WATER CONNECTION CHARGES: A TOOL FOR ENCOURAGING WATER-EFFICIENT GROWTH

Case Study on Westminster, Colorado

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Westminster, a suburb of Denver with over 100,000 residents, is the seventh-largest city in Colorado. In the late 1990s, the water utility began to re-examine the water demands of its customers and adjust its connection charges accordingly. Since 2001, Westminster’s connection charges for industrial, commercial, and institutional customers have been carefully designed to be proportionate with each customer’s projected water use. In addition, the connection charge schedule includes incentives for low-water-use landscapes installed in large irrigated areas.

**Good Data Improved Cost Recovery and Connection Charge Equitability**

In 1998, Westminster reviewed its connection charge structure and discovered that the fees paid by the industrial, commercial, and institutional (ICI) sector were not fully or equitably covering their true financial impacts to the system, in contrast with the fees paid by the residential sector. The ICI connection charges were based on meter size, which is determined by instantaneous peak demand. However, customers with the same meter size often had very different water demand profiles over the course of a year. Effectively, this resulted in customers with lower annual water use subsidizing the higher water users’ fees. Thus, the City developed a fine-tuned system to assign costs more proportionately.

The City developed a connection charge structure for the ICI sector that is comprised of two main parts: the infrastructure fee and the water resources fee. The infrastructure fee is based on the size of the meter, which is determined by the number of “fixture units.” The fixture-unit count tallies the number and types of fixtures to be installed and accounts for peak demand of the customer. When City staff members review the new development’s design plans, they have the opportunity to recommend water efficiency measures that could result in a reduced fee. The infrastructure fee increases with increasing meter size; a ¾-inch by ¾-inch meter is about $10,000, and a 2-inch meter is a little over $80,000.¹

The water resources fee is proportionate to the customer’s projected annual water use. Average annual water for each type of ICI customer — e.g., restaurants, hotels, schools, and warehouses — was determined by analyzing Westminster customer data and researching national data sources. The utility developed a table of water use for each type of ICI customer, expressed as a function of the size of the establishment. For example, the average water use of a restaurant was found to be 200 gallons per square foot per year, and the average water use of a hotel was found to be 23,500 gallons per hotel room per year. Figure 1 shows the range of water uses in gallons per square foot per year for a variety of ICI customers. The water resource fee, therefore, depends on the type of business establishment and its size. While water resource fees vary widely, they typically range from $10,000 to $100,000.

As properties redevelop or change uses, these changes are evaluated against the original Official Development Plan, and additional tap fees may be charged if water use is projected to increase or if a larger tap is required. Customers who consistently use more water than was projected are re-evaluated; if water use is not reduced to the levels purchased, they are charged an additional water resources fee.

### Water-Efficient Landscapes Are More Prevalent Now Due to Fee Incentives

Westminster requires separate irrigation meters on all non-single-family projects. Since 1998, Westminster has incentivized water efficiency in large landscaped areas, such as commercial landscapes and common areas, or whenever an irrigation water meter is required. Irrigation connection charges are based on the area of landscaping and the projected annual water demand, as determined by the water requirements of the plants — the cost per square foot is highest for turf areas and lowest for low-water-use landscapes. The three types of landscapes are defined in the City’s Landscape Regulations, as reflected in the table below. In addition, the cost to use reclaimed water is about 80% the cost of potable water because no additional water acquisition is necessary.
Before this tiered irrigation fee schedule was in place, the typical irrigation tap was using three times as much water as was projected by the City. With the new system that is based on water use by landscape type, it is only 25% more than projected.

As a result of this tiered landscape connection charge, more low-water-use and medium-water-use landscaping has been installed. In 2004, the City developed a Landscape Plan establishing new water quality and water efficiency standards for landscape installations. Most new landscapes are now coming in below the City’s Landscape Plan limits for turf and with more water-efficient irrigation technologies, such as drip and subsurface irrigation. As a side benefit, developers are not incentivized to undersize irrigation taps, since the tap fee is based on the irrigated area, ensuring proper operations.

The City issues up to a certain number of water service commitments per year in a competitive process. One service commitment is equal to the typical use of a single-family home; a small hotel might be equivalent to 5–10 service commitments. Thus, projects with lower water use are given preference in light of the competition for service commitments. Many other attributes of the development are considered as well in the selection of which proposed projects will ultimately be approved by the City.

Like buildings, landscapes can change over time as well, often because of new ownership or management. What may have started as low-water-use landscape could be converted to something with a higher water demand after the connection charge has been paid. In Westminster, this issue is addressed by requiring the Official Development Plan to be adhered to; if any changes occur, they must be approved and additional water connection charges will be charged commensurately if water demands increase. The fees are not refunded if water demands decrease over time because the City has already purchased water and infrastructure to meet the originally projected demand.

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2 Stu Feinglas, Water Resources Analyst, City of Westminster, personal communications with author, April 15, 2015.

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<table>
<thead>
<tr>
<th>Water Use and Irrigation Profile</th>
<th>Fee ($/sq ft)</th>
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<tbody>
<tr>
<td>Turf</td>
<td>Medium Water Use</td>
</tr>
<tr>
<td>Potable Irrigation Tap Fee</td>
<td>$2.05</td>
</tr>
<tr>
<td>Reclaimed Water Fee</td>
<td>$1.68</td>
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</tbody>
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**W-Table 1. Westminster Incentivizes Water Efficient Landscape Types Through Lower Connection Charges for Low Water Use Landscapes.**

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<td>Turf</td>
<td>Medium Water Use</td>
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<tr>
<td>More than 10 gallons per sq. ft. Irrigation methods will typically be spray or rotor heads. Bluegrass turf is a typical grass in this zone.</td>
<td>$2.05</td>
</tr>
<tr>
<td>No more than 10 gallons per sq. ft. Irrigation methods will typically be spray heads. Turf-type tall fescue is a typical grass in this zone.</td>
<td>$1.68</td>
</tr>
<tr>
<td>No more than 3 gallons per sq. ft. Irrigation methods will typically be micro-spray or drip. Buffalo grass is a typical grass in this hydrozone.</td>
<td>$0.51</td>
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Only been minor changes have been made to Westminster’s connection charge structure since the original case study was published in 2015. Charges increased slightly in accordance with a predetermined schedule set forth in 2016. The water-resources component of the fee reflects the increased cost of water based on recent water purchases (equaling $32,200 per acre-foot). The infrastructure component of the fee went up by 2.77%, based on the consumer price index and as set forth in city code. The updated charge schedule is available on the city’s website in the Water/Sewer Tap Fees section. Additionally, a “Tap Fee Process and Schedule” document was produced by the City of Westminster to help developers better understand the fees and process.

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