

# Highland Water District 2009 Water Rate & GFC Update Final Report – September 14, 2009

#### I. Introduction

At the District's request and direction, we have reviewed the District's water rates and general facilities charges (GFCs) in the context of recent system planning and projected costs. The analytical framework used in this study is generally consistent with the one used in prior updates, most recently during the District's 2006 - 2007 system planning process. This memorandum summarizes our methodology, findings and recommendations.

### II. Key Elements of Update

This analysis included a review and update of the following elements:

#### A. Water GFCs

- Inventory of existing assets
- Calculation of interest eligible for inclusion in the GFC cost basis
- Capital improvement program (CIP)
- Customer base
  - Existing customer base
  - Projected growth

#### B. Water Rates

- Operating expense projections
- Capital project expenditures
- Capital funding sources (including GFCs)
- Debt service
  - Existing debt service
  - New debt service
- Reserve balances
- Non-rate revenues
- Rate strategy

The ensuing sections discuss the update in greater detail.



### III. Water General Facilities Charges

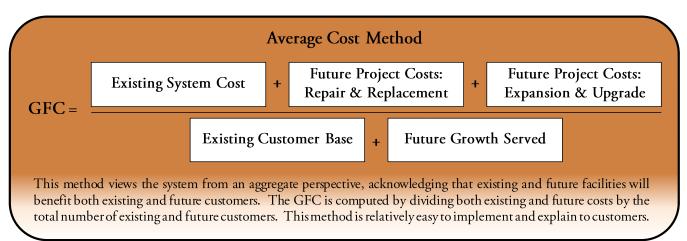
General facilities charges (GFCs), a form of connection charge authorized in the Revised Code of Washington (RCW) 57.08.005, are imposed on new customers connecting to the system as a condition of service. In addition to any other costs related to connecting a customer to the water system, the GFC is typically based on a blend of historical and planned future capital investment in system infrastructure – its underlying premise is that growth (future customers) will pay for growth-related costs that the utility has incurred (or will incur) to provide capacity to serve new customers. The District's GFC is currently \$7,817 per equivalent residential unit (ERU), based on a study completed in 2006.

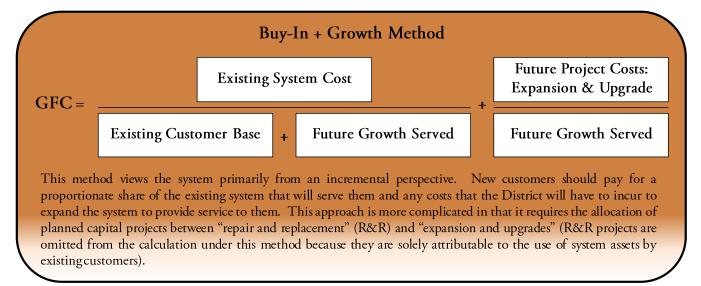
The GFC calculation consists of the following basic elements:

- Existing System Assets: The "cost of the system" includes the cost associated with assets that are currently in service on the premise that these assets serve or otherwise benefit growth in some way. The 2006 study used documented asset costs as of the end of 2005 which, per District records, was about \$6.3 million; the amount used in the 2009 study, \$10.7 million, reflects the addition of assets to the system from 2006 2008.
- Deduction for Contributions In Aid of Construction (CIAC): The GFC cost basis only includes utility-funded assets as an appropriate pool of costs that the District should recover through its rates and charges. The methodology used to compute the District's GFCs does not include costs funded by CIAC in the District's case, CIAC comes primarily in the form of local facilities charges (LFCs) paid for certain assets that only serve localized groups of customers. The 2006 study removed \$2.07 million from the existing cost basis for LFCs paid through the end of 2005, which was likely a conservative assumption as it is based on the assumption that all of the District existing customers paid an LFC of \$1,800 (when the District's LFC has historically been lower than \$1,800). The 2009 study adds \$91,300 in actual LFC revenue collections reported for 2006 2008 to this total, increasing the offset to \$2.16 million.
- Deduction for Localized Assets: The GFC cost basis is adjusted to exclude localized assets such as meters and services on the grounds that new customers will have to pay for their own meters and services when they connect to the District's water system.
- Deduction for Friar Creek Assets: The GFC cost basis also excludes costs associated with assets in the Friar Creek system, as the District imposes a separate structure of GFCs and LFCs in the Friar Creek service area (currently a GFC of \$1,000 and an LFC of \$11,298, for a total charge of \$12,298 per ERU) to recover these costs. Furthermore, the main Highland Water District system is not connected to the Friar Creek system, so these assets do not provide benefit to the District's other customers.

- Planned Capital Improvements: The GFC also recovers a proportionate share of costs associated with the capital improvement projects outlined in the District's Comprehensive Plan. The 2006 study included \$5.7 million in project costs that were allocable to growth, either as costs directly related to expanding system capacity to serve growth or a share of costs related to improvements of general system benefit (such as water system security improvements). Though the most recent version of the District's capital improvement program (CIP) includes roughly \$24.4 million in project costs (\$7.3 million of which is attributable to short-term projects anticipated over the next ten years), the District has indicated that it does not plan to proceed on any additional projects unless grant funding becomes available. To be conservative, the 2009 study only includes \$306,000 in costs associated with projects in the District's 2009 Capital Budget.
- Construction In Progress: Also included in the GFC cost basis is construction in progress, investments that the District has made in its water system that have neither been booked as completed assets nor included in the list of future CIP projects. The 2006 calculation included \$98,710 in construction in progress as of the end of 2005; the 2009 calculation includes \$659,343 in construction in progress as of the end of 2008.
- Interest Provision: RCW 57.08.005 allows the District to include up to ten years of interest on assets, based on the assets' age and the applicable interest rate at the time of the assets' construction or acquisition. The GFC calculation only includes interest on assets included in the existing cost basis. The 2006 calculation included roughly \$677,000 in accrued interest in the GFC cost basis; the 2009 study reflects an updated interest provision of \$1.35 million.
- Customer Base: The 2006 GFC was based on an allocation of the costs discussed above to 1,750 equivalent residential units (ERUs), based on an existing customer base of 1,150 ERUs as of the end of 2005 and projected growth of 600 ERUs over the subsequent ten-year period. The 2009 GFC reflects an updated inventory of existing customers (excluding the 53 homes in the Friar Creek system) and updated ten-year growth projections based on the District's experience and expectations the net effect is a reduction in the allocable customer base from 1,750 to 1,250 ERUs.
- Calculation Methodology: RCW 57.08.005 (10) authorizes the District to impose a connection charge based on an "equitable share of the cost of the system." Given that the RCW does not explicitly define an "equitable share," the District has some flexibility to establish its own definition. Exhibit 1 summarizes the two most common GFC calculation approaches:

# Exhibit 1: GFC Methodology





There are variations on these two methods, including a "buy-in" charge based only on a pro rata share of the existing system and a "system expansion" charge that is based only on a pro rata share of future project costs needed to serve growth. However, these variations fail to recognize that the District will serve growth through a combination of existing and future facilities. Consequently, only the two approaches shown in Exhibit 1 were considered in establishing an updated GFC for the District.

The District's GFC calculation is shown below in Exhibit 2:

Exhibit 2: General Facilities Charge Calculation

Water General Facilities Charge	Av	verage Cost	В	uy-In Plus Growth
Existing Plant-In-Service	\$	10,709,687	\$	10,709,687
Less: Local Facilities Charge Funding		(2,161,300)		(2,161,300)
Less: Meters & Services		(179,144)		(179,144)
Less: Friar Creek Assets		(768,651)		(768,651)
Plus: Interest on Net Assets		1,354,412		1,354,412
Plus: Construction In Progress		659,343		659,343
Net Existing Cost Basis	\$	9,614,347	\$	9,614,347
Projected Ten-Year CIP	\$	306,000	\$	306,000
Less: Costs Exclusively Allocable to Existing Customers		-		(195,858)
Net Allocable CIP	\$	306,000	\$	110,142
Total GFC Cost Basis	\$	9,920,347	\$	9,920,347
Customer Base (ERUs):				
Existing Customer Base		1,181		1,181
Less: Friar Creek ERUs		(53)		(53)
Plus: Projected Ten-Year Growth		122		122
Total Number of ERUs		1,250		1,250
GFC Calculation:				
Existing Facilities Charge				
Net Existing Cost Basis	\$	9,920,347	\$	9,920,347
Applicable Number of ERUs		1,250		1,250
Existing Facilities Charge per ERU	\$	7,694	\$	7,694
Future Facilities Charge				
Net Future Cost Basis	\$	306,000	\$	110,142
Applicable Number of ERUs		1,250		122
Future Facilities Charge per ERU	\$	245	\$	906
T. LOEG. EDIA		7.000	_ <b>.</b>	0.600
Total GFC per ERU	\$	7,939	\$	8,600

The District has indicated that the BPA / Old Owen Road project (\$300,000 of the \$306,000 in the future cost basis) serves two purposes: to expand system capacity for growth and to provide system redundancy that benefits existing customers. Hence, the District could justify using either of the calculation approaches shown in **Exhibit 2**.



The Board has expressed a desire to plan for future capital investment, and has consequently chosen to adopt the "buy-in plus growth" GFC of \$8,600 per equivalent unit – given the information shown in Exhibit 2, this calculation assumes that about 36% of the future cost basis is attributable to system expansion and is allocable to growth. The District may wish to have its engineer confirm that this is a reasonable allocation of the BPA / Old Owen Road project to growth to provide further defensibility to the GFC chosen by the Board. It is also worth noting that a literal interpretation of RCW 57.08.005 (10) would suggest that the District could justify an even higher GFC by including up to \$7.3 million in costs associated with the capital projects planned for construction over the next ten years per the District's Comprehensive Plan.

For new meters larger than  $5/8^{\circ} \times 3/4^{\circ}$ , the District should reserve the right to conduct an engineering analysis to assign ERUs based on the estimated demands that the meter will place on the water system. The American Water Works Association (AWWA) has published a scale of meter flow equivalency factors based on the maximum continuous flow in gallons per minute (gpm) that a meter of a given size can accommodate. Exhibit 3 shows how such the District could apply such a schedule to its GFC structure:

Meter Size	Maximum Continuous Flow (gpm)	Number of ERUs	"Average Cost" GFC	"Buy-In Plus Growth" GFC				
5/8" × 3/4"	10	1.0	\$ 7,939	\$ 8,600				
3/4" × 3/4"	15	1.5	\$ 11,909	\$ 12,900				
1"	25	2.5	\$ 19,848	\$ 21,500				
1-1/2"	50	5.0	\$ 39,695	\$ 43,000				
2"	80	8.0	\$ 63,512	\$ 68,800				
3"	160	16.0	\$127,024	\$137,600				
4"	250	25.0	\$198,475	\$215,000				
6"	500	50.0	\$396,950	\$430,000				
8"	800	80.0	\$635,120	\$688,000				

Exhibit 3: Alternative GFC Structure Based On Water Meter Size

Though most of the District's customer base consists of  $5/8^{\circ} \times 3/4^{\circ}$  residences, the District has indicated the possibility of requests for larger service connections in the future (such as a school). By adopting a structure based on water meter size, the District can appropriately recover costs from customers to a degree that reflects the potential demand that they can place upon the system. The District could use this scale in tandem with an engineering analysis that determines the size of a meter that a customer needs to meet their demands.

#### IV. Water Rates

The water rate update includes the following elements:

• Operating Cost Forecast: Operating expense projections for 2009 are generally based on the District's 2009 Budget. The forecast of operating expenses beyond 2009 is also generally based on this information, reflecting annual inflationary increases of 3.0% – however, there are a couple of exceptions.



The City of Everett has released a forecast of wholesale water rates indicating 6% annual increases to water charges and 9% annual increases to the City's filtration charges. The forecasted water purchase costs increase with these planned rate increases and projected growth in water demand (assumed to be 1% per year, consistent with customer growth estimates provided by the District). State excise taxes are revenue-based, and therefore would increase proportionately with customer growth.

- Capital Cost Forecast: The District has indicated that it does not plan to embark on any additional capital projects unless grant funding becomes available. The District's Capital Budget for 2009 identifies \$308,750 in capital expenditures related to meter installations, a water rate study, and construction of the BPA / Old Owen Road Main. These costs are expected to be funded by developers (meter installations) and existing debt proceeds (BPA / OOR Main), leaving minimal capital funding needs in the forecast.
- Debt Service Forecast: The forecast of debt service is based on debt repayment schedules provided by the District given the minimal near-term CIP discussed above, no additional debt issuance is projected during the study period. In addition, the District's loan agreements with the United States Department of Agriculture (USDA) include debt reserve funding requirements that rates must fund over a ten-year period.
- Policy Assumptions: This study assumes a set of utility fiscal policies that are consistent with those used in the prior study. The key policy assumptions include:
  - Maintaining a target balance equal to 60 80 days of budgeted operating expenses in the Maintenance Fund to provide adequate working capital (to manage differences between revenue and expense cycles). Given the \$489,500 of operating expenses projected in the District's 2009 Budget, this policy results in a target balance ranging from roughly \$80,000 to \$107,000.
  - No system reinvestment funding is assumed for the near-term forecast. An increasing number of utilities have adopted policies to plan for the long-term replacement of their infrastructure, most often using depreciation as a basis for establishing an annual funding provision in rates. The District reported approximately \$213,000 in depreciation expense for 2008, yet paid about \$238,000 in debt principal in 2008. Hence, even if the District were to establish a long-term system reinvestment policy based on depreciation net of debt principal repayment (which is a common benchmark for utilities as it avoids effectively double charging customers for assets and their replacement), it makes sense for the District to not fund system reinvestment through rates at this time. However, it would be prudent for the District to consider implementing such a policy in the future to preserve its longer-term financial integrity as its water system continues to age.
  - GFC revenue is used exclusively for debt repayment for 2009 and 2010; the forecast phases out the use of GFCs for debt repayment between 2011 and 2014, instead using GFCs to build cash funding for future capital projects. Though the District is not currently planning to embark on any major capital projects, it will need to make future investments in its infrastructure with or without grant funding. By building a reserve of cash funding for capital projects, the District can reduce its need for future borrowing and ultimately reduce the longer-term cost to customers.



#### • Revenues:

- Water rate revenue projections are initially developed based on the District's actual rate revenue collections during 2008, and are adjusted for customer growth and the rate increase implemented on January 1, 2009 (an increase of \$2 in the monthly fixed charge). Rate revenue projections are further adjusted to separate revenues attributable to Friar Creek customers, as the District has indicated that those rates are established by the USDA and are not assumed to be subject to rate increases (but are left in the forecast to offset debt service costs attributable to Friar Creek). With these adjustments, the revenue requirement analysis is based on an initial "baseline" projection on the order of \$650,000 per year of revenue that is subject to rate increases.
- Other operating revenues are forecasted to offset projected expenses, including penalties and miscellaneous income (both are assumed to increase with customer growth at 1.0% per year).
- Interest earnings are computed on projected reserve balances at an annual rate of 2.0%.
- This analysis projects GFC revenues based on the "buy-in plus growth" GFC of \$8,600 per ERU and the projected annual ERU growth the assumed addition of 10 15 ERUs per year is expected to generate roughly \$100,000 per year in GFC revenue. The projection of GFC revenue further assumes that the GFC is increased annually with construction cost inflation (assumed to be 4% per year) to keep up with the escalation of the underlying costs beyond 2010.

Once the forecasts have been developed, water rate revenue needs are evaluated using a series of sufficiency tests:

- Cash Flow Sufficiency Test: The premise behind this test is that the District's water utility needs to generate sufficient funds to meet its cash obligations. The cash flow obligations relating to rates include:
  - Operating, maintenance and administrative expenses
  - Debt service payments
  - Rate-funded capital expenditures
  - System reinvestment funding
  - Reserve funding

Offsetting these obligations are various sources of revenue, including:

- Interest earnings on operating and bond reserves
- Miscellaneous operating and non-operating revenues
- Use of surplus operating or bond reserves

To satisfy this test, water rate revenue must be sufficient to ensure non-negative net cash flow. Capital resources such as debt proceeds or GFC revenues are not typically considered available for meeting these cash flow needs, but become part of the resources used for capital project funding.



• Coverage Sufficiency Test: Revenue bond agreements often include a bond coverage requirement in which the utility issuing the bonds agrees to collect enough revenue each year to meet all operating expenses and cover a multiple of the debt service related to the bonds. A bond coverage ratio of 1.25 is most common, meaning that the utility would collect expenses plus 1.25 times debt service as a minimum legal level of revenues. Besides being a legal requirement, the coverage ratio actually realized is an important statistic used to rate a utility's financial integrity and ability to meet its debt obligations. Revenue generated to comply with coverage requirements may be used for capital purposes, and may reduce the amount of revenue needed to meet cash needs in subsequent years — it can also be used to meet capital requirements (and may thus reduce future borrowing), but generally cannot be held over to reduce coverage needs in subsequent years.

Because the District's outstanding debt does not have a coverage requirement above 1.0 (meaning that the District must be able to cover operating expenses and debt service), the District's rate levels are based on cash flow needs.

Exhibit 4 summarizes the near-term rate forecast:

Exhibit 4: Near-Term Water Rate Forecast

h Flow Sufficiency Test		2009		2010		2011		2012		2013		2014
expenses												
Everett Water Purchases	\$	95,000	\$	103,347	\$	112,386	\$	122,135	\$	132,858	\$	144,55
Other Operating Expenses		394,500		407,682		419,202		431,063		443,274		455,84
Debt Service		339,589		497,933		494,726		473,519		470,312		467,10
Reserve Funding		5,670		22,625		22,625		22,609		22,593		16,90
Total	\$	834,759	\$	1,031,587	\$	1,048,940	\$	1,049,327	\$	1,069,038	\$	1,084,41
Revenues												
Water Sales Revenue	\$	647,027	\$	653,987	\$	661,017	\$	668,118	\$	675,289	\$	682,53
Friar Creek Water Sales Revenue		49,032		49,032		49,032		49,032		49,032		49,03
Use of GFC Revenue for Debt Service [1]		79,478		87,204		68,699		48,108		25,266		
Other Operating Revenues (Including Interest Earnings)		24,089		24,408		24,943		25,464		26,298		27,04
Total	\$	799,625	\$	814,631	\$	803,692	\$	790,722	\$	775,885	\$	758,61
Cash Flow Surplus (Deficit)	\$	(35,134)	\$	(216,956)	\$	(245,248)	\$	(258,604)	\$	(293,152)	\$	(325,79
Number of Months New Rates Will Be In Effect		2 Months		12 Months		12 Months		12 Months		12 Months		12 Mon
Annual Water Rate Adjustment Implemented [2] Cumulative Water Rate Adjustment Implemented		34.00% 34.00%		0.00% 34.00%		3.00% 38.02%		3.00% 42.16%		3.00% 46.43%		3.00 50.82
Summary After Rate Adjustments:												
Total Water Sales Revenue	\$	683,692	\$	876,343	\$	912,336	\$	949,800	\$	988,795	\$	1,029,38
Cash Flow Surplus (Deficit)	\$	(313)		(5,782)		(6,568)		8,912	\$	4,587		3,60
Maintenance Fund Ending Balance	\$	115,780	\$	109,998	\$	103,429	\$	112,342	\$	116,929	\$	120,53
Maintenance Fund Minimum Balance	\$	80,466	\$	84,005	\$	87,384	\$	90,937	\$	94,707	\$	98,69
1] Assumed Water GFC per ERU:	\$	7,948	\$	8,600	\$	8,944	\$	9,302	\$	9,674	\$	10,00
Assumed Use of Annual GFC Revenue for Debt Service		100.00%		80.00%		60.00%		40.00%		20.00%		0.00

<sup>[2]</sup> Rate adjustments only apply to Highland Water District water sales revenue - they do not apply to Friar Creek water sales revenue.



As shown in Exhibit 4, the proposed rate strategy includes a substantial rate increase that will become effective with the November 2009 billing (assuming that the new rates go into effect in October 2009). The primary factors leading to this increase include:

- The District's 2009 USDA Loan adds roughly \$161,500 to the annual water rate revenue requirement. Water rate revenue (subject to increases) at current rate levels is projected to be approximately \$654,000 in 2010, and would have to increase by approximately 24% to cover this incremental debt service.
- The 2009 USDA Loan also adds to the District's annual reserve funding requirement. The District is funding a reserve requirement based on one year's debt service over a ten-year period consequently, the 2009 USDA Loan increases the annual reserve funding requirement by about \$16,950. Rate revenue would have to increase by roughly 3% to cover this incremental funding need.
- Operating expenses are generally increasing with inflation at 3% per year. Water purchase costs are increasing at a higher rate based on Everett's forecast, and excise taxes increase with revenues. To cover the projected increase in operating expenses for 2010, rate revenue levels would have to increase by about 5%.
- In light of the recent economic downturn and its implications for near-term growth, and allowing for rate-induced reductions in demand, the Board has decided to fund an additional contingency through rates that leads to a rate increase of about 2%. This contingency will supplement the resources that the District has in its Maintenance Fund and Construction Fund to meet unforeseen operating and capital needs.

Exhibit 5 provides a schedule of water rates under the proposed near-term rate strategy:

Exhibit 5: Near-Term Water Rate Strategy

Water Rate Forecast [1]	Jan 2009 - Sep 2009	Oct 2009 - Dec 2010	2011	2012	2013	2014
Monthly Fixed Charge [2]	\$41.00	\$55.00	\$56.00	\$57.50	\$59.50	\$61.00
Volume Charge per Hundred Cubic Feet (cf):						
0 cf - 1,000 cf	\$0.90	\$1.20	\$1.25	\$1.30	\$1.30	\$1.35
1,001 cf - 1,500 cf	\$1.65	\$2.20	\$2.25	\$2.30	\$2.40	\$2.45
1,501 cf - 2,200 cf	\$1.90	\$2.50	\$2.60	\$2.70	\$2.75	\$2.85
2,201 cf - 3,000 cf	\$2.15	\$2.85	\$2.90	\$3.00	\$3.10	\$3.20
3,001 cf +	\$2.40	\$3.20	\$3.30	\$3.40	\$3.50	\$3.60
Average Monthly Bill Assuming 800 cf of Monthly Usage						
Highland Water District	\$48.20	\$64.60	\$66.00	\$67.90	\$69.90	\$71.80

<sup>[1]</sup> The monthly fixed charges shown reflect rounding to the nearest \$0.50; the volume charges reflect rounding to the nearest \$0.05.

As Exhibit 5 shows, a residential or commercial customer using an average of 800 cubic feet of water per month would pay \$48.20 under the current rate structure; the proposed rate increase would correspond to an increase of \$16.40 in the average monthly bill. Based on the factors discussed above,



<sup>[2]</sup> Applies to 5/8" × 3/4" meters. The District reserves the right to assign equivalent residential units to larger customers based on an engineering analysis.

- \$11.57 of this increase is attributable to the increased debt service from the 2009 USDA Bond
- \$1.45 is attributable to additional bond reserve funding requirements
- \$2.41 is related to projected increases in operating costs
- \$0.97 is attributable to the additional contingency provision

It is worth noting that the rates shown above in Exhibit 5 do not reflect the removal of any costs related to fire protection following the verdict of Lane v. City of Seattle. The Lane verdict states that fire protection is a "general government service" that cannot be funded through water rates. Cities have been addressing this requirement by imposing utility taxes to recover fire protection costs and establishing a separate structure of charges for customers receiving private fire service. Special-purpose districts do not have taxing authority, and generally can only recover costs through user rates – for this reason, it is not yet clear how the Lane verdict applies to special-purpose districts. The District's reality is that it needs to recover the costs that it incurs in providing service, and until it is certain that such costs can be recovered from third-party general governments, must prudently ensure adequate revenues from reliable rate mechanisms.

#### V. Recommendations

Key recommendations stemming from the 2009 Water Rate & GFC Update include:

- Adopt the updated water GFC structure shown in Exhibit 2
  - We recommend the "average cost" GFC of \$7,939 per ERU because it is relatively simple to calculate and eliminates the need for subjective allocations of future facility costs to growth
  - We recommend that the District consider implementing a policy for assigning equivalent residential units (ERUs) to customers based on water meter size (as shown in **Exhibit 3**)
- Adopt the updated water rate structure shown in Exhibit 5 for the period spanning from October 2009 (reflected in the November 2009 bills) to December 2010
  - We recommend that for the purpose of imposing monthly fixed charges, the District consider implementing a policy for assigning equivalent residential units (ERUs) to customers based on water meter size
  - We recommend that the District consider phasing out the use of GFCs for debt repayment, as the
    potential volatility of GFC revenue collections may create unanticipated and urgent needs for rate
    increases if the projected growth is not realized
- Re-evaluate the District's water rate needs for 2011 and subsequent years at a later time
  - Consider ramping up system reinvestment as the system ages and replacement needs accumulate

