

APPENDIX G

WATER CONSERVATION PLAN



BROOKFIELD RESIDENTIAL

Amoruso Ranch Specific Plan Area

September 2015

WATER CONSERVATION PLAN

IN SUPPORT OF ADMINISTRATIVE DRAFT ENVIRONMENTAL IMPACT REPORT



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Water Conservation Plan

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INTRODUCTION

The Amoruso Ranch Specific Plan (ARSP) Area Water Conservation Plan (Plan) has been prepared at the request of Brookfield Residential Properties, Inc. (Brookfield) to meet the City of Roseville's (City) requirements and in support of the ARSP process.

WATER CONSERVATION PLAN PURPOSE

In February 2008, then California Governor Arnold Schwarzenegger introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta. As part of this effort, the Governor directed state agencies to develop a plan to reduce statewide per capita urban water use by 20 percent by the year 2020. In February 2010, the State Water Resources Control Board issued the 20x2020 Water Conservation Plan.

As part of the response to the 20x2020 Plan, the City has a requirement that all new specific plan projects incorporate water conservation measures into the overall project design such that the overall water demands (both potable and recycled) are reduced. The City has an overall conservation goal of 20% for potable and irrigation water usage throughout the City.

This Plan presents potentially feasible measures and guidance that can result in a reduction of the projected overall water usage within the ARSP Area, which will contribute towards the City-wide conservation goal. The projected reduction in water use will be established as part of this Plan through a process of: estimating the baseline water demands without conservation measures; identification of potentially feasible conservation measures; and estimation of the resultant water demands with application of the identified conservation measures. This Plan has been developed in conformance with the Water Efficient Landscape Ordinance (WELo) as a minimum.

ARSP AREA LOCATION AND DESCRIPTION

Project Vicinity

The ARSP Area consists of approximately 694.4 acres located in the northwest edge for 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 on the southwest by the Al Johnson Wildlife Area, to the west by the Gleason property, to the south by the Creekview Specific Plan Area, to the east by the future proposed Placer Ranch Specific Plan Area and to the north by the existing Toad Hills Ranches #1 area and unincorporated Placer County. The project vicinity is shown on Figure 1.

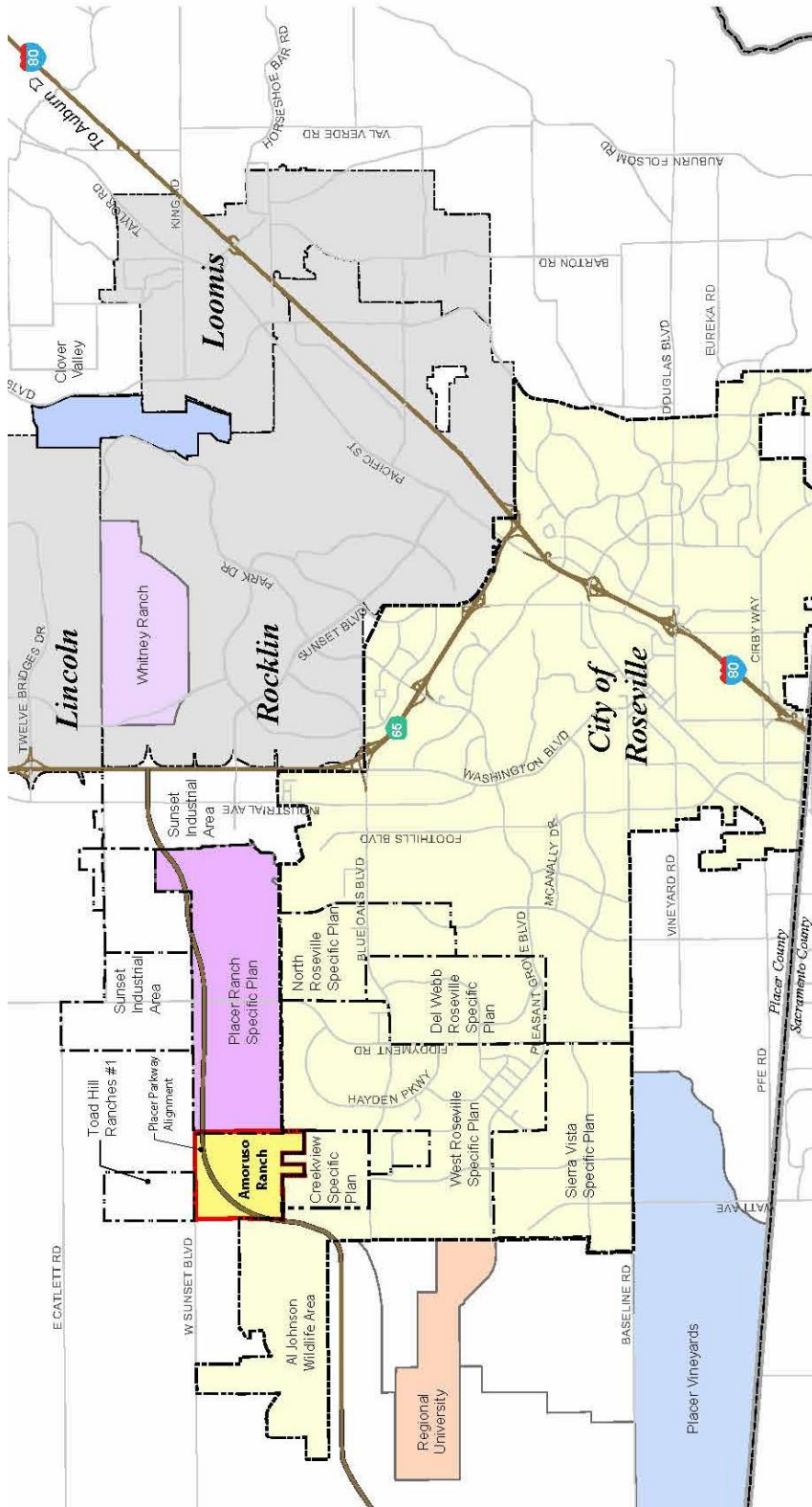


Figure 1 – ARSP Area Project Vicinity

Pre-Development Conditions

The pre-development conditions of the ARSP Area were 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 northeast 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.

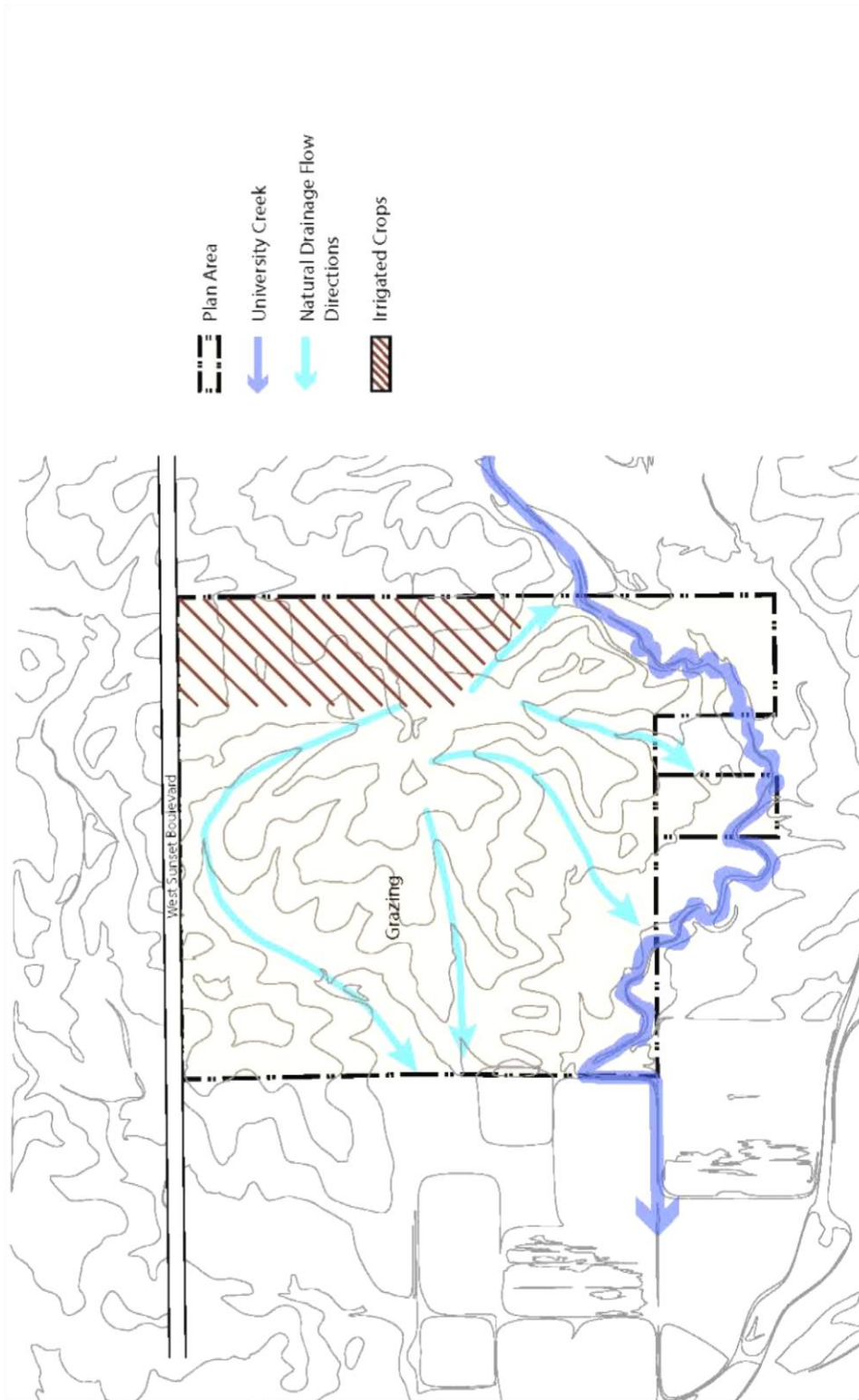


Figure 2 – ARSP Area Pre-Development Conditions

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 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. Interchanges at Fiddymont Road and Santucci Boulevard will provide access to the ARSP Area.

Open Space and Resources Preservation

The ARSP Area will support open space and 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, this open space provides 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 this major open space area and the City's regional trail system. In addition, the corridor will provide a permanent preservation area for wetland resources.

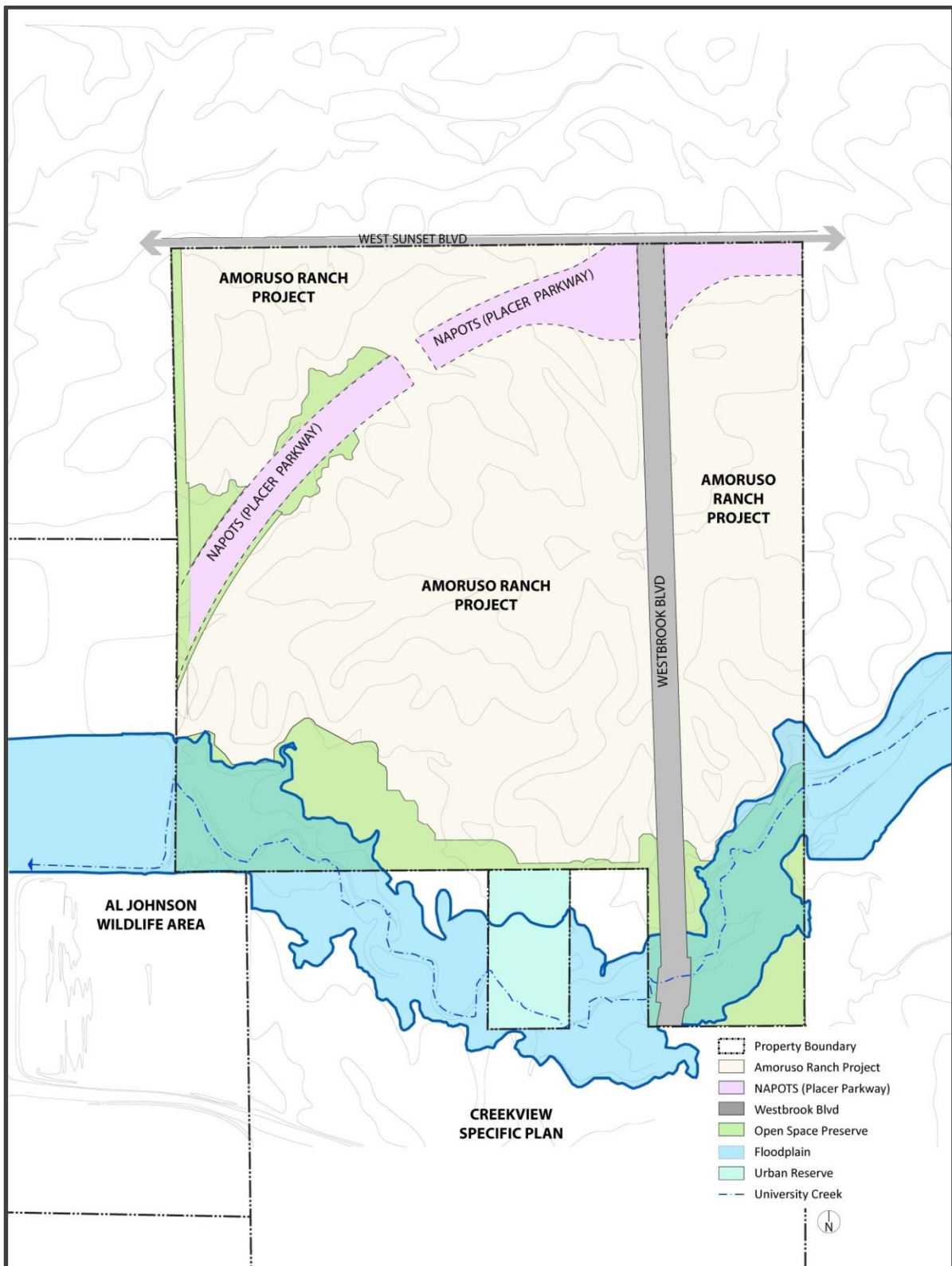


Figure 3 – ARSP Area Opportunities and Constraints

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.

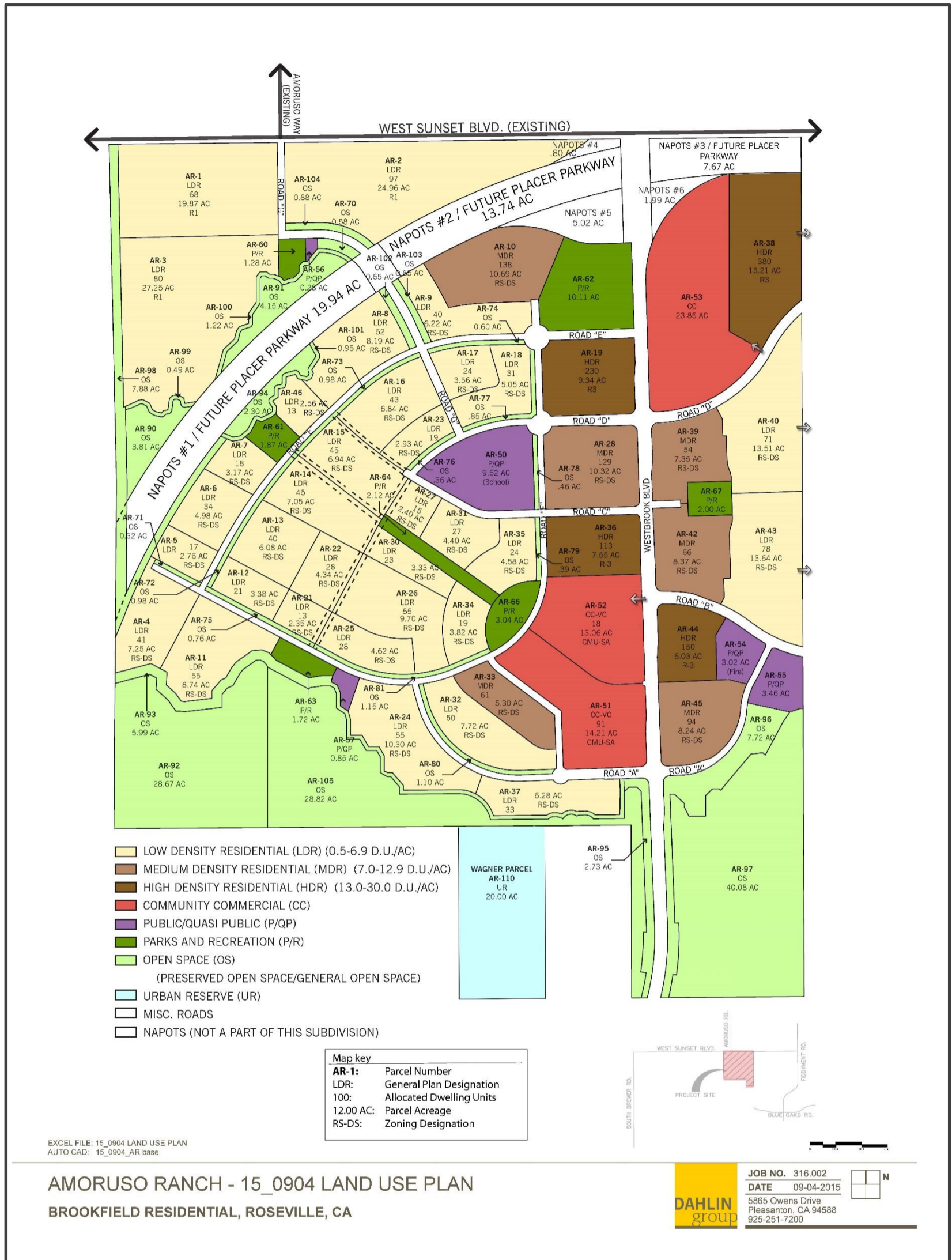


Figure 4 – ARSP Area Land Use Plan

BASELINE WATER USE ESTIMATION

The calculation of the baseline water use estimation was established based on the land use designations developed as part of the ARSP Area Land Use Plan shown on Figure 4.

The baseline water use for the project was established using the City's standard water use factors, as developed for the City by MWH in 2006. The City of Roseville employs standard demand factors for residential land uses of varying densities, as well as standard demand factors for commercial/other land uses. The residential demands are presented as gallons per day (GPD) per dwelling unit (DU), and the commercial/other demands are presented as GPD per acre. The City's demand factors are listed in Table 1.

Table 1
Amoruso Ranch Specific Plan
Water Conservation Plan
City of Roseville Demand Factors

General Plan Land Use Category	Average Day Demand
Residential GPD/DU	
LDR1: < 3.5 DU / Acre	728 GPD/DU
LDR2: > 3.5 to 5 DU / Acre	600 GPD/DU
LMDR1: > 5 to 6 DU / Acre	521 GPD/DU
LMDR2: > 6 to 8 DU / Acre	430 GPD/DU
MDR: > 8 to 12 DU / Acre	323 GPD/DU
HDR1: > 12 to 16 DU / Acre	288 GPD/DU
HDR2: > 16 DU / Acre	177 GPD/DU
Non-Residential GPD/Acre	
Commercial / Retail	2598 GPD/Acre
Business Professional	2598 GPD/Acre
Light Industrial	2598 GPD/Acre
Industrial	2562 GPD/Acre
Railroad Yard	109 GPD/Acre
Elementary School	3454 GPD/Acre
High School	4068 GPD/Acre
Public (Fire Station, etc)	1780 GPD/Acre
Park / Recreation	2988 GPD/Acre
Open Space / ROW	0 GPD/Acre
Vacant	0 GPD/Acre

Utilizing the City’s demand factors, the estimated annual water use for the Low-, Medium- and High-Density Residential units proposed within the ARSP Area have been calculated. The basis of the Low-, Medium- and High-Density Residential water use is presented within Table 2.

Table 2
Amoruso Ranch Specific Plan
Water Conservation Plan
Water Use Estimation – LDR, MDR and HDR

Land Use Category Density	Number of Units	Average Day Demand (GPD/DU)	Total Average Day Demand (GPD)	Total Average Day Demand (AFY)	Total Average Day Demand with 2% (AFY) ¹
LDR1: < 3.5 DU / Acre	148	728	107,744	120.7	123.1
LDR2: > 3.5 to 5 DU / Acre	116	600	69,600	78.0	79.5
LMDR1: > 5 to 6 DU / Acre	401	521	208,921	234.0	238.7
LMDR2: > 6 to 8 DU / Acre	757	430	325,510	364.6	371.9
MDR: > 8 to 12 DU / Acre	155	323	50,065	56.1	57.2
HDR1: > 12 to 16 DU / Acre	380	288	109,440	122.6	125.0
HDR2: > 16 DU / Acre	760	177	134,520	150.7	153.7
Community Commercial - Village Center – Residential	109	288	31,392	35.2	35.9
Urban Reserve	1	728	728	0.8	0.8
Total	2,827	-	1,037,920	1,162.6	1,185.9

The water use estimation, as established by the City for purposes of water conservation does not distinguish between potable water and recycled water. Table 3 includes a summary of the estimated baseline water demands. Consistent with previous similar analyses completed by the City, a factor for water system losses has not been included in the water conservation calculations. It has, however, been included for informational purposes in both Tables 2 and 3.

¹ Demand accounts for 2% system losses.

Table 3
Amoruso Ranch Specific Plan
Water Conservation Plan
Water Use Factors and Demands

Land Use	Land Use Abbreviation/ Zoning	Total Area (Acres)	Dwelling Unit Count	Water Use Factor	Daily Demand (GPD)	Annual Demand (AFY)	Annual Demand with 2% (AFY) ¹
Low Density Residential	LDR	248.77	1,302	Varies	660,175	739.5	754.3
Medium Density Residential	MDR	50.27	542	Varies	178,561	200.0	204.0
High Density Residential	HDR	38.13	873	Varies	167,064	187.1	190.9
Community Commercial - Village Center - Residential	CMU-SA (Commercial Mixed-Use - Special Area)	Included On Next Line	109	288	31,392	35.2	35.9
Community Commercial - Village Center – Non-Residential	CMU-SA (Commercial Mixed-Use - Special Area)	27.27	-	2,598	70,847	79.4	80.9
Community Commercial	CC (Community Commercial)	23.85	-	2,598	61,962	69.4	70.8
Open Space (Paseos)	OS	10.71	-	2,988	32,001	35.8	36.6
Open Space (General)	OS	37.24	-	0	0	0	0
Open Space (Preserve)	OS	97.58	-	0	0	0	0
Parks & Recreation	PR	22.14	-	2,988	66,154	74.1	75.6
Public / Quasi Public (school)	P/QP (School)	9.62	-	3,454	33,227	37.2	38.0
Public / Quasi Public (Fire Station & Utility Site)	P/QP	7.61	-	1,780	13,546	15.2	15.5
Urban Reserve	UR	20.00	1	728	728	0.8	0.8
Rights-of-Way	ROW	52.04	-	0	0	0	0
Not a Part of This Subdivision	NAPOTS	49.16	-	0	0	0	0
Total		694.4	2,827	-	1,315,659	1,473.7	1,503.2

¹ Demand accounts for 2% system losses.

SINGLE FAMILY RESIDENTIAL WATER USE DISTRIBUTION

Single family residential water use for land use designations for Low-, Medium- and High-Density (LDR, MDR and HDR) parcels can be further divided by the use within the home and the landscape irrigation demands outside of the home.

Table 4 represents the typical single family residential water usage that would be attributable to residential units within the land use designation of LDR and MDR. The percentage of total use will have a different distribution for HDR primarily attributable to the reduction in irrigated landscaped area.

Table 4
Amoruso Ranch Specific Plan
Water Conservation Plan
Single Family Residential Water Usage

Residential Use	Percentage of Total ¹
Landscaping	51%
Toilets	13%
Faucets, Cooking, Cleaning	10%
Showers	9%
Clothes Washing	8%
Bath	6%
Toilet Leaks	2%
Dishwasher	1%

Based on historic data the typical split between backyard and front yard irrigation of typical LDR and MDR parcels is approximately sixty-forty, with 60% of the landscape irrigation demand attributable to the backyard and 40% of the landscape irrigation attributable to the front yard. This is the result of typically smaller front yards than backyards along with less

¹ Percentage of total water use was derived from information obtained from the City of Roseville Frequently Asked Questions (FAQ) on the subject of water conservation.

landscape area in the front yard due to driveways and walks. Utilizing this ratio of front yard to backyard irrigation use, results in a further breakdown of the 51% total water use to 20.4% for the front yards and 30.6% for the backyards. The separation of front yard and backyard irrigation demands for LDR and MDR parcels allows analysis and application of different conservation measures between the two distinct areas.

The HDR units typically do not have front yard and backyard irrigation demand; however, there are common area irrigation demands that are attributable to HDR units. Average planning numbers for irrigation demands for HDR units is 20% of the estimated overall water usage. This value is expressed as 20% of the annual irrigation demand and not based on designation of demands split between front and back yard area designations. Table 5 presents a summary of demands based on the assumptions listed above.

Table 5
Amoruso Ranch Specific Plan
Water Conservation Plan
Residential Irrigation Water Demands

Land Use	Annual Demand (AFY)	Annual Demand Front Yard (AFY)	Annual Demand Backyard (AFY)	Annual Total Irrigation Demand (AFY)
Low Density Residential	739.5	150.86	226.29	377.15
Medium Density Residential	200.0	40.80	61.20	102.00
High Density Residential ¹	187.1	N/A	N/A	37.42
Urban Reserve	0.8	0.16	0.24	0.40
Total	1,127.4	191.82	287.73	516.97

¹ Demand for HDR parcels was calculated differently from LDR and MDR parcels, as described above. Demand for HDR parcels was not separated into front yard and backyard demand since traditional front and back yards are not present on HDR parcels.

WATER USE REDUCTION STRATEGIES

A series of implementable water use reduction strategies have been identified for the ARSP Area. These strategies are discussed in more detail in the following subsections of this document, including the estimated percentage of water use reduction.

The water use reduction strategies identified for the ARSP Area include:

- Reduction of Residential Turf Areas
- Reduction of Park and Recreation and Common Area Turf (Non-Residential)
- Irrigation Management
- Water Conservation Methods

REDUCTION OF RESIDENTIAL TURF AREAS

As represented in the previous sections and tables, turf areas account for a significant portion of the water demand of the residential development. In turn, this correlates to one of the greatest opportunities to reduce the projected water demands. The ARSP project will adopt a strategy to encourage the new residential developments to reduce the magnitude of front yard turf areas and plant these areas with vegetation that uses far less water.

The City of Roseville estimates that for a same sized area of turf, in comparison to utilization of low-water consumption vegetation, could result in a savings of up to 70% in the amount of water required. Therefore, 30% of the amount of water would be required for the low consumption vegetation as compared to the lawn area's water demand.

Low water consumption vegetation, benefits not only from the reduced requirement for uptake by the plants, it also benefits from more efficient landscape irrigation systems. Low water consumption vegetation is typically irrigated by drip systems, as opposed to overhead spray systems for lawn and turf areas.

Typical front yard landscaping generally ranges between 75% and 85% irrigated area. For purposes of this analysis, the low-point of 75% irrigated area has been selected with 70% being lawn area and the remaining irrigated area being lower water using plants and planters.

It is reasonable to reduce irrigated lawn areas from 70% of the typical front yard for LDR and MDR, as well as reduce the common area lawns on HDR, to 42%. This results in an increase of low water consumption vegetation from 5% to 33%. An example of the potential reductions in turf area is shown in Figure 5. The comparisons of water demands for irrigation are shown in Table 6.

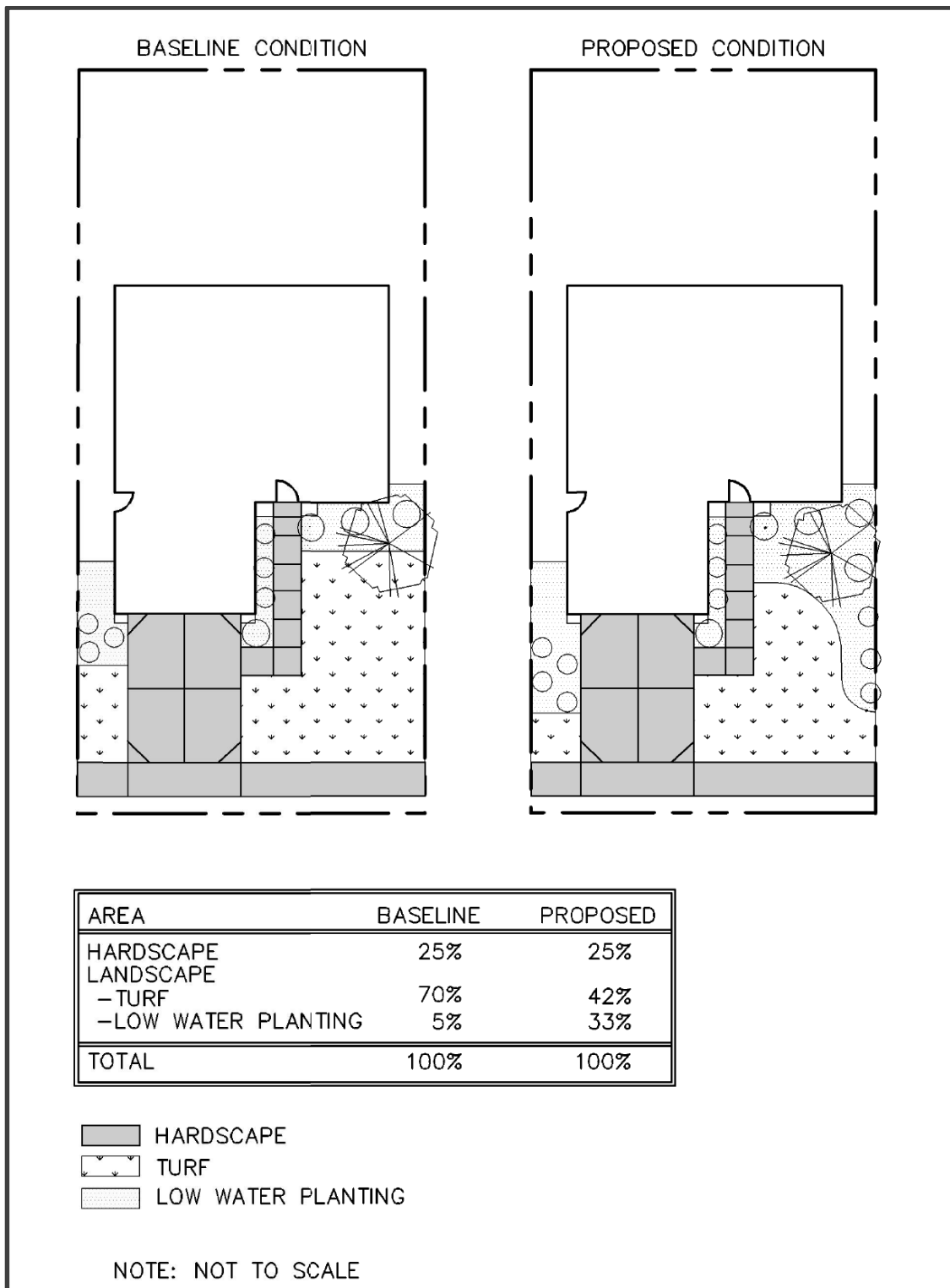


Figure 5 – Front Yard Water Conservation Comparison

Table 6
Amoruso Ranch Specific Plan
Water Conservation Plan
Reduced Landscape Turf Area

Land Use	Front Yard Irrigated Area ¹	Base Condition		Base Condition with Water Conservation	
		Turf Area	Low Water Use Area	Turf Area	Low Water Use Area ²
LDR, MDR and HDR ³	75%	70%	5%	42%	33%

Table 7 is a comparison of the water use efficiencies that result from reduction in front yard turf areas. Since assumptions are based on similar reductions in turf areas for LDR, MDR and HDR product types, the water demands have been combined for presentation.

Table 7
Amoruso Ranch Specific Plan
Water Conservation Plan
Front Yard Irrigated Area Water Efficiencies

Land Use	Annual Demand Front Yard (AFY) ⁴	New Front Yard Demand (AFY)	Annual Demand Savings (AFY)	Annual Demand Savings (%)	Water System Savings
Residential Properties LDR and MDR	191.82	139.24	52.58	27.4%	Potable
HDR	37.42	27.16	10.26	27.4%	Recycled
Total	229.24	166.40	62.84	27.4%	

As an example of how these values were calculated, the calculation for the annual front yard turf demand and the reduced annual front yard demand is presented below.

For the annual front yard turf demand, as calculated for low and medium density residential land uses, 75% of the front yard is landscaped with 70% turf and 5% low water use plantings. Since low water use plantings use 30% of the water required for turf, this 5%

¹ As a percentage of the front yard.

² Includes 5% existing low water use plantings plus 28% new low water use plantings.

³ Represents the percentage of the entire exterior area for HDR.

⁴ Front yard demand from Table 5. HDR is total since there is not a distinction between front and back yards.

area is equal to 1.5% turf area water demand. This results in the following annual front yard demands:

Turf (LDR & MDR):

$$191.82 \text{ AFY} * \left(\frac{70\%}{71.5\%}\right) = 187.80 \text{ AFY}$$

Low Water Use (LDR & MDR):

$$191.82 \text{ AFY} * \left(\frac{1.5\%}{71.5\%}\right) = 4.02 \text{ AFY}$$

For the reduced annual front yard demand, as calculated for low and medium density residential uses, reducing the base turf area in the front yards from 70% to 42% and replacing that (equivalent to 28%) with low water use plantings resulted in the following annual demands:

Reduced Demand Equation (LDR & MDR):

$$187.80 \text{ AFY} * \left(\frac{42\%}{70\%} + \frac{28\% * 30\%}{70\%}\right) + 4.02 \text{ AFY} = 139.24 \text{ AFY}$$

The same equations were generated for the HDR parcels as follows:

Turf (HDR):

$$37.42 \text{ AFY} * \left(\frac{70\%}{71.5\%}\right) = 36.63 \text{ AFY}$$

Low Water Use (HDR):

$$37.42 \text{ AFY} * \left(\frac{1.5\%}{71.5\%}\right) = 0.79 \text{ AFY}$$

Reduced Demand Equation (HDR):

$$36.63 \text{ AFY} * \left(\frac{42\%}{70\%} + \frac{28\% * 30\%}{70\%}\right) + 0.79 \text{ AFY} = 27.16 \text{ AFY}$$

REDUCTION OF PARK AND RECREATION AND COMMON AREA TURF (NON-RESIDENTIAL)

In addition to the turf areas for residential properties there are additional and significant turf areas throughout a typical development. These areas include the parks, irrigated paseos, commercial centers and school play fields. The estimated turf irrigation demand at each of these uses is as follows:

- It is estimated that parks utilize approximately 98% of their water demand for irrigation and 80% of their irrigated area for turf. This area is assumed to be reduced to 60% with the conversion of turf area (20%) to low water consumption vegetation or other uses.
- For the Roseville area, low water plantings were assumed to use 30% of the water used on turf (a 70% water savings).
- Low water use areas will utilize low volume irrigation systems like a drip or spray system (such as Netafim) designed to achieve a uniformity of 90% rather than an overhead spray irrigation system.
- Paseos are estimated to utilize 100% of their water demand for landscape irrigation. 80% of the paseo area is irrigated turf area. This area is assumed to be reduced to 60% with the conversion of turf area (20%) to low water consumption vegetation or other uses.

Based on these assumptions the water use efficiencies for the parks and paseos have been calculated and are presented in Table 8.

Table 8
Amoruso Ranch Specific Plan
Water Conservation Plan
Non-Residential Irrigated Area Water Efficiencies

Land Use	Annual Water Demand (AFY) ¹	Annual Irrigation Demand (AFY)	Base Turf Area	New Turf Area	Low Water Use Area	New Irrigation Demand (AFY)	Annual Demand Savings (AFY)	Annual Demand Savings (%)	Water System Savings
Parks	74.1	72.62	80%	60%	20%	59.92	12.70	17.5%	Recycled
Paseos	35.8	35.80	80%	60%	20%	29.54	6.26	17.5%	Recycled
Total	109.9	108.42				89.46	18.96	17.5%	

¹Annual water demand derived from Table 3.

The new irrigation demand for the Parks is calculated as follows:

$$\frac{72.62 \text{ AFY} * 60\%}{80\%} = 54.47 \text{ AFY}$$

Demand remaining after turf reduction:

$$72.62 \text{ AFY} - 54.47 \text{ AFY} = 18.15 \text{ AFY}$$

Low water plants use 30% of turf demand:

$$18.15 \text{ AFY} * 30\% = 5.45 \text{ AFY}$$

New irrigation demand:

$$54.47 \text{ AFY} + 5.45 \text{ AFY} = 59.92 \text{ AFY}$$

Similarly the new irrigation demand for the Paseos is calculated as follows:

$$\frac{35.80 \text{ AFY} * 60\%}{80\%} = 26.85 \text{ AFY}$$

Demand remaining after turf reduction:

$$35.80 \text{ AFY} - 26.85 \text{ AFY} = 8.95 \text{ AFY}$$

Low water plants use 30% of turf demand:

$$8.95 \text{ AFY} * 30\% = 2.69 \text{ AFY}$$

New irrigation demand:

$$26.85 \text{ AFY} + 2.69 \text{ AFY} = 29.54 \text{ AFY}$$

IRRIGATION MANAGEMENT

Smart and centrally located irrigation controllers restrict irrigation to times and rates necessary to maintain landscaping. They account for changes in the demand for water, which varies with weather patterns, seasonal influences and soil moisture content. In the

ARSP, smart irrigation controllers, as defined in WELO, will be required for residential, commercial, and quasi-public parcels subject to turf reduction measures, and centrally controlled irrigation controllers for larger commercial and publicly maintained parcels.

As referenced in previous studies for the City of Roseville, a number of studies have been completed specifically on the conversion to smart irrigation controllers and the resultant water savings. Those studies suggest that water use reductions can be expected between 7% and 41%. This is a wide range of variability. Since ARSP is an entirely new development all significant irrigation applications will employ the use of smart irrigation controllers (per WELO). Therefore, a water use reduction value of 20% has been estimated for purposes of this analysis, consistent with previous analyses completed for similar developments within the City of Roseville. The sample calculation is presented below and the values are summarized in Table 9.

Smart Irrigation Equation:

$$139.24 \text{ AFY} * (80\%) = 111.39 \text{ AFY}$$

Table 9
Amoruso Ranch Specific Plan
Water Conservation Plan
Smart Irrigation Controller Water Efficiencies

Land Use	Annual Irrigation Demand (AFY)	New Irrigation Demand w/Controller (AFY)	Annual Demand Savings (AFY)	Annual Demand Savings (%)	Water System Savings
Residential Properties (Front) ¹	139.24	111.39	27.85	20%	Potable
Residential Properties (Back) ²	287.73	230.18	57.55	20%	Potable
Residential Properties (HDR) ³	27.16	21.73	5.43	20%	Recycled
Parks ⁴	59.92	47.94	11.98	20%	Recycled
Paseos ⁵	29.54	23.63	5.91	20%	Recycled
Total	543.59	434.87	108.72	20%	

¹ Annual irrigation demand derived from Table 7.

² Annual irrigation demand derived from Table 5.

³ Annual irrigation demand derived from Table 7.

⁴ Annual irrigation demand derived from Table 8.

⁵ Annual irrigation demand derived from Table 8.

WATER CONSERVATION METHODS

There are many water conservation measures that can be implemented throughout the ARSP project. The reality is that a majority of the typical water conservation measures are already required or anticipated to be included in any new projects. These include low flow toilets, low flow shower heads, faucet aerators, etc.

One additional water conservation measure that will be considered for the ARSP project is the inclusion of recirculating hot water systems. Recirculating hot water systems feature a pump on a residential hot water line system which reduces the time necessary to receive hot water at any hot water faucet throughout the home. They provide hot water at the tap immediately upon engaging the hot water faucet, eliminating the waste of water as you wait for the water to transition from the cold water in the pipes to hot water. This type of system can be included on all residential units to generate additional water conservation. The amount of water savings with these systems varies based on the number of times hot water is utilized throughout the day. A typical conservative estimate indicates a water savings of approximately 1.25 gallons per use is saved by having “instant” hot water from the recirculation system. We have estimated that on average this would occur six times per day per residential unit, consistent with previous studies for the City of Roseville.

Re-Circulating Hot Water Equation:

$$2,827 \text{ DU} * 7.5 \frac{\text{gal}}{\text{day}} * \frac{\text{AF}}{325851 \text{ gal}} * 365 \text{ day/yr} = 23.75 \text{ AFY}$$

The estimated savings based on the installation of recirculating hot water systems is shown in Table 10.

Table 10
Amoruso Ranch Specific Plan
Water Conservation Plan
Recirculating Hot Water System Water Efficiencies

Land Use	Dwelling Unit Count	Savings per Dwelling Unit (Gal)	Annual Demand Savings (AFY)	Annual Demand Savings (%)	Water System Savings
Residential Units	2,827	7.5	23.75	1.6%	Potable

SUMMARY

A series of water conservation methods have been proposed for implementation as part of the ARSP project. These methods are readily implemented and are consistent with the goals and objectives of the Amoruso Ranch Specific Plan and the City of Roseville.

Table 11 provides a summary of the water conservation measures and their estimated savings in water use. As shown on Table 11, with implementation of all of the measures an estimated conservation of 14.5% of the projected water use would be realized within the ARSP Area.

Table 11
Amoruso Ranch Specific Plan
Water Conservation Plan
Summary of Water Efficiencies

Water Conservation Opportunity	Total Water Demand (AFY)	Potable Water Savings (AFY)	Recycled Water Savings (AFY)	Annual Demand Savings (AFY)	Annual Demand Savings (%)
Residential Properties Irrigation – Front ¹	1,473.7	52.58	10.26	62.84	4.3%
Non-Residential (Parks, ROW, School) ²		0	18.96	18.96	1.3%
Smart Irrigation Controllers ³		85.40	23.32	108.72	7.4%
Recirculating Hot Water System ⁴		23.75	0	23.75	1.6%
Total		161.73	52.54	214.27	14.5%

The actual water conservation savings will be dependent on a number of factors including the participation and adherence by the actual homeowners. Constructing the residential units with a number of these measures already integrated (such as the hot water recirculation systems) will be beneficial to achieving the objective.

¹ Annual demand savings derived from Table 7.

² Annual demand savings derived from Table 8.

³ Annual demand savings derived from Table 9.

⁴ Annual demand savings derived from Table 10.

For the single family residential land uses there is anticipated to be ongoing outreach by the City to remind and reinforce the need for water conservation. This can include attachments to the water bill, water audits that can be made available to homeowners, the promotion of the City's water conservation website, and the availability of City water conservation staff to respond to specific questions. In addition, outreach can include educating homeowners on how to use and set up smart irrigation controllers along with including the installation and integration into their backyard irrigation system.

Guidance and education for the homeowners with regards to the landscaping of front and backyards will also be part of the overall plan including education in conformance with WELO.

References

WMH. 2006. *TM 1 - Unit Water Demand Factor Verification and Water Demand Evaluation and Update*. September.



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