APPENDIX D

PLACER PARKWAY TRANSITION MEMORANDUM

BROOKFIELD RESIDENTIAL

Amoruso Ranch Specific Plan Area

October 2015

AMORUSO RANCH – PLACER PARKWAY TRANSITION

IN SUPPORT OF ADMINISTRATIVE DRAFT ENVIRONMENTAL IMPACT REPORT

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Amoruso Ranch Specific Plan Area

Placer Parkway Transition

Prepared By:

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INTRODUCTION

The Amoruso Ranch Specific Plan (ARSP) Placer Parkway Transition Plan (Plan) has been prepared at the request of Brookfield Residential Properties, Inc. (Brookfield) to provide a level of understanding regarding the interface between the plan area and the future parkway.

AMORUSO RANCH – PLACER PARKWAY TRANSITION

Placer Parkway, a future regional transportation improvement project, not a part of the ARSP project, is a regional arterial that is proposed from State Route 65 to State Route 70/99. An approximately 49-acre portion of this project bisects a large portion of the northern half of the ARSP.

It is anticipated that the ARSP will initiate development in advance of the proposed construction of Placer Parkway. Therefore, it is essential that the interface between the ARSP development and Placer Parkway be considered as part of this project.

The proposed alignment for Placer Parkway, including the limits of the proposed right-of-way, have been coordinated with the City, the County of Placer, the Placer County Transportation Planning Agency (PCTPA), the South Placer Regional Transportation Agency (SPRTA) and the resource agencies (the U.S. Army Corps of Engineers, the Environmental Protection Agency, the Regional Water Quality Control Board and the U.S Fish and Wildlife Service) to establish the constraints and interface between the ARSP and Placer Parkway. Three potential alignments within the original 1,000-foot corridor were analyzed, which are discussed in greater detail below. The most northern alignment within the corridor was determined to have the least impact to wetland resources, and therefore, was incorporated in the ARSP as future right-of-way for Placer Parkway.

ARSP AREA LOCATION AND DESCRIPTION

Project Vicinity

The ARSP Area consists of approximately 694.4 acres located in the northwest edge of the City of Roseville. Prior to the Specific Plan's adoption, the plan area was recognized as a logical growth extension for the City. The Specific Plan Area is bounded by the existing City of Roseville, including to the southwest by the Al Johnson Wildlife Area, unincorporated Placer County, including Toad Hills Ranches #1 and the Gleason Property, to the north and west, by

the Creekview Specific Plan Area to the south, and by the proposed Placer Ranch Specific Plan Area to the east. The project vicinity is shown on Figure 1.

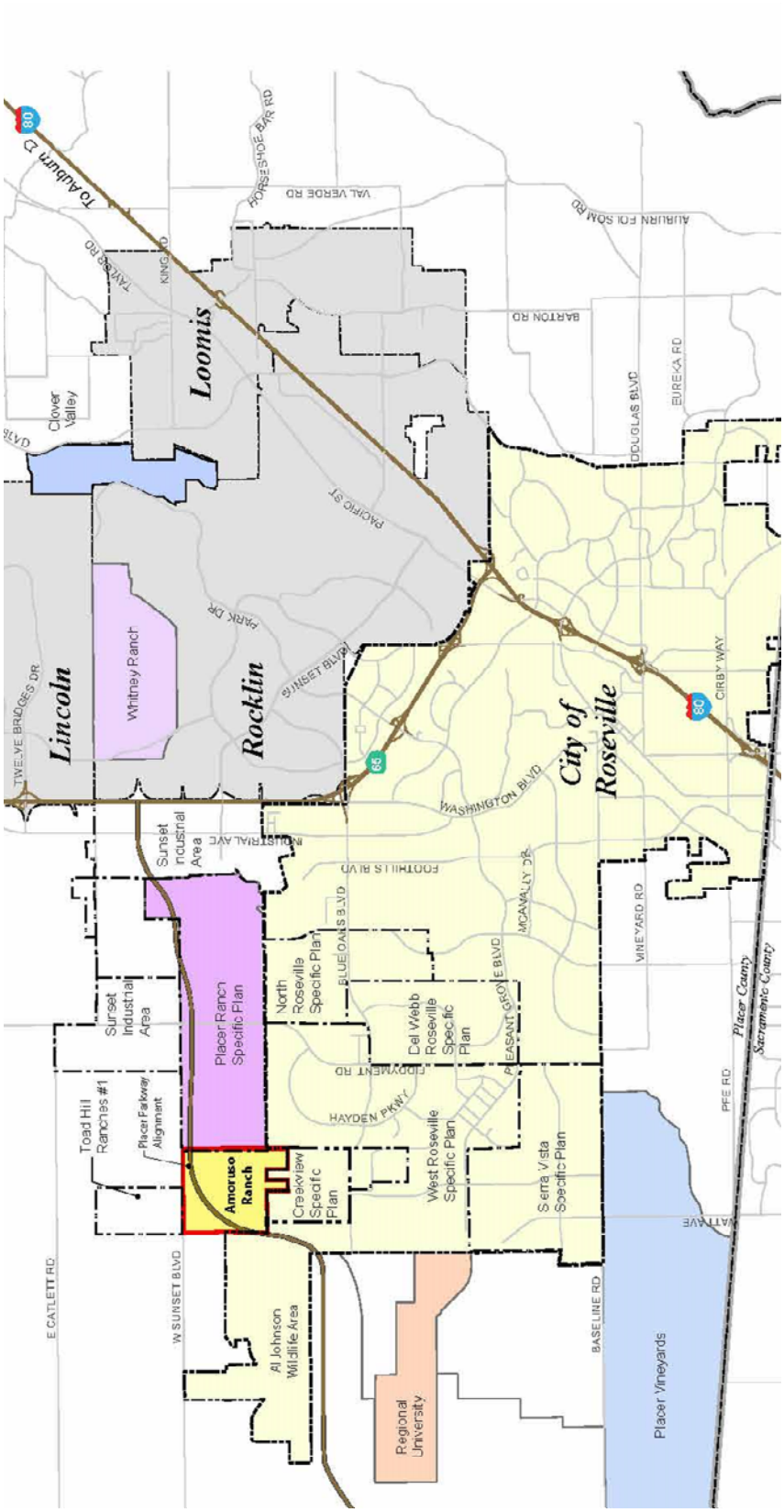


Figure 1 – ARSP Area Project Vicinity

Pre-Development Conditions

In the pre-development conditions, the ARSP Area was used as a cattle ranch and for irrigated crops. The primary use was open grazing land, but included a small ranch house and out buildings. The land is gently rolling terrain generally trending to the west and south. Minor drainages flow in a radial pattern from a slight rise in the north east quadrant of the property. The elevation changes from approximately 115 feet to 71 feet gently from the northeast down to the southwest.

The site vegetation is generally limited to short, seasonal grasses. There are several oak trees located along University Creek and a number of non-native trees located around the former ranch house. Wetland conditions and their associated flora and fauna are located in small areas typically along the drainage corridors and in flats along the southern boundary. Figure 2 highlights the ARSP Area pre-development conditions.

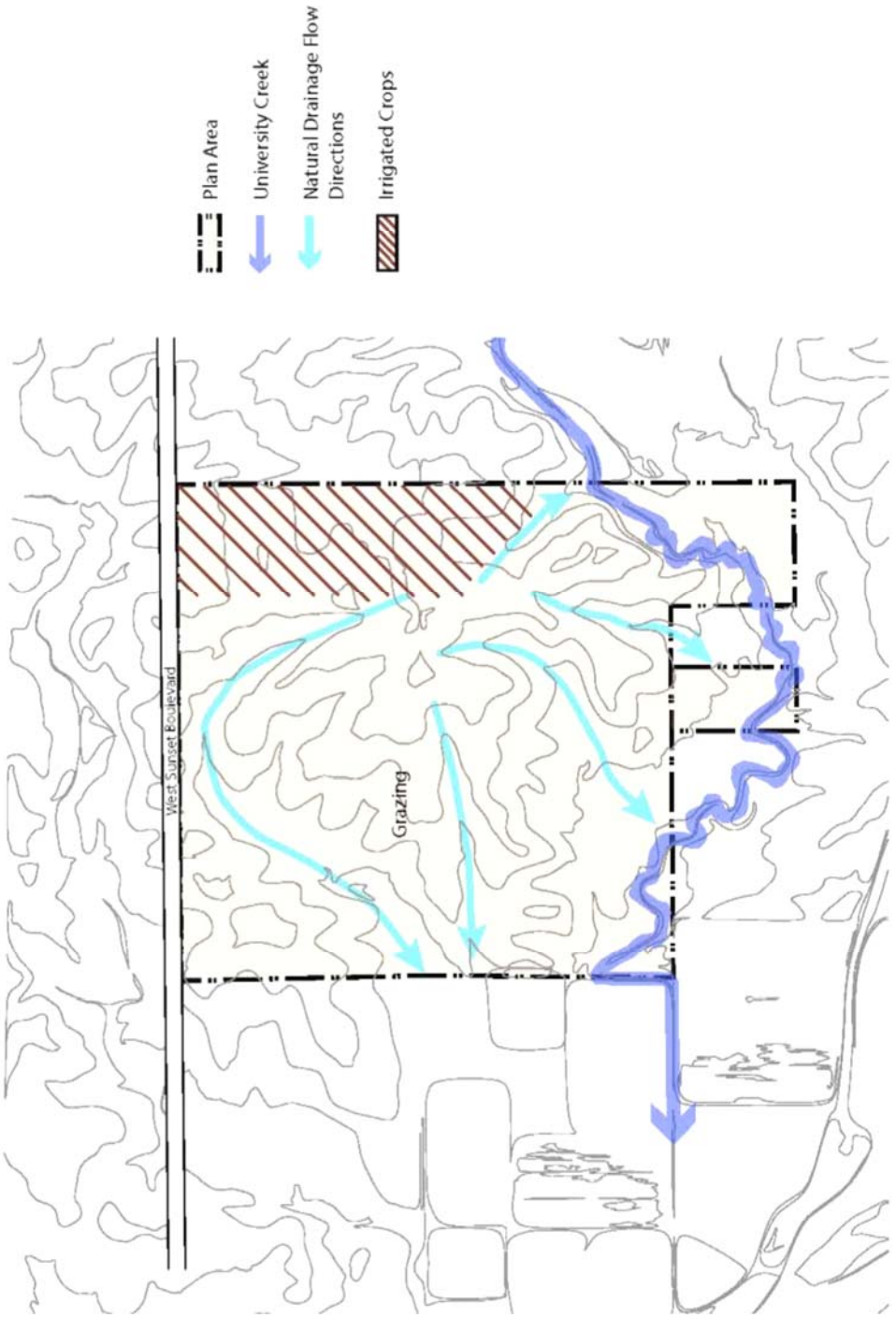


Figure 2 – ARSP Area Pre-Development Conditions

ARSP Area Development Opportunities and Constraints

The proposed ARSP Area land use plan is influenced by several factors, including the physical setting, land use and circulation conditions, and public policies. Two significant aspects that influence the development of the land use plan are described below and depicted on Figure 3.

Placer Parkway

The proposed Placer Parkway will be a dominant feature that sweeps through the ARSP Area. Placer Parkway is intended to be a limited access, high speed facility that provides enough "no development buffer zones" on both sides of the Parkway to enhance and preserve a "parkway feel". Potential Placer Parkway interchanges at Fiddyment Road and Santucci Boulevard would provide future access to the ARSP Area.

Open Space and Resources Preservation

The ARSP Area will support resource preservation by providing permanent open space. In combination with the 1,700-acre open space afforded by the City of Roseville Al Johnson Wildlife Area (AJWA), this southern open space preserve will provide connectivity with open space within the Creekview Specific Plan Area, and lands to the east of the ARSP Area.

The Amoruso Ranch Specific Plan will provide an open space corridor that includes a pedestrian and bike path linkage between the AJWA and the City's regional trail system. In addition, the corridor will provide a permanent preservation area for wetland resources.

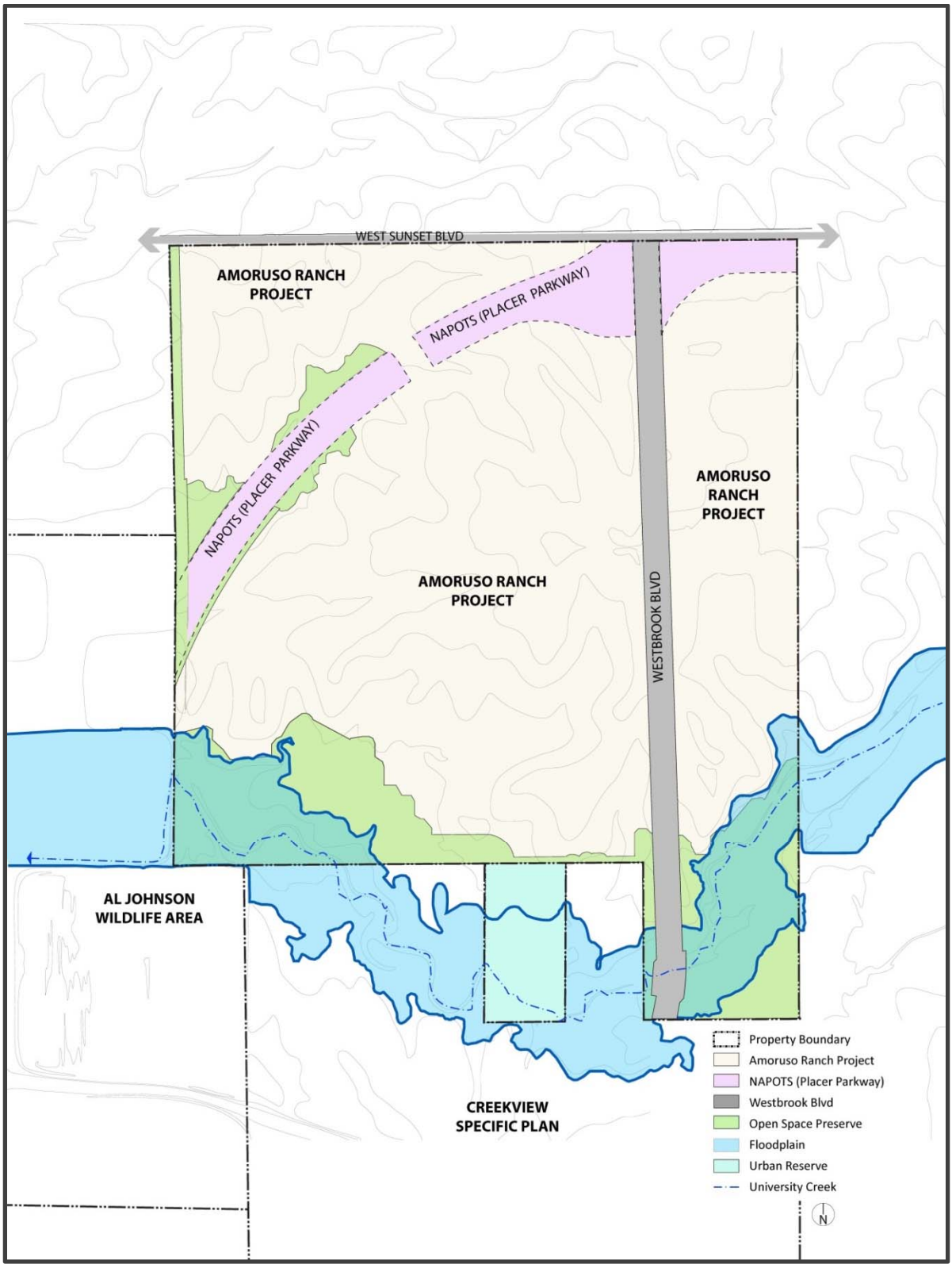


Figure 3 – ARSP Area Opportunities and Constraints

ARSP Area Land Use Plan

The ARSP Area provides for a mix of land uses to achieve the desired community form and objectives. These land use designations include low-, medium- and high density residential uses; commercial and office uses; which in some cases are sited with one another and/or with residential uses, public and quasi-public uses for the schools and civic activities such as a fire station, parks and open space uses, and an urban reserve.

At buildout, the ARSP Area will provide for 2,827 dwelling units, it adds approximately 51 acres of commercial retail and office land uses, and provides approximately 22-acres of parks and 146-acres of open space. The ARSP Area Land Use Plan is shown in Figure 4.

Placer Parkway is not a part of the ARSP development project. However, per the Memorandum of Understanding for the Tier II Development Fee Program by and between the City of Roseville, Placer County, the City of Rocklin, and the City of Lincoln, the "local jurisdictions will require dedication of land for the Placer Parkway right-of-way where Placer Parkway is programmed within new Development in the Tier II Development Fee Area". As such, and with the first recordation of any parcel or larger lot map for the plan area, the right-of-way for Placer Parkway will be dedicated to the City of Roseville as an irrevocable offer of dedication.

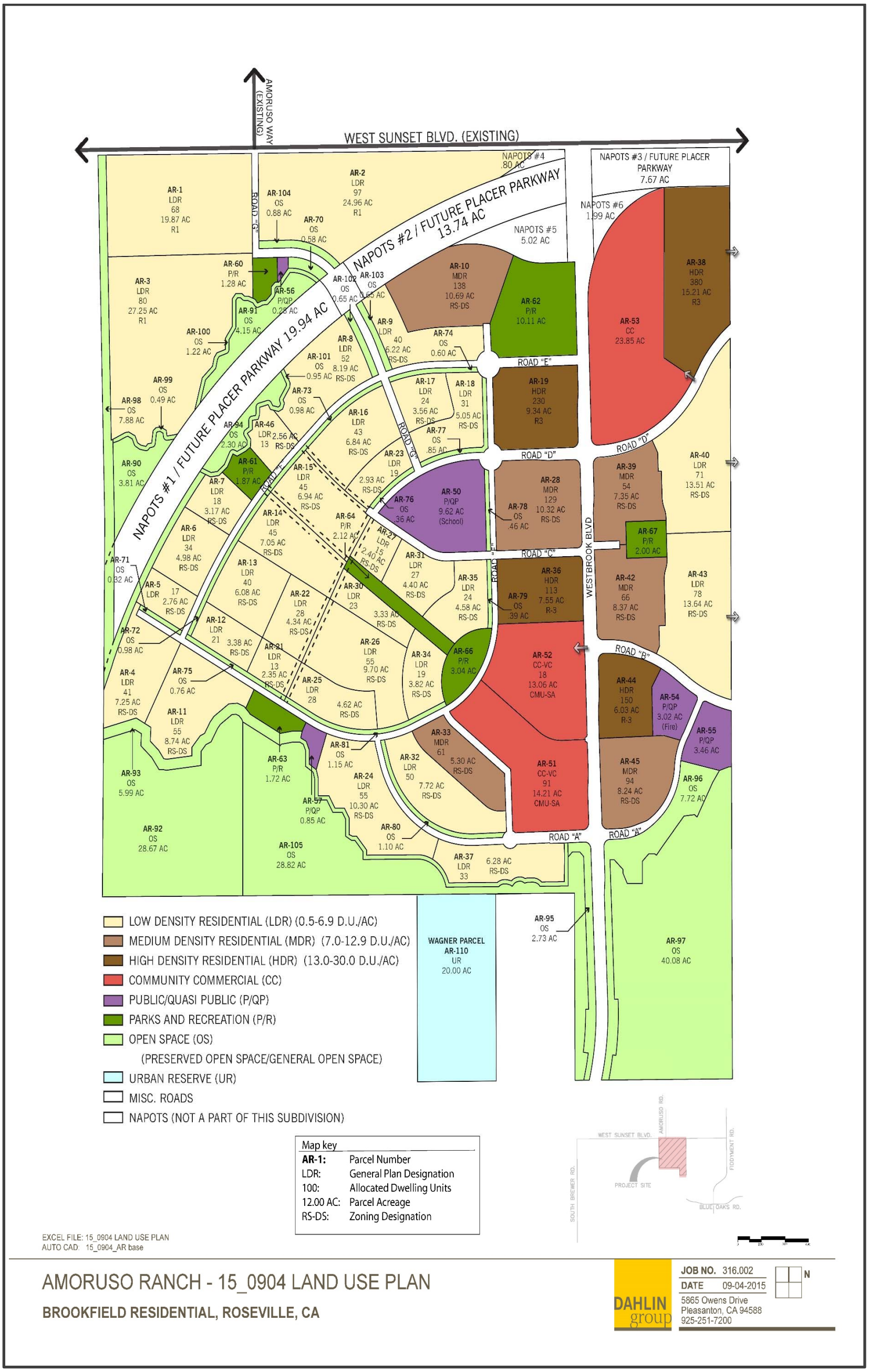


Figure 4 – ARSP Area Land Use Plan

PLACER PARKWAY ALIGNMENT

HORIZONTAL ALIGNMENT

The future Placer Parkway regional transportation improvement project, which is not a part of the ARSP project, is a regional expressway that is proposed from State Route 65 to State Route 70/99. An approximately 49-acre portion of this project transects a large portion of the northern half of the ARSP.

The South Placer Regional Transportation Agency (SPRTA) certified the Final Placer Parkway Corridor Preservation Tier 1 Environmental Impact Statement/Program Environmental Impact Report Final Tier 1 Section 4(f) Evaluation (URS Corporation 2009) on December 3, 2009, which selected Placer Parkway Corridor Alternative 5. On May 7, 2010, the Federal Highway Administration (FHWA) completed its Record of Decision (ROD), which selected Placer Parkway Corridor Alternative 5 pursuant to the National Environmental Policy Act (NEPA). The FHWA published its Notice of Final Actions in the Federal Register on May 26, 2010.

The primary focus of the ten Resource Agency Early Consultation meetings with state and federal resource agency staff was to determine the optimal alignment for the Placer Parkway right-of-way within the Federal Highway Administration approved Tier I 1,000-foot corridor within the limits of the ARSP.

This exercise involved analyzing three different right-of-way alignments based on 5,500, 6,200, and 7,300-foot radius alternatives. These radii represented the “book ends” of a northern and southern alignment within the 1,000-foot corridor that were buildable under required safety and other “parkway” requirements described as part of the Tier 1 process. Each alignment was reviewed by the Resource Agency Early Consultation group for impacts to on- and off-site resources. Issues of practicability as set forth in the Clean Water Act Section 404(b)(1) Guidelines (40 C.F.R. Part 230) were also carefully considered, including logistics and technology. Final results were presented at the Early Consultation Meeting No. 5 in October of 2011.

The final results were memorialized in a document titled: *Supplemental Information Regarding Potential Placer Parkway Alignments (Appendix A)* which summarized the following rationale for selection of the 5,500 foot radius alternative.

First, while the 5,500-foot radius alternative directly impacts a northern complex of wetlands, the complex was determined to be isolated, small, and would have its surface water supply cut off by future construction of Placer Parkway in any location within the approved Tier 1 corridor. Therefore the long-term viability of the northern wetland complex was considered questionable.

Additionally, the Resource Agency Early Consultation group determined that the 5,500-foot alternative avoids direct impacts to biological resources within the southern portion of the Amoruso Ranch property which were found to have higher value habitat and better positioned for preservation. Those resources connect and combine with the Open Space Preserve proposed within the Creekview Specific Plan to the south, and are more valuable to regional habitat protection and in keeping with regional habitat plans.

Finally, although the 7,300-foot radius alterative would avoid direct impacts to the northern complex, meeting City of Roseville intersection spacing requirements and providing space for the Placer Parkway interchange within Amoruso Ranch would mean that Westbrook Boulevard intersections would be pushed to the south, which in turn would cause direct impacts and increase indirect impacts to biological resources within the southern portion of the Amoruso Ranch property.

The comprehensive nature of the Resource Agency Early Consultation meetings, and the input received from the participating federal and state resource agencies, allowed for a thorough assessment and analysis of potential Placer Parkway impacts. During the process, various alternative right-of-way alignments were considered in the context of emerging regional development patterns and preservation strategies and not merely the resources located within the established Tier 1 corridor.

This process resulted in the selected alignment that has been incorporated into the project and is shown on the Land Use Plan (Figure 4).

VERTICAL ALIGNMENT

While the horizontal alignment for Placer Parkway has been determined, the vertical alignment was not specifically part of the initial discussions. As the ARSP Land Use Plan developed, a series of discussions with the City were held concerning the crossings/intersections of roadways proposed within the ARSP with Placer Parkway. As shown on the land use plan, there are two points of intersection with Placer Parkway. The first is with Westbrook Boulevard that is a 6-lane arterial aligned in a north-south direction. Westbrook Boulevard is a major arterial that will connect to Baseline Road to the south of the project area. The second is with “Road G”, a primary residential roadway that lies to the west of Westbrook Boulevard and connects the lower three-quarters of the ARSP with the

neighborhood located in the north western portion of the project. Both of these roadways are shown on the land use plan (Figure 4). Neither of these roads were evaluated within the Tier I Environmental Initial Study / Environmental Impact Report (EIS/EIR) as connectors to Placer Parkway and their interface with Placer Parkway would be with grade separated crossings. When the Tier II EIR analysis is conducted for the Parkway, an intersection with Westbrook Boulevard may be introduced.

It should be noted that an interchange associated with the extension of Westbrook Boulevard through the ARSP was included in the Cumulative Traffic Model/Network for the ARSP. The Tier I Analysis for Placer Parkway identified this interchange as the hypothetical interchange within the Eastern Segment of Placer Parkway. Therefore, land has been set aside to facilitate a potential future grade separated interchange should it become a reality as the planning for Placer Parkway advances.

Road G, a two-lane residential roadway, is proposed to be an underpass to Placer Parkway, with Placer Parkway being at-grade through this portion of the ARSP. Road G will be depressed with the construction of the ARSP. The over crossing will be made as part of the Placer Parkway improvements.

PLACER PARKWAY ROADWAY SECTION

Utilizing the information contained in the Tier 1 analysis, a “typical” roadway cross section for Placer Parkway through the ARSP was developed. The conceptualized design for Placer Parkway, identified as part of Tier 1, is based on the establishment of an aesthetic “Parkway Feel” to the roadway. As a result, a 100-foot wide landscaped median has been accounted for as part of Placer Parkway.

In addition to the 100-foot wide median, the six travel lanes require 112-feet for the lanes and shoulders (or 56-feet for each set of three lanes). As a result, the distance from edge-of-pavement to edge-of-pavement in the opposite travel direction is 212-feet. A buffer of 50-feet from each edge of pavement to the right-of-way has been provided, establishing the overall width of the proposed right-of-way at 312-feet.

A noise study was completed as part of the EIR process under the requirements of the California Environmental Quality Act (CEQA). Based on the results of the noise study, noise barriers were identified as needing to be constructed adjacent to Placer Parkway. The proposed noise barriers, identified in the noise study, range in height from six to nine feet. Drainage stubs will be properly sized and provided to the Parkway corridor. These stubs will provide adequate drainage from the Parkway through the ARSP drainage system. All stormwater management requirements of Placer Parkway construction will be the responsibility of the future planning and construction of the Parkway. The future planning,

design and construction of Placer Parkway will also need to account for the ARSP proposed open drainage channel that currently crosses the proposed Placer Parkway alignment, since the channel is a part of the ARSP onsite drainage and conveyance system. This may be achieved by spanning the open channel or realigning the open channel to the west.

Figure 5 depicts the typical cross section for Placer Parkway through the ARSP.

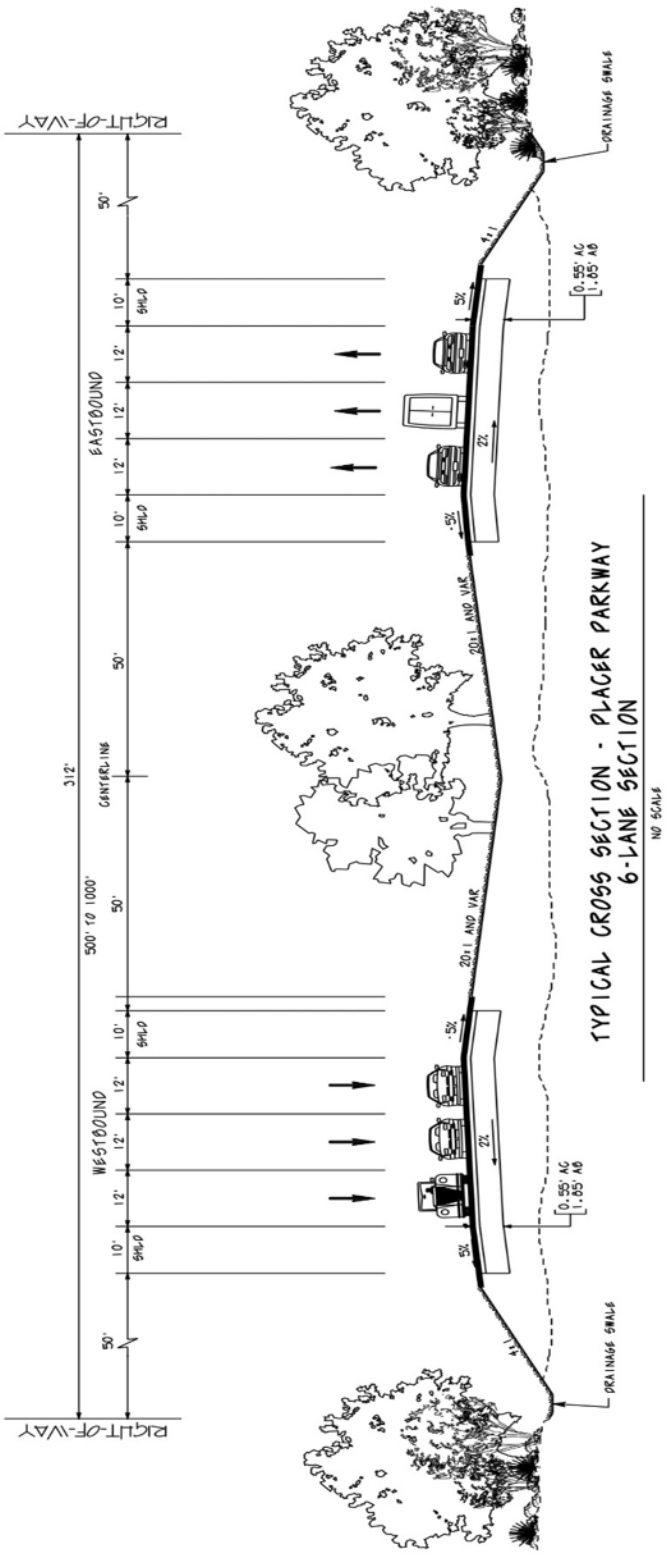


Figure 5 – Placer Parkway Typical Section through ARSP

AMORUSO RANCH – PLACER PARKWAY TRANSITIONS

Based on a review of the ARSP Land Use Plan there are a number of different conditions that occur at the interface points between the ARSP development and the Placer Parkway right-of-way. These conditions include the following:

- ARSP Low Density Residential (Rear Yard) adjacent to Placer Parkway ROW
- ARSP Low Density Residential (Side Yard) adjacent to Placer Parkway ROW
- ARSP Medium Density Residential (Rear Yard) adjacent to Placer Parkway ROW
- ARSP Medium Density Residential (Side Yard) adjacent to Placer Parkway ROW
- ARSP High Density Residential adjacent to Placer Parkway ROW
- ARSP Commercial adjacent to Placer Parkway ROW
- ARSP Open Space Preserve adjacent to Placer Parkway ROW
- ARSP Drainage Channel adjacent to Placer Parkway ROW

Cross sections for each of the six conditions listed above have been developed to depict Placer Parkway (including the six lanes, 100-foot wide median, shoulders, sound wall and buffer between the roadway and the right-of-way) and the varying development conditions including the setbacks to structures. These sections along with corresponding vignettes are provided within Appendix A of this report.

PARKWAY FEEL

The Tier 1 EIS/EIR prepared for Placer Parkway described a number of elements that were expected to be included to achieve a "parkway feel." These include the above-described "no development buffer zones," a visual open space element and linkages to other open space areas along the Parkway corridor, no development or limited development on the Parkway's edge, limiting access by precluding interchanges along the central portion of the Parkway, and limiting unplanned growth inducement. The ARSP in the area of the Parkway achieves all of these elements and thus fulfills the aesthetic vision outlined in the Tier 1 EIS/EIR.

As shown above in Figure 4, except around the planned interchange with Westbrook Boulevard, the Parkway section through the ARSP will be bordered largely by undeveloped open space or low-density development. The Westbrook interchange was contemplated in the Tier 1 EIS/EIR and no other interchanges are proposed within the ARSP. Any other road crossings would be constructed as grade separated crossings and therefore the ARSP does not conflict with the Tier 1 criteria of precluding interchanges along the central portion of the

Parkway. As explained elsewhere, in the ARSP all infrastructure will be appropriately sized to meet the ARSP's demand and thus will not induce unplanned growth along the Parkway.

More specifically, the landscaping, topography and physical screening proposed along and within the Parkway through the ARSP further fulfills the desired "parkway" aesthetic. The cross section of the Parkway in Figure 5 depicts a wide, 100-foot landscaped median, and substantial landscaping on both edges of the Parkway through the ARSP. Additionally, sound walls between this landscaping and development within the ARSP will limit the visibility of development for travelers along the Parkway, ensuring that the majority of the view will be of the landscaped and open buffers on either side.

All of these elements, considered together, will result in the desired "parkway feel" in this portion of the ARSP. Therefore the ARSP is consistent with and fulfills the criteria outlined in the Tier 1 EIS/EIR for the Parkway.

References

URS Corporation. 2009. Final Placer Parkway Corridor Preservation Tier 1 Environmental Impact Statement/Program Environmental Impact Report Final Tier 1 Section 4(f) Evaluation. Prepared for South Placer Regional Transportation Authority California Department of Transportation Federal Highway Administration. Dated November 2009.
Available Online:
http://www.pctpa.net/placerparkway/library/Final_Tier1_EIS_PEIR/contents.htm.

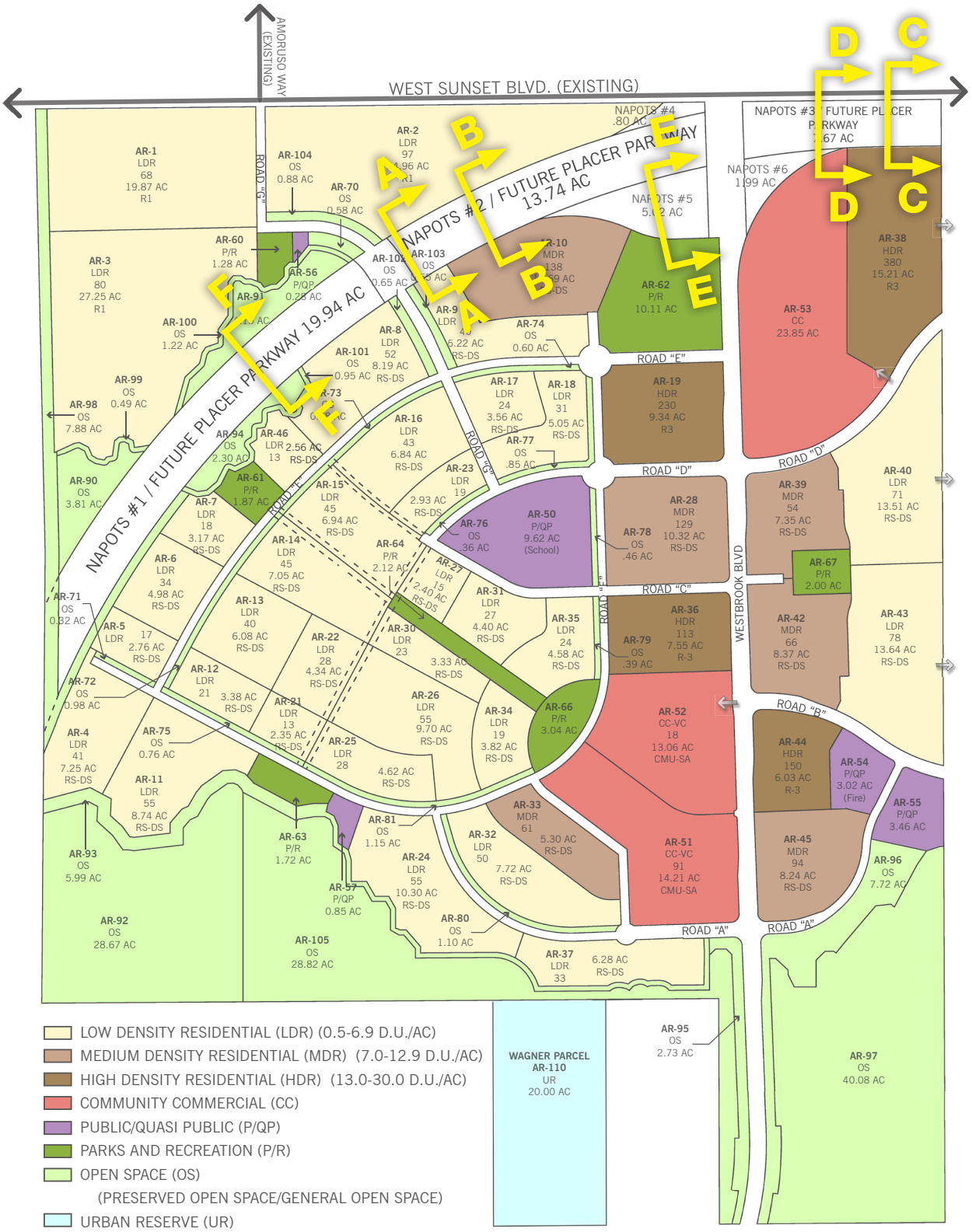
J.C Brennan & Associates, Inc. 2015. Environmental Noise Analysis, Amoruso Ranch Specific Plan – City of Roseville, California. March.

Amoruso Ranch Specific Plan Area

Placer Parkway Transition

Appendix A

Amoruso Ranch / Placer Parkway Interface Cross Sections



EXCEL FILE: 15_0904 LAND USE PLAN
AUTO CAD: 15_0904_AR base

AMORUSO RANCH - 15_0904 LAND USE PLAN

BROOKFIELD RESIDENTIAL, ROSEVILLE, CA

DAHLIN group
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

JOB NO. 316.002
DATE 09-04-2015

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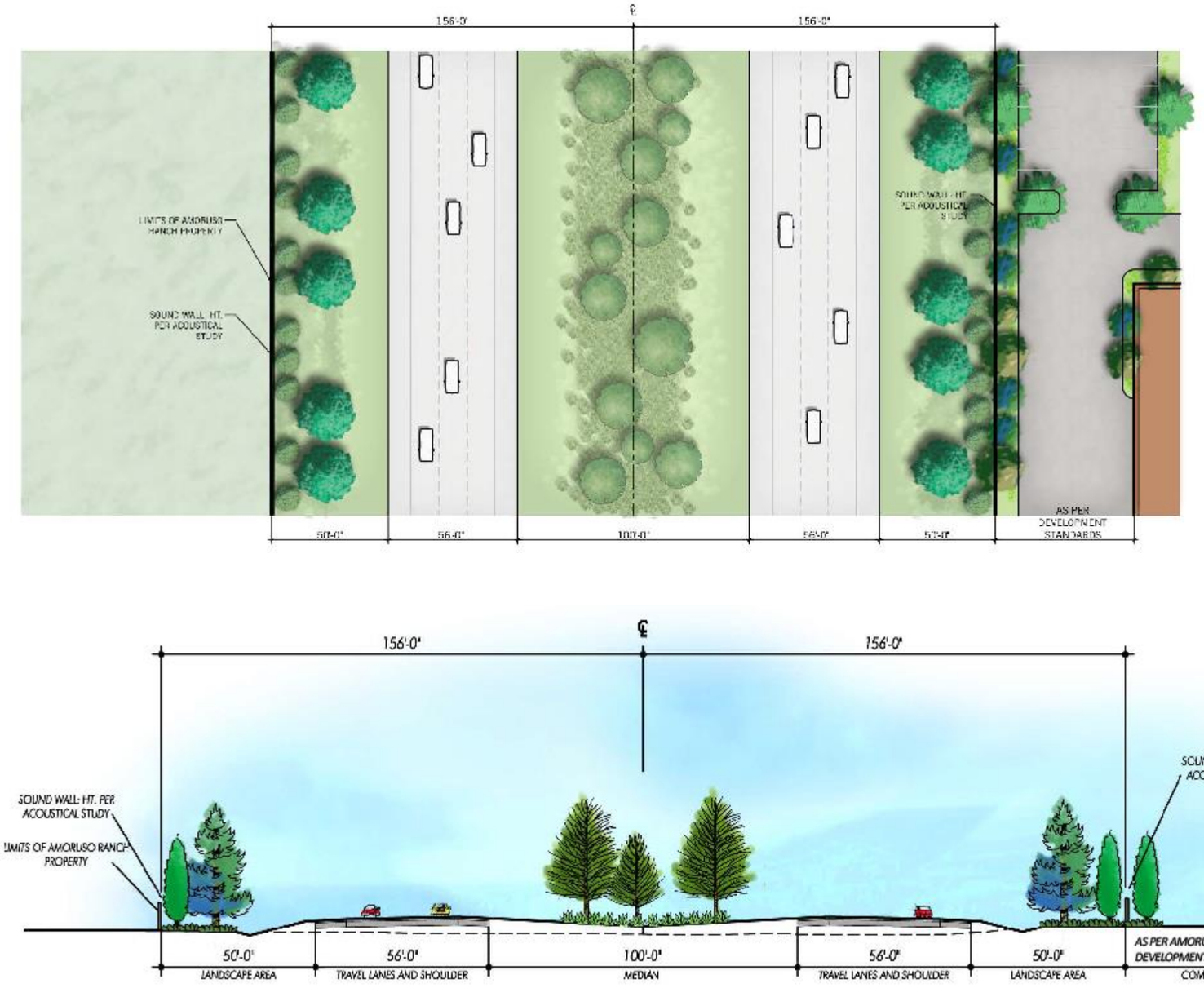
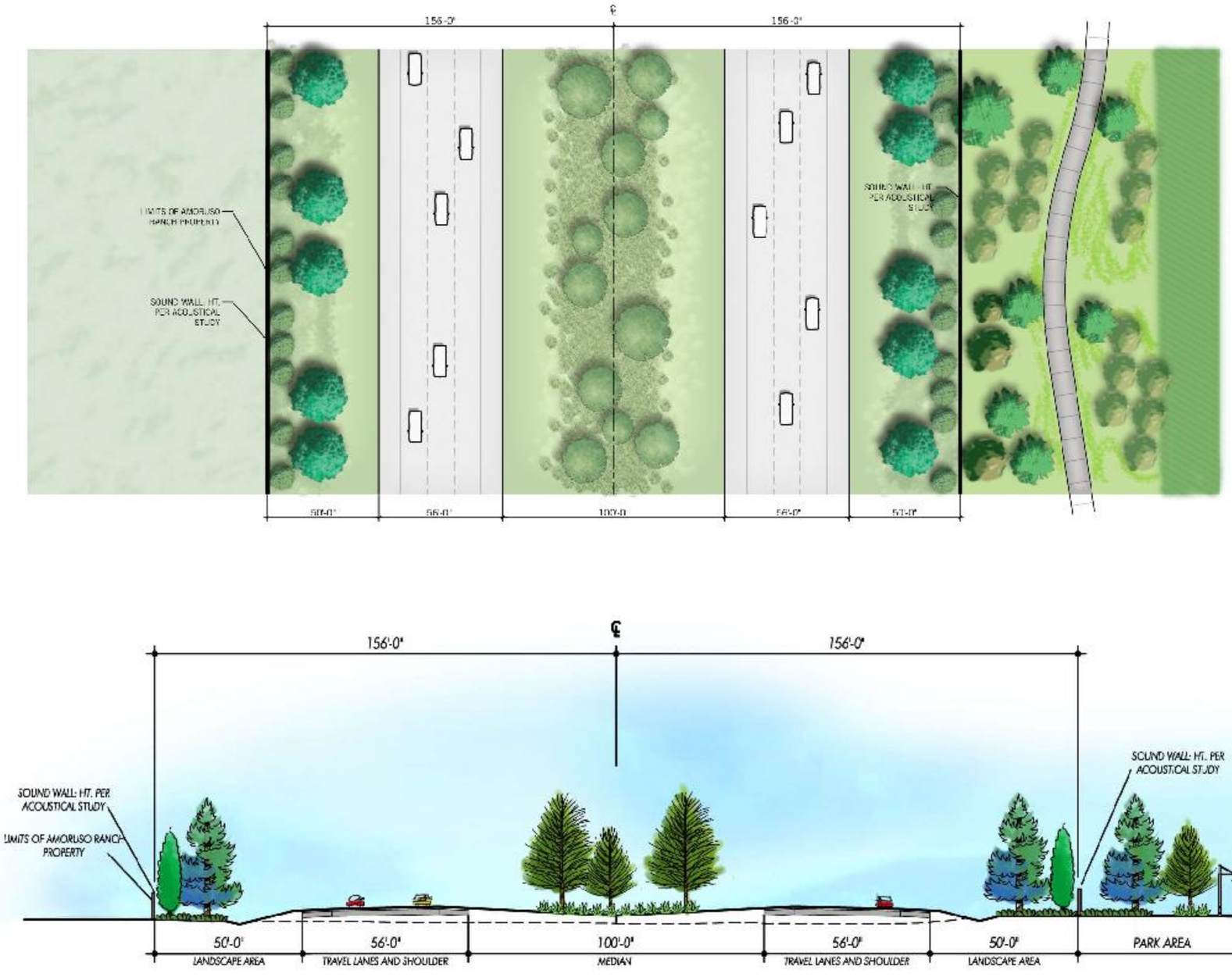
Section A-A: Typical Placer Parkway Section: Condition at LDR/LDR

Section B-B: Typical Placer Parkway Section: Condition at MDR/LDR

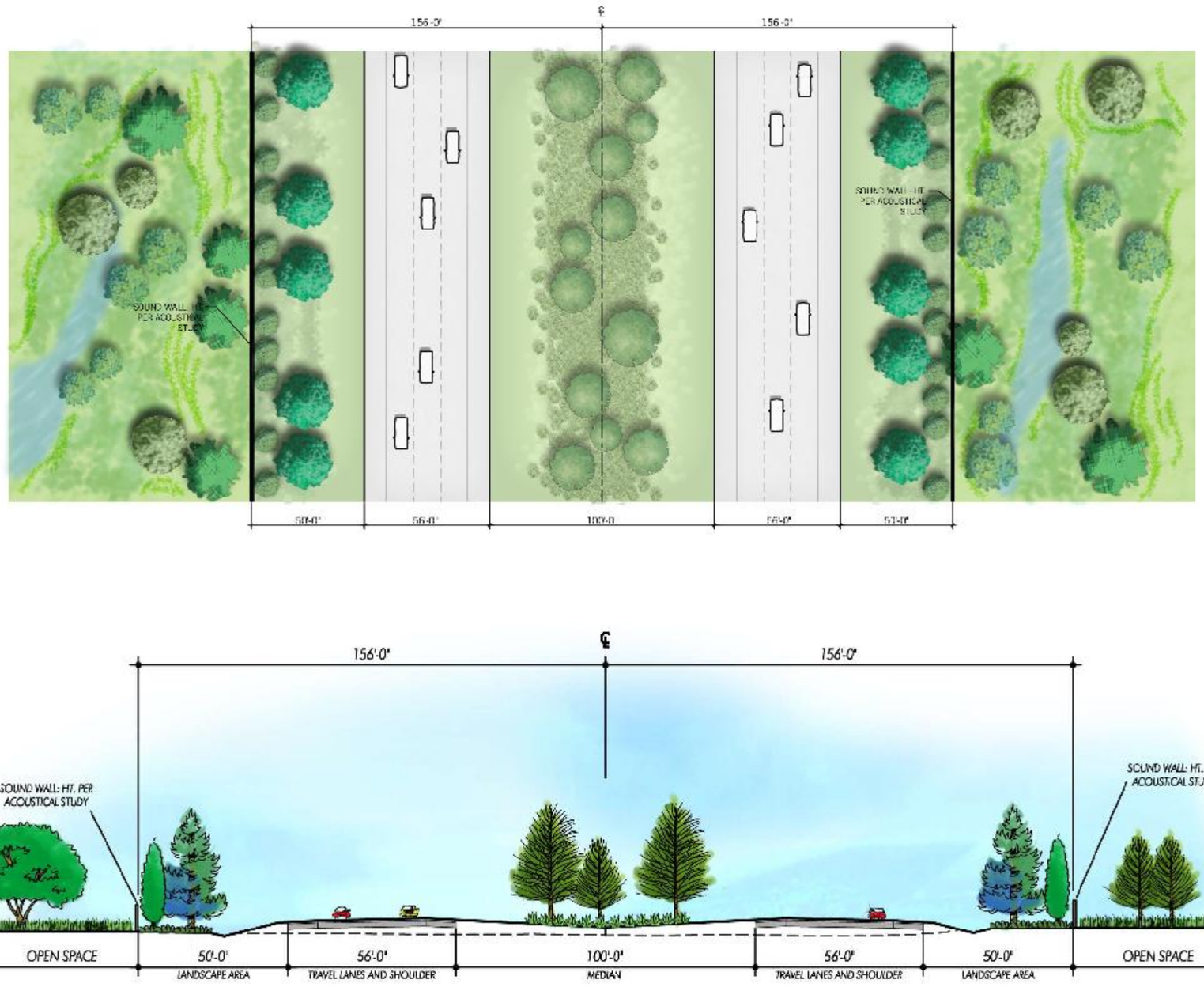
Section C-C: Typical Placer Parkway Section: Condition at HDR



Section D-D: Typical Placer Parkway Section: Condition at Commercial



Section E-E: Typical Placer Parkway Section: Condition at Park Space



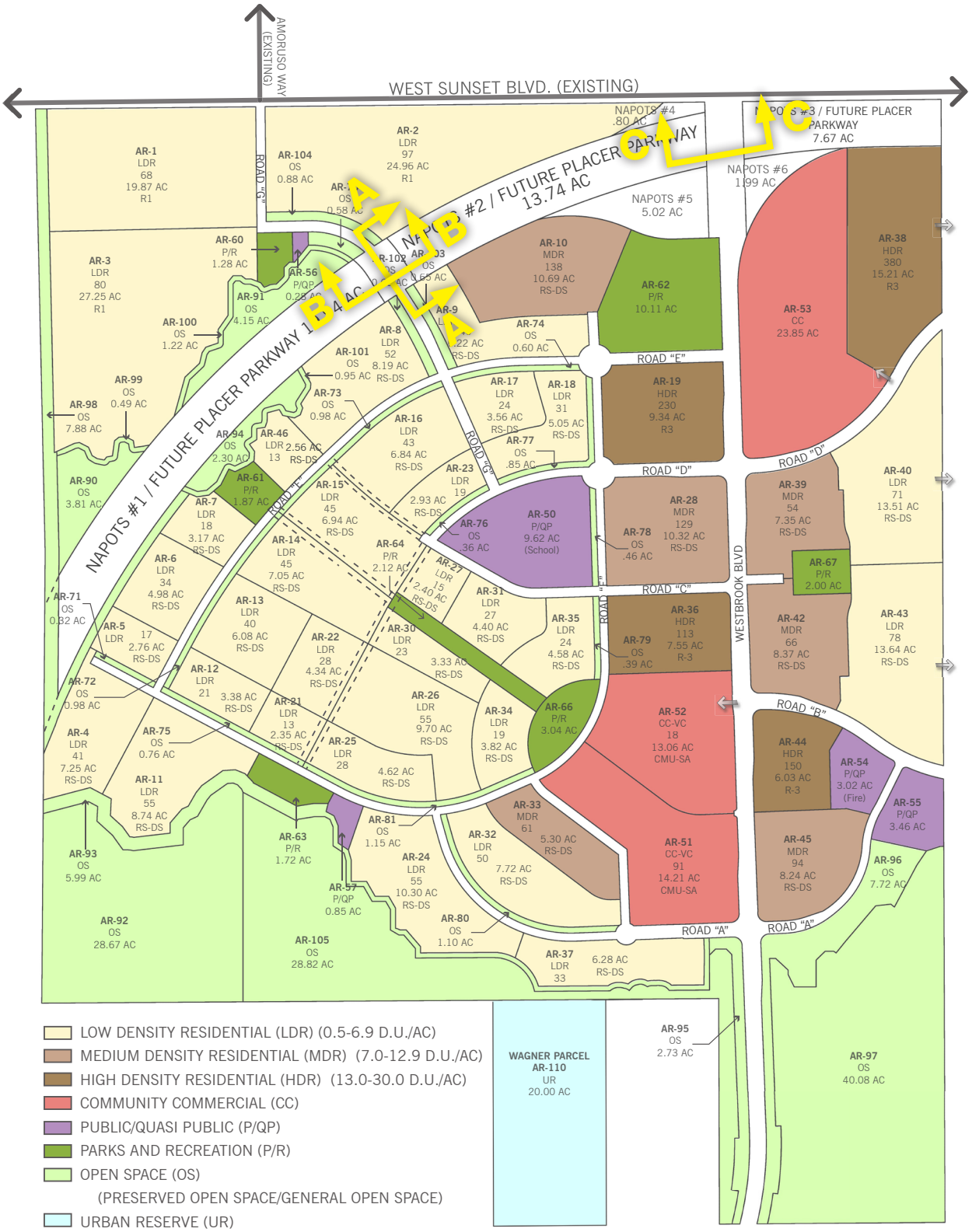
Section F-F: Typical Placer Parkway Section: Condition at Open Space

Amoruso Ranch Specific Plan Area

Placer Parkway Transition

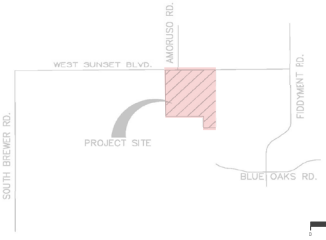
Appendix B

Placer Parkway Crossings



- LOW DENSITY RESIDENTIAL (LDR) (0.5-6.9 D.U./AC)
- MEDIUM DENSITY RESIDENTIAL (MDR) (7.0-12.9 D.U./AC)
- HIGH DENSITY RESIDENTIAL (HDR) (13.0-30.0 D.U./AC)
- COMMUNITY COMMERCIAL (CC)
- PUBLIC/QUASI PUBLIC (P/QP)
- PARKS AND RECREATION (P/R)
- OPEN SPACE (OS)
  (PRESERVED OPEN SPACE/GENERAL OPEN SPACE)
- URBAN RESERVE (UR)
- MISC. ROADS
- NAPOTS (NOT A PART OF THIS SUBDIVISION)

Map key	
AR-1:	Parcel Number
LDR:	General Plan Designation
100:	Allocated Dwelling Units
12.00 AC:	Parcel Acreage
RS-DS:	Zoning Designation



EXCEL FILE: 15_0904 LAND USE PLAN
AUTO CAD: 15_0904_AR base

AMORUSO RANCH - 15_0904 LAND USE PLAN

BROOKFIELD RESIDENTIAL, ROSEVILLE, CA

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JOB NO. 316.002
DATE 09-04-2015

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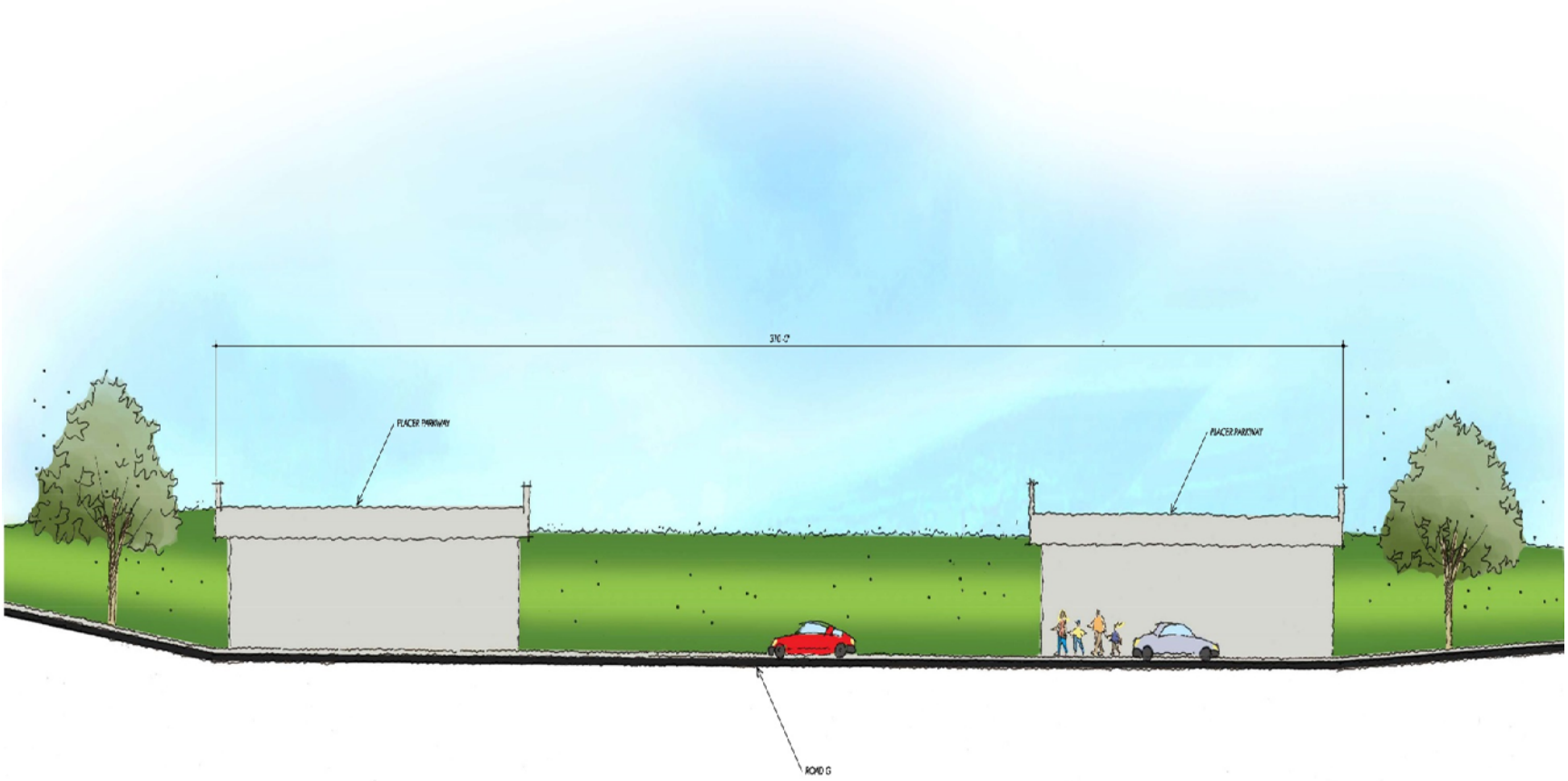
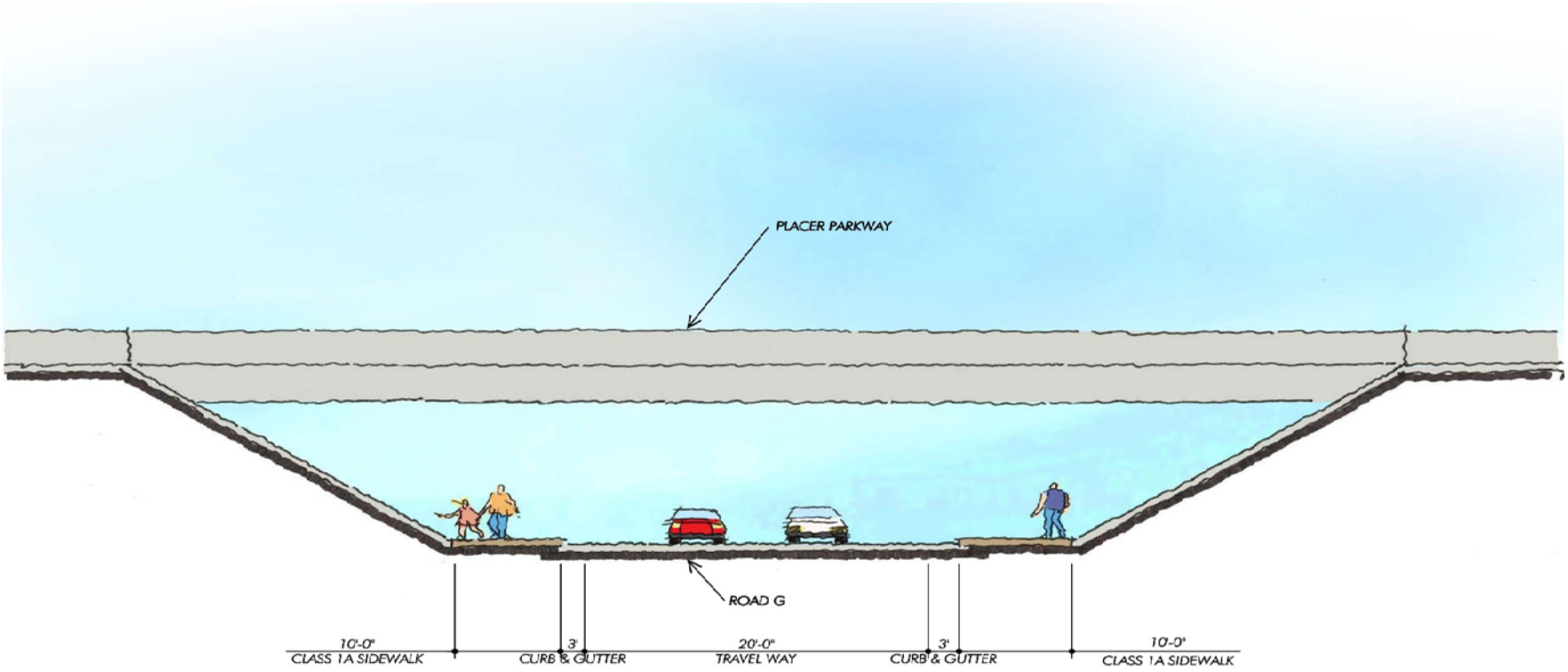
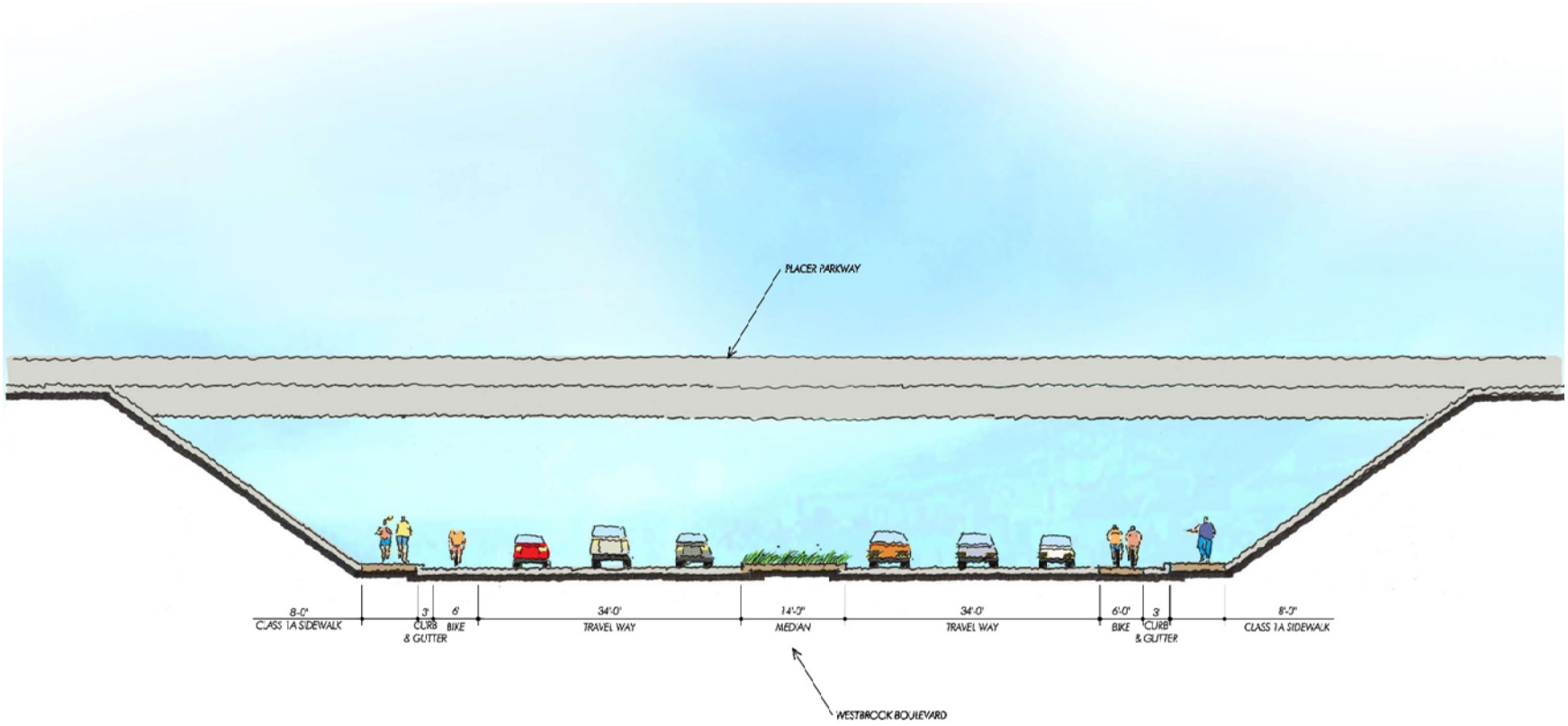


Section A-A – Placer Parkway/Road G



Section B-B – Placer Parkway/Road G



Section C-C: Placer Parkway/Westbrook

Amoruso Ranch Specific Plan Area

Placer Parkway Transition

Appendix C

Supplemental Information Regarding Potential Placer Parkway Alignments (5,500', 6,200', 7,300 Radius Alternatives)

Supplemental Information Regarding Potential Placer Parkway Alignments (5,500', 6,200' and 7,300' Radius Alternatives)

Potential Future Interchange at Westbrook Boulevard and Placer Parkway

While no interchange is currently proposed as part of the project or needed to address traffic generated by the ARSP, it is recognized that an interchange may be needed in the future, especially to meet future traffic demands outside the City of Roseville. In order to not preclude the ability to construct an interchange in the future, should one be needed, sufficient area is being set aside within the ARSP to accommodate one, and careful consideration is being given to locating future intersections and roadways within the Amoruso Ranch Specific Plan (ARSP) taking into account City policies regarding spacing and safety distances. The interchange depicted on each of the alternatives presented (the 5,500 ft., 6,200ft., and 7,300 ft. radius alternatives) would be a regional infrastructure improvement intended to meet likely traffic demands for western Placer County, under SACOG's Blueprint assumptions, such as buildout from anticipated projects in Lincoln's General Plan through an extension of Dowd Road. (Exhibit 1).

The potential need for the interchange is supported by regional traffic planning studies utilizing the Placer County Super Cumulative Traffic Demand Model as prepared by the traffic engineering firm of Fehr and Peers. This model, which is used by several agencies in this region, including the City of Roseville, for long-range planning purposes (but not for the purpose of identifying CEQA impacts and mitigation measures), shows the potential need for an interchange within the Placer Parkway corridor at approximately the location presented in each of the alternatives within the Amoruso Ranch Specific Plan area for the 2035 horizon year, and assuming full build-out of southwest Placer County. While it is prudent to plan for this interchange by reserving adequate space within the land use plan for future right-of-way acquisition within the ARSP, the interchange was not assumed by the Tier I EIR/EIS for Placer Parkway and is not proposed to be constructed as a part of the ARSP project.

Westbrook Boulevard, which is planned as a 6-lane regional road, is projected to carry approximately between 60,000 and 70,000 average daily trips (ADT). (For comparative purposes, this volume is greater than the typical volumes on Douglas Boulevard in the City of Roseville.) Additionally, Placer Parkway is projected to carry approximately 60,000 ADT. Based on these estimates and with such sizable traffic volumes on both these roadways, an interchange may be necessary in the future to maintain acceptable traffic levels of service. Levels of Service (LOS) on Westbrook

Boulevard are projected to be compromised when evaluating traffic scenarios, even with the inclusion of the interchange, and are projected to be further exacerbated without the interchange. As a result, congestion along Westbrook Boulevard would cause significant vehicle queuing delays, which would result in vehicle stacking within the future residential communities and low levels of service, which in turn would increase noise and air quality impacts.

The SuperCumulative analysis estimates that Fiddyment Road (which would run parallel to Westbrook Boulevard) will carry about 60,000 ADT. Absent a Westbrook Boulevard /Placer Parkway Interchange those numbers would increase, affecting the LOS on Fiddyment Road as the traffic attempting to enter the Parkway would reroute to Fiddyment Road. Additionally, the ADT estimates for Fiddyment Road and Placer Parkway were made assuming that Placer Parkway was not completely built. Numbers along Fiddyment and the Parkway are projected to be higher when the Parkway is fully operational to Highway 99.

Intersections and Westbrook Boulevard

Based on the information above, each of the Placer Parkway Radius Alternatives assumes the need to accommodate a Westbrook Boulevard/Placer Parkway Interchange. The 7,300-foot radius alternative assumes the interchange serving the Placer Parkway would extend slightly beyond the southern portion of the Tier 1 Placer Parkway corridor. As a result, intersections along Westbrook Boulevard would inadvertently shift south from locations proposed in both the 5,500-foot and 6,200-foot radius alternatives in order to maintain City's adopted street standards for intersection spacing and to accommodate turn movements and signal coordination. As required by Section 7 of the City of Roseville Design Standards (January 2010), all major intersections (arterial to arterial) must be spaced at a minimum of 1,320 feet (or ¼ mile). Those same design standards require this spacing between signalized intersections for both adequate traffic flow and environmental and safety concerns. As a result of the spacing requirements, the most southerly Westbrook Boulevard intersection would be located in the southeast proposed avoidance area.

Two of the three intersections on Westbrook Blvd are high volume arterial to arterial connections. As analyzed, the LOS at these intersections (with the inclusion of the third signal) result in LOS's below LOS C. The need for the third signalized intersection located on the southerly portion of the plan area is critical for a number of reasons: 1) the third intersection provides more balanced traffic dispersion into the Amoruso Ranch project resulting in reduced traffic volumes at each of the three signalized Westbrook intersections; 2) without the inclusion of the southerly signalized intersection the LOS at the arterial intersections would further deteriorate to unacceptable levels; 3) adequate and acceptable internal project circulation is best served by dispersing traffic volumes from Westbrook Boulevard; and 4) in the absence of the

southerly intersection serving the project, noise and vehicle emissions would increase along Westbrook Boulevard and the internal Amoruso Ranch project roads as a result of additional congestion at the two remaining intersections.

Wetland/Resource Impacts

Wetlands within the Amoruso Ranch project area can be described best as existing in three "complex" areas. First, a complex of about 30 acres exists in the northwest. In addition, two complexes are located along the southern boundary of the proposed project. While the northern complex is mostly isolated (both hydrologically and from other wetlands) the southern complexes/potential preserves are approximately 112 acres and connect to off-site wetlands along the project's southern boundary. Combined, the southern on-site and off-site wetland complexes would contribute to a preserve of over 500 acres. These southern wetland complexes are proposed for preservation given that the preserves will add to "regional" habitat conservation.

The attached table shows wetland impact acreages for each Placer Parkway alignment alternative under a variety of "indirect impact" estimates (50 foot, 150 foot and 250 foot) and direct impacts (by fill). In addition, estimated impacts are provided for "off-site" wetland features along the northeastern corner of the project (based on the potential interchange location) under each alternative. These impacts are shown as "North Off-Site Impacts" in the attached table. Additional "off-site" impacts (shown as "Placer Ranch Impacts") are impacts associated with the road connection in Placer Ranch required under the 7,300 foot radius alternative, described above.

While the indirect impact estimates are based on a variety of generally accepted widths (described in the table as "buffer"), the presence of the Placer Parkway in any location within the Tier 1 LEDPA corridor will negatively affect the hydrology of the northern wetland complex. The precise effect on that 30-acre complex is difficult to predict at this time, but because the hydrology contributing to this complex will be effectively cut-off, the complex's long-term integrity will no doubt be diminished under any of the alignment alternatives.

In summary, the impact estimate shows that the 7,300 foot radius alternative will result in the direct and indirect impact to a total of 7.13 wetland acres. As a comparison, both the 5,500-foot and 6,200-foot alternatives result in higher indirect and direct impacts (11.79 and 9.73 acres, respectively). However, the 7,300-foot radius alternative will result in direct and indirect impacts to wetlands within the southern preserve area of 3.51acres. This compares to impacts of 0.21 acre in the 5,500-foot radius alternative (or approximately 16 times more impacts to the southern resources) and 0.61 acre in the 6,200-foot alternative (or nearly 6 times more impacts).

Off-site impacts for the "Northern Off-site" category are:

- 5,500-foot radius -- 0.426 acre
- 6,200-foot radius -- 0.260 acre
- 7,300-foot radius -- 0.014 acre

Floodplain Policy and Floodplain Impacts

In 2006, due to Roseville's stringent floodplain policies and restrictions, it became the first and only city in the nation to achieve the highest "Class 1" rating for flood protection by the Federal Emergency Management Agency (FEMA).

FEMA's Community Rating System is an extensive program that evaluates communities in 18 categories regarding preparedness for a flood event. The ratings are certified by FEMA, which operates under the Department of Homeland Security.

The City of Roseville has been actively involved with FEMA's CRS Program since 1992. This program rates communities on how effective they manage their floodplains. The program rates cities in the following four major categories.

- Public Information
- Mapping and Regulatory Standards
- Flood Damage Reduction
- Flood Preparedness

Following several flood events within the City which resulted in substantial property damage, the City adopted policies and development standards that restrict development within the floodplain, except for limited circumstances that would accommodate essential facilities where no feasible alternative exists. Feasibility is defined to include whether an alternative is capable of being accomplished taking into account economic, social and technological factors. "Essential" facilities would include the construction of major arterials, such as Westbrook Boulevard, which serve local and regional transportation systems. When encroachments to the flood plain are permitted, improvements are required to be designed to minimize cumulative upstream or downstream impacts and to result in no off-site increase in water surface elevation.

The City regulates its floodplain areas through land use, zoning and other development restrictions. This includes policies that require the dedication of floodplains to the City and a land use designation of Flood Area Combining. This designation is normally combined

with open space or park designations. The City is responsible for maintaining creek systems that are owned by the City.

Within "greenfield development areas," such as the Amoruso Ranch project, it is highly unlikely that the City would approve a major intersection or other major improvements such as the southerly road and intersection as depicted in the 7,300 foot radius alternative, within the floodplain, particularly when land is available as a feasible alternative outside the floodplain. The location of Westbrook Boulevard, which is anticipated to be a major arterial roadway supporting dedicated bus rapid transit lanes, was established jointly with Creekview, Amoruso Ranch and the Resource Agencies following lengthy analysis and discussion of aquatic resources located on both project sites to identify the route that maximizes avoidance of sensitive habitat. A feasible and reasonable non-floodplain alternative exists for the 7,300 foot alternative road and intersection located in the southeastern wetland preserve area; namely, the road and intersection location depicted in the 5,500 foot radius alternative. This Alternative better maintains natural stream and wetland features while considering long-term flood control, water quality and open space functions.

The following provides a summary of key policies and restrictions. The primary directive of the floodplain policies is to discourage and restrict development in the floodplain. A copy of the text from each of these sections is included as an attachment:

- *The General Plan Safety Element Floodplain Development Regulations 2 for the Remainder of the City* (specific plans) - No development is permitted within the floodplain. Exceptions may be considered by the City for unusual conditions on a case-by-case basis if the encroachment is limited to only the floodway fringe and would not result in any off-site increase in water surface elevation.

- *General Plan Safety Element Policy 9* - Where feasible, maintain natural stream courses and adjacent habitat and combine flood control, recreation, water quality and open space functions.

- *City of Roseville Municipal Code Flood Damage Prevention Chapter 9.80.210 Floodways* - Prohibit encroachments, including fill, new construction, substantial improvement, and other development unless certification by registered professional engineer that the encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

- *City of Roseville Zoning Ordinance- Section 19.18.040.A.5* - Maintain and preserve the existing stream channels and stream vegetation in as nearly natural condition as possible in order to preserve wildlife and fish habitat, as well as to avoid the expenditure of public funds to remedy or avoid flood hazards, unnatural

watercourse diversion, erosion or situations caused by piecemeal alterations of natural watercourses and flood carrying areas, while balancing this need against the need to reduce the physical area of the floodplain.

- *City of Roseville Zoning Ordinance- Section 19.18.40.I.1* - No structure (temporary or permanent), fill (including fill for roads and levees), obstruction, excavation, storage of materials, or equipment, or other use is allowed which, acting alone or in combination with existing or future uses: adversely affects the capacity of the regulatory floodway or of areas where base flood elevations have been determined, but floodways have not be determined; increases peak flow; adversely affects the stream channel; increases flood heights; or is likely to have an adverse effect on a proposed use. Consideration of the effects of a proposed use shall be based on a reasonable assumption that there will be an equal degree of encroachment extending for a significant reach on both sides along the stream.

Conclusions

- Potential Interchange Must be Considered
  The interchange depicted on each of the Parkway alternatives would be a regional infrastructure improvement intended to meet likely traffic demands for western Placer County, based on regional planning and traffic models. Without the interchange, regional levels of traffic of service would be significantly compromised leading to increased noise and air quality impacts.

- Intersections Shift South in the 7,300 Foot Radius Alternative
  The 7,300-foot radius alternative assumes the Placer Parkway interchange would extend beyond the southern portion of the Tier 1 Placer Parkway corridor. As a result, intersections along Westbrook Boulevard would shift south from locations proposed in both the 5,500-foot and 6,200-foot radius alternatives to comply with City street standards and to accommodate turn movements and signal coordination. A third southerly intersection along Westbrook Boulevard is necessary to achieve required traffic service and alleviate other concerns.

- Southeast Vernal Pool Complex Impacted in 7,300 Foot Radius Alternative
  The third southerly intersection and road would result in direct impacts to the southeastern wetland complex and proposed preserve and may require that an additional intersection be located off-site on adjacent land. Additionally, there is potential for impacts to existing hydrological features off-site and upstream drainage shed impacts based on this off-site road/intersection.

- Northern Wetland Complex Isolated
  There are three wetland complexes on-site. The northern most is the most isolated and the southern complexes connect to form over 500 acres of regional habitat preservation.

- Northern Complex Avoided but Impacts to Southern Complexes Result
  While direct impacts to the northern complex are avoided, the 7,300 foot radius alternative will result to direct and indirect impacts to the southern complexes. Indirect impacts to the northern complex will occur under any alternative. The long-term viability of the northern complex is questionable even under the 7,300 foot radius alternative.

- Floodplain Impacts Under 7,300 Foot Alternative Logistically Impracticable

  - In 2006, due to Roseville's stringent floodplain policies and restrictions, it became the first and only city in the nation to achieve the highest "Class 1" rating for flood protection by the Federal Emergency Management Agency (FEMA). The City's floodplain policies restrict development within the floodplain, except for limited circumstances that would accommodate essential facilities and where no feasible alternative exists.

  - Within "greenfield development areas," such as the Amoruso Ranch project, it is highly unlikely that the City would approve a major intersection or other major improvements such as the southerly road and intersection as depicted in the 7,300 foot radius alternative particularly when land is available as a feasible alternative outside the floodplain.

  - The location of Westbrook Boulevard results from analysis and discussions with federal and state resource agencies. This location was based on minimizing impacts to regional wetland resources. Unlike the southerly road and intersection, there is no feasible alternative to Westbrook Boulevard's location within the floodplain.

Exhibit 1

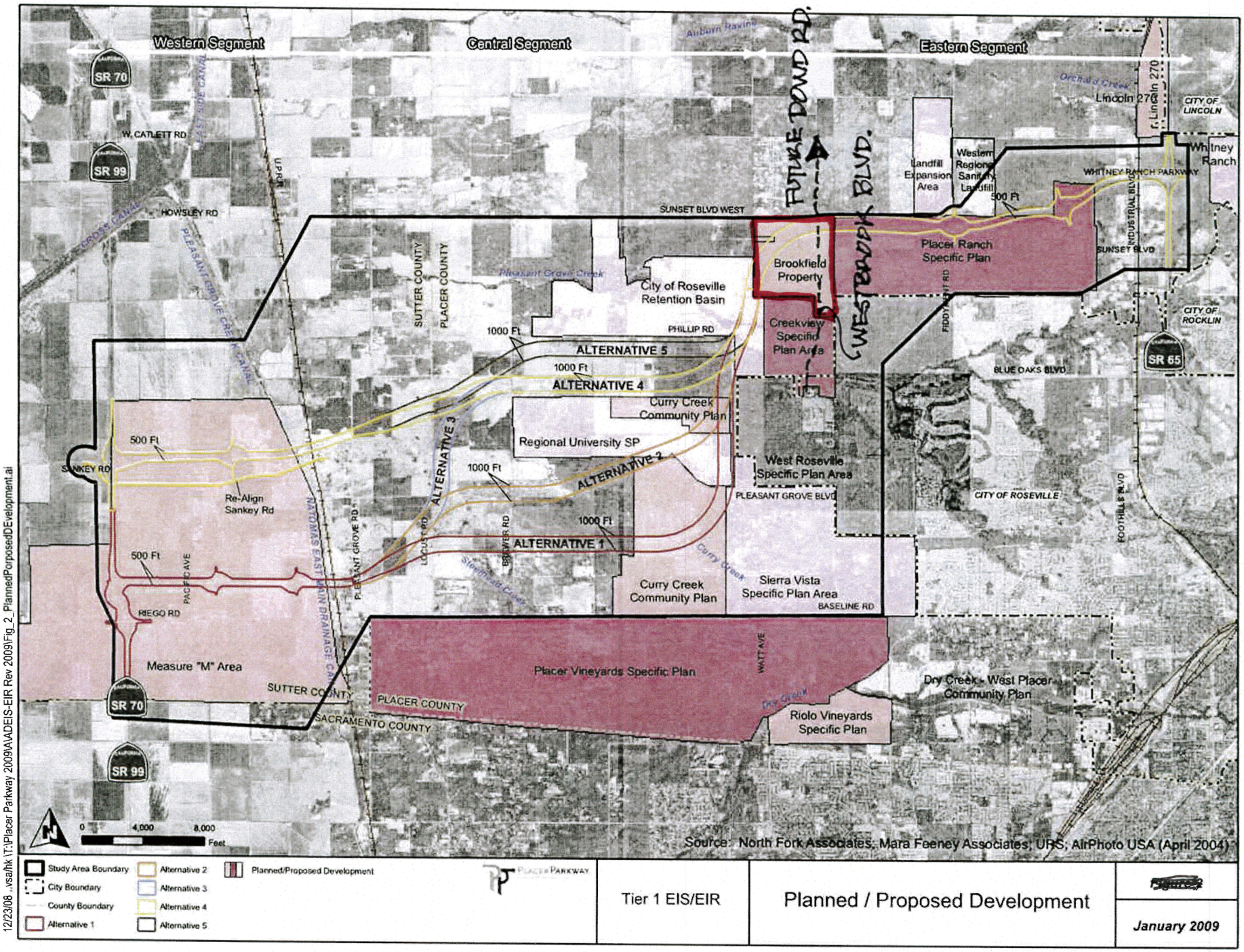


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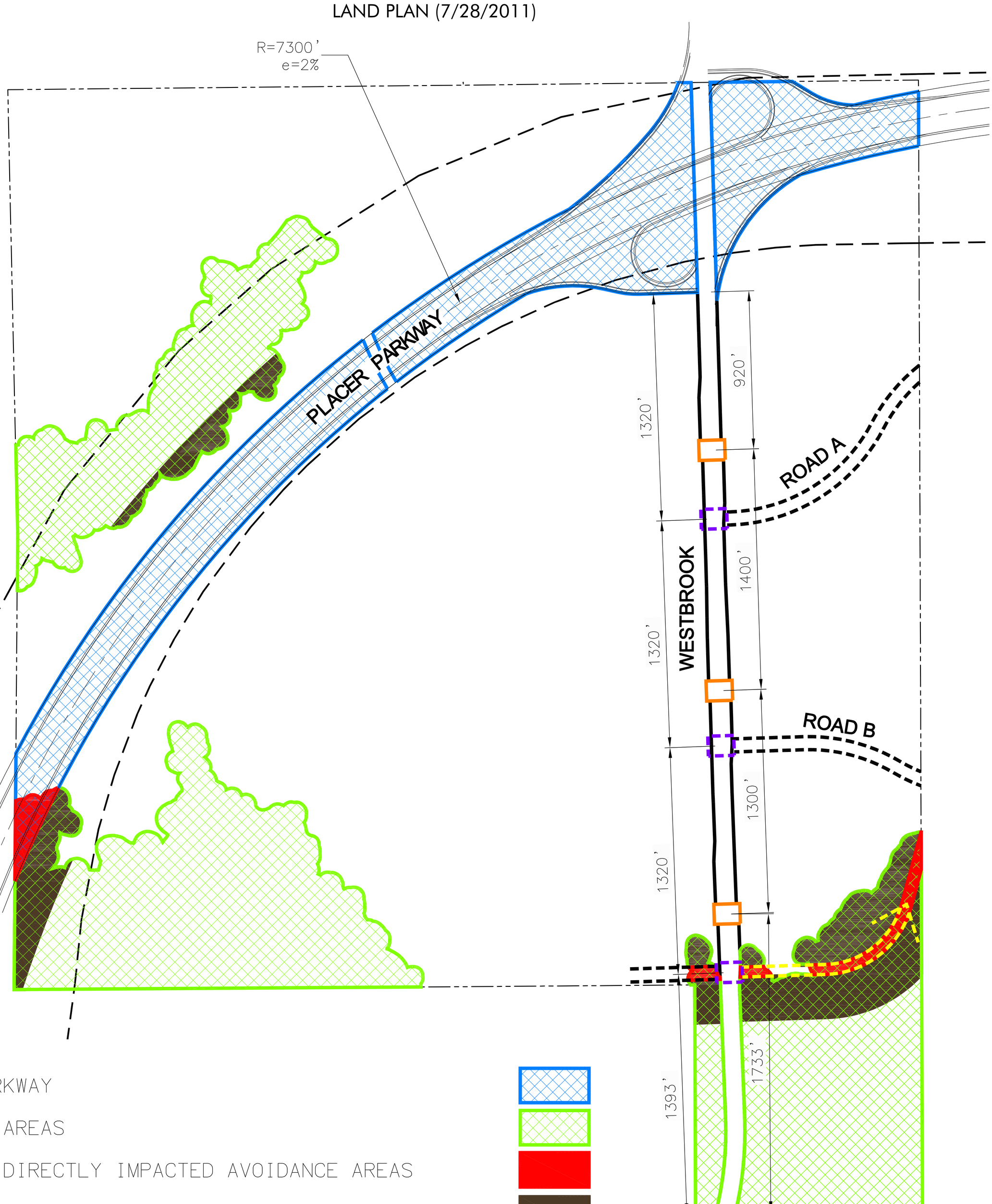
EXHIBIT 1
7300' RADIUS ALTERNATIVE

LAND PLAN (7/28/2011)



UPDATED: NOVEMBER 9, 2011

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FLOOD PROTECTION

A. SETTING

The City of Roseville is located within portions of two major drainage basins: the Pleasant Grove Creek Basin and the Dry Creek Basin. Pleasant Grove Creek and its tributaries drain most of the western and central areas of the City north of Baseline Road and the Diamond Oaks Golf Course. Dry Creek and its tributaries drain the remainder of the City from Rocklin to the north, Loomis Basin to the east, Sacramento County to the south, and Placer County to the west. The Dry Creek system has year-round flows in its major watercourses, while the Pleasant Grove system is intermittent in nature with only seasonal flows. For the most part, the primary creek systems in the City have been maintained in their natural state and alignment.

Upstream flows, generated elsewhere in Placer County, enter Roseville's creeks and tributaries from the east and north. The creek systems, picking up additional natural and storm water system delivered run-off in the City, generally flow in a west-southwestern direction through Roseville. The flows continue to move west-southwestward into Placer, Sacramento, and Sutter Counties, eventually draining through various creeks and canals into the Sacramento and American Rivers.

Flooding is defined as the temporary rising and overflowing of water resulting in partial or complete inundation of normally dry land areas. The initial force of flooding and inundation of floodwaters can result in injury, loss of life, and property damage. Damage may include: the shattering or flooding of structures, including homes and businesses; uplifting of vehicles and other objects; damage to roadways, bridges, infrastructure and services; and, soil instability, erosion, and landslide.

Flood protection is a major concern in Roseville as well as the remainder of the Sacramento/South Placer region. Flooding in Roseville is associated with storm run-off exceeding creek and storm drainage capacities. As a result, flooding in the City is generally confined to limited areas of low elevation adjacent to the creek systems.

Reports of flooding along Dry, Antelope, Cirby, and Linda Creeks have been recorded from the 1930's to present time. Recent flooding that has resulted in property damage has occurred about every three to five years since 1950, with the exception of the period from 1973 to 1981 when no flooding was reported. Until recently, the largest event on record took place in February 1986, causing substantial damage to property. The flood was considered to range between a 70 and 100-year event, depending upon the location.

In January of 1995, the City was subject to flooding that exceeded the flood event of 1986 on Cirby Creek and Linda Creek. A detailed description of the flooding problem in the Dry Creek watershed can be found in the "Dry Creek Watershed Flood Control Plan" by the Placer County Flood Control District dated April 1992 and in the "Cirby-Linda-Dry Creek Study" by Dames & Moore dated November 1991. The portion of Roseville within the Pleasant Grove Creek watershed has, until recently remained mostly undeveloped so reports of flood damage are limited.

Localized flooding resulting from storm run-off exceeding piped drainage capacity is primarily limited to street flooding. There have been very few reports of major flood damage caused by piped drainage capacity being exceeded. Improvements to the drainage system have been made to most of these areas.

In addition, dam failure could result in widespread flooding. Although there are no dams within Roseville, the failure of Folsom Lake dike numbers 1 through 6 could impact the City. Of these, dikes 5 and 6 would result in the largest impacts. In the unlikely event of such a failure occurring, a plan of action has been developed and is included in the City of Roseville's Emergency Operations Plan.

The City of Roseville is involved in several flood control projects and mitigation programs designed to protect residents and lessen the potential for flooding both within the City and within neighboring communities:

- The City has initiated the Cirby-Linda-Dry Creek Flood Control Project to reduce storm

water back up at constrictions and increase the overall capacity of the floodplain. Of the seven work packages described in the project study, five have been completed. As a result of those improvements, the number of structures in the floodplain has been reduced to about 130. Most of the structures remaining in the floodplain are near Cirby Creek in the Zien Court and Trimble Way area and along Dry Creek upstream of Folsom Road.

- The City is currently collecting drainage mitigation fees within the Pleasant Grove and Dry Creek watersheds to be used to alleviate potential downstream drainage problems in these basins. Roseville is also involved, through the Placer County Flood Control District, in the Auburn Ravine, Coon Creek, and Pleasant Grove Creeks Flood Mitigation Plan dated June 1993, as well as the Dry Creek Watershed Flood Control Plan.

- The City presently has a flood alert system in place. In the event of potential flooding, warnings will be broadcast on Roseville's Government Access Channel and on local radio stations. The system is designed to provide residents up to three hours advance warning of potential flooding within the 100-year floodplain. Details of this program are described in the City of Roseville's Emergency Response Plan.

- The City operates a stream cleaning program in the flood prone areas of Roseville each year. Details of this program can be found in the City's Creek Maintenance Guidelines dated February 2001 and the Stream Clearing Inspection Report dated July 2001.

Minimizing encroachment within the 100-year floodplain has been a primary goal of the City. The boundaries of the 100 year floodplain have been revised over the years due to better data being available. A majority of the damage that resulted from the 1986 and 1995 floods occurred within the older infill area of the City where historic encroachments into what is currently recognized as the floodplain have occurred.

In most cases, the definitions of the floodplain generated by the U.S. Army Corps of Engineers and the Federal Emergency Management Agency (FEMA) encumber less property than those developed for the City. The most recent FEMA information is more consistent with the City data than previous versions. Updated floodplain maps, prepared by Nolte and Associates in 1987, have in many areas of the City been recognized as the best available floodplain information. The "Nolte Future Floodplain" represents the 100-year floodplain based on estimated build-out of the Pleasant Grove and Dry Creek basins. The boundaries of the floodplain are generally reflected on Figure VIII-2.

The City of Roseville regulates its floodplain areas through land use, zoning, and other development restrictions. This includes policy that requires the dedication of, and prohibits most development within, the 100-year floodplain area. Certain exceptions to this policy exist primarily within the infill area and for the construction of essential services. Where encroachments may be permitted, improvements are required to be designed to minimize cumulative upstream and downstream effects.

The Flood Area Combining land use designation is applied to all floodplain areas in the City. This designation is normally combined with open space or park designations, but may be combined with other land uses in areas with existing development. The City is responsible for maintaining its storm drain systems (including the creeks that are part of that system, where they are owned by the City), as well as its existing and planned retention and detention basins.

In addition to the City, there are several other agencies that regulate floodplain areas and/or the resources commonly found within these areas. These agencies include the U.S. Army Corps of Engineers (Section 404 of the Clean Water Act), California Reclamation Board, FEMA, and the California Department of Fish and Game (1603 Stream Bed Alteration Agreement). The Placer County Resource Conservation District and the Placer County Flood Control District provide advice and assistance on floodplain management.

FEMA plays a particularly prominent role in floodplain management. FEMA is charged with overseeing disaster assistance and mapping floodplains. One of its programs is the National

Flood Insurance Program (NFIP) that requires owners of property within designated flood zones to purchase flood insurance. Eligible flood zones are designated through engineering studies that are adopted by FEMA. The mapping of the flood zones then becomes the Flood Insurance Rate Map (FIRM) that reflects the expected frequency and severity of flooding by area. The City, in September 1990 and 2001, adopted revised FIRM maps to ensure continued participation in the National Flood Insurance Program.

State law is also addressing the issue of Climate Change, in terms of both the cause and the potential effects. Expected effects of Climate Change include increased risk of flooding. Roseville's policies that address flood protection, and similar policies that address the cause and potential effects of Climate Change throughout the General Plan are designated with an icon: . Also, a more focused discussion of Climate Change can be referenced in the Air Quality element of the General Plan.

B. OUTLOOK

As urbanization of western Placer County continues to increase within the Pleasant Grove Creek and Dry Creek Basins, Roseville faces the potential of experiencing increased flooding problems. Land development typically results in increased hard surfaces and decreased vegetation. These conditions limit infiltration opportunities and, without adequate mitigation, can increase storm water run-off rates and volumes and decrease the time required to reach peak discharge.

The goals, policies, and implementation measures of this component focus on minimizing damage due to flood hazards. Key to this effort is the clear definition and application of floodplain boundaries. Emphasis is placed on protecting the floodplain areas and on pursuing regional cooperation on flooding issues. The City is committed to exploring environmentally sensitive flood control solutions. As a result, this component is intended to be utilized in combination with the goals, policies, and implementation measures contained within the Open Space and Conservation Element.

The State of California currently has implemented a State Plan of Flood Control (SPFC). In 2008, State law required all communities to be in compliance with this plan. The City's current standards for managing new development in or near the floodplain are in compliance with the State Plan. The City will continue to require new development to comply with the latest SPFC.

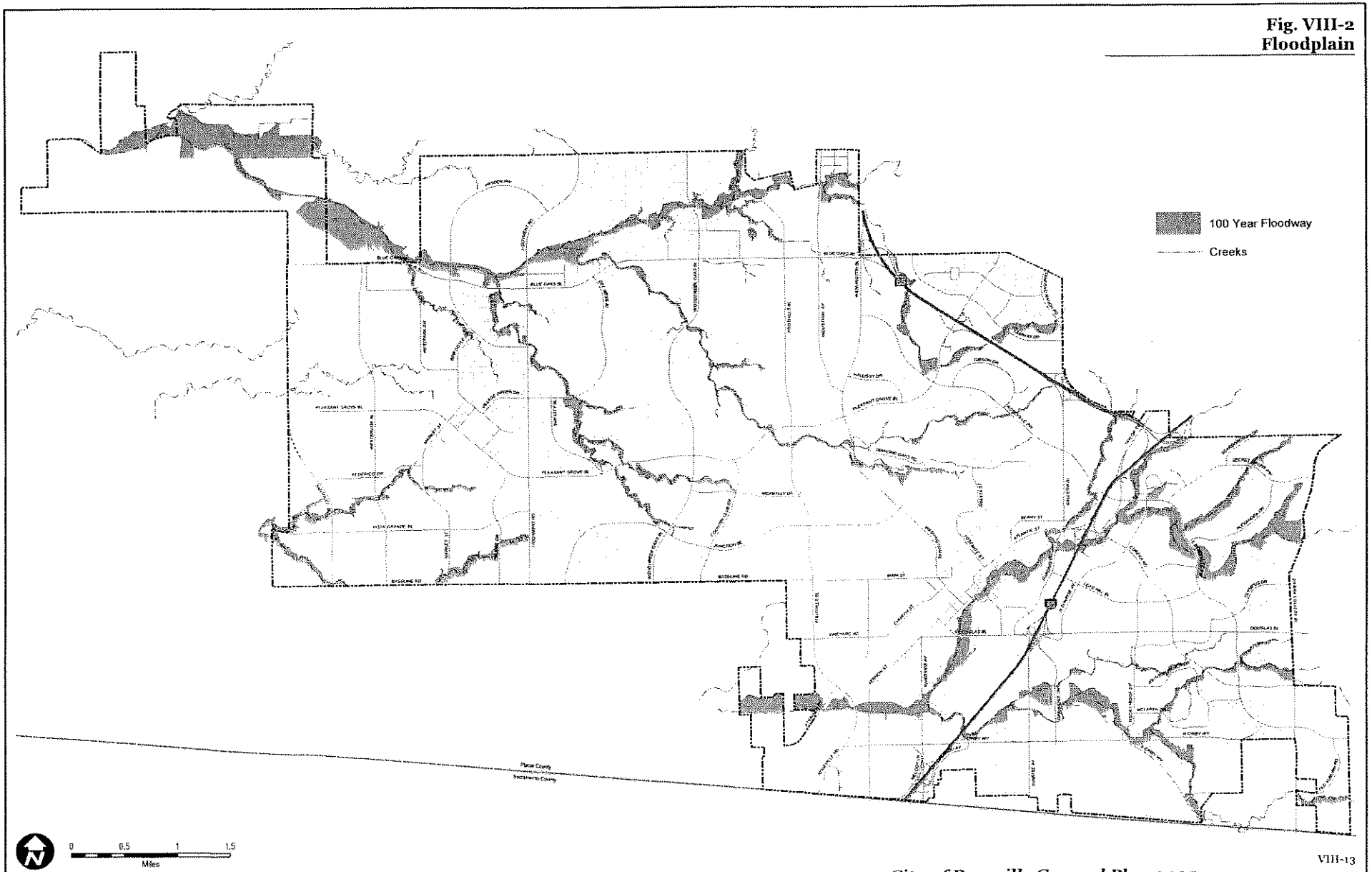
A detailed Floodplain Management Plan has been developed and is included in the City's Multi-Hazard Mitigation Plan.

C. FLOODPLAIN DESIGNATIONS

Clear policy on how floodplain areas are defined and regulated is very important in effectively dealing with flood protection. Several different designations have been used to define floodplains in Roseville. The designations differ as to when they were developed, the methodology utilized, and the assumptions incorporated. This has resulted in some confusion in how and where these various definitions have been applied in the past. It is the intent of the General Plan to establish clear direction to ensure consistent application of floodplain policy in the City.

Policy relating to the designation of the floodplain recognizes that there are differences between the infill area and the remainder of the City. The primary difference relates to the existence of development in the floodway fringe. Within the infill area such development exists, while in the remainder of the City it does not. As a result, floodplain policy for the infill area is slightly more flexible to account for existing development and to retain some development potential for those undeveloped but entitled properties within the floodplain, assuming compliance with the specified restrictions.

Fig. VIII-2
Floodplain



FLOODPLAIN DESIGNATION POLICY

OBJECTIVES:

In the City of Roseville, floodplain policy focuses on two primary objectives: 1) To minimize the potential for flood damage by providing for the safe movement of flood waters through the City; and, 2) To preserve, protect, and enhance the natural habitat, open, and recreational values found along Roseville's floodplain and creek environments. The goals, policies, and implementation measures within this Element focus primarily on the safety objective. It is intended that these policies be utilized in combination with the policies contained within the Open Space and Conservation Element to ensure full implementation of the objectives stated above.

REGULATORY FLOODPLAIN DESIGNATION:

The City of Roseville shall designate the 100-year Regulatory Floodplain on its land use map in accordance with the best available floodplain information as determined by the Public Works Director. The Regulatory Floodplain will assume that the watershed has been fully developed without mitigation. In many portions of the City, the Nolte Future Floodplain (1987) has been utilized to designate floodplain boundaries. The Nolte Future Floodplain defines floodway and floodway fringe boundaries within the floodplain. The floodway fringe is defined as that area along the boundary of the floodplain that, if totally obstructed, would not result in more than a one foot rise in the water surface elevation. The floodway constitutes the remainder of the floodplain area and is typically where flood waters have the most velocity.

Where Nolte Future Floodplain information does not exist, or where it is determined that Nolte does not represent the best available information, new floodplain information shall be generated by the project proponent. New floodplain information shall generally be developed: 1) Consistent with the build-out development assumptions utilized by the Nolte Future Floodplain analysis; and, 2) In compliance with the most recent Placer County Floodplain Manual.

Designation of the City's regulatory floodplain boundaries may normally be terminated where the 100-year flood generally narrows to a width of 200 feet or less and where the associated drainage area is less than 300 acres. Precise termination of boundaries shall be as approved by the Public Works Director.

FLOODPLAIN DEVELOPMENT REGULATIONS:

Development within designated 100-year regulatory floodplain areas shall be regulated as follows:

1. **INFILL AREAS**

   No development is permitted within the regulatory floodway. Development may be permitted by the City within the regulatory floodway fringe. In accordance with the Nolte definition, such development shall be limited to that falling within the assumed cumulative one-foot rise in the water surface elevation.

2. **REMAINDER OF THE CITY (Specific Plans, and the North Industrial area)**

   No development is permitted within the regulatory floodplain (floodway and floodway fringe). Exceptions may be considered by the City for unusual conditions on a case-by-case basis if the encroachment is limited to only the floodway fringe and would not result in <u>any</u> off-site increase in the water surface elevation.

The above designations are schematically reflected in Figure VIII-3.

ESSENTIAL SERVICES EXCEPTIONS:

On-site increases in the water surface elevation and/or fill within the regulatory floodplain, including the floodway, may be permitted by the City on an exception basis if associated with essential facilities and services such as roads, infrastructure, and detention facilities subject to the following criteria:

- No feasible[1] alternatives exist that would eliminate or reduce the need for fill and/or an increase in the water surface elevation and would result in a lesser impact to the environment.

- The facility has been designed to result in the minimum amount of fill and impact necessary to achieve its intended purpose and results in no off-site increase in the water surface elevation.

SECONDARY CHANNELS AND TRIBUTARIES:

Generally, piping of storm water in watershed that is less than 300 acres is encouraged for ease of maintenance and for public health and safety reasons.

Channels and tributaries are defined where the existing drainage area is between 300 and 640 acres. These areas may be permitted to be channelized or modified to better serve the needs of the area.

- The modification to the channel or tributary would not result in any off-site increase in the water surface elevation.

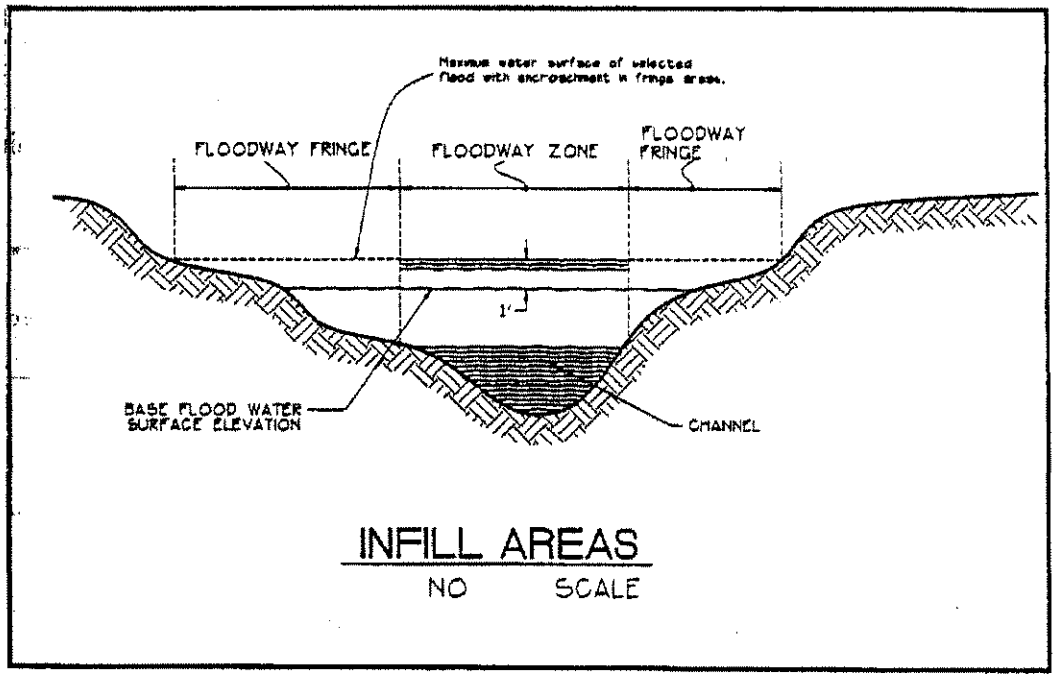
- The channel or tributary to be modified is determined to have less than significant vegetation, habitat, visual, recreation, or other open space value.

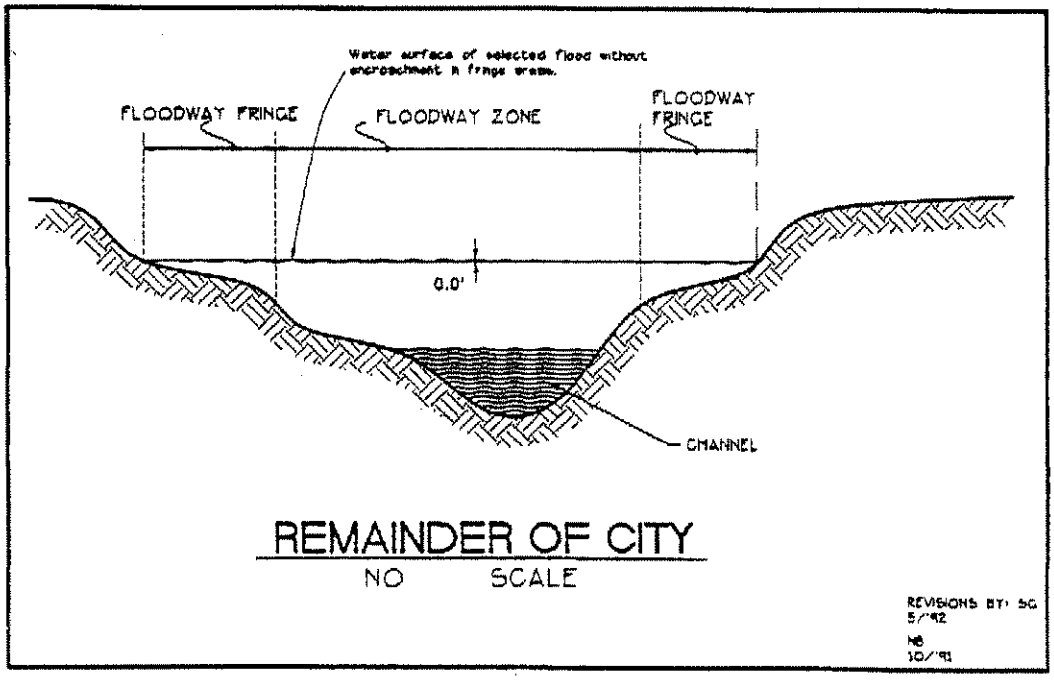
- If allowed to be channelized, the created channels should be designed to: 1) Provide adequate open space to safely accommodate the 100-year flow; 2) Reflect cross-sections and contours similar to the natural channel with gentle side slopes and be unlined; 3) Be compatible with the adjacent system and provide transitions as appropriate; 4) Be an integral part and amenity to the area;, 5) Incorporate habitat enhancement, mitigation, and other resources; and 6) Be designed to reduce the need for maintenance.

- If allowed to be piped, the 100-year flow must be able to be safely accommodated over land assuming a blocked pipe and must comply with all other provisions of the City of Roseville Improvement Standards.

[1] Feasible is defined as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors

Figure VIII-3
FLOODPLAIN DESIGNATION CROSS SECTIONS





D. GOALS AND POLICIES

GOALS:	FLOOD PROTECTION
Goal 1	Minimize the potential for loss of life and property due to flooding.
Goal 2	Pursue flood control solutions that are cost-effective and minimize environmental impacts.

Policies:	Flood Protection	*Implementation Measures*
1.	Continue to regulate, through land use, zoning, and other restrictions, all uses and development in areas subject to potential flooding and require new development to comply with the State Plan of Flood Control.	- *Land Use Designation* - *Ordinance Modification* - *Development Review Process* -*Multi-Hazard Mitigation Plan*
2.	Monitor and regularly update City flood studies, modeling and associated land use, zoning, and other development regulations.	- *Flood Information Update* - *National Flood Insurance Program*
3.	Continue to pursue a regional approach to flood issues.	- *Placer County Flood Control District* - *Interagency Coordination*
4.	Provide flood warning and forecasting information to community residents to reduce impacts to personal property.	- *Flood Alert and Early Warning Systems*
5.	Minimize the potential for flood damage to public and emergency facilities, utilities, roadways, and other infrastructure.	- *Ordinance Modification* - *Development Review Process* - *Specific Plans*
6.	Require new developments to provide mitigation to insure that the cumulative rate of peak run-off is maintained at pre-development levels.	- *Master Drainage Plan*
7.	Continue to implement the Storm Maintenance Program to keep creeks and storm drain systems free of debris.	- *Storm Maintenance Program* - *Financing Mechanisms*

8.	Establish flood control assessment districts or consider other funding mechanisms to mitigate flooding impacts.	- *Specific Plans* - *Financing Mechanisms*
9.	**W**here feasible, maintain natural stream courses and adjacent habitat and combine flood control, recreation, water quality, and open space functions.	- *Land Use Designation* - *Ordinance Modification* - *Specific Plans*

E. IMPLEMENTATION MEASURES

1. Land Use Designation
(Existing)

The City shall designate all areas identified as the 100-year floodplain with the Flood Area Combining land use designation as defined in the Land Use Element. The boundaries of the 100-year floodplain shall be as specified in the Floodplain Designations section of this component. Floodplain areas shall be preserved as specified in the Open Space and Conservation Element. Such preservation may include required dedication to the City. *(Policies 1 and 9)*

2. Ordinance Modification
(Proposed)

Modify the City's Ordinances to include floodplain use regulations consistent with the goals, policies, and implementation measures of the Safety, Land Use, Open Space and Conservation, and Parks and Recreation Elements. *(Policies 1, 5 and 9)*

3. Development Review Process
(Ongoing)

Refer any development proposal that has a direct or indirect impact on flood protection to the Public Works Department for comment. In addition, forward such proposals to other agencies as applicable, including the U.S. Army Corps of Engineers, California Reclamation Board, Federal Emergency Management Agency, California Department of Fish and Game, Placer County Resource Conservation District, and Placer County Flood Control District. Consider the comments of the agencies during the development review process.

Continue the City's existing development review process for both public and private projects in accordance with statutory requirements contained in such documents as the Zoning Ordinance, Sign Ordinance, Subdivision Ordinance and the Subdivision Map Act, Transportation Systems Management Ordinance, the specific plans, the California Environmental Quality Act, the Permit Streamlining Act, and other statutes. Continue to provide for public participation and coordination with other jurisdictions through the review of development proposals.

Through the development review process, the City shall pursue the following:

- Promote the use of open grassy swales to carry run-off from urban areas to natural drainage.
- Discourage large continuous paved areas in development unless adequate mitigation is provided.
- Encourage development to use pervious paving materials.
- Ensure design that prevents the diversion of run-off onto neighboring parcels.
- Encourage development to discharge run-off into pervious areas.

All building pads shall be located a sufficient distance above the 100-year floodplain elevation, as determined by the Public Works Department, to minimize the potential for flooding. The review of improvement plans shall ensure that all storm drainage culverts and bridges along designated floodplains are designed to accommodate, at a minimum, 100-year flood volumes with at least one foot of freeboard as measured from where the water would otherwise overtop. . Where practicable, such improvements should accommodate 150% of the 100-year volumes. *(Policies 1 and 5)*

4. Flood Information Update
(Ongoing)

Update the City's flood studies, modeling, and regulations at a minimum of every five (5) years, or whenever information becomes available that would significantly modify previous data. "New information" could take the form of new studies, change in City policy, consideration of a major development project or specific plan, or implementation of a flood control project. This will be overseen by the Public Works Department. When a new flood study is deemed appropriate, funding may be by City, state, and/or Federal sources, or by private funds from developing areas. *(Policy 2)*

5. National Flood Insurance Program
(Ongoing)

Continue City participation in the National Flood Insurance Program (NFIP). This will include adoption and administration of updated Federal Emergency Management Agency (FEMA) model ordinances and Flood Insurance Rate Maps (FIRM). This will be overseen by the Public Works Department and will require no special funding needs. *(Policy 2)*

6. Placer County Flood Control District
(Ongoing)

Remain actively involved in the Placer County Flood Control District. This involvement includes cooperation in the development of a comprehensive regional data base. Encourage regional drainage planning and design for all individual developments in the Placer County Flood Control District to address cumulative flooding impacts. Continue to participate in regional flooding studies, including the Auburn Creek/Coon Creek/Pleasant Grove Creek Flood Mitigation Plan and the Dry Creek Watershed Flood Control Plan. This will be overseen by the Public Works Department. Annual funding for membership is provided via the City's General Fund. *(Policy 3)*

7. Interagency Coordination
(Ongoing)

Continue City coordination with other agencies on issues of flood control. Coordination between the City and adjacent jurisdictions occurs through several mechanisms including the distribution of development proposals for review and comment. Continue City cooperation with federal, state, and local agencies including the U.S. Army Corps of Engineers, California Reclamation Board, Federal Emergency Management Agency, California Department of Fish and Game, Placer County Resource Conservation District, and Placer County Flood Control District. This will be overseen by the Community Development Department, Planning Department and Public Works Department as appropriate and will require no special funding needs. *(Policy 3)*

8. Flood Alert and Early Warning Systems
(Ongoing)

Continue to develop, implement, and expand the Flood Alert and Early Warning Program systems and integrate the systems with other local jurisdictions to form a regional warning program. This is overseen by the Public Works Department. Annual funding is provided through the City's General Fund *(Policy 4)*

9. Specific Plans
(Ongoing)

Ensure that future specific plans and specific plan amendments are consistent with the goals and policies of the General Plan. The specific plans shall include the designation and preservation of floodplain areas and adjacent habitat. Provisions shall be incorporated to ensure that public infrastructure, utilities, and emergency services remain functional during flood conditions. Such infrastructure and facilities include water, sewer and gas mains, telephone and electric lines, streets and bridges, hospitals, and fire and police stations. Financing mechanisms shall be explored to fund necessary flood protection improvements and maintenance. Development agreements may be utilized to secure implementation and funding provisions. This is overseen by the Planning Department and Public Works Department and will require no special funding needs (specific plans are 100% cost recovery by the developers). *(Policies 5, 8 and 9)*

10. Master Drainage Plan
(Ongoing)

Require a master drainage plan as part of the approval process for all specific plans and large development projects as determined by the Public Works Director. The master drainage plan should consider cumulative regional drainage and flooding mitigation. The intent of the plan is to ensure that the overall rate of run-off from a project does not exceed pre-development levels. If necessary, this shall be achieved by incorporating run-off control measures to minimize peak flows and/or assistance in financing or otherwise implementing comprehensive drainage plans. This is overseen by the planning Department

and Public Works Department and requires no special funding needs. *(Policy 6)*

11. Storm Maintenance Program

(Ongoing)

Continue the Parks and Recreation Department's regular storm maintenance program within the City's creeks and floodplain areas. This program clears and removes debris that could contribute to blockage and flooding and may include the removal of silt. This is overseen by the Parks and Recreation Department. Annual funding is provided by the City's General Fund. *(Policy 7)*

12. Financing Mechanisms

(Ongoing)

Continue to explore mechanisms to finance flood prevention and storm maintenance programs. This includes continued collection of the Pleasant Grove and Dry Creek Watershed Mitigation Fees. Seek State and federal assistance. Consider alternative funding sources, including the establishment of drainage, utility, and assessment districts. This is overseen by the Public Works Department. *(Policies 7 and 8)*

13. Multi-Hazard Mitigation Plan

(Existing)

The City's Multi-Hazard Mitigation Plan describes the type, location, and extent of all natural hazards that can affect the City; describes the City's vulnerability to these hazards; and includes a mitigation strategy that provides the City's blueprint for reducing the potential losses. The City's Multi-Hazard Mitigation Plan is subject to Federal Emergency Management Agency (FEMA) review and certification every five years. (Policy 1)

Chapter 9.80 FLOOD DAMAGE PREVENTION

9.80.010 Findings of fact.

A. The flood hazard areas of the City of Roseville are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

B. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.020 Statement of purpose.

It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

A. To protect human life and health;

B. To minimize expenditure of public money for costly flood control projects;

C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

D. To minimize prolonged business interruptions;

E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;

F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

G. To insure that potential buyers are notified that property is in an area of special flood hazard; and

H. To insure that those who occupy the areas of special flood hazard assume responsibility for their actions. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.030 Methods of reducing flood losses.

In order to accomplish its purposes, this chapter includes methods and provisions for:

A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;

D. Controlling fill, grading, dredging, and other development which may increase flood damage; and

E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or

which may increase flood hazards in other areas. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.040 Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application. It is specifically acknowledged that several terms in this chapter are defined differently in other ordinances of the City of Roseville.

"Accessory use" means a use which is incidental and subordinate to the primary use of the parcel of land on which it is located.

"Adversely affect" means that the cumulative effect of the proposed development when combined with all other existing and anticipated development will increase the water surface elevation of the base flood beyond the tolerance of the flood model. This is considered to be one-tenth of one foot or more at any point off site of the property that is owned or controlled by the project developer.

"Alluvial fan" means a geomorphologic feature characterized by a cone or fan-shaped deposit of boulders, gravel, and fine sediments that have been eroded from mountain slopes, transported by flood flows, and then deposited on the valley floors, and which is subject to flash flooding, high velocity flows, debris flows, erosion, sediment movement and deposition, and channel migration.

"Apex" means the point of highest elevation on an alluvial fan, which on undisturbed fans is generally the point where the major stream that formed the fan emerges from the mountain front.

"Appeal" means a request for a review of the floodplain administrator's interpretation of any provision of this chapter or a request for a variance.

"Area of shallow flooding" means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

"Area of special flood-related erosion hazard" is the land within a community which is most likely to be subject to severe flood-related erosion losses. The area may be designated as Zone E on the Flood Insurance Rate Map (FIRM).

Area of Special Flood Hazard. See "Special flood hazard area."

"Backfill" means the placement of fill material within a specified depression, hole or excavation pit below the surrounding adjacent ground level as a means of improving flood water conveyance or to restore the land to the natural contours existing prior to excavation.

"Base flood" means the flood having a one percent chance of being equaled or exceeded in any given year (also called the "100-year flood").

"Base flood elevation" or BFE" means the height of the base flood in relation to the National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified).

"Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

"Breakaway walls" are any type of walls, whether solid or lattice, and whether constructed of concrete, masonry, wood, metal, plastic or any other suitable building material which is not part of the structural support of the building and which is designed to break away under abnormally high tides or wave action without causing any damage to the structural integrity of the building on which they are used or any buildings to which they might be carried by flood waters. A breakaway wall shall have a safe design loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls must be certified by a registered engineer or architect and shall meet the following conditions:

1. Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and

2. The elevated portion of the building shall not incur any structural damage due to the effects of wind and water loads acting simultaneously in the event of the base flood.

Building. See "Structure."

"Critical feature" means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

"Curvilinear line" means the border on either a Flood Hazard Boundary Map or Flood Insurance Rate Map that delineates the special flood, mudslide (i.e., mudflow) and/or flood-related erosion hazard areas and consists of a curved or contour line that follows the topography.

"Development" means any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

"Encroachment" means the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain which may impede or alter the flow capacity of a floodplain.

"Erosion" means the process of the gradual wearing away of land masses. This peril is not per se covered under the National Flood Insurance Program.

"Existing manufactured home park or subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

"Expansion to an existing manufactured home park or subdivision" means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

"Fill" is the placement of fill material at a specified location to bring the ground surface up to a desired elevation.

"Fill material" can be natural sand, dirt, soil or rock. For the purposes of floodplain management, fill material may include concrete, cement, soil cement, brick or similar material as approved on a case-by-case basis.

"Flood, flooding, or flood water" means:

1. A general and temporary condition of partial or complete inundation of normally dry land areas from:

a. The overflow of inland or tidal waters,

b. The unusual and rapid accumulation or runoff of surface waters from any source, and/or

c. Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in subsection (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current; and

2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in subsection (1)(b) of this definition.

"Flood elevation determination" means a determination by the administrator of the water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year.

"Flood elevation study" means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

"Flood Hazard Boundary Map" means the official map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated the areas of flood hazards.

"Flood Insurance Rate Map (FIRM)" means the official map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

"Flood Insurance Study" means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Insurance Rate Map, the Flood Boundary and Floodway Map, and the water surface elevation of the base flood.

"Floodplain" means the area covered by the floodway and floodway fringe.

"Foodplain or flood-prone area" means any land area susceptible to being inundated by water from any source (see definition of "flooding").

"Floodplain administrator" or "administrator" is the community development director or other individual appointed by the city manager to administer and enforce the floodplain management regulations.

"Floodplain management" means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

"Floodplain management regulations" means zoning ordinances, subdivision regulations, building codes health regulations, special purpose ordinances (such as floodplain management regulations).

"Flood protection system" means those physical structural works for which funds have been authorized, appropriated, and expended and which have been constructed specifically to modify flooding in order to reduce the extent of the area within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

"Floodproofmg" means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

"Flood-related erosion" means the collapse or subsidence of land along the shore of a lake or other body of water as a result of undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding.

"Flood-related erosion area" or "flood-related erosion prone area" means a land area adjoining the shore of a lake or other body of water, which due to the composition of the shoreline or bank and high water levels or wind-driven currents, is likely to suffer flood-related erosion damage.

"Flood-related erosion area management" means the operation of an overall program of corrective and preventive measures for reducing flood-related erosion damage, including, but not limited to, emergency preparedness plans, flood-related erosion control works, and floodplain management regulations.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be

reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. Also referred to as "regulatory floodway." (Note: this is not the same as "floodway" as defined by the Zoning Ordinance.)

"Floodway fringe" is the areas of a floodplain on either side of the designated floodway. (Note: this is not the same as "floodway fringe" as defined by the Zoning Ordinance.)

"Fraud and victimization" related to Section 9.80.300 et seq., "variances," of this chapter means that the variance granted must not cause fraud on or victimization of the public. In examining this requirement, the variance board will consider the fact that every newly constructed building adds to government responsibilities and remains a part of the community for 50 to 100 years. Buildings that are permitted to be constructed below the base flood elevation are subject during all those years to increased risk of damage from floods, while future owners of the property and the community as a whole are subject to all the costs, inconvenience, danger, and suffering that those increased flood damages bring. In addition, future owners may purchase the property, unaware that it is subject to potential flood damage, and can be insured only at very high flood insurance rates.

"Freeboard" means a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.

"Functionally dependent use" means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

"Hardship" as related to Section 9.80.300 et seq., "variances," of this chapter, means the hardship that would result from a failure to grant the requested variance. The hardship must involve circumstances that are exceptional, unusual, and peculiar to the property involved. Mere economic or financial hardship alone is not exceptional. Inconvenience, aesthetic considerations, physical handicaps, personal preferences, or the disapproval of one's neighbors likewise cannot, as a rule, qualify as exceptional hardships. All of these problems can be resolved through other means, without granting a variance. This is so even if the alternative means are more expensive or complicated than building with a variance, or if they require the property owner to put the parcel to a different use than originally intended, or to build elsewhere.

"Highest adjacent grade" means the highest natural elevation of the ground surface next to the foundation of a structure.

"Historic structure" means any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district registered historic district;

3. Individually listed on a state inventory of historic places in states with historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or

4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

a. By an approved state program as determined by the Secretary of the Interior, or

b. Directly by the Secretary of the Interior in states with approved programs.

"Landfill" means a permitted location for the disposal, placement or dumping of garbage, trash, debris, junk

or waste material.

"Levee" means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water so as to provide protection from temporary flooding.

"Levee system" means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accord with sound engineering practices.

"Lowest floor" means the lowest floor of the lowest enclosed area, including basement.

1. An unfinished or flood resistant enclosure below the lowest floor, that is usable solely for the parking of vehicles, building access or storage in an area other than a basement area, is not considered a building's lowest floor, provided it conforms to applicable non-elevation design requirements, including, but not limited to:

a. The wet floodproofing standard contained in Section 9.80.160(C)(3);

b. The anchoring standards contained in Section 9.80.160(A);

c. The construction materials and methods standards contained in Section 9.80.160(B);

d. The standards for utilities in Section 9.80.170.

2. For residential structures, all subgrade enclosed areas are prohibited as they are considered to be basements. This prohibition includes below-grade garages and storage areas.

"Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

"Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

"Map" means the Flood Hazard Boundary Map (FHBM) or the Flood Insurance Rate Map (FIRM) for a community issued by the Flood Insurance Administration, Federal Emergency Management Agency.

"Mean sea level" means, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

"Minimum necessary" related to Section 9.80.300 et seq., "variances," of this chapter, means the minimum necessary to afford relief to the applicant of a variance with a minimum deviation from the requirements of this chapter. In the case of variances to an elevation requirement, this means the planning commission need not grant permission for the applicant to build at grade, for example, or even to whatever elevation the applicant proposes, but only that level that the planning commission believes will both provide relief and preserve the integrity of this chapter.

"New construction," for floodplain management purposes, means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

"New manufactured home park or subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the ordinance codified in this chapter.

"Obstruction" includes, but is not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, or due to its location, its propensity to

snare or collect debris carried by the flow of water or its likelihood of being carried downstream.

"One hundred year flood" or "100-year flood" means a flood which has a one percent annual probability of being equaled or exceeded. It is identical to the "base flood," which will be the term used throughout this chapter.

"Public safety and nuisances" as related to Section 9.80.300 et seq., "variances," of this chapter, means the granting of a variance must not result in additional threats to public safety or create nuisances. This chapter is intended to help protect the health, safety, well-being, and property of the local citizens. This is a long-range community effort made up of a combination of approaches such as adequate drainage systems, warning and evacuation plans, and keeping new property above the flood levels. These long-term goals can only be met if exceptions to the requirements of this chapter are kept to a bare minimum.

"Recreational vehicle" means a vehicle which is:

1. Built on a single chassis;
2. Four hundred square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

"Regulatory floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

"Remedy a violation" means to bring the structure or other development into compliance with state or local floodplain management regulations, or, if this is not practicable, to reduce the impacts of noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this chapter or otherwise deterring future similar violations, or reducing state or federal financial exposure with regard to the structure or other development.

"Riverine" means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Sheet Flow Area. See "Area of shallow flooding."

"Special flood hazard area" or "SFHA" means an area having special flood or flood-related erosion hazards, and shown on an FHBM or FIRM as Zone A, AO, Al-A30, AE, A99, or AH. SFHA may also be designated by the City of Roseville engineering division for riverines not shown on the FIRM, when a hydraulic study has defined the base flood elevations and the area of inundation. This would cover most riverines with a watershed over 300 acres.

"Start of construction" includes substantial improvement and other proposed new development and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days from the date of the permit. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufacture home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

"Structure" means a walled and roofed building, including a gas or liquid storage tank, that is principally

above ground, as well as a manufactured home.

"Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

"Substantial improvement" means any reconstruction, rehabilitation, addition, repair of damage, or other proposed new development of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed. The term does not, however, include either (1) any project for improvement of a structure to correct existing violations or state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or (2) any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure. The value used to determine substantial improvements or substantial damage will be based on all improvements made to a structure over the prior 10-year period, but will not include any improvements that were commenced under a valid permit prior to January 1, 1997.

"Variance" means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

"Violation" means the failure of a structure or other development to be fully compliant with this chapter. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required by this chapter is presumed not to be in compliance until such time as that documentation is provided.

"Water surface elevation" or "WSE" means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

"Watercourse" means a lake, river, creek, stream, wash, arroyo, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur. (Ord. 4297 § 1, (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.050 Lands to which this chapter applies.

This chapter shall apply to all areas of special flood hazards and areas of flood-related erosion hazards within the jurisdiction of the City of Roseville. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.060 Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA) in the Flood Insurance Study September 28, 1989 and the Flood Insurance Rate map (FIRM), dated September 28, 1989 and all subsequent amendments and/or revisions finally adopted by FEMA, are adopted by reference and declared to be a part of this chapter. This Flood Insurance Study and attendant mapping is the minimum area of applicability of this chapter may be supplemented by studies for other areas which allow implementation of this chapter and which are recommended to the city council by the floodplain administrator. This Flood Insurance Rate Map (FIRM) is on file at the office of the city engineer, 316 Vernon Street, Roseville, California. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.070 Compliance.

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations. Violation of the requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a public nuisance and shall also be punishable as an infraction or a misdemeanor in the discretion of the city attorney. Nothing herein shall prevent the city from taking such lawful action as is necessary to prevent or remedy any violation. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.080 Abrogation and greater restrictions.

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

Where the provisions of this chapter conflict with the provisions of Section 19.18.040 of Chapter 19.18 of Title 19 of the Roseville Municipal Code (the Zoning Ordinance of the City of Roseville) relating to flood prone areas, the more restrictive language shall govern. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.090 Interpretation.

In the interpretation and application of this chapter, all provisions shall be:

A. Considered as minimum requirements;

B. Liberally construed in favor of the city council; and,

C. Deemed neither to limit nor repeal any other powers granted under state statutes. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.100 Warning and disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the areas of special flood hazards, areas of flood-related erosion hazards and areas of mudslide (i.e., mudflow) hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of City of Roseville, any officer or employee thereof, or the Federal Insurance Administration, Federal Emergency Management Agency, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.110 Severability.

This chapter and the various parts thereof are hereby declared to be severable. Should any section of this chapter be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the chapter as a whole, or any portion thereof other than the section so declared to be unconstitutional or invalid. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.120 Establishment of development permit.

A development permit shall be obtained before any construction or other development begins within any area of special flood hazard or areas of flood-related erosion hazard. Application for a development permit shall be

made on forms furnished by the floodplain administrator and may include, but not be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevation of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:

A. Proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures. This includes all of the structure's support equipment such as but not limited to electrical, heating, ventilation ductwork, plumbing and air conditioning equipment and other service facilities that could be damaged if submerged under water.

B. Proposed elevation in relation to mean sea level to which any non-residential structure will be floodproofed if required in Section 9.80.160(C)(3);

C. All appropriate certifications listed in Section 9.80.150(D) of this chapter; and

D. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development. (Ord. 4297 § 1 (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.130 Designation of the floodplain administrator.

The community development director is hereby appointed to administer and implement this chapter by granting or denying development permits in accord with its provisions. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.150 Duties and responsibilities of the floodplain administrator.

The duties and responsibilities of the floodplain administrator shall include, but not be limited to:

A. Permit Review.

1. Review all development permits to determine that the permit requirements of this chapter have been satisfied;

2. All other required state and federal permits have been obtained;

3. The site is reasonably safe from flooding; and

4. The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated;

5. The proposed development is in compliance with the most current version of the City of Roseville's development improvement standards.

B. Use of Other Base Flood Data. When base flood elevation data has not been provided in accordance with Section 9.80.060, the floodplain administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal or state agency, or other source, in order to administer provisions for flood hazard reduction discussed in Section 9.80.160.

C. Whenever a watercourse is to be altered or relocated:

1. Notify adjacent communities and the California Department of Water Resources prior to such alternation or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration, Federal Emergency Management Agency;

2. Require that the flood-carrying capacity of the altered or relocated portion of said watercourse is maintained.

D. Obtain and maintain for public inspection and make available as needed:

1. The certification required by Section 9.80.160(C)(1) (lowest floor elevations);

2. The certification required by Section 9.80.160(C)(2) (elevations in areas of shallow flooding);

3. The certification required by Section 9.80.160(C)(3)(c) (elevation or floodproofng of nonresidential structures);

4. The certification required by Section 9.80.160(C)(4)(a) or 9.80.160.(C)(4)(b) (wet floodproofing standard);

5. The certification of elevation required by Section 9.80.180 (subdivision standards);

6. The certification required by Section 9.80.200(A) (floodway encroachments);

E. Make interpretations where needed, as to the exact location of the boundaries of the areas of special flood hazards or areas of flood-related erosion hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 9.80.300 et seq.

F. Take action to remedy violations of this chapter as specified in Section 9.80.070 herein. (Ord. 4297 § 1 (part), 2006: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.160 Standards of construction.

In all areas of special flood hazards the following standards shall be met:

A. Anchoring.

1. All new construction, substantial improvements, and other proposed new development shall be adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

2. All manufactured homes shall meet the anchoring standards of Section 9.80.190.

B. Construction Materials and Methods.

1. All new construction, substantial improvement and other proposed new development shall be constructed with materials and utility equipment resistant to flood damage.

2. All new construction, substantial improvement and other proposed new development shall be constructed using methods and practices that minimize flood damage.

3. All new construction, substantial improvement and other proposed new development shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

4. Require within Zones AH or AO that adequate drainage paths around structures on slopes guide flood waters around and away from proposed structures.

C. Elevation and Floodproofing.

1. Residential construction, either new or substantial improvement, shall have the lowest floor, including basement, elevated at least two feet above the base flood elevation (BFE). This includes all non-flood-resistant building material and all of the structure's support equipment such as, but not limited to, electrical, heating, ventilation ductworks, plumbing, and air conditioning equipment and other service facilities that could be damaged if submerged under water. The BFE will be provided by the City of Roseville's floodplain administrator.

Upon the completion of the structure, the elevation of the lowest floor including basement and the structure's support equipment shall be certified by a registered professional engineer or a licensed land surveyor, and verified by the floodplain administrator to be properly elevated.

A deed restriction shall be recorded with the property that limits the use of the part of the structure that is below the base flood elevation to parking of vehicles, building access, or storage, as appropriate under the circumstances as determined by the public works director.

2. Nonresidential new construction or substantial improvement shall be elevated to conform with Section 9.80.160(C)(1).

3. Require, for all new construction, substantial improvement and other proposed new development, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

a. Either a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided, the bottom of all openings shall be no higher than one foot above grade (openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwater); or

b. Be certified to comply with a local floodproofing standard approved by the Federal Insurance Administration, Federal Emergency Management Agency.

4. Manufactured homes shall also meet the standards in Section 9.80.190.

D. Section 1612.3 of the California Building Code is not adopted in favor of Roseville Municipal Code Chapter 9.80. (Ord. 4888 § 2, 2010; Ord. 4297 § 1 (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.170 Standards for utilities.

A. All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

B. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

C. Other utilities are addressed at Sections 9.80.160(B) and 9.80.180(D). (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.180 Standards for subdivisions.

A. All preliminary subdivision proposals shall identify the flood hazard area and the base flood elevation that would affect the property.

B. All subdivision plans will provide the elevation of proposed structure(s) and pad(s). If the site is filled above the base flood elevation, the final pad elevation shall be certified by a registered professional engineer or surveyor and provided to the floodplain administrator.

C. All subdivision proposals shall be consistent with the need to minimize flood damage.

D. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constricted to minimize flood damage.

E. All subdivisions shall provide adequate drainage to reduce exposure to flood hazards.

F. When developing property that extends into the city's regulatory floodplain, the floodplain shall be dedicated to the city in fee, as a flood water conservation easement, or as open space, as appropriate under the circumstances as determined by the public works director. This area shall be shown on the subdivision map. (Ord. 4297 § 1, (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.190 Standards for manufactured homes.

A. All manufactured homes that are placed or substantially improved within a special flood hazard area on sites located (1) outside of a manufactured home park or subdivision; (2) in a new manufactured home park or subdivision; or (3) in an expansion to an existing manufactured home park or subdivision shall meet the requirements of Section 9.80.160.

B. All manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision within a special flood hazard area:

1. Shall have the lowest floor elevated a minimum of two feet above the base flood elevation; or

2. Shall have a chassis supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely attached to an adequately anchored foundation system to resist flotation, collapse and lateral movement. (Ord. 4297 § 1 (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.200 Standards for recreational vehicles.

All recreational vehicles placed on sites within a special flood hazard area will either:

A. Be on the site for fewer than 180 consecutive days,

B. Be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions), or

C. Meet the permit requirements of this chapter and the elevation and anchoring requirements for manufactured homes in Section 9.80.190. (Ord. 4297 § 1 (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.210 Floodways.

Located within areas of special flood hazard established in Section 9.80.060 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

A. Prohibit encroachments, including fill, new construction, substantial improvement, and other new development unless certification by a registered professional engineer that the encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

B. If Section 9.80.210(A) is satisfied, all new construction, substantial improvement and other proposed new development shall comply with all other applicable flood hazard reduction provisions of Section 9.80.160 et seq. (Ord. 4297 § 1 (part), 2005: Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.220 Flood-related erosion-prone areas.

A. The floodplain administrator shall require permits for proposed construction and other development within all flood-related erosion-prone areas as known to the community.

B. Such permits shall be reviewed to determine whether the proposed site alterations and improvements will be reasonably safe from flood-related erosion and will not cause flood-related erosion hazards or otherwise aggravate the existing hazard.

C. If a proposed improvement is found to be in the path of flood-related erosion or would increase the erosion hazard. such improvement shall be relocated or adequate protective measures shall be taken to avoid aggravating the existing erosion hazard.

D. Within Zone E on the Flood Insurance Rate Map, a setback is required for all new development from the ocean, lake, bay, riverfront or other body of water to create a safety buffer consisting of a natural vegetative or contour strip. This buffer shall be designated according to the flood-related erosion hazard and erosion rate, in relation to the anticipated "useful life" of structures, and depending upon the geologic, hydrologic, topographic and climatic characteristics of the land. The buffer may be used for suitable open space purposes, such as for agricultural, forestry, outdoor recreation and wildlife habitat areas, and for other activities using temporary and portable structures only. (Ord. 3066 § 1 (part), 1997: Ord. 2274 § 1 (part), 1990.)

9.80.300 Nature of variances.

The variance criteria set forth in this section are based on the general principle of zoning law that variances pertain to a piece of property and are not personal in nature. A properly issued variance is granted for a parcel of property with physical characteristics so unusual that complying with the requirements of this chapter would create an exceptional hardship to the applicant or the surrounding property owners. The characteristics must be unique to the property and not be shared by adjacent parcels. The unique characteristic must pertain to the land itself, not to the structure, its inhabitants, or the property owners.

It is the duty of the city to help protect its citizens from flooding. This need is so compelling, and the implications of the cost of insuring a structure built below flood level are so serious that variances from the flood elevation or from other requirements in the flood chapter are quite rare. Therefore, the variance guidelines provided in this chapter are more detailed and contain multiple provisions that must be met before a variance can be properly granted. The criteria are designed to screen out those situations in which alternatives other than a variance are more appropriate. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.310 Variance procedure.

A. The city council of the City of Roseville shall hear and decide appeals and requests for variances from the requirements of this chapter. Applications for a variance shall be made in the usual manner provided for Zoning Ordinance variances and shall include the standard variance application fee.

B. The city council shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the floodplain administrator in the enforcement or administration of this chapter.

C. In passing upon such applications, the city council shall consider all technical evaluations, all relevant factors, standards specified in other sections of this chapter, and:

1. The danger that materials may be swept onto other lands to the injury of others;

2. The danger of life and property due to flooding or erosion damage;

3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the existing individual owner and future owners of the property;

4. The importance of the services provided by the proposed facility to the community;

5. The necessity to the facility of a waterfront location, where applicable;

6. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

7. The compatibility of the proposed use with existing and anticipated development;

8. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;

9. The safety of access to the property in time of flood for ordinary and emergency vehicles;

10. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site; and,

11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

D. Any applicant to whom a variance is granted shall be given written notice over the signature of a community official that (1) the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25.00 for $100.00 of insurance coverage and (2) such construction below the base flood level increases risks to life and property. A copy of the notice shall be recorded by the floodplain board in the office of the Placer County recorder and shall be recorded in a manner so that it appears in the chain of title of the affected parcel of land.

E. The floodplain administrator will maintain a record of all variance actions, including justification for their issuance, and report such variances issued in its biennial report submitted to the Federal Insurance Administration, Federal Emergency Management Agency. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

9.80.320 Conditions for variances.

A. Generally, variances may be issued by the city council for new construction, substantial improvement and other proposed new development to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing that the procedures of Sections 9.80.130 through 9.80.150, inclusive, have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.

B. Variances may be issued for the repair or rehabilitation of "historic structures" upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

C. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

D. Variances shall only be issued upon a determination that the variance is the "minimum necessary," considering the flood hazard, to afford relief.

E. Variances shall only be issued upon (1) a showing of good and sufficient cause; (2) a determination that failure to grant the variance would result in exceptional "hardship" to the applicant; and (3) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create "nuisances" cause "fraud or victimization" of the public, or conflict with existing local laws or ordinances.

F. Variances may be issued for new construction, substantial improvement and other proposed new

development necessary for the conduct of a functionally dependent use provided that the provisions of Sections 9.80.320(A)—(E) are satisfied and that the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

G. Upon consideration of the factors of Section 9.80.310(C) and the purposes of this chapter, the city council may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter. The decision of the city council shall be final. (Ord. 3066 § 1 (part), 1997: Ord. 2374 § 1 (part), 1990.)

(Ord. 3014 (part), 1996; Ord. 4662 (part), 2008; Ord. 4728 § 7 (part), 2009.)

Section 19.18.040 - Floodway (FW) and Floodway Fringe (FF) Zones

A. **Purpose.** It is the purpose of this section to promote the public health, safety, and general welfare, and to minimize those losses described in subsection (B) of this section by provisions designed to:

1. Restrict or prohibit uses which are dangerous to health, safety, or property in times of flood, or cause increases in flood heights or velocities.

2. Require that uses vulnerable to floods, including public facilities which serve such uses, be protected against flood damage at the time of initial construction.

3. Protect individuals from buying lands which are unsuited for intended purposes because of flood hazard.

4. Avoid unnecessary expenditures of public funds to remedy flood hazards resulting from imprudent uses of lands vulnerable to floods.

5. Maintain and preserve the existing stream channels and stream vegetation in as nearly natural condition as possible in order to preserve wildlife and fish habitat as well as to avoid the expenditure of public funds to remedy or avoid flood hazards, unnatural watercourse diversion, erosion, or situations caused by piecemeal alterations of natural watercourses and flood carrying areas, while balancing this need against the need to reduce the physical area of the floodplain.

6. Have individual property owners assume responsibility for their actions.

B. **Findings of Fact:**

1. The areas of special flood hazard of the City of Roseville are subject to periodic inundation which results in property, health, and safety hazards; disruption of commerce and governmental services; extraordinary public expenditures for flood protection and relief; and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazard which increase flood heights and velocities, and, when structures are inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to flood loss.

2. Regulation of areas of special flood hazard is necessary because of the compelling need to insure safety and the availability of flood insurance to the residents of the City of Roseville, in that the government of the United States, through the Federal Emergency Management Agency and the Federal Insurance Agency, requires that these regulations be adopted before flood insurance can be obtained by residents.

C. **Definitions.**

Area of Special Flood Hazard. Land subject to a one percent or greater chance of flooding in any given year.

Base Flood. The flood level having a one percent chance of being equaled or exceeded in any given year.

Flood or Flooding. A general and temporary condition of partial or complete inundation of normally dry land area lying outside normal stream channel as result of one or more of

the following occurrences or conditions - the overflow of inland or tidal waters, or the unusual and rapid accumulation or runoff of surface waters from any source.

Flood Insurance. The insurance coverage provided under the National Flood Insurance Program.

Flood Insurance Rate Map (FIRM). An official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones, on file in the office of the Director of Public Works.

Flood, 100-year. A flood estimated to occur at an average of once in 100 years (one percent frequency of occurrence), determined from an analysis of historical flood and rainfall records and computed in accordance with accepted methodology to the satisfaction of the Public Works Director.

Floodproofing. Any combination of structural and nonstructural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water, and sanitary facilities, structures, and their contents.

Floodway. The "Floodway" refers to those areas in and along Dry, Linda, Cirby and Antelope Creeks as shown in those certain aerial photographic maps designated as "Official Floodplain Maps" of the City of Roseville, dated October 1973 and kept and maintained in the Office of the Director of Public Works.

Floodway Fringe. The "Floodway Fringe" refers to those areas in and along Dry, Linda, Cirby and Antelope Creeks as shown in those certain aerial photographic maps designated as "Official Floodplain Maps" of the City of Roseville, dated October 1973 and kept and maintained in the Office of the Director of Public Works.

Freeboard. The vertical height distance between the water surface elevation of the 100-year flood and typically the lowest habitable floor of a building or accessory structure. Freeboard represents a safety factor for flood protection and, as such, is also used in the design of levees and altered stream channels.

Lowest Floor. The lowest floor of the lowest enclosed area (including basement) of a structure. An unfurnished or flood resistant enclosure, usable solely for vehicular parking, building access, or storage, in an area other than a basement area, is not considered a structure's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of any applicable non-elevation design requirements of this Title.

Regulatory Floodway. The channel of a river, creek, or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. The regulatory floodway is delineated on the FIRM.

D. **Establishment of Flood Hazard Overlay Districts:** That portion of the Official Zoning Map known as the Floodplain Map, which shall be kept on file in the office of the Public Works Director. The map is broken into two districts: the "Floodway (/FW) District" and the "Floodway Fringe (/FF) District."

E. **Applicability of Standards.** In any district with which is combined a Floodway (FW) District or a Floodway Fringe (FF) District, the regulations of this section shall apply in addition to those specified elsewhere in this Title for such districts. Provided, however, that in the event of conflict between this section and other provisions in this Title, the regulations of this section shall govern, and all uses that are not permitted uses or permissible as flood encroachment uses within the Floodway (FW) and Floodway Fringe (FF) districts are prohibited.

F. **Floodway District (FW) Permitted Uses.** The following uses, having a low flood damage potential and not obstructing flood flows, are permitted within the Floodway (FW) District. Provided, however, that no such use shall include structures, fill, or storage of materials or equipment. And further provided, however, that no such use shall adversely affect the capacity of the channels or floodways, or of any tributary to the main stream, drainage ditch, or any other drainage facility or system, nor shall any use increase the water surface elevation of the base flood:

1. Agricultural uses such as general farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming, forestry, sod farming and wild crop harvesting.

2. Accessory industrial-commercial uses such as loading areas, parking areas, airport landing strips.

3. Private and public recreational uses such as golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, park, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, and hiking and horseback riding trails.

4. Accessory residential uses such as lawns, gardens, parking areas and play areas.

G. **Floodway District (FW) Flood Encroachment Uses.** The following uses, which may involve structures (temporary or permanent), fill, or storage of materials or equipment, may be permitted within the Floodway (FW) District only upon the issuance of a flood encroachment permit:

1. Uses or structures accessory to uses permitted by Article II (Zoning Districts and Allowable Land Uses), but not including any structure designed or used for human residence.

2. Circuses, carnivals, and similar temporary or transient amusement enterprises.

3. Drive-in theaters, new and used car lots, temporary roadside stands, and freestanding signs or billboards (where permitted by the Sign Ordinance of the City of Roseville, Roseville Municipal Code Title 17.).

4. Extraction of sand, gravel, and other materials.

5. Marinas, boat rentals, docks, piers, and wharves.

6. Railroad, streets, bridges, utility transmission lines, and pipelines.

7. Storage yards for readily transportable equipment, machinery, or materials.

8. Kennels and stables.

9. Other similar uses of a primarily open space nature.

H. **Floodway Fringe (FF) District Permitted Uses.** The following uses are permitted within the Floodway Fringe (FF) District:

1. Any use permitted in Section F and G.

2. Structures, including residential structures and mobile homes.

I. **Standards for Floodway and Floodway Fringe Uses.** The following standards shall govern use of land zoned either Floodway (FW) or Floodway Fringe (FF) District.

1. **General Standards.** All uses shall comply with the provisions of this subsection. No structure (temporary or permanent), fill (including fill for roads and levees), obstruction, excavation, storage of materials or equipment, or other use is allowed which, acting alone or in combination with existing or future uses: adversely affects the capacity of the regulatory floodway or of areas where base flood elevations have been determined, but floodways have not been determined; increases peak flow; adversely affects the stream channel; increases flood heights; or is likely to have an adverse effect on a proposed use. Consideration of the effects of a proposed use shall be based on a reasonable assumption that there will be an equal degree of encroachment extending for a significant reach on both sides along the stream. All uses shall:

   a. Be consistent with the need to minimize flood damage.

   b. Be located and constructed to minimize flood damage.

   c. Provide adequate drainage to reduce flood hazards.

2. **Fill or Excavation Standards.** Uses involving any grading, fill, or excavations shall comply with the following standards, in addition to those in "G" above.

   a. Any fill proposed to be deposited in the regulatory floodway must be shown to have some beneficial purpose, and the amount of fill shall not be greater than is necessary to achieve that purpose, as demonstrated by a plan submitted by the owner showing the uses to which the filled land will be put and the final dimensions of the proposed fill or other materials or excavations.

   b. Such fill or other materials or area of excavation shall be protected against erosion by rip-rap, vegetative cover, or bulkheading.

3. **Standards for Structures.** All uses involving any structures, whether temporary or permanent, shall comply with the following standards, in addition to those contained in "G" above.

   a. Structures designed or used for human residence are not permitted in the Floodway (FW) zone.

   b. Structures shall have a low flood damage potential.

   c. Structures shall be constructed and placed on the building site so as to not obstruct the flow of floodwaters.

      (1) Whenever possible, structures shall be constructed with the longitudinal axis parallel to the direction of floodflow;

      (2) Structures shall be firmly anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

   d. Service or utility facilities, such as electrical and heating equipment, shall be constructed at least one foot above the base flood elevation or shall be floodproofed.

   e. In all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area

subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

f. Structures, including residential structures, which are constructed on fill shall be elevated so that the lowest floor is at least one foot above the base flood elevation. Nonresidential structures may be floodproofed in compliance with "E" above in lieu of elevation.

g. All structures shall be certified upon completion in the "as built" condition by a licensed land surveyor or a registered civil engineer permitted to practice land surveying that the elevation of the lowest floors, including any basement, are at least one foot above the base flood elevation, or have been floodproofed in compliance with "E" above. Provided, that minor additions to existing single family residences may be constructed at the same level as the existing house.

h. Mobile homes shall be elevated above the base flood as provided in "F" above and shall additionally be anchored as provided in "C".

i. All construction shall be with materials resistant to flood damage.

4. **Storage of Material or Equipment.** All uses involving the storage of materials or equipment shall comply with the following standards, in addition to those in subsection "I" above.

a. The storage or processing of materials that are buoyant, flammable, toxic, explosive, or could be injurious to human, animal, or plant life, in time of flooding, is prohibited.

b. Storage of other material or equipment may be allowed if it is not subject to major damage by floods and is readily removable from the area within the time available after flood warning.

c. All materials or equipment shall be kept anchored or otherwise restrained to prevent them from being carried downstream by floodwaters.

d. This subsection shall not apply to ordinary household/residential items in amounts normally kept in residences.

5. **Procedure.** Except for those matters required to be accomplished after construction, the project proponent shall demonstrate compliance with the requirements of this section either at the hearing of the approving authority for those projects requiring a flood encroachment permit, or prior to issuance of any building, grading, or occupancy permit for projects not requiring a flood encroachment permit.

J. **Criteria for Development Approval.** In passing upon such applications for flood encroachment permits, the approving authority shall consider all relevant factors specified in this section and:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments.

2. The danger that materials may be swept onto other lands or downstream to the injury of others.

3. The proposed water supply and sanitation systems, and the ability of these systems to prevent disease, contamination and unsanitary conditions.

4. The susceptibility of the proposed facility and its contents to flood damage, and the effect of such damage on the individual owner.

5. The importance of the services provided by the proposed facility to the community.

6. The requirements of the facility for a waterfront location.

7. The availability of alternative locations not subject to flooding for the proposed use.

8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

9. The compatibility of the proposed use to the general plan and floodplain management program for the area.

10. The safety and availability of access to the property in times of flood for ordinary and emergency vehicles.

11. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site.

12. The compatibility of the proposed use with preservation of valuable fish and wildlife habitat.

13. Such other factors which are relevant to the purposes of this section.

K. **Conditions Attached to Flood Encroachment Permits.** Upon consideration of the factors listed in "J" above and the purposes of this section, the approving authority may attach such conditions to the granting of flood encroachment permits as it deems necessary to further the purposes of this section. Among such conditions, without limitation because of specific enumeration, may be included:

1. Modification of waste disposal and water supply facilities.

2. Limitations on periods of use and operation.

3. Imposition of operational controls, sureties, and deed restrictions.

4. Requirements for construction of channel modifications, dikes, levees, and other protective measures.

5. Floodproofing measures shall be designed consistent with the base flood protection elevation for the particular area, flood velocities, durations, rate of rise, hydrostatic and hydrodynamic forces, and other factors associated with the base flood. The review body shall require that the applicant submit a plan or document certified by a registered professional engineer that the floodproofing measures are consistent with the base flood protection elevation and associated flood factors for the particular area. The following floodproofing measures, without limitation because of specific enumeration, may be required:

   a. Anchorage to resist flotation and lateral movement. In the case of mobile homes or additions to mobile homes, the anchoring shall be by one of the following methods, and shall be certified to in the "as built" condition by a registered professional engineer:

      (1) An anchoring system designed to withstand at a minimum, horizontal forces of 15 pounds per square foot and uplift forces of nine pounds per square foot; or

      (2) By anchoring the unit's system in compliance with the Department of Housing and Development Mobile Home Construction and Safety Standards and FEMA manual no. 85, "Manufactured Home Installation in Flood Hazard Areas" (Sept. 1985).

   b. Installation of watertight doors, bulkheads, and shutters or similar methods of construction.

   c. Reinforcement of walls to resist water pressures.

d. Use of paints, membranes or mortars to reduce seepage of water through walls.

e. Addition of mass or weight to structures to resist flotation.

f. Installation of pumps to lower water levels in structures.

g. Construction of water supply and waste treatment systems so as to prevent the entrance of floodwaters.

h. Pumping facilities or comparable practices for subsurface drainage systems for buildings to relieve external foundation wall and basement flood pressures.

i. Construction to resist rupture or collapse caused by water pressure to floating debris.

j. Installation of valves or controls on sanitary and storm drains which will permit the drains to be closed to prevent backup of sewage and storm waters into the buildings or structures. Gravity draining of basements may be eliminated by mechanical devices.

k. Location of all water supply systems, sanitary sewer systems, on-site waste disposal systems, electrical equipment, circuits and installed electrical appliances in a manner which will assure they are not subject to flooding or infiltration of floodwaters and to provide protection from contamination or inundation by the base flood.

l. Location of any structural storage facilities for chemicals, explosives, buoyant materials, flammable liquids, or other toxic material which could be hazardous to public health, safety, and welfare in a manner which will assure that the facilities are situated at elevations above the height associated with the base flood protection elevation or are adequately floodproofed to prevent flotation of storage containers, or damage to storage containers which could result in the escape of toxic materials into floodwaters.

L. **Records.** The Public Works Director shall maintain records of certifications of floor elevations, floodproofing and encroachments as required by law.

M. **Maintenance of Pre-existing Uses.** Nothing in this section shall be construed to prohibit the normal, ordinary, or necessary maintenance or repair of a pre-existing, nonconforming use or structure in accordance with Chapter 19.24 of this Title. It is the intent of this section that current lawful uses of floodprone lands shall be grandfathered and permitted.

N. **Violation.** It is unlawful for any person to maintain, use, grade, or fill any property zoned Floodway (FW) or Floodway Fringe (FF) in violation of this section, or to violate any condition of a flood encroachment permit granted pursuant to this section, or to violate any other provision of this chapter.

O. **Conflict.** Where the provisions of this section conflict with the provisions of Roseville Municipal Code Chapter 9.80, the more restrictive language shall govern.

(Ord. 3014 (part), 1996; Ord. 4662 (part), 2008.)

SECTION 10

DRAINAGE

10-1 GENERAL – This Section is formulated to clearly define acceptable drainage analysis and design criteria for development in the City of Roseville. Drainage facets not covered in this Section shall conform to the Placer County Flood Control and Water Conservation District "Stormwater Management Manual"(SWMM), latest edition, and good engineering practice.

The City of Roseville has adopted stormwater quality design standards to reduce water pollution generated by urban runoff. These design standards are detailed in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions. This Manual is available on-line at the Sacramento Stormwater Management Partnership website, www.sacramentostormwater.org/SSQP.SSQP.asp. The Manual can also be purchased at the City's Permit Center located on the first floor of the Civic Center Building at 311 Vernon Street downtown Roseville.

10-2 CITY POLICIES AND REQUIREMENTS – All residential lots shall have minimum pad elevations of one foot above the 100 year water surface elevation and all commercial sites shall have minimum finished floor elevations of one foot above the 100 year surface elevation assuming failure of the drainage system. This requires the Design Engineer to provide an overland release for all projects or provide storage for the 100-year storm frequency.

The overland release path shall be constructed in a manner to transport the peak rate runoff from the 100-year storm frequency through the site assuming all storm drains are inoperative, all upstream areas are fully developed, and that antecedent rainfall has saturated the tributary watershed. Streets, parking lots, playgrounds, pedestrian areas, pedestrian walkways, utility easements, and other open space areas may be considered compatible uses within the overland release path.

Except for single family or duplex residential lots, site drainage shall be collected on-site and conveyed via an underground storm drain system to approved existing storm drainage system without flowing into existing street gutters or existing roadside ditches.

Unless regional storm water mitigation devices are available specific mitigation shall be required for the project, shall be located on-site, and shall be maintained by the landowner.

10-3 DEVELOPMENT IN OR ADJACENT TO A REGULATORY FLOOODPLAIN – The City's Regulatory Floodplain boundaries are

defined in the City's General Plan – Safety Element. They are not the same as the flood hazard area shown on FEMA's Flood Insurance Rate Map (FIRM). For the most part the Regulatory Floodplain is the land inundated by the 100-year flood event, assuming build-out of the drainage basin, with a total drainage area of greater than 300 acres. Precise boundaries shall be as approved by the Public Works Director.

Residential lots developed in or adjacent to the City's Regulatory Floodplain shall have pad elevations a minimum of two feet above the City's 100-year flood elevation. A Letter Of Map Amendment (LOMA) or a Letter Of Map Revision (LOMR) is required for any residential lot in or adjacent to the flood hazard area as shown on a Flood Insurance Rate Map. Non-residential projects shall have finished floor elevations a minimum of two feet the City's 100-year flood elevation. Elevations Certificates are required for such non-residential structures. In areas where the 100-year flood depths are less than eight feet, the above freeboard requirements will be increased to a minimum of three feet.

In the case of no-grade or contour grade lots, located adjacent to the City's Regulatory Floodplain, and where a portion of the lot may become inundated with the 100-year storm event, a standard Guarantee letter shall be submitting to the Engineering Division prior to plan approval, or issuance of a building permit. The Guarantee letter shall be submitted by a Registered Civil Engineer or Land Surveyor and confirm that the lowest ground elevation adjacent to the building foundation meets the minimum requirements for pad elevations as described above.

If a tentative project is submitted which shows fill or other significant improvements within the Regulatory Floodplain, a hydraulic study shall be required to determine the effect of the encroachment. Encroachment shall not result in any off-site increase in water surface elevation. The Design Engineer should contact the City of Roseville's Floodplain Management Division to ascertain what existing studies, if available, should be used as a base model for the proposed development. The Design Engineer is responsible for assembling the necessary data and presenting the study to the City for review. The study should reflect ultimate build-out conditions of the watershed. When submitting plans that show improvements in the floodplain, the Design Engineer must submit a "Compliance Statement", stating that the proposed improvements shown on the plans are accurately reflected in the approved hydraulic study. A sample of the "Compliance Statement", the hydraulic study submittal requirements, and sample Hydraulic Study Worksheets are provided in the attachments at the end of this section.

Parking lots and storage areas shall be no more than 1.5 feet below the 100-year water surface elevation.

When developing property inundated by the City's Regulatory Floodplain, the portion of property that extends into the floodplain shall be dedicated to the City in fee or as a Flood Water Conservation Easement as determined by the Engineering Division. In areas where the floodplain has been dedicated as part of a Specific Plan but the 100-year flood levels are shown to extend slightly outside this dedicated floodplain area, the development shall fill the property located outside the dedicated floodplain to an elevation that is a minimum of two feet higher than the 100-year flood elevation, or incorporate that area into the floodplain.

All development in the City's Regulatory Floodplain shall comply with the regulations of the City's Flood Damage Prevention Ordinance and the City's General Plan.

NOTE: Design requirements for bike paths within the floodplains are provided in the section entitled "Bikeways" of these Design Standards.

10-4 FEDERAL FLOOD PROGRAM – The City of Roseville is a participant in the National Flood Insurance Program (NFIP) and all development in the City shall comply with the regulations of the Federal Emergency Management Agency (FEMA) and the City's Flood Damage Prevention Ordinance.

Amendments of the FEMA flood maps will be required of all new developments located in a FEMA flood zone. Petitions for Letter of Map Amendment, including any fee required by FEMA, shall be submitted to the Public Works Department prior to approval of the improvement or site plans. For further information regarding these requirements, contact the City of Roseville's Floodplain Management Section.

10-5 DRAINAGE DIVERSIONS – The diversion of natural drainage is allowable only within the limits of the proposed improvement. All drainage must enter and leave the improved area at its original horizontal and vertical alignment unless an agreement, approved by the City Attorney, has been executed with the affected property owners. Temporary drainage diversions during construction shall be approved by the City Engineer and shall be located and constructed in such a fashion as to permit their removal when necessary for the prevention of damage to adjoining properties.

10-6 DRAINAGE EASEMENTS – Publicly owned drainage conduits and channels will not be allowed on private property unless they lie within a dedicated public drainage easement. Where minor improvement of an existing channel falls on adjacent property (such as day lighting a ditch profile) a notarized right-of-entry from the property owner(s) for such construction shall be required. A copy of the document, which grants such

approval, shall be submitted to the City Engineer prior to the approval of the improvement plans.

A. Easements for closed conduits shall meet the following width criteria:

1. All easements for closed conduits shall have a minimum width in feet equal to the required trench width according to the standard detail for unshored trenches and excavation backfill plus two (2') additional feet of width for every foot of depth as measured from the bottom of the pipe to finish grade. All conduits shall be centered within their easements.

2. Minimum width if any easement for closed conduit shall be 15 feet.

3. Easements adjacent to property lines shall be located entirely on one parcel.

B. Drainage easements for open channels shall have significant width to accommodate the following criteria:

1. Contain the channel and channel slopes.
2. Provide for fencing, where required.
3. A 15-foot wide service road and maintenance access ramps. A service road may not be required where the channel bottom is lined and a suitable access ramp is provided. Dedication of easements shall be completed and submitted to the City Engineer with copies of deeds or title reports for the affected properties before improvement plans will be approved.

C. Open channels (natural or man-made) with a drainage area that exceeds 300 acres shall have the 100-year water surface elevation limits dedicated to the City in-fee or as Flood Water Conservation Easement.

10-7 DRAINAGE CAPACITY/DESIGN - All drainage systems shall be designed to accommodate the ultimate development of the entire upstream watershed. The 10-year peak storm discharge shall be used in the design of local drainage systems. In addition, other facilities such as streets, bridges, open channels, and buildings have requirements that relate to the 25 and 100-year peak storm discharge. The Design Engineer shall calculate the 10, 25, & 100-year peak discharge and submit these calculations along with the plans for all proposed drainage systems.

10-8 DESIGN PEAK DISCHARGE METHODS – The acceptable methods for the determination of runoff quantities for the 10, 25, & 100-year peak discharge are specified in the most recent edition of the Placer County

Flood Control and Water Conservation District's (PCFCD) "Stormwater Management Manual" (SWMM). The SWMM allows for the "Unit Peak Discharge" method which is based on the relationship between the characteristic watershed response time and peak flow per unit area from precipitation patterns typical for the region, and provides a rapid evaluation of the peak flow rate from small watersheds (less than 200 acres). This method is presented in this section.

The SWMM also allows a HEC (Hydraulic Engineering Center) hydraulic analysis for watersheds larger than 200 acres. The HEC analysis must conform to the requirements of the most recent edition of the SWMM. All HEC analysis shall have the City's "HEC Hydraulic Study" Worksheet completed and included with the study. Sample worksheets and submittal requirements are provided at the end of this section.

Unit Peak Discharge Method

A. Criteria – Peak flow is a product of watershed area and peak discharge per unit area, which, in turn, is a function of a completed response time.

$$Q_p = qA \quad \text{[Equation 10-1]}$$

Where: Q_p = peak discharge (cfs)
q = unit peak discharge (cfs/acre)
A = area (acres)

B. Response Time – Response time (t_r) an indication of the response time of the watershed to intense precipitation. It is determined as the sum of separate response times for a path consisting of the initial, overland sheet flow and succeeding collector flows from the most hydraulic remote location in the watershed to the watershed outlet.

1. Overland Flow – Overland flow includes flow over planar surfaces such as roofs, streets, lawns, parking lots and fields. The overland flow length is not always well defined in natural areas, but usually becomes concentrated in shallow rivulets or swales within no more than 300 feet. In areas with development, the point at which the overland flow is concentrated in a collector, such as a gutter or pipe, is usually identifiable. Acceptable overland flow response times for various land uses are as follows. These times should be reduced to 0.90 * t_{ro} in 25 year events and 0.70 in a 100 year events.

appropriate. Other measures may be taken as determined by the Public Works and Parks and Recreation Departments.

P. Bike Bridges – Bridge design shall conform to the requirements for pedestrian and bicycle bridges within the latest edition of the California Department of Transportation (CalTrans) Bridge Design Specifications.

The minimum width of a bike path bridge is 12 feet with a minimum vertical clearance of 12 feet when Fire Department access is required, otherwise 10 feet. A strait-line approach of 35 feet is required on each side of the bridge.

All bicycle bridges shall be designed for a fire access use and maintenance vehicles, capable of supporting a minimum gross vehicular weight of 30,000 pounds. All bicycle bridges shall have the maximum gross vehicular weight rating posted on each approach.

Bicycle bridges may be designed to support a gross vehicular weight of less than 30,000 pounds but shall include maintenance vehicle traffic loading with the approval of the Fire Department and City Engineer. In cases where the bike trail is not required for fire access use and bridge loading is less than 30,000 pounds, the bike trail shall be designed to accommodate a fire vehicle turn-around area on each side of the bridge and/or provisions for alternative access.

Q. Lighting – Lighting is not required along bike trails. However, lighting may be required through underpasses, tunnels, roadway intersections, mid-block crossings, and whenever security could be a problem and at the City's discretion.

Depending on the location, average maintained horizontal illumination levels within underpasses and tunnels of 50 foot-candles should be considered. Where special security problems exist, higher illumination levels may be considered. All lighting shall be designed with appropriate shielding to prevent unnecessary glare and resistant to vandalism.

Light standards should meet the recommended horizontal and vertical clearances as specified within Section 13-4B of these standards. Luminaries and standards should be at a scale appropriate for a pedestrian on bicycle path.

13-5 BIKE PATHS IN FLOODPLAINS – When a bike path is to be located in the City's Floodplain, the path shall be designed to be no more than one (1) foot below the 10-year storm event water surface elevation (10-WSE). Exceptions to this requirement may be allowed where the path goes under existing bridges to accommodate minimum vertical clearance. At these crossings, the path shall have an elevation at least as high as the 2-year

storm event water surface elevation (2-WSE). All segments of the path that are below the 10-WSE shall be Portland Cement Concrete, or other approved material, with toe protection to prevent the path from being undermined during flood events. All segments of the path that are more than 45 degrees to the directional flow of the water shall be Portland Cement concrete, or other approved material, and shall have armored embankments with toe protection to prevent the path from being undermined during flood events.

13-6 BIKE BRIDGES IN FLOODPLAINS – When a bike or pedestrian bridge is to be placed in the City's Floodplain, the minimum elevation of the bridge deck shall be at or above the 10-WSE. Bridge railings shall be designed to sustain the 100-year flood event without damage and without human intervention. Hydraulic and structural calculations shall be based on the assumption that the bridge (with railings) is solid, not assuming that water will pass through the rails.

Bridge railings shall be a minimum of 54" high, and shall have a toe board at the base of the guardrail.

All material used on the bridge shall be water resistant.

A letter of map revision (LOMR) may need to be submitted to FEMA for approval, as determined by the Department of Public Works.

Approach ramps to the bridge shall be armored to allow for cross flow around the bridge with out damage to path. Where feasible, the approaches to the bridge shall contain a dip in the profile (lower than the bridge) to facilitate the water to flow around the bridge instead of directly over it. All portions of the path that are more than 45 degrees to the flow path, shall be Portland Cement Concrete, or other approved material, and shall have armored embankments with toe protections to prevent the path from being undermined during flood events.

13-7 CLASS IA SIDEWALK BIKEWAYS – Class IA sidewalk bikeways are typically located along major streets and separated from the normal vehicle lanes. They are primarily sidewalks, paseos, etc, that are wider than normal to accommodate both pedestrians and bicycles.

The design of Class IA sidewalk bikeways shall follow the design standards for pedestrian walk construction located within Section 7-7 of these standards. The location and width of Class IA sidewalk bikeways shall follow the applicable Specific Plan guidelines which pertain to various areas of the City. Specific Plan Guidelines are available from the Planning Department.

13-8 CLASS II BIKEWAYS – Class II bikeways (bike lanes) shall be provided within all collectors and arterial roadways as shown per the cross sections for various roadways within these Design Standards.

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