irrigation of portions of the project using reclaimed water is to be just one of the tools employed to achieve conjunctive reuse of effluent and help maintain a balance of water supply and demand in the project area. Effluent not used for open-space irrigation within the project area will be used for irrigation within the designated Effluent Disposal Area. Groundwater that would have otherwise been used for that purpose, would then become available for use by the project's domestic water system, meaning the overall water balance would be the same in either case.

In the early phases of the project, quantities of effluent available for use as reclaimed water will be quite limited. Only as the number of completed dwelling units increases will the quantity of reclaimed water become large enough to irrigate major landscape areas within the project. Nothing in this IMP shall be construed as requiring use of reclaimed water for irrigation of any or all of the parks and open spaces within the project area, but all wastewater effluent shall be conjunctively reused within RCWD either as reclaimed water or for agricultural irrigation.

See **Appendix H** for further discussion, and **Appendix K** for a summary of water sources and uses.

J. Water Production and Distribution Standards

Municipal water production capacity (any combination of wells and surface water treatment facilities) must be adequate to meet consecutive Maximum Day Demands for the developed project area. Redundancy must be calculated in accordance with Section E, above.

Water distribution pumping capacity and redundancy must be adequate to meet Peak Hour flow demand (or Max Day plus fire flow, whichever is greater) with any single booster pump or well out of service.

Maximum Day, Peak Hour and Fire Flow demands shall be calculated in accordance with this IMP.

K. Water Storage

The water storage requirement includes three components: fire flow; peak demand; and contingency back-up. Water storage requirements will increase as the project progresses, with the general principles being that additional water supply redundancy reduces the requirement for back-up storage, and more-intensive land use increases the fire flow storage requirement.

1. Fire Flow Storage

Fire flow storage must be sufficient to provide 120 minutes of operation at the highest-required fire flow within the developed project area, while concurrently meeting the Maximum Day Demand of the project as developed at the time. This means that so long as the project remains a residential-only development, fire flow will be based upon 1,000 gpm. At such time as a commercial, industrial, or public school component is added, required fire flow will increase and so will required fire storage. The following **Table 4** summarizes minimum fire flows required for each land use type.

Table 4
Minimum Required Fire Flow by Land Use¹

Area Plan Land Use	Specific Plan Zone	Required Fire Flow (GPM)
LDR	GV-R	1,000, 1,500 ²
MUC, CC, NC	GV-C, GV-MU, GV-NC	2,500
School ³	N/A	2,500
LI	GV-HC	2,500 min ⁴

2. Peak Demand Storage

Many municipal water systems, including Gateway Village, are designed with the capacity to produce the Maximum Daily Demand on a sustainable basis over a number of days. This sustained capability makes it possible to meet the system's demand during a period of hot days, as typically experienced during the summer in the Valley. During the months of July, August and September, so many days are at or near "Maximum Day Demand" that attempting to get by on a lesser supply and meet the Maximum Day peaks from storage is not feasible. The supply source itself must have that capacity.

However, Maximum Daily Demand is the total water used in a 24-hour period, and does not represent the actual peak use during any day. Over the course of a Maximum Day, hourly use peaks and declines. The highest demands, referred

¹ These fire flows are minimums. Greater flows may be required at the time of project approval if the characteristics of a particular project so warrant, as determined by the requirements of the Uniform Fire Code in effect at the time

² Applies to GV-R zone if developed at 12 units/acre or greater, and to all attached housing developments.

³ There is no Area Plan designation or Specific Plan zone district for schools. Schools may be located anywhere within the GV-R district. This fire flow requirement would apply to any designated school site at the time of school construction.

⁴ Greater fire flow may be required depending upon the particular industry or enterprise being proposed. In many cases, higher fire flow requirements can be mitigated by internal fire sprinkling systems. Uniform Fire Code provisions will apply in calculating the required flow.

to as Peak Hour Demands, must be met by pumping from storage in addition to the sustained water supply. This storage, referred to as Peak Demand Storage, is refilled daily during lower-demand hours.

Peak Demand Storage must be adequate to supplement the sustained water supply capacity and meet Peak Hour Demand for a minimum of six hours per day.

Calculations demonstrating the need for Peak Demand Storage, and the required capacity thereof, shall be submitted with each application for subdivision improvement drawings, for approval by the District.

3. Contingency Back-Up Storage

Contingency back-up storage provides a measure of safety against the possibility that water production or treatment capacity might be reduced by equipment or power failure. Redundancy of water wells in accordance with this IMP and provision of back-up power supplies for each well limits the District's exposure to shortage due to such failures, but Back-Up Storage is still a prudent requirement.

Storage equivalent to 20 percent of Average Day Demand for the cumulatively-approved units shall be provided for this contingency.

4. Total Storage Requirement

The greater of fire flow storage and peak hour storage shall be added to contingency storage requirements to reach the total storage requirement. All storage volumes shall be net usable volume of the tanks or reservoirs proposed. For example, if a tank has a minimum operating level of 2.0 feet above grade, only the volume of the tank above that minimum level shall be allowed to count against the requirements.

Water tanks may be of welded steel or pre-stressed concrete construction. Bolted steel tanks will not be acceptable.

While it is beyond the scope of this IMP to fully specify the tank design, all structural details shall conform with applicable seismic and building codes. Painting and coating shall be in conformance with American Waterworks Association requirements for potable water. Complete design calculations and coating specifications shall be submitted to the District for approval prior to construction.

L. Water Distribution Requirements

The water transmission and distribution mains shown on the IMP Drawings have been sized to meet the water demands anticipated by the planned land uses shown in the Gateway Village Specific Plan. In particular, system pressure is assumed to be maintained at least 50 psi at each pumping point, and at a

minimum of 20 psi at any point in the system under Max Day/ Fire Flow conditions. Detailed water demand calculations appear in **Appendix A**.

All in-tract water facilities shall be designed at the time of subdivision approval, and shall be adequate to meet these pressure and fire flow requirements throughout each individual development.

Water mains shall be Class 150 PVC per AWWA C-900 and C-905 (for diameters 14 inches and greater; minimum acceptable pressure rating is 165 psi, which corresponds to a DR of 25) standards, or other such standard materials as may be acceptable to the District.

Water valves up to 12" shall be gate-type, resilient seat per AWWA C-509. Valves larger than 12" shall be butterfly type. Valves shall be installed not less frequently than every street intersection, and shall be configured to allow isolation of any given block for maintenance without shutting off water to the rest of the system.

Fire hydrants shall be dry barrel with 4-1/4 and 2-1/2-inch outlets or other such configuration as may be directed by the Fire Department, and shall all be of common manufacture, of a brand acceptable to the Fire Department. Hydrants shall be spaced at not more than 350 feet unless specifically approved by the Fire Department.

While the intent of the transmission/distribution system is to provide water flow adequate for all demands that might reasonably be imposed at full build-out of planned land uses, it is recognized that final development proposals may impose different water demands which could not be met by this planned backbone system. Should that become the case, it will be the responsibility of the developer of that phase or commercial area to provide for additional water supply, storage, pump capacity, or combination thereof adequate to meet the actual proposed demands while maintaining water balance. Such additional improvements will be subject to approval by the District prior to approval of the specific development proposal.

M. Groundwater Treatment Facilities

At minimum, groundwater used for municipal and industrial supply shall be disinfected in accordance with DHS requirements. All groundwater sources shall be tested for the presence of contaminants, against the primary and secondary drinking water standards. Additional treatment systems shall be designed and constructed as required to assure that all groundwater supplies are in conformance with those standards.

Wellhead filtration systems shall typically be modular micro-filtration units, acceptable to the Department of Health Services (DHS) for removal of the contaminants present in the given well.

Provisions shall be made for back-up power generation, with capacity sufficient to power the well pump, all treatment equipment and facilities, and any miscellaneous electrical loads found at the well site.

N. Surface Water Treatment Facility

Treatment at the Surface Water Treatment Plant will conform to the applicable DHS and EPA regulations in effect at the time of design and construction. Design details will be fully developed at that time. At present, it is believed likely that a membrane micro-filtration plant would be used rather than a granular media (sand) filter.

Back-up power generation shall be provided, adequate for full-capacity operation of the treatment plant and any distribution pumps located at the plant site. See **Appendix B**.

O. Phasing of Water System Improvements

Construction of water system facilities will be phased to meet the demands of the development as it comes on line. Each phase of the development or individual project within the Village must provide assurance of water supply and redundancy adequate to meet the standards set forth in this IMP, and provide facilities that are either expandable or are sized to provide for future phases of development.

In particular, water tanks, transmission and distribution mains shall be constructed using the required ultimate sizes and diameters as shown on the IMP Drawings, even when current phase demands do not warrant those sizes.

P. Additional Environmentally-Beneficial Project Features

Efficient irrigation systems will be employed in landscaped areas. These are defined as one or any combination of the following:

- Drip Irrigation
- Soil Moisture Sensors
- Automatic Irrigation Systems

Mulch will be employed to maintain soil moisture and reduce water-using weed growth, and native and drought resistant vegetation will be incorporated in landscape designs.

VI. GROUNDWATER RECHARGE

A. General

Most of the irrigation water within RCWD is currently supplied from groundwater wells, and the groundwater basin underlying the project area is known to be in overdraft. Within RCWD, the deficit was calculated in 2001 to be approximately 3,400 AF/year. It is incumbent upon the project to demonstrate satisfactory mitigation for its use of groundwater.

As partial satisfaction of this requirement, RCWD will implement plans for importing surface water from outside the District's boundaries, for use in mitigating groundwater overdraft within the District. This will be accomplished by a combination of direct recharge onto hydrogeologically-appropriate lands within or nearby the District, and by implementation of an in-lieu recharge program, where imported surface water will be supplied to irrigators within RCWD in exchange for their agreement to reduce reliance upon groundwater pumps, thereby reducing the quantity of groundwater pumped from the aquifer.

B. Direct Groundwater Recharge

The project will incorporate direct recharge of groundwater to the extent practicable given the soils profiles underlying project lands. Effective recharge programs depend upon soils profiles which are reasonably permeable from the ground surface to the groundwater table, thereby allowing water applied to the surface to make its way into the groundwater aquifer over time. If the soil profile is punctuated by one or more extensive impermeable clay layers, water infiltrating from the surface can become blocked or "perched" on that impermeable layer, and actual recharge of the aquifer will be reduced or even precluded completely.

In the project area, most of the surface soils are sand or sandy loams, to depths of 15 to 25 feet. At that depth, there is often a clay lens of five to 25 feet in thickness. The only significant exception to this profile is along the westerly reach of the Root Creek channel, where it appears that the soil profile is relatively permeable to a depth sufficient to facilitate long-term groundwater recharge.

Appendix C details the program of subsurface drilling that was undertaken as part of the preparation of this Infrastructure Master Plan. Complete results are presented in the Appendix. With only minor exceptions, the soil beneath Gateway Village is not conducive to direct recharge of water in the volumes needed to support the proposed project.

This plan proposes a limited scope of direct recharge along the Root Creek Channel and on a 80-acre parcel near the Root Creek Channel east of Road 35. Impoundments required to detain water in the Root Creek Channel just west of the Village Boundary will be constructed incrementally in Phases 1 through 3, as

actual water demand and storm drainage runoff increases. In addition, grade-control structures will be constructed in the reach of Root Creek within the Village. The primary purpose of the grade control structures will be to reduce stream velocity and inhibit erosion, but they could also be used to create aesthetic ponds, if desired. The reach of Root Creek within the Village would probably not be a productive recharge area, but, nevertheless, some incidental recharge will occur when water is temporarily impounded behind the grade-control structures.

The recharge area east of Road 35 will be acquired by RCWD prior to construction of Phase 1, and will be developed and placed into use with Phase 2.

The most readily available source of water for direct recharge is storm water runoff from the project area. This water will only be delivered to Root Creek after it has been treated in sedimentation basins located within the Village. In addition to stormwater, water procured through an agreement with MID (described below) may also be used for recharge. Groundwater recharge can then be performed behind impoundment structures west of the Village. The water supply obtained for in-lieu recharge, detailed below, could also be used for direct recharge if the need arises and facilities are available.

C. In-Lieu Groundwater Recharge

Because of the difficulty of recharging large quantities of water through the soil profiles found in the project area, an alternative method of recharging the groundwater basin has been developed.

While a limited portion of the agricultural land within RCWD is currently irrigated with surface water from San Joaquin River holding contracts, most growers either have no rights to surface water or have rights insufficient to fully meet crop demands. These growers pump groundwater to irrigate their lands. If there were a supply of surface water available at a competitive price, growers would have an incentive to use that water instead of pumped groundwater. The in-lieu irrigation program proposed by Gateway Village will provide just such a supply.

Since Gateway Village does not have the right to purchase many types of irrigation water nor to use existing canals as conveyance facilities, the developer has obtained agreements with RCWD to make the actual water purchases and convey water through its facilities, with the costs above and beyond the revenues received from grower water sales being borne by the developer.

With RCWD's provision of a supply of surface irrigation water to these growers, the quantity of pumped ground water for irrigation can be reduced on a one-to-one basis. This is a quicker and more efficient method of protecting and enhancing the groundwater basin than is direct recharge.

RCWD, in consultation with Provost & Pritchard Engineering Group, has prepared a plan for an in-lieu groundwater recharge system that would be capable of supplying up to 10,000 AF per year to lands within RCWD. That is approximately 57% more than the 6,374 AF expected total municipal use of the project. The full capability of this system will not be implemented for Gateway Village, but the program could be expanded by RCWD in the future.

Water for in-lieu recharge for Gateway Village will be acquired by RCWD through agreement with Madera Irrigation District, and will consist of Section 215 flood flows, MID Class 2 water, and other high-flow water supplies. Based upon historical trends and records, the proposed system at build-out will deliver approximately 2,304 acre-feet (AF) of irrigation water annually, on a rolling five-year basis, and offset an equivalent amount of agricultural groundwater pumping. The plan is presented in more detail in **Appendix D**, and the area outside of the project boundaries to receive these waters is shown on **Figure 2**. In addition, many areas within the project boundary will be included in the program until development proceeds to that point.

The in-lieu system's diversion structure and delivery system will be constructed along with the first phase of the Gateway Village project, to allow maximum utilization of available surface waters from the beginning of construction.

The commitment of the project through the combined groundwater overdraft reduction programs is to perform 3,400 AF/year of recharge as measured on a rolling five-year-average basis, an amount adequate to eliminate the current groundwater deficit within RCWD. The in-lieu facilities, with their large annual capacities, will be used to the fullest during above-normal water years to raise the five-year average, and may not be used during dry years when the identified water supplies are not available.

There is no intent to fully-utilize these in-lieu facilities every single year, and there is no commitment to increase the 3,400 AF/year contribution from the combined groundwater overdraft reduction programs toward district-wide overdraft even if subsequent study shows the estimated overdraft to have increased. A back-up supply to be provided by RCWD will provide a final safeguard against the possibility of multiple, successive dry years.

D. Back-Up Water Supply

RCWD's agreements with MID for Section 215 flood flows and Class 2 water supplies can be shown to be historically more than adequate to meet the demands and commitments of Gateway Village for water supply and recharge. However, in the interest of providing an added degree of reliability and assurance of adequacy, RCWD has contracted for an additional backup water supply from Westside Mutual Water Company, in an amount up to 7,000 acre-feet, in any year and in every year when required to maintain the recharge commitments

discussed above, and to supply water for direct treatment and delivery to area residents. This amount, by itself, is more than enough to meet the full consumptive demand of the project.

The Westside Mutual Water Company water supply is sourced outside of Madera County, and will be delivered by exchange of water supplies through the Friant system, using the San Joaquin River and the Madera 6.2 lateral in addition to the project's in-lieu irrigation system and potentially a future surface water treatment plant. As such, this supply represents "new" water to Madera County, and would be applicable directly toward the project's consumptive demand in any water balance calculation.

Complete details of this back-up water supply, including term of agreement, price, delivery conditions and so forth, are contained in the actual supply agreement, submitted under separate cover.

It is again noted that the back-up water supply is intended as a fail-safe, and under ideal or average conditions will not have to be used to maintain the required rolling-average water balance. It has been put in place only to assure stakeholders that the project's water supply is not at risk in even a series of dry and very-dry years.

VII. WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

A. General

Project wastewater will be collected and treated within the project boundaries. In the initial phase, effluent will be reclaimed for agricultural use on lands outside of the project area. As the project proceeds toward build-out, some wastewater effluent may be reused for open-space irrigation within the project area. See **Figure 2**.

The Gateway Village Area Plan contemplates a population of 21,313 at project build-out. Using industry-accepted wastewater generation factors, this equates to a total estimated flow of approximately 1.67 million gallons per day. Including high-end estimates for commercial and industrial flows; total wastewater production could be as much as 2.0 million gallons per day (2,240 AF per year).

Detailed wastewater generation calculations are presented in **Appendix G**.

B. Collection Facilities

Collection facilities include gravity sewer mains of 8- to 18-inches in diameter, force mains, and three lift stations in areas where gravity conveyance is not feasible. The collection system will be constructed in phases, designed to

correspond with the service needs of the development phases. See **Figure 6**. Phasing for each pipeline segment and lift station is shown on the figure.

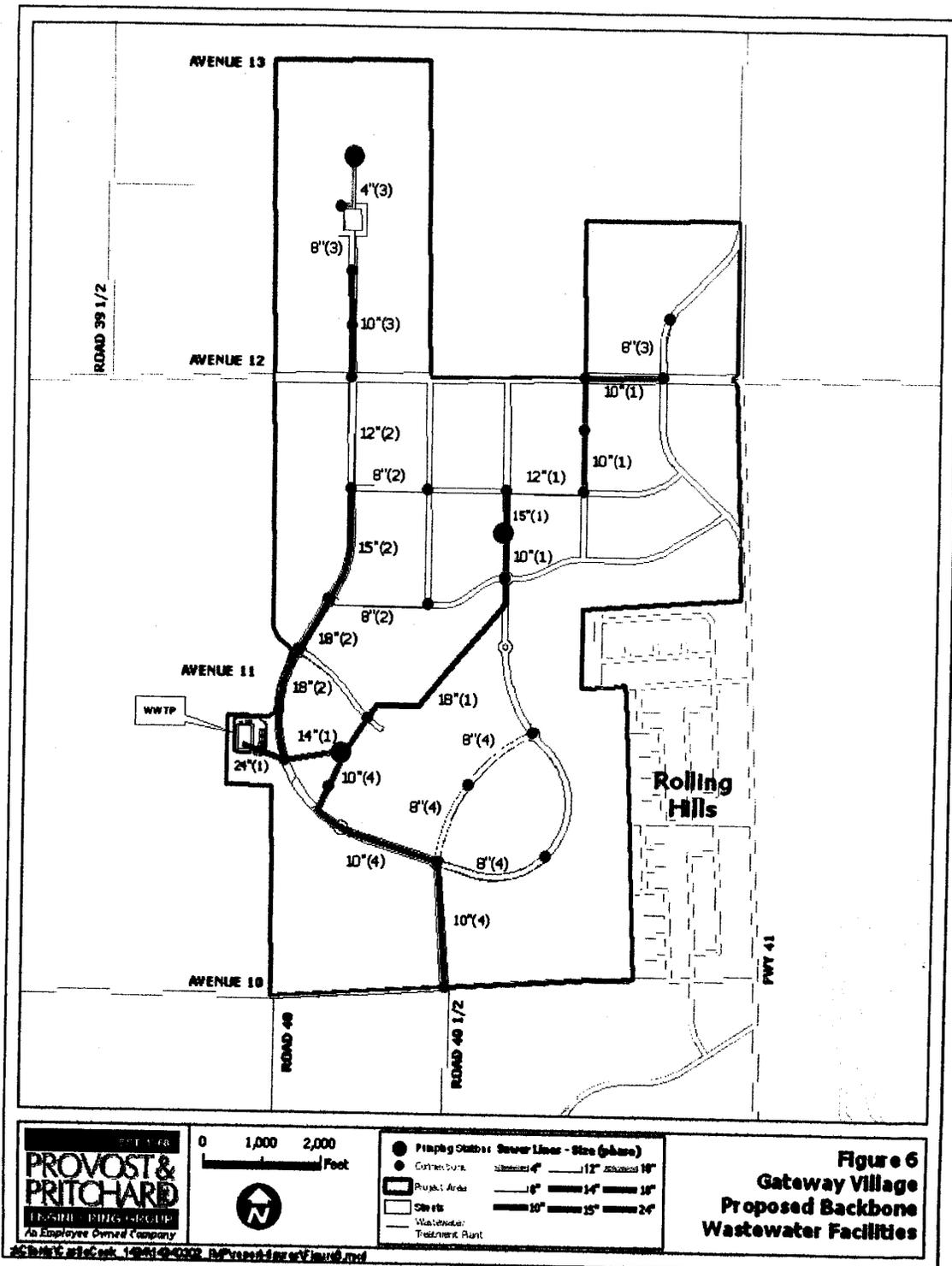


Figure 6
Gateway Village
Proposed Backbone
Wastewater Facilities

The project lands generally slope from northeast to southwest north of Root Creek, and from southeast to northwest south of Root Creek, allowing construction of a gravity sewer system serving a majority of the project. Phases 1, 2, 4 and 5 will flow by gravity to the main lift station located near the WWTP, planned for a site near the southwest extension of Root Creek. Portions of Phase 3 will make use of pump stations and force mains to reach the main gravity collection system. The sewer collection system is shown schematically on the IMP Drawings.

Gravity sewer mains will typically be of PVC (SDR 35) construction with rubber-gasketed joints. Forced sewer mains will typically be of PVC pressure pipe, C-900, Class 150. Exceptions may be made in cases of water/sewer crossings where Health Department regulations require other materials.

Standard manholes shall be installed at intervals averaging 400 feet, and not exceeding 450 feet. Detailed specifications shall follow the practices typical of other urban areas in the Central Valley.

Lift stations shall be wet-well designs employing submersible non-clog pumps. Each lift station shall have a minimum of two pumps. The station shall be capable of meeting the peak design flow with one pump out of service. Pumps shall be specifically designed for operation in a raw municipal wastewater environment. All miscellaneous metals inside the wet well, including steps and pump rails, shall be of stainless steel to resist corrosion. Pump electrical services shall generally be 480V, 3-phase for economical operation. Lift stations with individual pumps rated at 2 horsepower or less may be 240V, 1-phase. Detailed specifications for lift stations and equipment shall be subject to approval by District officials at the time of project approval.

C. Treatment Plant Phasing

Wastewater treatment facilities will be constructed in multiple phases, as the development is built out. These construction phases are distinct from the neighborhood phasing mentioned throughout this IMP, and are lettered rather than numbered to help reduce confusion. While the final decision on the capacity of each phase will be made as development proceeds and absorption rates are better known, the Phase A facilities will be designed to handle 0.55 MGD. At the design rate of 75 gpcd and assuming 3.24 persons per household, 0.55 MGD will support 2,263 EDUs, which are approximately 20 percent more units than are planned for Phase 1 and the Mixed Use Core – Village Core zone district.

Two more phases of approximately 0.55 MGD capacity each will be constructed as demand warrants. The WWTP site shown on the exhibits is large enough to accommodate facilities to treat approximately 2.0 MGD, should the need ever arise. The treatment plant phases, capacities and anticipated timing are shown in the following Table 5:

Table 5
Wastewater Treatment Plant Phasing

Plant Description	Capacity	Development Phase
Phase A (Disinfected Secondary design, supporting 2,263 EDU)	0.55 MGD	1
Phase B (Upgrade to Tertiary treatment level, approximately 4,525 EDU capacity)	1.1 MGD	3
Phase C (expand tertiary capacity to approximately 6,790 EDU)	1.65 MGD	4
Phase D (expansion if necessary)	Up to 2.0 MGD	5

Appropriate conditions of approval requiring expansion of the treatment facilities to accommodate new construction in a logical and modular fashion should be included in the phased subdivision maps as they are processed.

D. Treatment Processes

Wastewater in Phase 1 shall be treated to by biological and chemical processes to disinfected secondary standards, suitable for land application to a variety of edible and non-edible crops, including the orange trees grown on the land proposed for effluent reclamation in **Figure 2**.

In later phases, wastewater treatment will be upgraded by filtration to achieve tertiary-quality effluent, meeting State Water Quality Standards (Title 22) for unrestricted use. A Report of Waste Discharge shall be filed with the Regional Water Quality Control Board for each project phase. The WWTP will be subject to the Waste Discharge Requirements promulgated by the Board subsequent to those applications.

Choice of the specific treatment plant design has been deferred to the time of final project design. The plant shall incorporate an aerated biological process together with chemical disinfection. That process may be one of several general types. Alternatives include activated sludge, aerated lagoon, Sequencing Batch Reactor, and Membrane Bioreactor. Disinfection may be by chlorination or ultra-violet light. Schematic diagrams and detailed discussion of proposed treatment processes are included in **Appendix G**.

E. Effluent Disposal and Reclamation

The goal for effluent disposal within the Gateway Village project is to maximize the conjunctive use of reclaimed water to reduce use of fresh water wherever technically and economically practical. This approach will have the multi-pronged benefit of conserving groundwater, reducing irrigation costs for open

spaces and parks, and providing neighboring landowners with an additional source of agricultural irrigation water. Potential locations for effluent reclamation are shown on **Figure 2**. Not all potential locations may ultimately be required.

While effluent is generated year-round, it cannot be applied beneficially to land on that same basis. Instead, it must be stored through the winter months and then applied at agronomic use rates during the warmer months. Water balance calculations have been prepared, demonstrating a balance between effluent storage and available reclamation areas, allowing application of all effluent in a manner that does not exceed the agronomic demand of the receiving lands. The calculations take into account the effects of a wet (100-year recurrence interval) rainfall year. See **Appendix H**.

All lands used for effluent reclamation must be permitted by the Regional Water Quality Control Board and the Department of Health Services prior to commencement of reclamation activities. These permits shall be applied for concurrently with the filing of the Report of Waste Discharge.

If it were proposed that effluent be allowed to enter a Water of the United States, an NPDES permit would be required for wastewater reclamation. Since that is not the case with this project, and all effluent will be applied to lands within agronomic demands, no NPDES permit is anticipated.

F. Biosolids Disposal

Disposal of biosolids generated by the WWTP in Gateway Village will be in accordance with regulations contained in EPA 40 CFR 503, and State Water Resources Control Board Water Quality Order 2000-01-DWQ, "*General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (General Order)*."

All disposal operations will operate under the permitting authority of the Regional Water Quality Control Board (RWQCB) and the Department of Health Services (DHS), and shall comply with any future Madera County ordinance which regulates land application of treated municipal sludge. (No ordinance is currently in place, though such legislation has been considered.)

Prior to commencement of wastewater treatment operations, the District shall prepare, for approval by RWQCB and DHS, a Biosolids Disposal Plan. Such plan shall address expected chemical composition, monitoring, and testing of biosolids, in addition to long-term impacts upon the disposal site, underlying groundwater and current cropping patterns.

All sludge will be processed and treated so that it may be classified as Class A, suitable for disposal with minimum restriction on use. Treatment processes may

include stabilization by digestion or composting to reduce potential pathogens to permissible levels.

To help assure Class A sludge quality can be produced, RCWD will institute industrial wastewater pretreatment, monitoring, permitting and control programs when they become appropriate, in accordance with USEPA 40 CFR 403 regulations.

G. Environmentally-Beneficial Project Features

The design plans for the WWTP will incorporate appropriate and cost-effective odor and noise reduction measures, to the satisfaction of the Madera County Planning and Engineering Departments.

The IMP Drawings show the WWTP located at the westerly-most edge of the plan area, separated from residential development by both roads and open spaces, and surrounded by agricultural lands, to minimize both the aesthetic impacts of the treatment facility and the potential for odor impacts within the project. Additionally, the design of the WWTF will minimize production and propagation of odor by enclosing most odor sources and providing careful control of the process to maximize treatment efficiencies and minimize the chances of odor or process upset. Detailed designs will be brought forward for review by County and RWQCB staff subsequent to project entitlement.

VIII. GRADING, DRAINAGE, STORM WATER DETENTION AND DISPOSAL

A. Introduction

The purpose of this section is to provide design guidelines for storm drainage improvements, identify permit requirements regarding storm water facilities, and to identify additional hydraulic studies required during the design phase for the Gateway Village project.

B. Grading Design

Grading for the project shall be in accordance with the Madera County Grading Ordinance, the 2002 or current UBC Appendix Chapter 33, and the recommendations provided in this IMP and its appendices. The IMP Drawings include a Storm Drainage Master Plan (SDMP) showing, among other items, the approximate inlet drainage area boundaries and the top of curb elevations defining the inlet boundaries. The top-of-curb elevations and inlet boundaries have been developed to control overland routing of flood storm waters in the event of inlet or pipeline failure.

Drainage area boundaries and interior tract elevations shown on the SDMP support the hydrologic and hydraulic calculations for pipeline design. Interior tract elevations are for design reference and locate low spots for master planned

inlets and are not meant to be relied upon as design grades at any interior tract point of the project.

Building pad elevations for the individual subdivisions shall be designed to a minimum of one (1) foot above the master-planned top of curb inlet elevation in the corresponding inlet tributary area. This criteria will reduce flood risks to the building structures during an extreme storm event over and above the storm drain pipeline and inlet design criteria.

During project design, detailed grading plans shall be prepared, in conformance with the overall drainage concept and the defined drainage area boundaries. Drainage areas, curb and inlet elevations will be refined and coordinated throughout the project. Grading plans must be prepared for and reviewed by the Madera County Engineering Department.

C. Existing Drainages

Three ephemeral streams are located within the Gateway Village project site. The Madera Ranchos South drainage is north of the Avenue 12 alignment. Root Creek and a tributary north of Root Creek come together just northeast of the intersection of the Avenue 11 and Road 40 ½ alignments.

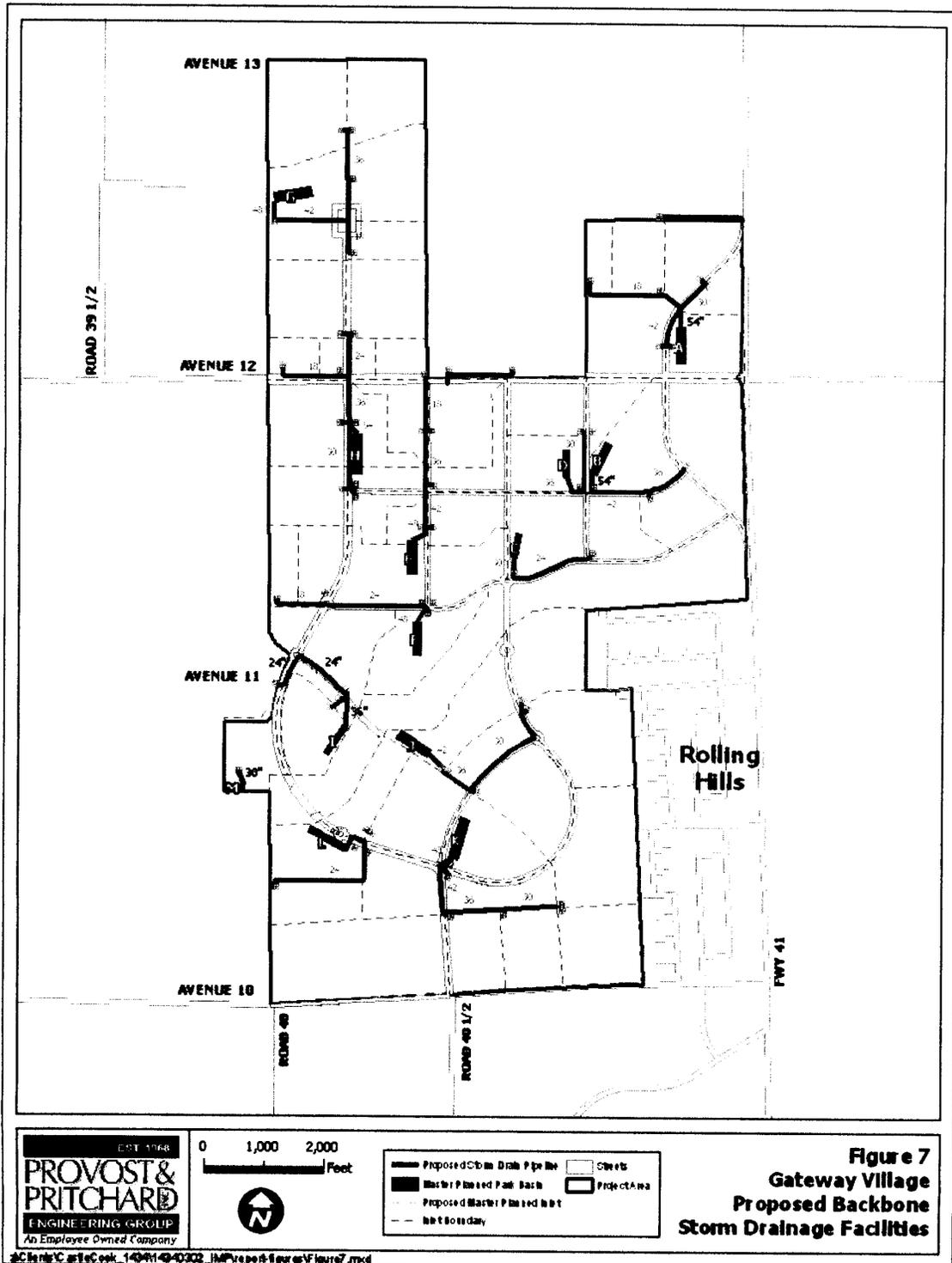
It is anticipated that the Madera Ranchos South and Root Creek drainages will require permits under Section 404 of the Clean Water Act prior to grading of the project site. The developer shall meet with the Regional Water Quality Control Board (RWQCB) and other jurisdictional agencies to discuss the phased project grading limits that contribute flows to the corresponding stream and obtain the necessary permits as part of the design development phase of the project.

Depending on the specific aspects of the project design, the developer may also be required to meet with other agencies that have a vested interest in the 404 permitting process. Agencies with interest might also include the California Department of Fish and Game, the Army Corps of Engineers (ACOE) and the California Regional Water Quality Control Board.

It is anticipated that a letter of map revision (LOMR) from the Federal Emergency Management Agency (FEMA) will be necessary for both Root Creek and the Madera Ranchos South drainage, prior to commencement of grading operations. The LOMR should be filed with FEMA during the design phase of the project improvements, to incorporate the applicable RWQCB storm water Best Management Practices that may impact the flood limits within the project. Requests to deviate from the provisions of this IMP must be reviewed on a tract-by-tract basis with the Madera County Engineering Department.

If during the process of the project grading design, it becomes apparent that drainage patterns and inlet drainage boundaries should be adjusted, the

developer will be responsible to provide calculations supporting the proposed modifications. In addition to providing an agreeable solution to flood routing, the calculations shall demonstrate that the overland hydrology and pipeline hydraulics will work with the upstream and downstream master-planned facilities.



The developer shall also detail the proposed changes to be made to the IMP storm drain backbone facilities as a consequence of the project grading design. Such changes are subject to approval by the Madera County Engineering Department.

See **Appendix I** for information regarding sedimentation basin grading and location of the overall SDMP drainage concept.

D. Storm Drainage Design

Storm drainage runoff within the Gateway Village project area shall be collected and conveyed in public facilities consisting of inlets, pipes, open channels, culverts, outlet structures, sedimentation basins and appurtenances. See **Figure 7**. The storm drain design for the project shall be in accordance with the Madera County Design Standards and Specifications, along with the following recommendations provided in this IMP and appendices:

1. Inlet and Outlet Structures:

Inlet and Outlet Structures shall be a type and configuration rated to accept the SDMP design flow at the inlet and outlet locations shown on the SDMP.

2. Pipelines:

Storm drain pipeline design shall conform to the SDMP. Pipeline soffits shall be designed a minimum of one (1) foot below the hydraulic grade line (HGL) or to the soffit control elevation shown in the hydraulic calculations in **Appendix I**. The design of the storm drain pipeline below the HGL ensures full pipe flow and reduces the chance of water seal breaks in the pipe and other hydraulic inefficiencies during pipeline use. Design of pipeline below the soffit control elevation ensures proper pipeline performance in sections of the pipe where flow is in the open channel condition due to steep grade construction.

3. Culverts and Open Channels:

Culverts and open channels shall be designed to the standards of the Federal Highway Administration Hydraulic Design of Highway Culverts (HDS-5, September 2001 or current) and the Madera County Design Standards. The culverts and channels shall be designed to convey the critical storm event for the Gateway Village project, which was determined to be the 100-year, 6-hour storm event. The hydrologic data for each open channel segment is provided in **Appendix I**.

4. Sedimentation Basins:

Sedimentation basin design calculations and minimum basin geometries are provided in **Appendix I**. The basin geometry for each watershed is different depending on many factors, including the contributing drainage area and the design flow volume.

Conceptual basin locations are shown in the SDMP. These locations have been selected to work with the existing ground topography and the overall master-planned drainage concept. Exact sedimentation basin locations shall be determined by the developer, after precise site layouts are determined.

The Madera County Engineering Department will review the project sedimentation basin design for conformance with the sediment basin calculations and conformance with the sediment basin design guidelines provided in **Appendix I**.

E. National Pollution Discharge Elimination System (NPDES)

Storm water originating from the development of the project site shall be treated utilizing Best Management Practices (BMPs) as permitted by the National Pollution Discharge Elimination System (NPDES) general permitting process of the Clean Water Act. BMPs for the Village will be developed during the design phase, and may be drawn from local area authorities including the Fresno Metropolitan Flood Control District (FMFCD), and Caltrans as appropriate.

BMPs may also be drawn from the California Stormwater Quality Association (CASQA) Storm Water Best Management Practice Handbook. The CASQA handbook series contains recommendations for New Development Planning, Construction, Municipal, Industrial and Commercial BMP applications. All BMPs used shall be selected for their suitability to project requirements and shall be adapted to local conditions as necessary. BMPs shall be employed prior to the start of grading construction for the site and shall be adapted as necessary as the project construction progresses. Permanent BMPs shall be maintained during the entire project lifecycle.

Pretreated storm water will be disposed of through sedimentation basins prior to its release into open channel facilities that flow into Root Creek. Treated storm water will then be released through weirs or other applicable outlet facilities that work with the sedimentation basin design. The outlet feature of each sedimentation basin shall be designed so that water released to Root Creek will be at a maximum of pre-development peak runoff rates. Overall volume of water flowing into Root Creek will be increased (by approximately 45%) due to an overall increase in land use intensities versus existing uses, but that increase will be slightly mitigated by a combination of incidental percolation and evaporation in the sedimentation basins.

Storm drainage facilities are shown schematically on the IMP drawings. Hydrologic, hydraulic and facility size calculations are included in **Appendix I**.

Prior to the start of grading activities for site improvements, the developer shall file a Notice of Intent (NOI), which is a General Permit for Storm Water Discharges Associated with Construction Activity, with the California State Water

Resources Control Board (SWRCB). The developer shall also prepare a Storm Water Pollution Prevention Plan (SWPPP) and provide a current copy of the SWPPP to remain on the construction site at all times. The SWPPP shall include construction and post-construction BMPs. The developer shall pay an NOI fee to the SWRCB. At the end of the construction project, the owner shall file a Notice of Termination (NOT) with the Regional Water Quality Control Board (RWQCB) and provide documentation of substantial project completion, to terminate the NPDES permit coverage.

As the Village develops and the area becomes more urbanized, Root Creek Water District may be identified by the SWRCB or the RWQCB as a small MS4 (Municipal Separate Storm Sewer System) operator under the Phase II guidelines of the NPDES general permit. Among other factors, the SWRCB or the RWQCB will evaluate the population growth and population densities of Gateway Village to determine when permit coverage will be necessary.

When the SWRCB or the RWQCB determine that permit coverage is necessary for RCWD and notification is received, the County or the District will have 180 days to file a separate Notice of Intent (NOI) with the SWRCB together with a Storm Water Management Plan (SWMP) and the appropriate fee. This NOI and the SWMP will be the responsibility of the District as the owner and operator of the storm drainage facilities.

The SWMP preparation process includes development of locally-adapted storm water Best Management Practices that reduce pollutants in storm water runoff to the technology-based standard of Maximum Extent Practicable (MEP) to protect water quality. Once the SWMP is accepted by the RWQCB, the District will be responsible for enforcement of the BMPs and compliance with water pollution related policies and procedures as defined in the SWMP.

F. Madera Ranchos South and Root Creek Permit Requirements

1. Madera Ranchos South Drainage:

The FEMA Flood Insurance Study has detailed a flood study of the lower reach of the Madera Ranchos South drainage, its easterly end being approximately at the Road 38 alignment, approximately two miles west of the Gateway project boundary.

The storm drain master plan anticipates that approximately 200 acres of the project will ultimately drain to and enter the Madera Ranchos South watercourse. The IMP anticipates that the post-development runoff from this area may require the developer to file a Letter of (Flood Insurance Rate) Map Revision (LOMR) and an updated flood map with FEMA. As part of the submittal, the developer's engineer will be required to prepare a flood study of the drainage in accordance with FEMA requirements and standard procedures, showing the impact of post-

development flows and demonstrating that there is no impact upon neighboring, upstream or downstream property owners.

The project will be obliged to construct any capital improvements necessary to assure that drainage to Madera Ranchos South will have no such impact. Details of those improvements, if any are to be required, are deferred to the design phase, when the layout of the project is known and the total impacts can be accurately assessed.

2. Root Creek and Tributaries:

The current FEMA Flood Insurance Study details a 100-year flood plain along the lower reach of Root Creek, as far east as the Road 36 alignment some four miles west of the Gateway Village project boundary. Design of the Village will require extending the flood study east through the project to Highway 41.

As part of the work on this IMP, a preliminary hydraulic analysis of Root Creek was prepared through the Gateway Village project area from Highway 41 to Road 36, using HEC-RAS stream routing software. The existing channel conditions were modeled for the 100-year critical storm event, which was determined to be the 6-hour storm. The critical storm is defined as the event producing the greatest difference in pre-development versus post-development peak flow rates for the project.

During the design phase, a complete hydraulic study of the project area must be prepared, pursuant to FEMA guidelines. Two objectives of the study will be establishment of the 100-year flood plain through the project area, and support for any potential Letter of Map Revision (LOMR) application which the developer may seek in order to modify the structure of Root Creek through the Root Creek channel corridor. Among other design details, the Root Creek hydraulic design report should include the proposed culvert types, size and channel design recommendations.

Standards for flood protection within the project area, including those relating to rural and urban design hydrology, flood routing, open channel design and storm drain pipeline hydraulics, will generally follow those currently adopted for the Fresno-Clovis area by FMFCD. Possible future changes in those requirements by FMFCD will not affect the requirements set forth in this IMP.

G. Flood Routing Drainage Concept

The project will grade toward collection facilities which will drain directly toward Root Creek. This will be accomplished by overland surface flow into inlets, then collection pipes, and into sedimentation basins prior to release into Root Creek. The drainage areas are defined in **Appendix I**.

H. Additional Root Creek Detention Facilities

Treated storm water will be further detained in Root Creek throughout the Gateway Village project by a series of small weir structures located within the Root Creek channel. These detention facilities will enhance the Gateway Village project by providing more aquatic features adjacent to the development, and will contribute incrementally to direct groundwater recharge.

The preliminary soils investigations and grading studies indicate that construction of detention facilities in the Root Creek channel would be an effective method of storm water detention. Existing topography suggests that as many as five or six detention structures may be appropriate. Structures would be located along Root Creek throughout the project and as far west as Avenue 38. A separate hydraulic model and submission of a LOMR to FEMA may be required to model the flood map changes of Root Creek as a result of the small weir structures.

I. Interim Facilities

As phases of the project are developed, the storm drain collection system within the phase boundaries shall be constructed to its planned configuration, with all required inlets and master plan pipe sizes, except as drainage areas are modified and approved by the Madera County Engineering Department as discussed above. Except for the construction of temporary storm water detention facilities, no other interim collection facilities are anticipated for this project.

Construction of temporary storm water detention facilities will be allowed when the collection system required to reach the master planned sediment basin has not been constructed and is outside of proposed phase boundaries. These basins or other storage facilities shall be designed to provide storage for a 100-year, 10-day storm event (6 inches of precipitation) with enough capacity to serve the phased developed areas.

Allowance shall be made in locating and design of such temporary facilities to allow integration with permanent facilities to the greatest extent practical, and for elimination of the temporary facilities in a timely manner as the ultimate collection system is completed.

J. Facility Design Criteria

Master-planned collection facilities in the residential areas shall be designed to convey a design storm with a fifty (50) percent probability of occurrence, which is also known as a two (2) year return interval. Collection facilities in commercial areas shall be designed to handle a design storm with a five (5) year return interval.

The existing Madera Ranchos South drainage, Root Creek, and the tributary north of Root Creek will continue to traverse through the Gateway Village Project

site. These ephemeral streams are drainage watercourses that originate in rural watersheds upland from the Gateway Village project. Any modification of these three drainage watercourses will require the developer to design facilities that convey the critical design storm for the 100-year return interval (a one-percent probability of occurrence), plus the pre-development runoff contribution from the project area, while providing detention storage for the post-development runoff increment so that the increment can be released after the peak of the storm has passed.

Modification of these watercourses may include a combination of open channels, culverts, inlets/outlets, underground pipelines, impoundments and other detention facilities. During the design phase, a final flood study will be necessary for Root Creek and its tributaries. This study will need to incorporate the effects for the proposed development and all proposed facility modifications. The flood study shall be used to prepare a LOMR application for consideration by FEMA. Once approved by the County Flood Plain Administrator (in the County Engineer's office) and by FEMA, this application will result in establishment of a revised 100-year flood plain within the project area.

K. Storm Drainage Best Management Practices

Development of a full set of storm drainage Best Management Practices (BMPs) is deferred to the District at the time it becomes a small MS4 and must prepare its own Storm Drainage Management Plan. In the mean time, BMPs adapted from nearby agencies will be employed. At minimum, sedimentation controls must be applied prior to discharge of storm water into Waters of the United States such as Root Creek and its tributaries.

Sedimentation basins will be distributed throughout the project site, and will discharge into facilities that will convey the desedimented storm water into Root Creek or Madera Ranchos South. Criteria for settling basin designs are provided in **Appendix I**. In addition to sediment removal, the basins will also serve as detention basins, being sized to reduce post-development peak flows to the pre-development runoff rates resulting from the critical design storm.

L. Streambed Restoration

Although Root Creek and its tributaries are heavily developed as operating tree orchards throughout the project area, care must still be given to design of the streams and to the extent practical, restoration of riparian habitat along Root Creek. To that end, a defined channel will be created for Root Creek throughout the project, and it will be developed with native plant, grass and tree species typical of Madera County riparian corridors. Plans for such restoration will be subject to review and approval by the ACOE, and all applicable permits shall be secured by the developer.

M. Environmentally Beneficial Project Features

- The developer will retain a paleontological resource management consultant to perform a broad scope of work during construction. Tasks will include:
 - ◆ Development of a formal agreement with a recognized museum repository.
 - ◆ Develop a discovery clause and treatment plan
 - ◆ Conduct a pre-grading field survey
 - ◆ Facilitate a pre-grading meeting with the field supervisors and construction monitors
 - ◆ Conduct construction monitoring of earthmoving activities
 - ◆ Develop a small-specimen evaluation and recovery program
 - ◆ Prepare geologic maps of areas not already mapped
 - ◆ Conduct field testing and reporting
- The paleontologist will develop a specific procedure to be followed in the event that the contractor discovers prehistoric or historic subsurface resources during construction.
- Dust abatement measures will be included in every road construction and grading contract, ordering compliance with San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) Regulation VIII, and reducing construction-related PM₁₀ to a less-than-significant level.
- The following specifications will be included in all appropriate construction contracts:
 - ◆ Asphalt paving within the Plan area shall comply with the specification in SJVUAPCD Rule 4641, which restricts the use of cutback, slow-cure and emulsified asphalt paving materials.
 - ◆ Work crews must shut off equipment when not in use.
 - ◆ Heavy construction equipment shall be diesel-powered, certified to meet the NO_x standards established for new heavy duty diesel equipment by the CARB, gasoline-powered equipment fitted with catalytic converters, or alternative-fueled equipment (e.g., compressed natural gas).
- A qualified biologist or equivalent professional will be retained to oversee all aspects of construction monitoring that pertain to biological resource protection, including a pre-construction survey (within 30 days prior to grading operations) for burrowing owls.

- The developer will implement soil sampling to screen for exposure to pesticide applications in areas proposed for “sensitive” land uses including residences and schools. This measure will be implemented at the time of construction activities.
- All construction documents prepared for the various phases of construction shall incorporate these requirements to the satisfaction of the County of Madera and the various regulatory agencies.

IX. PROJECT WATER BALANCE

A. General

As mentioned above, a 2001 estimate showed the Root Creek Water District to be overdrafting approximately 3,400 AF of groundwater per year, based upon then current land use, cropping and irrigation patterns and the historical inflow of groundwater to the District. The goal of the project is not to replace all groundwater used consumptively within the project, but to take steps to mitigate the existing District-wide groundwater deficit. Those steps have been presented above and are summarized in this section.

B. Consumptive Water Use

From **Appendix A**, total consumptive water use within the project at build-out will be approximately 6,374 acre-feet per year. This is marginally less than the 6,450 acre-feet estimated use by the current agricultural enterprises with the project area.

C. Groundwater Recharge

Between direct recharge efforts and the in-lieu recharge program, a minimum of 3,400 acre-feet of water will be imported into Root Creek Water District boundaries each year on a 5-year rolling average basis, and recharged into the groundwater aquifer. These figures are detailed in **Appendix C** and **Appendix D**.

D. Effluent Reclamation

In addition to the acreage irrigated by imported surface water, there will be crop acreage irrigated by reclaimed treated wastewater. A total of 1,767 acre-feet per year will be available at build-out, which is sufficient to irrigate approximately 498 acres of citrus, and more acres of grass or other crops, depending upon the crop grown. See Section VI above.

E. Summary

A calculation of groundwater balance, accounting for each of the water types mentioned above, is included as **Appendix K**. By implementing the water

recharge and reclamation programs detailed in this IMP, the project will have the capacity to make up for the Root Creek Water District's current 3,400 acre-foot/year deficit, with a net water surplus of 2,735 acre-feet per year at build-out, if all available recharge facilities were to be maximized. While there is not commitment to operate the recharge facilities at that level, that high capacity provides assurance that the rolling average of 3,400 acre-feet/year can be met reliably.

X. STREET AND CIRCULATION SYSTEM

A. General

The purpose of this section is to identify the backbone street and circulation system within the project and outline policies that will be implemented to ensure adequate traffic capacity for movement of people, goods and services around and through Gateway Village.

The objective of the information provided in this section is to facilitate the planning process for sub-regional transportation facilities and individual developments by setting standards that will apply throughout the Village area. Locations of the Parkway (Type 3 and 3-Alt) and Secondary (Type 2 and 2-Alt) streets, together with the Gateway Village design standards, will provide a framework for design of individual project phases as they are brought forward.

Schematic alignments for the project's Parkway and Secondary streets are shown on **Figure 8** and in the IMP drawings. The alignments are not intended to be precise plan lines; they may be modified as additional neighborhood-level planning is completed over time. However, the areas served by each road will remain substantially similar and it is not anticipated that the traffic analysis presented under separate cover will be affected.

Neighborhood-level planning may introduce additional Secondary streets as neighborhoods are defined. Other changes and modifications could include changing particular secondary streets from single-loaded to double-loaded or vice-versa, adjusting intersection or roundabout locations to better-suit existing topography or facilitate final neighborhood layout, and final selection of street cross-section.

Street types indicated on **Figure 8** and in the IMP Drawings are intended to provide detail adequate for traffic capacity analysis and to allow decision-makers to assess the proposed overall design of the Village. Where a road of a particular Type is indicated (for example, a Type 2 Secondary street), detailed neighborhood design may result in any of the proposed sections of that type being constructed. That level of design detail is beyond the scope of this IMP.

Similarly, decisions regarding street loading and precise alignments are deferred to final design, to allow flexibility in programming the product mix of each neighborhood as the real estate market develops over the life of the project.

Should project design lead to a street layout which affects the traffic analysis conclusions and proposed mitigations, the developer shall submit a revised traffic analysis for review by the County, and shall make appropriate changes to the backbone road system to accommodate the actual traffic demands imposed by the proposed project.

Phasing of street improvement construction will be driven by the goal of maintaining Level of Service (LOS) D or better for all road segments and intersections affected by trips generated within Gateway Village. This IMP proposes an implementation schedule tied to specific development areas and phases.

Two points of connection to the County road system will be provided for all developments. Interior Parkway streets and certain Type 2 Secondary streets will be counted as part of the County road system for the purpose of determining points of connection. Primary access shall be provided by existing or master-planned roadways, improved in accordance with this IMP. Secondary access for emergency vehicles may be provided through all-weather access roads constructed in accordance with the Uniform Fire Code, Section 902 – Fire Department Access.

B. Existing Road System

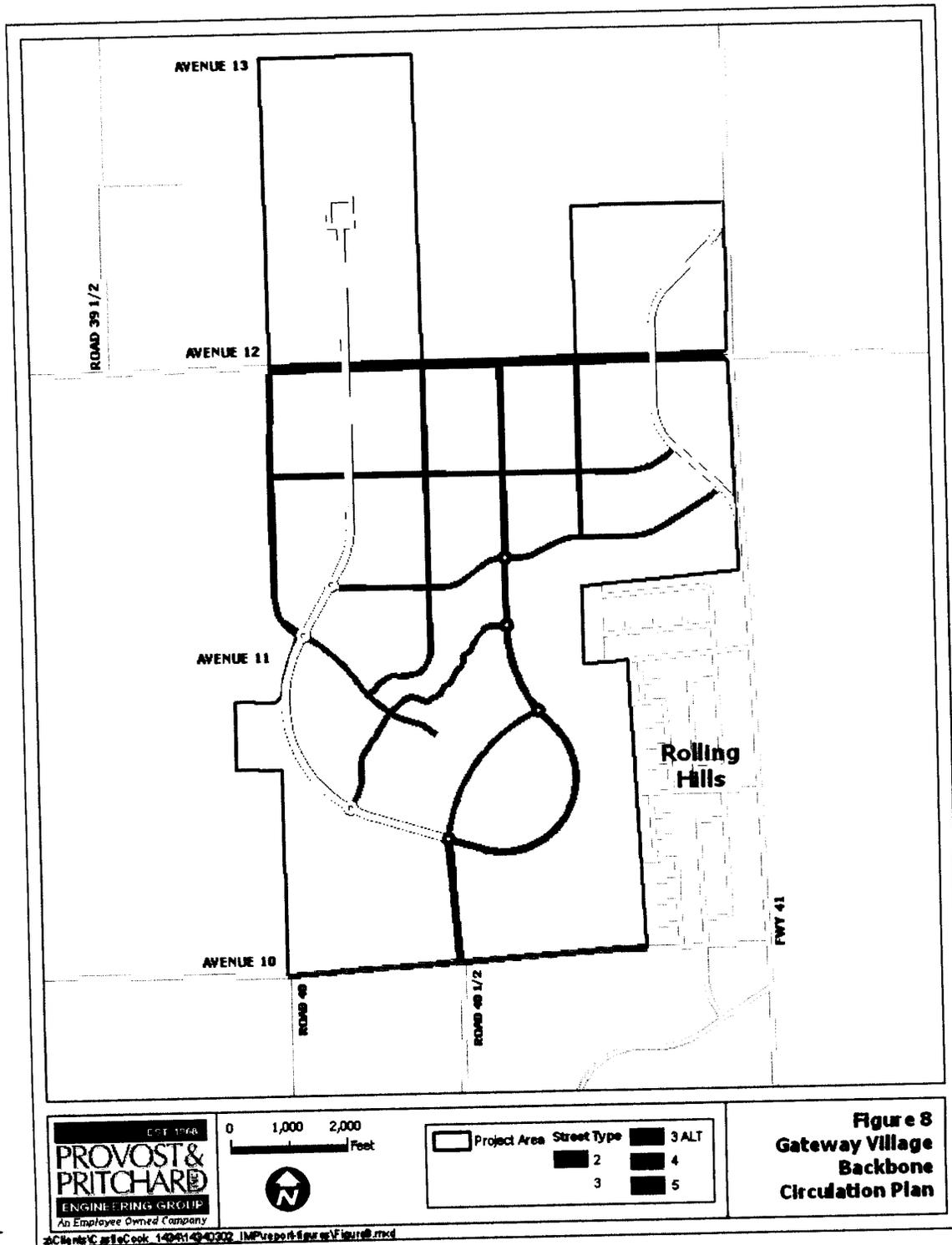
Several existing County roads cross through, border, or terminate at a boundary of the project area. Avenue 12, which crosses the northerly part of Gateway Village, is the major east-west thoroughfare and truck route in the southerly part of the County, connecting Highways 99 and 41. Avenue 12 is also the main street through the Madera Ranchos. It is fronted by a variety of land uses along its corridor, including agricultural, residential, commercial, and industrial.

Avenue 10, which forms the southerly border of Gateway Village, is served by an exit from Highway 41 but does not continue west to Highway 99. The Brickyard Industrial Park is on the north side of Avenue 10 between Roads 40 and 40-1/2, within the Gateway Village Area Plan and surrounded by Gateway Village on the north and east.

Avenues 10-1/2 and 11 each terminate at the easterly boundary of Gateway Village. Neither will not be directly connected to the Gateway Village street system. Neither connects to Highway 41, but both extend through the Rolling Hills subdivision to the West Frontage Road.

C. Layout and Designation of Proposed Streets

Gateway Village has been planned to follow Neo-Traditional concepts for residential and community development. The *Gateway Village Circulation Element* (prepared by TPG Consultants, **Appendix L**) provides an integrated transportation system designed to serve the needs of all residents through the use of functional streets, pedestrian and bicycle facilities and right-of-ways for public transit.



The Circulation Element incorporates a hierarchy of streets which provide for local, primary, and secondary functions. Main access to and from the MUC – Village Core land use district is from Avenue 12. Secondary access is provided via Valley Children’s Boulevard and Avenue 10. The backbone of the system is Root Creek Parkway, which connects all the neighborhoods of Gateway Village, and serves as the major link between Avenues 10 and 12. Root Creek Parkway has been designed with integrated pedestrian and bike trails along its heavily landscaped corridor.

Root Creek Parkway East has a transit component, in the form of a preserved right-of-way. The transit right-of-way is envisioned for future bus traffic in both directions. Initially it will be used for strategically located bus turnouts and additional landscaped right-of-way.

The plan also envisions a transit center incorporated into the MUC-Village Core land use district. Park-and-Ride facilities will be located in the MUC-Community Core land use district or in the commercial zone at Highway 41.

Local (residential) streets are pedestrian oriented, developed with traffic calming measures, and support both front-loading and rear-loading land uses.

The general layout of the backbone road system proposed for Gateway Village is shown in **Figure 8**. As discussed above, alignments shown are schematic, and are subject to revision as subdivision maps are prepared and actual design dimensions are determined.

D. Roundabouts

A significant feature of the proposed transportation system is the use of roundabouts as an element of the Village roadway network. Roundabouts will be used along Root Creek Parkway to provide for unimpeded integration with secondary streets (collectors). They will be used as gateways into neighborhoods they serve and, in smaller configurations, as design elements and traffic calming devices within the neighborhoods.

Roundabouts have a higher vehicle capacity than stop signs or traffic signals, require less maintenance than typical signal controlled intersections, and improve the aesthetics of the area while complementing surrounding streetscapes through island landscaping. Central island landscaping also serves to enhance the safety of the intersection by making the intersection itself a focal point of driver attention, and by reducing the perception of a high-speed through traffic movement.

Roundabouts will be designed in accordance with the Federal Highway Administration publication “Roundabouts: An Informational Guide,” and the Caltrans Standard Specifications.

E. Proposed Street Sections

Cross sections are provided in the IMP Drawings for each proposed road type, showing right-of-way width, pavement width(s), lane configuration, and special features such as median islands, bike trails, and landscape easements where appropriate. Many of these road types differ from roads of similar capacity as shown in the Madera County Standard Drawings. This IMP will govern over the Standard Drawings for all roads constructed within and bounding Gateway Village.

1. Root Creek Parkway

Root Creek Parkway (Type 3 and Type 3-Alt) will be a 4-lane divided street running in a looped configuration south of Avenue 12 to approximately as far south as the Avenue 10-1/2 alignment, and serving most of Gateway Village. It will have two points of connection with Avenue 12, identified as Root Creek Parkway East and Root Creek Parkway West, both of which will ultimately be signalized. Landscape areas will be created in the medians and along both sides of the road. No on-street parking will be accommodated. A separate bikeway/walking trail will be provided parallel to the street itself. As discussed above, Root Creek Parkway East, the easterly leg of the loop, will be configured with additional right-of-way and landscape width, to provide space for a future Transit Corridor.

Access to Root Creek Parkway will be limited. No driveways will be allowed. Product may front onto the parkway, but garages must be rear-loaded through an alley. Intersections along the Parkway will be limited to approximately 1/4-mile spacing, with some flexibility in that minimum to allow for neighborhood design.

Additional streets may intersect the Parkway, but will be limited to right-in, right-out access, or to left-turn access using a directional worm median. In either case, no left turns out of the crossing streets will be allowed.

Root Creek Parkway will be constructed to its ultimate width in several segments, as the phases of development proceed south and west from Avenue 12 and Highway 41. Segments will follow the boundaries of the various phases.

2. Village Collector Streets

Village collector (Type 2) streets will be constructed at the locations shown in **Figure 8**. These will be 2-lane divided streets with a variety of cross-sectional widths and construction details, providing access from the individual neighborhoods to Root Creek Parkway, Avenue 12, Avenue 9 or Avenue 10. Landscape areas will be created in the medians and along both sides of the road. On-street parking will be accommodated in many but not all segments, depending upon the specific road type. See the IMP Drawings.

3. Local Streets

The IMP drawings give several variations of Type 1 street sections, which will serve as local streets within the individual subdivisions. Neighborhood planning is beyond the scope of the IMP. With only a few exceptions, local road alignments are not shown on **Figure 8** but are reserved to the Tentative Map process.

F. Bikeways and Walking Paths

Bikeways and walking paths will be provided along Root Creek Parkway and other open-space routes as shown on the road sections.

Bike/pedestrian trails will also be provided on Secondary streets throughout the project, creating a connected network of trails, facilitating pedestrian and bicycle transportation throughout the development. Most trails will be within road rights of way. Others will be separate trails through open space areas. See the IMP Drawings.

A bikeway will be provided along Avenue 12, in accordance with the County Road Department's adopted Bike Lane plan. See **Appendix L**.

G. Transit Center

In keeping with Neo-Traditional design concepts, Gateway Village includes a Transit Center incorporated into the MUC-Village Core land use district. The Transit Center will be the hub of local and regional transit service, serving all areas within the Village as well as the outlying developments of Rio Mesa and Gunner Ranch West. Its key location, in the Village Core land use district along Avenue 12, will help to minimize traffic congestion within the area by reducing the number and length of automobile trips, thus decreasing air quality impacts. The architectural theme will be consistent with Village construction.

The Transit Center will be linked to Gateway's transportation network via a preserved transit right-of-way located along Root Creek Parkway that will provide two-directional access between housing areas and employment/shopping centers. Bus turnouts will be strategically located along the major project roadways and Village collectors.

Design details of the Transit Center are reserved to final project design. At minimum, the facility will be large enough to support local bus service within southeast Madera County.

At most, the facility may act as a regional hub, offering connecting services to the outlying areas of Madera, Fresno, Coarsegold, Oakhurst and Yosemite. A 3,000 to 15,000 square foot facility would house a ticket office, dispatch center, passenger lobby, public restrooms and general office space for support services.

Additional uses for the Center could include retail space and additional office space compatible with the facility.

H. Park-and-Ride

The park-and ride facility will consist of a 24-hour parking lot with provisions for up to 50 stalls. The facility will be able to accommodate both public transit users and drivers wishing to carpool from the Village. The facility will be located within the MUC-Community Core land use district along Highway 41.

I. Landscaping

The street cross-sections provide landscape areas along the road edges and along the center median, when present, as well.

Landscape and hardscape elements near traffic circles should be selected so that sight distance around traffic circles is maintained, pedestrian traffic within the island is discouraged, and vehicle hazards are avoided.

Specific proposals for landscape design and materials shall be submitted with each phase's improvement plans.

J. Phasing of Roadway Construction

All interior and exterior roads will be constructed in phases along with the build-out of the project. Local (Type 1) roads shall be constructed to their full proposed section complete with landscaping in a single phase.

Type 2, 3, 3 alt, 4 and 5 roads may be constructed partly with one phase and completed in another, so long as traffic capacity as required by the Traffic Impact Study is provided. The provisions of this paragraph may be used to defer construction of lanes, curbs and gutters, and landscaping, as may be appropriate in various situations.

For example, a Type 3 street bounding a subdivision phase may not be initially constructed to its full width. The curb, gutter, sidewalk, landscape area and possibly the number-one lane on the side away from the subdivision may be deferred until development occurs in that area. An exception to that would be when the road is also the boundary of Gateway Village in locations where no further development is planned or approved, in which case full improvements must be built all at one time.

Table 6
Schedule for Construction of Improvements to Internal Road System

Phase	Road	Scope of Improvements
1		Initial access to the northeasterly portion of the phase will be provided from the West Frontage Road and from Avenue 12. The following streets will be built with subsequent maps within Phase 1
	Root Creek Collector (North)	This Type 2 road along the north side of Root Creek will be built from the West Frontage Road to Root Creek Parkway East as subdivision mapping within Phase 1 reaches this alignment.
	Root Creek Parkway East	Will be built from Avenue 12 to Root Creek Collector (North) as subdivision mapping within Phase 1 reaches this alignment. Type 3-Alt.
	East-West Collector	This is the main east-west corridor within Phase 1, Type 2 cross-section, and will be constructed through Phase 1 in three segments: West Frontage to easterly North-South Collector; Easterly N-S Collector to Root Creek Parkway East; Root Creek Parkway East to westerly N-S Collector
2	Unnamed Collectors	Two east-west corridors within Phase 2, Type 2 cross-section, to be constructed as shown on the Circulation Element
	Root Creek Collector (North)	Type 2 road along the north side of Root Creek will be built from Root Creek Parkway East to Root Creek Parkway West
	Root Creek Parkway West	Will be built from Avenue 12 to Root Creek Collector as subdivision mapping within Phase 2 reaches this alignment. Type 3.
3	Central Collector	This Type 2 road running north-south in the center of the phase will be built from Avenue 12 its northern limit as subdivision mapping within Phase 3 progresses.
5	Unnamed Collectors	North-south and east-west corridors within Phase 5, Type 2 cross-section, to be constructed as shown on the Circulation Element
	Root Creek Collector (South)	Type 2 road along the south side of Root Creek will be built from Root Creek Parkway East to Root Creek Parkway West
	Root Creek Parkway East	Complete loop from Root Creek Collector (North) to Avenue 10. Type 3-Alt cross-section.
	Root Creek Parkway East	Complete loop from Root Creek Collector (North) to Root Creek Parkway East. Type 3 cross-section.

Avenue 12 will be constructed in phases. As the development proceeds to build west through Phases 1, 2 and 3, construction will be carried out in logical segments, as set forth in **Table 7** below.

Table 7
Schedule for Construction of Improvements to County Road System

Phase	Road	Scope of Improvements
1	Avenue 12	Highway 41/Avenue 12 intersection improvements, two additional lanes from 41 to Root Creek Parkway East, transition lanes west of Root Creek Parkway East, south side landscaping and decorative wall. No new curb/gutter or median. Lanes shall be constructed to allow for future widening to ultimate lane configuration without demolition of the interim lanes. Wall shall be located at the ultimate right-of-way width (typical, all phases).
	West Frontage Road	Widen west side to Type 3 cross-section from Avenue 12 to south line of Phase 1.
2	Avenue 12	Two additional lanes from RCP East to Road 40, transition lanes west of Road 40, south side landscaping and decorative wall. Curb/gutter from Highway 41 to Road 40
	West Frontage Road	Widen west side to Type 3 cross-section from south line of Phase 1 to Root Creek. Widen east side to Type 3 cross-section from Avenue 12 to Root Creek. Potential traffic signal at intersection with main entrance to the Village (un-named East/West secondary street) if warranted.
	Road 40	Westerly boundary of Gateway Village between Avenue 12 and Root Creek. Type 2 cross-section.
3	Avenue 12	Four additional lanes from 41 to RCP East, transition construction west of RCP east, traffic signals at RCP East and RCP West, median curb and landscaping from 41 to Road 40.
4	Avenue 10	Widen from 2 lanes to 4 lanes from Road 40-1/2 to West Frontage Road, Phase 4. Assumes widening on north side only, with Gunner Ranch having responsibility for south side. Cross section will be Type 4 on north side, travel lanes only on south side.
	West Frontage Road	Construct to Type 3 cross-section from north line of Phase 4 to Avenue 12.
	Road 40-1/2	Southerly extension of Root Creek Parkway, from the parkway loop to Avenue 10. Type 3-Alt cross

section.

- 5 Southbound SR 41 exit Intersection improvements including additional lanes.
at Children's Boulevard

With the exception of Avenues 10-1/2 and 11, which are not part of the project, the existing County roads contiguous with the project will be improved as the phased development proceeds far enough to include the affected road segment. The road segments and the anticipated phase during which they will be approved is set forth in **Table 7**, above.

K. Environmentally-Beneficial Project Features

Landscaping plans will be developed and designed to preserve natural features, as feasible, and will include the use of native species along the project roadways and frontages.

Street lights and project entry signage will be incorporated into the streetscape landscaping and will be designed to blend with the natural features of the site.

Solid fences and walls will be avoided to the maximum extent feasible, except for noise attenuation. Any solid walls or fences used will be colored to blend in with natural surroundings, and will be "softened" with landscaping.

Street lights will high-pressure sodium luminaires, shielded in such a manner that no light is emitted above a horizontal plane.

Dense planting of native landscaping, including shrubs and trees, will be provided along all project primary roads and Root Creek Parkway, as well as along all commercial and employment centers and the Mixed Use land use districts.

Existing County roads surrounding the project will be improved as the project progresses to continue to provide a minimum LOS D on affected segments and intersections.

In addition to the implementation mentioned above, the project's designers will make specific proposals addressing these measures in the construction drawings prepared for each phase of the development, to the satisfaction of the County of Madera.

XI. IMPROVEMENTS TO CALTRANS-OWNED FACILITIES

This section proposes a program of improvements intended to provide full mitigation for project impacts to Caltrans facilities, to the satisfaction of Caltrans.

Caltrans has created a State Route 41 Schedule of Improvements and Phasing Plan (herein "Schedule") meeting this requirement. The Schedule outlines the improvements that are required and when each must be delivered, in terms of the number of project rooftops constructed -

The Traffic Impact Study and the Project Study Report prepared for Caltrans by TPG will contain details about each of the scheduled projects, which are summarized in **Table 8** below.

Table 8
Caltrans Schedule of State Route 41 Improvements

Project Description	Threshold	Phase
Improvements to SR 41/ Avenue 12 intersection including right-turn lanes and double left turn lanes on all legs, signal improvements. Signalization of Avenue 12 and the SR 41 Frontage Road.	Opening Day	1
"Ultimate" intersection improvements at SR 41 and Avenue 12, including additional through lanes and signal modifications.	1,500 units ⁵	2
Construct SR 41 northbound lane from Avenue 11 to Avenue 12, including construction of an additional SR 41 bridge over Avenue 11.	3,000 units	3
Construct SR 41 northbound lane from Fresno County line north to Children's Boulevard interchange	4,000 units	3
Construct SR 41 southbound lane from Fresno County line north to Children's Boulevard interchange	4,900 units	4
Construct 5th and 6th lanes on SR 41 from Avenue 11 to Avenue 12; construct signal improvements at Avenue 12	5,800 units	5

XII. OTHER UTILITIES

Other utilities, including electric power, natural gas, telephone, cable TV, fiber optics) will be provided by extension of facilities by regional utility companies.

⁵ Units of Gateway Village development, not counting other development in the southeast County area.

A. Electric Power and Natural Gas

Electricity and natural gas will be provided by Pacific Gas & Electric Company by extension of lines from the Rolling Hills/Children's Hospital area and from the intersection of Highway 41 and Avenue 12.

B. Telephone/ Internet

Telephone infrastructure will be provided by AT&T, which has lines along Avenue 10 to serve the Brickyard Industrial Park. This infrastructure was planned with the capacity to serve Gateway Village as well. Along with telephone, AT&T offers DSL Broadband Internet Service.

C. Intranet

The Gateway Village will include wiring adequate to allow full interconnection of all houses and community facilities so that residents will have direct access to community information and services on an established Intranet, maintained by the community.

D. Cable TV

Cable TV will be provided by Comcast, or by a private system installed by the developer. Service will be offered concurrent with the first residents, as the Specific Plan's design guidelines will prohibit roof-mounted antennae.

E. Solid Waste Disposal

The County has a franchise agreement with Madera Disposal Service (MDS), providing that MDS has an exclusive right to provide solid waste disposal services in the unincorporated areas of Madera County south and west of the Madera Canal. Gateway Village will be subject to this agreement and expects that MDS will provide once-per-week curbside collection service to all homes and a range of commercial pick-up services to all businesses within the Village.

To enhance Madera County's waste diversion performance under the mandates of AB 939, Gateway Village solid waste customers should be provided with the individual containers required to conduct source-separated recycling. Three containers will be needed for each residential customer: domestic garbage, mixed recycling materials, and green wastes. Each should be collected weekly.

During construction, waste wood, concrete, drywall and roofing materials should be segregated and collected separately for recycling, to avoid sending these materials to landfill.

XIII. FIRE PROTECTION

A. General

Madera County Fire Department, through contract with the California Department of Forestry (CDF) provides fire protection services in unincorporated areas of Madera County. The project site is not located in a fire hazard zone or in a State Responsibility Area. The Developer will enter into contract with Madera County Fire Department and/or CDF directly to provide fire protection services within the project area. The agreement shall provide that existing fire protection services to other areas of responsibility are not adversely affected by the project.

There are two established fire stations in the vicinity of the project site. These are shown on **Figure 9**. The proximity of Fire Stations 9 and 19 will allow Gateway Village to easily comply with County Planning Policy 3.H.2, which calls for a maximum average first-alarm response time of 15 minutes in suburban areas.

B. Fire Station 9

Fire Station 9 is located on Avenue 11 in Rolling Hills, approximately 1/2 mile west of Highway 41 and one mile south of Avenue 12. There will be no connection between Avenue 11 and the Gateway Village circulation system. This means the Fire Department's response distance to the center of the project is approximately 2-1/2 miles, or approximately seven minutes. Response time to the proposed Phase 1 area south of Avenue 12 and west of the Highway 41 frontage road will average less than five minutes.

C. Fire Station 19

Fire Station 19, Bonadelle Ranchos, is located on Road 36 near Avenue 15, approximately five miles west and three miles north of the project site. Travel time to the site is approximately eleven minutes.

D. ISO Rating of the Fire Response System

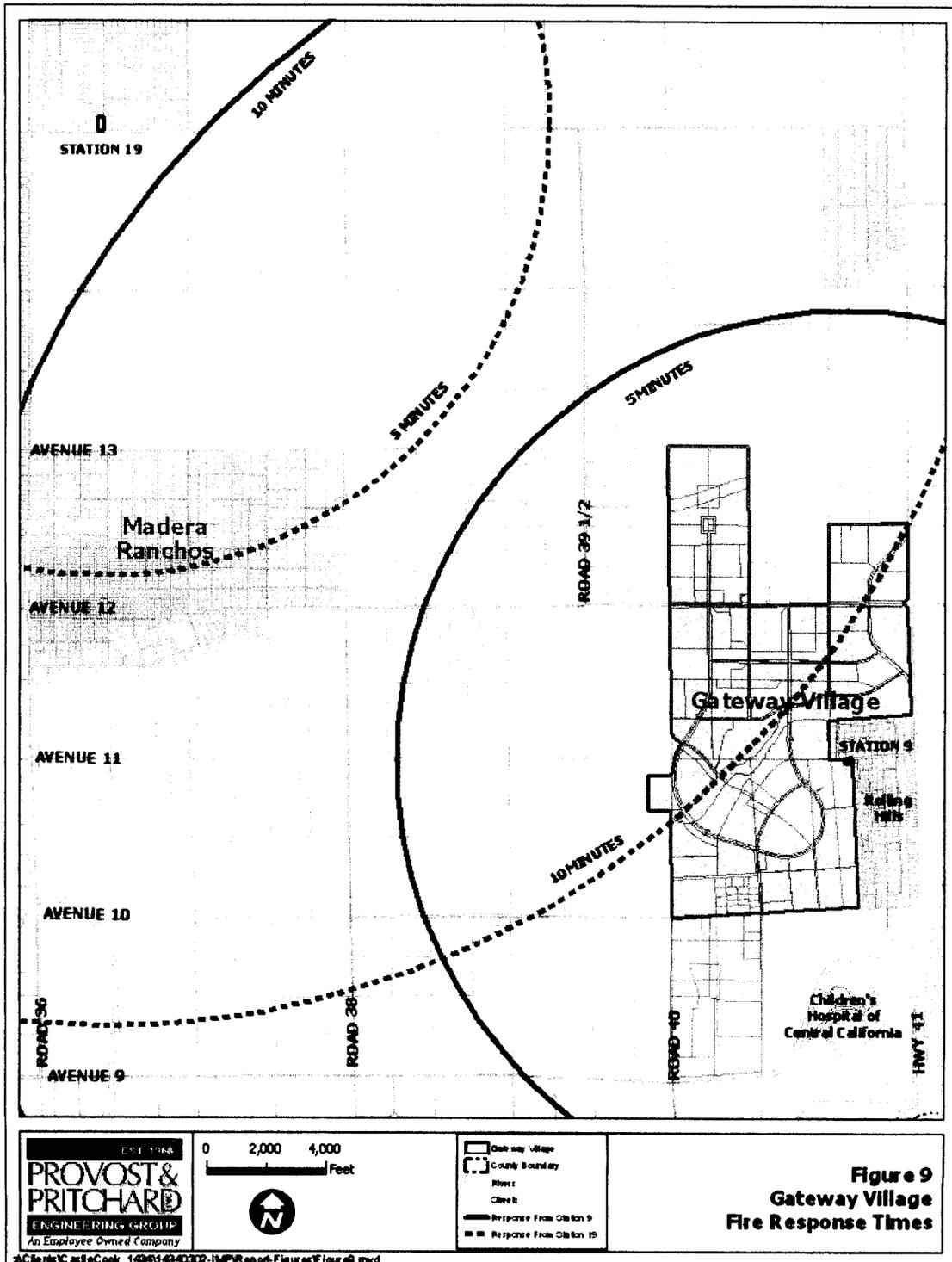
Compliance with County Planning Policy 3.H.1 would mean raising the ISO rating of the site from its current level of ISO 9 to the policy-recommended ISO 6. ISO ratings are calculated depending upon a number of factors. Among these are average first alarm response time, size and type of available fire-fighting staff, available fire flow, and reliability of water supply.

Provision of a municipal water supply capable of meeting the fire flow, back-up storage and stand-by power generation requirements set forth in this IMP will give the Madera County Fire Department the infrastructure and equipment needed to achieve the desired ISO rating for the project area.

E. Proposed Facilities

Gateway Village will be constructed in phases, and so will have initially only incremental impacts upon the existing fire protection infrastructure in the area. Because of its proximity to Fire Station 9, no additional facilities are anticipated with the first phase, other than the construction of a water system, storage and back-up power facilities as outlined in this IMP.

All commercial, industrial and institutional facilities will have fire sprinklers.



F. Development Triggers

As the development proceeds toward build-out, additional equipment and staffing within Fire Station 9 may be required.

Alternatively, Fire Station 9 may be closed at the direction of the County. Should that be the case, a new fire station site would be required. This site could be located on Gateway Village property (perhaps near the intersection of Avenue 12 and State Route 41), or could be on neighboring property within the Gunner Ranch West development. Once the County determines its preferred site for the station, more detailed plans can be developed. Gateway Village will participate in a pro-rata share of the cost of construction of the new station, on a per-unit or per dwelling basis to be determined after additional study by the County.

XIV. PUBLIC SAFETY

A. General

Law enforcement in the unincorporated areas of Madera County is provided by the Madera County Sheriff's Department. The Department has set a goal of maintaining a ratio of 1.25 sworn officers per 1,000 population county-wide. Currently the ratio is nearer 1.1 per 1,000. With the estimated population of Gateway Village at build-out approximately 19,600, the Sheriff's Department will require an additional 25 sworn officers to meet its ratio goal.

The Developer will enter into contract with Madera County Sheriff's Department to provide law enforcement services within the project area. The agreement shall provide that existing law enforcement services to other service areas are not adversely affected by the project.

As with fire protection, the impact of this project will be incremental. The first 1,000 population (approximately 300 houses) would require only one additional officer to meet the ratio goal.

B. Proposed Facilities

C. Development Triggers

D. Environmental Compliance

The developer plans to enter into an agreement with Madera County Sheriff's Department for the provision of law enforcement services within the project, prior to approval of subsequent Tentative Maps and/or non-residential development within the project area.

