

# Water & Sewer Rate Model Narrative

April 2019

The City of Aurora utilizes a detailed Water & Sewer Rate Model, designed by an international consulting firm, to evaluate necessary adjustments to customer water and sewer rates. The purpose of the model is to match the costs of providing service to individual customer classes and to design rates to equitably recover those costs (a cost-of-service approach).

There are four key issues that the model considers:

1. Minimize customer impacts (No large, sudden rate increases; “Rate Shock”)
2. Maintain revenue adequacy (Cover daily operational and maintenance costs & long-term Capital Improvement Plan needs)
3. Use fair and equitable cost allocations (both across customer classes & between fixed (availability) vs. volume charges)
4. Use practical rate and billing formats (maximize customer understanding and acceptance of rates)

The model accomplishes the analysis by performing three main steps. First, the model determines the revenue required to maintain services (How much money is needed?). This includes the annual operational and maintenance costs for the Water Treatment Plant, drinking water distribution system, and the sanitary sewer collection system. Annual and long-term capital improvement costs on the constantly aging infrastructure are also considered, as well as the cost of debt, such as bonds.

Second, the model allocates those expected costs to different customers (Who caused the cost and from whom should money be collected?). Each different customer class demands different amounts of water in different ratios at different times of the day and year. For example, residential customers tend to create large demands on the water supply system in the early morning and evening hours. Also, during summer time, residential customers tend to exert a larger demand when outside watering of lawns and landscaping occurs. On the other hand, non-residential customers typically have a more uniform demand pattern with minor increases in demand during summer time. These different demand patterns require different capital infrastructure to meet the demands, and of course, this relates back to different costs.

Lastly, the model analyzes the ultimate rate design (How should water and sewer services be priced?). Rates should be easy for customers to understand and easy for the city to implement. Ultimately, rates should move towards actual cost-of-service (full-cost) pricing. This is done by making adjustments between the fixed (availability) charges and volume charges. Availability charges address costs to the city even when not pumping any water (i.e. meter maintenance, billing administration, facility and pipe maintenance for fire protection, etc.), while volume charges address costs to produce water in variable amounts (i.e. electricity, treatment chemicals, treatment by-product disposal, etc.).

It is difficult to move rates to achieve cost-of-service pricing. The infrastructure associated with water distribution is constantly wearing with use / aging and in need of repair which increases the capital improvement plan needs. Also, the nationwide trend of decreasing average water volume usage per person has been occurring in Aurora since 1994.

The financial model takes all the above factors into account when future water and sewer rates are evaluated and proposed.