

## **Appendix 1-A2**

# **DEL RIO COMMUNITY PLAN**

Adopted by the Stanislaus County Board of Supervisors

AUGUST 1992\*

*\*An update to the Community Plan map to reflect previously approved amendments to the Community Plan were adopted on August 23, 2016, as part of the 2015 General Plan Update.*

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# DEL RIO COMMUNITY PLAN

## AREA I

- APPROVE GENERAL PLAN AMENDMENTS
- REQUIRE PLANNED DEVELOPMENT
- REZONING ON NEW PROJECTS
- REQUIRE PROJECTS TO CONFORM TO AIR QUALITY / WATER MITIGATION MEASURES
- GENERAL PLAN DESIGNATIONS: LOW DENSITY RESIDENTIAL AND AGRICULTURE

## AREA II

- GENERAL PLAN AMMENDMENTS POSTPONED UNTIL A DETAILED STUDY IS PREPARED OF WATER / AIR / AGRICULTURAL BUFFERING / CIRCULATION AND COMMUNITY SERVICES ISSUES
- GENERAL PLAN DESIGNATIONS: AGRICULTURE / SPECIFIC PLAN OVERLAY

### Legend:

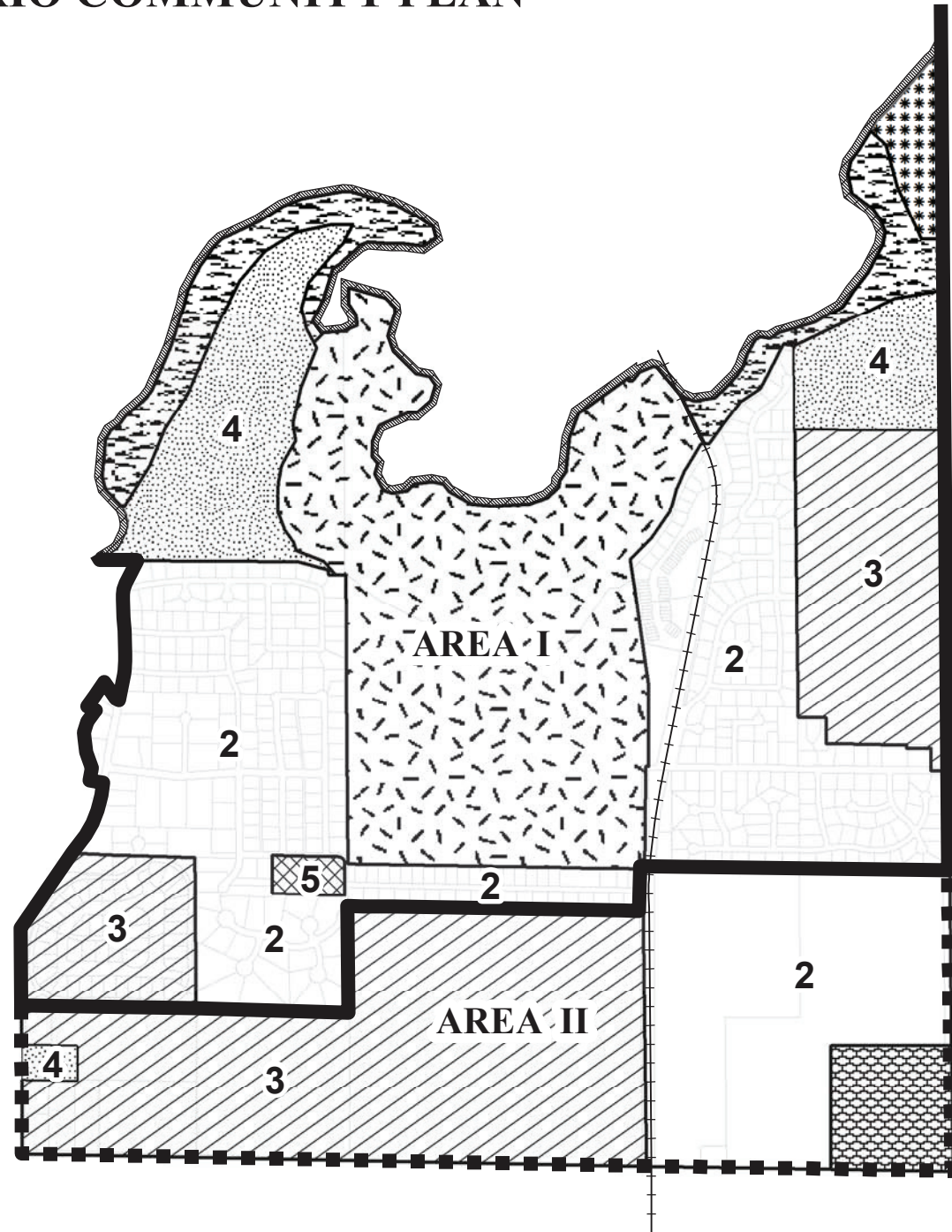
- AREA I
- AREA II
- ▨ Stanislaus River
- Del Rio Parcels
- +— Railroad

### Community Plan Land Use Designations:

With residential densities by Sub Area: Dwelling Units (DU) per Acre (AC)

- ▨ Recreation: No Residential Density
- ▨ Open Space: No Residential Density
- ▨ Ag Use: No Residential Density
- ▨ Commercial: No Residential Density
- Sub Area 2: 2 DU / 1 AC
- ▨ Sub Area 3: 1 DU / 1 AC
- ▨ Sub Area 4: 1 DU / 2 AC
- ▨ Sub Area 5\*: 4.5 DU / 1 AC

\*Approved August 28, 2012 as GPA # 2012-447



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## I. INTRODUCTION

A community plan is a focused planning policy and land use planning document that is part of the General Plan. It addresses a particular region or community within the overall planning area.

Community plans provide means for resolving local conflicts where there are a variety of distinct communities or regions deserving special attention. The plan must be consistent with the General Plan as it is actually a part of the County General Plan.

In February 1990, the Stanislaus County Department of Planning and Community Development initiated an update of the Del Rio Community Plan. This plan was originally adopted in 1980, and the findings and recommendations of the plan were primarily a reflection of the County's policy of preserving prime agricultural land and the sentiment of the Del Rio residents, who were overwhelmingly in opposition to large scale development in the area. The passing decade has seen continued pressure for additional development in this area.

The County subsequently contracted with the planning firm of STA, Inc., to prepare an EIR and develop an updated Del Rio Community Plan. Financial support for this project was obtained from three developers who had already proposed developments on three sites in Del Rio.

Updating the Community Plan required input from existing residents of Del Rio. To a limited degree, this was accomplished through a Scoping Meeting. At this meeting STA presented four different proposals to solicit input as to a 'preferred' plan. It was apparent from this meeting that, though many residents were inclined to resist substantial increases in residential development in Del Rio, there was no clear consensus of how much additional development was desired. An EIR was prepared which analyzed the impact of the full build-out option and two alternative proposals with less development. The Del Rio Property Owners Association then sent out a questionnaire to property owners to assess the community's preferences and their support for a Community Services District. More than 70 percent of the residents responding to this questionnaire indicated their preference for Alternative A, the proposal with the least amount of residential development. Only 18 percent supported the full buildout plan alternative. An ALTERNATIVE DEL RIO COMMUNITY PLAN, prepared by R. Myles Riner and Jamie Aggers, was presented to the Planning Commission and the Board of Supervisors in November and December of 1990. This plan was based in part on the responses to the questionnaire, and on the analysis of the EIR which indicated that Alternative A was environmentally superior to the other two alternatives. At the December Board meeting it became apparent that the EIR project was incomplete.

The Board of Supervisors returned the Del Rio Community Plan and EIR to the Planning Department for further review of additional information which had not been available to the Commission. Subsequently, additional reports from Geological Technics, Inc. and Simons and Associates on the geologic, hydrologic, and environmental impacts of development in the Del Rio area were received, and an analysis of this report by the Department of Environmental Resources was made available. An Air Quality Impact Report by Earthmetrics was also

circulated for review. These reports and subsequent DER and Air District analysis have been incorporated into the plan EIR. The EIR serves to analyze the impacts of this current Del Rio Community Plan. It is, however, insufficient to address the cumulative impacts of development in Area II on the entire Del Rio area. This current plan has evolved from all aspects of the lengthy Community Plan basis, but is based in large part on the Alternative Draft Community Plan document.

This Community Plan proposes development of the Del Rio area as a mixed residential, recreational, and agricultural community with residential, natural open space/recreational, and agricultural use **which consist with and would maintain the essential character of the existing community.** Future residential uses would continue the low-density development already present, and would be incorporated gradually over the next 12-15 years. Recreational uses would be expanded through the designation of natural open space; incorporation of recreational and/or open areas in future development; and, at the discretion of the Del Rio County Club and the County, expansion of the golf course. Agricultural use would be gradually confined to the southern portion of the community, with efforts made to decrease the incompatibility impact of adjacent agricultural and residential uses.

Further development of property in Del Rio beyond that indicated for Area I of this Community Plan could gradually change the essential character of the community, result in significant impact on the present community, and substantially increase the services and facilities needed to support the community. No such development should be approved unless and until a detailed study is first conducted which addresses the cumulative impact of this additional development on the entire Del Rio area. Development of land in Area II would require the development and approval of a Specific Plan which encompasses all of Area II, and which provides full mitigation of the impacts identified in the updated EIR and in this plan. In addition, no such development should be approved unless and until a referendum of the existing residents of the Del Rio community is conducted to determine if there is community support to finance (if this would be required of current residents) any of the necessary mitigation measures for additional services and facilities required. The specific plan shall address this issue in more detail.



## **II. GOALS AND POLICIES**

It is the purpose of this section to state overall goals and policies adopted by the County Planning Commission and the Board of Supervisors concerning growth and land use in the Del Rio area. These statements listed below are official goals and policies of Stanislaus County with respect to the Del Rio area.

### **GOAL 1**

Future development should occur in an orderly manner to meet the needs of existing and future residents.

#### **POLICY A**

Until otherwise updated or amended, future development for Del Rio shall take place in accordance with the Community Plan.

### **GOAL 2**

Prime agricultural land in the Del Rio vicinity should be preserved in areas where incompatibility impacts between agriculture and residential uses can be minimized.

### **GOAL 3**

Further development in the Del Rio area should be planned to ensure that adverse impacts on services and utilities, schools, transportation and circulation, agriculture, water, and air quality are appropriately mitigated.

#### **POLICY A**

All future developments in Del Rio shall be Planned Developments and, in Area II, approved only after a specific plan and EIR are prepared for Area II which address cumulative development impacts on the entire Del Rio area, Community Plan conformance, and methods of plan implementation.

### **GOAL 4**

Future development in the Del Rio area should be supportive of a high quality rural/residential/recreational life style.

### **GOAL 5**

Future development shall be served by adequate public infrastructure.

#### **POLICY A**

All future development in Del Rio shall require underground utilities and facilities for community-wide secondary sewage treatment and water supply systems.

**GOAL 6**

Significant natural resources in the community shall be preserved.

**GOAL 7**

The Del Rio community shall not be allowed to become an example of inadequately planned leap-frog urban development on prime agricultural land which outpaces demand and overrides community sentiment.

### **III. LAND USE PLAN**

#### **LAND USE – RESIDENTIAL**

Land use in Area I of the Del Rio Community Plan area includes residential units developed as both attached and detached family homes, agricultural use largely located in the southern portion of the Del Rio area, and open space and recreational use. As of June of 1992, there are only two substantially sized locations which are not already developed or approved for development in Area I. Area II, however, the southerly portion of Del Rio, presently remains in productive agricultural uses.

#### **STANDARDS FOR FUTURE RESIDENTIAL DEVELOPMENT**

The Del Rio Community Plan establishes the following standards for future residential development in Del Rio Area II:

1. All future residential developments within Area I and Area II of Del Rio shall be Planned Developments (PDs). Planned Developments in Area II shall be consistent with a Specific Plan for Area II which addresses the cumulative impacts of this additional development on the entire Del Rio area.
2. Planned developments adjacent to agricultural land shall be required to incorporate buffers, such as roads, green belts, or natural open spaces, between residential and ag use so as to minimize potential use incompatibilities.
3. Planned Developments shall incorporate minimum standards for set-backs and streetscapes approved by the Planning Commission following consultation with the Del Rio Property Owners Association.
4. Future Planned Developments within Del Rio shall not be gated for the purpose of restricting access to the public.
5. Future Planned Developments within Del Rio shall dedicate, in land or funding, the equivalent of at least 15 percent of the project site to natural or landscaped open space with public access. This standard shall not restrict the developer from dedicating additional space for the exclusive use of property owners within the Planned Development. The Specific Plan shall address this issue in detail and include recommendations for implementation.

#### **RESIDENTIAL DENSITIES**

Residential densities for Del Rio shall be shown on the Del Rio Community Plan map. For Area I, the densities shown shall be used in conjunction with the Low Density Residential General Plan designation. For Area II, the densities shown shall serve as the basis for Specific Plan analysis including designing of water and sewage systems, road, and other service needs. The documents shall also provide the baseline for CEQA analysis.

The exact boundaries of these densities as they are eventually implemented shall be determined by the Specific Plan.

## **TIMING OF RESIDENTIAL DEVELOPMENT**

Residential development in Del Rio has generally kept pace with demand, with residents of the community seemingly supportive of this approach. In order to ensure that residential development does not outstrip demand, that there is adequate time to assess the impact of each subsequent development on the environment, and that the utilities used in the area are effective; this Plan includes the following provisions:

The Board of Supervisors will approve the proposed Planned Development in Area II of Del Rio only if the Planned Development conforms to the Specific Plan. The Specific Plan shall include a phasing program to ensure that proper infrastructure and services are available, as well as to provide for a growth rate consistent with maintenance of the character of the Del Rio area.

## **GOLF COURSE EXPANSION**

This plan anticipates that the Del Rio Golf Course expansion will take place at some time in the next few years, and in fact, this plan would allow the expansion to occur at any time, or not at all, at the discretion of the Del Rio County Club and the County. Any such expansion into the easements held by the U.S. Army Corps of Engineers must be approved by that agency and other appropriate Federal agencies. However, the existence of the Del Rio Golf and Country Club in the area was and remains the major justification for the use of adjacent prime agricultural land in the area for residential development. Considering the current waiting list for membership in the club; unless the golf course is expanded and the membership enlarged, some of the justification for further residential development in the Del Rio area will be missing. The Specific Plan process EIR shall therefore, acknowledge and discuss the membership status of the Country Club as of the time the plan is actually prepared.

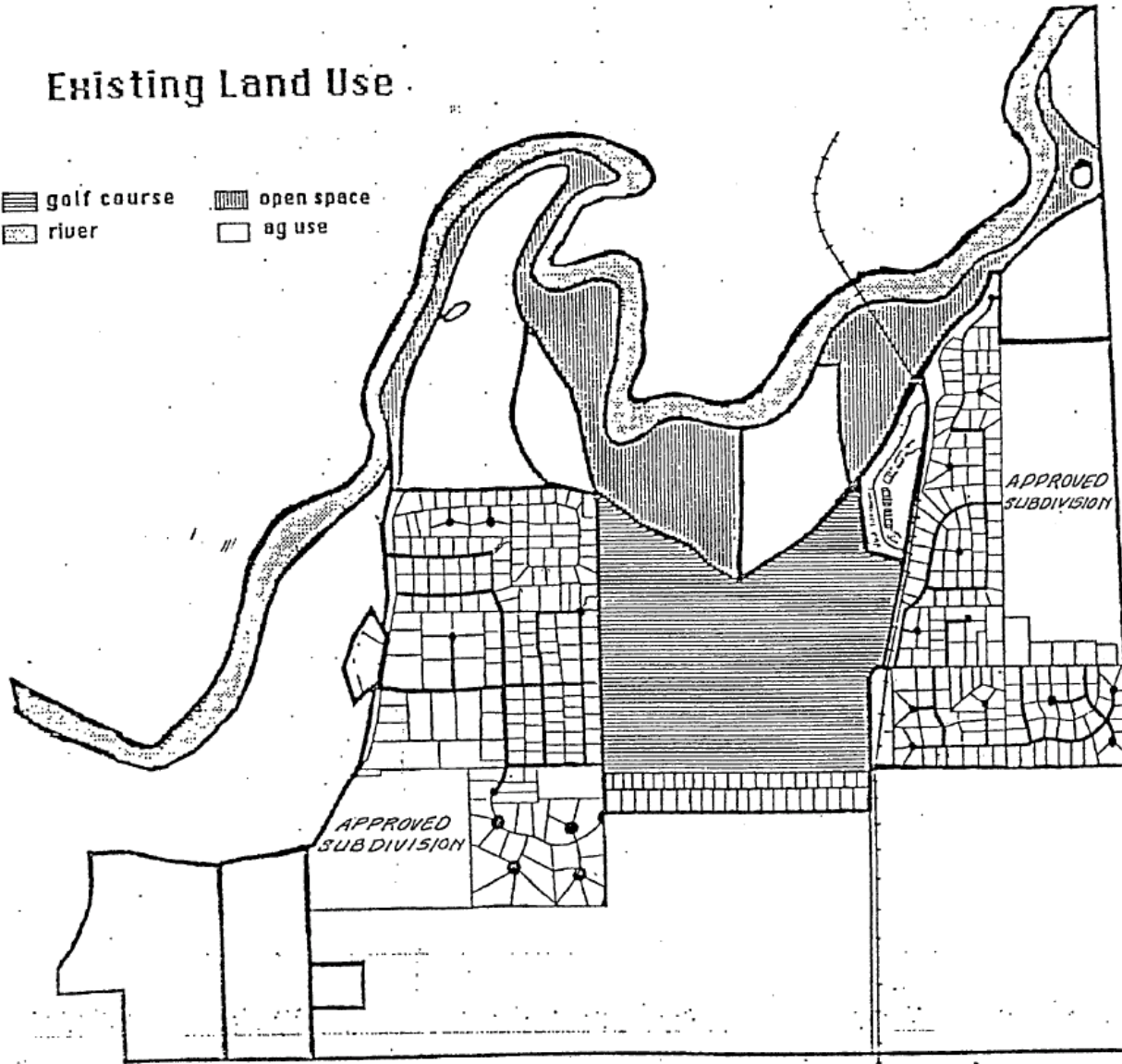
## **AREA I**

Any Planned Development on the northwesterly portion shall incorporate further improvements to Carver Road, to the intersection of Carver Road and Ladd Road if indicated by the project EIR, and also to the intersection of St. John Road and Ladd Road. This Planned Development may also incorporate walking or biking trails, open to the public, adjacent to the areas designated in this Plan as Natural Open Space along the river if this is found to be environmentally acceptable, subject to the review and approval of appropriate Federal and State agencies.

Any Planned Development on the easterly portion will incorporate further improvements to McHenry Avenue and of the intersection of St. John Road and Ladd Road. This Planned Development will also incorporate a walking or biking trail, open to the public, adjacent to the areas designated in this Plan as Natural Open Space along the river, again only if this is found to be environmentally acceptable by all appropriate agencies.

# Existing Land Use

- golf course
- river
- open space
- ag use



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## **AGRICULTURAL USE**

With the ultimate development of both Area I and Area II, agricultural uses within the area covered by the Community Plan will be eliminated. The Area II Specific Plan must address this conversion by phasing developments and requiring the location of development to be such that it avoids premature cessation of or impacts to remaining farmland. The goal is to keep farmland within Del Rio in production as long as possible, while at the same time allowing orderly growth consistent with the Community Plan and the Specific Plan.

The continued agricultural use of land surrounding Del Rio will help to sustain the existing rural atmosphere of the area, promote ground water recharge and preserve this prime agricultural land for further generations. However, it will also result in unavoidable impacts related to the potential incompatible residential and other uses within the Community Plan area. In order to minimize these impacts as much as possible, the Specific Plan shall make provisions for buffers between new development and remaining agricultural area, with the buffers being located within the boundaries of the development as opposed to being on the farmland.

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## **OPEN SPACE/RECREATION/OTHER**

### **NATURAL OPEN SPACE**

Within the Del Rio community there exists approximately 75 acres of land comprised mostly of riparian vegetation. This area is located adjacent to the Stanislaus River and runs along the northern community plan boundaries. Riparian woodland habitat and its associated vegetation and animal species are considered biologically significant. This plan designates these areas as Natural Open Space, and in addition, a significant portion of the golf course extension will remain as natural open space. This designation would preclude future residential development from occurring along, and provide for scenic transition to, the permitted uses within this area. The Natural Open Space designation shall, at a minimum, correspond to the 8,000 cubic feet per second easements for flowage and vegetation held by the U.S. Army Corps of Engineers, shown on the Flowage & Fish & Wildlife Easement map and no uses will be permitted therein unless specifically approved by the Corps and other appropriate agencies consistent with all applicable regulations.

### **RECREATION**

Del Rio Golf Course and Country Club (private) currently encompasses approximately 130 acres in the center of the Community Plan area. The 18-hole golf course is proposed to be expanded, by adding approximately 30 acres for a future total of 160 acres and 27 holes. This golf course is private, open to members only, and includes several tennis courts on-site. On the north side of the Stanislaus River access from the Del Rio community there is a large state park adjacent to the river which is accessible to the residents of Del Rio via River Road off McHenry Avenue. Swimming and picnic table are available.

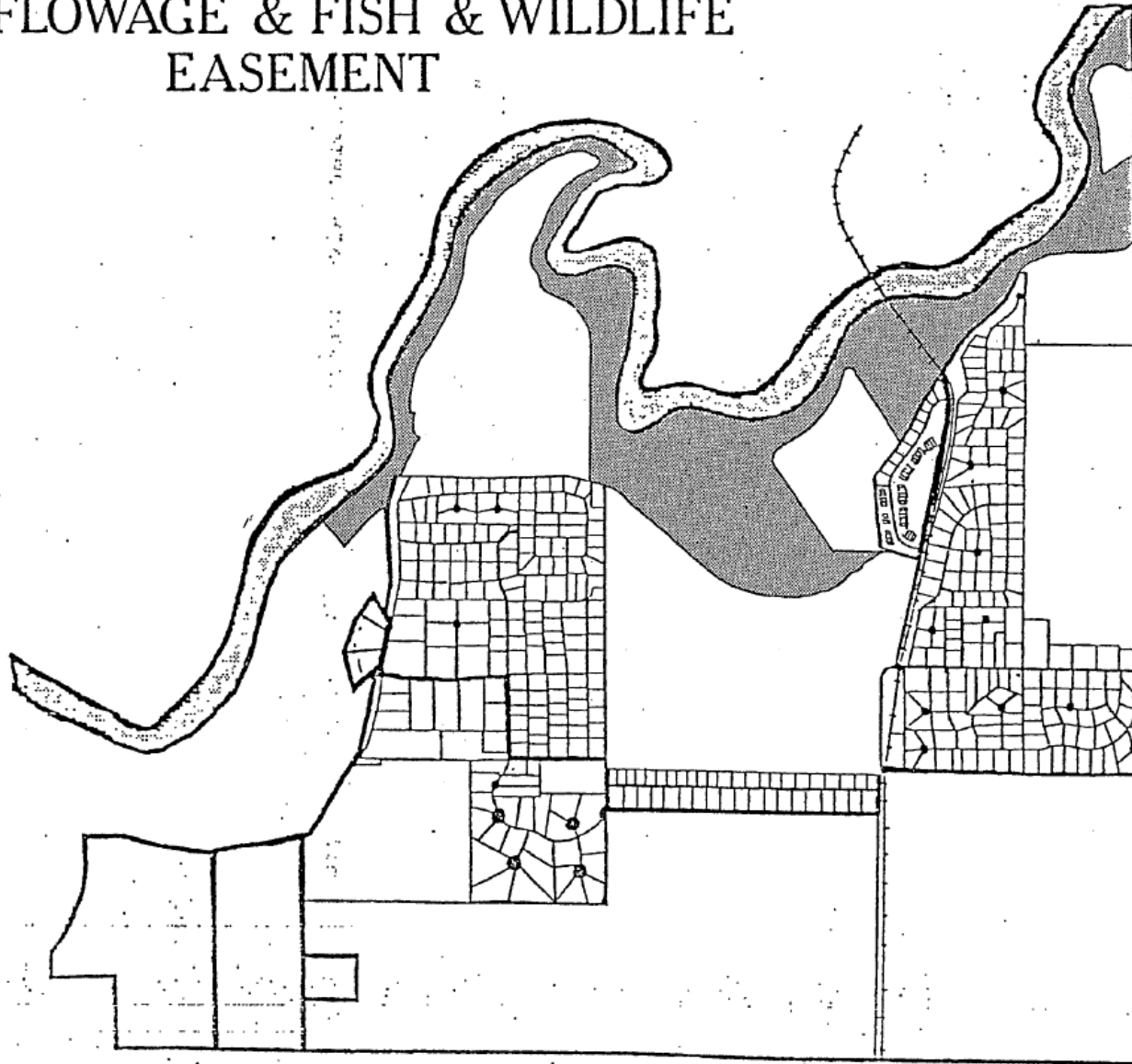
Most of the homes in Del Rio area are built on large lots, and many have private pools or other recreational amenities (such as tennis courts or spas) on-site. Many of the residents of the Del Rio area belong to the Del Rio County Club. Considering the Insert Flowage & Fish and Wildlife Easement recreational opportunities available to most of the residents of Del Rio; the need for a public park incorporating additional recreational amenities such as tennis courts, or swimming pools or existing future residents is not altogether clear. Some residents have expressed concern that a public park in Del Rio may not be adequately patrolled during evening hours. The Specific Plan prepared for Area II shall include provisions for establishing and maintaining a neighborhood park consistent with County General Plan standards.

### **LANDSCAPING**

Although there are some sentiment for the development of thematic landscaped parkways treatments and gated entry into and within the Del Rio community to provide a sense of community and security; there is no strong consensus to support or finance this approach among Del Rio residents, especially since the Del Rio community currently enjoys one of the lowest crime rates in the County, and many residents have chosen to live in the Del Rio area because of its rural atmosphere and the lack of thematic constraints on residence construction or landscape appearance. There is no clear mandate or strict necessity to reinforce the boundaries of the community. However, minimum standards for streetscapes and setbacks may be recommended by the Del Rio Property Owners Association to the Planning Commission as part of the Specific Plan process and in the review of subsequent development projects.

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# FLOWAGE & FISH & WILDLIFE EASEMENT



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## **COMMERCIAL/SCHOOL**

### **COMMERCIAL**

No commercial uses currently exist within the community plan boundaries. As future development occurs (and due to the isolated location of the community) neighborhood commercial uses were proposed in the STA Plan. This area (20acres) was located at the southeast corner of the community, adjacent to McHenry Avenue and Ladd Road.

Uses would be in accordance with those uses allowed under the County's Neighborhood Commercial zone, and could include: financial institutions, backer shops, service stations, and retail stores. The Specific Plan for Area II shall include a listing of the uses which would be allowed.

As with the proposed neighborhood park, the neighborhood commercial site would be intended as a convenience to serve community residents. The Specific Plan for Area II shall address the placing of a neighborhood commercial designation within the Plan boundaries at the corner of Ladd Road and McHenry Avenue.

### **SCHOOL**

Students from the Del Rio area attend school either at Stanislaus School located on Kiernan, Prescott Junior High located on Rumble Road in Modesto, or Davis High School located in Modesto. Stanislaus and Prescott Junior High are part of the Stanislaus Union School and Davis High is part of the Modesto High School District. Bus service is available to all students in the area on a daily basis.

No school sites currently exist on-site in the Del Rio area. As buildout of the community occurs, the influx of additional residents may warrant the need for an elementary or junior high level school. Enrollment levels for these two schools currently serving the area are at or near capacity.

At this point in time, the Stanislaus Union School District is uncertain as to exactly where or when district growth, including that occurring at Del Rio, will necessitate a new school site. This decision is one that will have to be made by the district itself at the appropriate time.

As required by the Land Use Element of the County General Plan, no changes can occur at Del Rio until such time as impacts on schools have been adequately mitigated. The following language suggested by the Stanislaus School District shall be applicable unless superseded by the language in the Specific Plan.

Any and all residential development shall pay impact mitigation fees to both school districts in a sum per dwelling unit to be determined at the time the Specific Plan for Area II is adopted. Issuance of a building permit for any residential development shall be dependent upon payment of such fees. The impact mitigation fees shall be adjusted by the districts on January 1 of each

year following plan adoption to reflect any increase or decrease in the All Urban Consumers San Francisco/Oakland All Items Consumer Price Index.

## IV. CIRCULATION PLAN

The basic circulation system for the Del Rio area is already largely in existence being comprised of both major and collector streets. Recent project approvals have included conditions implementing needed system improvements. The Specific Plan of Area II shall identify needs within this area and establish a method of ensuring implementation. Following is a brief summary of the major components of the existing Del Rio area road systems.

### **FREEWAY ACCESS**

Due to the location of the community, freeway access is limited. Freeway access is from Highway 99, located approximately six miles to the west. From Highway 99, Del Rio residents must travel east on Highway 219 (Kiernan Avenue) until reaching Carver, Tully, St. John Roads or McHenry Avenue.

### **MAJOR STREETS**

**McHenry Avenue** – the eastern boundary of the Community Plan will be McHenry Avenue. The plan envisions the ultimate development of McHenry Avenue as a major north/south circulation arterial. Ultimately, this road will be widened to four lanes, (100 foot right-of-way) as indicated in the County's Circulation Element. It will include two lanes in each direction, with traffic signals at the intersections of McHenry with Ladd and (if needed) Stewart Road.

### **COLLECTOR STREETS**

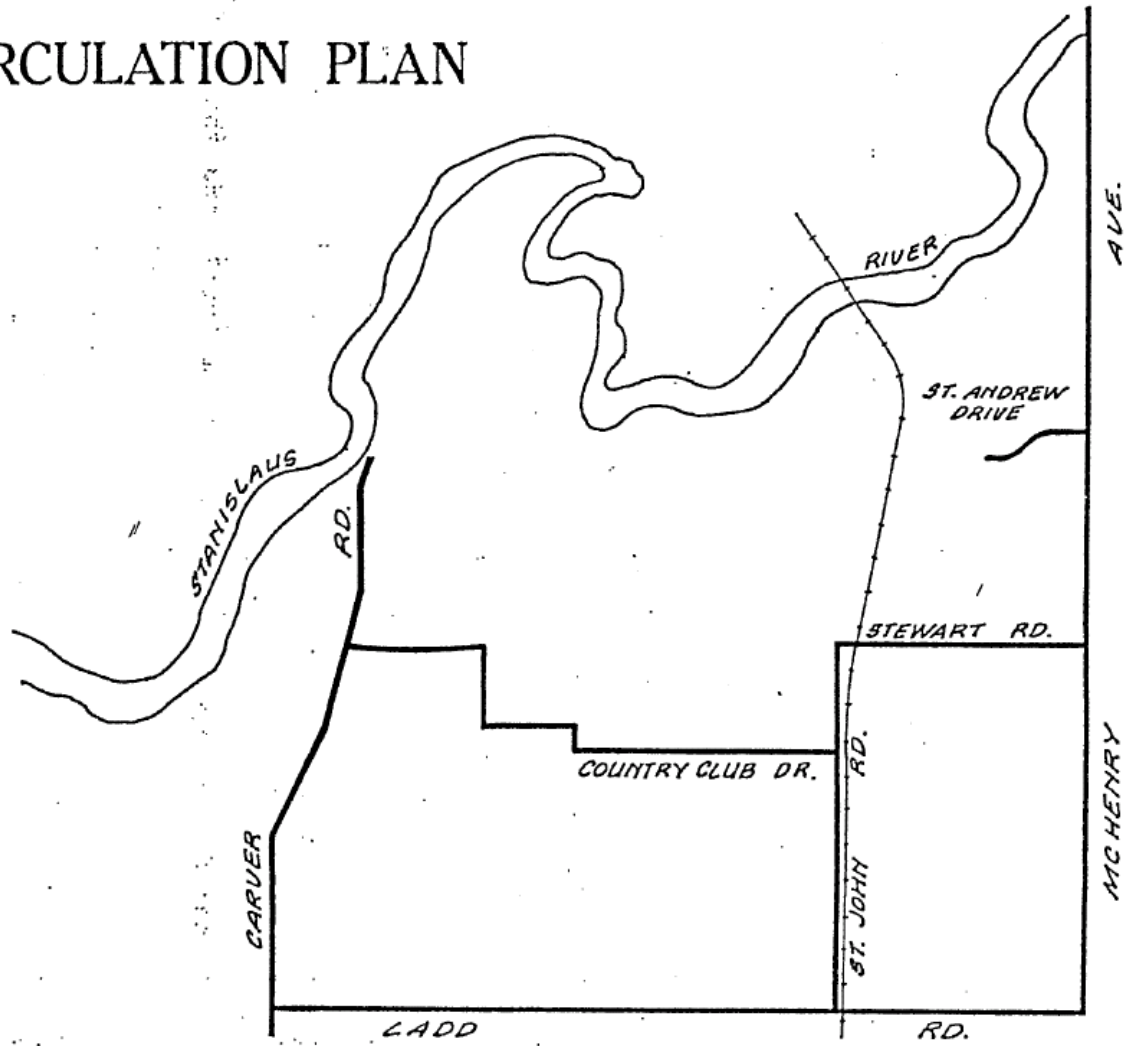
**Ladd Road** – The southern boundary of the Community Plan will be Ladd Road. This road will remain a two-lane east/west roadway, but ultimately may include realignment of the Carver-Ladd intersection, left-turn lanes on both eastbound and westbound approached of Ladd Road and the eastbound approach to St. John Road.

**Carver Road** – Carver Road runs along a portion of the western plan boundary. This road will remain a two-lane north/south roadway, but ultimately will be widened (in portions) to a 60 foot R.O.W., and the curve north of Ladd straightened. Carver Road will provide access to the western portions of the community.

**Tully Road** – Tully Road currently terminates at Ladd Road. This will not change in the proposed plan, although it may extend northbound into Area II, depending upon the results of the Specific Plan process.

**St. John Road** – St. John Road is one of the primary entrances to the community. Ultimately, a left-turn on the eastbound approach of Ladd Road at the St. John intersection may be provided.

# CIRCULATION PLAN



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**Stewart Road** – Stewart Road currently provides the only access into the community off of McHenry Avenue. An intersection improvement project is currently planned by the County on McHenry Avenue at Stewart Road.

**St. Andrew Drive** – St. Andrew Drive is located within the Del Rio Ranch Subdivision north of Stewart Road. It is proposed as a new entrance to the community from McHenry Avenue. This entrance will provide a second access to new and established residences west of McHenry Avenue to supplement the existing access through Stewart Road.

The Specific Plan for Area II shall include a more detailed analysis of long-term circulation needs and means of implementing those needs.

## **V. INFRASTRUCTURE SYSTEM**

### **DRAINAGE/FLOOD CONTROL**

There are currently drainage systems for most existing residential developments. The area has curbs and gutters with drainage into dry wells in various locations within the DRCP area.

Flooding on the Stanislaus River is controlled by the New Melones Lake Dam upstream from the Del Rio area.

It is desired that all future development within the DRCP area include curb and gutters that connect to adequate development wide drainage systems. The Specific Plan for Area II shall include a discussion of and recommendation for a positive storm drainage system for the entirety of Area II.

### **WATER**

Homes along Del Rio, Oakmont, and Hillcrest Drives are served with public water from the City of Modesto. All other homes in the area have private individual wells. The Del Rio East development has a private system providing water only to those units.

All subsequent development in both Area I and Area II of the DRCP will be provided with water by the City of Modesto or a successor through development-wide systems which could at some later date be readily connected to an area-wide joint water district. Monitoring and servicing of these water facilities will be conducted by the City of Modesto. In Area I, the developer shall obtain the approval of the Department of Environmental Resources for the proposed water system; and demonstrate that the water system for the development will not have an adverse impact on water quality and quantity produced by existing wells in the community.

For Area II, provisions shall be made for a water supply system to service all developments in Area II. The Specific Plan and supporting environmental documentation shall include a complete water supply analysis to identify for mitigation any significant adverse water related impacts that result from the development of Area II. If the environmental impact report reproduced for the Specific Plan for Area II indicates that a joint water district for the entire Del Rio area would be required to mitigate the cumulative impacts of development in Area II on

water quality and quantity of existing wells, the Specific Plan must address the implementation of such a joint water district for all of Del Rio. It shall also include provisions to set up and maintain the community-wide system. It shall also reflect the needs of the City of Modesto, the water supplier.

## **SEWER**

Sewage disposal in the Del Rio area is generally by septic system. The Del Rio East development has a package treatment system as will Area I projects approved in recent years. While such systems, consistent with Measure X standards can provide adequate wastewater treatment, if development of Del Rio is to continue, it is imperative that a community-wide sewer system be developed.

No future developments within the DRCP area shall use septic systems for treatment of sewage. For Area I, package treatment system(s) shall be constructed for future developments and maintained at all times in accordance with County Department of Environmental Resources approved policies and procedures. They shall be designed to allow conversion to a community-wide system. Prior to development in Area II, a complete analysis of the cumulative impacts of development in Area II on ground water quality and other sewage treatment related issues in Del Rio must be done. The Specific Plan shall also investigate options for including existing non-sewered areas of Del Rio into the system. No development of Area II shall be permitted until provisions have been put in place for such an area-wide system to be implemented.

## **UTILITIES**

The area is served by Pacific Gas and Electric Company (PG&E) for gas, Modesto Irrigation District (MID) for electricity, and Pacific Bell for telephone services. The Specific Plan shall reflect the needs of these providers in ensuring continued adequate service levels.

All further development in the DRCP area shall incorporate below ground utilities exclusively.

## **SERVICES**

Law enforcement on the Del Rio area is provided by the Stanislaus County Sheriff's Office. Fire protection comes from the Salida Fire Protection District. The Specific Plan shall reflect the needs of these service providers in ensuring continued adequate service levels.

# **VI. IMPLEMENTATION PROGRAMS**

## **GENERAL PLAN**

By its adoption by the Board of Supervisors, this Community Plan is incorporated into the Stanislaus County General Plan. The Community Plan shall serve to formally delineate and define "Del Rio" for planning purposes. The Tier I EIR prepared for the Community Plan has resulted in the creation of the Community Plan with two distinct areas.

Area I shall be shown on the Del Rio Community Plan map. All areas shown for residential uses shall be designated Low Density Residential and shall be developed consistent with the

density designations of the Community Plan. The Planned Development zoning designation shall be used for all rezoning proposals.

- All projects shall be required to mitigate air quality impacts by complying with any County or regional indirect Source Rule in effect at the time the final map is recorded.
- Full water quality studies, to the satisfaction of the Department of Environmental Resources must be completed prior to approval of any rezoning. The studies shall include, at a minimum, the following information:

### **Hydrology**

A detailed site specific hydrologic study should be conducted to determine effects of construction and build-out on surface runoff and permeability. This should include the evaluation of location and design of storm water runoff catch basins that could also function as groundwater recharge basins.

A detailed hydrologic study shall be conducted to quantify the migration of groundwater into the area. One possible mitigation measure that should be investigated in the feasibility of developing artificial groundwater recharge basins that could function as both scenic/recreational areas and groundwater recharge areas.

### **Geology**

A site specific soil analysis should be submitted from desired locations for the treatment water discharge. Soil samples should be tested for nitrate, DBCP, and general mineral to evaluate the quality of soil the recharge water would percolate through.

By selecting appropriate locations for sanitary sewer treated water discharge areas, the flushing out of nitrate or DBCP from higher concentration areas in the soil into groundwater can be avoided.

### **WATER QUALITY**

A detailed investigation of the local groundwater gradients to enable a precise determination of the transportation/mixing effect of the shallow groundwater should be accomplished. This should be combined with the assessment of nitrate loading to show that nitrate input will not cause undue degradation of groundwater.

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