

CITY OF GRASS VALLEY

WATER & SEWER CAPACITY CHARGE UPDATE

SEPTEMBER 2007

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September 28, 2007

City of Grass Valley
125 East Main Street
Grass Valley, CA 95945

Attn: Tim Kiser, City Engineer

Re: Water & Sewer Capacity Charge Update

Bartle Wells Associates is pleased to submit the attached *Water & Sewer Capacity Charge Update*. The report develops new water and sewer capacity charges that are designed to equitably recover the full cost of infrastructure and assets benefiting new connections to City's water and wastewater systems. The updated charges are designed to meet all legal requirements and be fair to both existing and future customers.

Based on the proposed capacity charges, a typical new single family home served by the City's water and sewer systems would pay the following fees:

- Water capacity charge: \$8,101
- Sewer capacity charge: \$8,579

Customers served by larger meter sizes would pay higher capacity charges based on meter capacity.

In future years, the City can adjust its water and sewer capacity charges by the change in the Engineering News-Record Construction Cost Index (20-Cities Average) to keep the charges aligned with construction cost inflation.

I enjoyed working with the City on this assignment and appreciate the input, cooperation and assistance received from City staff throughout the project.

Very truly yours,

BARTLE WELLS ASSOCIATES

Alex T. Handlers, CIPFA
Vice-President

CITY OF GRASS VALLEY CAPACITY CHARGE UPDATE

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INTRODUCTION

Background

The City of Grass Valley was incorporated as a Charter City in March 1893. The City is located approximately 60 miles northeast of Sacramento in Nevada County and has a population of approximately 13,000. The City provides water service to approximately half of the City (the other half is served by Nevada Irrigation District) and sewer service to the entire City.

In June 2007, Bartle Wells Associates was retained to update the City's water and sewer capacity charges. The objective of our analysis was to develop new capacity charges that equitably recover the full costs of infrastructure and assets benefiting new connections to the City's water and wastewater systems. This report summarizes our findings and recommendations and details the methodology used to calculate the updated charges. The recommendations presented in this report are designed to meet all legal requirements and be fair to both existing and future customers.

Water and sewer capacity charges are one-time fees levied to recover the costs of facilities and assets needed to provide utility service to new connections to the City's water and wastewater systems. These charges are typically collected as a condition of development, but may also be recovered for an expansion of service to an existing connection, such as when an existing customer requests a larger water meter.

Capacity charges are referred to by many names including water and sewer impact fees, connection fees, or facilities fees. This report refers to these fees as capacity charges, in line with terminology from Government Code.

Government Code

Water and sewer capacity charges are governed by California Government Code Section 66013 et. seq. The Code states that capacity charges "*shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed*" unless approved by a two-thirds vote of the electorate. The Code also states that a capacity charge can include costs for facilities in existence at the time a charge is imposed or charges for new facilities to be constructed in the future that will provide benefit to the person or property being charged. The Code does not specify any particular method for determining an appropriate charge.

The Code also details a number of accounting and reporting regulations regarding capacity charges. Notably, the City must deposit capacity charge revenues in a separate fund, avoid commingling these revenues with other City funds, and expend the funds solely for the purposes for which the charges were collected. The Code also specifies procedures for adopting or increasing a capacity charge.

The City is responsible for maintaining accounting and reporting practices consistent with the requirements of Government Code 66013 and for meeting the Code's procedural requirements when updating its capacity charges.

Current Water & Sewer Capacity Charges

The City levies capacity charges on new water and sewer connections and on upsizings of existing connections. These charges are designed to recover the costs of infrastructure and assets needed, now or in the future, to provide water service to new connections.

The City's water and sewer capacity charges were last updated in 2005 and have since been adjusted by the change in the Engineering News-Record Construction Cost Index (20-Cities Average) to keep the charges in line with construction cost inflation. The most recent fee update was based on the City's prior engineering master plans and capital improvement programs, which have since been updated. Additionally, the prior capacity charge update used a conservative fee methodology that resulted in a decrease to the City's wastewater capacity charge.

The City's current capacity charges vary by customer type and meter size. The charges for larger meters are proportionally higher based on the increased demand of larger meters. In addition to the *capacity charge* for system infrastructure, the City also levies a separate *connection charge* on new development to recover the costs of installing a water meter and making the physical connection to the water and/or sewer systems.

Purpose of Capacity Charges

The purpose of the City's updated capacity charge is to recover costs for capital assets, including existing or future facilities, that provide benefit to new connections to the City's water and sewer systems. The City may use capacity charge revenues to:

- Fund facilities and other capital assets such as land, vehicles, and equipment that provide benefit to new water and sewer connections. This can include funding new facilities required to serve new

connections, or reimbursing the City in current dollars for a proportionate share of costs for existing facilities that provide benefit to future connections. The City has previously constructed a substantial amount of infrastructure that has additional capacity to serve new connections.

- Pay for a share of debt service, financing costs, or capitalized interest related to funding facilities that provide benefit to new connections. The City has a few outstanding water and sewer debt obligations and anticipates issuing additional debt in upcoming years. Capacity charge revenues can be used to fund the share of debt service attributable to providing expansion capacity for new utility connections.
- In certain cases, fund the entire cost of capital improvements necessitated by new development, even if the improvements also provide some benefit to existing connections. For example, if new development requires the upsizing of a fully functional water pipeline already serving existing customers, the entire cost for replacing the pipeline can potentially be funded by capacity charge revenues if the pipeline is being replaced solely to provide additional capacity for the new connections. The City does not anticipate funding any such improvements.
- Fund costs for capital planning, engineering, project design, project administration, construction management, legal counsel, permitting requirements, environmental compliance, and other costs required for planning and constructing capital improvements benefiting growth.
- Fund other costs not specified above for existing or future facilities and capital assets that provide benefit to new connections to the City's water and sewer systems.

The City should consult with its legal counsel regarding applicable uses of capacity charge revenues to ensure all expenditures meet the legal requirements of Government Code.

WATER CAPACITY CHARGES

Water System Capacity

The City's water system must be adequately sized to meet the peak day demands of the City's customer base. The *Infrastructure Report for the City of Grass Valley Water Treatment and Distribution System* by Sauers Engineering, Inc., dated August 2002, estimates that total peak day demand of the water system at buildout will be 2.8 million gallons per day (mgd).

Table 1-1 breaks down the total 2.8 mgd of peak day capacity between current and future customers. Based on City water use data, the peak day demand of the City's current customer base is approximately 2.27 mgd. This accounts for about 81.1% of total peak day capacity through buildout. The remaining 0.53 mgd of peak day capacity, about 18.9% of total, is available to serve growth.

Water System Fixed Assets

Table 1-2 calculates the replacement cost of the City's water system fixed assets excluding water pipelines at approximately \$14.5 million. The value of these existing assets is based on the original purchase price of each asset escalated into current dollars based on the change in the Engineering News-Record (ENR) Construction Cost Index (20-Cities Average Index) from acquisition date through June 2007. Although this is an industry-standard method of estimating the replacement cost of utility infrastructure, this approach often results in a conservative (low) estimate of true replacement cost. The ENR Construction Cost Index is a widely-used measure of construction cost inflation.

Table 1-3 calculates the replacement cost of the City's water system pipelines at about \$15.8 million. This total is based on 30 miles of water distribution pipelines, identified in the City's *Infrastructure Report for the City of Grass Valley Water Treatment and Distribution System*, and a conservative construction cost estimate of \$100 per linear foot of pipeline based on City engineering cost estimates. Actual unit costs of recent pipeline installations have been higher. Including pipelines, the replacement cost of the City's existing water system fixed assets total approximately \$30.3 million.

Water Capital Improvement Program

Table 1-4 summarizes the City's recently-updated water system capital improvement program (CIP). The City anticipates needing to fund approximately \$13.8 million (current \$) of capital improvements through 2020. Projects include repairs and replacements of existing infrastructure as well as construction of new

facilities needed to serve both existing and future customers. Some projects, such as the replacement and upsizing of existing pipelines, provide benefit to both current and future users. The capacity charges developed in this report only recover costs for the share of capital improvements that will provide benefit to growth. Costs for the share of capital improvements benefiting existing customers are not included in the updated fee calculation. Likewise, costs for renovations of existing infrastructure are excluded from the fee calculation to ensure no double counting of existing facilities and their replacement.

Table 1-4 breaks out distribution system improvements from other projects, which include treatment, storage, and general improvements. The CIP identifies approximately \$5.2 million of distribution improvements and \$8.6 million of other improvements including Alta Hill Reservoir improvements, Empire Tank rehabilitation, and an anticipated renovation of the City's water treatment plant.

Based on analysis by the City Engineer, almost \$900,000 of distribution system improvements will provide expansion capacity to serve growth through buildout. The cost of these expansion-related facilities should be recovered from future connections to the water system and are included in the updated fee calculation. The \$4.3 million of costs for distribution system improvements benefiting current customers are not included in the new capacity charge calculation.

The required treatment, storage, and general improvements to the water system identified in the CIP will proportionately benefit current and future customers based on capacity. Costs for these facilities should be recovered from new development based on the proportional share of total peak day capacity required to serve each new connection.

Water Enterprise Vehicle Needs

Table 1-5 lists the vehicle needs of the water enterprise. Only one vehicle is included in the list: a backhoe with an estimated cost of \$125,000. Since this vehicle is required for constructing projects that benefit both current and future customers, the costs of the backhoe are allocated to the full system capacity through buildout. Existing vehicles are accounted for in the City's fixed assets on Table 1-2.

Updated Water Capacity Charge Calculation

Table 1-6 calculates a new water capacity charge of \$11.04 per gallon per day (gpd) of peak day demand. The fee calculation includes two components: 1) a pro-rata buy-in to facilities and assets benefiting all

customers through buildout, and 2) a smaller expansion component for recovering costs of capital improvements benefiting new development only.

Buy-In Component for Capital Assets Benefiting All Customers Through Buildout

The buy-in component for capital assets benefiting full capacity through buildout recovers costs for both existing water system fixed assets and required capital improvements that will provide benefit to all current and future customers. These assets include the City's water treatment plant, storage tanks, water pipelines, and machinery and equipment. The fee calculation does not include the value of land or the replacement cost of contributed capital, which is subtracted from the cost of existing assets. And although the calculation does not include any grant-funded facilities from the fixed asset list on Table 1-2, the calculation conservatively subtracts out half the replacement cost of grant-funded facilities under the assumption that 50% of grant-funded facilities are pipelines already accounted for in the pipeline cost estimate.

In addition to the existing water system assets listed above, the buy-in component also recovers costs for anticipated future capital improvements and the new vehicle that will provide benefit to all customers. In order to ensure no double counting of existing facilities and their replacement, the fee calculation does not include the cost of replacements or renovations.

The total buy-in cost for capital assets that will benefit all customers through buildout is calculated by dividing the total cost of facilities benefiting full capacity by total peak day demand through buildout. This yields a buy-in fee component of \$9.35 per gpd of peak day demand.

Expansion Component for Capital Improvements Benefiting New Development Only

The expansion component is calculated by dividing the cost of water distribution system expansion projects identified on Table 1-4 by the peak day capacity available for expansion through buildout. This results in an expansion component of \$1.69 per gpd of peak day demand.

Updated Water Capacity Charges

Table 1-7 calculates an updated water capacity charge for a 3/4-inch meter or equivalent at \$8,101 by multiplying the capacity charge per unit developed in Table 1-6 by the peak day demand per 3/4-inch meter. This fee would apply to a typical new single family home. Peak day demand for 3/4-inch meter is estimated at 734 gpd based on information provided in the *Grass Valley-Nevada Irrigation District Water System Collaboration and Partnering Study, Report of Findings* dated September 2004.

The City's water system infrastructure must be adequately sized to meet the demand placed on the system by each new connection. As such, the capacity charge for each meter size should reflect the demand placed on the water system by that meter. Table 1-8 shows updated water capacity charges by meter size. Charges for larger meters are calculated based on the capacity of each meter size in relation to that of a 3/4-inch meter. For example, a 2-inch meter has approximately 5.33 times the capacity of a 3/4-inch meter and therefore should pay a capacity charge equal to 5.33 times the charge for a 3/4-inch meter. Charges for larger meters over 4 inches can be determined by the City on a case-by-case basis based on estimated demand, if ever required.

Proposed Phase-In of Updated Capacity Charges

The City is proposing to phase in the updated capacity charges through January 1, 2009 in order to mitigate the impact of the fee update. Table 1-9 shows the proposed phase-in of new water capacity charges. Under the proposed phase-in, the updated charges would be gradually increased in three semi-annual steps beginning January 1, 2008.

Regional Survey of Water Capacity Charges

Chart A compares the City's current and proposed water capacity charges for a typical new single family home with those of other regional agencies. Water capacity charges for a new home range from \$2,811 in Nevada City, which has not updated its fees in many years, to \$13,408 in Auburn (Placer County Water Agency). The City's proposed water capacity charges are expected to remain in the lower to middle range compared to the other regional agencies.

Capacity charges can vary widely from agency to agency depending on a wide range of factors such as the cost of infrastructure benefiting new development, the water capacity requirements of a new home, and the fact that some agencies, such as Nevada City, have simply not updated their fee in many years. As such, the capacity charge comparisons should be used for general informational purposes only; they do not provide any indication of the adequacy, fairness, or appropriateness of an agency's charges. Bartle Wells Associates recommends that agencies establish capacity charges based on their own financial needs and policy objectives. Also note that most of the other agencies – including Nevada Irrigation District, Nevada City, and El Dorado Irrigation District – are anticipating updating their water capacity charges this year or in the near future.

SEWER CAPACITY CHARGES

Wastewater System Flow & Capacity

The City's wastewater treatment plant, including the most recent expansion in 2001/02, is designed and permitted to handle 2.78 million gallons per day (mgd) of average dry weather flow (ADWF) of wastewater.

Table 2-1 estimates the amount of wastewater generated by the City's current customer base at approximately 1.536 mgd of ADWF based on a three-year average of metered wastewater inflow into the City's wastewater treatment plant during the drier months of June through November. This flow estimate excludes discharge from the Newmont Mine, which can add roughly 400,000 gallons of discharge into the City's sewer system during wet weather months.

Table 2-2 breaks down the total 2.78 mgd of capacity between current and future customers. Current customers use about 1.536 mgd of capacity, equivalent to 55.3% of total capacity. The remaining 1.244 mgd of capacity, about 44.7% of total, is available to serve growth.

Sewer System Fixed Assets

Table 2-3 calculates the replacement cost of the City's wastewater system fixed assets, excluding sewer collection system pipelines, at approximately \$75.9 million. The value of these existing assets is based on the original purchase price of each asset escalated into current dollars based on the change in the Engineering News-Record (ENR) Construction Cost Index (20-Cities Average Index) from acquisition date through June 2007. Although this is an industry-standard method of estimating the replacement cost of utility infrastructure, this approach often results in a conservative (low) estimate of true replacement cost. The ENR Construction Cost Index is a widely-used measure of construction cost inflation.

Table 2-4 calculates the replacement cost of the City's sewer system pipelines at approximately \$50.3 million. This total is based on about 60 miles of sewer collection system pipelines, identified in the *City of Grass Valley Sewer System Master Plan 2005-2005*, dated April 2006 by Sauers Engineering, Inc., and a conservative construction cost estimate of \$160 per linear foot of sewer pipeline based on historical pipeline installation costs. Including pipelines, the replacement cost of the City's existing wastewater system total approximately \$126 million.

Sewer Capital Improvement Program

Table 2-5 summarizes the City's recently-updated sewer system capital improvement program (CIP). The City anticipates needing to fund approximately \$34.7 million (current \$) of capital improvements through 2020. Projects include repairs and replacements of existing infrastructure as well as construction of new facilities needed to serve both existing and future customers, such as major improvements to the City's wastewater treatment plant required to meet stricter new state permit requirements.

Every five years, the State requires the City to renew its Waste Discharge Permit. With the latest renewal, the State is requiring the City to fund over \$7 million of upgrades to the wastewater treatment plant in order to meet the new, stricter discharge requirements. The City anticipates that additional capital improvements to the treatment plant will be needed to comply with future permit requirements.

Some projects, such as the replacement and upsizing of existing pipelines, provide benefit to both current and future users. The sewer capacity charges developed in this report only recover costs for the share of capital improvements that will provide benefit to growth. Costs for repairs and replacements benefiting existing customers are not included in the updated fee calculation.

Table 2-5 breaks out sewer collection system improvements from wastewater treatment plant improvements. The CIP identifies approximately \$19.6 million of collection system improvements and \$15.1 million of treatment plant improvements including anticipated capital improvements for meeting current and future permit requirements.

Based on analysis by the City Engineer, approximately \$5.1 million of collection system improvements will provide expansion capacity to serve growth through buildout. The cost of these expansion-related facilities should be recovered from future connections to the sewer system and are included in the updated fee calculation. The \$14.5 million of costs for collection system improvements benefiting current customers are not included in the new capacity charge calculation.

The capital improvements to the City's wastewater treatment facilities identified in the CIP will proportionately benefit current and future customers based on capacity. Costs for these facilities should be recovered from new development based on the proportional share of total capacity required to serve each new connection.

Sewer Enterprise Vehicle Needs

Table 2-6 lists the vehicle needs of the sewer enterprise. Two vehicles are included on the list: a tractor truck and a backhoe. Together, these vehicles will cost the City about \$375,000. Since these vehicles will benefit both current and future customers, the costs are allocated to the full system capacity through buildout. Existing vehicles are accounted for in the City's fixed asset listing on Table 2-3.

Updated Sewer Capacity Charge Calculation

Table 2-7 calculates a new sewer capacity charge of \$42.89 per gallon per day (gpd) of wastewater discharge. The fee calculation includes two components: 1) a pro-rata buy-in to facilities and assets benefiting all customers through buildout, and 2) a smaller expansion component for recovering costs of capital improvements benefiting new development only.

Buy-In Component for Capital Assets Benefiting All Customers Through Buildout

The buy-in component for capital assets benefiting full capacity through buildout recovers costs for both existing sewer system fixed assets and required capital improvements that will provide benefit to all current and future customers. These assets include the City's wastewater treatment plant, sewer collection system pipelines, sewer buildings, and machinery and equipment. The fee calculation does not include the value of land or the replacement cost of contributed capital, which is subtracted from the cost of existing assets. And although the calculation does not include any grant-funded facilities from the fixed asset list on Table 2-3, the calculation conservatively subtracts out half the replacement cost of grant-funded facilities under the assumption that 50% of grant-funded facilities are pipelines already accounted for in the sewer pipeline cost estimate.

In addition to the existing sewer system assets listed above, the buy-in component also recovers costs for anticipated capital improvements and new vehicles that will provide benefit to all customers. In order to ensure no double counting of existing facilities and their replacement, the fee calculation does not include the cost of replacements or renovations.

The total buy-in cost for capital assets that will benefit all customers through buildout is calculated by dividing the total cost of facilities benefiting full capacity by total sewer system capacity of 2.78 mgd. This yields a buy-in fee component of \$38.80 per gpd of wastewater discharge.

Expansion Component for Capital Improvements Benefiting New Development Only

The expansion component is calculated by dividing the cost of collection system expansion projects identified on Table 2-4 by 1.244 mgd of expansion capacity in the City's wastewater system. This results in an expansion component of \$4.09 per gpd of wastewater discharge.

Updated Sewer Capacity Charges

Table 2-8 calculates an updated sewer capacity charge for a new wastewater customer served by a 3/4-inch water meter or equivalent at \$8,579. This fee would apply to a typical new single family home. The fee would apply to both a) customers receiving water service from the City via a 3/4-inch water meter, and b) customers receiving water service from Nevada Irrigation District via either a 5/8-inch or 3/4-inch water meter. The charge is calculated by multiplying the charge per unit developed in Table 2-7 by the capacity requirement for serving a typical new single family home or 3/4-inch water meter. Based on the April 2006 Sewer System Master Plan, a typical new customer with a 3/4-inch water meter requires 200 gpd of capacity in the City's wastewater system.

The City's sewer system infrastructure must be adequately sized to meet the demand placed on the system by each new connection. As such, the capacity charge for each meter size should reflect the demand placed on the sewer system by that meter. Table 2-9 calculates sewer capacity charges for larger meters based on the capacity of each meter size in relation to that of a 3/4-inch meter. For example, a 2-inch meter has approximately 5.33 times the capacity of a 3/4-inch meter and therefore should pay a capacity charge equal to 5.33 times the charge for a 3/4-inch meter. Charges for larger meters over 4 inches can be determined by the City on a case-by-case basis based on estimated demand, if ever required.

Proposed Phase-In of Updated Capacity Charges

The City is proposing to phase in the updated capacity charges through January 1, 2009 in order to mitigate the impact of the fee update. Table 2-10 shows the proposed phase-in of new sewer capacity charges. Under the proposed phase-in, the updated charges would be gradually increased in three semi-annual steps beginning January 1, 2008.

Regional Survey of Sewer Capacity Charges

Chart B compares the City's current and proposed sewer capacity charges for a typical new single family home with those of other regional agencies. Excluding Nevada City, which has not updated its utility capacity charges in many years, regional sewer capacity charges for a new home range from \$6,465 in

Auburn to \$9,854 in portions of El Dorado Irrigation District including the El Dorado Hills area, where substantial new development has been occurring in recent years.

Capacity charges can vary widely from agency to agency depending on a wide range of factors such as the cost of infrastructure benefiting new development, the water capacity requirements of a new home, and the fact that some agencies, such as Nevada City, have simply not updated their fee in many years. As such, the capacity charge comparisons should be used for general informational purposes only; they do not provide any indication of the adequacy, fairness, or appropriateness of an agency's charges. Bartle Wells Associates recommends that agencies establish capacity charges based on their own financial needs and policy objectives. Also note that other regional agencies – including El Dorado Irrigation District and Nevada City – are anticipating updating their sewer capacity charges this year or in the near future.

Future Charge Updates

In future years, the City can adjust its capacity charges annually or periodically based on the change in the Engineering News-Record Construction Cost Index (20-Cities Average Index) to keep the charges in line with construction cost inflation. BWA recommends that the City's ordinance allow capacity charges to be adjusted either a) based on the change in the index from a base year, or b) based on the change in the index from the prior charge update. This will enable the City to adopt a multi-year fee adjustment if an annual update is ever deferred or postponed.

BWA also recommends that the City review and update its capacity charges as needed to reflect significant changes in capital improvement costs. In general, capacity charges should be independently reviewed within roughly every five years to ensure the charges continue to adequately and equitably recover the costs of infrastructure required to serve growth.

Water Capacity Charge Tables

City of Grass Valley
Water Capacity Charge Update
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 - Table 1-3 - Replacement Cost of Water System Pipelines
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Table 1-1
City of Grass Valley
Water System Capacity

	ADWF Capacity (gpd)	% of Total
Total Peak Day Demand Through Buildout (gpd) ¹	2,800,000	100.0%
Current Est. Peak Day Demand (gpd) ²	2,270,000	81.1%
Peak Day Capacity Available for Expansion (gpd) ³	530,000	18.9%

1 Source: Based on Infrastructure Report for the City of Grass Valley Water Treatment and Distribution System, August 2002, by Sauers Engineering, Inc.

2 Source: City of Grass Valley, based on 2005 peak day demand.

3 Total peak day demand through buildout less current peak day demand.

Table 1-2

City of Grass Valley

Water System Fixed Assets 06/30/06

ENR-CCI (20 Cities Average) for June 2007

7939

Description	Year	Acquisition Cost	Acquisition ENR	ENR-Adjusted Acquisition Cost
WATER TREATMENT PLANT				
Water treatment Plant	1982	1,301,536	3825	2,701,410
202-1330 Water Filtration Project	1993	3,041,938	5210	4,635,307
202-1330 Water Filatration Project Costs	1994	18,350	5408	26,938
202-1330 St of Cal Admin Fee for Filtration Project	1994	151,082	5408	221,790
Wash rack project (transfer to improvements) 1/3cost	1996	1,195	5620	1,689
New Roof - operations building	2000	5,835	6221	7,446
Treat Plant Security (FY00/01&01/02)	2002	29,493	6538	35,813
Subtotal		4,549,430		7,630,393
TANKS				
Pump Station Cover per Gates & Fox contract	1985	837,047	4195	1,584,103
system improvements	1985	62,953	4195	119,139
Water Tanks	1957	2,000	724	21,931
capitalize interest	1964	60,000	936	508,910
Subtotal		962,000		2,234,083
Water Machinery & Equipment				
85, D350 #490382p/u (split)	1985	6,888	4195	13,036
Pump, 6" Peabody Barnes Trash, 1/2 cost	1986	4,802	4295	8,876
meter, Digital flow & pressure	1987	1,918	4406	3,456
drilling machine, Base, Topmate Too, adapters/hole saws	1988	1,167	4519	2,049
90 (Rick - unknown item)	1989	20,433	4615	35,150
compressor, air, CFM, model P100Wf	1989	7,929	4615	13,640
90 NPR Utility #367084	1990	29,052	4732	48,741
Utility truck body	1990	10,195	4732	17,104
piercing machine, Vermeer 3"	1990	4,994	4732	8,378
PW Dumpt Truck (S/W&Gen Fund)	1991	14,398	4835	23,642
Air hammers, 2 ea, 90 & 35 lb, sn SRF2328C, sn SRA220C	1991	1,609	4835	2,642
pavement breaker, hydraulic, Melroe bobcat	1991	5,250	4835	8,621
Welder, Joruneyman Mdl 510 hose reel	1991	1,012	4835	1,662
Conditioning Kit, DREL/2000, water	1991	3,319	4835	5,450
meter, 2 ea Neptune Fire Hydrant	1991	1,199	4835	1,968
Leak Detector, Fisher XLT-20	1992	1,719	4985	2,737
Share of computer upgrade expensed in Water fund 20%	1993	15,662	5210	23,866
Drive Valve, Reversible, WACHS Model P/2	1995	4,484	5471	6,507
97 Backhoe 410 (SHARED 5420/5330/5235)	1997	23,520	5826	32,050
Saw, cut off	1997	1,549	5826	2,110
pavement breaker & cutter	1997	1,067	5826	1,454
Pipe Locator	1998	3,267	5920	4,381
99 F-250 Ford 4 X 4 #1015207	1999	30,223	6059	39,601
Feeder, Borges & Mahoney	1999	7,313	6059	9,583
2000 Ford Explorer - (SHARED 5315/5430)	2000	8,132	6221	10,378
Hand Help Meter Reader	2001	5,906	6343	7,392
Roadplates	2001	5,184	6343	6,488
Cutoff Saw /Edwards R. Bacon Co.	2001	1,467	6343	1,836
Radio Transmitters (Groeniger & Co)	2001	5,064	6343	6,338
Vibratory Compacter/Wacker	2001	2,738	6343	3,427
Meter Inventory Upgrade (Groenger)	2002	8,008	6538	9,724
Measurement Tech (Tools - po#15671)	2002	2,685	6538	3,261

Table 1-2

City of Grass Valley

Water System Fixed Assets 06/30/06

ENR-CCI (20 Cities Average) for June 2007

7939

Description	Year	Acquisition Cost	Acquisition ENR	ENR-Adjusted Acquisition Cost
Plazma Cutter 1/5 share	2002	456	6538	554
Printer Finance Vault (20% share)	2002	359	6538	436
Digital Mail Machine , with Scale SE37/57 (20% cost)	2003	886	6694	1,051
New Truck Accessories	2003	1,069	6694	1,267
2003 Ford F250 Supercab P/U	2003	20,142	6694	23,888
Ice Machine (partial cost) unit > \$1000	2004	635	7115	709
Encore 700 Metering Pump 6G	2004	2,299	7115	2,565
Encore 700 Metering Pump 77G	2004	3,046	7115	3,399
Handheld and wand DAP 9300	2004	4,465	7115	4,982
File shelves in Finance Vault	2004	873	7115	974
Honda Trash Pump	2005	1,313	7446	1,400
Office Funiture Unit (50% each W & S) IMPAC Cal Card/W	2005	801	7446	854
Sure-Lock All pro locator - Groeniger	2005	3,329	7446	3,549
Auto Gate between Plant and Mautino Park	2006	3,553	7751.2025	3,639
Journyx Time Tracking Software	2006	4,498	7751.2025	4,607
Quantitray Sealer (50%)	2006	2,222	7751.2025	2,276
Subtotal		292,098		421,698
OTHER WATER FACILITIES / CONTRIBUTED CAPITAL				
Grants	1984	400,000	4146	765,943
Grants	1984	12,911	4146	24,723
Grants-Safe drinking water loan	1984	902,136	4146	1,727,462
Grants-Safe drinking water loan	1984	387,981	4146	742,928
Contributions from subdividers	1984	300,000	4146	574,457
Contributions from subdividers - Northstar	1999	57,824	6059	75,766
Contributions from developers Built infrastructures	2003	205,941	6694	244,244
Independence Court - developers subdivision	2005	22,400	7446	23,883
Subtotal		2,289,193		4,179,406
TOTAL		8,092,721		14,465,580

Table 1-3
City of Grass Valley
Replacement Cost of Water System Pipelines

Miles of Pipeline ¹	Feet of Pipeline	Cost per Linear Foot ²	Total Cost
30	158,400	\$100	\$15,840,000

1 Source: Based on Infrastructure Report for the City of Grass Valley Water Treatment and Distribution System, August 2002, by Sauers Engineering, Inc.

2 Conservatively estimated by City of Grass Valley; actual recent costs have been higher.

Table 1-4
City of Grass Valley
Capital Improvement Program Summary - Water

PROJECT DESCRIPTION	Prior Year						TOTAL	GRAND	USER RATE	IMPACT	IMPACT
	Expenditures	07/08	08/09	09/10	10/11	11/12	2012 thru 2020	TOTAL	PORTION	AMOUNT	PERCENT
Distribution System Improvements		\$ 60,830						\$ 60,830	\$ -	\$ 60,830	100%
Water System Master Plan Update 2015							\$ 150,000	\$ 150,000	\$ -	\$ 150,000	100%
Water System Master Plan Update 2015							\$ 150,000	\$ 150,000	\$ -	\$ 150,000	100%
Annual Water Distribution System Rehabilitation			\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 1,800,000	\$ 2,600,000	\$ 2,600,000	\$ -	0%
North Church Street - Richardson to Doris					\$ 221,648			\$ 221,648	\$ 97,525	\$ 124,123	56%
St. Patricks Court - Brighton to 300' west of Brighton						\$ 139,230		\$ 139,230	\$ 139,230	\$ -	0%
Depot Street - east of Biggs to west end			\$ 112,196					\$ 112,196	\$ 112,196	\$ -	0%
Temby Street - Pleasant to Columbia							\$ 145,347	\$ 145,347	\$ 145,347	\$ -	0%
Kidder Street - Bennett to Maryland							\$ 125,053	\$ 125,053	\$ 125,053	\$ -	0%
Maryland Drive/Valley View Drive							\$ 225,095	\$ 225,095	\$ 225,095	\$ -	0%
Maryland Drive - north of Valley View							\$ 220,749	\$ 220,749	\$ 13,245	\$ 207,504	94%
Cherry Lane							\$ 65,534	\$ 65,534	\$ 65,534	\$ -	0%
Wood Street							\$ 90,366	\$ 90,366	\$ 90,366	\$ -	0%
Kendall Loop							\$ 197,736	\$ 197,736	\$ 197,736	\$ -	0%
Linden Street, west of Alta							\$ 195,132	\$ 195,132	\$ 21,464	\$ 173,667	89%
Grey Avenue							\$ 62,503	\$ 62,503	\$ 62,503	\$ -	0%
Golden Avenue (County)							\$ 167,553	\$ 167,553	\$ 167,553	\$ -	0%
Florence Avenue							\$ 63,507	\$ 63,507	\$ 63,507	\$ -	0%
East Main Street - between Murphy and Eureka							\$ 143,113	\$ 143,113	\$ 143,113	\$ -	0%
City Standards Update	\$ 25,000	\$ 2,650						\$ 27,650		\$ 27,650	100%
Subtotal		\$ 63,480	\$ 312,196	\$ 200,000	\$ 421,648	\$ 339,230	\$ 3,801,688	\$ 5,163,242	\$ 4,269,468	\$ 893,774	17%
Treatment, Storage, & General Improvements											
Alta Hill Reservoir Improvements	\$ 200,000	\$ 2,380,000						\$ 2,580,000			
Empire Tank Rehabilitation		\$ 50,000		\$ 950,000			\$ 1,000,000	\$ 2,000,000			
Treatment Plant Renovation							\$ 4,000,000	\$ 4,000,000			
GV/NID Collaboration - Phase II		\$ 25,000						\$ 25,000			
Subtotal		\$ 2,455,000	\$ -	\$ 950,000	\$ -	\$ -	\$ 5,000,000	\$ 8,605,000			
Totals		\$ 2,518,480	\$ 312,196	\$ 1,150,000	\$ 421,648	\$ 339,230	\$ 8,801,688	\$ 13,768,242			

Table 1-5
City of Grass Valley
Additional Vehicle Needs

Vehicle

Water Enterprise Vehicle Needs

Backhoe	\$125,000
Total Peak Day Demand Through Buildout (gpd)	2,800,000
Cost per gpd	\$0.04

Table 1-6
 City of Grass Valley
 Water Capacity Charge Per Unit

FACILITIES & ASSETS BENEFITING FULL CAPACITY THROUGH BUILDOUT	
Water System Fixed Assets¹	
Water Treatment Plant	\$7,630,393
Storage Tanks	2,234,083
Water Pipelines	15,840,000
Water Machinery & Equipment	421,698
Land	not included
Less 50% Grant-Funded Facilities ²	(1,630,528)
Less 100% Contributed Capital	<u>(918,350)</u>
Subtotal	23,577,295
Required Capital Improvements³	
Alta Hill Reservoir Improvements	2,580,000
Empire Tank Renovation & Upgrade	not included
Treatment Plant Renovation	not included
Grass Valley/NID Collaboration - Phase II	25,000
Water Collection System Repairs & Replacements	<u>not included</u>
Subtotal	2,605,000
Water System Vehicles	\$125,000
Financing Costs	not included
Total	\$26,182,295
TOTAL WATER SYSTEM DEMAND THROUGH BUILDOUT	
Total Peak Day Demand Through Buildout (gpd)	2,800,000
BUY-IN COST PER UNIT	
Total Cost / Total Capacity (\$/gpd)	\$9.35

EXPANSION-RELATED CAPITAL IMPROVEMENTS	
Distribution System Expansion Projects ³	\$893,774
Peak Day Capacity Available for Expansion (gpd)	530,000
Expansion Cost Per Unit (\$/gpd)	\$1.69

TOTAL COST PER UNIT	\$11.04
Total Cost Per Unit of Peak Day Demand (\$/gpd)	

1 Source: Fixed Asset Listing 06/30/06; acquisition costs escalated into current cost by the change in the Engineering News-Record Construction Cost Index (20 Cities Average).

2 Assumes 50% of grant-funded facilities are water pipelines already accounted for.

3 Source: City of Grass Valley, Capital Improvement Program Summary - Water.

Table 1-7
City of Grass Valley
Water Capacity Charge Per 3/4" Meter Equivalent

WATER CAPACITY CHARGE PER 3/4" METER EQUIVALENT	
Total Cost Per Unit (\$/gpd)	\$11.04
Peak Day Demand Per 3/4" Meter (gpd) ¹	734
Fee Per 3/4" Meter Equivalent	\$8,101

1 Source: Grass Valley-Nevada Irrigation District Water System Collaboration and Partnering Study, Report of Findings; September 2004.

Table 1-8
 City of Grass Valley
 Water Capacity Charges by Meter Size

Meter Size	Meter Capacity (gpm) ¹	AWWA Meter Ratio ¹	Water Capacity Charge
3/4"	30	1.00	\$8,101
1"	50	1.67	13,502
1-1/2"	100	3.33	27,003
2"	160	5.33	43,205
3"	300	10.00	81,010
4"	500	16.67	135,017

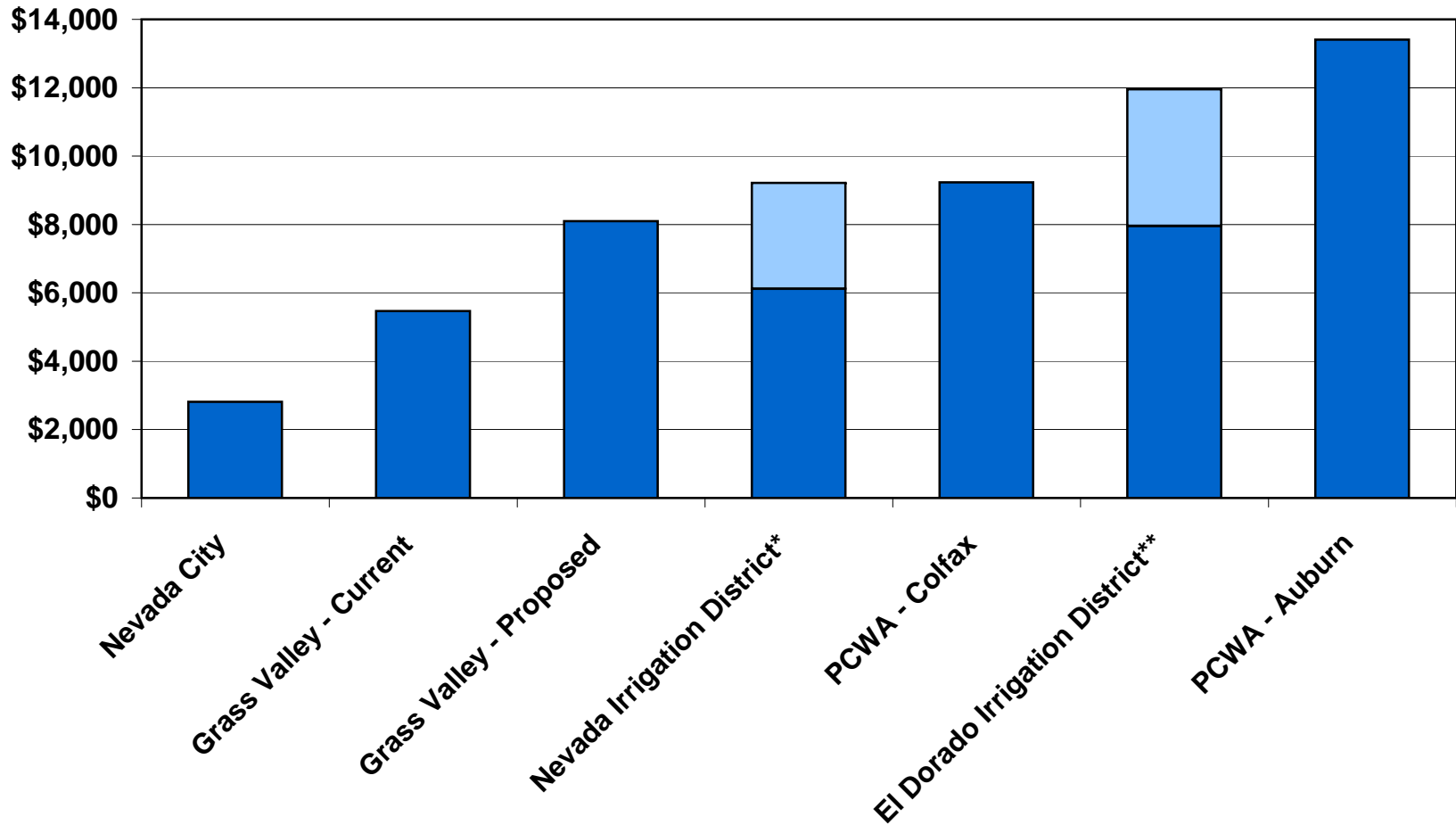
1 Based on American Water Works Association standard meter capacities for displacement-type meters; these ratios are also in line with those approved by the California Public Utility Commission.

Table 1-9
 City of Grass Valley
 Proposed Phase-In of Updated Water Capacity Charges

Meter Size	Current Water Capacity Charge	Proposed Phase-In of Water Capacity Charge Update		
		Jan-1-2008	Jul-1-2008	Jan-1-2009
Phase-In %		33%	66%	100%
RESIDENTIAL				
3/4"	\$5,169	\$6,137	\$7,104	\$8,101
1"	8,782	10,339	11,897	13,502
1-1/2"	17,062	20,343	23,623	27,003
2"	27,279	32,535	37,790	43,205
3"	55,135 - 61,835	65,918	73,352	81,010
4"	87,823 - 105,938	109,465	122,050	135,017

CHART 1-A

Water Capacity Charge Survey Per Typical New Single Family Residence



* Fee varies based on whether the new connection within NID's existing service area; customers within the service area have paid property taxes to NID and therefore pay a lower connection fee.

** Fee varies by area within District.

Sewer Capacity Charge Tables

City of Grass Valley
Sewer Capacity Charge Update
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Table 2-4	-	Replacement Cost of Sewer System Pipelines
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Chart 2-A	-	Sewer Capacity Charge Survey

Table 2-1
City of Grass Valley
Wastewater Treatment Plant Flow

Year	Average Dry Weather Flow (mgd)
2004	1.416
2005	1.753
2006	<u>1.439</u>
3-Year Average	1.536

Source: City of Grass Valley wastewater treatment plant influent flow (ADWF) from June through November each year; excludes flow from Newmont Mine.

Table 2-2
City of Grass Valley
Wastewater System Capacity

	ADWF Capacity (gpd)	% of Total
Total Wastewater System Capacity (gpd) ¹	2,780,000	100.0%
Current Average Dry Weather Flow (gpd) ²	1,536,000	55.3%
Capacity Available for Growth (gpd) ³	1,244,000	44.7%

1 Based on City's Waste Discharge Permit; includes prior plant expansion.

2 Based on 3-year historical average ADWF influent at wastewater treatment plant.

3 Total capacity less current ADWF capacity.

Table 2-3

City of Grass Valley

Sewer System Fixed Assets 06/30/06

ENR-CCI (20 Cities Average) for June 2007

7939

Description	Year	Acquisition Cost	Acquisition ENR	ENR-Adjusted Acquisition Cost
BUILDINGS				
Sewer Treatment Plant & Buildings				
WASTE WATER TREATMENT BUILDINGS	1949	229,300	477	3,816,379
WASTE WATER TREATMENT BUILDINGS	1986	2,850	4295	5,268
Paint for structure	1984	1,795	4146	3,437
Wash rack project 1/3 of cost	1996	1,195	5620	1,688
Heating Unit Brewer Refrigeration	1996	1,625	5620	2,296
Ring of Lights	1996	1,805	5620	2,549
Subtotal		238,570		3,831,617
TREATMENT PLANT IMPROVEMENTS				
Modifications and improvements	1969	234,000	1269	1,463,929
Modifications and improvements-EPA GRANT	1981	225,533	3535	506,507
Modifications and improvements-EPA GRANT	1981	575,179	3535	1,291,753
Modifications and improvements-EPA GRANT	1981	172,279	3535	386,909
Modifications and improvements-EPA GRANT	1981	295,930	3535	664,607
Modifications and improvements-EPA GRANT	1981	3,265,991	3535	7,334,853
Modifications and improvements-EPA GRANT	1983	18,844	4066	36,793
Modifications and improvements-EPA GRANT	1986	1,405,944	4295	2,598,786
178 ft of 9 gauge chain link fence	1986	1,658	4295	3,065
	1987	2,217,454	4406	3,995,544
Aluminium Grating 1/2" 6063 J-6	1987	1,505	4406	2,712
	1988	3,603	4519	6,330
sewer master plan study	1990	19,857	4732	33,314
capitalize treatment plant improvements	1991	91,396	4835	150,071
WWTP filter system	1992	3,000	4985	4,778
capitalize treatment plant improvements	1995	11,059,746	5471	16,048,862
Payment to State of California - Treatment plant	1996	4,715	5620	6,661
WWTP Bridge Abutments	1997	84,119	5826	114,627
WWTP Slope Stabilization	1997	1,762	5826	2,400
capitalize treatment plant improvements	1997	15,733	5826	21,439
Master Plan update	2000	53,007	6221	67,646
Aux. Generator Fuel Tank Mods.	2000	37,328	6221	47,636
Remove & replace heating & AC at WWTP	2002	4,102	6538	4,981
Sewer System Evaluation - Placed In Service	2002	10,335	6538	12,549
Transmitter, Item #46, PO#15753--Ind Safety Supply	2003	4,083	6694	4,843
WWTP Freeman Lane - Place in Service FY 02/03	2003	12,329,074	6694	14,622,128
WWTP Freeman Lane - Expansion	2006	263,574	7446	281,025
Subtotal		32,399,750		49,714,749
SEWER MACHINERY & EQUIPMENT				
Oven, Laboratory utility, M Labline 3405, Sn 1279	1980	1,045	3237	2,563
Centrifuge, C Adams Dynac 0103, SN 112194	1980	1,096	3237	2,688
Autoclave, Napco 704-9000D, SN 11-80-15-21-44	1980	1,570	3237	3,851
Analytical balance, Mettler H80, SN 835373	1980	1,765	3237	4,329
Sewer Tap machine, Air drill, w/acces.	1982	4,468	3825	9,274
Refig sampler & accessory container, M 1580r	1984	2,431	4146	4,654
Pump, Submersible, 10hp, floor elbow 20'	1984	4,343	4146	8,316
Pump, 4" CP 3102 5hp 460/3/60 20' chain	1984	2,329	4146	4,459
85 GMC Sewer Cleaner truck 489924	1985	40,275	4195	76,220
Trip balance M PJ400, SN 11276-546	1986	1,057	4295	1,954
Trash pump, 6" Peabody Barnes, 1/2 of cost	1986	4,788	4295	8,850
SCBA 30 minute, 2 each	1986	2,304	4295	4,260
Dreager unit, A.L.E. w/Hansen fittings	1986	1,565	4295	2,893
shoring jacks, 3 ea 5' & 7', w/ pump & parts	1987	3,604	4406	6,493

Table 2-3

City of Grass Valley

Sewer System Fixed Assets 06/30/06

ENR-CCI (20 Cities Average) for June 2007

7939

Description	Year	Acquisition Cost	Acquisition ENR	ENR-Adjusted Acquisition Cost
Dialer unit, 1-MCS-108-8, for alarm system generator, 50KW Diesel Engine, & accessories	1987	2,035	4406	3,668
Autocrane #24043, M 2403-PR14, stabilizer legs	1987	14,533	4406	26,186
modular mobile office unit	1988	4,892	4406	8,815
89 Ford flatbed truck F350 - WWT Plant - 351026	1988	10,254	4519	18,014
Pump, Bannes Diaphragm 4 stroke 3HP	1988	17,616	4519	30,948
89 Melroe Bobcat loader M 743 1/4 of cost	1988	1,290	4519	2,266
Flowmeter, Portable Digital w/case, model 201D10	1989	6,774	4615	11,653
recorder, wall mount circular-micro 2000 analyzer	1989	2,356	4615	4,053
89 Ford sewer T.V. truck, #340661	1989	5,655	4615	9,728
91 Chevrolet 3/4 4WD pickup - snow plow/radio, #332448	1990	121,965	4615	209,811
Hoist, P&H lazer for "A" series LZ-114	1990	19,784	4732	33,192
Dialer unit, Microtel 4 Channel, Model MCS250	1990	2,136	4732	3,583
Analyzer, DEOX 2000	1991	1,284	4732	2,154
Sulfonator	1991	8,805	4835	14,458
Chart Recorder	1991	6,435	4835	10,566
92 Internl 1 1/2 ton Dump truck 1/3 of total cost, #352479	1991	3,408	4835	5,596
Chlorinator, remote vacuum, V2000, 2000 lb - Chlorine Bldg	1991	14,454	4835	23,734
locatro, pipe & sewer, System 6	1991	6,658	4835	10,933
Variable Frequency Drive	1992	1,978	4835	3,248
Proportional share of computer upgrade expensed in Sewer fund	1993	5,030	4985	8,011
Harness, Full Body, Mod L2001PS	1993	15,537	5210	23,675
Desks, 5 ea, snl pedestal, 48x3, putty oak	1993	3,825	5210	5,828
Gas Detector, 4 Sensor W/ Charger	1995	1,089	5210	1,659
Pushrod, fiberglass, Model 1800	1995	1,800	5471	2,613
pump, vario metering	1997	1,071	5471	1,555
97 John Deere Backhoe 1/3 of cost	1997	2,010	5826	2,739
Yamaha Electric Golf cart	1997	23,520	5826	32,050
86 3-wheel vehicle - 08K26 WWTP, Rick 99	1997	2,996	5826	4,082
81 Cushman Haulster M 434 - 78J88	1990	10,070	4732	16,895
Pipe Locator	1998	4,700	3825	9,755
F-450 Ford Truck, #1015222	1999	7,448	5920	9,989
Turbidimeter	1999	38,392	6059	50,305
2 computers - portion	2000	4,325	6059	5,668
Maintenance Management Software	2000	1,000	6221	1,276
2000 Ford Explorer - #1045533	2000	30,783	6221	39,284
Residual Sulfide Monitor	2000	15,103	6221	19,274
Digester Gas Meter	2000	7,144	6221	9,117
Trash Pump (PO#15427)	2001	2,733	6221	3,487
Miller Mig Welder (1/2 cost) (Shared Cost)	2001	1,110	6343	1,389
(PUMP CP3125)Morgan Ranch Lift Stn /ITT Flygt Co. PO#15469	2001	1,385	6343	1,734
Power Supply	2001	7,352	6343	9,201
Golf Cart (PO#15339)	2001	1,510	6343	1,890
Computer Equipment	2001	7,150	6343	8,949
Hydroflusher - GCS Western, #1039045	2002	1,438	6343	1,800
Lateral Camera	2002	134,987	6538	163,912
Root Cutter	2002	9,838	6538	11,946
Gas Detector, 4 Sensor W/ Charger	2002	2,333	6538	2,833
Radio Hardware -Install Sewer Truck	2002	1,882	6538	2,285
Gateway Computer	2002	1,115	6538	1,354
2 - Allen Bradley VFD & GAS #1336F/+upgradeRexex Norcal	2002	1,356	6538	1,647
Rebuild Oil Pump Myers D-65, Freeman Lane, PO#15519 (50% i	2002	3,999	6538	4,856
Inlet & Butterfly Valve (Frank Olsen Co.)	2002	2,869	6538	3,483
GL Maining YB Composite Sampler	2002	2,596	6538	3,153
Allen Brady Plus Variable Freq Drive (item#AB1336FB025ANEN+)	2002	3,251	6538	3,947
Gateway Computer	2002	5,879	6538	7,138
FY1500 - Pump- (PO#15606) replcmt for Caustic Pump	2002	1,356	6538	1,647
Plasma Cutter (Partial cost)	2002	5,214	6538	6,331
Printer Finance Vault, (20% share)	2003	456	6538	554
	2003	359	6694	426

Table 2-3

City of Grass Valley

Sewer System Fixed Assets 06/30/06

ENR-CCI (20 Cities Average) for June 2007

7939

Description	Year	Acquisition Cost	Acquisition ENR	ENR-Adjusted Acquisition Cost
Rebuilt Paco Pump (Herold & Mielenz-PO#15840)	2003	6,397	6694	7,587
Macerator (PO#15679)	2003	14,261	6694	16,914
Aerator 3HP tri-float (PO#15803)	2003	5,458	6694	6,473
Digital Mail Machine , with Scale SE37/57 (20% cost)	2003	886	6694	1,051
Orion 720 A Lab Ph/ISE Meter	2003	1,182	6694	1,402
Manning Lab Sampler	2003	3,611	6694	4,283
Ice Machine - partial cost	2004	599	7115	668
Ottawa Yard Goat PO#15965, MB Equipment Co.	2004	9,999	7115	11,157
Model 1A-70-50 Scale PO#15980, Scale Mart Corp.	2004	9,814	7115	10,951
Variable Frequency Drives PO#15942 Rexel Norcal Valley	2004	2,025	7115	2,260
Analyzer, Controller, (Rosemont) PO#16036	2004	1,904	7115	2,124
Filing System for Vault - Finance Area/Williams Stationery	2004	873	7115	974
Flowtube /Eastex Instruments	2005	4,350	7446	4,638
Sampler / ISCO Inc.	2005	11,101	7446	11,836
Sensors / Sharman Co.	2005	4,359	7446	4,648
Office Furniture (50% ea. W/S)	2005	801	7446	854
Variable Frequency Drives PO#15942 Rexel Norcal Valley	2005	3,360	7446	3,582
wtp stREAM Flow equipment & installation charges	2005	8,256	7446	8,803
Journyx Time Tracking Software	2006	4,498	7751	4,607
Quantitray Sealer (50%)	2006	2,222	7751	2,276
Hach Turbidimeter	2006	4,347	7751	4,453
Subtotal		801,266		1,172,685
OTHER WASTEWATER FACILITIES / CONTRIBUTED CAPITAL				
Grants	1984	4,260,233	4146	8,157,739
Grants	1987	962,290	4406	1,733,914
Grants	1987	1,921,629	4406	3,462,508
Grants	1990	3,603	4732	6,045
Grants	1991	914,853	4835	1,502,175
Grants	1992	1,000	4985	1,593
Grants - Program Income	1999	406,000	6059	531,975
Grants - EDA	1999	895,203	6059	1,172,969
Grants - EDA	2000	331,297	6221	422,788
Contributions from subdividers	1984	302,466	4146	579,180
Contributions from subdividers	1991	73,825	4835	121,220
Contributions from subdividers	1992	2,253	4985	3,588
Contributions from NUHS	1994	183,591	5408	269,514
Contribution from developers infrastructures	2003	1,739,469	6694	2,062,988
NC Sanitation #1 Sewer Lines/ Glenbrook Assmt	2004	935,210	7115	1,043,519
Morgan Ranch Sewer Lines	2004	78,000	7115	87,033
Indepence Court	2005	27,600	7446	29,427
Subtotal		13,038,523		21,188,174
TOTAL		46,478,109		75,907,226

Source: Based on City of Grass Valley fixed asset listing as of June 30, 2006; excludes sewer mains.

Table 2-4
 City of Grass Valley
 Replacement Cost of Sewer System Pipelines

Pipeline Diameter	Linear Feet of Pipeline by Construction Period ¹						Total
	1889-1900	1900-1956	1957-1976	1977-1985	1986-1995	1996-2005	
4"	1,300	5,060		2,240			8,600
6"	43,182	27,097	45,637	12,300	60,159	20,100	208,475
8"	10,613	3,224	11,400	3,750	5,488	7,100	41,575
10"	2,865	315	7,469				10,649
12"		419	8,256		685		9,360
14"	1,846						1,846
15"			1,461		6,919		8,380
16"			1,010				1,010
18"		634	1,473		1,628	130	3,865
21"					550		550
24"					1,030	4,100	5,130
27"						1,140	1,140
30"					1,090		1,090
4" FM					2,050		2,050
6" FM					11,215		11,215
Total	59,806	36,749	76,706	18,290	90,814	32,570	314,935
% of Ttl	19.0%	11.7%	24.4%	5.8%	28.8%	10.3%	100.0%

Estimated Average Replacement Cost Per Linear Foot² \$160

Replacement Cost of Sewer Pipelines \$50,389,600

¹ Source: City of Grass Valley Sewer System Master Plan 2005-2025, April 2006, by Sauers Engineering, Inc.

² Engineering cost estimate by City of Grass Valley based on historical pipeline installation costs.

Table 2-5
City of Grass Valley
Capital Improvement Program Summary - Sewer

PROJECT DESCRIPTION	Prior Year Expenditures	07/08	08/09	09/10	10/11	11/12	TOTAL 2012 thru 2020	GRAND TOTAL	USER RATE PORTION	IMPACT PORTION	IMPACT PERCENT
Collection System Improvements											
Sewer System Master Plan Update 2005							\$ 60,830	\$ 60,830	\$ -	\$ 60,830	100%
Sewer System Master Plan Update 2015							\$ 150,000	\$ 150,000	\$ -	\$ 150,000	100%
Sewer System Evaluation							\$ 11,060	\$ 11,060	\$ 11,060	\$ -	0%
Annual Manhole & Sewer Line Rehabilitation			\$ 50,000	\$ 100,000	\$ 100,000	\$ 150,000	\$ 1,200,000	\$ 1,600,000	\$ 1,600,000	\$ -	0%
French Avenue - Brighton to Mill							\$ 702,373	\$ 702,373	\$ 702,373	\$ -	0%
Park Avenue to Ocean Avenue							\$ 417,212	\$ 417,212	\$ 417,212	\$ -	0%
Brighton Street - Penstock to French							\$ 217,976	\$ 217,976	\$ 217,976	\$ -	0%
Hughes Road/E. Main Street Intersection							\$ 262,512	\$ 262,512	\$ 131,256	\$ 131,256	50%
Clark Street - Florence to Colfax							\$ 219,396	\$ 219,396	\$ 219,396	\$ -	0%
Maryland Drive - Valley View to NE End							\$ 156,461	\$ 156,461	\$ 156,461	\$ -	0%
St. Patricks to Brighton Street							\$ 95,118	\$ 95,118	\$ 95,118	\$ -	0%
W. Main Street - Mill to South Auburn							\$ 200,520	\$ 200,520	\$ 100,260	\$ 100,260	50%
E. Main Street - Stewart to South Auburn							\$ 259,975	\$ 259,975	\$ 259,975	\$ -	0%
Infiltration/Inflow Improvements							\$ 1,286,895	\$ 1,286,895	\$ 1,286,895	\$ -	0%
Lidster Avenue							\$ 999,567	\$ 999,567	\$ 999,567	\$ -	0%
Kate Hayes Street - Race to north of Empire							\$ 623,119	\$ 623,119	\$ 623,119	\$ -	0%
S. Auburn Street - Main to Hwy 20/49							\$ 538,365	\$ 538,365	\$ 269,183	\$ 269,183	50%
Taylorville Road Extension/Joyce Drive Bypass							\$ 173,246	\$ 173,246	\$ -	\$ 173,246	100%
Miners Trail - 300' east of Kate Hayes to Kate Hayes							\$ 186,372	\$ 186,372	\$ 186,372	\$ -	0%
North School to North Church							\$ 219,829	\$ 219,829	\$ 219,829	\$ -	0%
North Church to Richardson							\$ 248,079	\$ 248,079	\$ 248,079	\$ -	0%
Kate Hayes Street - Behind Penaluna							\$ 89,890	\$ 89,890	\$ 89,890	\$ -	0%
W. Main Street to Carpenter Street							\$ 107,391	\$ 107,391	\$ 107,391	\$ -	0%
Ophir Street							\$ 199,895	\$ 199,895	\$ 111,941	\$ 87,954	44%
Packard Drive							\$ 375,301	\$ 375,301	\$ 375,301	\$ -	0%
Empire Court							\$ 210,623	\$ 210,623	\$ 210,623	\$ -	0%
Quartz Drive to E. Main Street							\$ 81,595	\$ 81,595	\$ 81,595	\$ -	0%
Slate Creek & Morgan Ranch Lift Stations		\$ 675,000	\$ 30,000				\$ -	\$ 705,000	\$ -	\$ 705,000	100%
Richardson St. / S. Auburn Sewer Project							\$ 344,742	\$ 344,742	\$ 193,056	\$ 151,687	44%
Colfax Ave. Sewer Project							\$ 1,157,840	\$ 1,157,840	\$ 509,450	\$ 648,391	56%
Upper Idaho-Maryland Road Sewer Project							\$ 560,900	\$ 560,900	\$ 342,149	\$ 218,751	39%
Loma Rica Sewer Project							\$ 945,298	\$ 945,298	\$ 652,256	\$ 293,042	31%
Butler Street Sewer Project							\$ 2,772,766	\$ 2,772,766	\$ 915,013	\$ 1,857,753	67%
South Auburn 2 Sewer Project							\$ 187,471	\$ 187,471	\$ 46,868	\$ 140,604	75%
Condon Park Sewer Project							\$ 199,111	\$ 199,111	\$ 127,431	\$ 71,680	36%
City Standards Update							\$ -	\$ 27,650	\$ -	\$ 27,650	100%
Sewer Lift Station Upgrades/Maintenance			\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 2,000,000	\$ 3,000,000	\$ 3,000,000	\$ -	0%
Subtotal		\$ 675,000	\$ 330,000	\$ 350,000	\$ 350,000	\$ 400,000	\$ 17,461,734	\$ 19,594,384	\$ 14,507,097	\$ 5,087,287	26%
Wastewater Treatment Plant Improvements											
UV & BNR Treatment Plant Improvements	\$ 542,900	\$ 6,459,500	\$ 286,600					\$ 7,289,000			
Sewer System Evaluation (NPDES Permit Comp)		\$ 114,000					\$ 250,000	\$ 364,000			
WWTP Primary Clarifier Modifications		\$ 280,000						\$ 280,000			
WWTP Treatment Analysis		\$ 200,000	\$ 100,000	\$ 250,000			\$ 600,000	\$ 1,150,000			
WWTP Treatment Improvements (NPDES)					\$ 1,000,000	\$ 2,000,000	\$ 3,000,000	\$ 6,000,000			
Subtotal		\$ 7,053,500	\$ 386,600	\$ 250,000	\$ 1,000,000	\$ 2,000,000	\$ 3,850,000	\$ 15,083,000			
TOTAL		\$ 7,728,500	\$ 716,600	\$ 600,000	\$ 1,350,000	\$ 2,400,000	\$ 21,311,734	\$ 34,677,384			

Table 2-6
City of Grass Valley
Additional Vehicle Needs

Vehicle

Sewer Enterprise Vehicle Needs

Vactor Truck	\$250,000
Backhoe	<u>125,000</u>
Total	375,000
Total Wastewater System Capacity ADWF (gpd)	2,780,000
Cost per gpd	\$0.13

Table 2-7
 City of Grass Valley
 Sewer Capacity Charge Per Unit

CAPITAL ASSETS BENEFITING FULL SYSTEM CAPACITY

Wastewater System Fixed Assets¹

Buildings	\$3,831,617
Treatment Plant Improvements	49,714,749
Sewer Machinery & Equipment	1,172,685
Sewer Mains	50,389,600
Land	not included
Less 50% Grant-Funded Facilities ²	(8,495,853)
Less 100% Contributed Capital	<u>(4,196,469)</u>
Subtotal	92,416,329

Required Capital Improvements³

UV & BNR Treatment Plant Improvements	7,289,000
Sewer System Evaluation (NPDES Permit Comp)	364,000
WWTP Primary Clarifier Modifications	280,000
WWTP Treatment Analysis	1,150,000
WWTP Treatment Improvements (NPDES)	6,000,000
Collection System Repairs & Replacements	<u>not included</u>
Subtotal	15,083,000

Sewer System Vehicles 375,000

Financing Costs not included

Total \$107,874,329

TOTAL WASTEWATER SYSTEM CAPACITY

Total System Capacity ADWF (gpd) 2,780,000

BUY-IN COST PER UNIT

Total Cost / Total Capacity (\$/gpd) **\$38.80**

EXPANSION-RELATED CAPITAL IMPROVEMENTS

Collection System Expansion Projects \$5,087,287

Capacity Available for Expansion ADWF (gpd) 1,244,000

Expansion Cost Per Unit (\$/gpd) **\$4.09**

TOTAL COST PER UNIT

\$42.89

1 Source: Fixed Asset Listing 06/30/06; acquisition costs escalated into current cost by the change in the Engineering News-Record Construction Cost Index (20 Cities Average).

2 Assumes 50% of grant-funded facilities are sewer pipelines already accounted for.

3 Source: City of Grass Valley, Capital Improvement Program Summary - Sewer

Table 2-8
City of Grass Valley
Sewer Capacity Charge Per 3/4" Meter Equivalent

SEWER CAPACITY CHARGE PER 3/4" METER EQUIVALENT	
Total Cost Per Unit (\$/gpd)	\$42.89
Capacity Requirement Per 3/4" Meter ADWF (gpd) ¹	200
Fee Per 3/4" Meter Equivalent	\$8,579

1 Source: City of Grass Valley Sewer System Master Plan 2005-2025, April 2006, by Sauers Engineering, Inc.

Table 2-9
 City of Grass Valley
 Sewer Capacity Charges

Meter Size	Meter Capacity (gpm) ¹	AWWA Meter Ratio ¹	Sewer Capacity Charge
RESIDENTIAL			
3/4"	30	1.00	\$8,579
1"	50	1.67	14,298
1-1/2"	100	3.33	28,597
2"	160	5.33	45,755
3"	300	10.00	85,790
4"	500	16.67	142,983
NON-RESIDENTIAL			
Fee per 100 gpd of estimated wastewater discharge			\$4,289

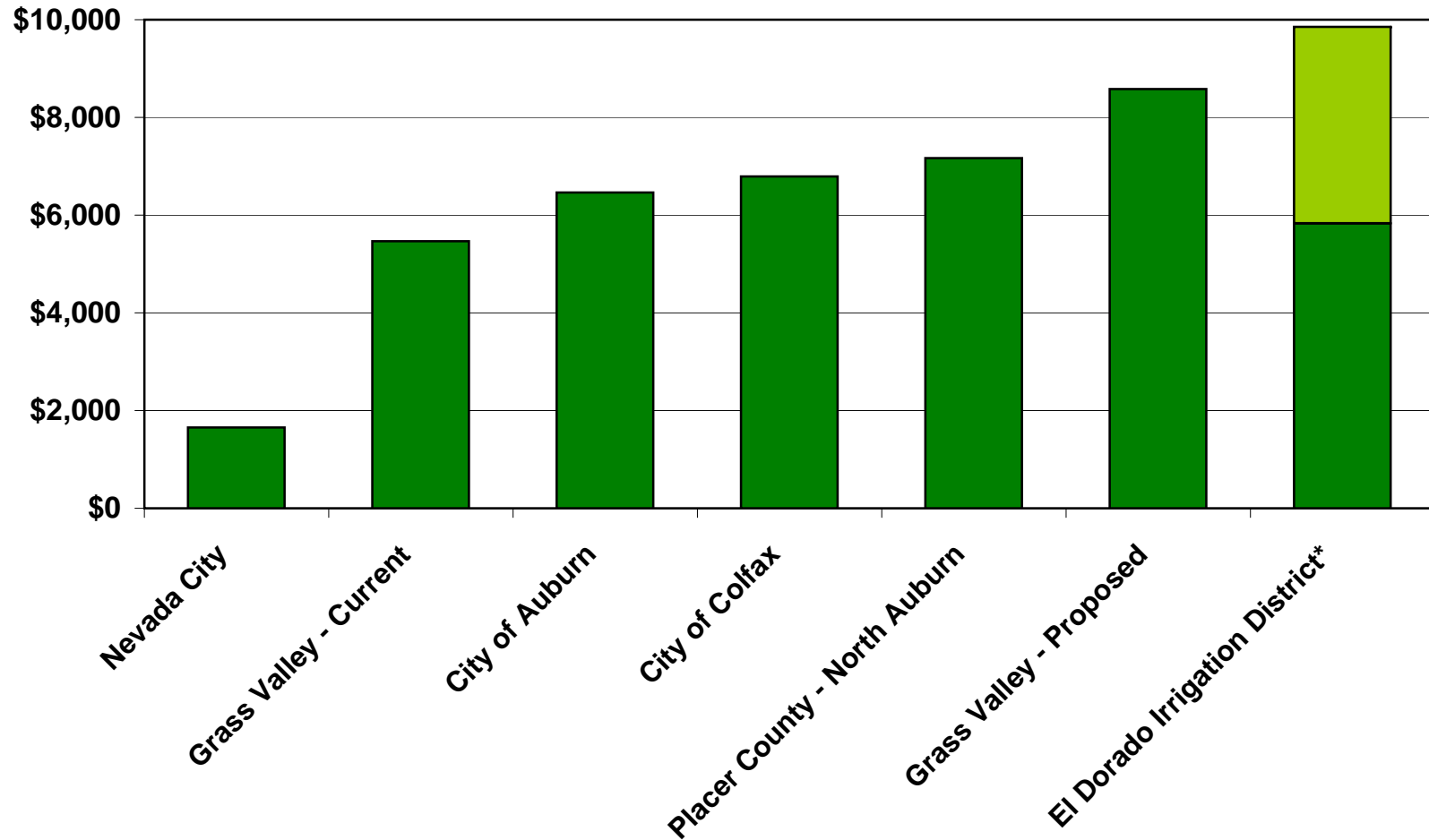
1 Based on American Water Works Association standard meter capacities for displacement-type meters; these ratios are in line with those approved by the California Public Utility Commission.

Table 2-10
 City of Grass Valley
 Proposed Phase-In of Updated Charges

Meter Size	Current Sewer Capacity Charge	Proposed Phase-In of Sewer Capacity Charge Update		
		Jan-1-2008	Jul-1-2008	Jan-1-2009
Phase-In %		33%	66%	100%
RESIDENTIAL				
3/4"	\$5,464	\$6,492	\$7,520	\$8,579
1"	9,283	10,938	12,593	14,298
1-1/2"	18,036	21,521	25,006	28,597
2"	28,837	34,420	40,003	45,755
3"	58,283 - 65,365	69,733	77,642	85,790
4"	92,837 - 111,986	115,800	129,189	142,983
NON-RESIDENTIAL				
Fee per 100 gpd c	\$1,910	\$2,695	\$3,480	\$4,289

CHART 2-A

Sewer Capacity Charge Survey Per Typical New Single Family Residence



* Fee varies by area within District.