



ORANGE COUNTY MAYOR

Jerry L. Demings

P.O. BOX 1393, 201 SOUTH ROSALIND AVENUE, ORLANDO, FL 32802-1393
PHONE: 407-836-7370 • FAX: 407-836-7360 • EMAIL: MAYOR@OCFL.NET

June 24, 2019

TO: Board of County Commissioners

FROM: Mayor Jerry L. Demings

A handwritten signature in black ink that reads "Jerry L. Demings".

SUBJECT: Managerial Appointments
CONSENT AGENDA ITEM JULY 2, 2019

Utilities Department

In August 2018, a Utilities Department deputy director position became vacant with the resignation of Todd Swingle. This position is responsible for assisting the director in all areas related to the management of the Water and Water Reclamation Divisions. I am pleased to announce the appointment of Marc Cannata, P.E. as deputy director of the Utilities Department. Mr. Cannata currently serves as the manager of the Capital Planning and Building Systems Division at the Orange County Convention Center, where he has served since 2015.

Mr. Cannata began his career with Florida Power & Light in 1987 and has worked for Florida Aerospace, Montgomery Watson, and Parsons Engineering Science. From 2000 to 2015, he worked for Reiss Engineering Inc., where he served as vice president and chief financial officer.

Mr. Cannata holds a bachelor of science degree and a master of science degree in environmental engineering, as well as a master's degree in business administration from the University of Central Florida. In addition, Mr. Cannata holds a Professional Engineer license. He is involved with many professional affiliations, including the American Water Works Association, the Florida Engineering Society, and the National Society of Professional Engineers. His appointment will be effective July 28, 2019, at an annual salary of \$149,760. His resume is attached for your reference.

In addition, I am also upgrading an existing assistant director role in the Utilities Department to a deputy director position. This position will increase operational efficiencies by aligning all development functions within the Utilities Department under one senior leadership position. This position will have a large scope of responsibility, managing the Capital Improvement Program, which will exceed \$806 million during the next five years, as well as facilitating interactions with the development community. It is my pleasure to announce the appointment of Andres Salcedo, P.E. to the new deputy director position.

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Mr. Salcedo has 29 years of experience in the water and wastewater utilities engineering field. He started his employment with Orange County in 1996 as a chief engineer, was promoted to manager in 2008, and to assistant director in 2014.

Mr. Salcedo holds a bachelor of science degree in civil engineering from Escuela Colombiana de Ingenieria in Columbia, and a master of science degree in civil engineering from the University of Kentucky. Mr. Salcedo holds a Professional Engineer license and is a Certified Building Contractor. He has professional affiliations with the American Water Works Association, the Water Environment Federation, and the American Society of Civil Engineering. His appointment will be effective July 14, 2019, at an annual salary of \$154,294. His resume is attached for your reference.

Action Requested: Confirmation of the Mayor's managerial appointment of Marc Cannata as Deputy Director, Utilities Department and Andres Salcedo as Deputy Director, Utilities Department.

Attachments

cc: Byron W. Brooks, AICP, County Administrator
Chris Testerman, AICP, Deputy County Administrator
Ray Hanson, P.E., Director, Utilities Department

Marc Anthony Cannata, MBA, P.E.

14735 Capote Lane, Orlando, FL 32828

Home: 407.803.8685 • Cell: 407.388.4188 • Email: mcannata@cfl.rr.com



FUNCTIONAL EXPERIENCE

- Analysis
- Balance Sheet Assessments
- Bid Process
- Budget and Forecasting
- Capital Improvement Plans
- Confidentiality
- Construction Inspection
- Construction Management
- Construction Manager At Risk
- Consulting
- Contracts
- Corporate Affairs
- Design-Build
- Engineering Design
- Engineering Management
- Executive Financial Management
- Executive Management
- Financial Reporting
- Human Resources
- Marketing
- Operations Management
- Program & Project Management
- Policies and Procedures
- Process Design & Improvement
- Profit & Loss Assessments
- Project Procurement
- Resource Management
- Resource Recruiting & Interviewing
- Technical Specifications
- Team Leadership & Management
- Training
- Treasury Management

INDUSTRY EXPERIENCE

- Construction
- Consulting
- Engineering
- Finance
- Management
- Operations
- Facilities Management

PROFESSIONAL SUMMARY

Results-oriented professional with diversified experience in construction and engineering management, financial management, program management and operations. Demonstrated ability to streamline engineering operations and manage finances to maintain project and capital budgets while increasing efficiency and meeting schedules. Instrumental in working with different business units within the organization to quantify the value of the current programs and resources therein to increase performance, manage budgets, manage personnel and increase profits. Possess solid leadership, communications, and interpersonal skills to establish rapport with all levels of staff and management.

PROFESSIONAL EXPERIENCE

Corporate Leadership

- Board of Directors leadership, participation and responsibility.
- Led and mentored engineering team to effectively communicate organizations goals, philosophy and culture.
- Led Finance Department to ensure accurate and timely financial reporting.
- Led Human Resources Department for recruiting, interviewing, personnel matters, orientation, company benefit packages, performance appraisals, and exit interviews.
- Management of corporate affairs, contract reviews, and risk mitigation.

Engineering and Construction Management

- Professional engineering experience in the areas of engineering design, process, and studies including preliminary and final design, master and capital planning, hydraulic modeling, pilot studies, process improvements, managed capital improvement program (CIP), asset rehabilitation and replacement management, emergency responses services, operation and maintenance analysis and support, facilities maintenance tracking and management, construction oversight, regulatory permitting, cost analysis, feasibility studies, and capital project management for a variety of municipal and government projects.
- Construction management experience includes project solicitation/advertising, bidding, contractor bid evaluation and selection, vendor/contractor proposal & contract procurement, review and manage schedule, monitor schedule of values for compliance, shop drawing submittal review, request for information responses, pay application review and approval, record drawings, development of Construction Management Plan (CMP), and supervision of field/engineering inspection team.
- Managed development of Request for Qualifications (RFQ), Request for Proposals (RFP), Scope of Work (SOW) and bid contracts for contractors and consultants.
- Professional experience in client, program and construction management.
- Assist in management of coordinating the planning, assigning, and execution of day-to-day operations as well as led company staff meetings.
- Determining labor, resource, and financial needs of the engineering department.
- Provide training, mentoring, and educational development of departmental personnel.
- Coordinate to ensure maintenance and updating of corporate/engineering department policies and procedures (i.e. company standards forms and documents), and ensure compliance of firm policies and procedures.
- Presentations to City and County municipal Boards and/or Commissioners.
- Extensive experience working with Planning and Zoning, Building Department, Public Works/Utilities, and State Regulatory Agencies.
- Extensive background working with clients, engineers, architects, attorneys, owners, and governmental agencies.

Financial Management

- Manage financial department personnel and their fiduciary responsibility throughout the company to ensure accurate and timely financial reporting.
- Managed the financial department to ensure efficient and accurate accounting, invoicing, and collections for the company.
- Develop financial models to evaluate and monitor company financial performance, annual budgets, profitability, as well as to assess key industry performance metrics.

Marc Anthony Cannata, MBA, P.E.

SYSTEM EXPERIENCE

- Axiom Ajera Portfolio (ERP for Finance)
- Infinisource (ERP for HR)
- Advanced Excel
- E-Builder
- MS Project
- MS Word & Powerpoint
- AutoCAD/Microstation

PROFESSIONAL AFFILIATIONS

- American Water Works Association
- Florida Engineering Society
- National Society of Professional Engineers

EDUCATION

Masters of Business Administration

Executive MBA,

University of Central Florida

Master of Science, Environmental Engineering

University of Central Florida

Bachelor of Science, Environmental Engineering

University of Central Florida

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer:

Florida, No. 58570

Dale Carnegie High Impact Presentations and Leadership

PSMJ Financial Management and Project Management

HOBBIES

- Diving and fishing
- Running
- Photography
- YMCA Volunteering

- Develop and implement annual budget to ensure efficiency of operations and effectiveness of human resources, facilities and capital process.
- Prepare monthly financial management presentations and the interpretive analysis of company's financial position as well as financial results versus budget.
- Oversee safeguarding of corporate assets involving internal control systems to properly mix and protect cash, accounts receivable, inventory and capital purchases.
- Oversee management of accounting systems and operational controls.
- Oversee all employee insurance programs, which include group medical, vision, dental, life, and accidental/death program for renewals and recommended changes.
- Analyzed cash flow, cost controls, and expenses to guide business decisions.
- Develop personnel billing rates through analysis of company overhead, fringe & profit.
- Managed accounting and project management software conversion.
- Led management of invoicing and collections activities for multiple affiliated companies including an international office.
- Manage periodic internal audits to ensure proper closeout of corporate books on a monthly basis, maintain integrity of bookkeeping practices and associated monitoring and control procedures to ensure compliance with company policies.
- Manage IT Department to provide efficient, timely, and reliable IT services to the company and responsive internal client services for maximum network system uptime.
- Establish budget for IT supplies and equipment, and make capital purchase recommendations and decisions for computer/Network/Printer maintenance or replacement.

Treasury Management

- Serving as Corporate Secretary and Treasurer, seeking alternative solutions to financing transactions including financial institutions, forms, pricing and reporting.
- Negotiate with various lending institutions regarding line of credit renewals.
- Oversee daily cash management functions such as cash reporting, cash transfers and line of credit transfers in order to conserve the Company's cash position.
- Ensure timely and proper preparation of all federal and state tax returns as well as various state filings and property tax returns in concert with tax accountant.

RELEVANT CAREER EXPERIENCE

Orange County Convention Center., Orlando, FL <i>Manager, Capital Planning and Building Systems</i>	3/2015 -Present
Reiss Engineering Inc., Winter Springs, FL <i>Vice President, CFO, and Engineering Management</i>	9/2000 -2/2015
Willa Properties LLC, Winter Springs, FL <i>Manager and Property Management</i>	2/2010 -2/2015
AOK Networking LLC, Orlando, FL (Minority Ownership) <i>Finance and Corporate Affairs</i>	1/2006 - 6/2010
Parsons Engineering Science, Winter Park, FL. <i>Environmental Engineer</i>	8/1998 - 9/2000
University of Central Florida, Orlando, FL. <i>Graduate Research Assistant</i>	1/1997 - 5/1998
Montgomery Watson, Lake Worth, FL. <i>CAD Designer/Construction Inspector</i>	4/1989 -8 /1993
Florida Aerospace, Delray Beach, FL <i>Draftsman</i>	6/1988 – 4/1989
Florida Power & Light Company, West Palm Beach, FL <i>Draftsman and Graphics Designer</i>	9/1987 - 6/1988

ANDRES SALCEDO, P.E.

945 Country Charm Circle, Oviedo FL, 32765 407-221-7848

SUMMARY

- Twenty nine years of experience in the utilities industry. Senior leader with management, administrative, financial, budgetary, supervisory, hiring and discipline, contractual, technical and senior relationships responsibilities. Goal-oriented with a proven record of accomplishments. I am an innovative, calculated-risk taker leader, who leads by example and inspires others to achieve excellence and constantly look for win-win solutions to problems, while maintaining excellent customer service and measurements of performance.
- Currently, direct all planning, engineering, and technical needs to support operations and future growth of a utility serving an area of over 200 square miles and a population of over 600,000 people, employs almost 1,000 staff, owns almost two billion dollars in assets, and has an \$800 million 5-year capital improvements program. Also, direct supervision responsibility over our Water Reclamation Division, which operates three regional treatment plants reusing 100% of its 60 MGD of effluent via public access reuse irrigation and aquifer recharge. Joint responsibility with the City of Orlando for the Conserve II reclaimed water distribution center, a 40 MGD reclaimed water reuse distribution and aquifer recharge facility and distribution system.
- Able to understand highly technical matters and communicate with elected officials, senior management, real estate developers, technical staff, consultants, and the general public using the appropriate terms accordingly. An enthusiastic and proactive problem solver with excellent negotiation, financial, accounting and communication skills.
- Over fourteen years of experience in development engineering and utilities land use planning. Including the strategic and master planning of facilities to serve all new development in the rapid-growing Orange County and the review of all development plans to conform to standards and codes. Including over 6000 annual commercial and residential plans, developer agreements and participation in the Development Review Committee.
- Over fifteen years of experience directing and managing water, wastewater, and reclaimed water projects from preliminary and final design through construction and start-up, ensuring projects meet the utility needs, quality controls, and environmental regulations, while they are delivered on budget and on schedule.
- Experience in development and implementation of master plans and CIP programs for water, wastewater and reclaimed water systems combining the results of growth projections, computer applications and financial analysis plus taking into account budgetary, scheduling, staffing and procurement constraints. Project manager for the Overall Master Utility Plan for OCU.
- Excellent leadership with a team-work approach to finding win-win solutions for internal and external situations focusing on customer satisfaction from their perspective as a means to achieve common goals. A calculated-risk taker approach to outside-the-box solutions, yielding excellent results while incorporating new ideas and improving morale among team members.

EDUCATION AND REGISTRATION M.S. Civil Engineering, University of Kentucky, Lexington, KY (GPA = 4.00)/1992
Environmental Systems Specialist, University of Kentucky Graduate School, Lexington, KY/1992
B.S. Civil Engineering, Escuela Colombiana de Ingenieria, Bogota, Colombia/1989
Professional Engineer/Florida/1995 (#49381)
Certified Building Contractor License/Florida/2005 (#CBC 1253413)
Professional Engineer/Colombia/1990 (#25202-36126)

EMPLOYMENT

Dec/96 - Present	Orange County Utilities (OCU), Orlando, FL	(Assistant Director)
Mar/96 - Dec/96	Atkins, Winter Park, FL	(Senior Engineer)
Mar/93 - Mar/96	AECOM, Orlando, FL	(Associate Engineer)
Jan/91 - Feb/93	University of Kentucky, Lexington, KY	(Research Assistant)
Jul/89 - Aug/90	Gandini y Orozco, Cali, Colombia	(Civil Engineer)

HONORS 1997-1998 Orange County Leadership Institute
Ranked 2nd among 68 in class of 1989 at Escuela Colombiana de Ingenieria
Honor graduation in first place in class of 1985 at Berchmans School, Cali, Colombia
XXVI International Mathematical Olympiads in Helsinki, Finland, 1985 (Colombian Team)
Third place among over 30,000 participants in Colombia's National Mathematics Olympiads

PROFESSIONAL AFFILIATIONS American Water Works Association (AWWA), Water Environment Federation (WEF)
American Society of Civil Engineering (ASCE)
YMF President, East Central Branch, FL (1995-96)
Chairman, National Zone II Younger Member Council (1996-97)

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Leadership Excellence Award (Engineers Week 2015)

SUMMARY OF SPECIFIC EXPERIENCE

**2015-Present
Assistant Director**

Orange County Utilities (OCU) Department

Orlando, FL

- Represent the Department at County senior staff, Mayor and commissioner briefings as well as in community meetings, Board of County Commissioner (BCC) public hearings, Development Review Committee (DRC) and other presentations to the public.
- Participate on all Departmental strategic planning, and direct all the planning, engineering and technical needs to support current operations and future growth of a utility with over 900 staff, two billion dollars in assets and \$800 million in capital improvement program (CIP), serving an area of over 200 square miles and a population of over 600,000 people. Successfully prepared the engineering report and answered interview questions from S&P and Fitch financial institutions leading to a AAA bond rating for the last CIP bond borrowing.
- Led the implementation of a division's Five Year Business Plan developed in a timely manner to achieve the goals of our Departmental Strategic Plan and the Mayor's vision. Completed all the Business Plan goals ahead of schedule yielding a more efficient and productive workforce with high employee engagement and satisfaction as reflected by recent employee surveys. The increase in productivity has allowed the CIP section to complete more work (projects and dollars of infrastructure) without significant staff additions.
- Lead all new development related activities of the Department including the review of over 6,000 sets of plans annually, capital and connection fee assessments, quality control, agreement negotiations, and customer service. Successfully partnered with the development community to build tens of millions of dollars in utility infrastructure through innovative development partnership and oversizing agreements saving millions in construction cost and avoiding development moratoriums due to lack of central utilities. Development review yielded an average of \$60 million a year over the last three years when adding capital charges assessed and infrastructure donations.
- Established and maintained effective and innovative working relationships with the Orange County public works and community development departments, the development community, the construction and engineering communities, and ensured environmental compliance and proactive meetings with regulatory authorities.
- Implemented two capital charge updates (2014 and 2019), updating the Level Of Service (LOS) capacity per Equivalent Residential Unit (ERU) to reflect the changes in water and wastewater demand over the last 30 years, while collecting additional dollars per gallon to reflect the actual increase in construction cost per gallon of treatment capacity. This delicate balance is a win-win for both OCU and the development community.
- Successfully implemented changes in our R&R program for sewer forcemains in response to an FDEP Notice Of Violation (NOV) resulting from lack of proper documentation. Started a formal program to address sanitary sewer overflows from pressure pipes. The current changes and program, have proven that OCU is proactively and adequately replacing forcemains with highest risk of failure.
- Implemented a series of weekly flow and water quality data monitoring management reports to improve management visibility of the Water Reclamation Division's plants flows and effluent quality.
- Implemented a program management and customer approach to all divisions served by the Engineering Division, including a formal client and customer relationship between the chief engineer and the Operating Division manager with quarterly customer surveys and annual program management meetings to discuss overall vision, progress and challenges. Individual sections of specialized teams developed a Responsible, Accountable, Consulted and Informed (RACI) responsibility matrix to hold one another accountable.
- Started a Facilities Plan approach for the six regional water and water reclamation facilities, starting with a condition assessment of all assets over \$5,000 to be followed with a coordinated plan to replace infrastructure in poor condition due to age or aggressive conditions. All major CIP and O&M capital projects for the regional facilities will be included in the Facilities Plans, identifying and properly allocating funds and timely completion of projects that generally take several years to complete.

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2012-14
Division Manager

OCU Engineering

Orlando, FL

- Led the new and combined division resulting from merging the CIP Engineering and Development Engineering divisions. Direct supervision of seventy five (75) engineers and technical staff in charge of all the Department's planning, engineering and development plans review functions.
- Responsible for all the operating budget, quality control, business plan, strategic planning, human resources, technical supervision, hiring, performance evaluation, training, mentoring, and for the entire Utility's Capital Improvements Program (CIP) exceeding \$600 million over five years.
- Responsible for engineering public presentations and private briefings to the County's Sr. Staff including the Mayor, Commissioners and the County Administrator as well as for project related community meetings.
- Responsible, on a daily basis, for multimillion dollar contracts related to the hiring and selection of engineering consultants, construction contractors and for utility agreements with developers and other municipalities.
- Represent OCU in the five-member Development Review Committee (DRC), which recommends land use changes and conditions for planned developments and preliminary subdivision plans and associated to the Board of County Commissioners (BCC).
- Responsible for meeting all the engineering needs of a utility with approximately 200,000 residential and commercial connections, with over two billion dollars in assets including regional water and wastewater treatment plants, 800 raw sewage pump stations, and thousands of miles of collection and distribution pipelines.
- Responsible for all the budgeting and planning needs, including flow projections, facilities needs and expansion, project creation, and facilities renewal and replacement. Also responsible for all utilities record drawings, Geographic Information System (GIS), evaluation of new technologies, budget setting, cash flow projections and automated CIP project financial tracking.

2007-12
Division Manager

OCU Development Engineering

Orlando, FL

- Led a transformation in the relationships between the development community and OCU through proactive customer service and stakeholder surveys and implementation of changes to processes, procedures and staff responsiveness to the needs of the community.
- Implemented the second major upgrade to the OCU Standards and Specifications Manual, updating outdated standards and policies to assure that adequate public facilities are donated to OCU.
- Direct supervision of nineteen (19) engineers and technical staff in charge of all the Department's development planning and development plan review functions including Utilities' representation at the DRC.
- Responsible for all the Division's operating budget, quality control, business plan, strategic planning, human resources, technical supervision, hiring, performance evaluation, training, and mentoring of staff.
- Responsible for ensuring all new commercial and residential development infrastructure designs meet the Utility's standards, local codes and state regulations. This includes over 3500 engineering plan submittals, master utility plans, hydraulic models and engineering calculations per year.
- Responsible for assessing development impact fees/capital charges associated with water and wastewater connections.

1999-07
Chief Engineer

OCU Engineering

Orlando, FL

- Direct supervision of four (4) engineers. Responsible for hiring, evaluating performance and directing staff in the Special Projects and Road Coordination Section of the Utilities Engineering Division.

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- Managed a section responsible for all road-related utilities CIPs. This includes supervision of the division staff managing utility improvements associated with state or local road construction. Duties included coordination with all local and state transportation agencies, contract and agreement negotiations, development of scopes of work, procurement of engineering services and fee proposal negotiations, approving change orders, purchase orders as well as consultant invoices, final design technical reviews and coordination with other utility divisions. Road-related CIPs had an average budget of about \$20 million per fiscal year over the past five years. This section managed the design of projects including over 100 miles of water, wastewater and reclaimed water pipelines up to 36 inches in diameter under my supervision.
- Project manager for Special Projects requiring substantial intra-divisional coordination efforts such as the 2002 OCU Water and Wastewater Master Plan (a \$3.4 million consulting scope of services fee), the Horizons West Utility Strategy, Wholesale Agreements and Horizon West CIP Implementation Program (a \$30 million CIP program), the Y2K Readiness Program, the Park Manor Utilities Valuation and Acquisition (a 1,400 customer water and wastewater private utility), the design and construction of the new Utilities Administration Building (a 95,000 sq-ft office building), the sale of the County's North Service area to the City of Apopka, and the development and management of the CIP Database used by all project managers to plan, budget and track over 250 CIP projects.

1997-98

OCU Engineering

Orlando, FL

Chief Engineer/Engineer III

- As a Chief Engineer, supervised the work of 5 engineers, 4 engineering technicians and 2 engineering interns. Responsible for the Plan Review and Hydraulics Modeling Section of the Utilities Engineering Division. This section was responsible for all the utilities-related issues of new development in Orange County, including development plan review, hydraulics information for new connections, developer agreements, participation in the Development Review Committee (DRC) and representing the utility at the Board of County Commissioners (BCC) public hearings for new development. This section reviewed over 3,500 commercial plans and over 200 subdivision plans in 1998, generating over \$30 million in connection fees to the utility.
- Developed and implemented computerized project management tracking and cash flow reporting system using M.S. Project and M.S. Access to be used by all the utility's project managers. This effort required a good understanding of the Capital Improvement Projects (CIP) program of the utility and of the County's accounting systems.
- Project manager of the Horizons West (a 38,000 acre future development) utilities master planning and implementation program. Negotiated utilities wholesale agreements with Reedy Creek Improvement District and Kissimmee Utilities (now TOHO) to serve the initial phases of the Horizons West development.
- Responsible for the ongoing development and use of hydraulic computer models (CYBERNET and H2ONET) for utilities master planning and for developer requests of hydraulic conditions (pressures) near future development. Orange County had three water service area models each with projected demands exceeding 30 mgd. The wastewater models included over 600 public pump stations and hundreds of private pump stations.
- Developed standards and procedures for the use and maintenance of the hydraulic models and their calibration.
- Graduated from the Orange County Leadership Institute. 20 supervisors are selected annually be trained under this ten-month program of classes, seminars and home reading focused on leadership and management.

1996-97

PBS&J (Atkins)

Winter Park, FL

Senior Engineer

- Team member in the development of the Miami-Dade sewage collection system dynamic computer model (largest in the southeastern U.S.) with over 1300 pump stations and 2200 miles of pipe ranging from 2 inches to 108 inches in diameter. Work included hydraulic modeling using XP-SWMM, CYBERNET and SURGE plus calibration of the model using SCADA readings, complex spreadsheets, databases, satellite weather information and Visual Basic programs.
- QC reviewer of work produced by the modeling development team (6 engineers)
- Budget and scheduling responsibilities plus management of sub-consultants such as XP-Software (Australia) in the development of custom applications.
- Preliminary design and hydraulic analysis (CYBERNET and SURGE) of a 2 mile, 30" diameter transmission main and pump station for the City of Las Vegas, NV including the design of a hydropneumatic surge attenuation vessel.

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1993-96

Boyle Engineering Corporation (AECOM)

Orlando, FL

Associate Engineer

- Steady progression to management, supervisory and budgetary responsibilities.
- Southeastern corporate expert in the use of hydraulic computer models (steady state, extended period simulations and transient models like KYPIPE, CYBERNET, BOYLENET and SURGE) combining GIS, Databases, SCADA, and economic evaluation of alternatives for utilities infrastructure master planning and long range CIP program development.
- Project engineer for a variety of utilities related projects (complete list of projects is available upon request). Typical projects included:
 - *Punta Gorda Emergency Interconnect Pipeline, Peace River/Manasota Regional Water Supply Authority, FL.* Preliminary Design for 12 miles of a 30-inch diameter pipe with a \$9.3 million construction budget.
 - *Palm Coast Wet Weather Discharge Alternative Study, Palm Coast Utilities, FL.* Engineering and economic evaluation of alternatives within regulatory compliance for treatment improvements and disposal of 4.0 mgd of treated wastewater. Construction cost estimate of improvements was \$1.5 million.
 - *2010 Water Master Plan, Altamonte Springs, FL.* Development of a 15-year master plan for the City, using computer models, GIS and growth projections. Developed a 15-year CIP program including piping, storage, pumping, and well improvements for the 9.5 mgd City's water demand.
 - *SSA Reclaimed Water Distribution System Pumping, Storage and Pipeline Improvements, Orange County, FL.* Final design for two-five million gallon storage tanks, new high service pumps with 32,000 gpm capacity (six 600 HP pumps) and 8 miles of transmission pipeline ranging from 36 inches to 16 inches in diameter. This project included a steady state computer model of the SSA Reclaimed Water Distribution System plus a transient model resulting in the sizing of two air-vessels with over 35,000 gallons of capacity for surge attenuation. Construction cost exceeded \$15 million.
 - *Eastern Service Area Reuse Feasibility Study, Orange County, FL.* Determine the potential and required CIPs for the use of reclaimed water in residential irrigation and industrial reuse. The proposed system would include over 40 miles of pipeline ranging from 8 inches to 42 inches in diameter. Computer models, storage and pumping requirements, and regulatory issues were considered to propose an \$18.5 million CIP program.
 - *Econ WTP Improvements, Orange County, FL.* Final design for the demolition and replacement of 6 metal blowers with 6 RFP blowers and aluminum enclosures rated at 18,000 cfm each. The blowers are the air source for the packing towers of this 12-mgd water treatment plant.
 - *Kirkman Road Reuse System, City of Orlando, FL.* Preliminary and final design of improvements to the Metro West Pump Station (two 125 HP pump retrofits and one new 200 HP pump) plus one mile of 16-inch diameter transmission pipe.

1991-92

University of Kentucky Software Center

Lexington, KY

Research Assistant

- Developed a finite elements hydraulic computer program for river-crossings of floodplains under a FHWA grant.
- Tested and debugged the latest versions of the world famous KYPIPE computer programs for hydraulic modeling.
- Subconsultant to engineering consultants throughout the U.S. using KYPIPE models.

1989-90

Gandini & Orozco Engineering

Cali, Colombia

Civil Engineer

- Worked in the Distribution System Computer Model Development Team (5 engineers) using KYPIPE and SURGE for the City of Cali Year 2015 Master Plan to propose piping, storage and pumping CIPs for the 340 mgd system serving over 1.5 million people.