City of Rohnert Park

Water Capacity Charge Analysis

October 2016

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Executive Summary

ES.1 Introduction and Purpose

In July of 2000, the City Council of the City of Rohnert Park (City) adopted a General Plan which outlined projected growth and land use patterns and identified major infrastructure systems that the City would need to support these land use patterns. The General Plan also included policies requiring new development to pay its “fair share” of required improvements. To implement these policies, the City established and currently administers a Mitigation Fee Program in accordance with California Government Code Section 66000 et. seq. (the Mitigation Fee Act, hereinafter the Act).

In 2004, the City of Rohnert Park (City) adopted its Public Facilities Finance Plan (PFFP) which outlined a comprehensive program for managing the cost of constructing a number of infrastructure improvements that will support new development. The PFFP was updated in 2006 in order to reflect some land use changes and updated project costs. In 2006, the City also adopted its Sewer Capacity Charge Program which provided a system for the City to collect capacity charges to support expansions to the wastewater treatment and disposal and water recycling facilities, operated by the Santa Rosa Subregional System and serving the City.

In 2011, the City updated and consolidated the PFFP and Sewer Capacity Charge programs into a single fee program that covered all anticipated infrastructure improvements required to serve new development, *with the exception of potable water supply and storage*. This Water Capacity Charge Analysis supports the adoption of Water Capacity Charges to cover the costs of providing water supply and storage for new development.

ES.2 Structure of the Analysis

This Executive Summary presents a summary overview of the Water Capacity Charge Analysis including:

- the new land uses that will be subject to the charge;
- the capital improvements that will be required to support those land uses;
- the benefits provided by these improvements to new development;
- the methodology used to allocate the cost of capital projects; and
- a summary of the proposed Water Capacity Charges.

The Executive Summary also describes the procedures required to adopt and update the charges.

Chapter 1 provides a more in-depth discussion of the authority under which the City develops, adopts, and updates its capacity charge program and a discussion of the fee calculation methodology that will be applied.

Chapter 2 provides a discussion of the land uses subject to the capacity charge, including changes that have occurred since the adoption of the General Plan. It also presents an overview of the cost estimating assumptions that are used throughout this analysis.

Chapter 3 presents:

- detailed descriptions and cost estimates for the capital facilities included in the Water Capacity Charge;
- a detailed description of the cost allocation factors;
- a detailed description of the fee calculations; and
- the findings, required by the Act, for the Water Capacity Charge.

This Water Capacity Charge Analysis has been structured to parallel the construction of the PFFP. This organization is intended to support the City's efforts to administer both charge programs and to provide the City with the option of combining the PFFP and Water Capacity Charge programs at a future date.

ES.3 Land Uses Included in the Analysis

This analysis is based on the buildout projections of the City's General Plan and its Environmental Impact Report (EIR). Population and water demand projections utilized in this analysis are based upon the General Plan's planning horizon, with modifications as necessary to reflect additional, project specific work.

The General Plan describes potential development within six designated specific plan areas (SPAs): the Northwest SPA, the Wilfred Dowdell SPA, the Northeast SPA, the University District SPA, the Southeast SPA and the Canon Manor SPA. All of the SPAs, except Canon Manor, will receive water from the City. As a result all SPA land uses, except Canon Manor, are included in this analysis. The City is also anticipating infill development in two planned development areas (PDs), and a designated Priority Development Area (PDA). New infill in the Stadium Lands PD, Sonoma Mountain Village PD and intensified land uses in the Central Rohnert Park PDA will receive water from the City. These land uses are also included in the analysis.

ES.4 Capital Facilities Included in the Analysis

This analysis includes facilities that provide for potable water supply and storage and which are available to serve new development. The facilities included in the analysis have been developed by reviewing:

- the City's General Plan, which conceptually described significant infrastructure improvements;
- Specific Plans and Planned Development Plans, which provide more refined analyses of the capital improvements necessary to support planned development;

- The capital improvement projections developed by the City's wholesale water supplier, Sonoma County Water Agency (Agency), portions of which will benefit planned growth in the City; and
- The City's 2010 and 2015 Urban Water Management Plans (UWMPs), which describes the City's overall water supply strategy.

As described in more detail in Chapter 3, the PFFP Program already includes fee components to support planned improvements to the City's water transmission system and recycled water system, so these improvements are not included in the Water Capacity Charge Program. The Water Capacity Charges will support the potable water supply and storage systems.

Table 1 lists the improvements included in this analysis, their cost estimates and the percentage allocated to new development. Generally, new development has a relatively modest share of the water supply facilities. The groundwater supply benefits new development in the City, but also benefits existing development in the City, so costs are shared between new and existing development in the City. In addition to benefitting new and existing development in the City, the Agency supply benefits a number of other entities that are also the Agency's customers. As a result, costs are shared throughout the Agency's service area, reducing the percentage that is allocated specifically to new development in the City. The new water tanks are specifically required of a number of the Specific Plan and Planned Development Areas and do not benefit any other water users, hence all costs for the water tanks are allocated only to new development in the City. Chapter 3 provides a detailed discussion of the allocation factors and calculations used to arrive at the "fair share" values.

Table 1 – Summary Cost Estimate and Allocation

Fee Component	Total Costs	Costs Included in the Capacity Charge Program	New Development Share	% to New Development
Groundwater Supply	$ 26,236,600	$ 26,236,600	$ 5,382,942	20.52%
Agency Supply				
Funded Water Supply Improvements	$ 24,604,000	$ 24,604,000	$ 432,612	1.76%
Common Transmission System Improvements	$ 39,977,000	$ 39,977,000	$ 702,916	1.76%
Distribution and Storage Improvements	$ 2,400,000	$ 2,400,000	$ 81,542	3.40%
Storage Tanks (required by development-specific EIRs)	$ 14,341,000	$ 14,341,000	$ 14,341,000	100.00%
Total Program	**$ 107,558,600**	**$ 107,558,600**	**$ 20,941,013**	

The cost estimates for each improvement have been developed or updated based on independent cost estimating efforts and are Class 5 (planning-level) estimates of probable

construction cost. The Association for the Advancement of Cost Engineering, International (AACE) defines a Class 5 cost estimate as follows:

> *Generally prepared on very limited information, where little more than proposed plan type, its location, and the capacity are known, and for strategic planning purposes such as but not limited to market studies, assessment of viability, evaluation of alternate schemes, project screening, location and evaluation of resource needs and budgeting, long-range capital planning, etc. Some examples of estimating methods used would include cost/capacity curves and factors, scale-up factors, and parametric and modeling techniques.*

As provided for by the Act, the City may update the capacity charges as more refined cost estimates become available.

ES.5 Summary of Benefit Analysis for the Capital Facilities

Government Code 66013 specifically requires that "charges… benefit…the person or property being charged". The projects included in this proposed capacity charge program benefit developing properties because the City will not have adequate, reliable capacity to serve new development without investments in its water system.

Water supply sufficiency benefits new development because the California Environmental Quality Act (CEQA) requires that new development document the availability of water supplies. This CEQA requirement has its basis in both legislative mandate (Water Code Section 10910 et. seq.) and case law (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova*). For new development, a defined program to provide sufficient water supply, which includes a clear Capital Improvement Program and funding strategy, greatly facilitates both CEQA compliance and project implementation.

Water supply reliability benefits new development because findings of supply sufficiency must include an analysis of the ability to manage dry water years and must include a water shortage contingency plan (Water Code Section 10910 et. seq.). A diverse water supply portfolio provides enhanced reliability because the City is not dependent upon a single source or water supplier to meet all needs.

Adequate water storage benefits new development because distribution and storage capacity is necessary to deliver the water supply to the development and to provide for fire safety.

The City will achieve a reliable, sufficient water supply through investments in groundwater supply, Agency supply and storage improvements. The specific facilities providing benefit are described below.

- The City's network of groundwater wells provides up to 2,577 acre-feet annually of water supply that is available to new and existing development. The City's 2004 Citywide Water Supply Assessment (WSA) and its 2005, 2010 and 2015 Urban Water Management Plans (UWMPs) illustrate how the available groundwater supply is used in

a conjunctively managed fashion to provide capacity for existing users and planned growth. The groundwater facilities have largely been constructed and new development will “buy-in” to the groundwater system that provides benefit.

- The Agency’s water supply system provides up to 7,500 acre-feet annually of water supply that is available to new and existing development. The City’s 2004 Citywide WSA and its 2005, 2010 and 2015 UWMPs illustrate how the City uses its contracted supply from the Agency to provide reliable water service, while maintaining sustainable pumping of the groundwater basin. The Agency’s Capital Projects Plan describes improvements to its water supply system, its common transmission system and its distribution and storage system that are necessary to allow it to comply with environmental regulations and deliver its contracted supply volumes. New development will pay a portion of the City’s share of the Agency’s Capital Project costs.
- The new water storage tanks provide benefits to various SPAs and PDs which include emergency and fire supply and compliance with regulations. Each SPA or PD will fund the cost of the discrete storage improvements required to serve the development in that specific area.

ES.6 Allocation of Capacity Charges

For capital improvements associated with water capacity, costs are allocated based on relative water demand. The City’s UWMP is its primary planning tool for analyzing and projecting water demands, including unit demand factors. The water demand factors in this analysis are based on the 2010 UWMP with adjustments made for required conservation from new development. The demand factors are different for new and existing development because the City has established policies and requirements, including the CalGreen Building Code, which require new development to install more efficient fixtures and irrigation systems than can be required of existing development. The factors from the 2010 UWMP are used because these demand factors will allow the City to meet the water conservation targets it adopted under the Water Conservation Act of 2009. While the more recent 2015 UWMP reviews the City’s progress towards achieving the adopted water use targets, the 2015 UWMP did not change the water use targets or the water use factors the City uses to project future demand. Chapter 3 provides a more detailed discussion on projected water demands.

The demand factors used in this analysis are:

- Single Family Dwelling Units (SFRs): 287 gallons per day (gpd) for existing development and 232.4 gpd for new development;
- Multifamily Dwelling Units (MFRs): 143 gpd for existing development and 118 gpd for new development;
- Nonresidential employees: 28 gpd per employee for existing development and 22.4 gpd per employee for new development.

Water use factors are created by multiplying the base unit (SFRs, MFRs or employees) by the demand factors as illustrated in Table 2.

Table 2 – Water Use Factors for New and Existing Development

	Units			Capacity Factors (gpd)		Water Use Factor		Percent Share	
	1	2	3	4	5	6	7	8	9
			(2-1)			(1x4)	(3x5)		
Land Use Class	Existing	Planned Buildout	New Development	Existing	New	Existing	New	Existing	New
Residential									
Single Family Residential (units)	7,719	10,343	2,624	287.0	232.4	2,215,353	609,772	43%	12%
Multi-Family Residential (units)	8,594	11,483	2,889	143.0	118.0	1,228,942	341,003	24%	7%
Senior Housing (units)	207	209	2	143.0	118.0	29,601	236	1%	0%
Assisted Living (units)	0	135	135	143.0	118.0	-	15,935	0%	0%
Non-Residential Employees	21,900	25,831	3,931	28.0	22.4	613,200	88,054	12%	2%
Totals						**4,087,096**	**1,055,000**	**79%**	**21%**

Because non-residential demands are calculated on a per employee basis, the new employees projected at buildout are allocated to each SPA, PD and Infill Development based on the total new non-residential square footage associated with each type of development. Chapter 3 provides additional detail on this methodology and illustrates the calculations.

ES.7 Summary of Cost-Allocation and Capacity Charges

The cost for each capital facility included in the capacity charge program has been allocated to new development based on benefits received and the demand factor for each land use. This allocation is described in detail and the calculations are illustrated in Chapter 3. Summarily:

- for the groundwater component, costs are allocated between new and existing development in the City, because the groundwater supply benefits all land uses in the City;
- for the Agency supply component, costs are first allocated between the City and other Agency customers and then allocated between new and existing development in the City, because this supply benefits regional land uses;
- for the water tanks, costs are allocated to land uses within each specific SPA or PD because each tank provides specific benefit to a specific SPA or PD.

Table 3 represents the results of the cost allocation calculations and illustrates the portion of the proposed charge associated with each component of the program.

Table 3 – Proposed Water Capacity Charge Components

		Agency Charge Components			Tank Charge Components						
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	NE SPA	UD SPA	SE SPA	WD SPA	NW SPA	Stadium Lands	SMV
Residential											
Single Family Residential (units)	$ 1,185.69	$95.29	$ 154.83	$ 17.96	$ 2,192.67	$3,856.34	$4,574.10	$ -	$ -	$ -	$5,233.60
Multi-Family Residential (units)	$ 602.25	$48.40	$ 78.64	$ 9.12	$ 1,113.73	$1,958.76	$2,323.34	$ -	$3,665.57	$ -	$2,658.32
Senior Housing (units)	$ 602.25	$48.40	$ 78.64	$ 9.12	$ 1,113.73	$1,958.76	$2,323.34	$ -	$3,665.57	$ -	$2,658.32
Assisted Living (units)	$ 602.25	$48.40	$ 78.64	$ 9.12	$ 1,113.73	$1,958.76	$2,323.34	$ -	$3,665.57	$ -	$2,658.32
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 9.44	$ 16.59	$ 19.68	$ -	$ 31.05	$ -	$ 22.52

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Tables 4 through 11 illustrate the application of the proposed capacity charge components to the individual SPAs and PDs. The tables also include a 3% administration allowance so that the City can cover its costs associated with program administration and updates over time. Support for this "administration allowance" is also included in Chapter 3.

Table 4 – Proposed Water Capacity Charges for Infill (2016-17)

							Total Charge Burden		$ -
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in SPA	SPA Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ -	$ 43.61	$1,497.38	0	$ -
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	0	$ -
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ -	$ 0.19	$ 6.44	0	$ -

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 5 – Proposed Water Capacity Charges for Northeast SPA (2016-17)

								Total Charge Burden	$ 3,836,907
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in SPA	SPA Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ 2,192.67	$ 109.39	$ 3,755.83	920	$ 3,455,364
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,113.73	$ 55.56	$ 1,907.71	200	$ 381,543
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,113.73	$ 55.56	$ 1,907.71	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,113.73	$ 55.56	$ 1,907.71	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 9.44	$ 0.47	$ 16.16	0	$ -

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 6 – Proposed Water Capacity Charges for University District SPA (2016-17)

								Total Charge Burden	$ 7,082,948
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in SPA	SPA Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ 3,856.34	$ 159.30	$5,469.41	883	$ 4,829,489
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,958.76	$ 80.92	$2,778.10	762	$ 2,116,912
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,958.76	$ 80.92	$2,778.10	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,958.76	$ 80.92	$2,778.10	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 16.59	$ 0.69	$ 23.54	5802	$ 136,548

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 7 – Proposed Water Capacity Charges for Southeast SPA (2016-17)

								Total Charge Burden	$ 2,710,650
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in SPA	SPA Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ 4,574.10	$ 180.84	$ 6,208.71	394	$ 2,446,231
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 2,323.34	$ 91.85	$ 3,153.61	81	$ 255,443
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 2,323.34	$ 91.85	$ 3,153.61	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 2,323.34	$ 91.85	$ 3,153.61	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 19.68	$ 0.78	$ 26.72	336	$ 8,977

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 8 – Proposed Water Capacity Charges for Sonoma Mountain Village PD (2016-17)

								Total Charge Burden	$ 3,737,751
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in PD	PD Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ 5,233.60	$ 200.62	$ 6,887.99	378	$ 2,603,660
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 2,658.32	$ 101.90	$ 3,498.65	275	$ 962,127
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 2,658.32	$ 101.90	$ 3,498.65	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 2,658.32	$ 101.90	$ 3,498.65	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 22.52	$ 0.86	$ 29.64	5802	$ 171,964

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 9 – Proposed Water Capacity Charges for Northwest SPA (2016-17)

								Total Charge Burden	$ 2,809,089
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in SPA	SPA Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ -	$ 43.61	$1,497.38	0	$ -
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 3,665.57	$ 132.12	$4,536.11	398	$ 1,805,370
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 3,665.57	$ 132.12	$4,536.11	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 3,665.57	$ 132.12	$4,536.11	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 31.05	$ 1.12	$ 38.43	26118	$ 1,003,719

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 10 – Proposed Water Capacity Charges for Wilfred Dowdell SPA (2016-17)

								Total Charge Burden	$ 64,372
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in SPA	SPA Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ -	$ 43.61	$1,497.38	0	$ -
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	0	$ -
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ -	$ 0.19	$ 6.44	9990	$ 64,372

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 11 – Proposed Water Capacity Charges for Stadium Lands PD (2016-17)

								Total Charge Burden	$ 286,951
		Agency Charge Components							
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	Tank Charge Component	3% Administrative Allowance	Total Mitigation Fee per Unit	Number of Units in PD	PD Charge Land Use
Residential									
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ -	$ 43.61	$ 1,497.38	0	$ -
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ -	$ 22.15	$ 760.57	338	$ 257,073
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12		$ 22.15	$ 760.57	0	$ -
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12		$ 22.15	$ 760.57	0	$ -
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ -	$ 0.19	$ 6.44	4637	$ 29,878

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

ES.8 Approval Process and Annual Updates

The City Council approves all Water Capacity Charges. The Council renders its decision on the proposed charges after calling a Public Hearing and considering testimony and evidence presented at the Public Hearing. The law allows the City to update its capacity charges and requires annual public accountings for the charges and their use. All annual reporting is made at a public meeting.

In a City with a large planned growth element, these annual findings are especially relevant. The charge calculations and revenue projections are based on planning projections for new development and budgetary estimates for the capital improvements. As capital improvement budgets are updated, through the design and construction process, and as land use projections are updated as development proceeds, it is very important to update the capacity charges to reflect current costs and growth patterns in order to assure that the program is generating enough revenue to fund the planned capital facilities, through reasonable allocations across all land uses.

1. Authority and Methodology

1.1 Authority

In California, an agency's ability to levy capacity charges is governed by California Government Code Section 66000 et. seq. and specifically described in Section 66013 (the Mitigation Fee Act, hereinafter the Act). While the Act specifically exempts water and sewer capacity charges from the nexus findings required for other types of mitigation fees,[1] it specifically defines a "capacity charge" and limits that charge to "the estimated reasonable cost of providing the service for which the…charge is imposed".

A capacity charge is defined as "a charge for facilities in existence at the time a charge is imposed or charges for new facilities to be constructed in the future that are of benefit to the person or property being charged". As with other types of mitigation fees, the Act requires that capacity charges be deposited in a separate capital facilities fund and that annual accounting be provided for that fund. The Act also outlines the provisions for establishing or modifying the capacity charge.

1.2 Methodology

The methodology for calculating capacity charges, including the methodology used to determine the cost of facilities included in the charge program, must meet the Act's test for reasonableness. Because of the unique circumstances of individual agencies, there are numerous methodologies for calculating capacity charges but each is grounded in the basic principal of reasonable allocation of costs to benefitting entities. Several major publications regarding mitigation fees and charges for various infrastructure needs are recognized in the industry including:

- Development Impact Fees, Arthur C. Nelson, 1998
- Principles of Water Rates, Fees, and Charges, Manual M1, American Water Works Association, 5th Edition, 2000
- Comprehensive Guide to Water and Wastewater Finance and Pricing, Second Edition, George A. Raftelis, 1993
- System Development Charges for Water, Wastewater, and Stormwater Facilities, Arthur C. Nelson, 1995

These publications describe a number of methodologies but all the methodologies are grounded in two primary approaches – the incremental cost methodology and the system buy-in methodology. The two approaches are described below to illustrate the different perspectives. A method that combines both perspectives is also described.

[1] Government Code Section 66013(h)

Incremental Cost Method

The incremental cost methodology is commonly used for establishing fees in communities experiencing considerable new growth. The approach is based on the cost of new or planned capital facilities. The cost of growth-related facilities is allocated to the new development to be served by the facilities. Under this approach, new customers pay for the incremental investment necessary for system expansion. Consequently, new customers pay fully for additional capacity in new facilities to avoid imposing a burden on existing customers.

System Buy-In Method

The system buy-in method is based on the average investment in the capital facilities by current customers. Raftelis describes the system buy-in methodology as follows: “Under this approach, capital recovery charges are based upon the ‘buy-in’ concept that existing users, through service charges, tax contributions, and other up-front charges, have developed a valuable public capital facility. The charge to users is designed to recognize the current value of providing the capacity necessary to serve additional users. The charge is computed by establishing fixed asset value under a historical or reproduction cost basis and deducting relevant liabilities (long-term debt, loans, etc.) from this amount. The number of units of service is then divided into this difference (considered to be the utility’s equity) to establish the capital recovery charge.”

More simply, the buy-in fee is determined by taking the current value of assets (historical cost escalated to current dollars and adjusted for depreciation) divided by the current number of customers (expressed in equivalent residential units). By paying fees calculated on this basis, new development buys into the existing capital facilities on par with existing development.

Combined Method – Future System Buy-In

This method combines both existing and planned facilities into fee calculations. This is because new development benefits from surplus capacity in existing facilities, but also requires new facilities to provide required capacity. The challenge in using a combined approach for fee calculation is to make certain that new development is not paying for needed capacity in both existing and new facilities.

One approach that combines both existing and new facilities is the future system buy-in methodology, which is similar to the system buy-in method described previously, except that it views and assesses the system at some point in the future. Where the typical system buy-in approach divides the existing system value by the current number of units of development, the future buy-in approach considers what the system will be like at some future planning horizon and divides this by the total number of units of development to be served at that point in time.

This analysis utilizes the future system buy-in method. The future Rohnert Park water supply and storage system will include a groundwater supply system, an improved Agency supply system and five new storage tanks, required by the CEQA documents for the various SPAs and PDs. This analysis describes the existing and future development benefitting from the system,

the costs associated with the system and the calculations used to allocate the value of these facilities to the benefitting land uses.

Land Uses & Basis of Cost Estimates

1.3 Introduction

This chapter outlines the existing and proposed, residential and nonresidential land uses within the City and its sphere of influence. The land use classes are used to model the impacts created by new and existing development in order to provide for a reasonable allocation of costs.

1.4 Existing and General Plan Proposed Land Uses

The City's 2000 General Plan identified six major SPAs:

- Northeast SPA
- University District SPA
- Southeast SPA
- Canon Manor SPA
- Wilfred Dowdell SPA
- Northwest SPA

These are illustrated on Figure 2.1. The City's General Plan anticipated annexation and development of all of the SPAs except the Canon Manor SPA. The City provides sewer but not water service to the Canon Manor SPA so Canon Manor land uses are not included in the water capacity charge calculations.

To date the University District, Southeast, Northwest and Wilfred Dowdell SPAs have been approved. The City has also approved three major infill development projects: the Stadium Lands PD, the Sonoma Mountain Village PD, and Central Rohnert Park PDA. Each of these planned developments includes enough specificity to allow for the calculation of capacity charges associated with the proposed land uses. Table 12 below presents the land uses considered in the Water Capacity Charge Program.

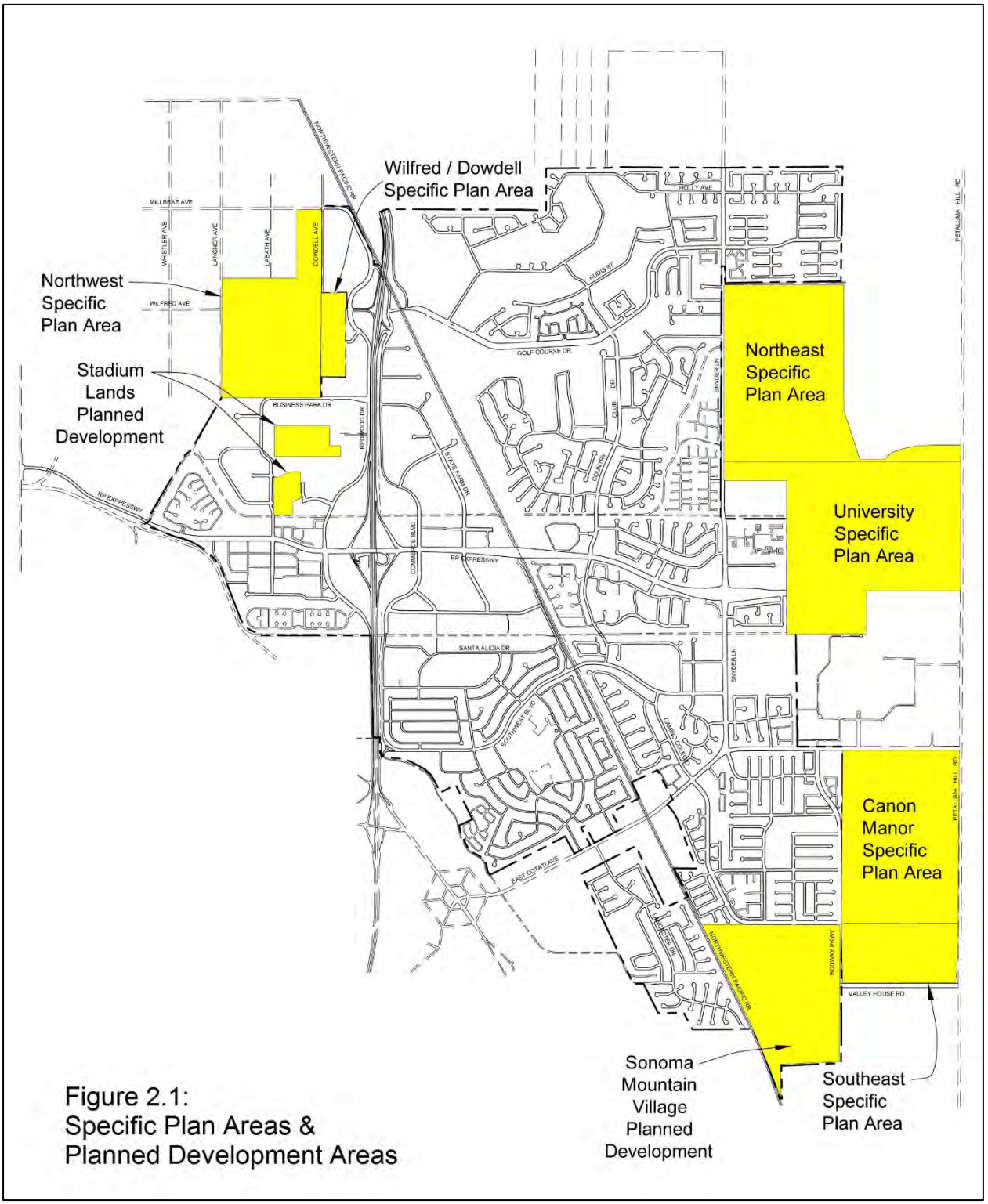

Figure 2.1:
Specific Plan Areas &
Planned Development Areas

Table 12 – Land Uses in the Water Capacity Charge Program

				Specific Plan Areas, Planned Development, Priority Development Area Infill							
Land Use Class	PFFP 2011 Land Use [1]	Planned Buildout	New Development[2]	NE SPA	UD SPA	SE SPA	WD SPA	NW SPA[3]	Stadium Lands	Sonoma Mountain Village[4]	Central Rohnert Park PDA[5]
Residential											
Single Family Residential (units)	7,719	**10,343**	**2,624**	920	883	394	0	0	0	**378**	0
Multi-Family Residential (units)	8,594	**11,483**	**2,889**	200	762	81	0	**398**	338	**275**	**835**
Senior Housing (units)	207	209	2	0	0	0	0	0	0	0	0
Assisted Living (units)	0	135	135	0	0	0	0	0	0	0	0
Non-Residential											
General Office (square feet)	1,028,506	**1,302,138**	**273,632**	0	0	0	0	**58,400**	0	**10,000**	**205,232**
Hotel/Motel (square feet)	519,483	**664,483**	**145,000**	0	0	0	0	**54,000**	0	**91,000**	0
Retail (square feet)	2,148,308	**3,738,292**	**1,589,984**	0	175,000	10,000	302,114	**458,700**	140,000	**74,244**	**429,926**
Light Industrial (square feet) [8]	1,638,472	**972,923**	**347,515**	0	0	0	0	**218,200**	0	0	**129,315**
Heavy Industrial (square feet)	0	0	**0**	0	0	0	0	0	0	0	0
Warehouse (square feet)	1,589,632	1,589,632	**0**	0	0	0	0	0	0	0	0
Total Non-Residential	**6,924,401**	**8,267,468**	**1,343,067**	**0**	**175,000**	**10,000**	**302,114**	**789,300**	**140,000**	**175,244**	**764,473**

Notes:

1. Units of Land Use Classes in PFFP 2011 which provided original assumptions for water infrastructure needs.

2. New Development land use includes all approved SPAs, PDs and the PDA along with adjustments for prepayments in Sonoma Mountail Village

3. NW SPA Land Use Classes areas shown below are from Table 3-1 of the adopted Northwest Specific Plan.

4. Sonoma Mountain Village Land Use Classes shown are the remaining planned residential units and non-residential area for which the Per Acre Development Fee was not pre-paid and land-use conversions have occurred as specifically explained in this Report.

5. Additional development potential of residential and non-residential land uses in Central Rohnert Park PDA Plan,Table 4.2 (PDA Site Potential and Requirements).

6. Includes Planned Buildout reduction in square footage of Light Industrial in Sonoma Mountain Village PD due to land use conversion.

1.5 Adjustments for Paid Fees

The City has currently administers two programs that are intended to mitigate for new development's impacts on water supply. These are known as the "Per Acre Fee Program" and the "Water/Wastewater Conservation Fee Program". All development within the City's pre-2000 city limits generally paid the Per Acre Fee and Water/Wastewater Conservation Fee that was in effect at the time of their development[2]. The City's proposed water capacity charges will replace the Per Acre Fee and the Water/Wastewater Conservation Fee. This replacement will not affect most of the new development areas which have not yet paid capacity fees. The exceptions are

[2] According to the City's records, the first formal resolution adopting per acre fees is Resolution No. 72-148 adopted 11-6-72, approximately 10 years after incorporation.

Sonoma Mountain Village and Stadium Lands PDs and the Wilfred Dowdell and University District SPAs where some fees have been paid. These are discussed below.

Sonoma Mountain Village Payments

A review of building permits within the Sonoma Mountain Village PD indicates that the City has received full payment of Per Acre Fees and Water/Wastewater Conservation Fees for 80 acres known as the “North Site” within the Sonoma Mountain Village PD some time ago. The revenue was used by the City to construct improvements the water system. This “North Site” contains the existing buildings on the site and is located between Valley House Drive and Camino Colegio, as illustrated on Figure 2.2. The development plan for Sonoma Mountain Village indicates that the “North Site”, which has paid fees, includes development phases 1A, 1B and 1D. The South Site, which has not paid fees, includes phases 1C, 2 and 3. Phases 1A, 1B and 1D include 322 single family residences, 719 multi-family residences and 568,535 square feet of non-residential development. Because the water fees have been paid for this site, they will not be included in the capacity charge program. Table 13 illustrates the reductions in land use contributing to the capacity charge program, as a result of pre-paid fees in the Sonoma Mountain Village PD.

Figure 2.2
Sonoma Mountain Village Planned Development

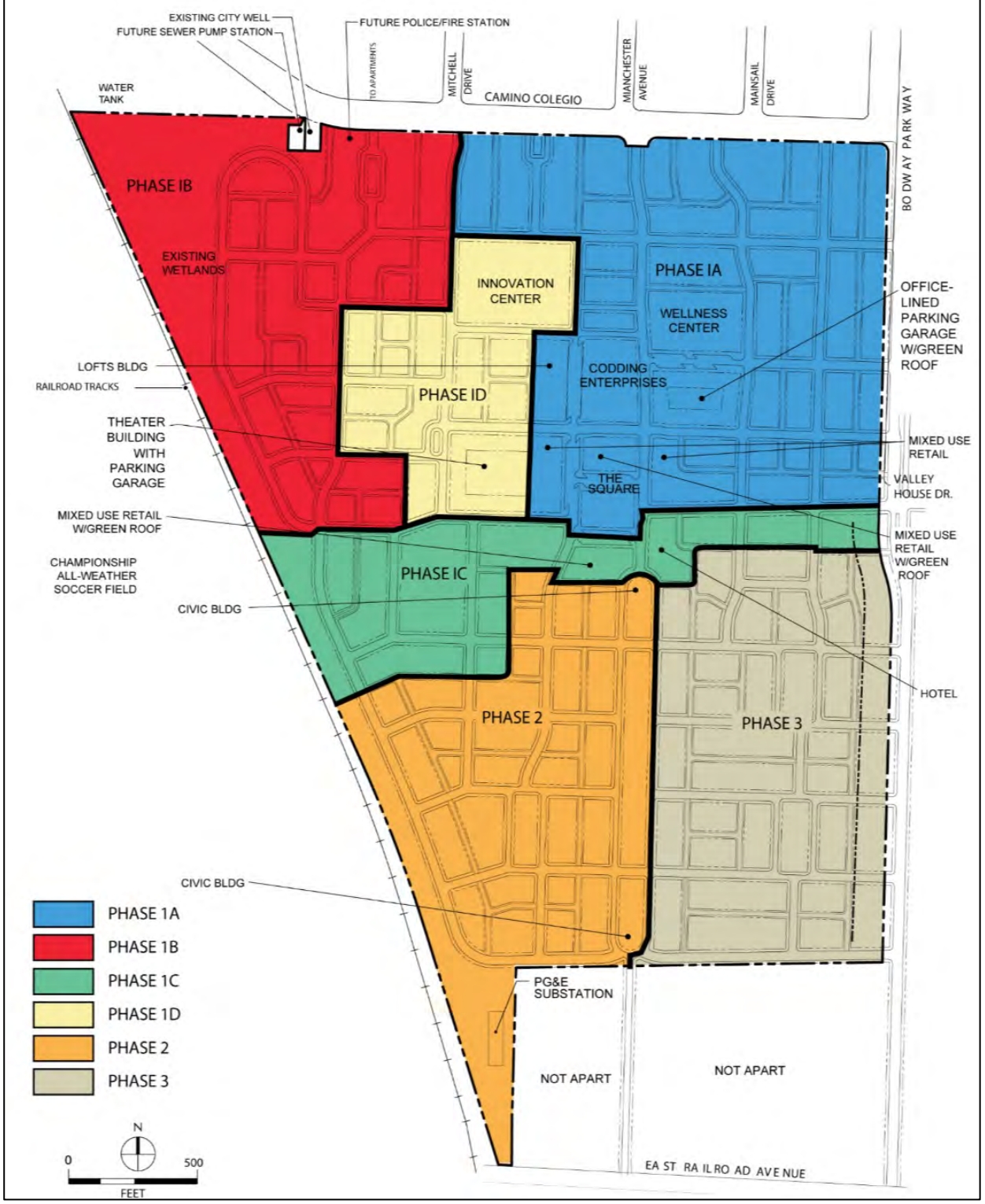

Table 13 – Sonoma Mountain Village – Summary of Paid and Unpaid Water Charges

Land Use Class	Sonoma Mountain Village PD Land Use by Project Phase							Prepaid Uses in Phases 1A, 1B and 1D	Land Uses Impacting Water Supply (Phases 1C, 2 and 3)
	1A	1B	1C	1D	2	3	Total		
Residential									
Single Family Residential (units)	167	94	11	61	153	214	700	322	378
Multi-Family Residential (units)	461	225	275	33			994	719	275
Senior Housing (units)							-	-	-
Assisted Living (units)							-	-	-
Non-Residential									
General Office (square feet)	285,978		10,000	130,000			425,978	415,978	10,000
Hotel/Motel (square feet)			91,000				91,000	-	91,000
Retail (square feet)	149,224	1,667	35,910	1,666	36,667	1,667	226,801	152,557	74,244
Light Industrial (square feet)							-	-	-
Heavy Industrial (square feet)							-	-	-
Warehouse (square feet)							-	-	-
Total Non-Residential	**435,202**	**1,667**	**136,910**	**131,666**	**36,667**	**1,667**	**743,779**	**568,535**	**175,244**
Source: Sonoma Mountain Village Project DEIR Table 2-2 and Figure 2-7 (PBS&J August 2009)									

Stadium Lands, Wilfred Dowdell and University District Payments

Since late 2013, Per Acre and Water/Wastewater Conservation Fees were paid for development projects within the Wilfred Dowdell and University District SPAs and Stadium Lands PD. The revenue from these fees has not yet been expended. The City has reviewed these payments in light of the proposed Water Capacity Charges and concluded that the payments received are generally equivalent to the fees that would be due under the proposed Water Capacity Charge Program. Therefore, in order to simplify the calculations and avoid disparity within these development areas, Water Capacity Charges have been calculated assuming that all the land uses within the Stadium Lands PD and the Wilfred Dowdell and University District SPA will pay the new Water Capacity Charges. The City will transfer revenue received from Per Acre Fees and Water/Wastewater Conservation Fees to the Water Capacity Charge Program and use this existing fee revenue to construct improvements contemplated by the Water Capacity Charge Program. This will preserve equity between property within these developing areas and allow necessary water system improvements to be constructed.

1.6 Growth Management and Absorption Rates

The City has an adopted Growth Management Ordinance[3] that is intended to provide for orderly build out of residential development over the 20-year planning horizon contemplated by the General Plan. In its simplest form, the Growth Management Ordinance has the effect of limiting the number of residential building permits issued to 225 per year. There are exceptions for affordable housing and provisions to carry over building permits (i.e., if 50 are issued in one

[3] Chapter 17.66 of the Rohnert Park Municipal Code.

year, 400 may be issued the following year, providing a 2-year average of 225 per year). Because the Growth Management Ordinance clearly sets forth the residential development pattern, this analysis does not include an analysis of probable development patterns.

1.7 Basis of Cost Estimates

Capital facility needs and costs were gathered from a range of sources including:

- City of Rohnert Park General Plan
- Environmental Impact Reports (EIRs) for the
    - University District SPA (May 2006)
    - Stadium Lands PD (February 2008)
    - Northeast SPA (May 2008)
    - Wilfred Dowdell SPA (September 2008)
    - Southeast SPA (July 2009)
    - Sonoma Mountain Village PD (August 2009)
    - Northwest SPA (June 2014)
- City of Rohnert Park 2010 Urban Water Management Plan
- City of Rohnert Park 2015 Urban Water Management Plan
- City of Rohnert Park Asset Valuation for Municipal Wells
- City of Rohnert Park Water Model Study (Brelje & Race, 2004)
- Sonoma County Water Agency Capital Projects Plan – FY 2012-13 through FY 2016-17.

The facilities included in this analysis are primarily in the planning stages. Cost estimates have been developed by reviewing the proposed design criteria, reviewing available local construction cost information for similar facilities, and utilizing standard estimating guidance such as the RS Means Construction Cost Data. Cost estimates are Class 5 (planning-level) estimates of probable construction cost as defined by the Association for the Advancement of Cost Engineering, International (AACE) as follows:

> *Generally prepared on very limited information, where little more than proposed plan type, its location, and the capacity are known, and for strategic planning purposes such as but not limited to market studies, assessment of viability, evaluation of alternate schemes, project screening, location and evaluation of resource needs and budgeting, long-range capital planning, etc. Some examples of estimating methods used would include cost/capacity curves and factors, scale-up factors, and parametric and modeling techniques.*

These costs are indexed to the Engineering News Record Construction Cost Index (ENR CCI) for the San Francisco Bay Area which is 10897.59 (August 2014). The costs for the well infrastructure is indexed to 11555.15 (July 2016 ENR CCI).

1.8 Land Acquisition, Rights-of-Way and Environmental Mitigation Costs

In general, the Water Capacity Charge Program assumes that rights-of-way will be dedicated in accordance with the City's General Plan Policy, when the right-of-way is within the City. For the Agency's projects, the capacity charge program assumes that right-of-way costs are included in the Agency's cost estimates. The capacity charge program also assumes that environmental mitigation costs for wetlands and other sensitive habitats are covered in the costs estimates for the proposed improvement projects.

2. Water System Facilities

2.1 Introduction

The City's General Plan has four major goals related to water supply. These are:

- PF-E Provide sufficient quantities of water for Rohnert Park residents and businesses, while ensuring that safe groundwater yield is not exceeded.
- PF-F Utilize purchased water supplies… and reduce reliance on groundwater drawn from municipal wells, except for emergency use.[4]
- PF-G Continue to encourage water conservation through use of reclaimed water and reduction of water consumption and discharge, for both existing and new development.
- PF-H Ensure that groundwater withdrawal does not exceed safe yield.[5]

These goals are supported by 15 policies that relate to the groundwater supply system, the water that the City purchases from the Agency, the recycled water system, the water distribution system and overall conservation practices. While the City has adequate capacity to serve its existing population, investments in the existing groundwater system, expansions to the Agency and recycled water systems, and expansions to the distribution system are necessary to comply with the General Plan policies and assure that the water supply system is reliable under a range of hydrologic and emergency conditions.

This chapter provides narrative description and cost estimates for the proposed water supply and storage facilities as they are currently understood. Because some of the proposed facilities are still subject to review under CEQA, the descriptions included in this analysis are intended to present the basis of the cost estimates, not to commit the City or the Agency to a particular construction strategy.

2.2 Water Facilities Description

The City has three sources of water supply: local groundwater, recycled water and supply it purchases from the Agency. The City also maintains its own retail distribution system including, 4.5 million gallons of storage capacity and seven booster pump stations that deliver water to two pressure zones. The City uses a conjunctive use strategy to balance its water supply portfolio and assure reliable delivery of water to all users. Under normal conditions the City uses primarily its Agency supply and recycled water supply, with groundwater used to meet peak demands or to provide reliability in the event of unanticipated circumstances. When the Agency supply is constrained by drought or regulatory requirements, the City has the ability to use more groundwater and reduce its demand on the Agency's system.

[4] The General Plan predicted that the groundwater well system would be dedicated to "backup and emergency use" in the Year 2010, based upon the Agency's estimates for completing improvements to its water diversion and transmission system. The City now estimates that these improvements will not be completed until after 2020, but undertaking and funding these improvements is necessary to comply with existing General Plan Goal PF-F. As a result, the City currently uses a conjunctive use water management strategy, drawing on its Agency and recycled water supplies before utilizing groundwater.

[5] The City's UWMP includes a detailed analysis of the groundwater supply supporting a planned use of 2,577 AFY of groundwater and illustrating consistency with General Plan Goal PF-H.

Groundwater Supply

The City has developed a total of 42 groundwater wells, 29 of which are currently active. One additional well is classified as a standby well that can be used in emergencies for up to five consecutive days but not more than 15 days in a year. The active wells have a total rated production capacity of 8.3 mgd. All of the City's wells are located in the Santa Rosa Valley Groundwater Basin. The City conducted extensive work during its 2004 Citywide Water Supply Assessment in order to document that its well field has a long term, sustainable production rate of 2,577 acre-feet per year (AFY). The City supported the Groundwater Management Plan recently adopted by the Sonoma County Water Agency's Board of Directors and is working with other agencies in the Santa Rosa Plain to comply with the Groundwater Sustainability Act of 2014. While the City's annual demand on its well field varies from year to year, the groundwater supply is available for the benefit of new and existing development.

As part of its ongoing risk management activities, the City developed an estimate of the value of its groundwater infrastructure in 2007, including all well infrastructure, buildings, tanks and ancillary facilities. These values have been brought forward to 2016 values to represent the infrastructure investment available for new and existing users, and is shown in Table 14.

Table 14 - Value of Groundwater Infrastructure Assets

Facility	Appraised Value (2007)	Depreciation* (2007-2016)	Inflation Adjustment Value (2016)
Well 2	$ 1,020,100	$ 836,482	$ 886,854
Well 4/Tank 1	$ 464,400	$ 380,808	$ 403,740
Well 5	$ 904,200	$ 741,444	$ 786,093
Well 6	$ 816,560	$ 669,579	$ 709,900
Well 7	$ 1,052,300	$ 862,886	$ 914,848
Well 8 & 8A	$ 1,762,800	$ 1,445,496	$ 1,532,541
Well 9/Tank 2	$ 1,000,800	$ 820,656	$ 870,075
Well 10	$ 1,087,800	$ 891,996	$ 945,711
Well 11	$ 884,600	$ 725,372	$ 769,053
Well 12	$ 798,400	$ 654,688	$ 694,112
Well 13	$ 581,900	$ 477,158	$ 505,892
Well 14	$ 1,903,900	$ 1,561,198	$ 1,655,211
Well 15	$ 2,067,300	$ 1,695,186	$ 1,797,267
Well 16	$ 2,164,200	$ 1,774,644	$ 1,881,510
Well 17	$ 609,000	$ 499,380	$ 529,452
Well 18	$ 687,600	$ 563,832	$ 597,785
Well 19	$ 559,080	$ 458,446	$ 486,052
Well 20	$ 608,600	$ 499,052	$ 529,104
Well 21	$ 580,900	$ 476,338	$ 505,022
Well 22	$ 505,900	$ 414,838	$ 439,819
Well 24/Tank 7	$ 1,003,600	$ 822,952	$ 872,509
Well 26/Tank 4	$ 938,100	$ 769,242	$ 815,564
Well 27/Tank 5	$ 1,375,500	$ 1,127,910	$ 1,195,831
Well 29	$ 673,400	$ 552,188	$ 585,440
Well 30	$ 391,900	$ 321,358	$ 340,710
Well 31	$ 686,900	$ 563,258	$ 597,176
Well 33	$ 750,900	$ 615,738	$ 652,817
Well 34	$ 819,200	$ 671,744	$ 712,195
Well 35	$ 690,900	$ 566,538	$ 600,654
Well 37	$ 347,190	$ 284,696	$ 301,840
Well 39	$ 489,233	$ 401,171	$ 425,329
Well 40	$ 547,180	$ 448,688	$ 475,707
Well 41	$ 909,600	$ 745,872	$ 790,787
Well 42	$ 494,600	$ 405,572	$ 429,995
Totals	**$ 30,178,543**	**$ 24,746,405**	**$ 26,236,593**
		Well infrastructure asset value remaining	**$ 26,236,593**

* Assumes a 50-year facility life

Recycled Water Supply

The City hosts an urban recycled water system that supplies irrigation water for parks and school grounds south of Golf Course Drive, the North and South Rohnert Park Municipal Golf courses, and various commercial and industrial sites. Current recycled water use averages

approximately 1,000 AFY[6]. Recycled water is supplied by the City of Santa Rosa Subregional System (Subregional System), of which the City is a member. Recycled water is delivered through a low-pressure and high pressure distribution system. The Subregional System's Incremental Recycled Water Program (IRWP) Master Plan and EIR includes an expansion of the recycled water system (including pumping and distribution facilities) that will allow it to deliver up to 1,300 AFY of recycled water supply to the City.

The City's plan for managing the costs of expanding the recycled water system is included in the 2011 PFFP. Costs for the recycled water system are not included in this analysis.

Sonoma County Water Agency Supply

The Agency is the primary provider of potable water to eight water contractors, including the cities of Santa Rosa, Petaluma, Sonoma, Rohnert Park, and Cotati, the Town of Windsor, and the Valley of the Moon, and North Marin Water Districts. The Agency also provides surplus water, by agreement, to other customers including Cal American Water Company's Larkfield system, the Forestville, Kenwood and Lawndale Water Districts, the Penngrove Water Company, Marin Municipal Water District and small, non-surplus customers consisting of the County of Sonoma, State of California and Santa Rosa Junior College. The Restructured Agreement for Water Supply (2006) defines the business agreement between the Agency, its prime contractors and its customers. Table 15 illustrates the annual water supply allocation, by contractor and customer, defined in that agreement.

[6] See Table 5-5, City of Rohnert Park, 2010 Urban Water Management Plan

Table 15 – Water Supply Allocations to Agency Contractors and Customers

Agency	Annual Amount During Fiscal Year (AFY)	% of Total
Prime Contractors (1)		
Santa Rosa	29,100	33.24%
North Marin	14,100	16.11%
Petaluma	13,400	15.31%
Rohnert Park	7,500	8.57%
Cotati	1,520	1.74%
Valley of the Moon	3,200	3.66%
Sonoma	3,000	3.43%
Windsor	5,620	6.42%
Other Customers (2)		
Larkfield (Cal Am)	700	0.80%
Forestville Water District	500	0.57%
Kenwood Water District	12	0.01%
Lawndale Water District	86	0.10%
Penngrove Water Company	278	0.32%
Marin Municipal Water District	8,500	9.71%
Small Non-Surplus Customers	16	0.02%
Total	87,532	100.00%

(1) From the Restructured Water Supply Agreement (2006)
(2) From the Agency's 2010 UWMP Table 3-2

The Agency's primary source of supply is from the underflow of the Russian River. In order to facilitate year-round underflow, Russian River water is stored behind Warm Springs Dam for later release from Lake Sonoma and behind Coyote Dam for later release from Lake Mendocino. These dams are federal projects under the jurisdiction of the U.S. Army Corps of Engineers. The Agency is the local sponsor and partners with the U.S. Army Corps of Engineers for the water supply portion of the reservoir projects. The Agency owns and operates the water supply pools at both Lake Sonoma and Lake Mendocino. The water supply pool of Lake Sonoma is 212,000 acre-feet and Lake Mendocino is 111,000 acre-feet.

The Agency also owns and operates three groundwater supply wells located in the Santa Rosa Valley Groundwater Basin, which provide emergency supply.

The Agency uses about 14 miles of the natural channel of Dry Creek and about 8 miles of the natural channel of the Russian River to convey water from Lake Sonoma to six radial collector wells at its Wohler and Mirabel production facilities. An important method used to increase production capacity during peak demand months involves raising an inflatable dam on the Russian River near Mirabel that allows for operation of five infiltration ponds that increase the area of infiltration along the Russian River.

A system of aqueducts, booster pumps and tanks then distribute the water to the various water contractors and other system customers. The major pipelines that comprise the transmission system are known as the Santa Rosa Aqueduct, the Sonoma Aqueduct, the Petaluma Aqueduct, and the Russian River to Cotati Intertie. The Water Agency owns the northern portion of the North Marin Aqueduct that extends from the terminus of the Petaluma Aqueduct to the Kastania Booster Station, located near the border of Marin County with Sonoma County. The remainder of the North Marin Aqueduct is owned and maintained by the North Marin Water District, which transfers water to the District's service area. The City's water supply comes through the Petaluma Aqueduct and the Russian River to Cotati Intertie, which serve the cities of Rohnert Park, Cotati, and Petaluma, the North Marin Water District and Marin Municipal Water District. The Water Agency's major storage facilities are located at Ralphine (36 MG), Cotati (36 MG), Kawana Springs (20 MG), Kastania (12 MG), Sonoma (10 MG), Eldridge (8.0 MG), and Annadel (5.5 MG).

The Agency is responsible for the planning, environmental review, design, and construction of capital improvement projects that support its water supply and transmission system and allow it to deliver the water necessary to meet its contractors' and customers' current and planned demands. In order to execute this responsibility, the Agency has developed a Capital Projects Plan. The Capital Projects Plan addresses improvements to the water supply and transmission system, as well as improvements to other Agency infrastructure, including flood control and sanitation facilities. The improvements include the work necessary to provide a reliable water supply including compliance with increasing environmental regulations and compliance with the Russian River Watershed Biological Opinion which was issued by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service in September 2008.

The Agency's Capital Projects Plan is organized to present investments in water supply, which benefit all contractors and customers, and transmission system improvements, which uniquely benefit different customers and contractors, depending on which portions of the system they use. The transmission system improvements are further broken down to reflect "common improvements" and improvements to unique portions of the pipeline and storage system. The City will have a share in water supply improvements, common transmission system improvements and pipeline and storage improvements related to the Petaluma Aqueduct and the Russian River to Cotati Intertie. Table 16 illustrates the percentage shares in the various types of improvements, based on each contractor's and customer's share of the water supply.

Table 16 – Contractor and Customer Share of Agency Capital Project Improvements

Agency	Annual Amount During Fiscal Year (AFY)	% Share of Total Water Supply	% Share of Water Supply & Common Transmission Improvements	% Share of Russian River Intertie & Petaluma Aqueduct Improvements
Prime Contractors (1)				
Santa Rosa	29,100	33.24%	33.24%	
North Marin	14,100	16.11%	16.11%	31.13%
Petaluma	13,400	15.31%	15.31%	29.58%
Rohnert Park	7,500	8.57%	8.57%	16.56%
Cotati	1,520	1.74%	1.74%	3.36%
Valley of the Moon	3,200	3.66%	3.66%	
Sonoma	3,000	3.43%	3.43%	
Windsor	5,620	6.42%	6.42%	
Other Customers (2)				
Larkfield (Cal Am)	700	0.80%	0.80%	
Forestville Water District	500	0.57%	0.57%	
Kenwood Water District	12	0.01%	0.01%	
Lawndale Water District	86	0.10%	0.10%	
Penngrove Water Company	278	0.32%	0.32%	0.61%
Marin Municipal Water District	8,500	9.71%	9.71%	18.76%
Small Non-Surplus Customers	16	0.02%	0.02%	
Total	87,532	100.00%	100.00%	100.00%

(1) From the Restructured Water Supply Agreement (2006)
(2) From the Agency's 2010 UWMP Table 3-2

Capital Improvements for Water Supply

The projects that the Agency describes in its “water supply” category include activities that allow it to maintain and expand its water storage and diversion system in accordance with legal and environmental regulations. The Agency’s Capital Projects Plan includes:

- Two phases of habitat enhancement on Dry Creek, intended to comply with the Biological Opinion and allow continued use of the Dry Creek channel for moving water to the Wohler and Mirabel production facilities;
- A fish passage project on Wallace Creek, a tributary of Dry Creek, intended to comply with the Biological Opinion and allow continued use of the Dry Creek channel for moving water to the Wohler and Mirabel production facilities; and
- A Dry Creek Bypass Pipeline, which may be necessary to comply with the Biological Opinion, if habitat enhancement efforts are not successful.

The Capital Projects Plan fully funds the two phases of the habitat enhancement project and the fish passage projects. It also includes initial investments in the bypass pipeline. However,

because the bypass pipeline project may not be needed, if the habitat enhancement and fish passage projects are successful, the Agency has not included the full construction cost of the Dry Creek Pipeline in the “funded” portion of its Capital Projects Plan. Current system customers are not currently paying for this improvement because it may not be necessary.

Capital Improvements for Common Transmission Facilities

The projects that the Agency describes in its “common facilities” for the transmission system allow it to maintain and expand the portions of the transmission system that are necessary to serve all contractors and customers. These include:

- Six projects to mitigate potential hazards from seismic activity and liquefaction;
- A project to upgrade the disinfection system at its collector wells;
- A new storage tank near Forestville;
- Replacement of the fish screen at the Mirabel production facilities to comply with the Biological Opinion;
- Surge protection improvements at the Mirabel production facilities; and
- Meter replacement throughout the transmission system.

These projects are fully funded.

Capital Improvements for Transmission and Storage Facilities on the Petaluma Aqueduct and Russian River – Cotati Intertie

The projects that the Agency describes in its “transmission and storage facilities” include a range of projects in different areas of its aqueduct system. Two projects, both for cathodic protection, are included for the Petaluma Aqueduct and the Russian River to Cotati Intertie. These projects are fully funded.

Summary of Improvements to Agency System

Table 17 presents a summary of the Agency’s planned capital projects, including their beneficiaries and costs.

Table 17 – Summary of Agency's Planned Capital Projects

Project Name	Benefits	Supply		Transmission System (Funded)		Total
		Funded	Future Unfunded	Common Facilities	Storage & Pipeline Facilities	
Water Supply Projects						
Dry Creek Habitat Enhancement Mile 1	**All**	$ 8,650,000				**$ 8,650,000**
Wallace Creek Fish Passage	**All**	$ 304,000				**$ 304,000**
Dry Creek Habitat Enhancement Miles 2 &3	**All**	$ 15,400,000				**$ 15,400,000**
Dry Creek Bypass Pipeline	**All**	$ 250,000	$ 142,180,000			**$ 142,430,000**
Common Transmission System Projects						
Air Valves Replacement and Upgrade	**All**			$ 1,000,000		**$ 1,000,000**
Liquefaction Mitigation	**All**			$ 6,401,000		**$ 6,401,000**
Collector 6 Chlorine Solution Lines	**All**			$ 500,000		**$ 500,000**
Collector 6 Liquefaction Mitigation	**All**			$ 3,000,000		**$ 3,000,000**
Forestville Storage Tank	**All**			$ 800,000		**$ 800,000**
Multi-purpose Facility at Westside Road & Wohler Bridge	**All**			$ 1,200,000		**$ 1,200,000**
Rupture Protection	**All**			$ 2,619,000		**$ 2,619,000**
Fish Screen Replacement	**All**			$ 7,154,000		**$ 7,154,000**
Surge Control System at the Mirabel Production Facilities	**All**			$ 3,000,000		**$ 3,000,000**
RDS Liquefaction Mitigation	**All**			$ 5,000,000		**$ 5,000,000**
Seismic Hazard Mitigation at the Mark West Creek Crossing	**All**			$ 4,046,000		**$ 4,046,000**
Seismic Hazard Mitigation at the Russian River Crossing	**All**			$ 4,007,000		**$ 4,007,000**
System wide Meter Replacements	**All**			$ 1,250,000		**$ 1,250,000**
Storage & Pipeline Projects						
Petaluma Aqueduct Cathodic Protection	**Petaluma Aqueduct & Russian River- Cotati Intertie**				$ 1,200,000	**$ 1,200,000**
Russian River Cotati Intertie Cathodic Protection	**Petaluma Aqueduct & Russian River- Cotati Intertie**				$ 1,200,000	**$ 1,200,000**
Totals		**$ 24,604,000**	**$ 142,180,000**	**$ 39,977,000**	**$ 2,400,000**	**$ 209,161,000**

Water Distribution System

Potable water from the Agency's transmission system and City wells is delivered to customers through the retail distribution system, which includes pipelines, pumping and storage facilities. In order to meet the needs of planned development, the City identified improvements to its retail pipeline system and included those costs in its 2011 PFFP. Because of this, retail pipeline improvement costs are not included in this analysis. In addition to improvements to the retail pipeline system, the City has also identified the need for water storage improvements to serve new development (the City has adequate storage to serve existing development). These include

individual tanks and pumping systems which were not included in the PFFP. Table 18 presents a summary of these facilities. Additional detail is included in Appendix A.

Table 18 – Summary of Water Storage Tank Improvements

Development Area	Tank Size (gallon)	Cost per gallon	Total Cost
Northeast Specific Plan	630,000	$ 3.56	$ 2,240,000
Southeast Specific Plan	360,000	$ 5.55	$ 1,997,000
Northwest Specific Plan Area	640,000	$ 3.55	$ 2,270,000
University District Specific Plan	833,000	$ 6.00	$ 4,994,000
Wilfred Dowdell Specific Plan Area	245,000	$ 5.55	$ -
Sonoma Mountain Village Planned Development	970,000	$ 2.93	$ 2,840,000
Stadium Area Planned Development	318,000	$ 4.87	$ -
		Total	**$ 14,341,000**

Summary of Water System Improvements and Costs

Table 19 summarizes the costs for various water system components and their percentage of the total program cost. By far the largest single cost component is the Agency's future bypass pipeline which is unfunded, because it may not need to be constructed (see discussion in Section 3.2). Because this future project may not be needed to serve either new or existing development, these costs are not included in the capacity charge program.

Table 19 – Summary of Water System Improvement Components

Improvement	Total Cost	% of Total Costs	Cost Included in City's Program
Well Field Infrastucture	$ 26,236,593	10.5%	$ 26,236,593
Agency Water Supply - Funded	$ 24,604,000	9.9%	$ 24,604,000
Agency Water Supply - Unfunded (Future Pipeline)	$ 142,180,000	56.9%	$ -
Agency Transmission System - Common	$ 39,977,000	16.0%	$ 39,977,000
Agency Transmission System - Pipelines & Storage	$ 2,400,000	1.0%	$ 2,400,000
Local Water Tanks	$ 14,341,000	5.7%	$ 14,341,000
Totals	$ 249,738,593	100.0%	$ 107,558,593

2.3 Method for Allocating Costs

For capital improvements associated with water capacity, costs are allocated based on relative water demand. The City's UWMP is its primary planning tool for analyzing and projecting water

demands, including unit demand factors. Due to the requirements of California's Water Code Section 10910 et. seq., there is a strong linkage between the City's UWMP, any Water Supply Assessments (WSAs) prepared to support or augment the UWMP, and the environmental evaluations for new development projects. The City has been diligent in its implementation of these requirements and has prepared the following water supply planning documents:

- 2004 Citywide Water Supply Assessment
- 2005 Urban Water Management Plan
- 2010 Urban Water Management Plan.[7]

These documents have been used to support various plans and environmental documents prepared by each of the SPAs and PDs. As a result, there are a number of unit demand factors that have been published for new development proposals, which are summarized in Table 20.

Table 20 - Summary of Water Demand Factors from Various Plans

Planning Document	Water Demand Factors					
	SFR		MFR		CII	Source
	(gpd/unit)		(gpd/unit)			
2010 UWMP*	287	*	143	**	28 gpd/employee	2010 UWMP Water Demand Analysis and Water Conservation Update (UWMP Appendix B) - Figure 5 Baseline demands before conservation
2004/05 WSA/UWMP	282-351		155		1950 gpd/acre	2004 WSA Tables 4-1 and 4-2 dated 1/2004
Northeast SPA	287		143		NA	NESPA calculations by applicant dated 2/12/12
University District SPA	282-351		155		1950 gpd/acre	UD Draft and Final EIRs rely on 2004 WSA
Southeast SPA	285-360		160		1950 gpd/acre	SESPA Draft EIR dated 12/2005
Wilfred Dowdell SPA					1950 gpd/acre	Relies on 2004 WSA
Northwest SPA			160		50-125 gpd/tsf	Dahlin Group submittal on behalf of applicant dated 5/06/08
Stadium Lands PD			160		1950 gpd/acre	Stadium Lands Final EIR 10/2007
Sonoma Mountain Village PD	154-253		152		30-140gpd/tsf	Sonoma Mountain Village Water Plan (2009) - Table F. Includes green building standards and offsets from rainwater, graywater and recycled water

* 95 gallons per capita per day total use multiplied by average household size of 3.06 persons. 59% of usage is indoor usage.

** 70 gallons per capita per day total use multiplied by average household size of 2.04 persons. 78% of usage is indoor usage.

Table 20 illustrates that, with the exception of the Sonoma Mountain Village PD, the baseline unit demand factors included in the 2010 UWMP are generally lower than the unit demands presented in earlier planning documents. This reflects the City's efforts to increase water conservation, which has reduced overall water demand in the period between 2004 and 2010.

Sonoma Mountain Village's Water Plan generally includes lower unit water demand values. Sonoma Mountain Village developed detailed calculations on its water conservation strategy within its Water Plan and committed to implementing these strategies as part of its development

[7] Due to the provisions of the Water Conservation Act of 2009, the City's 2010 Urban Water Management Plan was actually adopted in June of 2011.

approvals. As such, the Sonoma Mountain Village PD demands cannot be compared to those of other developments until the effects of conservation are fully taken into account.

Conservation in the UWMP

The City's 2010 UWMP conformed to the requirements of the Water Conservation Act of 2009, and presented its baseline water demands, its water conservation targets for 2015 and 2020 and its plan for achieving these targets through the implementation of various water conservation measures. Within its 2010 UWMP, the City calculated its required water conservation targets using both an individual and a regional methodology. The individual methodology resulted in a 2015 interim target of 140 gallons per capita per day (gpcd) and 2020 final target of 119 gpcd. The regional methodology resulted in a 2015 interim target of 142 gpcd and a 2020 final target of 129 gpcd. In adopting its 2010 UWMP, the City elected to use the regional methodology for the purposes of complying with the reporting requirements of the Water Conservation Act of 2009.[8]

As indicated in Table 20, the average per capita water demands documented in the City's 2010 UWMP are currently below the adopted targets. This indicates that the City will be able to meet or exceed its adopted targets if it can maintain its current level of water conservation performance. Currently, the City is implementing a water conservation program based on six best management practices (BMPs) targeted at existing customers. These include:

- BMP 1 - Residential Water Surveys – Interior and Outdoor
- BMP 2 - Plumbing Retrofit Kits
- BMP 5a - Large Landscape Water Budgets
- BMP 6 - Washer Rebates
- BMP 7 - Residential Public Education
- BMP 9 - Commercial Water Audits.

Appendix B of the 2010 UWMP (the Maddaus Report) included an analysis of six different future water conservation programs in order to allow the City to evaluate options for maintaining conservation performance. Within its 2010 UWMP, the City used the conservation savings projected from a program called "Tier 1 + New Development" to demonstrate that it would meet or exceed its water use targets. The "Tier 1 + New Development" program includes continuation of the City's existing program, addition of BMP 14 - Single and Multifamily Toilet Replacement and eight measures focused exclusively on new development. The New Development Measures are:

- ND 1 – Irrigation System Rain Sensor Requirement
- ND 2 – Smart Irrigation Controller Requirement
- ND 3 – High Efficiency Toilet Requirement
- ND 4 – High Efficiency Dishwasher Requirement

[8] City of Rohnert Park Resolution 2011-48 adopted June 14, 2011.

- ND 5 – High Efficiency Washing Machine Requirement
- ND 6 – Hot Water on Demand Requirement
- ND 7 – High Efficiency Faucet and Showerhead Requirement
- ND 8 – Landscape and Irrigation Requirements

The "Tier 1 + New Development" program's blend of measures, targeted at both new and existing development, is particularly effective for the City because it has significant planned development potential within its service area. The 2010 UWMP estimates that with full implementation of the "Tier 1 + New Development" program, the 2015 and 2020 water use will be 102 gpcd, which is significantly below the City's adopted targets of 140 and 129 gpcd, respectively. This indicates that City could expect to meet its targets even if it did not fully implement all aspects of the "Tier 1 + New Development" program.

Accounting for Conservation in the Capacity Charge Program

The City has not adopted a "new development ordinance", which would specifically impose all the New Development measures modeled in the Maddaus Report on developers. Within its 2010 UWMP, the City indicated that its plan for implementing the New Development measures is based on its use of the Cal Green Building Code. The City has adopted the Cal Green Building Code and it became effective January 1, 2011.[9] There is significant overlap between the New Development measures modeled in the Maddaus Report and the Cal Green Code. This overlap is presented in Table 21, which illustrates that the City will be able to achieve New Development Measures 2, 3 ,7, and 8 through Cal Green but it may need additional authority to impose New Development Measure 1, 4 ,5 and 6. In order to appropriately account for the conservation savings that are likely to be experienced given the City's existing authority, water conservation savings for new development are projected based on the implementation of New Development Measures 2, 3, 7 and 8.

Table 21 – New Development Conservation Measures and Cal Green References

ND Measure	Cal Green Requirement*	Cal Green Checklist Source
ND 1 Irrigation Rain Sensor Requirement	No	
ND 2 Smart Irrigation Controller Requirement	Yes	4.304.1, 5.304.3
ND 3 High Efficiency Toilet Requirement	Yes	4.303.1, 4.303.3, 5.303.2, 5.303.3
ND 4 High Efficiency Dishwasher Requirement	No	
ND 5 High Efficiency Washing Machine Requirement	No	
ND 6 Hot Water on Demand Requirement	No	
ND 7 High Efficiency Faucet & Showerhead Requirement	Yes	4.303.1, A4.303.1,5.303.2, 5.303.6
ND 8 Landscape & Irrigation Requirements	Yes	4.304.1, A4.303.1, 5.303.1
* These measures are mandatory per the City's Cal Green checklists.		

The Maddaus Report indicates that the expected water conservation savings from ND 2 Smart Irrigation Controllers is 15% and the expected water conservation savings from ND 8 Landscape and Irrigation Requirements is 10% bringing total outdoor savings to 25%. The efficacy of water conservation savings from ND 3 High Efficiency Toilets and ND 7 High

[9] 2010 UWMP Section 3.4

Efficiency Faucets and Showerheads can be estimated using the methodology outlined in the Cal Green Code, which is presented in Table 22.

Table 22 – Estimated Water Conservation Savings from New Development Measures 3 and 7

Baseline Water Use (Cal Green Worksheet WS-1)							
	Base Use Rate*	Units	Duration	Units	Daily Uses	Occupancy**	Total Use (gpd)
SFR Indoor Use							
Toilet	1.6	gallons/flush	1	flushes	3	3.06	14.7
Shower	2.5	gallons/minute	8	minutes	1	3.06	61.2
Bathroom Sink	2.2	gallons/minute	0.25	minutes	3	3.06	5.0
Kitchen Sink	2.2	gallons/minute	4	minutes	1	3.06	26.9
Total Targeted SFR Indoor Uses							**107.8**
MFR Indoor Use							
Toilet	1.6	gallons/flush	1	flushes	3	2.04	9.8
Shower	2.5	gallons/minute	8	minutes	1	2.04	40.8
Bathroom Sink	2.2	gallons/minute	0.25	minutes	3	2.04	3.4
Kitchen Sink	2.2	gallons/minute	4	minutes	1	2.04	18.0
Total Targeted MFR Indoor Uses							**72.0**
Reduced Water Use (Cal Green Worksheet WS-2)							
	Efficiency Rate***	Units	Duration	Units	Daily Uses	Occupancy*	Total Use (gpd)
SFR Indoor Use							
Toilet	1.28	gallons/flush	1	flushes	3	3.06	11.8
Shower	2.0	gallons/minute	8	minutes	1	3.06	49.0
Bathroom Sink	1.5	gallons/minute	0.25	minutes	3	3.06	3.4
Kitchen Sink	1.5	gallons/minute	4	minutes	1	3.06	18.4
Total Targeted SFR Indoor Uses							**82.6**
MFR Indoor Use							
Toilet	1.28	gallons/flush	1	flushes	3	2.04	7.8
Shower	2.0	gallons/minute	8	minutes	1	2.04	32.6
Bathroom Sink	1.5	gallons/minute	0.25	minutes	3	2.04	2.3
Kitchen Sink	1.5	gallons/minute	4	minutes	1	2.04	12.2
Total Targeted MFR Indoor Uses							**54.9**
Total Projected Savings (Baseline - Reduced Water Use)							
	Baseline	Reduced	Total Savings				
	gpd	gpd	gpd				
SFR Indoor	107.8	82.6	25.2				
MFR Indoor	72.0	54.9	17.1				

*Indoor Base Use Rates are EPA standards set by 1992 or 2005 Act

** Cal Green requires that occupancy be counted as 2 persons for the 1st bedroom and 1 person for each additional bedroom. This initial analysis is based on City's average population for type of unit. Project specific calculations requires use of Cal Green occupancies

*** Efficiency Rate is based on USEPA Energy Star Standards

The water use factors, including conservation, are developed by applying the anticipated conservation savings to the baseline water use documented in the City's 2010 UWMP. This calculation is illustrated in Table 23.

Table 23 – Water Use Factors with Conservation

1	**UWMP Water Use Factors**					
		Total	Indoor	Outdoor		
	SFR	287.0	169.3	117.7		
	MFR	143.0	111.5	31.5		
2	**New Development Indoor Conservation Savings (Table 24)**					
	SFR	25.2	25.2	0.0		
	MFR	17.1	17.1	0.0		
3	**New Development Outdoor Conservation Savings (Maddaus)**					
	SFR	29.4	0.0	29.4		
	MFR	7.9	0.0	7.9		
4	**New Development Water Use Factors (1 - (2+3))**					
	SFR	232.4	144.1	88.3		
	MFR	118.0	94.4	23.6		

This calculation illustrates that with the application of the new development conservation measures, new residential development can be expected to produce demands ranging from approximately 118 to 234 gallons per day which is similar to the range of performance specifically articulated in Sonoma Mountain Village's Water Plan and indicates that a single water use factor is appropriate for the capacity charge program.

Irrigation Accounts

The City requires separate irrigation meters on large irrigation accounts. These irrigation accounts are in addition to residential and commercial, industrial and institutional (CII) accounts, and typically serve parks, schools and landscaped common spaces. While the irrigation accounts contribute to the overall water demand, including water demand in new developments, the irrigated areas typically serve to meet conditions of development and would not exist in the absence of new residential and non-residential development.

Because new irrigated areas, and the attendant new water demand, exist to support the new residential and non-residential development, not as an independent development feature, these accounts are not assigned demand factors for the purpose of calculating capacity charges.

Accounting for Water Recycling

As described above, the City hosts an urban recycled water system that was installed in the 1990s. Recycled water is used for irrigation of large non-residential landscapes including parks

and school grounds, various commercial and industrial sites, and the Foxtail Golf Course. Recycled water use offsets historic demands on the City's potable water system. Both the Stadium Lands PD and the Sonoma Mountain Village PD are connected to the recycled water system.

Within its 2005 and 2010 UWMPs, the City anticipated that an additional 300 acre-feet per year of recycled water could be used for urban irrigation, primarily for new landscaping, parks and common areas. As described above, this type of use is supportive of new development and no special demand factor or "credit" is assigned when recycled water is used to replace potable water in an irrigation account.

Development of the expanded recycled water supply requires significant coordination with the Santa Rosa Subregional System, which produces the recycled water, and a significant capital expenditure. The timing of this expansion project is not certain. As a result potable water may be used for some period of time to service new irrigation accounts, which is another reason that a special "credit" is not given for expanded recycled water system.

Water Demand Factors for the Capacity Charge Program

The water demand factors for the capacity charge program are calculated as follows.

1. Water Demand factors are established based on the 2010 UWMP with adjustments made for planned conservation. Residential conservation has been calculated based on the implementation of planned conservation measures. Nonresidential conservation is estimated to result in a 20% savings from the base demand because of the requirements of the Water Conservation Act of 2009. These factors are presented in Table 24.

Table 24 - Water Demand Factors

Land Use Category	Unit	Base Demand	Demand with Conservation Savings	Source of Conservation Savings
		(gpd)	(gpd)	
Single Family Residential	EA	287.0	232.4	2010 UWMP with New Development Conservation Measures
Multi-Family Residential	EA	143.0	118.0	2010 UWMP with New Development Conservation Measures
Nonresidential Use	Employee	28.0	22.4	2010 UWMP with assumed 20% savings

2. Because non-residential demands are calculated on a per employee basis, the new employees projected in the General Plan are allocated to each SPA, PD and Infill Development based on the total new non-residential square footage associated with each. This calculation is illustrated in Table 25.

   As a matter of comparison, the 2011 PFFP predicts a total of 27,308 new employees (based on a ratio of approximately 3 employees per 1,000 square feet). The water

capacity charges will be based on 25,831 new employees. This reduction is a result of the reduced land uses in the Northwest SPA.

Table 25 - Nonresidential Land Uses – Employee Allocations

	Nonresidential Land Uses Square Footage			Employees Associated with New Development		
	2011 Base[1]	Planned Buildout [2]	New Development	2011 Base	Planned Buildout	New Development
Citywide Totals	6,806,303	8,267,468	1,461,165	21,900	25,831	3,931
NE SPA	-	-	-			
UD SPA	-	175,000	175,000			259
SE SPA	-	10,000	10,000			15
WD SPA		302,114	302,114			446
NW SPA	-	789,300	789,300			1,166
Stadium Lands	-	140,000	140,000			207
Sonoma Mountain Village [3]	700,000	175,244	175,244			259
Central Rohnert Park PDA	-	764,473	764,473			1,130
Subtotal SPAs and PDs	700,000	2,356,131	2,356,131			3,482
Other Infill [4]	-	303,874	303,874			449
Totals		**2,660,005**	**2,660,005**			**3,931**

Notes:

1. From PFF 2011 Land Use Classes. This "2011 Base" Square Footage of Nonresidential Land Uses is used with the "2011 Base" number of Employees Associated with New Development to extrapolate employee ratio to non-residential new development.

2. From Table 15 - Water Capacity Charge Land Use. Includes adjustments to NW SPA and SMV PD due to land use conversions as described in this report.

3. 2011 Base includes the 700,000 square feet that exist in the Sonoma Mountain Village PD

4. Includes infill outside of the Stadium Lands PD, Sonoma Mountain Village PD, and Central Rohnert Park PDA.

3. Because cost allocations will be based on demand, which is indicative of infrastructure impacts, the water demand factors presented in Table 24 are applied to new and existing land uses. This is illustrated in Table 26. Table 27 provides additional breakdown for each SPA and PD.

Table 26 – Water Demand Factors for New and Existing Development

	Units			Capacity Factors (gpd)		Water Use Factor		Percent Share	
Land Use Class	Existing	Planned Buildout	New Development	Existing	New	Existing	New	Existing	New
Residential									
Single Family Residential (units)	7,719	10,343	2,624	287.0	232.4	2,215,353	609,772	43%	12%
Multi-Family Residential (units)	8,594	11,483	2,889	143.0	118.0	1,228,942	341,003	24%	7%
Senior Housing (units)	207	209	2	143.0	118.0	29,601	236	1%	0%
Assisted Living (units)	0	135	135	143.0	118.0	-	15,935	0%	0%
Non-Residential Employees	21,900	25,831	3,931	28.0	22.4	613,200	88,054	12%	2%
Totals						4,087,096	1,055,000	79%	21%

Table 27 – Water Demand Factors by SPA and PD

Land Use Class	Demand Factor	NE SPA		UD SPA		SE SPA		WD SPA		NW SPA		Stadium Lands		SMV		Central Rohnert Park	
		Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor
Single Family Residential (Units)	232.4	920	213,792	883	205,194	394	91,559	-	-	-	-	-	-	378	87,841	-	-
Multi Family Residential (Units)*	118.0	200	23,607	762	89,943	81	9,561	-	-	398	46,978	338	39,896	275	32,460	835	98,559
Nonresidential (Employees)	22.4	-	-	259	5,802	15	336	446	9,990	1,166	26,118	207	4,637	259	5,802	1,130	25,312
Total			**237,399**		**300,938**		**101,456**		**9,990**		**73,096**		**44,533**		**126,102**		**123,871**

2.4 Fee Component Calculations

The cost of water system improvements in the capacity charge program is approximately $110 million excluding the unfunded portion of the proposed Dry Creek Pipeline Project in the Agency's Capital Projects Plan. This section describes the fee component calculation for the various capital projects, in the Program. These calculations have been performed for each component because the land uses that benefit vary by component.

Groundwater Supply

The groundwater supply component consists of buy-in to the existing network that benefits all City customers. This water supply source provides an important element of reliability for both existing and future customers. Table 28 presents the calculation of the groundwater charge component.

Table 28 – Water Capacity Charge Component for Groundwater Supply

									Total Cost			$26,236,593
									New Development Share			$ 5,382,942
									Cost per gpd			$ 5.10
	Units			Capacity Factors (gpd)		Water Use Factor		Percent Share		Cost Share		Cost per Land Use Unit*
Land Use Class	Existing	Planned Buildout	New Development	Existing	New	Existing	New	Existing	New	Existing	New	New
Residential												
Single Family Residential (units)	7,719	10,343	2,624	287.0	232.4	2,215,353	609,772	43%	12%	$11,303,428	$3,111,247	$ 1,185.69
Multi-Family Residential (units)	8,594	11,483	2,889	143.0	118.0	1,228,942	341,003	24%	7%	$ 6,270,449	$1,739,905	$ 602.25
Senior Housing (units)	207	209	2	143.0	118.0	29,601	236	1%	0%	$ 151,034	$ 1,205	$ 602.25
Assisted Living (units)	0	135	135	143.0	118.0	-	15,935	0%	0%	$ -	$ 81,304	$ 602.25
Non-Residential Employees	21,900	25,831	3,931	28.0	22.4	613,200	88,054	12%	2%	$ 3,128,739	$ 449,281	$ 5.10
Totals						4,087,096	1,055,000	79%	21%	$20,853,650	$5,382,942	

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Sonoma County Water Agency Supply

The Agency supply component consists of the City's share of improvements to the water supply, common water transmission and pipeline and storage systems as described in the Agency's Capital Projects Plan. This water supply source provides an important element of reliability for both existing and future customers. There are two steps to calculating the charge component associated with the Agency supply. The first step is to calculate the City's share of the planned capital costs based on its share of the Agency's average annual deliveries, using the information presented in Table 16. Table 29 illustrates the application of the City's share to each element of the Agency's program.

Table 29 – City Share of Agency Capital Projects Plan

Project Name	Benefits	Supply	Transmission System (Funded)		Total	City Percent Share	City Cost Share
		Funded	Common Facilities	Storage & Pipeline		From Table 18	
Water Supply Projects							
Dry Creek Habitat Enhancement Mile 1	**All**	$ 8,650,000			**$ 8,650,000**	8.57%	$ 741,305
Wallace Creek Fish Passage	**All**	$ 304,000			**$ 304,000**	8.57%	$ 26,053
Dry Creek Habitat Enhancement Miles 2 &3	**All**	$ 15,400,000			**$ 15,400,000**	8.57%	$ 1,319,780
Dry Creek Bypass Pipeline	**All**	$ 250,000			**$ 250,000**	8.57%	$ 21,425
Subtotal Funded Water Supply Projects		**$ 24,604,000**					**$ 2,108,563**
Common Transmission System Projects							
Air Valves Replacement and Upgrade	**All**		$ 1,000,000		**$ 1,000,000**	8.57%	$ 85,700
Liquefaction Mitigation	**All**		$ 6,401,000		**$ 6,401,000**	8.57%	$ 548,566
Collector 6 Chlorine Solution Lines	**All**		$ 500,000		**$ 500,000**	8.57%	$ 42,850
Collector 6 Liquefaction Mitigation	**All**		$ 3,000,000		**$ 3,000,000**	8.57%	$ 257,100
Forestville Storage Tank	**All**		$ 800,000		**$ 800,000**	8.57%	$ 68,560
Multi-purpose Facility at Westside Road & Wohler Bridge	**All**		$ 1,200,000		**$ 1,200,000**	8.57%	$ 102,840
Rupture Protection	**All**		$ 2,619,000		**$ 2,619,000**	8.57%	$ 224,448
Fish Screen Replacement	**All**		$ 7,154,000		**$ 7,154,000**	8.57%	$ 613,098
Surge Control System at the Mirabel Production Facilities	**All**		$ 3,000,000		**$ 3,000,000**	8.57%	$ 257,100
RDS Liquefaction Mitigation	**All**		$ 5,000,000		**$ 5,000,000**	8.57%	$ 428,500
Seismic Hazard Mitigation at the Mark West Creek Crossing	**All**		$ 4,046,000		**$ 4,046,000**	8.57%	$ 346,742
Seismic Hazard Mitigation at the Russian River Crossing	**All**		$ 4,007,000		**$ 4,007,000**	8.57%	$ 343,400
System wide Meter Replacements	**All**		$ 1,250,000		**$ 1,250,000**	8.57%	$ 107,125
Subtotal Common Transmission System Projects			**$ 39,977,000**				**$ 3,426,029**
Storage & Pipeline Projects							
Petaluma Aqueduct Cathodic Protection	**Petaluma Aqueduct & Russian River-Cotati Intertie**			$ 1,200,000	**$ 1,200,000**	16.56%	$ 198,720
Russian River Cotati Intertie Cathodic Protection	**Petaluma Aqueduct & Russian River-Cotati Intertie**			$ 1,200,000	**$ 1,200,000**	16.56%	$ 198,720
Subtotal Storage and Pipeline Projects				**$ 2,400,000**			**$ 397,440**
Totals		**$ 24,604,000**	**$ 39,977,000**	**$ 2,400,000**	**$ 66,981,000**		**$ 5,932,032**
Unfunded Agency Projects are not included in the Capacity Charge Program							

The second step is to allocate the City's share of the Agency supply costs over new and existing development. This calculation is illustrated in Tables 30 through 32 which develop the cost allocation for each of the three subcomponents of the Agency's proposed supply improvements.

Table 30 – Water Capacity Charge Component for Agency's Funded Water System Improvements

									Total Cost			$ 2,108,563
									New Development Share			$ 432,612
									Cost per gpd			$ 0.41
	Units			Capacity Factors (gpd)		Water Use Factor		Percent Share		Cost Share		Cost per Land Use Unit*
Land Use Class	Existing	Planned Buildout	New Development	Existing	New	Existing	New	Existing	New	Existing	New	New
Residential												
Single Family Residential (units)	7,719	10,343	2,624	287.0	232.4	2,215,353	609,772	43%	12%	$ 908,425	$ 250,042	$ 95.29
Multi-Family Residential (units)	8,594	11,483	2,889	143.0	118.0	1,228,942	341,003	24%	7%	$ 503,939	$ 139,831	$ 48.40
Senior Housing (units)	207	209	2	143.0	118.0	29,601	236	1%	0%	$ 12,138	$ 97	$ 48.40
Assisted Living (units)	0	135	135	143.0	118.0	-	15,935	0%	0%	$ -	$ 6,534	$ 48.40
Non-Residential Employees	21,900	25,831	3,931	28.0	22.4	613,200	88,054	12%	2%	$ 251,448	$ 36,108	$ 0.41
Totals						4,087,096	1,055,000	79%	21%	$ 1,675,951	$ 432,612	

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

Table 31 – Water Capacity Charge Component for Agency's Common Transmission System Improvements

Total Cost	$ 3,426,029
New Development Share	$ 702,916
Cost per gpd	$ 0.67

	Units			Capacity Factors (gpd)		Water Use Factor		Percent Share		Cost Share		Cost per Land Use Unit*
Land Use Class	Existing	Planned Buildout	New Development	Existing	New	Existing	New	Existing	New	Existing	New	New
Residential												
Single Family Residential (units)	7,719	10,343	2,624	287.0	232.4	2,215,353	609,772	43%	12%	$ 1,476,025	$ 406,273	$ 154.83
Multi-Family Residential (units)	8,594	11,483	2,889	143.0	118.0	1,228,942	341,003	24%	7%	$ 818,808	$ 227,200	$ 78.64
Senior Housing (units)	207	209	2	143.0	118.0	29,601	236	1%	0%	$ 19,722	$ 157	$ 78.64
Assisted Living (units)	0	135	135	143.0	118.0	-	15,935	0%	0%	$ -	$ 10,617	$ 78.64
Non-Residential Employees	21,900	25,831	3,931	28.0	22.4	613,200	88,054	12%	2%	$ 408,557	$ 58,668	$ 0.67
Totals						4,087,096	1,055,000	79%	21%	$ 2,723,113	$ 702,916	

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons.

Table 32 – Water Capacity Charge Component for Agency's Pipeline and Storage Improvements

Total Cost	$ 397,440
New Development Share	$ 81,542
Cost per gpd	$ 0.08

	Units			Capacity Factors (gpd)		Water Use Factor		Percent Share		Cost Share		Cost per Land Use Unit*
Land Use Class	Existing	Planned Buildout	New Development	Existing	New	Existing	New	Existing	New	Existing	New	New
Residential												
Single Family Residential (units)	7,719	10,343	2,624	287.0	232.4	2,215,353	609,772	43%	12%	$ 171,228	$ 47,130	$ 17.96
Multi-Family Residential (units)	8,594	11,483	2,889	143.0	118.0	1,228,942	341,003	24%	7%	$ 94,987	$ 26,357	$ 9.12
Senior Housing (units)	207	209	2	143.0	118.0	29,601	236	1%	0%	$ 2,288	$ 18	$ 9.12
Assisted Living (units)	0	135	135	143.0	118.0	-	15,935	0%	0%	$ -	$ 1,232	$ 9.12
Non-Residential Employees	21,900	25,831	3,931	28.0	22.4	613,200	88,054	12%	2%	$ 47,395	$ 6,806	$ 0.08
Totals						4,087,096	1,055,000	79%	21%	$ 315,898	$ 81,542	

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons.

Distribution System Improvements

The distribution system improvements include five new storage tanks that will serve the various new developments. These are discrete improvements that only benefit new development and the costs are properly apportioned each SPA or PD. Table 33 illustrates this allocation.

Table 33 – Water Capacity Charge Component for Storage Tanks

			Northeast Tank				$ 2,240,000				Northwest Tank				$2,270,000
			University District Tank				$ 4,994,000				Stadium Lands Tank				$ -
			Southeast Tank				$ 1,997,000				Sonoma Mountain Village Tank				$2,840,000
			Wilfred Dowdell Tank				$ -								
Land Use Class	Demand Factor	NE SPA		UD SPA		SE SPA		WD SPA		NW SPA		Stadium Lands		SMV	
		Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor	Units	Total Demand Factor
Single Family Residential (Units)	232	920	213,792	883	205,194	394	91,559	-	-	-	-	-	-	378	87,841
Multi Family Residential (Units)*	118	200	23,607	762	89,943	81	9,561	-	-	398	46,978	338	39,896	275	32,460
Nonresidential (Employees)	22	-	-	259	5,802	15	336	446	9,990	1,166	26,118	207	4,637	259	5,802
Totals			237,399		300,938		101,456		9,990		73,096		44,533		126,102
Tank Component by Land Use Class															
Single Family Residential (Units)			$ 2,192.67		$ 3,856.34		$4,574.10								$ 5,233.60
Multi Family Residential (Units)*			$ 1,113.73		$ 1,958.76		$2,323.34				$3,665.57		$ -		$ 2,658.32
Nonresidential gallon			$ 9.44		$ 16.59		$ 19.68		$ -		$ 31.05		$ -		$ 22.52

2.5 Summary

Table 34 summarizes the allocated capacity charges for each of the components in the capacity charge program.

Table 34 – Summary of Water Capacity Charge Components

		Agency Charge Components			Tank Charge Components						
Land Use Class	Groundwater Charge Component	Funded Water Supply	Common Transmission System	Pipelines & Storage	NE SPA	UD SPA	SE SPA	WD SPA	NW SPA	Stadium Lands	SMV
Residential											
Single Family Residential (units)	$ 1,185.69	$ 95.29	$ 154.83	$ 17.96	$ 2,192.67	$3,856.34	$4,574.10	$ -	$ -	$ -	$5,233.60
Multi-Family Residential (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,113.73	$1,958.76	$2,323.34	$ -	$3,665.57	$ -	$2,658.32
Senior Housing (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,113.73	$1,958.76	$2,323.34	$ -	$3,665.57	$ -	$2,658.32
Assisted Living (units)	$ 602.25	$ 48.40	$ 78.64	$ 9.12	$ 1,113.73	$1,958.76	$2,323.34	$ -	$3,665.57	$ -	$2,658.32
Non-Residential (gpd)	$ 5.10	$ 0.41	$ 0.67	$ 0.08	$ 9.44	$ 16.59	$ 19.68	$ -	$ 31.05	$ -	$ 22.52

* For Residential Land Uses the cost per unit is based on an SFR or MFR. For Nonresidential Land Uses the cost per unit is based on gallons

2.6 Administrative Allowance

The City actively administers the capacity charge program. Administrative activities include:

- Annual accounting and reporting as required by Act
- Updating participating land uses based on development plans
- Updating program costs based on capital plans and construction activities
- Updating water use factors
- Updating the Water Capacity Charge Analysis and establishing new charges to reflect changes in costs, land use and or water use.

Active administration of the program provides a benefit to new development by ensuring that the charges are consistent, predictable, equitable and based on current understanding of costs and land uses. Because administrative activity can vary from time to time, the City uses an administrative allowance in order to budget for these activities. The City's allowance of 3% is based on the 2005 AACE International Transactions[10]. These transactions document that the "Program Management" costs for a wide range of water and wastewater programs, undertaken over the 30 year period from 1973 to 2002, ran from a low of 1.5% to a high 9.7% with a historical average of 3.2%.[11] The City's allowance is slightly lower than the documented historical range for this type of cost.

[10] AACE is the Association for the Advancement of Cost Engineering

[11] "Controlling Non-Construction Costs", Tables 2 and 3. Peter R. Bredeheoft Jr. 2005 AACE International Transactions.

2.7 Government Code Section 66013 Findings for Water System Improvements

While the Water Capacity Charges are not subject to the same nexus requirements as other Mitigation Fees, Government Code Section 66013 (GC 66013) outlines several standards that must be met in order for fees to be established. This section summarizes how the City's proposed Water Capacity Charges meet these standards.

Definition of Benefit

GC 66013 specifically requires that "charges… benefit…the person or property being charged". The projects included in this proposed program benefit developing properties because the City will not have adequate, reliable capacity to service new development without investments in its water system.

Water supply sufficiency benefits new development because the California Environmental Quality Act (CEQA) requires that new development document the availability of water supplies. This CEQA requirement has its basis in both legislative mandate (Water Code Section 10910 et. seq.) and case law (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova*). For new development, a defined program to provide sufficient water supply, which includes a clear Capital Improvement Program and funding strategy greatly facilitates both CEQA compliance and project implementation.

Water supply reliability benefits new development because findings of supply sufficiency must include an analysis of the ability to manage dry water years and must include a water shortage contingency plan (Water Code Section 10910 et. seq.). A diverse water supply portfolio provides enhanced reliability because the City is not dependent upon a single source or water supplier to meet all needs.

Adequate storage system capacity benefits new development because distribution and storage capacity is necessary to deliver the water supply to the development and to provide for fire safety.

Facilities that Provide Benefit

The City will achieve a reliable, sufficient water supply through investments in groundwater supply, Agency supply and distribution improvements. The specific facilities providing benefit are described below.

- The City's network of groundwater wells provides up to 2,577 acre-feet annually of water supply that is available to new and existing development. The City's 2004 Citywide WSA and 2005 and 2010 UWMPs illustrate how the available groundwater supply is used in a conjunctively managed fashion to provide capacity for existing users and planned growth. These facilities have largely been constructed and new development will "buy-in" to the groundwater system that provides benefit.

- The Agency's water supply system provides up to 7,500 acre-feet annual of water supply that is available to new and existing development. The City's 2004 Citywide WSA and 2005 and 2010 UWMPs illustrate how the City uses its contracted supply from the Agency to provide reliable water service, while maintaining sustainable pumping of the groundwater basin. The Agency's Capital Projects Plan describes improvements to its water supply system, its common transmission system and its distribution and storage system that are necessary to allow it to comply with environmental regulations and deliver its contracted supply volumes. New development will pay a portion of the City's share of the Agency's Capital Project costs, based on the demands created by new development.
- The new water storage tanks provide benefits to each SPA or PD which include emergency and fire supply and compliance with regulations. Each SPA or PD will fund the cost of the discrete storage improvements required to serve the development.

Cost of the Facilities that Provide Benefit

GC 66013 specifically limits capacity charges to "the estimated reasonable cost of providing the service for which the…charge is imposed". The cost estimates included in this Capacity Charge Analysis are supported by the City's valuation of its groundwater network, the Agency's Capital Projects Plan and the requirements of development specific EIRs.

In each case, improvement costs have been allocated based on water use projections. When the facilities benefit existing users, this share has been calculated and removed from the costs allocated to new development.

This Analysis includes adjustments to avoid duplication with the City's Public Facilities Fee Program. Specifically, recycled water improvements and in-city water distribution system improvements, which have been included in the 2011 PFFP, are not included in this Analysis.

Appendix A

Water Tank Cost Estimate Backup

Northeast Specific Plan

Tank Size (gal) 630,000

Project Description, Notes 0.4-acre site; 13 ft above grade; 8 ft below grade; 80-ft diameter

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL ITEM COST *	20% 25%	CONTINGENCY MANAGEMENT	TOTAL COST
Surface Costs:								
1	Mobilization	10	%	$ 1,410,000	$ 141,000	$	63,000	$ 200,000
2	Sitew ork	1	LS	$ 227,000	$ 267,900	$	121,000	$ 390,000
3	Water Storage Tank	1	EA	$ 476,000	$ 561,700	$	253,000	$ 810,000
4	Pump Station	1	EA	$ 270,999	$ 319,800	$	144,000	$ 460,000
5	Electrical / I&C	1	LS	$ 221,000	$ 260,800	$	117,000	$ 380,000
							Total Costs	**$ 2,240,000**

* The cost of Contractor's Bonds, Insurance, Overhead, and Profit (18%) is included in items 2-5

Cost per gallon (construction) $ 2.46

Cost per gallon (complete) $ 3.56

Northwest Preliminary Specific Plan

Tank Size (gal) 640,000

Project Description, Notes

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL ITEM COST *	20% 25%	CONTINGENCY MANAGEMENT	TOTAL COST
Surface Costs:								
1	Mobilization	10	%	$ 1,424,000	$ 142,400	$	64,000	$ 210,000
2	Sitew ork	1	LS	$ 231,000	$ 272,600	$	123,000	$ 400,000
3	Water Storage Tank	1	EA	$ 480,000	$ 566,400	$	255,000	$ 820,000
4	Pump Station	1	EA	$ 270,999	$ 319,800	$	144,000	$ 460,000
5	Electrical / I&C	1	LS	$ 225,000	$ 265,500	$	119,000	$ 380,000
							Total Costs	**$ 2,270,000**

* The cost of Contractor's Bonds, Insurance, Overhead, and Profit (18%) is included in items 2-5

Cost per gallon (construction) $ 2.45

Cost per gallon (complete) $ 3.55

University District Specific Plan

Tank Size (gal) 833,000

Project Description, Notes

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL ITEM COST *	10% 25%	CONTINGENCY MANAGEMENT	TOTAL COST
Surface Costs:								
1	Mobilization	1	LS	$ 95,000	$ 95,000	$	33,000	$ 128,000
2	Sitew ork	1	LS	$ 1,850,000	$ 1,850,000	$	648,000	$ 2,498,000
3	Water Storage Tank	1	EA	$ 1,484,000	$ 1,484,000	$	519,000	$ 2,003,000
4	Pump Station	0	EA	$ -	$ -	$	-	$ -
5	Electrical / I&C	1	LS	$ 270,000	$ 270,000	$	95,000	$ 365,000
							Total Costs	**$ 4,994,000**

* Follow s bond estimate prepared by McKay & Somps- 08/2015 w ith adjustments for inflation

Cost per gallon (construction) $ 4.44

Cost per gallon (complete) $ 6.00

Southeast Specific Plan

Tank Size (gal) 360,000

Project Description, Notes

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL ITEM COST *	5% 0%	CONTINGENCY MANAGEMENT	TOTAL COST
Surface Costs:								
1	Mobilization	1	LS	$ 30,000	$ 30,000	$	2,000	$ 32,000
2	Sitew ork	1	LS	$ 358,000	$ 358,000	$	18,000	$ 376,000
3	Water Storage Tank	1	EA	$ 810,000	$ 810,000	$	41,000	$ 851,000
4	Pump Station	1	EA	$ 390,000	$ 390,000	$	20,000	$ 410,000
5	Electrical / I&C	1	LS	$ 312,000	$ 312,000	$	16,000	$ 328,000
							Total Costs	**$ 1,997,000**

* Follow s Bond Estimate Prepared by Civil Design Consultants - 05/10/2016

Cost per gallon (construction) $ 5.28

Cost per gallon (complete) $ 5.55

Sonoma Mountain Village Planned Development

Tank Size (gal) 970,000

Project Description, Notes Tank shall be a welded steel tank conforming to AWWA D100-05 WELDED CARBON STEEL TANKS FOR WATER STORAGE. Tank shall be entirely above ground.

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL ITEM COST *	20% 25%	CONTINGENCY MANAGEMENT	TOTAL COST
Surface Costs:								
1	Mobilization	10	%	$ 1,784,000	$ 178,400	$	80,000	$ 260,000
2	Sitework	1	LS	$ 350,000	$ 413,000	$	186,000	$ 600,000
3	Water Storage Tank	1	EA	$ 550,000	$ 649,000	$	292,000	$ 940,000
4	Pump Station	1	EA	$ 270,999	$ 319,800	$	144,000	$ 460,000
5	Electrical / I&C	1	LS	$ 341,000	$ 402,400	$	181,000	$ 580,000
							Total Costs	**$ 2,840,000**

* The cost of Contractor's Bonds, Insurance, Overhead, and Profit (18%) is included in items 2-5

Cost per gallon (construction) $ 2.02

Cost per gallon (complete) $ 2.93