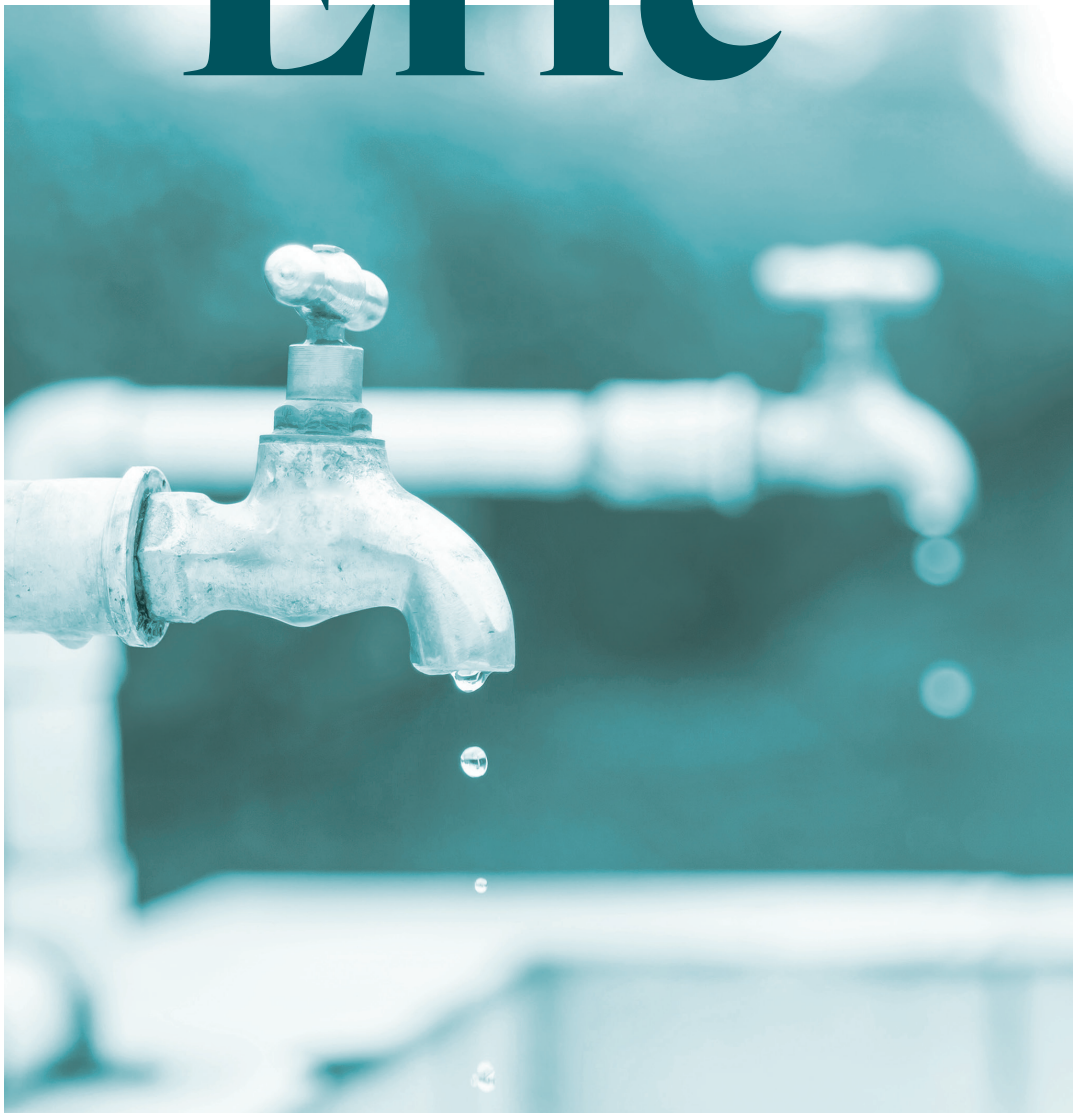


# Town of Erie





## **Raftelis is registered with the U.S. Securities Exchange Commission (SEC) and the Municipal Securities Rulemaking Board (MSRB) as a Municipal Advisor.**

Registration as a Municipal Advisor is a requirement under the Dodd-Frank Wall Street Reform and Consumer Protection Act. All firms that provide financial forecasts that include assumptions about the size, timing, and terms for possible future debt issues, as well as debt issuance support services for specific proposed bond issues, including bond feasibility studies and coverage forecasts, must be registered with the SEC and MSRB to legally provide financial opinions and advice. Raftelis' registration as a Municipal Advisor means our clients can be confident that Raftelis is fully qualified and capable of providing financial advice related to all aspects of utility financial planning in compliance with the applicable regulations of the SEC and the MSRB.

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July 10, 2019

Mr. Steve Felten  
Finance Director  
Town of Erie  
645 Holbrook Street  
Erie, CO 80516

**Subject: Proposal for Utility Rate and Connection Fee Study**

Dear Mr. Felten:

Like other Front Range communities, the Town of Erie's (Town) population has grown significantly over the past 10 years and is projected to grow an additional 50 percent in the next 15 years. This level of growth requires significant up-front investment by the Town to provide essential water, wastewater, and stormwater services. The Town has adopted a "growth pays for growth" policy using tap fees and water resource fees. Maintaining these fees at the appropriate level ensures that the cost of growth minimally impacts existing ratepayers.

This rate study is an ideal opportunity to evaluate the Town's ability to meet its utility growth-related costs, secure sufficient water supply, and equitably recover annual operating and capital costs from customer classes while encouraging water efficiency.

We know how important it is to ensure that when a rate study is complete your customers understand the rate study process and the Board of Trustees feels confident that customers have been prioritized within the recommendations. Raftelis has developed rate studies for dozens of utilities along the Front Range, and our recommendations are readily adopted and implemented. Our team has multiple decades of experience in utility financial management, rate and fee studies, infrastructure funding, and community engagement. We have included an optional task that would support the Town's communications staff with the development of a communications strategy to help garner support for the Town's future water and wastewater infrastructure initiatives.

I will serve as Project Manager, responsible for overall project accountability and ensuring the study is completed in a timely manner and meets industry standards. In addition to my consulting work, I am the former Rates Manager for Denver Water and a co-instructor for the American Water Works Association's (AWWA) Financial Management: Cost of Service Rate-Making Seminar. I also served as the project manager on the Town's 2008 rate study. Erik Jorgensen and Hannah Palmer-Dwore will lead the technical analysis. Erik, Hannah, and I have worked together on several Colorado engagements similar to this study.

The Town has indicated that this project will start in August and finish in December. Our project team has the capacity available to complete this study within the given timeframe. In addition, this project will be staffed out of our Denver office where we have a staff of 10 consultants. This ensures that we have access to local resources should they be needed during the study.

We are proud of the resources that we can offer and welcome the opportunity to assist the Town on this engagement. Should you have any questions, please contact me using the following information:

Todd Cristiano, Project Manager – P: 303 305 1136 / E: [tcristiano@raftelis.com](mailto:tcristiano@raftelis.com)

Sincerely,

A handwritten signature in black ink that reads 'Todd Cristiano'.

**Todd Cristiano**  
*Senior Manager*

# Project Understanding

The Town of Erie (Town) has identified several objectives for this rate study which are summarized below:

- Development of a long-range revenue requirement, cost of service, and rate design forecast
- Tap, resource and impact fees that recover the cost to serve new development
- Equitable recovery of the cost to provide service to customer classes based on test-year revenue requirements
- Creation of a multi-family customer class
- Rates designed for the study period 2019 through 2029
- Rates that are easy to administer, understand, and compatible with the existing Tyler billing system
- Review and update to the Town's utility ancillary fees with recommendations for any changes
- Tap fee assessment schedules and rate designs that are consistent with industry standards, Town policies, and meet the requirement of the Town's Comprehensive Plan
- Equitable recovery of growth-related costs from tap fee and water resource fees
- Presentation of results to stakeholders and Town Council
- Final reports summarizing the findings and conclusions of the study
- Project completion by December 2019

# Project Approach

The Town is retaining a consultant to conduct a comprehensive rate study for their water, wastewater, and stormwater utilities. This includes the development of a 10-year financial plan, cost of service analysis, rate design, tap fees and a review of ancillary fees. The Town identified several objectives for the study. To better understand those objectives, we conducted some preliminary research on the utilities using publicly available financial data from the Town's website. Based on this cursory analysis, we identified a few items that will be helpful for conducting the study.

As the Town grows, the Community Plan goals related to public services include planning for and equitably funding infrastructure needs as growth continues. The Town has large capital expenditures on the horizon to meet these needs. The Town has been diligent in building up reserves in each utility for exactly this purpose, and plan on cash-funding all 2019 capital projects with the exception of the Windy Gap Firing Project (WGFP).

The WGFP, slated to begin construction in 2019, will be debt-funded; however, it is not currently known if the debt, issued by the Northern Colorado Water Conservation District, will appear as debt on the Town's financials. Historically, the Town has had excellent pro-forma coverage. Whether the debt will be shown as debt payments or an operating expense will affect pro-forma coverage differently.

The 2019 Budget projects more than 25% of water revenue and 30% of wastewater will come from tap fees. In the 2019 Budget, the majority of capital expenses (\$55M for water, \$6.5M for wastewater) are related to additional capacity. As the Town continues to grow, it will be important to ensure that tap fees are adequately funding capital projects – that growth is paying for growth. The calculation of suitable tap fees will be particularly important as land use diversifies, with more mixed-use and high-density development planned, and the demand placed on the water, wastewater, and drainage systems shift.

Although Erie has a high projected growth rate, it is expected that this rate will become more moderate over time. As a result, the Town will need to plan ahead for concurrent potential decreases in tap fee revenues and increased repair and replacement projects.

# WHO IS Raftelis

**RAFTELIS IS THE  
TRUSTED ADVISOR TO UTILITIES  
AND THE PUBLIC SECTOR.**

+ Visit [www.raftelis.com](http://www.raftelis.com) to learn more



Raftelis provides utilities and public-sector organizations with insights and expertise to help them operate as high-performing, sustainable entities providing essential services to their citizens. We help our clients solve their finance, organizational, and technology challenges, achieve their objectives, and, ultimately, make their communities better places to live, work, and play.



# The Right Fit

**We believe that Raftelis is the right fit for this project. We provide several key factors that will benefit the Town and help to make this project a success.**



## **RESOURCES & EXPERTISE**

**This project will require the resources necessary to effectively staff the project, and the skillsets to complete all of the required components.**

With more than 100 consultants, Raftelis has the largest water-industry financial and rate consulting practice in the nation. Our depth of resources will allow us to provide the Town with the technical expertise necessary to meet your objectives. In addition to having many of the industry's leading rate consultants, we also have experts in key related areas, like stakeholder engagement and data analytics, to provide additional insights as needed.



## **DEFENSIBLE RECOMMENDATIONS**

**When your elected officials and customers are considering the validity and merit of recommended changes, they want to be confident that they were developed by experts using the latest industry standard methodology.**

Our senior staff are involved in shaping industry standards by chairing various committees within the AWWA and WEF. Raftelis' staff members have also co-authored many industry standard books regarding utility finance and rate setting. Being so actively involved in the industry will allow us to keep the Town informed of emerging trends and issues, and to be confident that our recommendations are insightful and founded on sound industry principles. In addition, with Raftelis' registration as a Municipal Advisor, you can be confident that we are fully qualified and capable of providing financial advice related to all aspects of utility financial planning in compliance with federal regulations.





### **HISTORY OF SIMILAR SUCCESSES**

**An extensive track record of past similar work will help to avoid potential pitfalls on this project and provide the know-how to bring it across the finish line.**

Raftelis staff have assisted 1,000+ utilities throughout the U.S. with financial and rate consulting services, with wide-ranging needs and objectives. Our extensive experience will allow us to provide innovative and insightful recommendations to the Town, and will provide validation for our proposed methodology ensuring that industry best practices are incorporated.



### **USER-FRIENDLY MODELING**

**A modeling tool that your staff can use for scenario analysis and financial planning now and into the future will be key for the Town going forward.**

Raftelis has developed some of the most sophisticated yet user-friendly financial/rate models available in the industry. Our models are tools that allow us to examine different policy options and cost allocations and their financial/customer impacts in real time. Our models are non-proprietary and are developed with the expectation that they will be used by the client as a financial planning tool long after the project is complete.



### **RATES THAT ARE ADOPTED**

**For the study to be a success, rates must be successfully approved and implemented.**

Even the most comprehensive rate study is of little use if the recommendations are not approved and implemented. Raftelis has assisted numerous agencies with getting proposed rates successfully adopted. We develop a message regarding the changes that is politically acceptable, and convey that message in an easy-to-understand manner. We focus on effectively communicating with elected officials about the financial consequences and rationale behind recommendations to ensure stakeholder buy-in and successful rate adoption.



# Leading the industry

Raftelis staff shape industry standards for water and wastewater utility finance and management through our active leadership in AWWA, WEF, and EPA. Raftelis' staff includes:

## AWWA

- Asset Management Committee - 1 member
- Benchmarking Committee - 1 member
- Finance, Accounting, and Management Controls Committee - 2 members
- Management and Leadership Division - Chair and Vice Chair
- Public Affairs Council - Chair
- Rates and Charges Committee - Chair and 7 members
- Strategic Management Practices Committee - Chair
- Technical and Education Council - 1 Trustee

## WEF

- Finance and Administration Subcommittee - Chair
- Technical Practices Committee - 1 member
- Utility Management Committee - 4 members
- WEFTEC Conference Planning Committee - 1 member

## EPA

- Environment Financial Advisory Board - 1 member



# We wrote the book

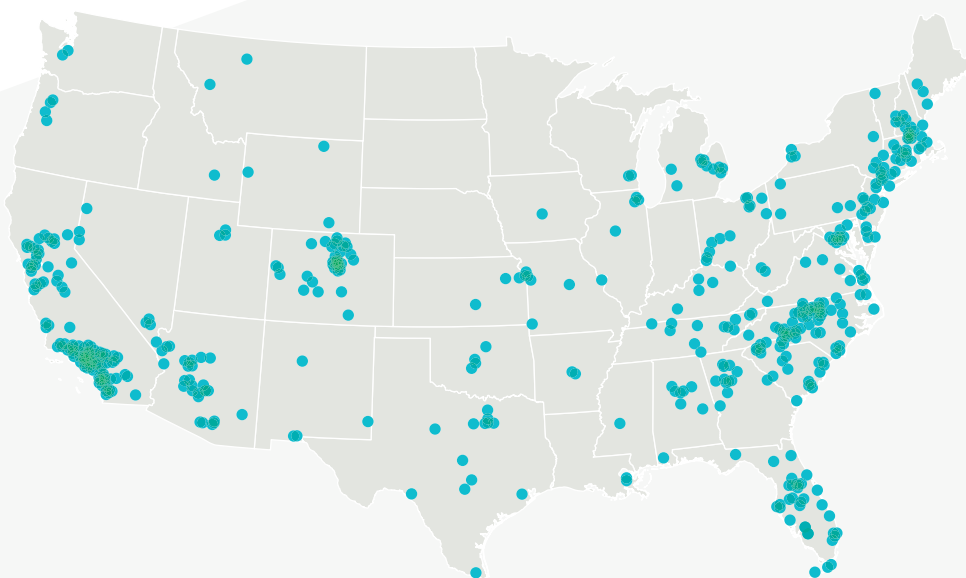
Raftelis staff have co-authored many of the industry's leading guidebooks regarding water and wastewater financial and management issues, including:

- Affordability of Wastewater Service (WEF)
- Financing and Charges for Wastewater Systems, Manual of Practice 27 (WEF)
- Manual M1, Principles of Water Rates, Fees and Charges (AWWA)
- Manual M5, Water Utility Management (AWWA)
- The Effective Water Professional (WEF)
- Water and Wastewater Finance and Pricing: The Changing Landscape
- Water and Wastewater Rate Survey (conducted and published collaboratively with AWWA and Raftelis)
- Water Rates, Fees, and the Legal Environment (AWWA)

# Experience

**RAFTELIS HAS THE MOST  
EXPERIENCED UTILITY FINANCIAL  
AND MANAGEMENT CONSULTING  
PRACTICE IN THE NATION.**

Our staff have assisted more than 1,000 utilities across the U.S., including some of the largest and most complex agencies in the nation. In the past year alone, Raftelis worked on more than 600 financial/organizational/technology consulting projects for over 400 water, wastewater, and/or stormwater utilities in 40 states, the District of Columbia, and Canada.



Raftelis has provided financial/organizational/technology assistance to utilities serving more than

**25%**

of the U.S. population.

This map shows some of the utility clients that we have assisted.

## COLORADO EXPERIENCE

This matrix shows a sample of some of the utilities throughout Colorado that Raftelis staff have assisted and the services performed for these utilities.

Colorado Utility	Cost of Service Analysis	Debt Issuance Support	System Development Fees	Financial & Capital Improvements Planning	Public Education & Outreach	Rate Structure Development
Arapahoe County Water and Wastewater Authority						
Aspen, City of						
Aurora, City of						
Bancroft-Clover Water and Sanitation District						
Berthoud, Town of						
Boxelder Sanitation District						
Boulder, City of						
Brighton, City of						
Broomfield, City & County of						
Cañon City						
Castle Rock, Town of						
Crestview Water & Sanitation District						
Denver, City And County of						
Denver Water						
Durango, City of						
Dillon, Town of						
Eagle River Water & Sanitation District						
East Cherry Creek Valley Water & Sanitation District						
East Larimer County Water District						
Eaton, Town of						
Englewood, City of						
Fairplay Sanitation District						
Fort Collins, City of						
Fort Collins - Loveland Water District						
Fort Morgan, City of						
Fruita, City of						
Golden, City of						
Grand Junction, City of						
Greeley, City of						
Idaho Springs, City of						
Lakewood, City of						

Colorado Utility	Cost of Service Analysis	Debt Issuance Support	System Development Fees	Financial & Capital Improvements Planning	Public Education & Outreach	Rate Structure Development
Left Hand Water District						
Littleton, City of						
Lochbuie, Town of						
Longmont, City of						
Louisville, City of						
Mount Crested Butte Water & Sanitation District						
Mount Werner Water & Sanitation District						
Nederland, Town of						
Northern Colorado Water Conservancy District						
Parker Water & Sanitation District						
Platteville, Town of						
Pueblo, City of						
Pueblo West Metropolitan District						
Rifle, City of						
Salida, City of						
Security Water & Sanitation District						
Snowmass Water & Sanitation District						
South Adams County Water & Sanitation District						
South Metro Water Supply Authority						
St. Vrain Sanitation District						
Steamboat Springs, City of						
Superior, Town of						
Thornton, City of						
Three Lakes Water and Sanitation District						
Trinidad, City of						
Triview Metropolitan District						
Upper Eagle Regional Water Authority						
Upper Thompson Sanitation District						
Widefield Water & Sanitation District						
Woodmoor Water & Sanitation District No. 1						

On the following pages, we have provided detailed descriptions of several projects that we have worked on that are similar in scope to the Town's project. We have included references for each of these clients and urge you to contact them to better understand our capabilities and the quality of service that we provide.

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## City of Durango

### COLORADO

**Reference:** Jarrod Biggs, Assistant Utilities Director  
105 Sawyer Drive, Durango, CO 81303  
P: 970.375.4805 / E: jarrod.biggs@durangogov.org

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### WATER AND WASTEWATER COST OF SERVICE RATE STUDY (2019)

The City of Durango (City) retained Raftelis to conduct a comprehensive, independent assessment of its water and wastewater utilities and provide recommendations on revenue adjustments, cost of service and rate design. The City's broad objective of the study was to adequately fund water and wastewater utility operations, foreseeable capital costs, and any future bonded debt, which will be supported by the proposed rates. The study included a comprehensive review of the City's water and wastewater funds and budgets, an inventory of the water and wastewater capital assets, customer classes, current usage data, future planned service area growth, and any other information deemed necessary. This analysis included a review and update of the City's water and wastewater plant investment fees. The City also requested a review of the rate differential between inside City and outside City customers.

The City's last comprehensive study was completed in 2014 which recommended large rate adjustments to fund an upcoming wastewater treatment construction project and a water treatment plant. The wastewater treatment plant is nearing completion and the City has continued to focus efforts on ongoing repair and replacement. The water plant is projected to be constructed over the next few years. Its primary purpose is to provide redundancy and provide for some growth in the system. The water capital program also included ongoing repair and replacement projects. Raftelis prepared several water financial plan alternatives for staff's review and review by the City's Public Utility Commission's stakeholder group. Raftelis also developed cost of service-based rates for inside and outside City water and wastewater customers. As an alternative, Raftelis also developed outside City rates based on a rate differential (i.e. higher rates for outside City). This rate was developed based on the premise that the density of customers outside the City was lower than inside City. This lower density required more distribution infrastructure to serve outside City customers. Raftelis calculated a density ratio for inside and outside City customers based on the number of accounts per length of main. This ratio was applied to distribution-related costs in the

cost of service analysis to arrive at a rate differential for inside and outside City customers.

Raftelis also updated the City's plant investment fees considering the replacement costs of current assets. Because there is sufficient capacity in the current system, no future expansion costs were included in the fee. The ¾-inch meter equivalency used to develop the ¾-inch meter fee was based on peak demand for all ¾-inch meter water users and ¾-inch meter average winter flows for wastewater.

The study is nearing completion. Raftelis will present draft results in July 2019 and final results in August of 2019.

## City of Golden

### COLORADO

**Reference:** Anne Beirele, Deputy Director of Public Works  
1445 10th Street, Golden, CO 80401  
P: 303.384.8153 / E: abeierle@cityofgolden.net

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### WATER, WASTEWATER, AND DRAINAGE COST OF SERVICE RATE STUDY (2019)

The City of Golden (City) provides water, sewer, and drainage services to approximately 5,400 customer accounts through the use of separate, self-supporting utility enterprise funds. Rates charged for services must be adequate to support maintenance and operations, debt service on utility related debt, capital improvement programs and asset reinvestment, and transfers for general and administrative overhead.

The City retained Raftelis to develop comprehensive financial plans, cost of service analyses, and rate designs sufficient to support a recommendation to City Council for adjustments in rates for water, sewer, and drainage operations. The study for the water utility also determined the adequacy and most appropriate rate structure for potable water and raw water considering such issues as conservation, consumption characteristics of various customer classes, price elasticity of demand, fairness and equity implications, and customer understanding.

Raftelis developed the financial plans, cost of service analysis, and rate design for each utility. For the water utility, the City was interested in determining the cost of raw water which serves

a number of recreational facilities. These costs were specifically identified in the cost allocation process to ensure equity was maintained between potable and non-potable customers. In a similar fashion, the City serves a small group of wastewater customers within their service area whose wastewater flows are conveyed to a non-Golden treatment facility. Working with Staff, Raftelis specifically identified those costs and developed a rate specific for these groups of customers.

The study also included the convening of an ad-hoc Utility Rate Citizen Committee with membership from the Citizens Budget Advisory Committee, the Citizens Sustainability Advisory Board, the Planning Commission, and citizens at-large. The purpose of this committee was to evaluate rate structure alternatives for the three utilities and recommend proposed alternatives to the City Council for their review and feedback. Raftelis presented information about the general rate-setting process, assisted the Committee with identifying key pricing objectives to help frame the rate alternative options, and presented the final alternatives for the Committee's review. Raftelis also oversaw the technical efforts by the Raftelis team in developing the various options. This study is nearing completion and the Committee's recommendation is anticipated to be presented to Council in August 2019.

## Bancroft-Clover Water and Sanitation District

### COLORADO

**Reference:** Tim Lowe, General Manager  
900 S Wadsworth Boulevard, Lakewood, CO 80226  
P: 303.922.1113 / E: timl@bancroftclover.com

### WATER AND WASTEWATER FINANCIAL PLAN, COST OF SERVICE, RATE DESIGN, AND TAP FEE STUDY (2017)

Mr. Cristiano served as the project manager on this engagement. Bancroft-Clover Water and Sanitation District (District) is a wholesale customer of Denver Water. They are located west of the City of Denver's boundary and serve approximately 8,000 accounts, most of which are residential customers. The District retained Raftelis to conduct a water and sewer financial plan analysis. Of concern was the District's ability to cash fund an anticipated wastewater master plan as well as ongoing water repair and replacement projects. He oversaw the development of revenue projections based on historical billing records and the projection of operating and capital expenditures. Mr. Cristiano also provided insight on maintaining sufficient operating and capital reserve levels. Mr. Cristiano presented the findings to the Board of Directors in October 2017. The Board adopted the proposed rate adjustments in December 2018.

The District retained Raftelis to complete a comprehensive water and wastewater cost of service and tap fee study. Of interest to the District was to ensure equity among the customer classes. In

addition, the District wanted the cost of service analysis and rate design to incorporate the continued gradual reduction in water usage from all customer classes. Mr. Cristiano developed the cost of service in accordance with generally accepted rate setting principles and adjusted the allocations to meet District-specific operational parameters. Mr. Cristiano developed several water and wastewater rate design alternatives for the Board's consideration. The Board requested additional analysis which resulted in the adoption of modified versions of the Raftelis proposed alternatives.

Mr. Cristiano also developed water and wastewater tap fees. The District's tap fees were last updated in 2001. Raftelis developed the fees using the buy-in approach as well as the unit cost replacement method using replacement cost estimates from the District's latest master plan. The fees under these methodologies represented the maximum supportable fee. Because of the large increase, the District adopted fees based on inflating the current fees to today's dollars.

## Denver Water

### COLORADO

**Reference:** Angela Bricmont, Chief Financial Officer  
1600 W. 12th Avenue, Denver, CO 80204  
P: 303.628.6411 / E: angela.bricmont@denverwater.org

### NEW RATE STRUCTURE

Originally developed to provide for Denver Water's revenue needs while encouraging conservation, the organization's current rate structure had not undergone a full-scale rate structure study in 20 years. Much has changed since that time—water use habits, average demand and peak day needs, available technology, revenue stability, and an increased emphasis on the customer experience—for a start. To gain support for this initiative, Mr. Cristiano presented key drivers to the CEO and Board. Coming off of the 2013 drought and floods raised the issue of revenue instability to the forefront. Mr. Cristiano served as the project manager on this engagement, which included assistance from Denver Water's Public Affairs Division as well as an outside facilitator. Mr. Cristiano oversaw and managed a 'lessons-learned' workshop co-sponsored with the Water Research Foundation, an external affordability study, a customer rate perception survey, as well as a 20-person stakeholder group. Mr. Cristiano led in-house development of all rate structure modeling with staff.

### COST ALLOCATION MODEL

Denver Water outside-city customers make up 50% of revenues and usage for the utility. Denver Water serves these customers through contracts with special districts called "distributors". Distributors are charged in accordance with Denver's Charter provisions, "outside-city rate recover the full cost of providing service plus an additional amount". In 1990, the Board developed

a cost-of-service model using the utility-basis of rate setting. This was used to address the significant population growth outside the city with a decline of population in the city of Denver. As time progressed, the methodology became less suitable, more complex, and more opaque. The Board determined that the utility-basis was no longer workable under current conditions.

Mr. Cristiano led this project and developed cost allocation alternatives that both met current circumstances of a growing Denver, satisfied the Charter provisions, and equitably allocated costs between inside and outside city customers. Over a 14 month process, Mr. Cristiano evaluated several alternatives, worked with a Distributor Task Force, and met with Board members individually to review model alternatives. The Board adopted the new cash basis methodology in May 2013.

#### **SYSTEM DEVELOPMENT CHARGE STUDY**

Denver Water assesses system development charges (SDCs) for new connections to the system. SDCs were updated annually however, the last analysis of the structure was completed in 1999. Mr. Cristiano led an internal team to address inconsistencies in the calculations of capacity costs. The SDCs were developed using the 'hybrid' method which considers available capacity with future capacity projects. The unit cost of capacity using the hybrid method was used to develop the fee schedule for each type of development. This uniform unit cost ensured equitable recovery from all classes of customers. Mr. Cristiano developed 'SDC guidelines' to assist Water Sales staff in assessing SDCs based on the changes adopted by the Board. Mr. Cristiano met with Distributor representatives, members of the developer community as well as the Citizen's Advisory Council to review alternatives and present findings.

## **City of Aspen**

### **COLORADO**

**Reference:** Lee Ledesma, Finance and Administration Manager  
130 South Galena Street, Aspen, CO 81611

**P:** 970.429.1975 / **E:** lee.ledesma@cityofaspen.com

#### **WATER AND ELECTRIC COST OF SERVICE STUDY (2018)**

Mr. Cristiano served as the project manager on this engagement. The City of Aspen (City) retained Raftelis to conduct a technical review of their consultant of record's most recent water and electric rate study. Raftelis reviewed the consultant's rate study and determined that a complete revision was required. The City had developed its own financial plan but requested an update using rate revenue projections based on detailed billing data. Raftelis used the City historical billing to project rate revenues over the 5-year period. Based on that data, Raftelis was able to develop the necessary revenue adjustments over the study period.

The City also requested a new cost-of-service and rate model. The cost-of-service model included a unique cost allocation method-

**Since 2013, Raftelis has provided water, wastewater and/or stormwater financial plan, rate, and plant investment fee consulting services to communities serving over 40% of the population of Colorado.**

ology. Instead of the traditional water allocations of average day, peak day, peak hour and customer costs, the City uses a potable cost allocation separated into four functional cost areas – Demand, fire, pumping, and variable charge. They also have a fifth non-potable component for raw water customers. These functional areas also serve as the rate structure components.

We allocated line operation and maintenance costs, their capital program, debt service, and changes in reserves. The City had determined that they were incurring significant increases in fire-related costs. This was due in part to increased O&M associated with maintaining the various fire-related facilities and capital costs associated with fire protection. The City's topography and customer density presents a number of challenges with having a system properly sized for fire protection.

Instead of customer classes, each customer's rate structure is based on the number of equivalent capacity units or ECUs. The four cost components in the cost-of-service analysis also serve as the rate





structure components. ECUs are based on the number of fixtures in the dwelling. Demand and fire charges are assessed on a per ECU basis, pumping is assessed on volume of water pumped to the residence. There are three levels of pumping. The variable charge thresholds (a 5-tiered increasing block structure) are also based on the number of ECUs.

City Council had provided direction that they wanted to mitigate rate shock to low volume users. Raftelis designed a rate structure module allowed City staff to transition to cost of service over multiple years, while still recovering the overall annual revenue requirement. Mr. Cristiano presented the cost of service approach to City Council in August 2018. The final cost-of-service analysis and rates were adopted for 2019.

## Three Lakes Water and Sanitation District

### COLORADO

**Reference:** Katie Nichols, District Manager  
1111 County Road 48, Grand Lake, CO 80447  
P: 970.627.3544 / E: [katie@threelakesws.com](mailto:katie@threelakesws.com)

### WASTEWATER FINANCIAL PLAN AND TAP FEE STUDY (2018)

Mr. Cristiano served as the project manager on this engagement. The Three Lakes Water and Sanitation District (District) requested a 10-year financial plan and an update to their tap fees. The District is facing a significant upgrade to its wastewater treatment plant as a result of new copper compliance regulations. Raftelis developed a 10-year cash flow which incorporated the enterprise fund as well as their general government funds (general government funds fund a portion of administration expenses). The financial planning projections indicated that revenue adjustments of 3.5% were needed annually over the study period, assuming a state loan would fund 100% of the copper compliance project in 2019.

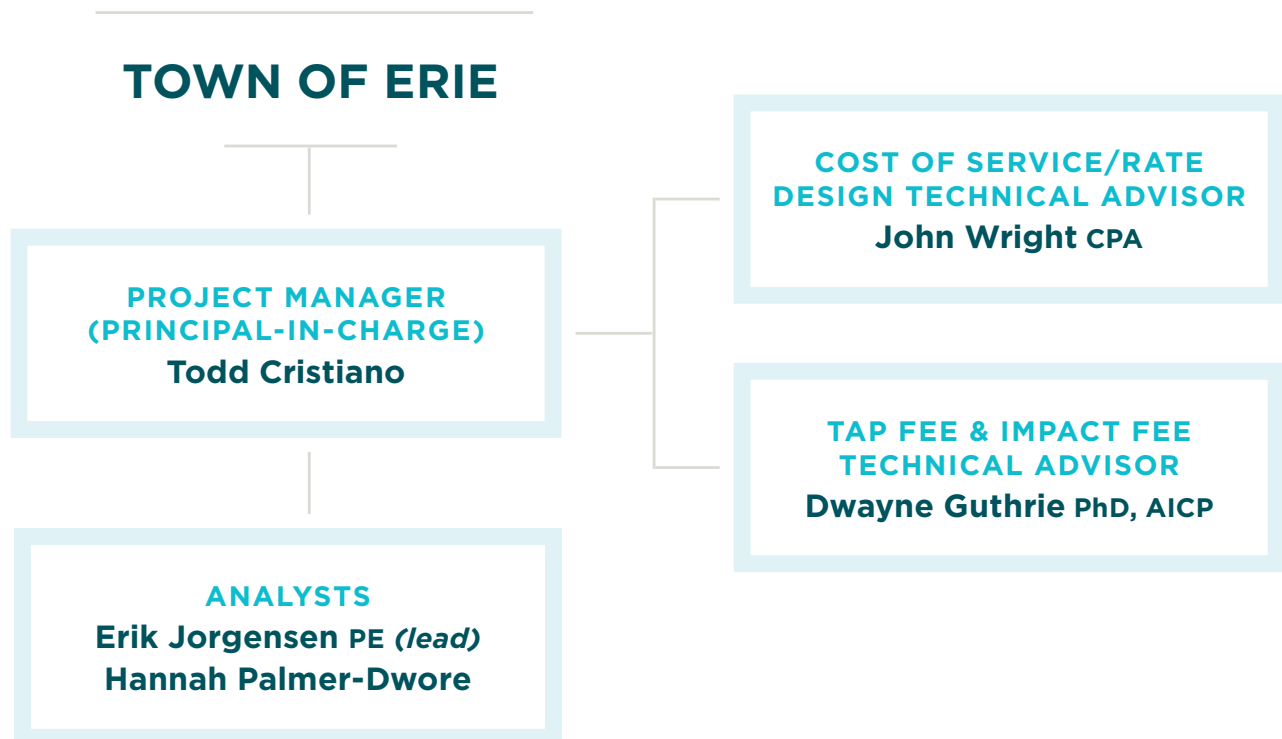
Raftelis also updated their tap fees which had remained unchanged since 2009. Because the District has capacity available in its existing system, the buy-in replacement cost new methodology was used. During District Board meetings, Directors expressed concern that the proposed fee was greater than the cost to install an individual septic system. Mr. Cristiano presented to the Board three times over the course of six months. The last presentation included the conclusive results of our study. The Board adopted a 6.0% increase for the following year with the anticipation of 3.5% in future years. The tap fee was left at the current levels. Raftelis also provided a rate model for the District to use going forward.

# Key Staff

**WE HAVE DEVELOPED A TEAM OF CONSULTANTS WHO SPECIALIZE IN THE SPECIFIC ELEMENTS THAT WILL BE CRITICAL TO THE SUCCESS OF THE TOWN'S PROJECT.**

Our team includes senior-level professionals to provide experienced project leadership, with support from talented consultant staff. This close-knit group has frequently collaborated on similar successful projects, providing the Town with confidence in our capabilities.

Here, we have included an organizational chart showing the structure of our Project Team. On the following pages, we have included brief profiles for each of our project team members followed by detailed resumes.





**PROJECT MANAGER  
(PRINCIPAL-IN-CHARGE)**

## Todd Cristiano

Senior Manager

---

### PROJECT ROLE

Will manage the day-to-day aspects of the project ensuring it is within budget, on schedule, and effectively meets the Town's objectives. He will also lead the consulting staff in conducting analyses and preparing deliverables for the project. Mr. Cristiano will serve as the Town's main point of contact for the project.

### CAREER HIGHLIGHTS

- 20 years of experience
- Current Chair of AWWA Rates and Charges Committee
- Former Manager of Rates at Denver Water (2010 - 2016)
- Project Manager for recent impact fee update in Gilbert
- Financial/rate consulting experience with Erie, Three Lakes Water and Sanitation District, Bancroft-Clover Water and Sanitation District, Aspen, Denver Water, Boulder, Greeley, Fort Collins, Golden, & Eagle



**COST OF SERVICE/RATE  
DESIGN TECHNICAL ADVISOR**

## John Wright CPA

Manager

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### PROJECT ROLE

Will provide a comprehensive review of the cost allocations used in the water and wastewater cost of service analysis. He will also review the basis for any rate design changes and the methodologies used to development them.

### CAREER HIGHLIGHTS

- 25 years of experience
- Former Manager of Rates at Denver Water (2005 - 2010)
- Former Senior Economist at the Portland Bureau of Environmental Services
- Financial/rate consulting experience with Fruita, Pueblo Water Board, Westminster, Thornton, Fort Collins-Loveland Water District, South Fort Collins Sanitation District, Upper Thompson Sanitation District, Upper Blue Sanitation District, & Laramie



**TAP FEE & IMPACT FEE  
TECHNICAL ADVISOR**

## Dwayne Guthrie PhD, AICP

Manager

---

### PROJECT ROLE

Will provide expertise in the development of the water and wastewater tap fees, water resource fees, and storm drainage impact fees. He will provide guidance in incorporating the land use assumptions into the calculation of the fees. He will serve as the reviewer of the final tap and impact fee work products.

### CAREER HIGHLIGHTS

- 40 years of experience
- Member, American Institute of Certified Planners (AICP) and American Planning Association
- Impact fee/financial consulting experience with Buckeye, Gilbert, Glendale, Goodyear, Maricopa, Queen Creek, Tempe, & Pinal County



#### LEAD ANALYST

## Erik Jorgensen PE

Consultant

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#### PROJECT ROLE

Will provide support in conducting analyses and preparing deliverables for the project.

#### CAREER HIGHLIGHTS

- 8 years of experience
- Financial/rate consulting experience with Bancroft-Clover Water and Sanitation District, Boulder, Berthoud, Canyon City, Bear Creek Water and Sanitation District, Lakewood, Idaho Springs, Laramie, Pueblo, Thornton, Westminster, & Pueblo West



#### ANALYST

## Hannah Palmer-Dwore

Consultant

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#### PROJECT ROLE

Will conduct analyses and prepare deliverables for the project.

#### CAREER HIGHLIGHTS

- 2 years of experience
- Financial/rate consulting experience with Golden, Three Lakes Water and Sanitation District, Eagle River Water and Sanitation District, & Thornton





**26** years  
serving the  
utility industry

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*Our team includes*

**100+** consultants  
focused on utility finance/  
organization/technology

**8** current and previous  
AWWA and WEF committee  
and division chairs

**14** members of  
AWWA, WEF, and NACWA  
utility finance and management committees

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*Raftelis has provided financial/organizational assistance for*

**1,000+** water/wastewater/  
stormwater  
utilities

which serve more than

**25%** of the  
U.S. population

and includes over

**40%** of the  
population of Colorado

In the past year alone, we worked on

**600+** projects for **400+** utilities in **40** states

How  
we  
stack  
up



# Todd Cristiano

## Project Manager (Principal-in-Charge)

### Senior Manager

#### SPECIALTIES

- Financial planning
- Cost of service and rate structure studies
- Litigation support
- Economic feasibility analyses
- Impact fee studies – utility and non-utility
- Reviews of policies, procedures, and operating practices
- Budget processes

#### PROFESSIONAL HISTORY

- Raftelis: Senior Manager (2019-present); Manager (2017-2018)
- Stantec (2016-2017)
- Denver Water: Manager of Rates (2010-2016)
- Malcolm Pirnie-Arcadis-US (2005-2010)
- Black & Veatch (1998-2005)

#### EDUCATION

- Master of Business Administration – University of Colorado (2003)
- Bachelor of Science in Chemical Engineering – University of Tulsa (1995)

#### PROFESSIONAL MEMBERSHIPS

- American Water Works Association: Chair of Rates and Charges Committee
- Water Environment Federation

Mr. Cristiano has nearly 20 years of utility finance experience – 14 years as a consultant to utilities and 6 years as the Manager of Rates at Denver Water. He has completed studies across the U.S. for water, wastewater, stormwater, electric, and gas utilities. His experience covers technical areas and industries such as municipal fee development, utility cost of service and rate structure studies, economic feasibility analyses, impact fee studies, and budget processes. While at Denver Water, he oversaw four significant rate- and fee-related studies, all unanimously approved by the Board of Water Commissioners, and also served as interim budget manager at Denver Water. As a member of the AWWA, he has helped to develop industry guidelines regarding financial and rate-making practices. In particular, as the current Chair of the AWWA Rates and Charges Committee, he co-authored the water reuse chapter in the latest edition of Manual M1, Principles of Water Rates, Fees and Charges. Mr. Cristiano is also co-instructor for the AWWA's biennial *Financial Management: Cost of Service Rate-Making Seminar*.

#### RELEVANT PROFESSIONAL EXPERIENCE

##### City of Golden (CO)

Mr. Cristiano served as the project manager on this engagement. The City of Golden (City) provides water, sewer, and drainage services to approximately 5,400 customers through separate self-supporting enterprise funds. Rates charged for services must be adequate to support maintenance and operations, debt service, capital improvements, asset reinvestment, and transfers for general administration.

This City requested a comprehensive financial and rate analysis on their water, wastewater, and stormwater utilities. They wished to focus on the rate structures, updates to the cost of service with recommendations on the best alternatives for equitable and sustainable revenue recovery by each customer class. The last cost of service study was completed over 10 years ago. Also part of this study was convening a Utility Rate Citizens Committee (URCC) to review and provide recommendations on rate alternatives based on identified pricing objectives. Raftelis developed rate alternatives for each utility. Raftelis prepared financial plans, cost of service analysis, and rate design for each utility. Using the pricing objectives from the URCC, we developed three alternatives for water, two for wastewater, and two for stormwater.

For stormwater, of particular interest was improving the equity between residential and commercial customer classes. The existing residential fee is on a per dwelling unit basis and commercial is based on individual impervious area. Raftelis developed a impervious area fee for both residential and commercial. This increased the residential fee and reduced the commercial fee. The URCC is currently evaluating these options and will be presenting their recommendations in July 2019. This study is still ongoing and will be complete in September 2019 following Mr. Cristiano's presentation to City Council.

##### Three Lakes Water and Sanitation District (CO)

Mr. Cristiano served as the project manager on this engagement. The Three Lakes Water and Sanitation District requested a 10-year financial plan and an update to their tap fees. The District is facing a significant upgrade to its wastewater treatment plant as a result of new copper compliance regulations. Raftelis developed a 10-year cash flow which incorporated the enterprise fund as well as their general government funds (general government funds fund a portion of administration expenses). The financial planning projections

indicated that revenue adjustments of 3.5% were needed annually over the study period, assuming a state loan would fund 100% of the copper compliance project in 2019.

Raftelis also updated their tap fees which had remained unchanged since 2009. Because the District has capacity available in its existing system, the buy-in replacement cost new methodology was used. During District Board meetings, Directors expressed concern that the proposed fee was greater than the cost to install an individual septic system. Mr. Cristiano presented to the Board three times over the course of six months. The last presentation included the conclusive results of our study. The Board adopted a 6.0% increase for the following year with the anticipation of 3.5% in future years. The tap fee was left at the current levels. Raftelis also provided a rate model for the District to use going forward.

### **Bancroft-Clover Water District (CO)**

Mr. Cristiano served as the project manager on this engagement. Bancroft-Clover Water and Sanitation District (District) is a wholesale customer of Denver Water. They are located west of the City of Denver's boundary and serve approximately 8,000 accounts, most of which are residential customers. The District retained Raftelis to conduct a water and sewer financial plan analysis. Of concern was the District's ability to cash fund an anticipated wastewater master plan as well as ongoing water repair and replacement projects. He oversaw the development of revenue projections based on historical billing records and the projection of operating and capital expenditures. Mr. Cristiano also provided insight on maintaining sufficient operating and capital reserve levels. Mr. Cristiano presented the findings to the Board of Directors in October 2017. The Board adopted the proposed rate adjustments in December 2018.

The District retained Raftelis to complete a comprehensive water and wastewater cost of service and tap fee study. Of interest to the District was to ensure equity among the customer classes. In addition, the District wanted the cost of service analysis and rate design to incorporate the continued gradual reduction in water usage from all customer classes. Mr. Cristiano developed the cost of service in accordance with generally accepted rate setting principles and adjusted the allocations to meet District-specific operational parameters. Mr. Cristiano developed several water and wastewater rate design alternatives for the Board's consideration. The Board requested additional analysis which resulted in the adoption of modified versions of the Raftelis proposed alternatives.

Mr. Cristiano also developed water and wastewater tap fees. The District's tap fees were last updated in 2001. Raftelis developed the fees using the buy-in approach as well as the unit cost replacement method using replacement cost estimates from the District's latest master plan. The fees under these methodologies represented the maximum supportable fee. Because of the large increase, the District adopted fees based on inflating the current fees to today's dollars.

### **Denver Water (CO)**

Originally developed to provide for Denver Water's revenue needs while encouraging conservation, the organization's current rate structure had not undergone a full-scale rate structure study in 20

years. Much has changed since that time—water use habits, average demand and peak day needs, available technology, revenue stability, and an increased emphasis on the customer experience—for a start. To gain support for this initiative, Mr. Cristiano presented key drivers to the CEO and Board. Coming off of the 2013 drought and floods raised the issue of revenue instability to the forefront. Mr. Cristiano served as the project manager on this engagement, which included assistance from Denver Water's Public Affairs Division as well as an outside facilitator. Mr. Cristiano oversaw and managed a 'lessons-learned' workshop co-sponsored with the Water Research Foundation, an external affordability study, a customer rate perception survey, as well as a 20-person stakeholder group. Mr. Cristiano led in-house development of all rate structure modeling with staff.

Denver Water outside-city customers make up 50% of revenues and usage for the utility. Denver Water serves these customers through contracts with special districts called "distributors". Distributors are charged in accordance with Denver's Charter provisions, "outside-city rate recover the full cost of providing service plus an additional amount". In 1990, the Board developed a cost-of-service model using the utility-basis of rate setting. This was used to address the significant population growth outside the city with a decline of population in the city of Denver. As time progressed, the methodology became less suitable, more complex, and more opaque. The Board determined that the utility-basis was no longer workable under current conditions.

Mr. Cristiano led this project and developed cost allocation alternatives that both met current circumstances of a growing Denver, satisfied the Charter provisions, and equitably allocated costs between inside and outside city customers. Over a 14 month process, Mr. Cristiano evaluated several alternatives, worked with a Distributor Task Force, and met with Board members individually to review model alternatives. The Board adopted the new cash basis methodology in May 2013.

Denver Water assesses system development charges (SDCs) for new connections to the system. SDCs were updated annually however, the last analysis of the structure was completed in 1999. Mr. Cristiano led an internal team to address inconsistencies in the calculations of capacity costs. The SDCs were developed using the 'hybrid' method which considers available capacity with future capacity projects. The unit cost of capacity using the hybrid method was used to develop the fee schedule for each type of development. This uniform unit cost ensured equitable recovery from all classes of customers. Mr. Cristiano developed 'SDC guidelines' to assist Water Sales staff in assessing SDCs based on the changes adopted by the Board. Mr. Cristiano met with Distributor representatives, members of the developer community as well as the Citizen's Advisory Council to review alternatives and present findings.

### **Town of Eagle (CO)**

Mr. Cristiano served as the project manager on this engagement. The Town had retained a consultant in 2016 to develop a financial plan and rate design for their water utility. Following iterations of the report and feedback from stakeholders, the Town requested Raftelis to conduct a peer review of the Excel model, results, and



provide any recommendations on the study. Raftelis worked with the Town's consultant, reviewed detailed billing data, financials, rate design options and the Excel model's structure. Overall, Raftelis found the assumptions and results of the model sound, accurately documented, and the financial plan projections were reasonable based on the assumptions provided by the Town. We provided comments on the Consultant's rate design options as they related to meeting conservation goals, equity, and impact to customers. We provided a technical memorandum summarizing our results. This memorandum was presented to the Town's Board of Trustees for review and comment.

### **City of Craig (CO)**

Mr. Cristiano served as project manager on this engagement. Mr. Cristiano also served as project manager on a similar study completed for the City in 2008. The City of Craig retained Raftelis to conduct a comprehensive water and wastewater rate study. Increased federal regulations for the wastewater utility were going to significantly impact the rates over the next 10 years. Regulatory and replacement wastewater treatment plant projects included new sludge ponds, equalization basin, and clarifier improvements. In addition, both the water and wastewater utilities were facing increased repair and replacement costs. The water utility had projected over \$7.5 million in distribution system and tank repairs. The wastewater utility had an estimated \$3.6 million in collection system improvements. Compounding these project costs was the lack of growth in the City. Raftelis developed separate 10-year cash flows for each utility and examined various alternatives for state loan funding and grant proceeds. Results were presented at a City Council meeting. The proposed revenue adjustments were adopted for 2019.

### **City of Aspen (CO)**

Mr. Cristiano served as the project manager on this engagement. The City retained Raftelis to conduct a technical review of their consultant of record's most recent water and electric rate study. Raftelis reviewed the consultant's rate study and determined that a complete revision was required. The City had developed its own financial plan but requested an update using rate revenue projections based on detailed billing data. Raftelis used the City historical billing to project rate revenues over the 5-year period. Based on that data, Raftelis was able to develop the necessary revenue adjustments over the study period.

The City also requested a new cost-of-service and rate model. The cost-of-service model included a unique cost allocation methodology. Instead of the traditional water allocations of average day, peak day, peak hour and customer costs, the City uses a potable cost allocation separated into four functional cost areas – Demand, fire, pumping, and variable charge. They also have a fifth non-potable component for raw water customers. These functional areas also serve as the rate structure components.

We allocated line operation and maintenance costs, their capital program, debt service, and changes in reserves. The City had determined that they were incurring significant increases in fire-related costs. This was due in part to increased O&M associated with maintaining the various fire-related facilities and capital costs associated with fire protection. The City's topography and

customer density presents a number of challenges with having a system properly sized for fire protection.

Instead of customer classes, each customer's rate structure is based on the number of equivalent capacity units or ECUs. The four cost components in the cost-of-service analysis also serve as the rate structure components. ECUs are based on the number of fixtures in the dwelling. Demand and fire charges are assessed on a per ECU basis, pumping is assessed on volume of water pumped to the residence. There are three levels of pumping. The variable charge thresholds (a 5-tiered increasing block structure) are also based on the number of ECUs.

City Council had provided direction that they wanted to mitigate rate shock to low volume users. Raftelis designed a rate structure module allowed City staff to transition to cost of service over multiple years, while still recovering the overall annual revenue requirement. Mr. Cristiano presented the cost of service approach to City Council in August 2018. The final cost-of-service analysis and rates is anticipated to be complete in time for their 2019 budget approval in October 2018.

### **City of Tolleson (AZ)**

Mr. Cristiano served as the project manager on this engagement. The City retained Raftelis to conduct a comprehensive financial plan analysis for the City's water and wastewater utilities. The City was embarking on an aggressive renewal and replacement program for the water utility. The City purchases a sizeable portion of their water from the City of Phoenix. The City also relies on wells and storage to meet peak demands. A requirement of the contract with Phoenix is to maintain sufficient redundancy to meet water service demands should there be a disruption in service from the City of Phoenix. Raftelis worked with Staff to develop attainable financial plan goals while minimizing the impact to customers. The City adjusted timing of certain non-critical projects to ensure that revenue adjustments remained smooth and predictable. The wastewater utility was also undertaking a proactive renewal and replacement program. Because the City's wastewater treatment plant is co-owned by three large industrial customers, the increased costs were spread among the City and the industrial users. Remaining costs were passed onto rate payers. Current reserves were able to absorb the nominal increased costs to retail wastewater customers, so no increase was necessary over the 10-year study period. The City Council adopted a 25% percent revenue adjustment for water – the first increase since 2011.

### **City of Buckeye (AZ)**

Mr. Cristiano served as the project manager on this engagement. The City retained Raftelis to conduct a comprehensive financial plan, cost of service, and rate design analysis for the City's water and wastewater utilities. The City service area is approximately 145 square miles and according to the US Census Bureau, is the fifth fastest growing City in the US as of 2018. Water service is provided entirely through groundwater. Wastewater service is provided through four water reclamation facilities. Raftelis developed water and wastewater financial plans for the 5-year study period, FY19 – FY23. The City has developed a robust capital plan to address the need for new facilities to support growth as well as maintain the

systems. Because facilities must be built prior to new development, impact fee funds must be supplemented with rate revenues and bonds to fund the projects. Raftelis developed a number of rate increase scenarios that not only met operational cost requirements but also satisfied meeting the capital improvement program costs. Raftelis also developed rate alternatives based on a comprehensive cost-of-service analysis for each utility. As of January 2019, the final rate structure alternatives are being presented to the City's Water Rate Advisory Group for review and comment. It is anticipated that the rate increases, and structure changes will be effective in July 2019.

### **Salt Lake City Department of Public Utilities (UT)**

Mr. Cristiano served as the project manager on this engagement. The Salt Lake City Department of Public Utilities (City) engaged Raftelis in 2017 conduct comprehensive water, sewer, stormwater and streetlight cost-of-service rate studies. These studies included developing revenue requirements, cost-of-service allocations, rate design, and impact fees. Impact fees includes a review of the methodology for each utility – water, sewer, and stormwater. A hybrid or combined methodology was selected for the water and sewer utilities. This methodology included an evaluation of the existing assets as well as determining the growth-related portion of future capital, and estimating the capacity to be served in the 10-year time horizon. The stormwater impact fee was assessed using the buy-in methodology. The valuation of assets for each utility was based on replacement cost less accumulated depreciation.

In conjunction with the rate studies, the City formed a Rate Advisory Committee (RAC) to solicit feedback and recommend changes to the City's existing water and sewer rate structures. Mr. Cristiano co-facilitated six RAC meetings which included an overview of the water and sewer systems, the long-term challenges faced by the City as well as detailed discussion of rate-setting 101 and analysis of various rate structures. The RAC committee members reached consensus on two water rate structure alternatives and two sewer rate structure alternatives to present to the City's Public Utilities Advisory Board (PUAC). The City anticipated the PUAC made their final recommendation to City Council in January 2018. Mr. Cristiano oversaw the development of the cost of service and rate design analysis for the utilities. He developed the rate alternatives for review by the RAC based on the selected pricing objectives. He also led the development of the water, sewer, and stormwater impact fee analysis. The fees were developed based on an Impact Fee Facilities Plan completed by their engineering or record. The impact results had to comply with state statutes.

### **City of Sheridan (WY)**

Mr. Cristiano served as the project manager on this engagement. The City of Sheridan, located in Northeast Wyoming, provides service to approximately 8,000 water and wastewater accounts. The City retained Raftelis to conduct a comprehensive water and wastewater rate and plant investment fee analysis. The City had maintained regular rate adjustments in the past few years but requested an evaluation of their long-term financial health. Mr. Cristiano served as the project manager on this engagement. With Raftelis staff, he oversaw the development of the billing data to project water sales and wastewater service revenues, projection

of budgeted operating and capital expenditures. The City funds capital projects from rate revenues, low interest state loans, and a voter-approved capital tax. The City currently has several substantially complete capital projects funded by state loans. The timing of the payments vary with each project which causes variability in annual expenditures. Raftelis did a full accounting of existing debt and the proposed debt payments to ensure the financial plan represented future costs correctly. Mr. Cristiano also assisted with developing a raw water plant investment fee based on the value of water rights and raw water infrastructure along with a treated infrastructure PIF for water and sewer. Mr. Cristiano will present the preliminary findings to the City Council in March 2018.

### **City of West Jordan (UT)**

The City had not completed a rate study in more than 10 years. Rate increases had been sporadic in the past and had not kept with increasing costs. The service charge portion of a rate increase was recalled in 2017 which put additional pressure on each utilities' reserve balances. The City was concerned that rate revenue was insufficient to meet the increasing capital needs while meeting debt service coverage requirement. Prior to this Study, the City was not in compliance with their bond covenants. Another key issue for Council was the funding of growth-related projects with existing rate payer revenue. Raftelis conducted comprehensive financial planning scenarios with Staff and completed a cost-of-service analysis for each utility. Mr. Cristiano gave a presentation providing the details of the financial plan, cost-of-service analysis, and rate design for each utility. He presented materials to Council which showed that growth would pay its way over time however, existing rate payer revenue was needed to 'front' major growth-related construction efforts. The City adopted rate increases of 33%, 18%, and 24% for the water, wastewater, and stormwater utilities, respectively.

### **Town of Gilbert (AZ)**

Mr. Cristiano served as the project manager on this engagement. The Town of Gilbert is located on the eastern side of the Phoenix metro area and while growth is still occurring, the Town will be approaching build out in the next 20-25 years. This project includes an update to the LUA, IIP and system development fees for police, fire, recreation, traffic signals, general government, water and wastewater services for each land use type (residential, multifamily, nonresidential, commercial and industrial). Due to arrangements for sharing wastewater facilities with another city, the Town has two service areas for the wastewater fees. In addition, Raftelis assisted the Town with development of a streets fee to recover the costs of intersection improvements and major roadway expansions necessitated by growth. Using trip data from the Institute of Transportation Engineers and capacity data from the Town, we developed a roads fee for each of the land use types. We met with Town Staff to review and update the IIP and the impacts on the fees, evaluated different methodologies to include outstanding debt on growth-related facilities to the fees. We developed the level of service for each fee area and calculated the total growth-related to be recovered in the fee over the study period. For water and wastewater, we used Equivalent Dwelling Units to determine the fee for each land use type. The final IIP, LUA and system development fees report was provided to the Town in March 2019.

## RELEVANT PROJECT EXPERIENCE

### City of Boulder (CO)

Mr. Cristiano served as the project manager on this engagement. The City commissioned a study to review and update utility plant investment fees. The primary concern for the City was linking a customer's share of system and water rights capacity to water budget rates. Mr. Cristiano served as project manager and participated in 7 stakeholder meetings with the assistance of City Staff to educate stakeholders on the PIF process. Mr. Cristiano developed and reviewed progressive alternatives to arrive at fees that link the water budget rate structure to water plant investment fees. Wastewater and storm water PIF were developed with traditional methodologies to ensure equity between new and existing customers was maintained.

The City of Boulder adopted a new water budget rate structure to be implemented in 2007. The City commissioned a study to assist in developing the volumetric rate required to meet revenue requirements. This water budget rate structure includes a 5-tier increasing block incorporating an allowance for indoor and outdoor usage. Each tier's threshold is based on a percentage of the total indoor and outdoor monthly water allowance which could vary by month. Based on the number of variables, number of customers, and scenario analysis required, Excel was not robust enough to handle the analysis.

As a result, Mr. Cristiano developed a customized Access Database to model each of the scenarios allowing users to change all of the variable considered in the structure. Mr. Cristiano attended and presented at several Water Resources Advisory Board (WRAB) meetings to review rate alternatives and the revenue impacts of each. WRAB recommendations are presented to Council for consideration. Technical analysis included bill impacts to demonstrate the percentage change in each bill from the existing rate structure to the proposed rate structure.

### City of Fort Collins (CO)

Mr. Cristiano served as the project manager on this engagement. The City requested a review and update of its plant investment fees (PIF) to ensure growth would pay its own way. Mr. Cristiano conducted analysis of each utility's asset base and growth-related projects to determine the future value of the backbone system. Reviewed several PIF methodologies including: system buy-in, incremental, and the hybrid method. Based on the available capacity in each system, selected the buy-in method for water and storm water and the hybrid method for the wastewater utility. Due to changes in water usage and peak demands, the fee schedule for water was updated to include current customer class peak day demands to improve the equitability of the fees. The wastewater PIF schedule was updated to include an allowance for peak flows as a result of infiltration and inflow. The existing storm water utility basin-by-basin fee structure was simplified to a uniform fee structure for all basins. Also included in this study was a financial plan review. Mr. Cristiano performed a detailed billing analysis, revenue projections, and revenue requirement projections for a five-year study period. Revenue projections for the water and wastewater utilities involved an extensive analysis of historical water use. Mr. Cristiano delivered a 20-year financial

plan model to the City that allows annual updates to the financial plan and PIFs.

The City requested a comprehensive cost of service analysis for their water and wastewater utilities. The City has a number of wholesale customers as well as one large contract customer. Costs specific to these customers were identified and isolated to ensure that retail customers did not subsidize the wholesale and contract customers. Delivered detailed cost of service model to the City that allows for annual updates and scenario analysis with different cost allocations and rate designs. Mr. Cristiano served as project manager on this engagement.

### City of Greeley (CO)

Mr. Cristiano served as the project manager on this engagement. Provided cost of service rate consulting and modeling services to the City from 2002 through 2010. Mr. Cristiano assisted the City with annual updates to their cost of service models and rate design. Included in these updates were a review and development of plant investment fees (PIFs). Annual updates included a review and update of the financial plan, cost-of-service analysis, rate design, and PIF analysis for its water and wastewater utilities. The water cost-of-service analysis incorporated capital improvement changes, debt service adjustments, demand projections, and a recalculation of the utility's rate of return. The cost-of-service analysis and rate design for wastewater included a review of the utility's debt structure and changes in strength concentrations for industrial customers. Separate rate models are used for each utility which allow staff City Staff to perform "what-if" scenarios on a variety of financial conditions.

### City of Prescott (AZ)

Mr. Cristiano served as the lead analyst on this engagement. The City requested a comprehensive water rate study including development of system impact fees, and water resource development fees. The utility faced a number of infrastructure-related challenges as well as an unfunded federal mandate to reduce arsenic in the water supply. In addition, the state of Arizona required the City to reduce water consumption by 2025 to meet assured water supply requirements. Mr. Cristiano developed financial plan scenarios based on different growth level assumptions and capital improvement programs. Mr. Cristiano also worked with the City's conservation committee to review pricing objectives and develop a rate structure that was commensurate with the needs of the City and its citizens. Mr. Cristiano presented results to City Council on several occasions during the project.

### City of Salt Lake City (UT)

Mr. Cristiano served as the deputy project manager on this engagement. Salt Lake City conducts a comprehensive update of their water rates and impact fees every five years. The City commissioned a study to ensure that rates and fees were sufficiently recovering revenues and adequately addressed conservation goals. Mr. Cristiano facilitated five Water Rate Subcommittee (WRS) stakeholder meetings with over 20 members of the community representing a variety of industries and community groups. The facilitation included responding to technical questions, providing background on the concepts of rate making, and building con-

sensus among the group. Mr. Cristiano managed three analysts for the development of the financial plan, cost of service, and rate design alternatives.

### **City of Peoria (AZ)**

Mr. Cristiano served as the lead analyst on this engagement. The City retained consulting services to review and update their general government impact fees. The study included library, fire, police, general government, and zone-based transportation fees. Served as deputy project manager for the project and oversaw all technical aspects of the study. Of primary interest to the City was equitable recovery of fees to ensure sufficient impact fee revenues funded growth-related projects of the 10-year period. Developed customized model and methodology for library and transportation fees. The rates were adopted for 2009.

### **Las Vegas Valley Water District (NV)**

Mr. Cristiano served as the lead analyst on this engagement. The Las Vegas Valley Water District (LVVWD) retained consulting services to perform a comprehensive analysis of their reclaimed water system and develop a reclaimed water rate. The reclaimed system is jointly operated by the LVVWD, the City of Las Vegas, and Clark County Water Reclamation District.

Mr. Cristiano reviewed operating costs for the reclaimed treatment facilities operated by the City and the County as well as operating costs for the distribution system operated by LVVWD. Also included in the analysis were developing the cost of capital for the various facilities, the cost of providing potable water to supplement periods of high re-claimed water demand, and projecting total reclaimed water sales.

El Paso Water Utilities Public Service Board (TX) Mr. Cristiano served as the lead analyst on this engagement. Mr. Cristiano developed a full cost recovery rate for the two reclaimed rate classifications. This included determining net book value of existing assets, incorporating annual operating expenditures and calculating the full cost recovery rate based on sales projections. The full cost recovery rate was calculated each year for the 10-year study period FY06 through FY16. Also developed an alternative rates considering the market constraints of reclaimed water pricing. This reduced rate including credits from previous grants received for the construction of reclaimed facilities as well grants anticipated on future expansion projects.

### **Water Reuse Foundation: Evaluating Pricing Levels and Structures to Support Reclaimed Water Systems – Water Reuse**

Mr. Cristiano served as the project manager on this engagement. The Water Reuse Foundation (WRF) retained consultant services to research and develop a process of evaluating the financial and economic aspects of developing a reclaimed water system. The study incorporated the financial aspects to reclaimed water pricing as well as a theoretical discussion on the economic factors of reclaimed water use. Mr. Cristiano served as project manager on this study. The study included:

- Pricing issues review and discussion considering the economic (Triple-Bottom-Line) perspectives and a financial perspective

(cash flow) perspective.

- Mr. Cristiano developed an interactive model using a Microsoft Excel modeling program. This model allows users to analyze the cost-benefit relationship associated with developing a reclaimed water system. The model looks beyond the financial aspects and incorporates the triple-bottom-line economic analysis. This allows users to evaluate the potential reclaimed water system from a financial, social, and environmental perspective.

### **INDUSTRY ENGAGEMENT**

- A Guide to Designing Conservation-Oriented Water System Development Charges, August 2018, Sponsored by AWWA and Western Resources Advocates, Author of guidebook and presenter at seminar. <https://westernresourceadvocates.org/projects/water-system-development-charges/>
- Co-Instructor for American Water Works “Financial Management – Cost-of-Service Rate Making Seminar (2010 – Present)
- “Evaluating Pricing Levels and Structures to Support Reclaimed Water Systems”, Research Report, Water Reuse Foundation, 2009; co-author
- “The Grass is Always Greener...Building Consensus of Reclaimed Water Project Pricing for Jointly Operated Systems”, Presentation at the 2008 Water Environment Federation Technical Exhibition and Conference, Co-Presenter
- “Honestly, What’s the Reuse”, Presentation at the 2008 Water-Reuse Symposium
- “Showers to Flowers - Objectives and Approaches for Reclaimed Water Pricing”, Presentation at 2010 Utility Management Conference
- “Which Conservation Rate Structure is Best for Your Utility”, Presentation at 2013 Utility Management Conference, Co-presenter
- “Financial Management and Ratemaking Challenges for Reuse Water”, Presentation at 2015 Utility Management Conference, Co-presenter
- “Rate Perception Surveys: Leveraging Customer Knowledge to Create the Right Rate Structure”, Presentation of 2015 Annual Conference Exhibition (ACE)
- “Assessing Household Affordability in the Denver Water Service Area”, Presentation at 2015 Annual Conference Exhibition (ACE), Co-presenter
- “Rate Perception Surveys: Leveraging Customer Knowledge to Create the Right Rate Structure”, Presentation at 2016 Utility Management Conference (ACE)

## PROJECT SUMMARY MATRIX

Client		Role <sup>1</sup>	Utility <sup>2</sup>	Financial Planning	COS/Rate Design	Impact Fees/Sdc	Bond Feasibility
AZ	Glendale, City of	Tech Resource	W, WW	●	●	●	
AZ	Peoria, City of	DPM	Gen Gov't	●		● <sup>3</sup>	
AZ	Prescott, City of	DPM	W	●	●	●	
AZ	Surprise, City of	DPM	W, WW	●	●		
CA	Mammoth Community Water District	PM	W, WW	●	●		
CA	Sacramento Sanitation District	Lead Analyst	WW	●			●
CO	Aspen, City of	PM	W, Elec	●			
CO	Berthoud, Town of	Analyst	W, WW	●	●	●	
CO	Boulder, City of	PM	W	●	●	●	
CO	Breckenridge Sanitation District	PM	WW			●	
CO	Craig, City of	PM	W, WW	●	●	●	
CO	Dillon, Town of	PM	W, WW	●	●	●	
CO	Erie, Town of	PM	W, WW	●		●	
CO	Fort Collins, City of	DPM, PM	W, WW	●	●	●	
CO	Grand Junction, City of	DPM	WW	●			

Client		Role <sup>1</sup>	Utility <sup>2</sup>	Financial Planning	COS/Rate Design	Impact Fees/Sdc	Bond Feasibility
CO	City of Greeley	PM	W, WW	●	●	●	
CO	Pueblo Wastewater	PM	WW	●	●	●	
CO	Pueblo West Metropolitan District	PM	W, WW	●		●	
CO	Water Research Foundation	PM	Reuse	●	●		
IA	Davenport	PM	W	●	●	●	
ID	Pocatello, City of	PM	W, WW, San	●	●	●	
MT	Great Falls, City of	PM	W, WW	●			
NM	Farmington, City of	PM	W, WW	●	●		
NV	Las Vegas Valley Water District	Analyst	Reuse	●	●		
NV	Moapa Valley, NV	Analyst	W	●	●		
TX	El Paso Water Utility	Analyst	Reuse	●			
UT	Salt Lake City	DPM	W	●	●	●	
UT	Snyderville Water Reclamation District	PM	WW	●	●		
PR	PRASA, Puerto Rico	Analyst	W, WW	●	●		

1. PM=Project Manager; DPM=Deputy Project Manager

2. W=Water; WW=Wastewater; Elec=Electric; San=Sanitation

3. General government impact fees





# John Wright CPA

## Cost of Service/Rate Design Technical Advisor Manager

### SPECIALTIES

- Cost of service studies
- System development charge studies
- Financial and economic analysis
- Expert testimony and litigation support

### PROFESSIONAL HISTORY

- Raftelis: Manager (2017 - present); Senior Consultant (2010 - 2016)
- Denver Water: Manager of Rate Administration (2006-2009)
- Portland Bureau of Environmental Services: Senior Economist (2004-2006)
- Public Utility Commission of Oregon: Senior Utility Analyst (2002-2004)
- Positions in the Competitive Telecommunications Industry (1997-2002)
- Colorado Public Utilities Commission: Senior Financial Analyst (1991-1997)

### EDUCATION

- Master of Science in Finance, University of Colorado at Denver
- Bachelor of Science in Accounting, Metropolitan State University of Denver

### PROFESSIONAL MEMBERSHIPS

- AWWA - Rates and Charges Committee; Finance, Accounting and Management Controls Committee; Asset Management Committee
- WEF Utility Management Committee
- Government Finance Officers Association
- Colorado Government Finance Officers Association

### CERTIFICATIONS

- Certified Public Accountant, State of Colorado #11959
- Series 50 Municipal Advisor Representative

Mr. Wright has more than 20 years of professional experience in financial management and economic analysis positions involving water, wastewater, energy, and telecommunications utilities. Prior to joining Raftelis in 2010, he served as the Manager of Rate Administration at Denver Water, one of the largest and most complex municipal water utilities in the western United States. In this role, Mr. Wright supervised the annual financial planning and cost of service process that resulted in water rates for both retail and wholesale customers. He also served as the liaison on financial planning and cost of service issues to Denver Water's outside-city customers.

Prior to joining Denver Water, Mr. Wright served as a Senior Economist at the Portland Bureau of Environmental Services, a nationally recognized leader in water pollution control and sustainable stormwater management programs. He assisted in the development of the annual financial plan and was responsible for preparing the annual sewer and stormwater cost of service and system development charge studies. Mr. Wright also served as a senior analyst at both the Colorado and Oregon public utility commissions. His work at the Colorado PUC included testifying as an expert witness in electric power and natural gas utility rate case proceedings. At the Oregon PUC, Mr. Wright specialized in the telecommunications utility issues and served as an expert witness in regulatory proceedings.

Since joining Raftelis, Mr. Wright has served as the Project Manager or Lead Consultant for numerous water and wastewater utility consulting engagements, primarily focusing on rate setting, cost of service, and financial planning.

### RELEVANT PROJECT EXPERIENCE

#### City of Westminster (CO)

The City of Westminster (City) is a northern suburb of Denver with a population of over 120,000. The City has a sophisticated asset management process and plans to make large capital expenditures for the repair and replacement of existing water and wastewater underground infrastructure. The City also plans to construct a new water treatment facility to enhance system reliability. Mr. Wright is currently serving as the Project Manager for a comprehensive consulting engagement with the City that includes the development of water and wastewater utility financial plans, the completion of water and wastewater cost of service and system development charge studies, and the development of alternative water and wastewater rate designs.

#### Stack'd Consulting, Inc., City of Calgary (AB)

Raftelis is currently serving as a subcontractor to a Stack'd Consulting, Inc., a Canadian firm that is conducting water and wastewater cost of service studies for the City of Calgary. Mr. Wright's role in this project is serving as a technical advisor to Stack'd on cost of service and rate design issues.

#### Prosper Coordinating Metropolitan District, Arapahoe County (CO)

Prosper is a greenfield 5,100-acre master planned development located in unincorporated Arapahoe County, east of Aurora, Colorado. At buildout, Prosper is envisioned to feature 9,000 housing units and over 8 million square feet of mixed use non-residential development. Mr. Wright is currently serving as the project manager developing the initial financial plans, system development charges, and rate designs for Prosper's water and wastewater

utilities. Mr. Wright is also assisting Prosper in the consideration of a variety of long-term renewable water resource options.

### **Austin Water (TX)**

Austin Water (AW) provides water and wastewater service to a population of over one million in metropolitan Austin. AW is currently undertaking an extensive review of its water and wastewater utility cost of service models to ensure the maximum possible equity in customer class revenue requirement determination and to aid regulatory analysis of AW's wholesale rates by the Public Utility Commission of Texas. As part of this process, Mr. Wright has played a lead role in the redesign of AW's water and wastewater cost of service models to enhance their transparency and ease of usage. He has also made numerous presentations to stakeholder groups composed of AW retail and wholesale customers.

### **Puerto Rico Aqueduct and Sewer Authority (PR)**

The Puerto Rico Aqueduct and Sewer Authority (PRASA) provides water and wastewater service to approximately three million people in the Commonwealth of Puerto Rico. Mr. Wright was a member of the Raftelis project team retained to provide an independent third-party Professional Opinion regarding operations and financial position of PRASA. Raftelis' professional opinion report was prepared in light of the on-going economic and fiscal challenges facing Puerto Rico and was specifically intended to identify opportunities for cost reductions and revenue increases to ultimately position PRASA to access capital markets. Mr. Wright's role in this consulting assignment was the development of financial planning models used to assess PRASA's projected financing gap without the restructuring of existing debt or the acquisition of new external debt financing.

### **Metropolitan Water District of Southern California (CA)**

Mr. Wright served as the Lead Consultant on a project with the Metropolitan Water District of Southern California (MWD) to develop a recommended alternative rate design for the recovery of water treatment costs from MWD's member agencies. Mr. Wright is also assisting MWD in the economic/financial analysis of a potential regional water recycled program with the Los Angeles County Sanitation District.

### **City of Calgary Utilities and Environmental Protection Department (AB)**

Mr. Wright served as the Lead Consultant of a comprehensive financial review of the water, wastewater and stormwater utilities operated by the City of Calgary's Utilities and Environmental Protection Department (UEP). The objective of the financial review was to assess UEP's current and projected levels of financial risk and to make recommendations regarding how to mitigate these risks by modifying UEP's financial policies, financial management practices, governance structure, and financial management organizational structure. Mr. Wright's activities included conducting detailed interviews with UEP senior executives and high-level management personnel; reviewing UEP financial, engineering and planning documents; analyzing the assumptions used in UEP's long-range financial planning models; and comparing UEP financial and managerial performance to metrics to the benchmarks used by U.S. credit ratings agencies to assess the default risk of water and wastewater utility debt.

### **Portland Water Bureau (OR)**

The Portland Water Bureau operates a regional water supply system that delivers drinking water to approximately 950,000 people in the Portland metropolitan area. The PWB provides service to wholesale customers under the terms of a standardized wholesale water supply contract that defines the specific ratemaking methodology that must be used by the PWB. Per the requirements of this contract, the wholesale rate model is subject to a comprehensive audit every five years to determine its continued compliance with contract requirements and industry standard cost of service methodologies as contained in AWWA Manual M1. Mr. Wright served as Raftelis' Lead Consultant on this project and was responsible for auditing all aspects of the wholesale rate model in order to assess the appropriateness of the PWB's revenue requirement calculation for wholesale customers under the utility basis method of revenue requirement determination and the commodity-demand method of cost allocations.

### **City of Norman (OK)**

The City of Norman (City) retained the services of Raftelis to update the water and wastewater connection charges paid by developers (i.e., system development charges) and assist in the development of a long-term CIP financing strategy for the City's water, wastewater and planned future reuse water options. Mr. Wright served as the Project Manager on this consulting engagement.

### **City of Chandler (AZ)**

Mr. Wright served as the Project Manager for a cost of service study update of the potable water, reuse water, and wastewater services provided by the City of Chandler (City). The City's water supply includes underground aquifers augmented by a large scale aquifer storage and recovery program, purchases from the Central Arizona Project and exchanges with the nearby Gila River Indian Reservation. The City's water and wastewater supply infrastructure must not only meet State of Arizona and U.S. EPA requirements, but the exacting standards imposed by large semiconductor manufacturing facilities located in the City.

### **City of Thornton (CO)**

Mr. Wright served as the Project Manager for a financial planning and cost of service study consulting engagement with the City of Thornton (City). The City, located in the fast growing northern suburbs of metropolitan Denver, currently provides water service for a population of 125,000 with a projected service territory population of approximately 250,000 at full system build-out. The City plans to invest approximately \$560 million in new water resource and treatment facilities over the next fifteen years to meet this projected long-term demand growth. As part of the consulting engagement, Mr. Wright assisted in the development of a long-range financial plan and updated system development charges in addition to performing a comprehensive cost of service study.

### **Strathcona County (AB, Canada)**

Mr. Wright served as the Project Manager and Lead Consultant on water and wastewater utility cost of service study engagements with Strathcona County, Alberta. The County is located in a fast growing region located east of Edmonton, Alberta that includes urban, suburban and rural land use areas. The County provides



differing levels of retail water and wastewater service to customers in each land use area. The County, which purchases its water supplies from the City of Edmonton, also serves four different wholesale water customers. As part of the water cost of service study, Mr. Wright developed cost allocations and customer class demand ratios that allowed the County to consolidate its retail water customer classes while maintaining rate equity and the adherence to industry cost of service principles. The County's wastewater utility provides wastewater collection and conveyance services to its retail customers. Wastewater discharges from these customers are conveyed to treatment facilities operated by the City of Edmonton and the Alberta Capital Region Wastewater Treatment Commission. As part of the wastewater cost of service study, Mr. Wright assisted in the development of a new rate design applied to residential wastewater customers in the County's urban and suburban land use areas.

### **Milwaukee Water Works (WI)**

Milwaukee Water Works (MWW) provides water service to a population of approximately 860,000 in metropolitan Milwaukee including nine wholesale customers. Municipal utilities in the State of Wisconsin are subject to economic regulation by the Public Service Commission of Wisconsin (PSCW). Raftelis represented MWW in a litigated rate case before the PSCW (Docket No. 3720-WR-108) that featured significant opposition from MWW's wholesale customers who account for approximately 20% of total treated water sales. Mr. Wright served as the Lead Consultant on the consulting engagement responsible for the development of a comprehensive cost of service model filed with the PSCW. Mr. Wright also provided both written and oral expert testimony on cost of service issues including the allocation of water main costs between the retail and wholesale service functions, the provision of public fire protection services to wholesale customers, and the rate of return on rate base assets paid by outside city customers.

### **Prescott Valley (AZ)**

Mr. Wright served as the lead consultant responsible for updating the Town of Prescott Valley's (Town) non-utility development impact fees to comply with new State of Arizona statutory requirements. In this capacity, Mr. Wright assisted the Town develop the land use assumptions and infrastructure improvement plans supporting its proposed circulation (streets), public safety (police), parks and recreation, and library impact fees. Mr. Wright also calculated the residential and non-residential development impact fee assessment schedules adopted by the Town for each of the above referenced service categories.

### **City of Corvallis (OR)**

Mr. Wright served as the Project Manager on a cost of service consulting engagement with the City of Corvallis (City). The City's water rate structure includes separate inclining block rate designs for its single family residential, multi-family residential, commercial, and irrigation rate classes. As part of the consulting engagement Mr. Wright performed a comprehensive cost of service study that resulted in a significant revenue requirement reallocation between each of these customer classes to reflect the maximum day and maximum hour loads they impose on the City's water system. Mr. Wright's recommendations cost of service recommendations were fully and successfully

implemented by the City of Corvallis without the use of a multiyear transition to cost of service-based rates.

### **City of Wichita (KS)**

Mr. Wright served as the Lead Consultant water and wastewater cost of service study for the City of Wichita (City). The City operates water and wastewater utilities that serve approximately 140,000 customers with combined annual revenues of more than \$100 million. Key challenges faced by the City include ensuring adequate funding for major capital improvements in water supply infrastructure that are forecast to cost more than \$400 million over the next ten years and the need to reduce the water rate revenue volatility associated with the conservation-oriented demand management rate structure. Mr. Wright prepared long-range financial plans for the City's water and wastewater utilities; conducted water and wastewater cost of service studies; modified the forecast base and peak demand costs recovered in each consumption block of the water rate structure; and developed a modeling tool that allows monthly comparisons of budgeted versus actual water and wastewater rate revenues.

### **City of Naperville (IL)**

As Lead Consultant on a consulting engagement with the City of Naperville's Department of Public Utilities (City), Mr. Wright prepared cost of service rate studies for the City's water and wastewater utilities. The City was confronted by the challenges of deficit cash reserve balance in its utility operating fund, rapidly escalating purchased water costs, and the need to make significant capital investments in its wastewater treatment facilities to meet regulatory requirements. As part of this engagement, Mr. Wright developed a water rate structure that separately identified purchased water costs, assisted in the review of a large wholesale wastewater service contract, and the review of the depreciation rates used by the City for water and wastewater infrastructure.

## **PROFESSIONAL EXPERIENCE**

### **Denver Water: Manager of Rate Administration (2006-2009)**

Management position supervising three rate analysts and reporting to the Director of Finance at a municipal water utility serving over 1.3 million people.

- Supervised preparation of Denver Water's annual ten-year financial plan including the coordination of inputs from the water resource planning, engineering, budgeting and treasury functions
- Supervised preparation of the annual cost of service, system development charge, and miscellaneous fee studies
- Provided corporate finance/economic analysis support for capital investment decisions, integrated resource planning, reclaimed water system expansion, and raw water operations
- Managed relationships with Denver Water's wholesale customers and outside city retail water distributors
- Extensive public speaking and presentation experience before the Denver Water Board of Commissioners and external stakeholder groups

### **Portland Bureau of Environmental Services: Senior Economist (2004-2006)**

Economic analysis position reporting to the Director of Business

Services at a municipal utility wastewater utility serving over 500,000 people.

- Assisted in the preparation of the annual wastewater and stormwater utility financial plans
- Prepared the annual wastewater and stormwater cost-of-service and system development charge studies
- Developed solid waste and recycling rates for the Portland Office of Sustainable Development
- Developed pricing for services provided by the Bureau of Environmental Services' water pollution control laboratory
- Presentations before the City of Portland's Public Utility Review Board

### **Public Utility Commission of Oregon: Senior Utility Analyst (2002-2004)**

Specialist in telecommunications industry financial, economic and public policy issues at a state regulatory agency.

- Testified as an expert staff witness in regulatory proceedings related to incumbent local exchange carrier access charges; interexchange carrier credit quality, and wireless carrier high cost funding
- Developed financial models to analyze telecommunications utility cost allocations and rate structures including incumbent local exchange carrier unbundled network element pricing
- Financial advisor to the Oregon Universal Service Fund which provided over \$50 million annually to support the availability of telecommunications services in rural Oregon

### **Positions in the Competitive Telecommunications Industry (1997-2002)**

Senior Financial Analyst at Electric Lightwave, Inc. (Vancouver, WA) and Marketing Analyst at WCI Cable, Inc. (Hillsboro, OR).

- Developed pricing for high capacity fiber optic services (DS3 - OC193) in terrestrial, submarine and metropolitan-area networks
- Developed financial models and business cases to analyze network infrastructure expansions and proposed acquisitions
- Developed pricing for Indefeasible Rights of Use (i.e., long-term leases) for dark and lit fiber optic capacity in amounts up to \$30 million

### **Colorado Public Utilities Commission: Senior Financial Analyst (1991-1997)**

Specialist in energy utility financial, economic and public policy issues at a state regulatory agency.

- Testified as an expert staff witness in Public Service Company of Colorado and San Miguel Power Association rate cases
- One of three staff members selected by the Colorado PUC Commissioners to the first independent team of litigation support advisors in agency history
- Advisor to the Colorado PUC Commissioners on electric power and natural gas utility rate cases, integrated resource planning, and electric power retail deregulation issues
- Participated in the development of electric power utility integrated resource planning rules requiring competitive bidding for new resources, the submission of alternative resource portfolios, and the use of discounted cash flow techniques to estimate ratepayer impacts

- Served as liaison to the Clinton Administration's Council on Sustainable Development representing former Colorado PUC Commissioner Christine Alvarez
- Author of Colorado PUC staff comments on proposed Federal Energy Regulatory Commission rules for open access electric transmission (FERC Order No. 888) as published in the National Regulatory Institute Bulletin, Volume 17, No. 1.

### **CONTRIBUTING AUTHOR**

- WEF Manual of Practice No. 27, Financing and Charges for Wastewater Systems (Second Edition)
- AWWA Manual M1, Principles of Water Rates, Fees and Charges (Sixth and Seventh Edition)
- AWWA Manual M29, Water Utility Capital Financing (Fourth Edition)
- AWWA Asset Management Definitions Guidebook (Version 1.0)
- WEF Effective Water Professional (First Edition)
- WEF User-Fee Funded Stormwater Programs (Second Edition)
- WEF The Energy Roadmap: A Water & Wastewater Utility Guide to More Sustainable Energy Management (First Edition)
- Water and Wastewater Finance and Pricing, The Changing Landscape (CRC Press, Fourth Edition)

### **EXPERT WITNESS TESTIMONY**

- Wisconsin Public Service Commission, Municipal water utility rate case proceeding,
- Colorado Public Utilities Commission, Electric and natural gas rate utility case proceedings
- Oregon Public Utility Commission, Telecommunications utility regulatory proceedings

### **SPEAKING ENGAGEMENTS**

- Utility Financial Risk Assessment - The Calgary Experience (2017 AWWA Annual Conference)
- Utility Finance Introduction: Overview of the Financial Planning Process (Guest Lecturer at the University of Colorado-Boulder, Civil Engineering Class No. 5574, Water Profession: Current Issues and Future Challenges)
- Community Involvement Committees from a Municipal Utility Perspective (2016 Colorado GFOA Conference)
- Securing Thornton's Water Future (2015 RMSAWWA/RMWEA Annual Joint Conference)
- Financial Strategies to Prepare for the Next Economic Crises (2014 AWWA Annual Conference)
- Weathering Economic Crises: Creating a Resilient Financial Plan for Your Utility (2014 AWWA Webinar)
- Wichita Water Utilities Financial Restructuring (2013 KWEA/KAWWA Annual Joint Conference)
- Capital Planning - A Business Case Process (2013 AWWA Annual Conference)
- Declining Revenues and Your Rate Structure (2012 AWWA Annual Conference)



# Dwayne Guthrie PhD, AICP

## Tap Fee & Impact Fee Technical Advisor Manager

### SPECIALTIES

- Impact Fees
- Infrastructure Needs and Funding Strategies
- Fiscal Impact Analysis
- Smart Governance

### PROFESSIONAL HISTORY

- Raftelis: Manager (2018-present)
- Impact Fee Manager with Manatee County, FL (2017)
- Principal with TischlerBise (2012-2017)
- Associate Professor of Practice with Catholic University of America in Washington, DC (2010-2012)
- Consultant with TischlerBise (1988-2010)
- Planner with engineering firm in Tampa, FL (1987-1988)
- Planner with Planning Commission in Tampa, FL (1979-1987)

### EDUCATION

- Ph.D., in Planning, Governance, and Globalization from Virginia Tech (2007)
- M.A., in Urban and Regional Planning from University of Florida (1979)
- B.A., in Education from University of Florida (1977)

### REGISTRATIONS & AFFILIATIONS

- Member, American Institute of Certified Planners (AICP)
- American Planning Association
- Arizona Chapter of the American Planning Association
- Institute of Transportation Engineers

Dr. Guthrie is currently a Manager with Raftelis. Prior to joining Raftelis, he served as the Impact Fee Manager for Manatee County, Florida. During 2017, he drafted an extensive revision to the Land Development Code related to impact fees, along with an Impact Fee Procedures Manual. The latter provides clarification of impact fee credits necessary to account for construction of major roads by developers. For a major portion of his career, Dr. Guthrie worked as a planning consultant for cities and counties across America. He directly interacted with top administrators and elected officials regarding best practices for impact fees, infrastructure funding, placemaking, and redevelopment strategies. Dr. Guthrie primarily assists local governments with the challenges of growth management, infrastructure planning, and funding strategies. He specializes in demographic analysis, development impact fees, capital improvements plans, fiscal evaluations, and consensus building with stakeholders. During the preparation of impact fee programs for approximately 160 local governments in 27 states, Dr. Guthrie helped community and government leaders make tough fiscal choices, while successfully managing all aspects of the consulting process. Dr. Guthrie's research interests include: quantitative methods, spatial thinking, and smart governance (i.e. the interaction of land use, infrastructure, and revenue strategies). His career began as a public sector planner in Florida. Dr. Guthrie has 40 years of experience as a professional planner. His career includes 31 years of work as a planning consultant and 9 years of public sector experience.

### RELEVANT PROJECT EXPERIENCE

For these projects, professional planners provided comprehensive service from start-up to conclusion, for each client. Typical assignments require 3-6 months and include staff interviews, data gathering, technical analysis, report writing, stakeholder meetings, and presentations at public forums. The following work products provide a representative sample.

1. **Impact Fee Update for Manatee County, Florida.** Dr. Guthrie updated fees for parks, law enforcement, and public safety; created a new impact fee for libraries; and significantly revised the existing road impact fee. The 2015 multimodal transportation fee includes funding for complete streets (all modes), with unique capital plans and fee schedules by four geographic areas.
2. **Implementation of How Will We Grow?** For Manatee County, Dr. Guthrie provided technical memorandums and a staff presentation on infrastructure funding strategies and the importance of transportation and land use interactions.
3. **Transportation Impact Fees and Excise Taxes for Boulder, Colorado.** Due to open space easements surrounding the City, Boulder is infilling and redeveloping. Dr. Guthrie provided a literature review and best practices summary regarding walkable urbanism and multimodal transportation funding solutions. He also drafted reports on the growth share of transportation capital and operating costs.
4. **Transportation Funding Strategy for the City of Baltimore, Maryland.** Alternative funding strategies for transportation needs were evaluated, with specific examples derived for a redevelopment area located along the inner harbor, to the southeast of downtown.
5. **Alternative Student Generation Rates for the City of Chesapeake, Virginia.** This report includes a brief literature review and transferable method for deriving jurisdiction-specific multipliers, by housing unit type and bedrooms, using American Community Survey PUMS data.

6. **Cost of Port-Related Services in Garden City, Georgia.** Given its location adjacent to the Port of Savannah, public safety demands are a fiscal burden on the City. This study documents the cost of port-related services and recommends a unique reimbursement agreement based on container shipments through the port.
7. **Transportation Impact Fees for the State of Delaware.** An innovative feature of this study is the use of GIS analysis to derive transportation fees for policy areas identified in the State Plan. The fees are based on vehicle miles of travel, derived from the long-range transportation model.

## SPECIALIZATIONS

- **Impact Fees.** Dr. Guthrie has completed fee studies on the following types of public facilities: water and sewer systems, roads, schools, parks, fire-rescue, law enforcement, stormwater management, libraries, general government facilities and electric utility systems. Impact fee assignments for private sector clients include successful challenges of fees on behalf of builder/developer associations. Dr. Guthrie continues to improve “best practices” with customized demographic multipliers by type or size of housing, geographic variation in fees to implement planning policies, and consensus building with private sector stakeholders.
- **Infrastructure Needs and Funding Strategies.** Dr. Guthrie has prepared infrastructure plans and funding strategies for clients in Maryland, South Carolina, Georgia, Florida, Arizona, Colorado, Utah, Idaho, and Montana. As part of these studies, he documents local level of service standards, capital and operating cost factors, and projected revenue sources to ensure sufficient funding for implementation.
- **Fiscal Impact Analysis.** In contrast to impact fees that only consider infrastructure funding, fiscal studies evaluate cash flow to the public sector for all revenues and costs. Dr. Guthrie has conducted fiscal evaluations of specific development proposals, alternative development patterns, and various land-use prototypes.
- **Smart Governance.** Dr. Guthrie promotes smart growth using revenue strategies and pricing policies. He has pioneered innovative methods for analyzing census data to support higher fees for larger housing units and reducing fees for infill development located in urban centers. Dr. Guthrie helps communities implement marginal cost pricing that varies by geographic area, and charges per acre to encourage efficient land use.

## TEACHING AND RESEARCH

Dr. Guthrie taught graduate planning courses at Catholic University of America in Washington, DC and at the Alexandria campus of Virginia Tech. His courses include Introduction to Planning Principles, Transportation and Land Use, Planning Techniques, and Growth Management. His doctoral dissertation, titled “Understanding Urban, Metropolitan, and Megaregion Development to Improve Transportation Governance” documents the expected geographic extent of commuter sheds in 2030 for large metropolitan areas within the continental United States. Nine transportation megaregions were identified based on specific criteria, including global gateways that facilitate movement of people and goods,

contiguous commuter sheds with urban centers spaced a suitable distance for high-speed rail service, and end-point commuter sheds projected to add at least one million persons and jobs from 2000 to 2030. The dissertation recommends a new paradigm for transportation governance with scale-dependent decision-making and funding strategies.

## PUBLICATIONS

- *Next-Generation Transportation Impact Fees*, with Carson Bise, Planning Advisory Service Memo Jan/Feb 2015, American Planning Association.
- *Introduction to Infrastructure Financing*, with Paul Tischler, IQ Service Report 1998, International City/County Management Association.

## SAMPLE SPEAKING ENGAGEMENTS

- *Alternative Transportation Funding Techniques*, Growth & Infrastructure Consortium
- *Funding the Infrastructure Gap*, American Planning Association National Conference
- *Reasonable Impact Fees*, National Association of Home Builders Conference
- *Do Impact Fees Fit Your Comprehensive Revenue Strategy?* Rocky Mountain Land Use Institute Conference





# Erik Jorgensen PE

## Lead Analyst Consultant

### SPECIALTIES

- Financial planning studies
- Rate modeling and forecasting
- Impact fee calculations
- Utility rate and fee surveys
- Data collection and analysis

### PROFESSIONAL HISTORY

- Raftelis: Consultant (2015-present)
- Burns & McDonnell: Environmental Engineer (2012-2015)
- Bureau of Reclamation: Environmental Engineer (2005-2007, and 2008-2012)

### EDUCATION

- Bachelor of Science in Environmental Engineering – University of Colorado Boulder (2005)
- MPA in Environmental Science and Policy – Columbia University (2008)

### PROFESSIONAL REGISTRATIONS

- Professional Engineer – State of Colorado

### PROFESSIONAL MEMBERSHIPS

- American Water Works Association (AWWA) – Rocky Mountain Section
- Water Environment Federation (WEF)

Mr. Jorgensen has an extensive background in water treatment engineering and technical planning studies. He has an appreciation of technical challenges facing the water and wastewater industry, as well as the financial and managerial hurdles that utilities often encounter. Mr. Jorgensen currently serves as a Consultant in RFC's Denver Office. Prior to joining RFC, Mr. Jorgensen performed water treatment engineering research for the Bureau of Reclamation, and has performed engineering design and construction management for Burns & McDonnell. He is also actively involved in AWWA and WEF. Mr. Jorgensen has a Bachelor of Science in Environmental Engineering from the University of Colorado Boulder and an MPA in Environmental Science and Policy from Columbia University.

### RELEVANT PROJECT EXPERIENCE

#### Bancroft Clover Water and Sanitation District (CO)

Mr. Jorgensen served as the lead consultant on this engagement. Bancroft-Clover Water and Sanitation District (District) is a wholesale customer of Denver Water. They are located west of the City of Denver's boundary and serve approximately 8,000 accounts, most of which are residential customers. The District retained Raftelis to conduct a water and sewer financial plan analysis. Of concern was the District's ability to cash fund an anticipated wastewater master plan as well as ongoing water repair and replacement projects. Mr. Jorgensen developed revenue projections based on historical billing records and the projection of operating and capital expenditures. Mr. Jorgensen helped to suggest adequate levels of operating and capital reserves. The District retained Raftelis to complete a comprehensive water and wastewater cost of service and tap fee study. Of interest to the District was to ensure equity among the customer classes. In addition, the District wanted the cost of service analysis and rate design to incorporate the continued gradual reduction in water usage from all customer classes. Mr. Jorgensen developed the cost of service in accordance with generally accepted rate setting principles and adjusted the allocations to meet District-specific operational parameters. Mr. Cristiano developed several water and wastewater rate design alternatives for the Board's consideration. The Board requested additional analysis which resulted in the adoption of modified versions of the Raftelis proposed alternatives. Mr. Jorgensen also developed water and wastewater tap fees. The District's tap fees were last updated in 2001. Raftelis developed the fees using the buy-in approach as well as the unit cost replacement method using replacement cost estimates from the District's latest master plan. The fees under these methodologies represented the maximum supportable fee. Because of the large increase, the District adopted fees based on inflating the current fees to today's dollars.

#### City of Westminster (CO)

Mr. Jorgensen served as Lead Consultant on a financial planning and cost of service study for the City of Westminster, CO. The City has a sophisticated asset management process and plans to make large capital expenditures for the repair and replacement of existing water and wastewater underground infrastructure. The City also plans to construct a new water treatment facility to enhance system reliability.

#### City of Thornton (CO)

Mr. Jorgensen provided the City of Thornton, CO with extensive financial analysis of various metropolitan districts within the city limits. His analysis included tracking initial debt approvals, actual debt issued, debt repayment schedules, assessment values, and mill levies assessed by each metropolitan district.

### **City of Pueblo (CO)**

Mr. Jorgensen assisted the City of Pueblo, CO with developing a Street Repair Utility that will provide funding for specific street repair projects within the city limits. The impact that various customer classes have on the traffic that they generate within the City was analyzed using data from the Institution of Transportation Engineer (ITE) manual.

### **City of Berthoud (CO)**

Mr. Jorgensen served as the Lead Consultant for a non-utility impact fee project for the City of Berthoud, CO. Impact fees were evaluated for the following City departments: streets, parks and recreation, and public facilities. Mr. Jorgensen analyzed utilized census data to analyze demographic trends in the city. He also analyzed the City's current level of service, and infrastructure improvement plans in order to determine the justifiable impact fees.

### **Ken-Caryl Ranch Water and Sanitation District (CO)**

Mr. Jorgensen served as Lead consultant for a financial planning, cost of service and rate design study for the Ken-Caryl Ranch Water and Sanitation District in metro Denver, CO. This District is a wholesale water customer of Denver Water, and a wholesale sewer customer of the South Platte Water Renewal Partners (SPWRP). This study included the removal of a 2,000 gallon minimum water allowance in the monthly fixed charge. Raftelis also recommended that the District increase the steepness of their price ratios for each water consumption tier in order to increase the conservation price signal.

### **City of Black Hawk (CO)**

The small city of Black Hawk, CO had not performed a water rate study in many years. Mr. Jorgensen served as the lead consultant for the financial plan, cost of service and rate design study. This community consists of mainly casinos and small commercial buildings. Any residential customers on the system are not charged for water. This study was unique because there were a small amount of customers, but some very large users. Different customer classes were explored in order to find the best fit for individual customers.

### **City of Fort Morgan (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning, cost of service and rate design analysis for the City of Fort Morgan, CO. This study involved developing a detailed financial plan in anticipation of significant financial requirements for the Northern Integrated Supply Project (NISP), a long term water supply project involving multiple northern Colorado communities. Separately, Mr. Jorgensen developed an individualized plant investment fee for a large industrial customer that was interested in connecting to the City's wastewater plant.

### **East Larimer County Water District (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning, cost of service and rate design analysis for the East Larimer County (ELCO) Water District. This project included funding water treatment plant expansion costs in the near term. Mr. Jorgensen also calculated plant investment fees (PIFs) for the District. ELCO had previously developed a PIF schedule based on residential lot size. The developer is required to bring a certain amount of water rights

to the District when paying a tap fee, based on the size of the customers lot. This amount of water is then considered the users annual allotment, where if the customer uses more than this amount in a year the customer pays a surcharge on each thousand gallons used over the allotment. Mr. Jorgensen worked with the District to revise the allotments by lot size, based on multiple years of data. Separate infrastructure PIFs were also calculated for multi-family, mobile home, indoor only usage, and various commercial classes.

### **Prosper Coordinating Metropolitan District (CO)**

The Prosper Coordinating Metropolitan District is a newly created district that governs a greenfield residential community that has yet to be constructed. As the Lead Consultant, Mr. Jorgensen developed a financial planning model that helped the District establish initial water and wastewater user rates. System development charges for the first phase of residential construction were also calculated as part of this study.

### **Stonegate Village Metropolitan District (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning, cost of service and rate design study for the Stonegate Village Metropolitan District's water utility. As part of this study, Mr. Jorgensen developed a financial planning model and has prepared recommendations for the District in order for the utility to maintain an appropriate level of financial health.

### **City of Cañon City (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning, cost of service and rate design study for the City of Cañon City's water utility. As part of this study, Mr. Jorgensen developed a financial planning, customer class cost of service and rate design model for the City. Multi-year rate revenue increases were ultimately recommended for the utility. Plant investment fees were also calculated for the water utility as part of this project.

### **Pueblo West Metropolitan District (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning, cost of service and rate design study for the Pueblo West Metropolitan District's water and wastewater utilities. As part of this study, Mr. Jorgensen developed a financial planning and customer class cost of service model for the District, including debt issuance and rate revenue increase recommendations. Plant investment fees were also updated for both utilities as part of this project.

### **City of Lakewood (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning study for the water distribution and wastewater collection system for the City of Lakewood, CO. As part of this study, Mr. Jorgensen developed a financial planning model, and prepared recommendations for the City in order for the utility to maintain an appropriate level of financial health.

### **Bear Creek Water and Sanitation District (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning study for the District's water distribution and wastewater collection system. The financial planning model that Mr. Jorgensen created determined the level of rate revenue increases the District needed to implement in order to afford the significant increases in

wastewater treatment costs, and fully fund the planned wastewater capital improvements. The District had never previously charged customers for water distribution service, as potable water is provided by Denver Water, who also bills the District's customers. Mr. Jorgensen's model allowed the District to determine what level of monthly charges it would need to assess in order for the water utility to fund operation and maintenance of the system.

#### **City of Idaho Springs (CO)**

Mr. Jorgensen served as Lead Consultant on a financial planning study for the water and wastewater utility for the City of Idaho Springs, CO. Mr. Jorgensen was able to develop a financial planning model that allowed the City to fund many of its backlogged capital improvement projects. Mr. Jorgensen performed a cost of service analysis on the small number of City customers, including developing high strength wastewater rates. The Mr. Jorgensen updated the City's tap fees as well. The City has requested that Mr. Jorgensen complete an additional study to determine customer class cost of service and develop rate design alternatives for both utilities.

#### **South Adams County Water and Sanitation District and the City of Commerce City (CO)**

Mr. Jorgensen served as Lead Consultant on a development fee comparison study. He analyzed the various development fees across 12 cities along the Front Range. As part of this study, he calculated the total fees for eight different types of land use, including: single-family residential, multi-family residential, commercial retail, industrial warehouse, irrigation only, restaurant, manufacturing and a truck wash. City and water district policies were also analyzed to determine if they attract or deter developers.

#### **City of Westminster (CO)**

Mr. Jorgensen served as Lead Consultant on a comparative fee analysis for the City of Westminster, CO. He analyzed the total amount of fees a developer would pay in the City and eight other Denver metropolitan area communities for four different building types, which were: single-family subdivision (detached and attached single family units), multi-family apartment complex, vertical mixed use building (residential above commercial), and a traditional office building. Mr. Jorgensen also researched various development policies in each of these communities, including: public land dedication requirements, parking requirements, public art fees, surety requirements, affordable housing requirements, negotiable fees, and right-of-way dedication requirements.

#### **City of Grand Junction (CO)**

Mr. Jorgensen served as a Staff Consultant on a financial planning, plant investment fee, and cost of service study for the Water Services department in the City of Grand Junction, CO. He is helping to develop various options to fund the City's capital improvement program, including issuing a municipal bond. A new rate structure will also be developed as part of this study.

#### **Salt Lake City (UT)**

Mr. Jorgensen served as a Lead Consultant on the cost of service and miscellaneous fee development study for the Salt Lake City Department of Public Utilities (City). The City engaged Raftelis in

2017 conduct comprehensive water, sewer, stormwater and street-light cost-of-service rate studies. These studies included developing revenue requirements, cost-of-service allocations, rate design, and impact fees. Impact fees includes a review of the methodology for each utility – water, sewer, and stormwater. Mr. Jorgensen assisted in the calculation of miscellaneous fees, development of cost of service for the water utility and alternative rate structures.

#### **City of Laramie (WY)**

Mr. Jorgensen served as Lead Consultant on a project to consolidate various commercial wastewater rate classes based on assumed strength. The City of Laramie, WY previously had 10 different commercial customer classes within the wastewater utility that were based on dated strength assumptions. The City performed a sampling analysis on customers within these classes. With updated strength loadings, Mr. Jorgensen calculated new cost of service based rates, and proposed four different scenarios for customer class consolidation. One scenario was to retain the existing classes, but update the volumetric rates based on updated sampling data. Another scenario was to consolidate some commercial classes, based on similar strengths and create one class for the University of Wyoming. The third scenario developed was to create one customer class for all users. Lastly, Mr. Jorgensen developed a scenario with one residential and one commercial class, which was eventually proposed to City Council.

#### **City of Norman (OK)**

Mr. Jorgensen served as Lead Consultant on a connection charge study and excise tax review. He calculated water and wastewater connection charges for the City and recommended adjustments as necessary. Mr. Jorgensen also surveyed the development fees in surrounding communities in Oklahoma.

#### **City of Prescott (AZ)**

Mr. Jorgensen served as the Lead Consultant for a non-utility impact fee project for the City of Prescott, AZ. Impact fees were evaluated for the following City departments: streets, parks and recreation, police and fire. Mr. Jorgensen analyzed utilized census data to analyze demographic trends in the city. He also analyzed the City's current level of service, and infrastructure improvement plans in order to determine the justifiable impact fees.

### **PRESENTATIONS**

- "Feasibility of Membrane Concentrate Disposal (using enhanced evaporation systems)," Jorgensen, Erik; El Paso Desalination Conference; March 2006
- "Feasibility of Membrane Concentrate Disposal (using enhanced evaporation systems)," Jorgensen, Erik; American Membrane Technology Association Conference; May 2006

### **PUBLICATIONS**

- "Feasibility of Membrane Concentrate Disposal (using enhanced evaporation systems)," AMTA Water Quality Solutions Newsletter; Spring 2005
- Bureau of Reclamation Water Treatment Primer for Small Communities





# Hannah Palmer-Dwore

## Lead Analyst Consultant

### SPECIALTIES

- Geospatial analysis
- Rate modeling and forecasting
- Water utility financial management and planning
- Statistical analysis and data management
- Technical report writing

### PROFESSIONAL HISTORY

- Raftelis: Consultant (2019 - Present); Associate Consultant (2017-2018)
- Colorado Parks and Wildlife: Policy and Planning Assistant
- National Geographic's Big Cats Initiative: Consulting Intern (August 2015 - June 2017)
- American Rivers: River Restoration Intern (May - July 2016)

### EDUCATION

- Master of Environmental Management, Ecosystem Science and Conservation - Duke University Nicholas School of the Environment (May 2017)
- Geospatial Analysis Certificate (May 2017)
- B.A. Organic Chemistry and Theater - Sarah Lawrence College (2009)

Ms. Palmer-Dwore has a diverse background including natural science, natural resource management, and quantitative analysis. Her expertise includes geospatial analysis and modeling, technical report writing, and data management.

### RELEVANT PROFESSIONAL EXPERIENCE

#### City of Golden (CO)

Ms. Palmer-Dwore is currently serving as lead consultant on the City of Golden's water, wastewater, and stormwater comprehensive financial analysis and rate study. The City wished to focus on the rate structures and updates to cost-of-service. To identify rate alternatives, the City convened a Utility Rate Citizens Committee (URCC) to review and provide recommendations on pricing objectives. Ms. Palmer-Dwore prepared financial plans, cost-of-service analysis, and created rate alternatives based on URCC recommendations for each utility. Ms. Palmer-Dwore obtained and analyzed impervious area data for residential and non-residential customers to ensure equitable revenue recovery between classes. This study is ongoing and will be completed in September 2019.

#### Three Lakes Water and Sanitation District (CO)

Three Lakes Water and Sanitation District engaged Raftelis to conduct a cost of services analysis in anticipation of large capital expenditures. The District has several unique features, including its local terrain and large service area, which offer unique challenges to providing coverage to customers. Additionally, the District has several inactive taps of record purchased at various costs over the years which have not been subject to a capital improvement fee. Ms. Palmer-Dwore has begun preliminary analysis to provide a rate analysis and financial forecast to meet the goals of the utility.

#### Eagle River Water and Sanitation District (CO)

The District's current policy provides static monthly allocations for single family equivalents. To improve water use efficiency, the District requested a rate study for coverage-based irrigation-only water allocations by tier. Ms. Palmer-Dwore conducted an analysis of billing data to determine historical use by customer class and drafted a water budget based on evapotranspiration values for the study area.

#### City of Thornton (CO)

Raftelis was engaged by the City of Thornton to conduct a stormwater utility fee study. Using available aerial imagery, Ms. Palmer-Dwore digitized a statistically significant sample of City parcels and conducted a spatial analysis to determine impervious area and parcel statistics for each class of development. This data was used to calculate unit costs of service and rates for each customer class. Ms. Palmer-Dwore also conducted extensive research on stormwater policies along Colorado's Front Range, determining commonly-used rate structures, regulations and ordinances, as well as exploring policies related to credits and refunds.

The City of Thornton also sought to tailor single family residential system development charges to lot size in an effort to better reflect the capacity of each user. Ms. Palmer-Dwore conducted an analysis of SFR gross lot sizes and worked closely with City officials to create an equitable fee structure and water allotment schedule for existing and future users.

#### City of West Jordan (UT)

Ms. Palmer-Dwore developed financial plans, performed cost-of-service studies, and designed rates for the wastewater and stormwater utilities of West Jordan. As the City required a quick

turnaround on this project, Ms. Palmer-Dwore efficiently conducted an accurate analysis and effectively conveyed the rate changes required for each utility.

#### **City of Phoenix (AZ)**

Ms. Palmer-Dwore is currently working with the City of Phoenix to complete research, analysis, and calculation of a storm drainage impact fee. This impact fee will be applicable to an area benefiting from proposed capital improvements whose construction is being led by the Maricopa County Flood Control District (MCFCD).

#### **City of Reno (NV)**

The City of Reno engaged Raftelis to study the feasibility of developing a stormwater management fee. Ms. Palmer-Dwore developing data by creating a sample of representative parcels from the Citywide database, digitizing the impervious area for these parcels, and calculating the impervious area to determine the proper unit of charge.

#### **City of Pocatello (ID)**

Ms. Palmer-Dwore developed a financial plan, performed a cost-of-service study, and designed rates for the sanitation utility of Pocatello. Concurrently, she performed impact fee studies for the City's water and wastewater utilities.

#### **City of Buckeye (AZ)**

The City of Buckeye engaged Raftelis to update the Water and Wastewater IIP and DIF. Ms. Palmer-Dwore was responsible for conducting overlay analyses to aggregate areas for public safety, parks, streets, water, and wastewater impact fees. She incorporated state and local policies in her work and used geospatial tools to complete the analysis. Ms. Palmer-Dwore worked with the engineering and planning staff to maintain and update geodatabases of utility and non-utility data. At the City's request, Ms. Palmer-Dwore provided additional GIS support to the City's engineering staff on a per diem basis during a staffing shortage.

#### **City of Sheridan (WY)**

The City of Sheridan requested a comprehensive water and wastewater rate and plant investment fee analysis. Ms. Palmer-Dwore conducted a comprehensive analysis of the billing data to project revenue as part of the financial planning process. Ms. Palmer-Dwore assisted with developing plant investment fees for water and sewer, as well as drafting the technical report.

### **OTHER RELEVANT PROJECT EXPERIENCE**

#### **Dam Removal Prioritization Analysis and Model**

As a Stanback Intern with American Rivers, Ms. Palmer-Dwore worked with the River Restoration Team to improve connectivity of rivers in the Southeastern United States by assessing and prioritizing underutilized dams for removal. Ms. Palmer-Dwore used remote sensing, aerial imagery, and field reports to evaluate 294 dams across the study area, ultimately identifying 18 to be targeted for removal. She also collaborated with team members from the United States Forest Service, American Rivers, and The Nature Conservancy on a cost assessment model for river barrier removals.

# Hourly Billing Rates

Project team hours and expenses will be billed on the same invoice. Additional services outside the agreed upon scope of work will be billed on a time and materials basis. Raftelis' billing rates can be found below.

Position	Hourly Billing Rate**
Chair/Chair Emeritus	\$425
Chief Executive Officer/President	\$375
Executive Vice President	\$325
Vice President/Principal Consultant	\$295
Director of Governmental Services	\$295
Senior Manager	\$265
Director of Florida Operations	\$225
Manager	\$240
Director of Data Services	\$240
Senior Consultant	\$210
Consultant	\$185
Associate	\$155
Analyst	\$110
Administration	\$80
Technology/Communications Charge*	\$10

*\*Technology/Communications Charge - this is an hourly fee charged monthly for each hour worked on the project to recover telephone, facsimile, computer, postage/overnight delivery, conference calls, electronic/computer webinars, photocopies, etc.*

*\*\*For services related to the preparation for and participation in deposition and trial/hearing, the standard billing rates listed above will be increased by an amount up to 50%.*

# PROPOSED Scope of Services

Task 1: Project initiation and project management	
WORK PLAN ACTIVITIES	WORK PLAN OUTCOMES
<p><b>Project Management</b></p> <ul style="list-style-type: none"> <li>• Provide timely invoices in the Town’s preferred format</li> <li>• Carry out regular calls with the Town’s project manager</li> <li>• Schedule milestones and deliverable dates on a recurring basis to ensure project remains on schedule</li> </ul> <p><b>Project Initiation Meeting</b></p> <ul style="list-style-type: none"> <li>• Provide data request in advance of project initiation meeting</li> <li>• Schedule conference call to review and clarify data request items</li> <li>• Meet on-site with all Town staff engaged in project to review preliminary assumptions on cash flows</li> <li>• Organize individual break-out sessions with Finance, Engineering and Operations staff to review and get further input on data request items</li> <li>• Conduct a Pricing Objectives Workshop with Town staff to better understand the current rate structure’s rationale, and possible critical issues, which should be considered in the development of alternative rate designs</li> <li>• Review and identify miscellaneous fees to be updated</li> </ul>	<p><b>Project Management</b></p> <ul style="list-style-type: none"> <li>• Implements transparent project communication protocols throughout the study</li> <li>• Ensures project stays within budget and additional resources are available when needed</li> <li>• Establishes the two points of contact to guarantee Raftelis staff are always available to respond to Town inquiries. The Project Manager will be the primary contact and the Lead Analyst will be the secondary contact.</li> </ul> <p><b>Project Initiation Meeting</b></p> <ul style="list-style-type: none"> <li>• Allowing meaningful discussions on budget and capital data through the data analysis and financial plan framework provided by Raftelis’ staff prior to the project initiation meeting.</li> <li>• Timing of the project initiation meeting after data review reduces the need for a follow up on-site meeting</li> <li>• Identifying key pricing objectives at the outset allows Raftelis to develop and refine conceptual rate and fee design alternatives as the study progresses</li> <li>• Using the input from Town staff, Raftelis can develop a customized model that the Town will need</li> </ul>
PROJECT CONSIDERATIONS	
<ul style="list-style-type: none"> <li>• Raftelis’ uses an integrated labor and expense system which ensures that monthly invoices are timely, and accurately reflect the most recent activities on the project</li> <li>• Raftelis’ management staff has recurring weekly phone calls to review workload for each office. Should the need arise for additional resources, we can easily staff the project with the consultant that has the right skill set</li> <li>• This project will be staffed out of the Denver office. Additional staff resources will be available on an as-needed basis</li> <li>• Submitting a data request in advance ensures a more productive and effective meeting, than a traditional project kick-off meeting</li> </ul>	

## Task 2: Analysis of customer class water demands and wastewater flow

### WORK PLAN ACTIVITIES

- Analysis of annual and monthly billed water consumption and billable wastewater volume for each customer class
- Calculation of average winter water consumption for wastewater billed revenue under existing rates
- Development of estimated customer class' water maximum day and maximum hour peaking factors
- Completion of a bill frequency for each customer class showing annual and monthly billed water consumption by tier
- Conduct water demand and wastewater billable volume sensitivity analysis to develop optimum sales projections
- Review SFRE assumptions for commercial stormwater
- Analysis of the impact of the Town's Conservation Plan and Comprehensive Plan on billed water consumption
- Evaluation of and potential recommendations for customer class modifications (based on consultations with Town staff)

### WORK PLAN OUTCOMES

- Billing data sets are large and can be difficult to manage. Raftelis has the expertise and tools to quickly manipulate and organize the data without affecting the integrity of the data
- Rather than selecting one year of data to project future consumption, Raftelis will include multiple years to establish a range of possible forecasts classified as low, medium, and high usage.
- A sensitivity analysis will provide information about how rate increases will change rate revenue, helping us to further refine the revenue projections
- Regular web meetings with T'Town sStaff will keep all team members up-to-date on rate study progress

### DEMAND ANALYSIS CONSIDERATIONS

- Raftelis will evaluate the impact on rate revenues resulting from increased bills and reduced consumption. We will use regional price elasticity factors to conduct this analysis.



## Task 3: Tap fees, water resource fees and storm drainage impact fees

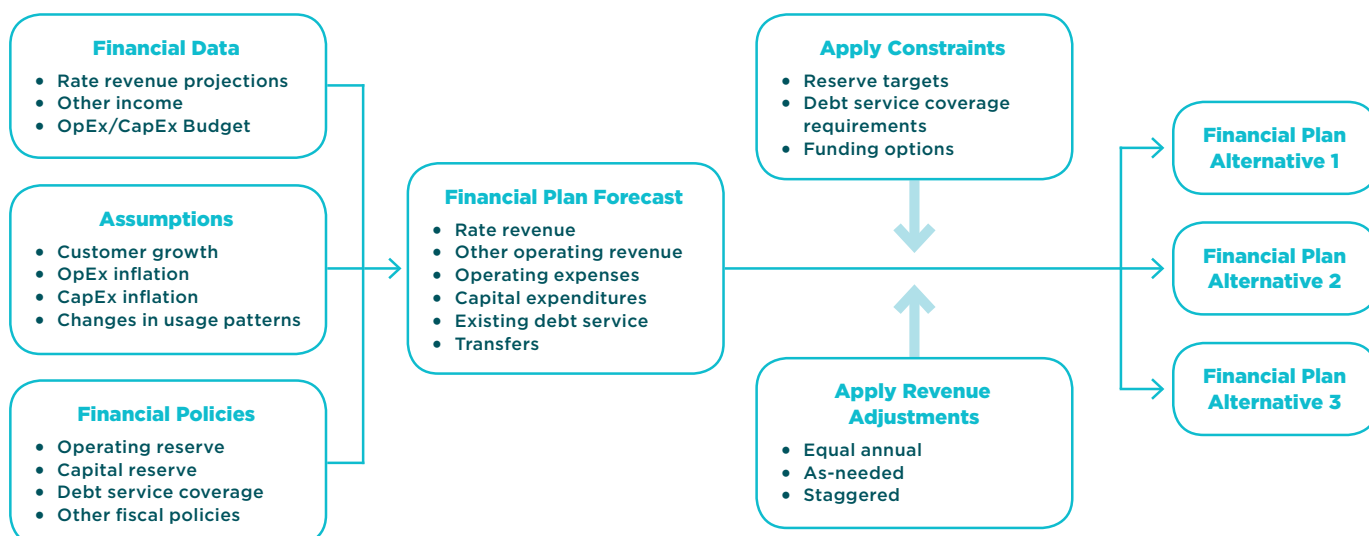
WORK PLAN ACTIVITIES	WORK PLAN OUTCOMES
<p><b>Water Tap and Resource Fees/Wastewater Tap Fees</b></p> <ul style="list-style-type: none"> <li>• Assess current capacity available in the water and wastewater systems, if any</li> <li>• Calculate current value of available capacity and planned growth-related costs</li> <li>• Estimate capacity added by growth-related projects</li> <li>• Apply adjustments – outstanding principal, contributions, etc.; include carrying costs if applicable</li> <li>• Determine level of service demand per SFE</li> <li>• Calculate unit cost of capacity for tap and resource fees using buy-in, incremental and hybrid methodologies</li> <li>• Apply unit costs to current assessment schedules</li> </ul> <p><b>Stormwater Impact Fees</b></p> <ul style="list-style-type: none"> <li>• Determine existing level of service</li> <li>• Determine value of available capacity and future capacity projects</li> <li>• Apply adjustments – outstanding principal, contributions, etc.; include carrying costs if applicable</li> <li>• Develop growth projections based on land use assumptions for residential, commercial, office, and industrial</li> <li>• Calculate number of developable acres by land use type</li> <li>• Apply runoff coefficient to calculate impervious area</li> <li>• Calculate fee by land use type</li> </ul>	<ul style="list-style-type: none"> <li>• Proposed tap, resource, and impact fees that: <ul style="list-style-type: none"> <li>– Recover the proportionate share of capacity required to serve new development</li> <li>– Are legislatively adopted fees to defray impacts from growth to existing customers</li> <li>– Meet the rational nexus test - The need for additional capital facilities and the increased impact generated by the new development; and the expenditures of the funds collected and the benefits accruing to the new residential or commercial construction</li> </ul> </li> </ul>
TAP FEE CONSIDERATIONS	
<ul style="list-style-type: none"> <li>• Current multifamily tap fees are the same as single family. Raftelis will conduct a demand analysis to determine whether a different gallons per day per SFE basis should be used. Raftelis will conduct a demand analysis to determine whether the fees by meter size should be adjusted. We will discuss with staff the need for assessing the multifamily tap fee on a per- unit, on per unit basis rather than by meter size. Assessing on a per- unit basis better reflects costs because the fee is customized for the specific number of units in each development. Whereas, aA meter size approach provides for a more general cost recovery, considering the wide range of the number of units that can be served by a particular metermeter size.</li> <li>• Our water resource demand calculation will consider historical demands on a per ERU SFE basis butbasis but will also consider that future development may have different demands than from past developmentdevelopment in the past.</li> </ul>	

TAP AND IMPACT FEE CALCULATION METHODOLOGIES	
<b>Buy-In</b>	For utilities with existing capacity available to serve new customers
<b>Incremental</b>	For utilities with little to no available capacity and must rely on expansion capital to serve new customers
<b>Hybrid (Combined)</b>	For utilities with some existing capacity but will require additional capacity for near-term growth needs

## Task 4: Revenue requirement projections

WORK PLAN ACTIVITIES	WORK PLAN OUTCOMES
<ul style="list-style-type: none"> <li>• Develop separate “standalone” financial plans for water, wastewater, and stormwater water utilities 2019 - 2029</li> <li>• Forecast customer account growth based on the Town’s existing customer classes and the new multifamily class</li> <li>• Forecast revenues at existing rates</li> <li>• Forecast tap fee and water resource fee revenues</li> <li>• Forecast O&amp;M expenses, with special emphasis on the cost impacts of securing additional water rights</li> <li>• Forecast of CIP expenditures</li> <li>• Forecast existing and proposed debt service</li> <li>• Review cash reserve and debt service coverage targets considering the risk of revenue variability</li> <li>• Develop an “optimal” capital financing strategy based on scenario analysis using differing proportions of rate revenue and proposed external debt financing. Separate growth-related and non-growth bond proceeds for the purposes of determining user charge increases</li> <li>• Identify required annual percentage rate increases over the 10-year planning horizon</li> <li>• On-site meeting with staff to review tap fees and revenue requirement projections</li> </ul>	<ul style="list-style-type: none"> <li>• Raftelis will provide financial planning options for consideration by staff. This will be an iterative process.</li> <li>• Staff vetted scenarios will be presented to Town Council</li> <li>• Scenarios developed in this task will be included in the model to be delivered to the Town</li> <li>• Regular web meetings with Town staff will keep all team members up-to-date on rate study progress</li> <li>• A revenue requirements cash flow through 2029 will indicate the level of revenue adjustments needed</li> <li>• The separate tap fee cash flows will indicate the ability of fee revenue to meet growth-related costs.</li> </ul>
REVENUE REQUIREMENT CONSIDERATIONS	
<ul style="list-style-type: none"> <li>• The Town has a robust conservation program encouraging the wise use of water. New development will be required to meet specific requirements for water use in the future. Our projected demands will recognize that historical use may not be the best indicator of future use. We will adjust future demands recognizing those potential changes</li> <li>• Raftelis has skilled IT professionals to assist with processing billing data. They can export into a format that is easy to analyze for building revenue projections and rate design. Using these professionals, ensure that data integrity is maintained which allows for more accurate data analysis</li> </ul>	

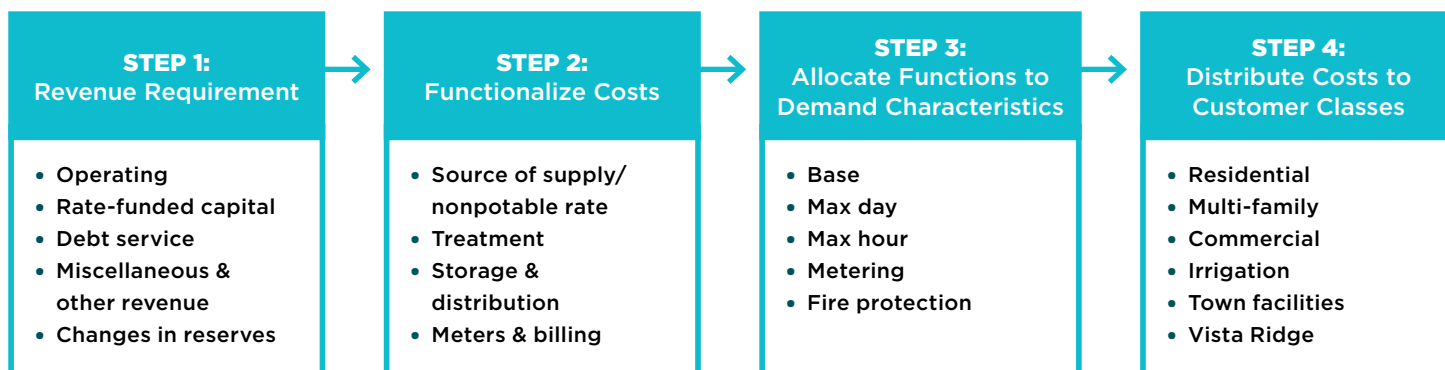
### OPTIMIZED REVENUE REQUIREMENT PROJECTION PROCESS



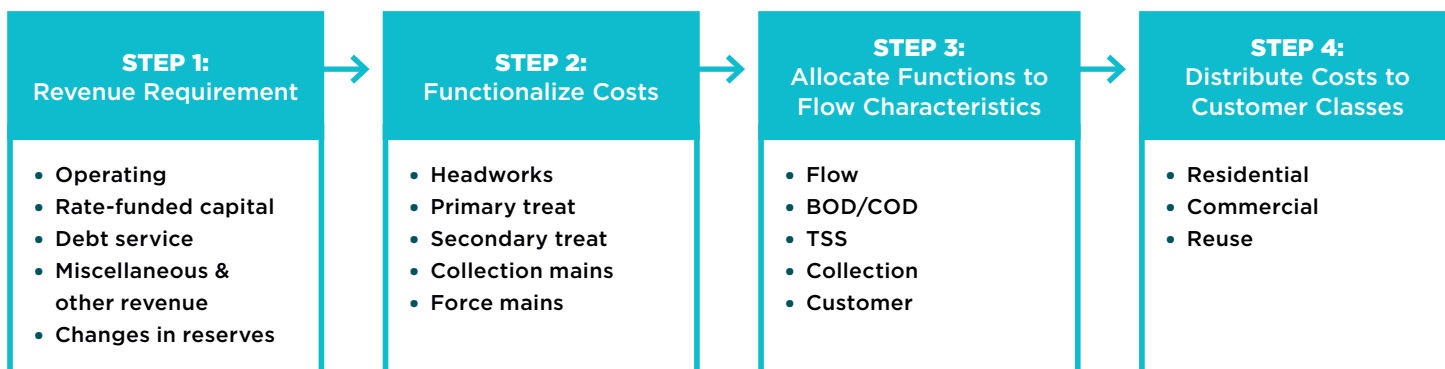
## Task 5: Cost of service analysis

WORK PLAN ACTIVITIES	WORK PLAN OUTCOMES
<ul style="list-style-type: none"> <li>• Develop separate “standalone” COS studies for water, wastewater, and stormwater</li> <li>• Determine the test year revenue requirement</li> <li>• Assign the net book value or replacement cost of existing utility infrastructure to the correct functional categories</li> <li>• Assign test-year capital costs (PAYGO financing and projected debt service), O&amp;M expenses, and non-rate revenue offsets to the correct functional categories</li> <li>• Allocate test-year capital cost, O&amp;M expenses, and non-rate revenue offsets to the correct demand parameters</li> <li>• Distribute the allocated test-year capital costs, O&amp;M expenses and non-rate revenue offsets customer classes</li> <li>• Develop test-year revenue requirements for each customer class on a cash and utility basis according to the Manual M1 and the WEF MOP27 standards</li> <li>• Develop a multifamily customer cost of service</li> </ul>	<ul style="list-style-type: none"> <li>• A tailored cost-of-service analysis for water and wastewater that incorporates the Town’s rate policies, system data, and contractual requirements of bulk water customers</li> <li>• Raftelis will review cost allocations with public works staff to ensure that costs are captured correctly and maintain equity</li> <li>• A tailored cost of service, that ensures equity between classes, is maintained and contractual requirements are met</li> <li>• Cost of service based on the detailed billing analysis in Task 2</li> <li>• Regular web meetings with Town staff will keep all team members up-to-date on rate study progress</li> </ul>
COST OF SERVICE CONSIDERATIONS	
<ul style="list-style-type: none"> <li>• Creating a new multifamily customer class may result in a significant change to the class it is currently billed. The relatively small size of the multifamily class may cause a spike in their rates as a separate class</li> <li>• Changes in customer class peaking factors may also results in changes in cost recovery for each customer class. Should that be the case, Raftelis will develop a cost of service transition to minimize the impacts to those customers</li> </ul>	

### WATER COST OF SERVICE ANALYSIS



### WASTEWATER COST OF SERVICE ANALYSIS



## Task 6: Rate design

### WORK PLAN ACTIVITIES

#### Develop Rates Under the Town's Existing Rate Structures

- Develop fair and equitable updated test year water, wastewater, and stormwater rates, in addition to customer bill impacts. This is for the potentially revised customer classes (see Task 2) under the Town's existing rate structure.

#### Develop Rates Under Proposed Alternative Rate Structures

- As appropriate, and based on consultations with Town staff, Raftelis will develop potential alternative water, wastewater and stormwater rate structures based on the pricing objectives identified in Task 1.

#### Conduct a Rate Survey

- Develop a water, wastewater and stormwater utility bill comparison under the Town's existing and proposed rates, compared against at least 5 peer utilities

#### On-site Meeting

- Finalize revenue requirements projections, review interim cost of service results and rate design analysis

### WORK PLAN OUTCOMES

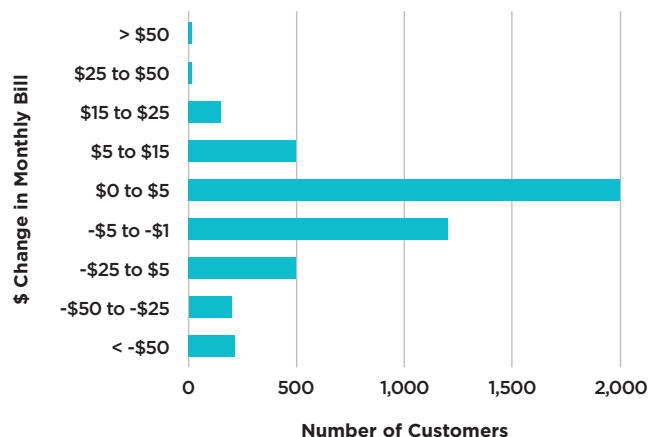
- A plan of transitioned cost-of-service rates for each customer class
- Full cost recovery of rates for each year
- Analysis of current rate structure against pricing objectives
- Rate structure alternatives designed to meet pricing objectives
- Detailed bill impacts for water and wastewater customers
- Customized peer utility survey showing how the Town compares with other utilities in the state and the Rocky Mountain region.
- Regular web meetings with Town staff will keep all team members up-to-date on rate study progress

### RATE DESIGN CONSIDERATIONS

- The current residential tiered structure has been in place since 2008. Raftelis will review with staff the need for adjustments to the residential volumetric tiers based on changes in usage patterns
- Raftelis will also review the nexus and determine the cost basis between the differences in the residential and commercial monthly service charge

#### \$ CHANGE IN MONTHLY BILL (PROPOSED VS. EXISTING)

4,800 Customers



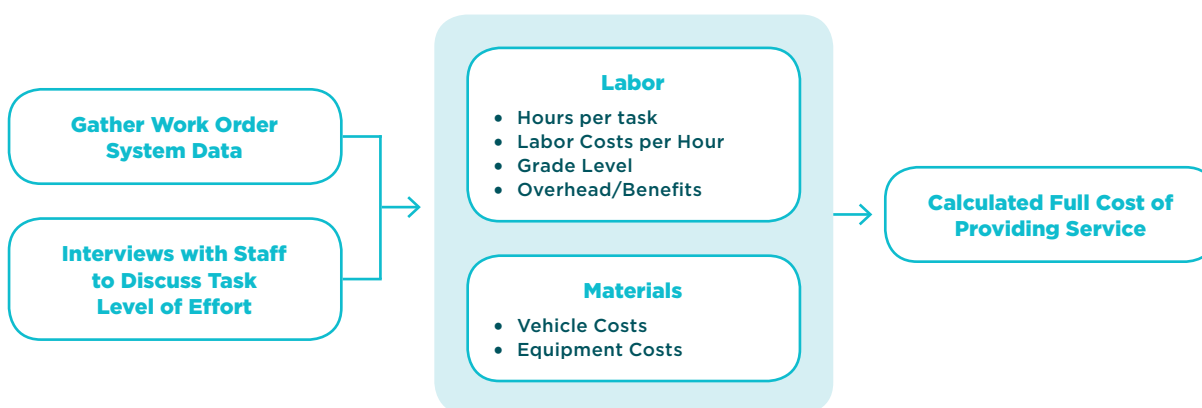
#### MONTHLY BILL COMPARISON



## Task 7: Utility ancillary fees

WORK PLAN ACTIVITIES	WORK PLAN OUTCOMES
<ul style="list-style-type: none"> <li>Review and update ancillary fees identified in Task 1</li> <li>Identify the tasks, time and labor costs associated with updating each fee</li> <li>Compare fee revenue under existing and proposed fees</li> </ul>	<ul style="list-style-type: none"> <li>Ancillary fees that recover the cost to provide service</li> <li>A comparison of the Town's analyzed fees to fees from peer utilities</li> <li>Staff review of the tasks associated with each fee to promote transparency and ensure that the fees are an accurate reflection of the level of effort</li> </ul>

### ANCILLARY FEE



## Task 8: Draft and final reports

WORK PLAN ACTIVITIES	WORK PLAN OUTCOMES
<ul style="list-style-type: none"> <li>Prepare comprehensive draft reports summarizing our analyses, findings and recommendations for review and comment by Town staff</li> <li>Prepare comprehensive final reports</li> </ul>	<ul style="list-style-type: none"> <li>A report customized to the Town's study incorporating the key assumptions and decisions made during the study</li> <li>A report documenting the full study process</li> </ul>

## Task 9: Stakeholder and Town Board of Trustees meetings

WORK PLAN ACTIVITIES	RESOURCE REQUIREMENTS
<ul style="list-style-type: none"> <li>Prepare presentation materials and participate in meetings for all stakeholder groups and/or Town Council as indicated in the RFP</li> <li>Attend two Town Board of Trustee meetings to present draft and final results</li> </ul>	<ul style="list-style-type: none"> <li>An informative meeting with Stakeholders in an environment that fosters discussion and questions from the public will, garners public trust and support for the rate changes.</li> <li>A presentation that will resonate with the Town Board of Trustees and provide the key information needed for decision making.</li> <li>A collaborative process between Raftelis and Town sStaff for developing the Town Council presentation</li> </ul>



## OPTIONAL TASK 10

### Customer education and outreach

Ensuring that the Town maintains and grows public trust as it conducts its rate study and implements the result is critical. At a time when the public is empowered by social media and fueled by skepticism of public processes, proactive public outreach is a key component in obtaining public understanding of rate study recommendations.

Proactive communication increases community acceptance of rate changes, enhances credibility with stakeholders and policymakers, and builds awareness of the value of the service and the need for utility investments on behalf of the community. The Town has a strong communications foundation to work from. Anticipating changes needed to fund participation in both the Windy Gap Firing Project and the Northern Integrated Supply Project is a special communication challenge that requires experience in developing a messaging platform and tactics that will explain this change.

Raftelis can assist the Town by developing a strategic communication plan that includes development of collateral educational material and online tools to ensure the public is informed and provided with tools to understand the impacts to their individual bills.

#### Strategic Communication Plan

The strategic communication plan will accompany the final recommendations for rates and rate structure implementation and will include:

1. **Situation analysis** that analyzes available customer data and includes an environmental scan of current issues that may impact customer rate change acceptance.
2. **Stakeholder identification and public participation mapping** to ensure key influencers are connected to the communication process and identifies special population communication needs.
3. **Communication channel identification** to provide a strategy for using the

Town's web site, social media, printed and electronic materials, bills, direct mail, newsletters and staffing resources if/where available.

4. **Messaging platform** to provide messages about why rates are changing, how the results will be implemented, and potential impacts to customers.
5. **Internal communication strategies** to ensure Town staff are aware of the rate changes and can answer questions, provide talking points and FAQ's for customer service staff who will be working with customers directly.
6. **Community outreach tactics** for key influencers such as the chamber of commerce, school district, homeowners' associations, highly impacted customer groups, etc.
7. **Media relations and social media plan** to determine how best to leverage the Town's media relationships and social media platforms.
8. **Written communication development** for use in such materials as FAQ's, infographics, website updates, bill inserts, etc.

**Meeting(s):** In person with communications staff and project managers to understand communication needs, current environment and available communication channels.

**Deliverables:** Strategic Communications Plan

#### Communication Collateral - Development and Design

Visual representation of proposed changes in an easy to understand and accessible format can often significantly improve customer understanding of rate structure changes that may impact customer bills. Raftelis has a professional design team experienced in developing infographics, fact sheets, brochures, presentations, event displays, etc. to assist with communicating rate and rates structure changes in print, online or in person.

**Meeting(s):** Conference calls, or in-person as needed

**Deliverables:** To be determined in collaboration with Town staff

#### Online Bill Calculator - Development and Design

It is difficult to calculate the bill impacts of rate changes for individual customers when water use varies so widely. Providing an online tool to help customers calculate their individual bill will improve customer understanding and acceptance of the changes and help customers plan ahead for changes to their monthly budget.

Raftelis has technology consulting staff experienced in developing customer-facing interactive tools. They will work with the Town's IT team and communications staff to develop a tool compatible with the Town's website that can be used to easily calculate the changes resulting from rate changes. Users will be able to enter water consumption amounts from current or prior bills to see a comparison of charges under current and proposed rates. The bill calculator will be developed to look and feel similar to the Town's overall website and source code will be delivered so that the Town's IT staff can modify it in the future if necessary.

**Meeting:** Conference call or webinar

**Deliverables:** Online Bill Calculator

# Budget and Schedule

## BUDGET

The following table provides a breakdown of our proposed fee for this project. This table includes the estimated level of effort required for completing each task described and the hourly billing rates for our project team members. Travel expenses are included in the total fee.

Tasks	Number of On-Site Meetings	Hours							Total Labor and Expenses
		TC	JW	DG	EJ	HPD	Admin	Total	
1. Project initiation and project management	1	8	-	-	8	4	2	22	\$4,470
2. Analysis of customer class water demands and wastewater flows	0	4	-	-	8	12	-	24	\$4,400
3. Water and wastewater tap Fees, water resource fees and storm drainage impact fees	0	8	-	4	14	24	-	50	\$9,390
4. Revenue requirement projections	1	8	-	-	22	24	-	54	\$9,910
5. Cost of service analysis	0	8	2	-	20	24	-	54	\$10,020
6. Rate design	1	8	2	-	20	22	-	52	\$9,710
7. Utility ancillary fees	0	4	-	-	6	8	-	18	\$3,590
8. Draft and final reports	0	8	-	-	8	8	-	24	\$4,840
9. Stakeholder and Town Board of Trustees meetings	3	24	-	-	8	8	-	40	\$9,480
<b>Total Estimated Meetings / Hours</b>	<b>6</b>	<b>80</b>	<b>4</b>	<b>4</b>	<b>114</b>	<b>134</b>	<b>2</b>	<b>338</b>	
<b>Hourly Billing Rate</b>		<b>\$265</b>	<b>\$240</b>	<b>\$240</b>	<b>\$185</b>	<b>\$155</b>	<b>\$125</b>		
<b>Total Professional Fees</b>		<b>\$21,200</b>	<b>\$960</b>	<b>\$960</b>	<b>\$21,090</b>	<b>\$20,770</b>	<b>\$250</b>		<b>\$65,810</b>

TC - Todd Cristiano (Project Manager)

JW - John Wright

DG - Dwayne Guthrie

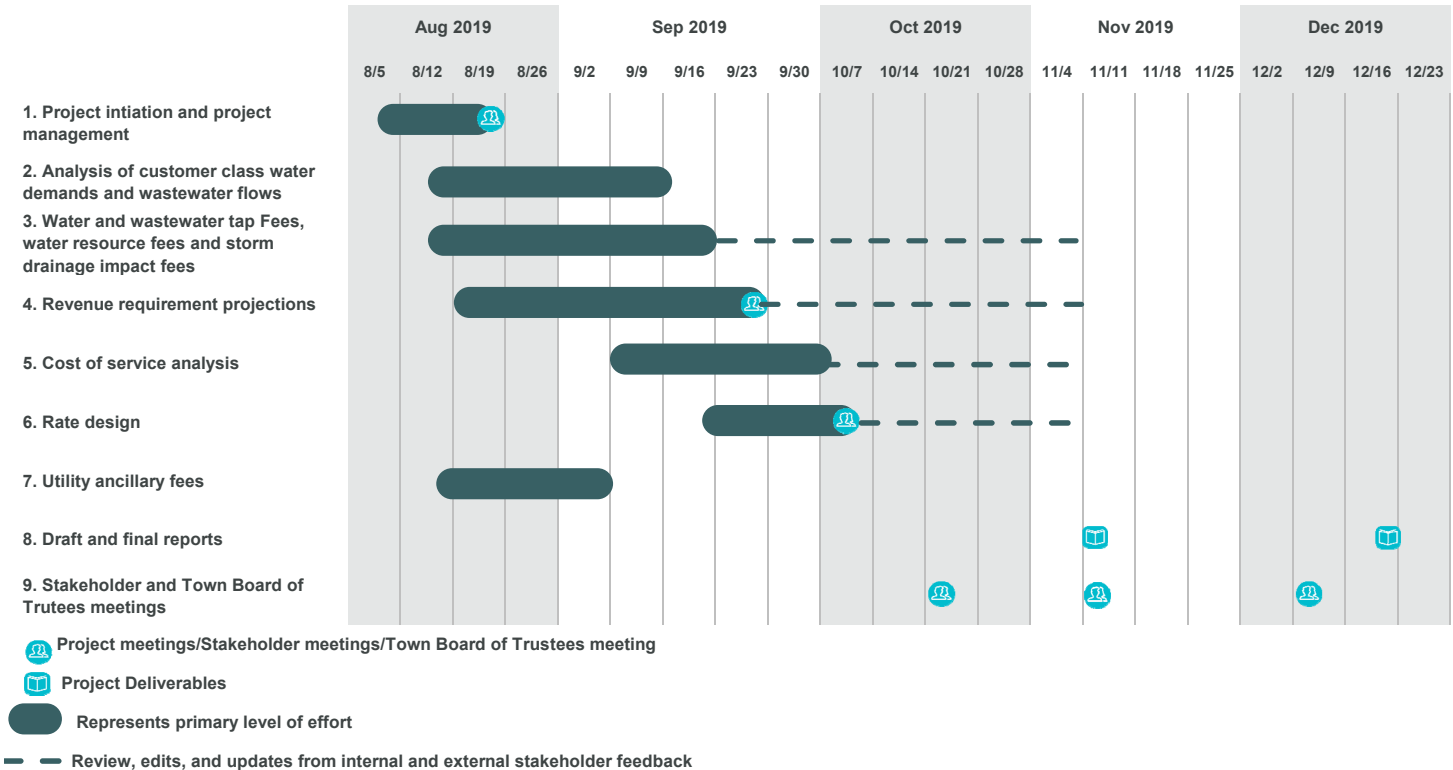
EJ - Erik Jorgensen

HPD - Hannah Palmer-Dwore

Admin - Administrative Support

SCHEDULE

Raftelis will complete the scope of services within the timeframe shown in the schedule below. The proposed schedule assumes a notice-to-proceed by the beginning of August 2019, and that Raftelis will receive the needed data in a timely manner and be able to schedule meetings as necessary. Project completion is estimated for December 2019.



In-Person Meetings / Workshops	Approximate Dates
Task 1 Meetings	
On-site rate design review	Week of August 19
Task 4 Meeting	
On-site project meeting	Week of September 23
Task 6 Meeting	
On-site project meeting	Week of October 7
Task 9 Meetings	
Stakeholder Meeting	Week of October 21
Town Board of Trustees Meeting #1	November 11
Town Board of Trustees Meeting #2	December 9
Web Meetings (used on as-needed basis throughout the project)	