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EPA

Public-Private Partnership Case Studies

Profiles Of Success In Providing Environmental Services

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A Letter from the Assistant Administrator

The goal of the Public-Private Partnerships initiative is to bring together public and private interests to meet the demands of future environmental protection. The success of our initiative, and the products which we are generating, is contingent upon local governments' ability to provide the necessary environmental services at a reasonable cost. Many of our efforts focus on providing tools for local communities to determine how partnerships work to improve or expand environmental services in your communities.

This case studies report provides concrete examples to local officials of how successful partnerships can be formed and work for the benefit of both the public and private sectors. Many municipalities around the country already have extensive experience and expertise in the formation and implementation of public-private partnerships.

Case studies can be used by localities and states to avoid the pitfalls experienced by others. We would like to hear from communities around the country about other examples of successful partnerships.

Governments must take steps now to meet the rising cost of environmental services. There will be difficult struggles ahead, but we can overcome these obstacles by working together and sharing what we have learned.

Charles L. Grizzle

PURPOSE OF THIS REPORT

The purpose of this report is:

- To provide examples of how partnerships work and how they are developed.
- To indicate lessons learned in implementing partnerships and why they are successful.
- To provide local communities useful information on developing or choosing partnership options.

WHO SHOULD READ THIS DOCUMENT

- Local communities who have an interest in public-private partnerships and how to implement them.
- State government officials who are interested in promoting or learning about public-private partnerships at the local level.
- Leaders in business, finance, banking and industry who can provide the necessary knowledge and technology for environmental infrastructure projects.
- Representatives of non-profit organizations, such as environmental groups, associations, foundations, and academia who are interested in exploring this area further.
- EPA employees who are interested in public-private partnerships and want to understand what works and why.

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EXECUTIVE SUMMARY

This report examines 23 case studies of public-private partnerships throughout the United States. They are organized by three environmental service areas: solid waste, wastewater treatment, and drinking water. The introduction explains the types and benefits of public-private partnerships and Chapter II lists the attributes of successful partnerships. The remainder of this report emphasizes case study examples in solid waste, wastewater treatment, and drinking water. Individual chapters are devoted to each of the three environmental service areas.

Each case study is presented in a similar format which provides the reader with basic information on how the partnership was formed and implemented, as well as characteristics of the community. The following list summarizes the topics covered in each case study.

- Characteristics of the community and the project including income, population, time frame, and cost;
- Public decision-making process in the selection of a private partner;
- Financing responsibilities of the public and private part ners;
- Procurement arrangements used to secure private involve ment;
- Division of responsibilities for project implementation;
- Description of how the project was implemented;
- Evaluation of why the project was successful;
- Lessons learned and their applicability to other situations; and
- Contacts for further information.

The major emphasis of this report is the case study examples. We selected as many different locations and types of partnerships as possible in our sampling of case studies. We discovered that many successful partnerships exist and communities are experienced participants in public-private partnerships.

Exhibit 1 presents a summary of all 23 case studies.

CASE STUDIES

SUMMARY CHART

MEDIA	TYPE OF PARTNERSHIP	POPULATION	LOCATION
SOLID WASTE	Merchant Facility Landfill	80,800	Lee County, AL
	Turnkey Contract Resource Recovery Facility	165,430	Huntsville, AL
	Privatization Resource Recovery Facility	62,410	Bristol, CT
	Contract Services Rail-Haul of Incinerator Ash	109,370	Stamford, CT
	Turnkey Contract Resource Recovery Facility	825,411	Hillsborough County, FL
	Merchant Facility Resource Recovery Facility	11,500	Millbury, MA
	Merchant Facility Solid Waste Composting Plant	181,570	St. Cloud, MN
	Contract Services Curbside Recycling Program	491,800	Seattle, WA
WASTEWATER TREATMENT	Privatization Wastewater Treatment Plant	29,760	Auburn, AL
	Privatization Wastewater Reclamation Plant	68,220	Chandler, AZ
	Developer Financing Sewer Access Rights	83,550	Escondido, CA
	Developer Financing Impact Fees	160,408	Orlando, FL
	Turnkey Contract Wastewater Treatment Plant	17,470	Mount Vernon, IL
	Turnkey Contract Wastewater Treatment Plant	1,600	Clinton, KY
	Turnkey Contract Wastewater Treatment Plant	4,674	Edgewater, NJ
	Contract Services Wastewater Treatment Plant	4,480	Hood River, OR
WATER SUPPLY	Contract Services Public Water Systems	1,600	Sabine Parish, LA
	Developer Financing Private Water System	327	Belen, NM
	Contract Services Private Development of Wells	130,200	Irving, TX
	Privatization Acquisition of Small Water Systems	9,344	York County, PA
	Contract Services Public Water Systems	7,590	Lititz, PA
	Contract Services Public Water System	90,683	Westmoreland County, PA
	Turnkey Contract Public Water System	27,800	Myrtle Beach, SC

Exhibit 1

CHAPTER I

INTRODUCTION

CHAPTER I INTRODUCTION

A. The Cost of Environmental Protection

Faced with the escalating costs of environmental protection and the competing pressures of other public programs, governments may be limited in their ability to finance all of the environmental protection activities anticipated by Congress. The cost to EPA, states and local governments of maintaining current levels of environmental quality is expected to reach $55 billion a year, by the year 2000, compared to 1987 outlays of roughly $40 billion a year.

Thus, the public sector will have to spend an additional $15 billion a year by the turn of the century to maintain current levels of environmental quality. These figures are conservative since they do not reflect any of the environmental programs envisioned by Congress beyond 1987, and none of the growing number of new state and local environmental mandates.

This shortfall affects all levels of government. But it is at the local level that the budget crunch is most telling. In 1981, for example, all local governments combined paid 76 percent of the nation's bill to comply with federal environmental mandates. By the year 2000, local units could bear over 87 percent of the cost of environmental programs.

The local decision-maker is going to need to examine new and innovative ways of delivering environmental services and in making choices on how to spend that last dollar.

B. The Role for Public-Private Partnerships

In light of the serious budget constraints facing federal, state, and local governments, EPA believes that public-private partnerships have great potential to help meet the growing environmental and resource challenges facing this country in the 1990's and beyond. Greater private involvement can increase public resources available for environmental protection in at least two ways:

- Private equity can free municipal resources for other investments, and
- Properly designed and executed partnerships can provide improved environmental services at the lowest possible cost to the public.

C. What are Public-Private Partnerships?

A partnership is a contractual relationship between a public and private party that commits both to providing an environmental service. The public and private partners generally share responsibility for any one or more of the following activities:

- Deciding to provide an environmental service in a community;
- Financing the project using public and/or private funds;

- Designing and/or constructing the facility;
- Operating and maintaining the facility or service.

D. Types of Partnerships

Within this broad definition, each public-private partnership is unique, with transactions designed to meet the particular needs of different communities. Public-private partnerships generally fall into five categories:

Contract Services

Contract Services. In this type of arrangement, a private partner is contracted to provide a specific municipal service, such as garbage collection, or to maintain and operate a facility, such as a wastewater treatment plant. The facilities are owned by the public sector.

Communities typically turn to contract operations for two reasons: limited ability to operate facilities properly under regulatory or enforcement pressure to achieve minimum environmental standards, or escalating operating and maintenance costs.

Many communities have found that contracting with the private sector is cheaper than public provision of services. This has been confirmed in several surveys and studies. For example, a Columbia University study of 2,060 cities around the country found that refuse collection by private contractors costs from 28 to 48 percent less than public delivery of the service.

Turnkey Projects

Turnkey Projects. In turnkey projects, a private partner designs, constructs, and operates an environmental facility that is owned by the public sector.

In such arrangements, financing risk is generally assumed by the public owner, with bond repayment secured by user fees of one sort or another. Performance risk, on the other hand, is generally assumed by the private partner, with written guarantees of minimum levels of service and/or compliance with all applicable environmental standards.

While no statistics have been collected on their frequency, turnkey transactions have been relatively common for many years, especially for solid waste disposal and wastewater treatment facilities.

Developer Financing

Developer Financing. In this type of arrangement, a private party (usually private developers) finances the construction or expansion of an environmental facility in return for the right to build houses, stores, or industrial facilities.

In a typical situation, a private real estate developer wants to build new houses which would cause excess demand on the community's wastewater treatment facilities. The community then charges a fee, or requires the developers to purchase capacity in the treatment plant, which is used to expand or upgrade the facility.

Developer financing arrangements, which are often called capacity credits, sewer access rights, impact fees or exactions are most commonly found in the wastewater treatment area.

While no statistics are available on the frequency of developer financing, anecdotal reports suggest that this type of partnership is growing. For example, one recent national survey found 190 cities with populations above 15,000 that used impact fees to finance wastewater treatment plants. They are used most frequently in rapidly developing regions in states such as California, Florida, Colorado, and Texas.

Privatization

Privatization. In privatization, a private party owns, builds, and operates a facility. They also partially or totally finance the operation.

The private ownership of environmental facilities was a popular concept prior to the passage of the Tax Reform Act of 1986. As a result of reduced tax incentives however, private interest in owning facilities that provide public services has been reduced considerably.

Where strict privatization continues to be pursued—in solid waste management, largely—government is motivated by the goal of sharing the risks of high technology solutions to environmental management. The private profit incentive remains where tax-driven benefits have been replaced by higher payments for services (higher user fees). Frequently, privatized facilities provide services to more than one government.

Merchant Facilities

Merchant Facilities. In this type of arrangement, not only does the private sector own and operate the facility as in privatization deals, but they also make the decision to provide an environmental service to a community. It is similar in concept to a fast food franchise except that it involves environmental services. Merchant plants are generally associated with the provision of solid waste management services: landfills, composting facilities, and recycling plants.

For each type of partnership, the following chart characterizes the relative roles of public and private partners in providing environmental services.

Public-Private Partnerships: Division of Responsibilities

Activity	Contract Services	Turnkey Facility	Developer Financing	Privat-ization	Merchant Facility
Decision to Provide Services	Public	Public	Public	Public	Private
Financing	Public	Public	Private	Private	Private
Design	Public	Private	Either	Private	Private
Construction	Public	Private	Either	Private	Private
Ownership	Public	Public	Either	Private	Private
Operation& Maintenance	Private	Private	Either	Private	Private

Exhibit 2

E. Benefits of Partnerships

When properly structured and matched to local needs, public-private partnerships offer benefits to all of their participants. Ideally, they provide competitive economic returns to the private partners while delivering high-quality environmental services at reasonable costs to users. Municipalities have pursued a variety of partnership arrangements for the following reasons:

- **Reduced costs**. Savings result from the freedom from competitive bidding and the paperwork associated with intergovernmental grants, as well as design/construct/operate efficiencies and private access to new low-cost technologies. While the literature is more rhetorical than analytical, limited estimates of combined capital and operating cost savings compared to public provision of services vary from 5 percent to 40 percent.

- **Rapid Project Completion**. Faster start-up is due in large part to the avoidance of competitive bidding and contracting constraints associated with intergovernmental grants. In Auburn, Alabama, for example, the first of two pre-1986 Tax Reform privatized plants was completed under budget and 50 percent ahead of schedule.

- **Guaranteed Performance**. Any of the public-private partnership arrangements that involve private operation generally shift from the public to the private sector the responsibilities for environmental permitting, proper operation and maintenance, compliance with all applicable environmental regulations, and adequate environmental sampling and effluent monitoring. This represents a primary benefit, particularly in small communities.

- **Preservation of Jobs**. Many communities consider public-private partnerships as a way to reduce high operating expenses while maintaining jobs. Under continued public ownership, the plant would cut staff. In most public-private arrangements, the private partner guarantees the jobs of existing municipal staff. Hence, jobs that might have been lost to cutbacks can be preserved under privatization.

CHAPTER II

COMPONENTS OF SUCCESSFUL PUBLIC-PRIVATE PARTNERSHIPS

CHAPTER II COMPONENTS OF SUCCESSFUL PUBLIC-PRIVATE PARTNERSHIPS

Attributes of Successful Public-Private Partnerships

The case studies suggest that several attributes of public-private partnerships contribute to their success. Each of the following components appears to be a prerequisite of success in one way or another.

Local Incentive

Local incentive to seek private assistance is a major factor in the initiation of public-private partnerships. Typically this incentive results from developmental pressure and/or poor environmental performance coupled with limitations on access to federal or state grants. For example, Mount Vernon, Illinois was faced with a ban on new connections to its failing wastewater treatment plant and, therefore, could not attract new industry. City officials felt that they had to act quickly and could not wait until they received a federal grant. To overcome sewer restrictions as soon as possible the city contracted with a private company to design, construct, and operate an upgraded and expanded wastewater treatment plant. Sewer restrictions were lifted after the first phase of construction was completed.

Supportive Legal and Institutional Environments

Comfortable legal and institutional environments may make it easier to foster partnerships. Seven states have enacted or considered specific legislation that encourages public-private partnerships. Another 12 states have more general legislation that gives local units the authority to enter into privatization agreements.

The Edgewater, New Jersey case study is a good example of how favorable state laws can encourage partnerships. Edgewater, New Jersey was able to seek a private partner as a result of a state law passed in 1986. The law enables local governments to contract with private companies for the financing, design, construction and operation of wastewater treatment plants.

At the core of most privatization statutes are the rights provided local governments to enter into long-term service contracts with private firms. Other provisions found in privatization statutes include:

- broad exceptions from competitive bidding;
- requirements that either provide exemptions for privatization projects or do not require that the low bid be selected;
- exemptions from some or all local taxes or usury laws;
- authorizations to enter into take-or-pay agreements;
- acknowledgements that service contracts do not constitute debt;

- powers granted to special authorities to issue debt; and
- authorizations to assess service charges and to pledge them and other revenues to payment of debt obligations.

Ability to Secure Reasonable Private Returns

The private sector must be able to secure reasonable returns in order to ensure the success of partnership arrangements. Proper prices for water, wastewater treatment, and solid waste services can help attract private equity seeking reasonable returns on investment.

By setting prices at their full economic costs and committing environmental revenues to the provision of their respective services, communities can help ensure competitive financing, attract private participation, encourage efficient use of resources, and increase public awareness concerning the true value of environmental services. Proper rates for environmental services include premiums for capital depreciation and adequate revenues to support the lowest-cost public debt. This may include funding a reserve account for capital improvements in future years.

Regionalization

Willingness of the community to work together with other communities in providing environmental services, e.g., regionalization, can lead to the success of many types of partnerships. As stated above, the private sector must have the expectation of receiving an adequate return on their investment before it is feasible for them to provide environmental services to a community. This may not be possible in small communities which have a limited revenue base. However, if several communities join together, that is, they regionalize the provision of environmental services, then large scale projects can become economically feasible.

For example, the towns of Millbury, Massachusetts and Bristol, Connecticut were able to construct resource recovery facilities by joining together with other communities in a regional effort to solve their solid waste problems. In both cases, the agreements were worked out with a private company to serve the entire region. Without regional cooperation, the development of the resource recovery facility would not have been possible.

Communication and Public Support

Community support, public education, and communication are also critical to the success of partnerships. For example, in Mount Vernon, Illinois, the mayor insisted that negotiations with the private partner be open to the public and that the public be kept informed. As a result, the community supported private sector involvement in the project.

Public support and education were also instrumental in Lee County, Alabama. The private company established a citizen's committee to encourage communication with the public. During the process of siting the landfill, the citizen's committee helped mitigate public concern about the landfill.

Equitable Allocation of Risk

Another factor in the success of partnerships is agreement on the allocation of risks. The risks involved in providing environmental services can make or break an investment decision.

The process of allocating risk among all of the parties to a transaction can be the most time-consuming element of a partnership negotiation. It is not infrequent that once the real risks are fully assigned, investment opportunities appear less attractive than they originally did. Where this happens, the partners must revisit the question of risk sharing and recalculate ways to adequately distribute risk on both the public and private sides of the transaction.

Most public-private partnerships in resource recovery systems find a turnkey arrangement a comfortable way to balance the risks of new technologies with long term demand for services. For example, in Huntsville, Alabama the private partner assured that the plant would be built on time and would meet or exceed certain performance standards. The public partner provided most or all of the financing and assured that all solid waste within the jurisdiction would flow to the new facility.

CHAPTER III

SOLID WASTE MANAGEMENT CASE STUDIES

CHAPTER III SOLID WASTE MANAGEMENT CASE STUDIES

A. Private Involvement in Providing Solid Waste Management Services

Americans produce about 160 million tons of municipal solid waste each year, 3.5 pounds a day for each person. Experts estimate that the amount of waste produced will increase by 20 percent by the turn of the century. Eighty percent of the nation's solid waste is currently sent to landfills, but one-third of them will reach capacity within 5 years. Opposition to siting new landfills and rising costs of land disposal have increased community interest in other alternatives such as recycling, composting, and resource recovery (incineration and co-generation of electricity).

Contract Services

Contract services are common for solid waste collection and disposal. Today, over 80 percent of the nation's garbage is collected by private companies, either under contract to governments or working directly for residents. In recent years, private companies have expanded their role in solid waste management to meet the new recycling and resource recovery needs that have emerged as America's landfills reach capacity.

Landfills

Private companies are involved in providing new landfills as well. However, many landfills rely on large scale operation to balance an adequate return and low fees. In the case of Lee County, for example, unit costs of disposal were kept low because they could accept waste from an adjacent state. As more states restrict the movement of solid waste across borders, private interest in providing landfills could diminish.

Recycling and Resource Recovery

Recycling and resource recovery are well-suited to private involvement because of the potential profits from the sale of energy or products from processed waste. Important benefits to local governments include the access to sophisticated technical expertise and the potential for attracting private equity with private company involvement. The Seattle case demonstrates how one city worked with two private partners to reduce its residential waste stream by 12 percent. Avoided disposal costs should reach $20 million over a 20 year period. Four different case studies of public-private partnerships in resource recovery—Bristol, Hillsborough County, Huntsville, and Millbury—demonstrate the attractiveness of this type of arrangement.

Solid waste composting is another example of recycling that is amenable to private involvement. In Saint Cloud, a private company owns and operates a co-composting facility (a mixture of solid waste and sewage sludge) under an informal merchant agreement with three counties in the area. A local market for the compost has proven profitable to the private company and the volume of waste going to landfills is expected to decrease by 15 to 20 percent.

Rail Transportation

An interesting new area for private involvement in solid waste management is rail transportation of waste from point of generation to point of disposal as exemplified in the case study of Stamford, Connecticut. While this alternative faces political hurdles in the states, long-distance rail transport of waste may become more acceptable as disposal sites are sited farther from metropolitan regions.

B. Case Studies of Public-Private Partnerships for Solid Waste

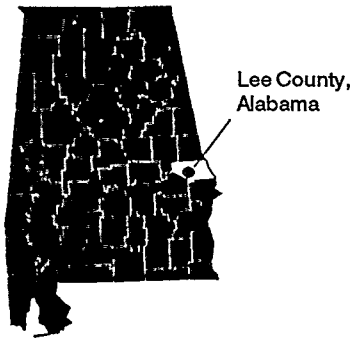
SUMMARY CHART OF SOLID WASTE CASE STUDIES

TYPE OF PARTNERSHIP	POPULATION	LOCATION
Merchant Facility Landfill	80,800	Lee County, AL
Privatization Resource Recovery Facility	165,430	Huntsville, AL
Turnkey Contract Resource Recovery Facility	62,410	Bristol, CT
Contract Services Rail-Haul Incinerator Ash	109,370	Stamford, CT
Turnkey Contract Resource Recovery Facility	825,411	Hillsborough County, FL
Merchant Facility Solid Waste Composting Plant	11,500	Millbury, MA
Merchant Facility Solid Waste Composting Plant	181,570	St. Cloud, MN
Contract Services Curbside Recycling Program	491,800	Seattle, WA

SOLID WASTE

Merchant Facility

LANDFILL
LEE COUNTY, ALABAMA



- **A private company sited, constructed, operates, and owns a landfill in Lee County, Alabama**
- **The company has separate agreements to accept waste from public and private customers in a multi-county area**
- **Because of the large volume of waste disposed at the landfill, the company provides disposal services at low per-unit costs**

SUMMARY

In Alabama, counties are responsible for managing solid waste disposal. Lee County has a dumpster system in its unincorporated area and previously contracted with the City of Opelika to dispose of the county's solid waste in Opelika's landfill.

When the municipal landfill began to reach capacity and disposal costs increased, the county investigated alternatives to meet its future waste disposal needs. A private company, Waste Away, Inc., proposed to site and build a new landfill in the county. The company selected and purchased the site, financed, and built the new privately-owned landfill. In Lee County, the landfill's customers are the county, the City of Auburn, the City of Opelika, Auburn University, and several large industries. The landfill also serves customers in five other counties in Alabama as well as three counties in Georgia.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Lee County, Alabama
Private Partner (owner)	Waste Away, Inc.
Population	80,800 (1986)
Median Household Income	$11,655 (1979)
Form of Government	County Commissioners
Project Initiated	November 1984
Project Completed	November 1985
Total Capital Cost	$4 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Citizens opposed siting an incinerator
- Another municipal-owned landfill was opposed
- County needed expertise of private partner

A solid waste authority established in the early 1980's studied the feasibility of an incinerator. Because local citizens opposed an incinerator and the authority decided an incinerator was too costly, the authority was disbanded. The City of Opelika then attempted to site a new landfill, but decided against it after encountering strong citizen opposition.

Because of a state law requiring counties to manage solid waste disposal, the county assumed responsibility for solving the problem. However, the county did not have the expertise to build a landfill and wanted to avoid the political problems of siting a landfill. Waste Away, Inc. proposed to permit and build a landfill in Lee County, and purchased an acceptable site for the landfill. The Lee County Commission approved the site and provided support when citizen protests occurred.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Private loan of $4 million financed the project

The company financed construction of the landfill with private financing. Based on its credit, Waste Away obtained a $4 million bank loan.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Company has a separate agreement with each customer
- Lee County has a 3-year agreement with Waste Away to dispose of the county's waste

Waste Away has a separate agreement with each of its customers. The company uses two types of agreements, disposal agreements and franchise agreements. With a disposal agreement, the customer collects and hauls waste and the company disposes of the waste at the landfill. With a franchise agreement, the company collects, hauls, and disposes of waste at the landfill.

The Lee County Commission has a 3-year disposal agreement with Waste Away. The agreement specifies a per-ton tipping fee and outlines the process for instituting fee increases. The company agreed to a lower tipping fee for Lee County. In 1988, the tipping fee for Lee County was $11 per ton compared to the standard tipping fee of $16 per ton.

The county has a 3-year agreement with the company because state law prohibits local governments from entering into contracts for more than 3 years.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Lee County Commission

- Approve the site for the landfill
- Pay a per-ton tipping fee for waste disposed at the landfill

Waste Away, Inc.

- Find a site and purchase land for the landfill
- Build, operate, and own the landfill
- Secure a separate agreement with each governmental and industrial customer
- Secure the environmental permits
- Comply with environmental permit requirements
- Secure performance bonds and insurance

HOW WAS THE PROJECT IMPLEMENTED?

- The company established a citizen's committee

The company established a citizen's committee to encourage communication with the public. During the process of siting the landfill, the citizen's committee helped mitigate public concern about the landfill. Through meetings with company officials and site visits, the committee has input into operation of the privately-owned landfill.

WHY WAS THE PROJECT SUCCESSFUL?

- Private company has technical expertise
- Economies of scale reduce tipping fees

An important factor in the success of the project is that Waste Away has the technical expertise to build and manage a large landfill. Another factor is that the service area for the landfill has grown to a multi-county area. As a result of the large volume of waste, per-unit disposal costs have remained low compared to other landfills in the state. In 1988, Waste Away charged the county a tipping fee of $11 per ton, which is lower than the county's previous disposal costs at the municipal landfill. In 1984, the county's tipping fee at the municipal landfill was $14 per ton and Opelika had notified the county that its tipping fee would increase to $16 per ton in 1985.

LESSONS LEARNED

- Siting problems can be reduced if the public agency is not responsible for choosing site, only approval
- There is a trade-off between high volumes of waste reducing cost and reducing the life of the landfill

Local governments can encounter serious political difficulties siting landfills due to citizen opposition. In Lee County, after the company conducted the necessary environmental tests and purchased a site, the county commission only had to approve the site. Citizen protests still occurred, but by approving the site chosen by the company rather than choosing a site itself, the commission encountered fewer political problems.

The company provides economical disposal services to its customers because of the large volume of waste disposed at the landfill. However, citizens in Lee County have become concerned that by expanding to serve more customers, the company will reduce the life of the landfill.

CONTACT

Hal Smith, Probate Judge
and Chairman of Lee County Commission
P.O. Box 666
Opelika, AL 36802
(205) 745-9761

SOLID WASTE

Turnkey Contract

RESOURCE RECOVERY FACILITY (MASS-BURN INCINERATOR) HUNTSVILLE, ALABAMA

- **The Solid Waste Disposal Authority of Huntsville signed a turnkey contract with Ogden Martin Systems, Inc. to design, construct, and operate a mass-burn incinerator owned by the authority**
- **Steam generated from the resource recovery facility will be sold to the U.S. Army's Redstone Arsenal**
- **Taxable bonds sold to finance the facility will be repaid from garbage tipping fees and the sale of steam**
- **The private partner accepts responsiblity for performance and guarantees compliance with environmental permit requirements**

SUMMARY

Without enough acceptable land to site a large landfill, the City of Huntsville decided to develop a resource recovery facility to reduce the volume of waste to be land disposed. Huntsville created a solid waste disposal authority to implement a solid waste management plan and issue bonds. The authority entered into a turnkey contract with Ogden Martin Systems of Huntsville, Inc. to design, construct, and operate a mass-burn incinerator. When operational, the facility will burn garbage and sewage sludge, producing steam to be sold to the U.S. Army's Redstone Arsenal. The Arsenal will be the sole purchaser of the facility's steam.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Huntsville, Alabama
Private Partner	Ogden Martin Systems of Huntsville, Inc.
Population	165,430 (1987)
Median Household Income	$27,182 (1986)
Form of Government	City Council/Strong Mayor
Project Initiated	September 1988
Project Completed	Scheduled October 1990
Total Capital Cost	$74.4 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Initial negotiations with U.S. Army to jointly own the facility failed
- A private partner was chosen to provide specialized technical expertise
- Public ownership was preferred to allow greater control over facility design and performance

Early on, planners envisioned that the city and Army would jointly own the facility, but higher Army officials rejected this plan. The city created the Solid Waste Disposal Authority in February 1985 to issue bonds and select a private partner to provide turnkey design, construction, and operation of the resource recovery facility. A private company was chosen to provide the specialized technical expertise required to build and operate a mass-burn facility.

The Solid Waste Disposal Authority decided that public ownership of the facility offered many advantages over private ownership, including greater control over facility design and performance.

WHAT WERE THE FINANCING ARRANGEMENTS?

- $112 million taxable bonds were issued by public partner
- Bonds are backed by tipping fees and sale of steam generated

The Solid Waste Disposal Authority issued fixed-rate taxable bonds of $112 million to finance the facility and associated roadway improvements. Taxable bonds were sold because the 1986 Tax Reform Act prohibits tax-exempt status when bonds benefit federal agencies, in this case, the U.S. Army. These 25-year bonds are backed by garbage tipping fees and revenues from the sale of steam generated. The bonds were insured, resulting in a bond rating of AAA. No private equity was involved in the financing arrangements.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- A contract was signed to design and construct the facility + 5-year operation (option for four 5-year renewals)

In a competitively negotiated procurement process, the Solid Waste Disposal Authority issued a Request for Proposal (RFP) in 1988 and Ogden Martin Systems, Inc. was selected to design, construct, and operate the facility. A 5-year service contract was signed with Ogden Martin to operate the facility, with the option of four 5-year renewals at the discretion of the Authority.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Huntsville

- Create the Solid Waste Disposal Authority

Solid Waste Disposal Authority of Huntsville, Alabama

- Lease the site for the facility from Redstone Arsenal
- Sell bonds to finance the facility
- Secure environmental permits
- Contract with Redstone Arsenal to purchase steam generated by the facility
- Operate existing landfill for disposal of process residuals

WHAT WAS THE DIVISION OF RESPONSIBILITIES? (Continued)

Ogden Martin Systems of Huntsville, Inc.

- Design, construct, and operate the resource recovery facility
- Comply with performance guarantees
- Comply with environmental permit requirements

HOW WAS THE PROJECT IMPLEMENTED?

- DOE funded study of options
- The city created the Solid Waste Disposal Authority

A U.S. Department of Energy grant funded a study of waste-to-energy options to solve the city's landfill capacity problem. A low debt limit set by the state prevented cities from financing large resource recovery facilities. However, a state law enacted in 1980 enabled cities to create solid waste disposal authorities that can issue bonds and contract for the operation of solid waste disposal facilities. In February 1985, Huntsville created the Solid Waste Disposal Authority to issue bonds and contract with a private partner to build and operate the facility.

WHY WAS THE PROJECT SUCCESSFUL?

- Community involvement
- Independent advisors
- Local energy market

Community leaders supported the project and worked together to solve problems that occurred as the project developed. In addition, a Citizen's Advisory Committee was involved throughout the process and continues to keep the public informed. Several independent consultants provided valuable technical, legal, and financial advice. Finally, the facility was successful because there was a local market for the generated steam.

LESSONS LEARNED

- Partners must be flexible to adapt to changing circumstances

Negotiating construction of a resource recovery facility takes time and requires a commitment from the public partner, private partner, and energy customer. Huntsville learned that it was necessary to adapt to changes that may occur during planning and negotiation. Initially, the city arranged to issue tax-exempt bonds and selected a private partner under a 1984 RFP. However, the financial position of the company changed such that it could not procure performance bonds. The original agreement fell apart after more than two years of negotiations. Because the 1986 Tax Reform Act imposed a January 1, 1987 deadline to sell the bonds with tax-exempt status, new financing had to be arranged and the RFP process had to be repeated.

CONTACT

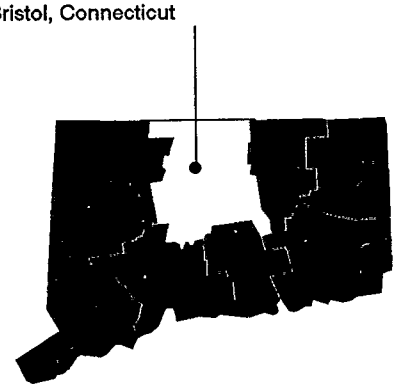
Eddie Coker, Director
Solid Waste Disposal Authority of Huntsville, Alabama
P. O. Box 308
Huntsville, Alabama 35804
(205) 535-4813

SOLID WASTE

Privatization

RESOURCE RECOVERY FACILITY (MASS-BURN INCINERATOR) BRISTOL, CONNECTICUT

Bristol, Connecticut



- **Communities worked together to reach a privatization arrangement with Ogden Martin to design, construct, operate, and own a resource recovery facility**
- **The facility was financed by tax-exempt revenue bonds issued by the Connecticut Development Authority**
- **Bristol receives tax revenues from the facility and fees from 10 other communities using the facility; tipping fees are reduced by revenues from the sale of electricity generated**
- **Ogden Martin completed construction of the facility under budget and 2 months ahead of schedule**

SUMMARY

Connecticut communities worked together in a **regional** effort to build a resource recovery facility. Eight communities entered into a **privatization** agreement with Ogden Martin Systems of Bristol, Inc. to build, operate, and own the facility. Subsequently, three other communities joined. The Connecticut Development Authority issued tax-exempt revenue bonds to finance the project. A bond trustee, the Connecticut Bank and Trust Company, collects and disburses revenues from the facility.

The communities formed the Bristol Resource Recovery Facility Operating Committee (BRRFOC) to oversee operation of the facility. Participants agreed to provide a minimum tonnage of waste each year. Their tipping fees are offset in part by revenues from the sale of electricity to Connecticut Light and Power.

PARTIES INVOLVED AND TIMEFRAME

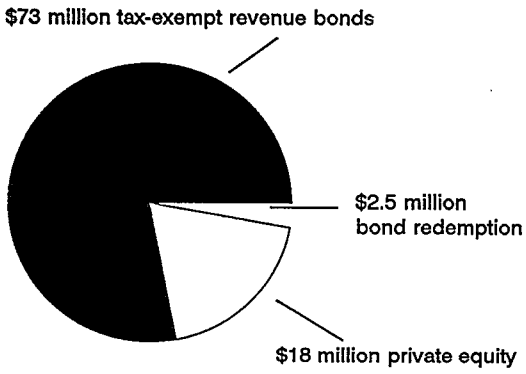
Public Partner	Eleven Connecticut communities
Private Partner (owner)	Ogden Martin Systems of Bristol, Inc.
Population	62,410 (Bristol, 1988)
Median Household Income	$19,357 (Bristol, 1979)
Form of Government	Semi-Strong Mayor (Bristol)
Project Initiated	May 1984
Project Completed	May 1988
Total Capital Cost	$66 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Private partner had experience with sophisticated mass burn technology
- Private partner was considered more efficient
- Private partner accepted performance risks

A study was conducted by independent consultants who selected mass-burn technology. The City of Bristol agreed to provide a site near its landfill to build a resource recovery facility, but was not interested in ownership. The communities chose private ownership because they decided that an experienced private company would be more efficient and accept performance risk for the project. The communities worked together to select a private partner to build, own, and operate the resource recovery facility located in Bristol.

WHAT WERE THE FINANCING ARRANGEMENTS?



The Connecticut Development Authority issued $73 million in tax-exempt revenue bonds to finance the facility. The 29-year bonds are backed by revenues from the facility and guaranteed by Ogden Martin. Ogden Martin contributed $18 million. As the facility did not cost the full amount of the bond issue, $2.5 million in bonds were redeemed after the facility was completed.

Revenues from the facility are deposited in a revenue account with the Connecticut Bank and Trust Company, which acts as bond trustee. Ogden Martin bills the BRRFOC monthly, which then pays the bond trustee from payments received from the participating communities. The City of Bristol receives a fee from each community through the bond trustee.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- An RFP was issued and Ogden Martin was chosen through competitive negotiation

The City of Bristol issued an RFP, and in conjunction with the other communities, selected Ogden Martin through competitive negotiation. The communities signed a contract with Ogden Martin to build and operate the facility. Through an interlocal agreement, each of the communities agreed to provide a minimum tonnage of waste per year.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Bristol

- Sell the land for the facility to Ogden Martin
- Operate a landfill for disposal of process residuals

Connecticut Development Authority

- Issue bonds to finance the facility

Connecticut Bank and Trust Company

- Collect and disburse revenues from the facility

WHAT WAS THE DIVISION OF RESPONSIBILITIES? (Continued)

Bristol Resource Recovery Facility Operating Committee

- Set policy and oversee operation of the facility
- Provide a minimum tonnage of waste per year through an interlocal agreement

Ogden Martin Systems of Bristol, Inc.

- Design, construct, own, and operate the resource recovery facility
- Secure environmental permits
- Comply with environmental permit requirements
- Contract with Connecticut Light and Power to purchase electricity generated

HOW WAS THE PROJECT IMPLEMENTED?

- Bristol conducted a study to evaluate the potential for resource recovery
- State legislation authorized the communities to issue contracts for solid waste management
- The communities created the BRRFOC

Bristol hired independent consultants to evaluate the potential for a resource recovery facility. Independent consultants assisted in selecting and negotiating with the private partner.

The state passed special legislation in 1985 allowing the communities to join together in a contractual relationship to manage solid waste disposal. The original eight communities worked informally to sign an agreement with Ogden Martin. After the project started, another three communities became involved. In September 1987, the communities agreed formally to create the BRRFOC. The BRRFOC is made up of community officials from the 11 communities and meets monthly to oversee operation of the resource recovery facility.

WHY WAS THE PROJECT SUCCESSFUL?

- Independent consultants
- Financial incentives to site facility
- Citizen involvement
- State law requiring public utilities to purchase electricity generated

Independent consultants provided valuable technical, legal, and financial advice. Negotiating an agreement that protects the interests of all parties involved facilitated cooperation among communities. Included in the agreement are financial incentives for Bristol to locate the facility within its boundaries. Bristol receives a fee from the other communities and Ogden Martin is the second largest source of tax revenues for the city.

Another factor contributing to the success of the project was citizen involvement. A Citizen's Advisory Committee, formed during construction of the facility, distributed information to the public and helped raise support for the project.

A state law requires that public utilities purchase excess energy from resource recovery facilities. As a result, there was easy access to a market for the electricity generated by the facility.

LESSONS LEARNED

- Regional strategies for solid waste management can be successful with careful negotiation

Local governments can work together successfully for a regional solution to solid waste management. Careful negotiation can result in an agreement that protects the interests of each party involved and provides financial benefits to the communities. Direct input by community officials kept the communities closely involved and committed to the project.

CONTACT

John Leone, Mayor
City of Bristol
1111 North Main Street
Bristol, CT 06010
(203) 584-7613

SOLID WASTE

Contract Service Provision

RAIL-HAUL OF MUNICIPAL INCINERATOR ASH
STAMFORD, CONNECTICUT

Stamford, Connecticut

- **The City of Stamford entered into a service contract with Interstate Bi-Modal, Inc. for long-distance transport and disposal of municipal incinerator ash**
- **Interstate Bi-Modal secured equipment and transportation contracts to implement the rail-haul system and contracted with a privately-owned landfill for disposal of the ash**
- **Rail-haul saves the city 25-30 percent over alternative truck transportation and nearby disposal options**

SUMMARY

A lack of landfill capacity and potential sites for new landfills led Stamford to investigate alternatives for long distance transport and disposal of incinerator ash. Because of the distance to landfills and lower tipping fees at more distant landfills, rail-haul was the most economical transportation alternative.

The City of Stamford entered into a service contract with Interstate Bi-Modal, Inc. (IBMI) to provide long distance rail transportation and disposal of its municipal incinerator ash. IBMI leased equipment and contracted with other private companies to provide truck and rail transportation. IBMI also contracted with a privately-owned landfill for disposal of the ash.

At the municipal incinerator, the ash is loaded into containers and moved by truck to a rail terminal. The containers are moved to the disposal site by Conrail on rail cars leased by IBMI. The containers are then moved by truck to a landfill. Finally, the containers are returned by rail to the Stamford facility for reloading.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Stamford, Connecticut
Private Partner	Interstate Bi-Modal, Inc.
Population	109,370 (1988)
Median Household Income	$58,900 (1988, Stamford SMSA)
Form of Government	City Council/Mayor
Project Initiated	April 1988
Project Completed	September 1988
Operating Cost	$2.5 million per year

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Regional landfill would not accept incinerator ash except from a regional incinerator
- The city decided that long distance transport and disposal should be arranged by an experienced private partner
- Rail-haul of waste was chosen as the least costly mode of transport for long distances

Because the City of Stamford has its own incinerator, they were not able to dispose of residues in the regional landfill. Use of the landfill is limited to cities that send their waste to the regional incinerator. The state had closed many landfills in Connecticut due to more stringent environmental regulations, and without an environmentally acceptable landfill site in the city, Stamford was forced to arrange long distance transportation and disposal. Rail-haul was the least costly mode of transportation as a result of the long distance involved. Stamford chose a private partner because they were able to assemble the range of companies and equipment necessary to provide the service.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Private partner arranged rail-haul system so city avoided up-front costs
- The city pays per-ton fee to the private partner
- The city's payment is guaranteed by a letter of credit and backup funds in a special account

The city avoided up-front costs by contracting with IBMI to assemble the necessary partners for the rail-haul system. The city pays a per-ton fee to IBMI for transport and disposal of incinerator ash. Payment is due immediately after delivery of the incinerator ash to the disposal site. IBMI required the city to secure a $300,000 letter of credit and deposit the money in a bank account to guarantee timely payment of IBMI. The letter of credit provides that the bank will pay IBMI from that account if the city cannot pay on time.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- An RFP was issued in a competitive negotiation process
- The city signed a 1-year service contract with IBMI with an option for yearly extensions

In competitive negotiation, the City of Stamford issued an RFP and selected IBMI to transport and dispose of its incinerator ash. The city and IBMI signed a 1-year service contract with an option for yearly extensions. The city required IBMI to secure a $1 million performance bond.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Stamford

- Own and operate the municipal incinerator
- Contract with an independent laboratory to test the incinerator ash
- Provide for alternative disposal of incinerator ash that does not pass test requirements
- Load ash into containers at the incinerator

Interstate Bi-Modal, Inc.

- Contract for truck transportation of the containers, both in Stamford and at the disposal site
- Own and maintain a short-line railroad for rail transportation from a transfer station to the IBMI rail terminal
- Contract with Conrail for long distance rail transportation
- Supply containers and container-handling equipment
- Comply with environmental regulations for transportation of municipal incinerator ash
- Contract with a privately-owned landfill at the disposal site

HOW WAS THE PROJECT IMPLEMENTED?

- The project was managed by the Public Works Department

The director of capital projects of the Stamford Public Works Department supported the rail-haul option and worked to gain the support of city officials. Meetings were organized to investigate rail-haul options.

WHY WAS THE PROJECT SUCCESSFUL?

- Rail-haul saves the city 25 - 30 percent
- "Dedicated transportation equipment" lowers health and environmental risks

The rail-haul system saves the city 25-30 percent over alternative truck transportation and local disposal options. More economical long distance transportation by rail and lower tipping fees at the disposal site help to lower costs.

Transporting incinerator ash in "dedicated transportation equipment" lowers risk to public health and the environment. Containers and rail cars are used exclusively for solid waste, as opposed to using the same equipment to transport different materials on the return trip. Use of dedicated transportation equipment for solid waste is required by Conrail.

LESSONS LEARNED

- Rail-haul less costly with long distance transport of waste
- Trucking waste to the rail terminal is expensive

Without access to a landfill, transportation costs became the most significant factor to consider in finding a solution to Stamford's solid waste disposal problems. Rail was more economical than truck transportation for the long distance haul required.

The city could lower its disposal costs further if the ash did not have to be trucked to the rail terminal. Attempts to work with the railroad to provide rail service directly to the municipal incinerator have not yet been successful.

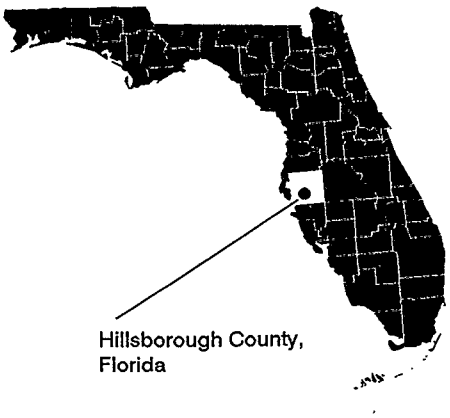
CONTACT

Norman Liu, Director of Capital Projects
Department of Public Works
City of Stamford
888 Washington Blvd.
Stamford, CT 06904-2152
(203) 977-4138

SOLID WASTE

Turnkey Contract

RESOURCE RECOVERY FACILITY (MASS-BURN INCINERATOR) HILLSBOROUGH COUNTY, FLORIDA



- **Hillsborough County entered into a turnkey arrangement with a private partner for the design, construction, and operation of a resource recovery facility owned by the county**
- **Tax-exempt bonds sold to finance the facility are backed by revenues from the county-wide solid waste disposal system**
- **The sale of electricity generated by the facility to Tampa Electric Company provides revenues to the county**

SUMMARY

Prompted by a state law requiring counties to prepare resource recovery management plans and growing awareness of problems associated with solid waste landfills, Hillsborough County instituted a comprehensive solid waste disposal system. The county entered into a **turnkey** contract with Ogden Martin Systems, Inc. to design, construct, and operate a resource recovery facility owned by the county. The county agreed to guarantee delivery of a minimum tonnage of solid waste each year and to develop a new landfill for disposal of residuals. Ogden Martin agreed to comply with a set of performance guarantees for facility operation.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Hillsborough County, Florida
Private Partner	Ogden Martin Systems of Hillsborough, Inc.
Population	825,411 (1988)
Median Household Income	$14,868 (1979)
Form of Government	County Commissioners
Project Initiated	January 1985
Project Completed	June 1987
Total Capital Cost	$108 million

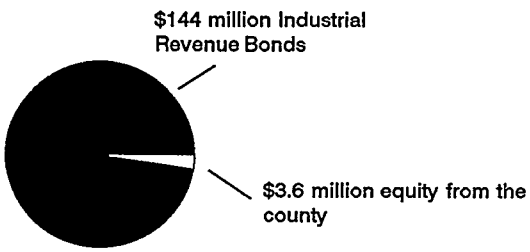
WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Private partner had specialized technical expertise in mass-burn technology

An interlocal committee was formed between Hillsborough County and the three incorporated cities in the county (Tampa, Plant City and Temple Terrace) to investigate solid waste disposal options. They chose mass-burn technology as the best resource recovery alternative. Tampa and Hillsborough County separately developed plans for their own resource recovery facilities.

Because the technology required sophisticated technical expertise, the county decided to contract the design, construction, and operation to a private partner. However, the county preferred public rather than private ownership of the facility to retain greater control over design and performance.

WHAT WERE THE FINANCING ARRANGEMENTS?



The county issued $144 million in tax-exempt industrial revenue bonds to finance the resource recovery facility and the landfill. The AAA-rated bonds are backed by revenues from the entire county solid waste system. Hillsborough County contributed another $3.6 million. No private equity was involved.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Ogden Martin agreed to design and construct facility + operation for 20 years

As part of a competitive negotiation process, the county issued an RFP for the resource recovery facility. Ogden Martin Systems of Hillsborough, Inc. was selected to design and construct the facility. A separate service agreement was reached with Ogden Martin to operate and maintain the facility for 20 years.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Hillsborough County

- Acquire the site for the facility
- Sell bonds to finance the facility
- Guarantee that a minimum tonnage of solid waste is delivered to the facility each year
- Secure environmental permits
- Acquire the site, design, and construct the landfill to accept process residue from the facility, to serve as a backup disposal site, and for disposal of solid waste that cannot be processed at the facility
- Contract with Waste Management, Inc. to operate the landfill
- Contract with Tampa Electric Company to purchase the electricity generated by the facility

WHAT WAS THE DIVISION OF RESPONSIBILITIES? (Continued)

Ogden Martin Systems of Hillsborough, Inc.

- Design, construct, and operate the resource recovery facility in accordance with contract specifications
- Comply with environmental permit requirements

Tampa Electric Company (TECO)

- Design, construct, and operate electricity interconnection facilities required to transmit electricity generated by the facility to TECO

HOW WAS THE PROJECT IMPLEMENTED?

- EPA grant helped fund studies of options
- Special state legislation was passed
- New public partners became involved

A grant from the U.S. Environmental Protection Agency and matching funds from the four local governments in Hillsborough County paid for studies conducted by the interlocal committee to evaluate solid waste disposal options.

The state passed special legislation in 1983 granting Hillsborough County contractual powers to finance and operate the resource recovery facility. The legislation also requires that all persons in the unincorporated area of the county use the county's solid waste disposal system. As a result, the county can guarantee delivery of a minimum tonnage of solid waste to the facility each year.

Planning for the resource recovery facility initially concerned only the unincorporated area of Hillsborough County. Later, during construction of the facility, the three incorporated cities in Hillsborough County requested use of the facility for waste disposal. Plant City and Temple Terrace now send all their solid waste to the facility, and the City of Tampa sends waste in excess of its facility's capacity.

WHY WAS THE PROJECT SUCCESSFUL?

- Independent advisors
- Contract performance guarantees

The county selected a private partner with the technical expertise to build and operate a resource recovery facility. In addition, the county hired an independent engineering consulting firm to evaluate the technical and financial feasibility of the project, help choose the contractor, and assist with contract negotiations. The consultant also inspected and monitored compliance with the contract during construction of the facility.

The contract provided incentives to Ogden Martin to maximize the efficiency of the resource recovery facility. Performance guarantees were established for both construction and operation of the facility along with penalties if Ogden Martin failed to meet their performance guarantees. Bonus incentives to the contractor for early completion led to operation 7 months ahead of the contract date.

LESSONS LEARNED

- Differences in local preferences should be addressed early in the planning for regional facilities

Hillsborough County's experience shows that careful negotiation between public and private partners can result in an agreement that is profitable to both parties. But, it may be difficult to reach an agreement between several governments because of political problems. Hillsborough County and the City of Tampa initially attempted to work jointly but could not reach an agreement on their respective roles, and each built a separate facility.

CONTACT

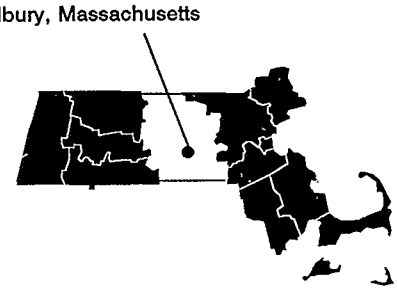
Thomas G. Smith, Executive Manager
Department of Solid Waste
Hillsborough County, Florida
P. O. Box 1110
Tampa, FL 33601
(813) 272-6674

SOLID WASTE

Merchant Facility

RESOURCE RECOVERY FACILITY (MASS-BURN INCINERATOR) MILLBURY, MASSACHUSETTS

Millbury, Massachusetts



- **In a merchant agreement, communities in the Worcester, Massachusetts area accepted Wheelabrator's offer to build, own, and operate a resource recovery facility**
- **The Town of Millbury offered to site the merchant facility, and in exchange, Millbury receives free tipping for 20 years for a specified amount of waste and receives "host community fees" from other towns that use the facility**
- **Reduced tax benefits of ownership after the 1986 Tax Reform Act led Wheelabrator to sell the facility, but they continue operation, leasing the facility from the current private owner**

SUMMARY

Communities in the Worcester, Massachusetts area formed a committee to develop a regional solution to solid waste management. When Wheelabrator offered to own, finance, build, and operate a resource recovery facility, the Town of Millbury offered to site the facility within its boundaries and lease the land to Wheelabrator. In exchange, Millbury enjoys free tipping from Wheelabrator for 20 years for a specified amount of waste and receives "host community fees" each month from the 35 other communities providing waste to the facility. Wheelabrator sold the facility to the Ford Motor Credit Company after tax benefits of ownership were reduced by the 1986 Tax Reform Act, but Wheelabrator continues to operate it, leasing the facility from Ford.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Millbury, Massachusetts
Private Partner (owner)	Wheelabrator Millbury, Inc.
Population	11,500 (1985)
Median Household Income	$18,634 (1979)
Form of Government	Board of Selectmen
Project Initiated	September 1985
Project Completed	September 1987
Total Capital Cost	$140 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Wheelabrator identified market potential in the area
- A regional committee pressured to find a solution
- Wheelabrator offered to meet needs quickly

Wheelabrator's market studies identified the Worcester, Massachusetts area as having unmet solid waste disposal needs and an energy market. They approached the Central Massachusetts Resource Recovery Committee and offered to build and operate a resource recovery facility.

The committee was interested in finding a private partner to hasten development of the project. While the committee had planned to issue an RFP, negotiations with the State to purchase the site were moving slowly. Landfills were approaching capacity in several towns and the City of Worcester was under a state order to close its landfill. They accepted Wheelabrator's offer because it corresponded with the area's needs and could be implemented quickly.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Private debt financed purchase of land and facility construction
- In a sale lease-back transaction, Millbury bought land and leased it back to Wheelabrator
- In a leveraged lease transaction, Wheelabrator sold the facility to another company because tax benefits of ownership were reduced in the 1986 Tax Reform Act

Wheelabrator obtained private financing for purchase of the land and construction of the facility. Taxable private financing was preferred to take advantage of the investment tax credit.

In order to increase their control, Millbury purchased the land for the facility from Wheelabrator and then leased it back to Wheelabrator (sale lease-back). By state law, bonds to purchase land must be taxable so the Millbury Industrial Development Finance Authority sold $325,000 of taxable industrial revenue bonds to purchase the land. The non-rated bonds are backed by revenues from the facility.

The 1986 Tax Reform Act reduced the tax benefits of ownership for Wheelabrator, while ownership offered tax advantages for Ford Motor Credit Company. Even after tax reform, owners of waste-to-energy facilities can take advantage of certain tax provisions, such as shorter depreciation schedules relative to other types of investments, making them an attractive investment for companies with large amounts of capital to invest. As a result, Wheelabrator undertook a leveraged lease transaction in which they sold the facility to the Ford Motor Credit Company and then leased the facility back.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- The contract was awarded through a noncompetitive bid process
- Service agreements were signed between Wheelabrator and each participating community
- Millbury would receive free tipping

When Wheelabrator offered to build a privately-owned and operated facility, the committee agreed to their offer through a non-competitive bid process. It was necessary to secure approval of the noncompetitive bid by the Massachusetts Inspector General.

The regional committee developed a service agreement that required communities to provide minimum tonnages of waste each year and contained performance guarantees from Wheelabrator. Each participating community signed a separate service agreement. The service agreement between Wheelabrator and Millbury provides the town free tipping for up to 11,315 tons of solid waste per year. Beyond that amount, Millbury will pay Wheelabrator's current per-ton rate.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Town of Millbury

- Create the Millbury Industrial Development Finance Authority to issue bonds
- Purchase land for the facility
- Lease land for the facility to Wheelabrator

Wheelabrator Millbury, Inc.

- Build and operate a resource recovery facility
- Secure a separate service agreement with each community, including a guarantee from each community to provide a minimum tonnage of waste per year
- Comply with performance guarantees in service agreements
- Secure environmental permits
- Comply with environmental permit requirements
- Contract with New England Electric to purchase electricity generated by the facility
- Contract with privately-owned ash monofill for disposal of process residue from facility
- Pay "host community fees" to Millbury from tipping fees of other communities

HOW WAS THE PROJECT IMPLEMENTED?

- A regional committee was formed to develop a strategy for solid waste management
- Independent technical and financial advisors were hired to assist the regional committee
- State laws facilitated the agreement

The regional committee received a state grant to develop a strategy for solid waste management for the area. Independent consultants provided valuable technical and financial advice in their negotiations with Wheelabrator.

Two state laws facilitated the agreement; a state statute enabling municipalities to create industrial development finance authorities to issue bonds and a 1981 state law that requires payment of a "host community fee" for waste processed through a resource recovery plant. Communities delivering waste to a facility must pay a per-ton rate to the community in which the facility is located. The additional cost of "host community fees" and free tipping for Millbury are built into the tipping fees of the other participating communities.

WHY WAS THE PROJECT SUCCESSFUL?

- Incentives to Millbury to site the facility
- Favorable market conditions for Wheelabrator

Free tipping and the receipt of "host community fees" were important incentives for Millbury to agree to site the facility within its boundaries. For Wheelabrator, the market was favorable and private control allowed the project to be completed ahead of schedule and below budget.

LESSONS LEARNED

- Financial incentives to the host community are important
- Careful estimation of solid waste generated can lead to more beneficial agreement for community

Financial incentives to communities to locate a resource recovery facility can increase community support for siting regional projects. Wheelabrator first offered to build and operate a resource recovery facility in the City of Worcester, Massachusetts. A citizen's group successfully opposed the Worcester location.

Millbury discovered that a community must have a good estimate of the amount of solid waste it generates before entering into an agreement with a privately-owned resource recovery facility. Wheelabrator requires each community to pay for a minimum tonnage of solid waste per year and also sets a maximum tonnage beyond which the facility could deny waste. Millbury's estimation was low and the town now must be careful not to exceed its negotiated amount for free tipping.

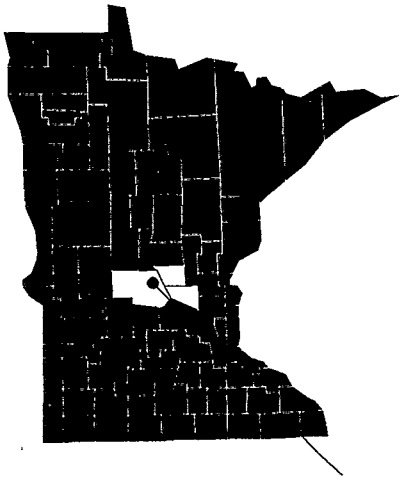
CONTACT

Earl W. Chase, Jr., Administrator
Town Hall
127 Elm Street
Millbury, MA 01527
(508) 865-4710

SOLID WASTE

Merchant Facility

SOLID WASTE COMPOSTING PLANT
ST. CLOUD, MINNESOTA



St. Cloud, Minnesota

- **A private company bought an existing solid waste composting facility and upgraded it to accept both solid waste and sewage sludge from a three-county area (Stearns, Benton, and Sherburne counties)**
- **In an informal merchant agreement, the counties provide waste to the composting facility**
- **The composting facility is expected to reduce the volume of waste going to landfills by 15 to 20 percent**

SUMMARY

A private company (RECOMP, Inc.) saw an opportunity to make a failing composting plant profitable by upgrading it for co-composting (a mixture of solid waste and 20-25 percent sewage sludge). They financed redesign and upgrading with private debt and formed a partnership with the private owners of an adjacent waste transfer facility. The company is now called the St. Cloud Transfer and Recycling Corporation.

The Tri-County Solid Waste Management Commission included a commitment to provide waste to the composting facility in the region's solid waste management plan. The company has an informal **merchant** agreement with the Tri-County Solid Waste Management Commission to process waste collected in the area.

Recently, the City of St. Cloud issued industrial revenue bonds to finance expansion of the facility. The bond issue was carefully structured so that it does not add to the city's debt or involve any financial responsibility for the city.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Tri-County Solid Waste Management Commission
Private Partner (owner)	St. Cloud Transfer and Recycling Corporation and RECOMP, Inc.
Population	181,570 (1987)
Median Household Income	$17,000 (1979)
Form of Government	County Commissioners
Project Initiated	October 1987 (upgrade and redesign)
Project Completed	January 1989
Capital Cost of Facility Upgrade and Redesign	$4 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- The private partner demonstrated an ability to operate the composting facility efficiently

A private company upgraded the region's composting facility and offered to accept solid waste from an adjacent transfer station for composting. After the company demonstrated its reliability, the regional commission incorporated a commitment to composting in its solid waste management plan as an alternative to land disposal and incineration.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Original construction and upgrading was privately financed
- Tax-exempt industrial revenue bonds for plant expansion do not entail any financial responsibility for the city

The original private owner financed construction of the composting facility with private debt. RECOMP, Inc., the second owner, privately financed the redesign and upgrade of the facility.

Recently, the City of St. Cloud issued $4 million of tax-exempt industrial revenue bonds to finance expansion of the composting facility and adjacent transfer station. The bonds are backed by revenues from the project and do not involve any financial responsibility for the city. St. Cloud Transfer and Recycling Corporation is responsible for payment of the debt.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- The Commission entered into a 10-year service contract with St. Cloud Transfer and Recycling Corporation to accept and process solid waste

The Tri-County Solid Waste Management Commission has a 10-year contract with St. Cloud Transfer and Recycling Corporation that requires the transfer station to accept all residential solid waste from the City of St. Cloud and three surrounding counties. The contract requires the transfer station to send 150 tons of solid waste per day to a waste-to-energy facility and send the remainder to the landfill or the composting facility.

The City of St. Cloud also has an agreement with St. Cloud Transfer and Recycling Corporation to provide sewage sludge for co-composting.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Tri-County Solid Waste Management Commission

- Contract with St. Cloud Transfer and Recycling Corporation to accept solid waste and transfer waste to the facilities in the solid waste system

St. Cloud Transfer and Recycling Corporation

- Own the transfer station and the composting facility

City of St. Cloud

- Contract with the St. Cloud Transfer and Recycling Corporation to supply sewage sludge for co-composting

RECOMP, Inc.

- Operate the transfer station
- Operate the composting facility
- Market the compost in compliance with state environmental regulations

HOW WAS THE PROJECT IMPLEMENTED?

- A state agency encouraged composting
- The private party upgraded the plant and demonstrated its reliability
- The Commission agreed to include composting in their solid waste management plan
- The counties agreed to send waste to the composting facility

A state agency encouraged solid waste composting as an alternative for solid waste management. New state solid waste regulations allow for land application of solid waste compost.

RECOMP, Inc. saw an opportunity to make the existing composting facility profitable by upgrading the plant to handle co-composting. After the company gained the support of the solid waste commission, the commission included a commitment to composting in the regional solid waste management plan.

Each of the three counties passed a "designation ordinance," effective July 1, 1989, requiring all solid waste haulers to deliver solid waste to the transfer station. The transfer station agreed to supply waste to the composting facility.

WHY WAS THE PROJECT SUCCESSFUL?

- The improved compost was more marketable
- Operation of composting facility in conjunction with transfer station provided financial stability

RECOMP, Inc. redesigned the composting facility to produce an improved compost. As a result, RECOMP was in a better marketing position than the previous owner and could offer composting as a cost-competitive alternative for solid waste disposal. Because the composting facility is owned and operated in conjunction with the transfer station, it receives revenues from tipping fees and does not have to rely entirely on marketing compost or recyclables.

LESSONS LEARNED

- Because composting technology is new, public acceptance may be difficult
- Regulatory requirements for land application of compost limit potential markets

Many uncertainties are associated with developing a new technology such as solid waste composting. Initially, the composting facility in St. Cloud experienced difficulties developing a market for its compost. Changes in the composting technology were necessary to produce a product that was acceptable to the public. The facility now markets the co-composted product to Christmas tree farms, with plans to market it in bulk for highway landscaping and distribute it in bag form for horticulture.

Environmental regulations restrict the land application of compost. Changing to co-composting resulted in a better compost, but required complying with the more restrictive state regulations for land application of sewage sludge in addition to the regulations for land application of solid waste compost. The company initiated discussions with the state regulatory agency to develop a marketing plan that would satisfy regulatory requirements.

CONTACT

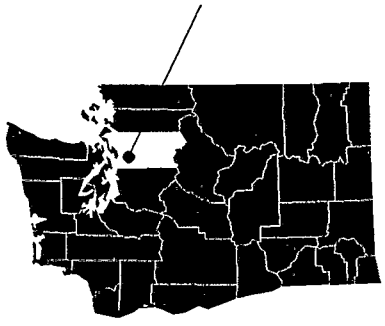
Jerry Johnson, Coordinator
Tri-County Solid Waste Management Commission
P.O. Box 615
St. Cloud, MN 56301
(612) 259-3610

SOLID WASTE

Contract Service Provision

CURBSIDE RECYCLING PROGRAM
SEATTLE, WASHINGTON

Seattle, Washington



- **Seattle contracted out city-wide curbside recycling service to private partners**
- **Garbage collection charges are structured to encourage waste reduction and recycling, with fees based on the number of cans picked up and on the choice of backyard or curbside service**
- **The city avoided upfront costs, as the private partners purchased collection and processing equipment; the city's avoided cost of solid waste collection and disposal slightly outweigh the program costs over a twenty year period**

SUMMARY

When Seattle's landfill was closed, the city contracted to use the county's landfill. But Seattle had to pay a tipping fee that increased with their entry into the system from $11/ton to $31.50/ton, and pay $8.50 of the tipping fee into a fund earmarked for planning future disposal systems. Seattle had to come up with a long-term disposal solution. As a way to reduce the volume of waste disposed in landfills, the city sought private companies to provide curbside recycling services and selected Waste Management, Inc. to provide the service for the northern half of the city and Rabanco for the southern half. With Pacific Rim port facilities handy, contractors have easy access to strong paper markets in the Orient. Curbside recycling has reduced the residential waste stream by 12 percent in its second year of operation. Avoided disposal costs should reach $20 million over a 20-year period just offsetting program costs over that same period resulting in a cost effective program for the citizens of Seattle.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Seattle, Washington
Private Partner	Waste Management, Inc. (Recycle America) & Rabanco (Recycle Seattle)
Population	491,800 (1988)
Median Household Income	$33,000 (1988)
Form of Government	Mayor/Council
Project Initiated	January 1987
Contract Start Date	February 1988
Total Operating Cost	$1 million annual contractor payments and $200,000 for promotion (1988)

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Positive experience with private solid waste collection led to selection of a private partner for recycling
- Building an incinerator was considered but the community preferred recycling

Traditionally, Seattle contracted with private companies for the provision of solid waste collection and disposal services. As a result of Seattle's positive experience with private solid waste management in the city, it was expected that a private company would also provide recycling services.

City officials considered constructing an incinerator but citizens raised strong opposition. They wanted the opportunity to try voluntary recycling to reduce the volume of waste going to landfills. It was expected that public support for recycling and a new rate structure, with charges based on the number of containers collected, would minimize waste sent to landfills.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Necessary equipment was purchased by private partners
- A fee is paid to contractors based on tons collected

Waste Management, Inc. and Rabanco purchased the collection and processing equipment. The city pays Rabanco $49.02 per ton of recyclables collected and shares recyclable revenues should market prices fluctuate by a specified percentage. Waste Management, Inc. is paid $49.43 per ton and has a minimum payment built into the contract for 8,000 tons per year. While $49 per ton is more than the $31.50 for landfill tipping fees, the city also saves half of the garbage collection fee for each diverted ton as well as most transfer station and long distance hauling costs. The total per ton savings amounts to roughly $80 per ton but only 60 to 75 percent of the collected tons are diverted from the landfill. Some tonnage has merely been transferred from other recycling activities. This reduces the savings to $50 to $60 per ton.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- The RFP was issued for four sectors of the city
- Five-year contracts were awarded to two companies

The metropolitan area was split into four sectors in the Request for Proposal. Up to four firms could have been awarded contracts, but no contractor could provide curbside recycling service in more than half of the city. Five-year contracts, with 2-year renewal clauses were issued to two contractors, Waste Management, Inc. and Rabanco. The 5-year contracts provide a larger initial commitment by Seattle than most cities have made. Generally, curbside recycling is phased in slowly.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Seattle

- Contract with private companies to provide recycling services
- Assist in promotion of recycling
- Pay service providers per ton of recyclables

Private Partners

- Provide bins and regular pickup of glass, metal containers, newspaper, and mixed paper, and provide any necessary processing of materials (Waste Management, Inc. provides weekly pickup and three stackable containers for source separation. Rabanco provides one large 90 gallon wheeled tote for commingled collection with monthly pickup.) Plastic soda bottles (PET) are to be added in late 1989.
- Market and promote recycling services
- Develop mitigation program for any small drop-off sites or businesses that might be negatively affected by the curbside program

HOW WAS THE PROJECT IMPLEMENTED?

- Recycling is part of broad solid waste management strategy
- The recycling program was preceded by rate increases for disposal

Curbside recycling services are part of a broader strategy that Seattle is implementing to encourage waste reduction and improve management of solid waste. Seattle began the process by introducing rate increases corresponding with new costs of disposal at a neighboring landfill. The next step was to introduce recycling, involving the public throughout the planning process.

Seattle conducted environmental impact studies on several landfill and incineration options to determine how much waste to recycle and how to dispose of the remaining waste that is not recycled. While incineration was determined to be a viable option, the public supported recycling and the city chose a long range goal of 60 percent recycling. As a result, the city has now issued an RFP for a private company to transport and dispose of the remaining 40 percent of the municipal solid waste in a landfill outside of the metropolitan area.

WHY WAS THE PROJECT SUCCESSFUL?

- Cost pressure
- Comprehensive plan
- Public involvement

Pressure from rapidly rising costs of solid waste management encouraged the city to act quickly. A comprehensive plan for improving solid waste management enabled the city to combine recycling efforts with measures, such as the variable rate structure, to encourage waste reduction. Public involvement in planning the new strategy and general support for recycling were important elements of success.

With over 74 percent of Seattle's 150,000 customers signed up for the voluntary program, the city has reduced its residential waste stream by 12 percent. If, as city officials expect, participation reaches 80 percent in the near future, its residential wastestream could be reduced by 23 percent.

LESSONS LEARNED

- Marketing and promotion are important

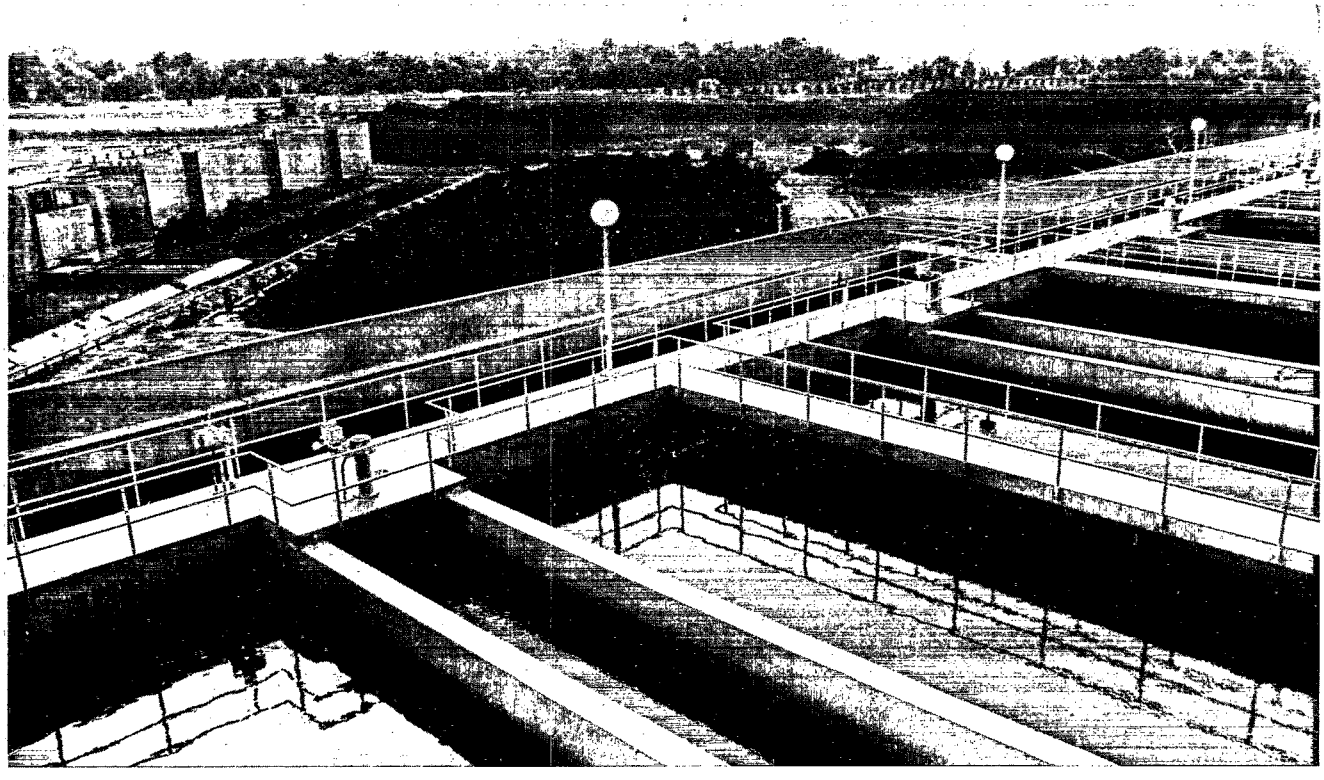
Seattle's successful experience with solid waste management through contractual service provision provided a framework for private provision of curbside recycling services. A strong promotional and marketing campaign, along with volume based fees for solid waste collected, helped enlist public involvement in the program.

CONTACT

Ginny Stevenson
Public Information Coordinator
Seattle Solid Waste Utility
710 2nd Avenue, Suite 505
Seattle, Washington 98104
(206) 684-7688

CHAPTER IV

WASTEWATER TREATMENT CASE STUDIES



CHAPTER IV WASTEWATER TREATMENT CASE STUDIES

A. Private Involvement in Providing Wastewater Treatment Services

Contract services and turnkey arrangements are the most common types of public-private partnerships for the provision of wastewater treatment services. At least 200 wastewater treatment plants nationwide are under private service contracts. Private companies can often construct and operate wastewater treatment facilities at a lower cost than public entities, reducing costs to taxpayers and users. Estimates of combined capital and operating cost savings associated with the private provision of wastewater treatment services as compared to public provision, range from 15 to 40 percent. According to a recent report by a prominent investment banking firm, overall savings attributable to a properly structured privatization transaction (prior to tax reform) may reduce user fees by 15 to 40 percent, compared to conventional Construction Grants funding. (See Dean, Witter, Reynolds, Inc., *Privatization: A Financing Alternative for State and Local Governments*, October 1986). In Mount Vernon, Illinois, for example, a private turnkey contract cost the city 32 percent less than the estimated cost of public financing and construction of their wastewater treatment plant.

Cost Savings

Tax Reform Act of 1986

Privatization and merchant facilities are less common for wastewater treatment since the Tax Reform Act of 1986. Auburn, Alabama was able to arrange a privatization agreement to provide their wastewater treatment plant because it took place before tax reform. However, the wastewater treatment plant in Mount Vernon, Illinois, that was initially planned to be privatized, had to be reconfigured as a turnkey project after the law changed.

With tax-driven benefits unavailable, private partners contemplating privatization must seek other sources of revenues such as user fees or site-specific opportunities. In Chandler, Arizona, for example, a private company built and operates a tertiary wastewater treatment plant under a privatization arrangement. The effluent can be sold for irrigation, thereby increasing its return. In addition, initial costs of the plant were lowered by a private company donating land for the plant in exchange for receiving treated effluent free-of-charge.

Even in cases where the private partner does not own the facility or contribute equity, they may be instrumental in arranging financing for the public partner. In Clinton, Kentucky the private partner was more experienced in arranging financing for large capital projects and helped Clinton secure a low interest rate on the issuance of bond anticipation notes.

Developer Financing

One source of private equity that was not affected by the Tax Reform Act is developer financing. Developer financing can be voluntary as with the purchase of sewer access rights in Escon-

dido, California or involuntary as in the case of impact fees imposed in Orlando, Florida. The sale of sewer access rights in Escondido was so successful that the city put aside a portion of the cash it raised for future rehabilitation of the treatment plant.

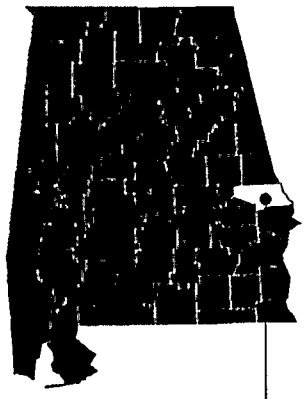
SUMMARY CHART OF WASTEWATER TREATMENT CASE STUDIES

TYPE OF PARTNERSHIP	POPULATION	LOCATION
Privatization Wastewater Treatment Plant	29,760	Auburn, AL
Privatization Wastewater Reclamation Plant	68,220	Chandler, AZ
Developer Financing Sewer Access Rights	83,550	Escondido, CA
Developer Financing Impact Fees	160,408	Orlando, FL
Turnkey Contract Wastewater Treatment Plant	17,470	Mount Vernon, IL
Turnkey Contract Wastewater Treatment Plant	1,600	Clinton, KY
Turnkey Contract Wastewater Treatment Plant	4,674	Edgewater, NJ
Contract Services Wastewater Treatment Plant	4,480	Hood River, OR

WASTEWATER TREATMENT

Privatization

WASTEWATER TREATMENT PLANT
AUBURN, ALABAMA



Auburn, Alabama

- **The City of Auburn entered into a privatization agreement with Metcalf & Eddy to design, construct, operate, and own two wastewater treatment plants**
- **The city created the Governmental Utility Services Corporation to issue tax-exempt bonds to finance the project**
- **Through privatization, the city built its new wastewater treatment plants at a substantially lower cost and in less time than if they had financed the project with federal construction grants**

SUMMARY

In the early 1980's, the City of Auburn's two wastewater treatment plants were operating at capacity and experiencing compliance problems. To replace the aging facilities, the city decided to build two new wastewater treatment plants but they were low on the state priority list to receive federal grants. Faced with the need to act quickly to provide additional capacity and solve its compliance problems, Auburn investigated privatization options. When the state passed a new law enabling local governments to enter into privatization agreements and create special authorities to issue bonds, the city contracted with Metcalf & Eddy to design, construct, operate, and own two new wastewater treatment plants.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Auburn, Alabama
Private Partner (owner)	Metcalf & Eddy, Inc.
Population	29,760 (1986)
Median Household Income	$8,707 (1979)
Form of Government	City Council/Manager
Project Initiated	July 1984
Project Completed	June 1986
Total Capital Cost	$26 Million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Federal grants were unavailable so Auburn sought a private partner, both to reduce costs and to attract private equity

After 12 years of waiting for federal construction grant money, the city was still low on the state priority list. Even if the city had been awarded grant money, it would not be enough to finance the needed facilities. As a result, the city investigated options for privatization by issuing an RFP and hiring consultants to study state legal restrictions on privatization. The city felt that a private partner could construct the plants at lower cost and could make an equity contribution.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Special authority issued $36 million of 25-year floating/fixed rate tax-exempt industrial development bonds
- Bonds are backed by plant revenues
- Private partner contributed $10 million

For the purpose of issuing bonds, the city established the Governmental Utility Services Corporation (GUSC), a three member board appointed by the City Council. The GUSC issued 25-year floating/fixed rate tax-exempt industrial development bonds of $36 million to finance the project. In the case of floating/fixed rates, the city pays a fixed interest rate on debt service. The floating interest rate is based on an index selected when the bonds are issued. If the floating rate goes below the city's fixed rate, the company pays the difference. The bonds are backed by revenues from the two treatment plants. The AAA-rated bonds were insured.

Metcalf & Eddy contributed $10 million which was used for bond redemption when construction was completed. The bond redemption substantially reduced outstanding debt and lowered debt service payments for the city.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- City issued an RFP and created a committee to review proposals
- Auburn signed a 25-year contract with Metcalf and Eddy to design, construct, operate, and own the plants

The city issued an RFP and established a review committee to evaluate the proposals received. The review committee selected Metcalf & Eddy through competitive negotiation.

The City of Auburn signed a 25-year contract with Metcalf & Eddy to design, construct, operate, and own two wastewater treatment plants. The city agreed to pay a monthly service fee to Metcalf & Eddy. The monthly service fee has two components, a base service charge and an operation & maintenance (O&M) fee. The base service charge is set to cover debt service. The O&M fee is adjusted yearly and is renegotiated every 5 years.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Auburn

- Lease the land for the wastewater treatment plants to Metcalf & Eddy
- Create the Governmental Utility Services Corporation
- Establish and collect user charges
- Pay monthly service fee to Metcalf & Eddy

Governmental Utility Services Corporation of the City of Auburn (GUSC)

- Issue bonds to finance the project

Metcalf & Eddy, Inc.

- Design, construct, operate, and own two new wastewater treatment plants
- Secure the environmental permits
- Comply with environmental permit requirements
- Guarantee performance of the new wastewater treatment plants
- Operate the city's old wastewater plants during construction of the new plants, and close down the old plants when the new facilities are operational

HOW WAS THE PROJECT IMPLEMENTED?

- City studied state restrictions on privatization
- State passed law authorizing privatization agreements and creation of special authorities to issue bonds
- Private company hired city employees at existing treatment plant

The city hired consultants for a study that identified restrictions on privatization in state law. Auburn's state senator and representative introduced a bill in the state legislature allowing local governments to enter into privatization agreements. As a result, the state enacted a law in 1984 enabling local governments to enter into long-term contracts with private companies and to create special authorities to issue bonds.

Metcalf & Eddy hired the municipal employees who worked at the city's wastewater plants. The company trained the municipal employees during construction of the new wastewater treatment plants.

WHY WAS THE PROJECT SUCCESSFUL?

- Tax benefits encouraged plant ownership by the private company and lowered cost of the plants
- Leadership by Auburn's City Manager was important
- Public information diffused opposition to increased rates

Because the project was finished before the 1986 Tax Reform Act, Metcalf & Eddy benefitted from the tax advantages associated with private ownership that were available before the act. The tax benefits allowed the company to provide the facilities at a lower cost to the city.

Auburn's City Manager took a leadership role to solve legal problems and gain support for privatization from city officials. The city held public hearings to inform the community of its wastewater problems and build community support for privatization.

Sewer charges doubled because of the project, but the city estimated that sewer charges would have tripled with traditional municipal bond financing. Because the city informed the public about the alternatives and the need for new facilities, they accepted the increased charges.

LESSONS LEARNED

- Important for city to have good advisors and work with experienced private partner
- Careful negotiation can produce agreements beneficial to all parties
- Public education is important

Auburn found that developing a privatization agreement that minimized risks to the city required using experienced technical, legal, and financial advisors. It was also important to select an experienced private partner interested in long-term operation and maintenance of the wastewater plants. Careful negotiation can result in a privatization agreement that protects the interests of both the public and private partner. Finally, the public education process organized by the city helped increase community support for the project.

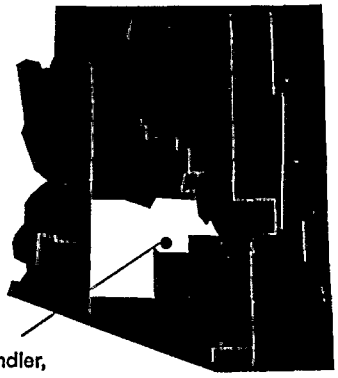
CONTACT

Douglas Watson, City Manager
City of Auburn
P.O. Box 511
Auburn, AL 36830
(205) 887-4900

WASTEWATER TREATMENT

Privatization

WASTEWATER RECLAMATION PLANT
CHANDLER, ARIZONA



Chandler, Arizona

- **The City of Chandler hired an engineering consulting firm, Malcolm Pirnie, to design a new tertiary wastewater treatment plant and entered into a privatization agreement with Parsons Municipal Services, Inc. to construct, operate, and own the new wastewater plant**
- **The Chandler Industrial Development Authority issued tax-exempt industrial development bonds to finance the project**
- **The private partner constructed a plant to accomodate the growth of Chandler; the plant discharges a high quality effluent that can be used for irrigation**

SUMMARY

The City of Chandler, a fast growing suburb of Phoenix, wanted to build a new wastewater treatment plant to meet future needs. The city's existing wastewater treatment plant was on the Gila River Indian Reservation and expansion was not allowed by the tribe. Because the city could not get a discharge permit, they decided to build a tertiary treatment plant that would provide a high quality effluent for water reuse.

Chandler hired an engineering consulting firm to design a tertiary wastewater treatment plant for 5 mgd, which could be expanded in stages to 20 mgd. The city contracted with Parsons Municipal Services, Inc. (PMSI) to construct, operate, and own the plant. The Chandler Industrial Development Authority issued tax-exempt industrial development bonds to finance the project.

A development company, the Ocotillo Group, donated the land for the plant to the city. In return, the city and the Ocotillo Group have an agreement for Ocotillo to use treated effluent from the plant. The treated effluent goes into a 90-acre lake system in a major development and is used for landscape and agricultural irrigation.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Chandler, Arizona
Private Partner (owner)	Parsons Municipal Services, Inc.
Population	68,220 (1986)
Median Household Income	$17,813 (1979)
Form of Government	City Council/Manager
Project Initiated	October 1983
Project Completed	November 1985
Total Capital Cost	$22 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Federal grants were unavailable and Chandler did not want to issue bonds that would incur debt for the city

The city was low on the state priority list for federal grants and did not want to increase taxes or user charges to cover debt service for traditional municipal financing. Also, Chandler had other infrastructure needs to accommodate its rapid growth and wanted to avoid using its bonding capacity for the wastewater plant. Chandler decided on privatization in order to finance the project without incurring debt for the city.

WHAT WERE THE FINANCING ARRANGEMENTS?

- The Chandler Industrial Development Authority issued 25-year tax-exempt industrial development bonds of $23 million, backed by Parsons Corporation
- The Bank of America issued a $23 million letter of credit to guarantee the bonds
- After construction, there was a $1 million bond redemption

The Chandler Industrial Development Authority issued 25-year floating rate, tax-exempt industrial development bonds of $23 million to finance the project. The AA-rated bonds are backed by Parsons Corporation, the parent company of PMSI. The Bank of America issued a $23 million letter of credit to guarantee the bonds. There was a bond redemption of $1 million after the plant was completed.

Parsons Corporation backed the bonds in order to complete the financing arrangements before the end of 1983. It would have taken longer to issue bonds backed by system revenues and company officials were concerned that tax law changes might occur in 1984, reducing the tax advantages of privatization.

The floating interest rate is set monthly and is based on an index selected when the bonds were issued. The bond issue is structured so that if bond holders want to sell their bonds when the rate changes, the bond underwriter must buy them.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Chandler reached a long-term agreement with a local development company to accept the treated effluent; it is free for the first 15 years because the company donated land for the plant
- The city used two companies: one for design and the other for construction/operation of the plant

First, the city negotiated a 50-year agreement for water reuse with the Ocotillo Group, a development company which owns land near the wastewater plant. The Ocotillo Group donated the land for the plant to the city. In return, Ocotillo gets the treated effluent free of charge for the first 15 years and, thereafter, gets the first 5 million gallons-per-day free. The city can exercise an option to use 10 percent of the treated effluent in the first 10 years and, thereafter, the city's option is 20 percent.

The city issued an RFP for design of the plant and selected a company after evaluating professional qualifications. The city contracted with Malcolm Pirnie, Inc. to design a new tertiary wastewater treatment plant, which would provide treated effluent for water reuse.

After the engineering consultant completed the design, the city issued another RFP. Through competitive negotiation, the city contracted with PMSI to construct, operate, and own the wastewater plant. PMSI also agreed to reimburse the city for the costs of designing the plant. The agreement with PMSI is a 1-year service agreement with provisions for the city to automatically renew the agreement yearly for a total period of 25 years. State law prohibits local governments from entering into long-term contracts.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Chandler

- Lease land for the plant to PMSI
- Collect user charges and pay a monthly service fee to PMSI
- Establish a fund to pay for capital improvements

Chandler Industrial Development Authority

- Issue tax-exempt bonds to finance the project

Malcolm Pirnie, Inc.

- Design the plant
- Monitor the performance of PMSI during construction

Parsons Municipal Services, Inc. (PMSI)

- Own the wastewater treatment plant
- Reimburse the city for design costs
- Review and approve the design
- Construct, operate, and maintain the wastewater treatment plant
- Secure the environmental permits
- Comply with environmental permit requirements
- Guarantee performance of the plant

Ocotillo Group

- Donate the land for the plant to the city
- Contract with the City of Chandler to receive treated effluent from the plant

HOW WAS THE PROJECT IMPLEMENTED?

- Chandler could not get a discharge permit, so chose to build a tertiary treatment plant to provide a high quality effluent

When Chandler decided to build a new wastewater treatment plant to accommodate expected growth, the city could not get a discharge permit because there was no place to discharge the effluent. As a result, the plant had to be designed for water reuse and Chandler chose to build a tertiary wastewater treatment plant to provide a high quality effluent. The Ocotillo Group played an important role because it agreed to accept treated effluent for reuse.

WHY WAS THE PROJECT SUCCESSFUL?

- Tax advantages reduced cost to the city
- A bonus was provided to the company for early completion
- New plant promotes water conservation because effluent can be used for irrigation

PMSI was able to utilize tax advantages available for privatization before the 1986 Tax Reform Act. Ownership of the plant provided tax benefits to PMSI and reduced the cost for the city. The city did have to increase user charges, but user charges would have increased more without the tax advantages. Also, privatization allowed the city to provide the plant without using its bonding capacity.

Construction was completed for $1.5 million below budget. The city's contract with PMSI provided a bonus to the company if the plant was completed below budget. The savings also allowed a $1 million bond redemption, reducing the outstanding debt.

Water conservation is an important benefit of the project. The Ocotillo Group is using 100 percent of the treated effluent and through water reuse can avoid using groundwater. The treated effluent goes into a 90-acre lake system built by the development company. Ocotillo uses the treated effluent primarily to irrigate a golf course and residential areas. Some of the treated effluent is used to irrigate agricultural land.

LESSONS LEARNED

- Experienced and technically capable partner was necessary
- It was useful to have an engineering consultant, independent of the firm constructing the plant, to monitor their performance

Because the city chose an advanced technology, it was important to have project design and oversight by an experienced and technically capable partner. The city hired an engineering consultant to design the plant and assist with contract negotiation. The consultant also monitored project construction by providing performance reviews and inspections. Because the city completed the design before issuing an RFP, they had more control over technical aspects of the project and could better compare costs among companies bidding on the project.

CONTACT

Alfred E. Pfahl, Assistant Public Works Director for
Development/City Engineer
City of Chandler
200 East Commonwealth
Chandler, AZ 85225
(602) 786-2788

WASTEWATER TREATMENT

Voluntary Developer/Municipal Partnership

SEWER ACCESS RIGHTS
ESCONDIDO, CALIFORNIA

Escondido, California

- **The City of Escondido sold rights to future sewer capacity as a way to finance construction of wastewater facilities to provide that capacity**
- **In return for sewage access that is necessary for development, developers supplied funds to expand sewage capacity**
- **The city's sewer access rights program provided incentives, including guaranteed rates of return, to encourage purchase of access rights by developers and local citizens**
- **The program was so successful that funds raised from the sale of sewer access rights financed the full cost of the planned expansion, with ample reserves for future rehabilitation**

SUMMARY

Located in an area of rapid growth, the City of Escondido's sewage treatment plant was operating at capacity. In addition, the city faced enforcement orders from the state to improve operation of the plant and a lawsuit from neighboring San Diego for non-performance on a sewer services contract. Escondido developed a program in which rights to future sewer capacity were sold to finance construction of wastewater facilities to provide additional capacity. In 3 months, the sale of sewer access rights to developers and local citizens raised funds to finance the entire cost of construction with funds left over to finance future rehabilitation.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	City of Escondido
Private Partner	Developers
Population	83,550 (1986)
Median Household Income	$15,258 (1979)
Form of Government	City Council/Manager
Project Initiated	April 1982
Project Completed	June 1982
Administrative Cost	$30,000
Total Capital Cost	$16 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Citizens were against increasing public debt, user fees, and conventional forms of privatization
- Developers purchase access rights to provide funds for additional capacity

As a result of conflict over growth policies in the community, voter referendums had eliminated the use of bond financing, user fees, and conventional forms of privatization. With limited options and the need to act quickly, Escondido developed a plan to sell sewer access rights to finance additional sewer capacity. Through purchase of rights to future sewage treatment capacity, developers and local citizens provided funds for construction of the additional capacity before it was built.

WHAT WERE THE FINANCING ARRANGEMENTS?

- San Diego paid $4 million for its share of the planned capacity
- $12 million was raised through sale of access rights

The city needed $16 million to finance the planned expansion in sewer capacity. Because Escondido provides sewage treatment for northern San Diego, the City of San Diego contributed $4 million to finance its share of the planned capacity. In 3 months, Escondido raised the other $12 million through the sale of sewer access rights. The city originally planned to sell 50 percent of the planned capacity, but raised the necessary funds by selling only 40 percent of the planned capacity.

The price of sewer access rights is based on an "equivalent dwelling unit" (EDU). An EDU is 270 gallons-per-day, representing the capacity required for an average single family residence. The city established a price schedule for sewer access rights that provided a 30 percent discount on sewer access rights purchased during a 3-month sale. Buyers during the 3-month sale were exempted from any future increases in connection fees. When the 3-month sale began in April 1982, the price of sewer access rights was $1,650 per EDU and at the end of the sale in June 1982, the price became $2,150 per EDU. Subsequently, the price of sewer access rights increased according to the price schedule established by the city. In April 1989, sewer access rights sold for $3,300 per EDU.

HOW WAS THE PROGRAM DESIGNED?

- Access rights could be purchased by property owners, renters, and lessees
- Each purchaser has a separate contract with the city

Sewer access rights could be purchased by any property owner, renter, or lessee in the incorporated area or in the general plan area outside city boundaries. In the incorporated area, buyers are guaranteed sewer service up to the limit of the capacity purchased, regardless of when the sewer connection is made. Outside the city boundaries, sewer connection is not guaranteed because annexation is a condition for access to sewer facilities.

Each purchaser of sewer access rights has a separate contract with the city, specified in terms of the number of EDU's requested. Buyers can pay in cash or use letters of credit and not make payments for 2 years.

HOW WAS THE PROGRAM DESIGNED? (Continued)

- Access rights could be bought in advance during the three-month sale, but land-use approvals were not guaranteed
- City guaranteed return on resale of access rights, they could only be resold through the city

The 3-month sale allowed buyers to purchase guaranteed sewer capacity in advance of a building permit, but land-use approvals were not guaranteed. After the 3-month sale, sewer access rights could be purchased only if the city had excess capacity or sewer rights available for resale, and only in relation to a building permit.

Sewer access rights can be resold only through the city. The city guaranteed a return on resale of sewer access rights, reimbursing sellers according to the established price schedule.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Escondido

- Administer the sewer access rights program
- Require developers to purchase access rights to secure sewage capacity
- Contract with the City of San Diego to provide sewage treatment for northern San Diego

City of San Diego

- Pay a share of capital costs representing its share of capacity

Private Sector

- Purchase access rights

HOW WAS THE PROJECT IMPLEMENTED?

- A public relations firm promoted the program
- An ordinance authorizing the program was not necessary as each purchaser has a separate contract with the city

The city hired a public relations firm to identify potential customers and develop promotional materials. Wide distribution of notices in the service area helped to encourage participation in the program.

The city did not pass an ordinance to authorize the program. Instead, the city has a contract with each buyer. Individual contracts allow the rights and obligations to be clearly defined.

WHY WAS THE PROJECT SUCCESSFUL?

- Rapid growth
- Administrative costs of the program were lower than the cost of debt service
- City guaranteed return on resale of access rights

Because Escondido was growing rapidly and there was strong demand for new treatment capacity, sales were higher than expected. Through the sale of sewer access rights, the city financed its sewer expansion at a much lower cost than paying for debt service. Administrative costs of the 3-month sale were only $30,000. While an estimated $6,000 connection fee would have been necessary to cover debt service, the city raised funds by selling sewer access rights at a price of only $1,650 during the 3-month sale.

WHY WAS THE PROJECT SUCCESSFUL? (Continued)

The program guaranteed a return on resale of sewer access rights, providing an incentive to purchase them as an investment. The city guaranteed a 33 percent return for the first year. For sewer access rights held 5 years, the city guaranteed an 18 percent return. The city did not guarantee how soon it would find a buyer, but so far interested buyers have outnumbered sellers. To date, about 20 percent of the access rights have been resold.

The city raises additional income through repurchase and resale of sewer access rights. By early 1989, the city had raised approximately $3 million.

LESSONS LEARNED

- Sale of access rights is an effective way to raise money in a growing city
- Participation should be limited to property owners, renters, and lessees
- Important to require resale of rights through the city
- Risk can be limited by reserving the right to rescind the sale if response is insufficient

With high demand for development in a rapidly growing area, Escondido learned that the sale of access rights to the private sector can raise funds necessary to meet new sewage capacity needs. Escondido limited the purchase of sewer access rights to property owners, renters, or lessees. Also, it reserved the option to refuse any contract so that an outsider could not buy a large share of sewer access rights and potentially exert monopoly control over the city's capacity. By requiring resale of sewer access rights through the city, they could completely control the market for sewer access rights.

Escondido limited risks to the community from allocation of nonexistent future capacity by reserving the right to rescind the sale and refund the proceeds if the response was insufficient to fund most of the planned expansion.

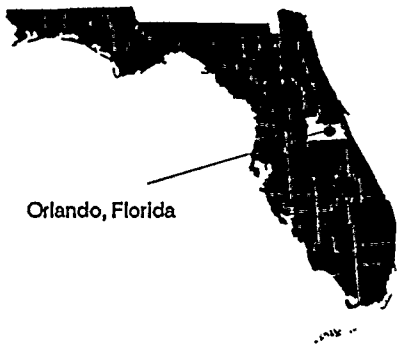
CONTACT

Roderick J. Wood, Assistant City Manager
City of Escondido
100 Valley Boulevard
Escondido, CA 92025
(619) 741-4631

WASTEWATER TREATMENT

Involuntary Developer Financing

IMPACT FEES
ORLANDO, FLORIDA



- **To finance expansion and improvement of its wastewater treatment system, the City of Orlando issued revenue bonds backed by impact fees and user charges**
- **Because impact fees paid by developers back the expansion portion (72 percent) of the wastewater capital program, the city avoided taxing existing users to accommodate new growth**

SUMMARY

The City of Orlando planned significant expansion of its wastewater treatment system to accommodate rapid growth. Also, the city's wastewater system needed improvements to comply with state and federal environmental regulations. To finance expansion and improvements, Orlando issued $230 million of tax-exempt revenue bonds. Impact fees on new developments were dedicated to repaying the capital costs of expansion. Existing users also helped pay for upgrading the system through higher sewer fees. Orlando paid for their wastewater facilities by combining impact fees on private developers, which paid for the new capacity they required, plus increased fees on current users, which paid for upgrading existing services.

PARTIES INVOLVED AND TIMEFRAME

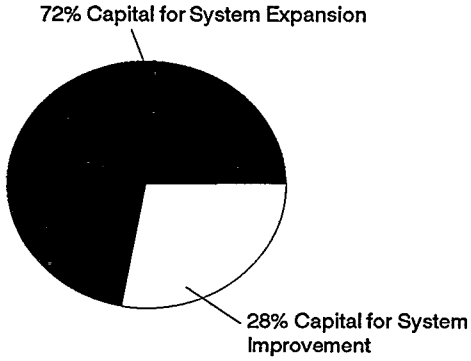
Public Partner (owner)	Orlando, Florida
Private Partner	Developers
Population	160,408 (1988)
Median Household Income	$19,362 (1979)
Form of Government	Mayor/City Council
Project Initiated	May 1984
Project Completed	June 1988
Total Capital Cost	$230 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Wastewater treatment system had to expand to accomodate growth
- City decided new development should pay capital costs of expansion through impact fees and user charges

Orlando decided that the primary beneficiaries of expanding the wastewater treatment system should bear the cost. They instituted impact fees on new developments to back the expansion portion of the bond financing. Part of the monthly user fees paid by new customers is also dedicated to repaying debt associated with expanding the system.

WHAT WERE THE FINANCING ARRANGEMENTS?



$230 million tax-exempt revenue bonds

To finance a $230 million wastewater capital program, the City of Orlando issued tax-exempt revenue bonds. The bonds were insured, raising the rating to AAA. Capital needs to improve existing facilities constituted 28 percent and the other 72 percent of the capital program was for expansion of Orlando's wastewater treatment system.

The city counted customers of the wastewater treatment system in 1983 and considers them "old customers." Orlando assesses a monthly user charge, which increased 25 percent in 1984. The monthly user charge has two components, an O&M rate and a capacity charge. For old customers, the capacity component goes toward debt service for facility improvements.

"New customers" are those requesting services after 1983. In 1984, the city began charging each new development a one-time impact fee under the wastewater capital program. The per-gallon impact fee is calculated by a formula based on 315 gallons-per-day for a single family residence. The charge per gallon is adjusted yearly and in 1989 was $7.55 per gallon. For new customers, the capacity component of the monthly user charge funds debt service on capital borrowed to expand the system.

In addition to the $230 million wastewater capital program, federal construction grants of $55 million financed improvements in the wastewater system.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Orlando

- Provide an improved and expanded wastewater treatment system

Developers/New Customers (1984 and after)

- Pay an impact fee
- Pay a monthly user charge for wastewater treatment services; the capacity component for new customers pays debt service on capital borrowed to expand the system

WHAT WAS THE DIVISION OF RESPONSIBILITIES? (Continued)

Old Customers (1983 and before)

- Pay a monthly user charge for wastewater treatment services; the capacity component for old customers goes toward debt service for facility improvements

HOW WAS THE PROJECT IMPLEMENTED?

- Implemented as part of a long range plan for growth
- State court ruled that impact fees can only be used to pay for expansion of the wastewater system

Before implementing the present wastewater capital program, Orlando collected an impact fee to raise capital, but on a pay-as-you-go basis. The city budgeted for its wastewater capital needs based on revenues collected each year from impact fees. Orlando's present wastewater capital program has a different philosophy of long-range planning for expansion whereby the city commits anticipated impact fees as payment for planned expansion.

A state court decision in the 1970's required that cities use impact fees only to pay for expansion to accommodate growth, not for improvements. Orlando hired engineers to certify the percentage of its total wastewater capital program that is for purposes of expansion.

WHY WAS THE PROJECT SUCCESSFUL?

- Growth pays for itself by using impact fees and user charges to back bonds

The City of Orlando made growth pay for itself by using impact fees and user charges for new customers to support bond financing. Expansion of the city's wastewater treatment system to accommodate new growth is paid for by new developments and eventually by new residents responsible for the growth.

LESSONS LEARNED

- Involves risk because community depends on growth to generate revenues
- Impact fees may not deter development in a rapid-growth area

When financing depends upon growth to generate funds, the public partner must consider the risk that growth and revenues may not meet expectations. Although Orlando expects continued rapid growth, the city established a special account with funds to be available if impact fees received in any year are not sufficient to pay bondholders.

Orlando's total wastewater connection fees (including impact fees) are high for single family residences compared to other growing urban areas in Florida. However, Orlando's monthly user charge is lower than in other growing areas. With a long waiting list for sewer connections, impact fees assessed by Orlando have not deterred development.

CONTACT

Robert R. Garner, Comptroller
City of Orlando
400 South Orange Avenue
Orlando, FL 32801
(407) 849-2200

WASTEWATER TREATMENT

Turnkey Contract

WASTEWATER TREATMENT PLANT
MOUNT VERNON, ILLINOIS

Mount Vernon, Illinois

- **Mount Vernon entered into a turnkey agreement with Environmental Management Corporation to design, construct, and operate an upgraded and expanded wastewater treatment plant owned by the city**
- **The city issued tax-exempt and taxable general obligation bonds to finance the project, which were guaranteed by a letter of credit from a Japanese bank**
- **The private partner completed the upgrade and expansion in substantially less time and saved the city approximately $3 million (32 percent) compared to the city's initial pay-as-you-go plan**

SUMMARY

The area around Mount Vernon was experiencing rapid growth due to the location of new automobile manufacturing plants. The auto plants attracted a large number of associated businesses interested in locating in Mount Vernon. It was necessary for the city to act quickly to take advantage of the opportunity for growth. However, the city was under a 1986 sewer connection ban because of compliance problems at its wastewater treatment plant.

To overcome sewer restrictions quickly, Mount Vernon contracted with Environmental Management Corporation (EMC) to design, construct, and operate an upgraded and expanded wastewater treatment plant. Sewer restrictions were lifted after the first phase of construction was completed. Within 18 months, the city attracted approximately $300 million in private investment.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Mount Vernon, Illinois
Private Partner	Environmental Management Corporation
Population	17,470 (1986)
Median Household Income	$13,171 (1979)
Form of Government	City Council/Manager
Project Initiated	June 1987
Project Completed	October 1988
Total Capital Cost	$6.5 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

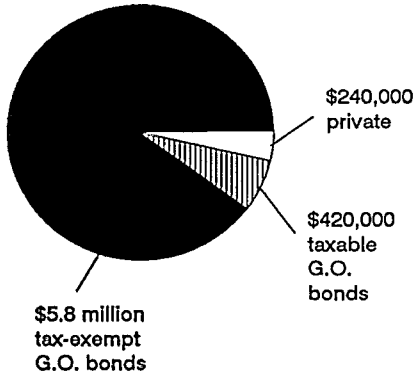
- Considered pay-as-you-go and federal grants but timing was critical
- Private partner proposed to complete the plant more quickly than public alternatives
- The city and EMC decided against private ownership

Mount Vernon contracted with EMC in 1984 to operate its wastewater treatment plant and to bring it into compliance with environmental regulations. However, the city needed to upgrade and expand the plant to come into full compliance. Mount Vernon passed a sales tax increase to finance a pay-as-you-go upgrade and expansion to be completed by 1994. The city also began working to obtain federal grants. However, the options chosen by the city could not be implemented quickly, so when EMC proposed to upgrade and expand the plant in a shorter time, the city accepted.

The city and the company jointly decided against the company's original proposal for private ownership, because of reduced tax benefits of private ownership after the 1986 Tax Reform Act and the potential that federal funds previously spent on the wastewater plant would have to be refunded. Public ownership allowed much of the cost of the project to be financed with tax-exempt bonds.

WHAT WERE THE FINANCING ARRANGEMENTS?

Total Capital Cost: $6.5 million



To finance upgrading and expansion of its wastewater treatment plant, the City of Mount Vernon issued 20-year tax-exempt general obligation bonds of $5.8 million and $420,000 of taxable general obligation bonds to pay project costs not eligible for tax-exempt financing. A Japanese bank issued a $6 million letter of credit to guarantee the bonds, raising the bond rating to AAA. EMC contributed $240,000 to finance the project.

The bonds are backed by the City of Mount Vernon, which pledged its full faith and credit and dedicated sales tax revenues to pay off the bonds. A previous 1/2 cent sales tax increase that the city passed for a pay-as-you-go upgrading of the wastewater plant now provides revenues to back the bonds.

The city could not use revenues from sewer charges to back the bonds because sewer charges were dedicated through 1994 to pay off bonds issued in 1975 to finance construction of the existing plant.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- The city negotiated with a private partner in a sole-source procurement
- Fixed-price contract signed to upgrade and expand plant + 20-year service agreement

Through a sole-source procurement, the city signed a fixed-price contract with Environmental Management Corporation (EMC) to design and construct an upgraded and expanded wastewater treatment plant. When construction was completed, the city's contract with EMC to operate the existing plant was changed to a 20-year service agreement for EMC to operate and maintain the upgraded and expanded plant.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Mount Vernon

- Own the wastewater treatment plant
- Issue general obligation bonds to finance the project
- Collect sales tax revenues and make monthly payments to EMC through a bond trustee
- Secure the environmental permits

Environmental Management Corporation (EMC)

- Design, construct, operate, and maintain the upgraded and expanded wastewater treatment plant
- Guarantee compliance with environmental permit requirements
- Guarantee performance of plant equipment
- Dispose of sludge
- Operate the city's existing wastewater plant during construction

HOW WAS THE PROJECT IMPLEMENTED?

- Mt. Vernon avoided conflicts with state procurement rules by voting for home rule
- EMC made preliminary proposal to Illinois EPA to avoid permitting delays

Because the city voted for home rule in 1986, it avoided conflicts with state procurement rules.

EMC worked with Illinois EPA before the agreement was signed to prove that its design would meet effluent requirements. As a result, the company helped the city avoid delays in permitting the project.

WHY WAS THE PROJECT SUCCESSFUL?

- Strong leadership by the mayor and public information campaign were important factors
- Sewer restrictions were lifted quickly
- City was not responsible for costs of change orders

Strong leadership by the mayor was important to the success of the project. The mayor insisted that negotiations be open to the public and that the public be kept informed. As a result, the community supported private sector involvement in the project.

Timing was critical for Mount Vernon because the city needed to solve its compliance problems quickly to accommodate new industry. Through negotiations with Illinois EPA, sewer restrictions were lifted after the first phase of construction was completed. By comparison, the city's initial plan to upgrade and expand the plant on a pay-as-you-go basis was estimated to cost $9.5 million and not be completed until 1994.

The fixed-price contract for design and construction guaranteed that the city would not pay costs that exceeded the initial bid (change orders), which had added 20 percent to the bid cost for plants in nearby communities. EMC absorbed the cost of change orders.

LESSONS LEARNED

- Mount Vernon learned that it is important to find a partner that will accept responsibility for all aspects of the project

Mount Vernon learned that it is important to negotiate a public-private partnership that places responsibility for design, construction and operation with a single company. When problems occur, EMC has full liability. The city wanted to avoid the difficulties it experienced with an earlier expansion of the plant, when serious problems could not be resolved because none of the different private partners involved would accept responsibility.

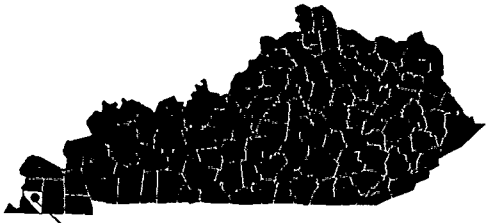
CONTACT

James Bassett, City Manager
City Hall
1100 Main Street
Mt. Vernon, IL 62864
(618) 242-5000

WASTEWATER TREATMENT

Turnkey Contract

WASTEWATER TREATMENT PLANT
CLINTON, KENTUCKY



Clinton, Kentucky

- **The City of Clinton entered into a turnkey agreement with Aqua Corporation to upgrade and operate a wastewater treatment plant owned by the city**
- **Clinton issued tax-exempt bond anticipation notes to finance the project**
- **The private partner completed the project for 30 percent less than the estimated cost of public construction and grant financing**

SUMMARY

Under an order from EPA to upgrade its wastewater treatment system since 1981, Clinton faced fines from EPA if its treatment plant did not meet the secondary treatment standards of the Clean Water Act. The city was not high enough on the state priority list to be eligible for federal grants, so Clinton investigated alternatives. After the state passed a privatization act in 1986, Clinton contracted with a private company to upgrade (design and construction) and operate its wastewater treatment plant. The city retained ownership of the plant in order to obtain tax-exempt financing.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Clinton, Kentucky
Private Partner	The Aqua Corporation
Population	1,600 (1988)
Median Household Income	$13,080 (Hickman County, 1979)
Form of Government	Mayor/City Council
Project Initiated	September 1987
Project Completed	July 1988
Total Capital Cost	$950,000

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Private partner had the expertise to upgrade and operate the plant
- Clinton retained ownership to obtain tax-exempt financing

A small town with limited resources, Clinton was unable to raise the capital necessary to upgrade their wastewater plant. While plant expansion can often be financed from additional revenues generated by growth, plant upgrades often require large capital investments without any new sources of funds. Also, construction and operation of the new plant required technical expertise beyond that of the municipal staff.

The city had planned to finance the project with federal construction grants but when that was not possible, they began to look for a private company with the resources and technical expertise to construct and operate the plant. Clinton decided to retain ownership of the plant in order to obtain tax-exempt financing.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Clinton issued tax-exempt bond anticipation notes backed by user fees
- The notes are for 3 years and can be renewed or long-term bonds can be issued upon maturity
- The city implemented a new rate policy to increase revenues

Clinton issued 3-year, fixed-rate bond anticipation notes totalling $950,000 at a 6.95 percent interest rate to finance the project. To comply with state law, Clinton passed an ordinance declaring that ultimately they intended to issue bonds. Clinton chose to issue short-term notes because they wanted the security of a fixed rate. The purchasing bank agreed to a fixed rate for the short-term notes, but the bank would not offer a fixed rate for long-term bonds. Also, Clinton could issue short-term notes with lower upfront costs than long-term bonds.

Liberty Bank of Louisville purchased the notes, and in return, receives tax-exempt interest income. The 1986 Tax Reform Act provides that if a municipality issues less than $10 million a year in securities for public facilities, the interest is tax-exempt when they are purchased by a bank.

The notes are backed by user fees, which were set to pay off the debt over a 15-year period. Each time the 3-year notes are renewed, the city and the bank can negotiate an interest rate to renew the notes through the bank, or the city can find another purchaser. Revenues from user fees allow Clinton to reduce the dollar amount of the notes when renewed.

The city implemented a new rate policy in October 1987. Previously, revenues for wastewater treatment were drawn from property taxes and a $36 yearly charge per customer for sewer service. Under the new system, sewer charges increased to a flat rate of $15 per month for residential customers. Commercial customers pay $15 per month for the first thousand gallons and $3.25 for each additional thousand gallons.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Clinton negotiated with Aqua Corporation in a sole-source procurement process

Because of prior experience in working with engineers from Aqua Corporation, the city decided to negotiate with them in a sole-source procurement process. Clinton signed a contract with Aqua Corporation for the design and construction to upgrade the plant and a 5-year service agreement for operation and maintenance.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Clinton

- Own the wastewater treatment plant
- Issue bond anticipation notes to finance the project
- Collect user fees to cover debt service

The Aqua Corporation

- Assist Clinton to secure financing for the project
- Design, construct, and operate the wastewater plant
- Secure the environmental permits
- Comply with environmental permit requirements
- Guarantee performance of equipment

HOW WAS THE PROJECT IMPLEMENTED?

- State law authorized local governments to enter into turnkey contracts with private companies

The state legislature passed an act in 1986 enabling local governments to contract with private companies to own and/or operate water and wastewater treatment facilities. Clinton's project was the first wastewater system to be upgraded by a private partner pursuant to the law.

WHY WAS THE PROJECT SUCCESSFUL?

- Private construction and tax-exempt financing reduced the cost of the project

Clinton conducted a study as part of the process of applying for EPA construction grants that estimated the project cost at $1.3 million. Aqua Corporation upgraded the wastewater plant for only $950,000. Through upgrading the plant and private operation, Clinton solved its effluent quality problems.

LESSONS LEARNED

- Clinton could keep user charges down because of low cost of capital

Although sewer charges for residential customers increased to $15 per month, Clinton's user charge is low compared to similar sewer systems in the state. This was an important objective in Clinton because many of the residential customers are retired and on fixed incomes. By financing the project with short-term notes at a low fixed rate of interest, Clinton could keep sewer charges low. The city is considering lowering sewer charges at the beginning of 1990.

CONTACT

Bob Yates, Mayor
City of Clinton
P.O. Box 178
Clinton, KY 42031
(502) 653-3621

WASTEWATER TREATMENT

Turnkey Contract

WASTEWATER TREATMENT PLANT
EDGEWATER, NEW JERSEY

- **The Borough of Edgewater created the Municipal Utility Authority to issue tax-exempt bonds for improvement of its wastewater treatment system**
- **The authority entered into a turnkey agreement with Lotepro Corporation to design, construct, and operate a secondary treatment plant, owned by the authority**
- **Through tax-exempt bond financing and private construction, the project was completed for approximately 25 percent less than the estimated cost of financing the project with federal grants**

SUMMARY

After years of waiting for federal grant money to upgrade its wastewater treatment plant, grant money was no longer available in New Jersey. The Borough of Edgewater faced the July 1988 Clean Water Act deadline to provide secondary treatment. In addition, a state construction ban prevented new development in Edgewater until its wastewater system was improved. Edgewater's long-term contract to treat sewage from the neighboring Borough of Cliffside Park required Edgewater to ensure capacity to meet Cliffside Park's needs in addition to its own.

Edgewater created the Municipal Utility Authority to own the existing wastewater treatment plant and issue bonds to finance construction of a secondary treatment plant. Following competitive negotiation, the authority entered into a **turnkey** agreement with Lotepro Corporation to design, construct, and operate the secondary treatment plant.

PARTIES INVOLVED AND TIMEFRAME

Public Partners (owner)	Edgewater, New Jersey Municipal Utility Authority
Private Partner	Lotepro Corporation
Population	4,674 (1987, Edgewater)
Median Household Income	$20,737 (1979, Edgewater)
Form of Government	Mayor/City Council
Project Initiated	January 1986
Project Completed	Scheduled July 1989
Total Capital Cost	$16 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Federal grants were no longer available
- Cost of bond financing was comparable to cost of state loans
- Chose to create municipal utility authority to contract with a private partner

Edgewater planned to use federal grants to construct a secondary treatment plant, but when they finally neared the top of the state priority list, federal grant money was no longer available in New Jersey. Edgewater decided that the cost of bond financing was comparable to the cost of financing the project with state loans, which had replaced grants. Under a new state privatization law, Edgewater created the Municipal Utility Authority to issue bonds and contract with a private company to design, construct, and operate a secondary treatment plant owned by the authority.

WHAT WERE THE FINANCING ARRANGEMENTS?

- $16 million of tax-exempt general obligation bonds were issued to finance the project, backed by Edgewater and Cliffside Park
- A sewer connection fee of $2,000 was instituted by both boroughs to help pay debt

The Municipal Utility Authority issued $16 million in 30-year, tax-exempt general obligation bonds to finance the project. The bonds are backed by the full faith and credit of the Boroughs of Edgewater and Cliffside Park. The bonds were insured, raising the rating to AA.

The debt will be paid by property taxes, user fees, and sewer connection fees from new developments in both boroughs. Revenues from Cliffside Park are deposited in Edgewater's general fund.

For this project, Edgewater and Cliffside Park instituted a $2,000 sewer connection fee for new developments. Because the sewer connection fees are dedicated for payment of the bonds, those revenues are deposited in a special account.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Private partner chosen through competitive negotiation
- Signed agreement with Lotepro to design and construct plant + 20-year service agreement, renewable every 5 years, for operation and maintenance

The authority issued an RFP and selected Lotepro Corporation through competitive negotiation. The authority signed a contract with Lotepro to design and construct the plant and a 20-year service agreement consisting of an initial 5-year contract with the option for three, 5-year renewals at the discretion of the authority. The contract also requires Lotepro to operate the existing plant during construction.

A 50-year contract, signed in 1955, between the Borough of Edgewater and the Borough of Cliffside Park requires Edgewater to treat one-half of Cliffside Park's sewage through 2005. The contract was extended to 2017 to coincide with the length of the bond issue. Cliffside Park pays a per-gallon user fee for sewage treated at the Edgewater plant.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Borough of Edgewater

- Create the Municipal Utility Authority
- Back the general obligation bonds with the full faith and credit of the borough

Municipal Utility Authority

- Purchase the existing primary treatment plant from the Borough of Edgewater
- Sell revenue bonds to finance upgrading the primary treatment plant and construction of a secondary treatment plant

Borough of Cliffside Park

- Back the general obligation bonds with the full faith and credit of the borough
- Pay user fees to Edgewater for treatment of one-half of its sewage, under a long-term contract

Lotepro Corporation

- Operate the existing plant during construction
- Design, construct, and operate a secondary treatment plant
- Secure the environmental permits
- Comply with environmental permit requirements
- Guarantee performance of plant equipment

HOW WAS THE PROJECT IMPLEMENTED?

- State law allowed local governments to contract with private companies to build and operate wastewater treatment facilities
- Because of their low debt limit, Edgewater created a special authority to issue bonds

Edgewater was able to seek a private partner as a result of a state law passed in 1986. The law enables local governments to contract with private companies for the finance, design, construction, and operation of wastewater treatment plants.

Edgewater created the Municipal Utility Authority to issue bonds because the bonding capacity of an authority is not limited by the state. The Borough of Edgewater did not have adequate bonding capacity because of its low debt limit set by the state.

HOW WAS THE PROJECT IMPLEMENTED? (Continued)

- Municipal employees kept their jobs at the plant and maintain benefits as local government employees

The contract required Lotepro to retain the treatment plant's municipal employees. The employees maintain their benefits because they are still employees of Edgewater. The authority reimburses Lotepro for their salaries and benefits.

WHY WAS THE PROJECT SUCCESSFUL?

- Tax-exempt bond financing was faster and less expensive than alternatives
- Strong demand for development assured adequate revenues from user fees

Edgewater saved approximately 25 percent of the estimated cost of financing the project with federal grants. With private construction and bond financing, the project could proceed more quickly and they did not have to meet procurement and wage rate requirements associated with the federal grant process.

Edgewater had a large amount of valuable land ready for development upon completion of the new wastewater system. With strong developer interest, the authority could anticipate sufficient revenues from user fees.

LESSONS LEARNED

- Control over operating costs was strengthened by a 20-year service agreement, with option for renewal every 5 years

The authority increased their control over operating costs by negotiating the 20-year service agreement with the option for renewal every 5 years at the discretion of the authority. While the agreement is a 20-year commitment for Lotepro, the authority is committed for only 5 years. If the authority decides it can operate the plant at a lower cost than Lotepro, it can take over operation at the end of any of those 5-year periods.

CONTACT

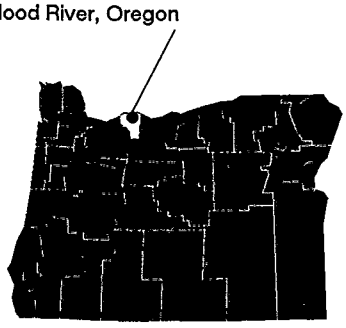
Bryan Christiansen
Mayor and Chairman of Municipal Utility Authority
Borough of Edgewater
916 River Road
Edgewater, NJ 07020
(201) 592-1100

WASTEWATER TREATMENT

Contract Operation and Maintenance

WASTEWATER TREATMENT PLANT
HOOD RIVER, OREGON

Hood River, Oregon



- **The City of Hood River contracted operation and maintenance of its wastewater treatment plant to a private company**
- **Private operation solved the plant's effluent quality problems and saves the City of Hood River approximately 10 percent a year compared to the costs of public operation**
- **The private operator contracted with a nearby city to treat its sewage sludge at the Hood River plant, utilizing some of the plant's excess capacity and providing revenues to Hood River**

SUMMARY

The wastewater treatment plant in Hood River, Oregon was built with the capacity to accommodate waste from a food processing company. The food processing company, which helped finance the plant, accounted for one-half of the waste treated by the 3.5 mgd secondary treatment plant. When that company closed, the city had difficulty scaling down the plant and began to have problems maintaining effluent quality. To solve these problems, the city contracted with Operations Management International, Inc. (OMI) to operate and maintain the plant.

Also, OMI negotiated a service agreement with the nearby City of Gresham to treat its sewage sludge at the Hood River plant, providing benefits to both cities. Gresham could close its problem-ridden sludge treatment system until completion of their new sludge treatment facility. Gresham's sewage sludge uses some of the excess capacity at the Hood River plant, for which Hood River receives a fee.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Hood River, Oregon
Private Partner	Operations Management International, Inc. (OMI)
Population	4,480 (1986)
Median Household Income	$15,175 (1979)
Form of Government	Mayor/City Council
Project Initiated	June 1983
Project Completed	Contract through 1990
Operating Cost	$225,000 per year

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Hood River sought a private partner with the expertise to improve and operate their treatment plant

When the local food processing company closed, Hood River's wastewater treatment plant had excess capacity and lost two-thirds of its operating revenues. The city had limited technical resources to effectively scale down the plant and they began to have problems maintaining effluent quality. To maintain compliance with environmental regulations and operate the plant more efficiently, the city contracted with a private company with the expertise to operate and maintain its wastewater treatment plant.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Hood River collects user fees and pays OMI monthly

Under the service agreement, the City of Hood River pays OMI a yearly fee in monthly installments. Hood River collects user fees to pay OMI. After the contract was signed, user fees remained stable and in fact, the city was able to delay a pending rate increase for several years.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- OMI was selected in sole source procurement process
- OMI negotiated separate agreement with a nearby city to treat sludge

Hood River knew of OMI from the company's work in neighboring communities. OMI submitted a proposal to the city and was selected through a sole source procurement process. Originally, the city signed a 1-year service agreement with OMI to operate and maintain the wastewater treatment plant. The city then signed a 3-year agreement with OMI, but halfway through that agreement, a 2-year extension was negotiated. The service agreement requires OMI to operate and maintain the wastewater treatment plant in compliance with all environmental regulations.

OMI negotiated a service agreement with the City of Gresham to treat its sewage sludge at the Hood River plant. Through a separate contract between OMI and Hood River, OMI pays the City of Hood River $24,000 per year for treatment of Gresham's sewage sludge.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Hood River

- Own the wastewater treatment plant
- Secure the environmental permits
- Make monthly payments to OMI
- Responsible for capital improvements to the plant

Operations Management International, Inc. (OMI)

- Operate and maintain the plant
- Guarantee compliance with environmental regulations within the plant's design capability
- Secure a separate contract with the City of Hood River to treat sewage sludge from the City of Gresham at the Hood River plant

WHAT WAS THE DIVISION OF RESPONSIBILITIES? (Continued)

Operations Management International, Inc. (OMI) (continued)

- Contract with the City of Gresham to treat its sewage sludge at the Hood River plant
- Make payments to the City of Hood River for treatment of Gresham's sewage sludge

HOW WAS THE PROJECT IMPLEMENTED?

- Agreement signed between OMI and Gresham while new plant constructed in that city
- Sludge used for land application at nearby farms

The City of Gresham's sludge treatment facility had high operating costs as well as odor and compliance problems. The agreement between OMI and Gresham provides for treatment of Gresham's sewage sludge at the Hood River plant until Gresham's new facilities are completed. OMI spent $20,000 to rehabilitate equipment to treat Gresham's sludge, using funds from Gresham's payments to OMI.

Sewage sludge from both cities is used for land application at approximately 100 nearby farms. OMI hauls the sludge using a sludge truck owned by the City of Hood River. OMI distributes the sludge according to a sludge management plan it produced for the city to comply with the strict state regulations for land application.

WHY WAS THE PROJECT SUCCESSFUL?

- OMI operates the plant at lower cost due to technical expertise and ability to shift staff to meet needs between five plants they operate in the area

Private operation solved the plant's effluent quality problems. Due to the private partner's technical expertise, the plant operates more efficiently than it had under public management. In addition, because OMI operates wastewater treatment plants for five cities in the area, OMI can transfer staff between plants to meet peak work demands or provide specialized expertise. Each city avoids the costs of hiring additional personnel or consultants.

LESSONS LEARNED

- Private company can provide management and technical expertise not otherwise available to small community

A small community with limited resources can save operating costs and solve compliance problems by contracting plant operation and maintenance with a private company. Private companies can provide management and technical expertise not otherwise available to the community.

The city arranged for monthly meetings of city officials and OMI at the plant, which helped improve communication between the public and private partner.

CONTACT

Gene McAdams, City Administrator
City of Hood River
P.O. Box 27
Hood River, OR 97031
(503) 386-1488

CHAPTER V

DRINKING WATER CASE STUDIES

CHAPTER V DRINKING WATER CASE STUDIES

A. Private Involvement in Drinking Water Supply

A key advantage to public-private partnerships for drinking water supply is the opportunity to develop regional strategies to meet water needs. Therefore, many partnerships for water supply are designed to regionalize provision of the service.

Regionalization

Partnerships can introduce economies of scale to groups of small, inefficient water companies. On their own, small water utilities are often undercapitalized and cannot collect adequate user fees to cover costs. These companies (both publicly and privately-owned) often have difficulty complying with environmental standards. In a privatization arrangement in York County, Pennsylvania, a large private company with the resources and expertise to upgrade a number of inefficient small water companies, integrated the water supply systems. In Westmoreland County, Pennsylvania, the private partner manages but does not own the water supply system. Because of its effective management of this system, the county acquired seventeen other small water systems in the area.

Cost Savings

A similar problem was addressed in Sabine Parish, Louisiana, by a contract service arrangement. The customer base of the water system was too small to be financially viable and the parish could not secure a loan to expand the system because of past operating problems. So, they entered into a contract with a private company for the operation and maintenance of the system. Operating costs fell by 60 percent and the parish was able to secure a loan to finance expansion of the system. Lititz, Pennsylvania, decreased operating costs by contracting with a private partner to provide both water supply and wastewater treatment services.

Irving, Texas required a supplemental source of water but could not afford to pay for their own wells. They contracted with a private company to drill new wells and provide water to the city. The private partner paid to drill the new wells so the town only paid a per-gallon cost for pumping and delivery of water.

Private Expertise

Communities also seek private partners to provide the specialized technical expertise required for water supply. For example, Myrtle Beach, South Carolina needed a treatment plant that could provide a new and innovative pre-treatment process because their water supply contained high levels of organics and color. They entered into a turnkey contract with a private company to design and construct an ozone treatment plant. Myrtle Beach was able to benefit from the sophisticated plant while avoiding the investment risk because of the turnkey arrangement with the private partner.

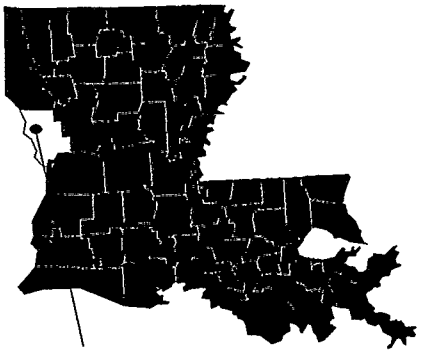
SUMMARY CHART OF DRINKING WATER CASE STUDIES

TYPE OF PARTNERSHIP	POPULATION	LOCATION
Contract Operation & Maintenance Public Water System	1,600	Sabine Parish, LA
Developer Financing Private System	327	Belen, NM
Contract Services Private Development of Wells	130,200	Irving, TX
Privatization Acquisition of Small Water Systems	9,344	York County, PA
Contract Services Public Water System	7,590	Lititz, PA
Contract Services Public Water System	90,683	Westmoreland County, PA
Turnkey Contract Public Water System	27,800	Myrtle Beach, SC

DRINKING WATER

Contract Operation and Maintenance

PUBLIC WATER SYSTEM
SABINE PARISH, LOUISIANA



Sabine Parish, Louisiana

- **Faced with imminent foreclosure for not paying bond debts and a possible enforcement order for non-compliance with EPA safe drinking water standards, Ebarb Water Works District (EWWD) entered into a contract with the Utility Data Service Corporation (UDS) to operate and maintain the water system**
- **UDS provided a viable plan for operation and maintenance of the system necessary to secure a loan from the Farmers Home Administration (FmHA) to expand the plant**
- **Private operation and maintenance lowered operating costs by 60 percent**

SUMMARY

After 3 years of poor water quality and customer service, non-compliance with EPA and FmHA regulations, and mounting indebtedness, the water system was effectively bankrupt. Ebarb Water Works District (EWWD) contracted with UDS to operate and maintain the water system. To improve the financial viability of the system, a plan was also implemented to expand the plant and customer base through acquisition of a federal loan by EWWD.

The plan for expansion of the system also included an agreement by UDS to operate with a negative cash flow until the expansion plans were implemented and to provide additional water supplies through an agreement with a neighboring water authority. These actions lowered the operating cost of the system from 80 cents per 1000 gallons to 30 cents per 1000 gallons. The Ebarb system is now a financially sound public utility.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Ebarb Water Works District I
Private Partner	Utility Data Service Corporation
Population	1,600
Median Household Income	$12,000
Form of Government	Board of Supervisors
Project Initiated	December 1987
Project Completed	December 1989
Total Cost	$2.0 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- EWWD chose UDS because they could operate the plant efficiently and raise resources to expand the plant
- Impracticality of pay-as-you-go for such a large project led EWWD to seek a private partner

The EWWD operated the system within tight budget constraints. They did not have additional sources of funding to continue operation or to consider expanding the distribution system. In light of continuing poor water quality, management, and customer service, public faith in the EWWD's ability to continue operation was low.

The EWWD considered pay-as-you-go to expand the system but, due to the large amount of capital necessary to start the project, this approach was not practical. Further, the system improvements would not have been in place until 1997.

WHAT WERE THE FINANCING ARRANGEMENTS?

- FmHA provided a grant of $30,000 and a loan of $1.9 million to expand the system; UDS's plan for operation and maintenance was key to securing the loan
- Increased user fees and a larger customer base will provide funds to repay the loans
- FmHA agreed to waive all payments until the expansion was complete and UDS agreed to operate with a negative cash flow

The service contract includes a list of fees for various activities performed by UDS in the operation of the district's water treatment and distribution system. The contract also includes a provision that EWWD can only cancel the agreement if they do not owe money to UDS.

FmHA provided a grant of $30,000 and a loan of $1.9 million to EWWD to expand the water system. A primary goal of the FmHA loans is to turn small troubled utilities into financially viable entities. The operation and maintenance plan provided by UDS was key to securing the loan.

EWWD is relying on the increased customer base to pay the existing bond indebtedness and interest owed as well as provide funds for continued operation and reserve funds. It is not necessary to raise additional funds from taxes or other sources. However, user fees will increase by 20 percent.

FmHA agreed to waive all bond, reserve, and sinking fund payments until the expansion was complete on the condition that the loan be used to initiate the expansion (i.e., add customers on existing lines, solicit customers for future expansion, and improve operation of the existing system). To fund immediate needs for reporting and compliance, UDS set aside $25,000 and agreed to operate with a negative cash flow until the expansion plans were implemented.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- EWWD chose UDS without a formal procurement process

EWWD entered into a contract with UDS without issuing an RFP. UDS accepted the financial risks of the project and presented an acceptable operation and maintenance plan.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Ebarb Water Works District I

- Contract with UDS to operate and maintain the water system
- Apply for a loan from FmHA to expand the system

Utility Data Service Corporation

- Operate and maintain the water system
- Comply with environmental permit requirements
- Market water to expand number of connections
- Contract with neighboring water authority to provide additional supplies

HOW WAS THE PROJECT IMPLEMENTED?

- UDS began a marketing campaign to expand the customer base and to increase public confidence in the utility

To provide immediate cash flow, UDS marketed water to several local industries. The success of this effort immediately raised revenues by 10 percent. UDS also contracted with the Sabine River Authority to provide additional water supplies for immediate expansion of their customer base.

To increase public confidence in the utility, UDS distributed flyers and mounted a local advertising campaign to promote the new plans for the water system.

WHY WAS THE PROJECT SUCCESSFUL?

- Local support and information-sharing were important
- UDS provided money to cover up-front costs
- FmHA grant was available for plant expansion

As the EWWD was in default on bonds, immediate action was required. A strong local police jury supported the project and the public was kept informed through active news campaigns. UDS also provided all initial up-front costs ($100,000) that otherwise, would not have been available. Availability of federal funds, along with a viable plan for operation and maintenance of the system, were also major factors in the success of the project. Underscoring the potential for private involvement in improving water systems is the fact that FmHA recently sold a portion of its loan portfolio to a private investment group led by G.E. Capital Corporation.

LESSONS LEARNED

- Important to have a partner with experience and technical expertise
- Small water districts must ensure that their customer base is large enough to be financially viable

A private partner with experience and technical expertise may be able to improve a publicly-owned and operated system. UDS was able to turn it around to be a successful public utility. An important lesson for small water districts is that the customer base must be large enough to ensure that the system is financially viable.

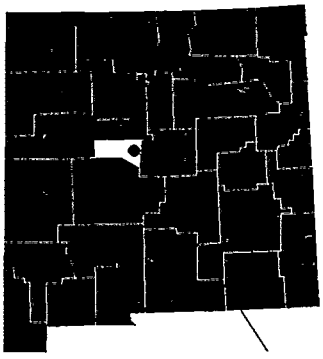
CONTACT

Jeff Pruitt
General Manager
Utility Data Services
2800 North 7th Street
West Monroe, Louisiana 71291
(318) 397-2835

DRINKING WATER

Voluntary Developer Financing

PRIVATE WATER SYSTEM
BELEN, NEW MEXICO



Belen, New Mexico

- **A private developer formed a water company to serve a new development that could not be served efficiently by the public system**
- **Because the developer absorbs the short-term costs of the system not operating at capacity, users do not share the risk that development may not meet expectations**

SUMMARY

Due to an insufficient customer base, the City of Belen was unable to extend their public water system to a new development in the outlying areas of the city. A developer formed the Monterey Water Company (MWC) to provide drinking water service to residents of a new community.

Traditionally, such developer-owned systems have been plagued by poor water quality and inadequate finances stemming from an inadequate customer base. As a result, developer-financed water systems are often frowned upon by state public utility commissioners and state drinking water regulatory agencies. The New Mexico Public Service Commission (NMPSC) allowed the MWC to install a plant contingent upon the institution of an innovative rate structure that would significantly improve the financial viability of the project. Under that approach, a water system was installed sufficient to service the entire project when fully developed. User charges, however, were established on the basis of providing service to current customers. The difference between the revenues that would be collected if the system were complete and actual revenues, was subsidized by the developer. The resulting system is financially sound and meets water quality standards.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Belen, New Mexico
Private Partner (owner)	Monterey Water Company
Population	327
Median Household Income	$16,928
Form of Government	City Council
Project Initiated	March 1987
Project Completed	October 1988
Total Capital Cost	$327,000

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- The city could not extend water supply to the Monterey development
- The developer established a water company to serve the new development
- An innovative rate-making structure was instituted

The City of Belen was unable to extend drinking water service to the new development due to the small customer base. The Monterey Water Company was formed by the developer to provide that service. However, such developer-owned systems often encounter serious financial difficulty, particularly if the developer does not sell all the lots on which the capacity of the system was based. Many developer-financed systems have been abandoned to homeowners' associations that are left without the means to meet safe drinking water requirements. Developer financing was permitted by the NMPSC in this case because the developer agreed to an innovative rate design. The rate structure assured long-term financial viability by requiring the developer to subsidize the costs of unused capacity during the early years of the development, while lots are still being sold.

Several alternative plant sizes and rate-making structures were considered. Under one alternative, current customer rates would have been based on a fully completed water system. This approach would have resulted in higher rates for current customers until the project was completed.

Under another alternative considered, the water system would have been scaled down to a level sufficient to meet the needs of current customers. As additional customers were added and charges increased, the system would have been upgraded. This rate-making structure however, would not have allowed the developer to reasonably determine the probable rate of recovery for capital expenditures made for the system, due to the engineering difficulties in upgrading the existing systems.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Monterey's rate-making structure, with rates based on the cost of serving current customers, requires the developer, instead of the customers, to bear additional costs of water supply before the area is fully developed

Under the rate-making approach adopted for the Monterey Water Company, the plant and system installed form the basis for setting the number of connections that can be served by the company when fully developed. The cost to serve the entire development was estimated along with the potential consumption of each service connection. Rates were designed based on the cost of serving the current number of customers.

The resulting rates allow the recovery of variable costs, as the number of customers increase, while eventually permitting the recovery of the company's total fixed costs. Until the number of connections grows to where it can generate revenues sufficient to cover the total fixed costs, the difference between the fully developed rate revenues and the actual cost of service is absorbed by the developer.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

Monterey Water Company (MWC)

- Apply for Certificate of Public Convenience
- Design, build, finance, own, and operate a water system to serve the new development
- Secure and comply with environmental permits

New Mexico Public Service Commission (NMPSC)

- Approve water rates for the Monterey Water System
- Secure an agreement from Monterey obligating it to support the water system throughout its development

HOW WAS THE PROJECT IMPLEMENTED?

- Monterey Water Company secured a Certificate of Public Convenience

As a new utility, the Monterey Water Company was required to apply for a Certificate of Public Convenience from the New Mexico Public Service Commission. As part of that process, rates and rate justifications were proposed by the water company. The justifications were reviewed by the commission and an engineering inspection of the plant and customer base was undertaken. The project was contingent upon MWC's agreeing to a plan that assured NMPSC a financially viable water system would result.

WHY WAS THE PROJECT SUCCESSFUL?

- Strong support from the New Mexico Public Service Commission
- Water rates remained low

Strong support for the rate-making approach from the New Mexico Public Service Commission was a significant factor in the success of the project. Water rates remained low enough to ensure continued success of the development. This also enhances the developer's prospects for the success of the development. The customers were not required to carry the burden of higher rates that, in effect, causes the customer to share in the risk of development. Since the resulting system is financially sound, it is better able to meet water quality standards.

LESSONS LEARNED

- If proper financial controls are applied, developer financing can be a successful means of providing water to sparsely-populated areas

Developer financing can be a successful means of building small water systems if proper financial controls are applied. The NMPSC has demonstrated how such controls can be made to work within the existing regulatory process.

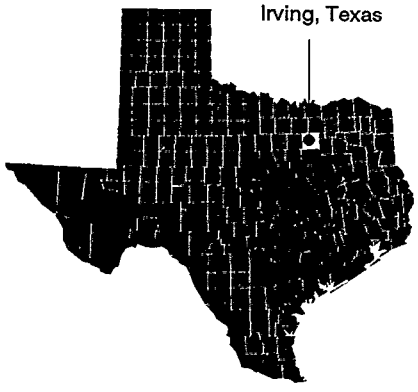
CONTACT

Allen Girdner
New Mexico Public Service Commission
224 East Palace Avenue
Santa Fe, New Mexico 87503
(505) 827-6940

DRINKING WATER

Contract Service Provision

PRIVATE DEVELOPMENT OF WELLS TO SUPPLEMENT PUBLIC WATER SUPPLY IRVING, TEXAS



- **Faced with high costs of water supplied by an adjacent community and an expanding customer base, the City of Irving signed a contract with Whalen Corporation to develop new wells and supply a portion of the city's water**
- **Whalen Corporation provided up-front costs of well development so that Irving only paid a per-gallon cost for pumping and delivery of water**
- **The supplemental water supply developed by Whalen was cheaper and so slowed the rise in water rates**

SUMMARY

The City of Irving, Texas required a supplemental source of water to meet demands during peak periods. Because of limited debt capacity and the procedural complexity of issuing bonds to finance their own wells, the city entered into a contract with Whalen Corporation to develop new wells and supply water. Under the terms of the contract, the city was not responsible for any capital costs. At the end of the 7-year service contract, the wells become the property of the city after payment of a small transfer fee. Costs of pumping and delivery of water are included in the per-gallon fee paid by Irving to Whalen Corporation for water supplied.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Irving, Texas
Private Partner (owner)	Whalen Corporation
Population	130,200
Median Household Income	$12,344
Form of Government	Mayor, City Council
Project Initiated	February 1978
Project Completed	February 1988
Total Cost	$420,000

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- The private partner could provide water more cheaply than the existing supplier
- Lack of capital and bonding capacity ruled out public alternatives

Irving sought a private partner as a way to lower the cost of water and to meet peak period demands. Whalen Corporation provided water more cheaply than the primary source of the city's water, Dallas Water Utility. By combining purchases of water from the City of Dallas with a supplemental supply from privately-owned wells, Irving reduced the cost of water to the community and expanded the supply to accommodate growth.

The alternative to private water supply was to increase purchases from Dallas or for Irving to develop their own wells. However, neither Dallas Water Utility nor the City of Irving had the necessary bonding capacity or capital to undertake the projects.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Development of wells was financed privately
- Irving pays per-gallon fee for water used

Whalen Corporation secured private financing to develop the wells. Irving agreed to purchase water from Whalen Corporation for 7 years, with no financial responsibility for the initial investment. The city is responsible for paying a per-gallon fee for the water they need, including the cost of pumping and delivery. At the end of the contract, the wells become the property of the city for a small transfer fee.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Whalen agreed to drill wells in accordance with city specifications
- City agreed to provide site and purchase water
- Irving only pays for water used

The City of Irving entered into a 7-year contract with Whalen Corporation, agreeing to provide a drilling site acceptable to a qualified hydrologist provided by Whalen and to purchase water to meet peak period demands. In return, Whalen agreed to drill wells in accordance with city specifications and guarantee production of 1 mgd over the 7-year period. If the wells fail to yield the minimum guaranteed amount of water, the city pays only for the water actually delivered. The cost is lower for water supplied over the minimum guaranteed amount (1 mgd).

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Irving

- Provide the well drilling site
- Purchase water to meet peak demands

Whalen Corporation

- Drill wells in accordance with city specifications
- Guarantee minimum water supply of 1 mgd
- Secure the environmental permits
- Comply with environmental permit requirements
- Own wells until the end of the 7-year contract

HOW WAS THE PROJECT IMPLEMENTED?

- City treasurer searched for suitable company
- City council approved the contract

The city treasurer conducted an extensive search to find an oil and gas exploration firm and a well-drilling company willing to undertake the project. The only bid submitted in response to their RFP was from Whalen Corporation. As no other firms submitted bids, the procedural requirements for implementation of the project were minimal. No public notice was required however, city council approval took almost 3 months. Since signing the first contract in 1987, four additional contracts have been signed to increase the amount of water the company supplies.

WHY WAS THE PROJECT SUCCESSFUL?

- The city did not incur any financial responsibility with the project

As the project did not require an initial investment by the city, Irving did not incur any financial responsibility with the project. In contrast, development of water supplies using bond money would have cost the city twice the amount borrowed by the time the bonds matured. In addition, the private company implemented the project much faster than Irving could have issued bonds to finance the project.

LESSONS LEARNED

- The city should have included contingencies in the contract to protect against high costs of water pumping and delivery
- Private water supply to supplement supply from publicly-owned company reduced the overall cost of water to the city

Costs to the city were significantly higher than expected because Irving agreed in the contract to pay costs of pumping and delivery of water. It was necessary to drill more deeply than anticipated and so pumping and delivery costs were higher. The lack of flexibility in the contract regarding these costs reduced the benefits to the city.

The City of Irving reduced overall costs of drinking water by contracting with a private company to develop wells and supplement their existing water supply. In addition, the water supply was expanded to accommodate growth.

CONTACT

Ron McCuller
Water Division
City of Irving
P.O. Box 152288
Irving, Texas 75015
(214) 721-2411

DRINKING WATER

Privatization

ACQUISITION OF SMALL WATER SYSTEMS WITHIN A REGION BY A LARGER, PRIVATE COMPANY YORK COUNTY, PENNSYLVANIA

York County, Pennsylvania

- **The Borough of Loganville sold its water system to York Water Company because it lacked the resources to make the substantial investments necessary to upgrade and improve the system**
- **York purchased other small water systems that were having problems supplying adequate quality or quantity of water in the region (Mid-Penn and West Manchester)**
- **The company bought the systems at attractive prices and made substantial investments for improvements and upgrades**

SUMMARY

York Water Company acquired several small water systems (private and public) with histories of poor water quality and quantity. In each case, the transaction was initiated by the small water system. Financial arrangements were favorable to York, in one case allowing a purchase price significantly below the depreciated book value of the facility. Supportive regulatory treatment by the state public utility commission was a significant factor in the success of the projects.

PARTIES INVOLVED AND TIMEFRAME

Public Partner	Borough of Loganville West Manchester
Private Partner	Mid-Penn[1] York Water Company (owner)
Population	(Loganville) 8,775 (Mid-Penn/West Manchester) 569
Form of Government	Borough Council
Project Initiated	Loganville - 1976 Mid-Penn/West Manchester - 1985
Project Completed	Loganville - 1980 Mid-Penn/West Manchester - 1988
Purchase Price	Loganville - $45,000 Mid-Penn/West Manchester - $110,000

[1] Developer-owned water system

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Customers were dissatisfied with the service
- The customer base was too small to raise necessary capital and grants were unavailable
- York was approached because of their reputation in improving small water systems

The water system in the Borough of Loganville had significant problems maintaining adequate water quality and quantity due to the age of the system and the high nitrate content in the wells. Customers were dissatisfied with the service and pressured the borough to make improvements. With a customer base too small to raise the funds and state grants not available to finance the project, Loganville turned to a private company to acquire the system. As York Water Company had a reputation for buying and improving small water systems in the region, they were approached by the Borough of Loganville to purchase their system.

Mid-Penn was a small developer-owned water system and West Manchester was a small publicly-owned system adjacent to Mid-Penn. Extensive problems with the systems included water quality, insufficient quantity and poor distribution design, lack of water pressure, and poor service. System customers requested that the systems be sold to York.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Low price made it possible to invest in improvements
- Beneficiaries of the improved water supply invested in the company

In Loganville, the financial arrangements of the purchase made the transaction very attractive for York. The original cost of the system was $200,000, with depreciation calculated over 125 years but the system was sold for $45,000. The public utility commission allowed rates to be based on the original cost ($200,000 less accumulated depreciation). York spent an additional $125,000 on system upgrades and improvements.

A unique financial arrangement was also a factor in the Mid-Penn/West Manchester acquisition. Mid-Penn and West Manchester were small systems that were inadequate to service the needs of residents and the expanding local industry. Both systems requested acquisition by York but, apart, the systems were not financially viable due to the small customer bases. As a result, an arrangement was concluded whereby York County supplied a $61,000 block grant, a local industry supplied $500,000 and York supplied the remaining $110,000 to purchase the two systems. The arrangement provided needed supplemental water for the industry and brought reliable water service to county residents.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- Fixed-price contracts

In each case, the York Water Company entered into fixed-price contracts to purchase the systems.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

York Water Company

- Own, operate, and maintain the water systems
- Collect user fees directly from customers
- Secure the environmental permits
- Comply with environmental permit requirements
- File Certificate of Public Convenience

Small Water Systems (Loganville, Mid-Penn, & West Manchester)

- Initiated sale of the systems to York Water Company

HOW WAS THE PROJECT IMPLEMENTED?

- Public notice of sale and purchase was provided
- Company filed a Certificate of Public Convenience

The purchase of the Loganville and Mid-Penn/West Manchester water systems required that a notice of public sale be issued and a Certificate of Public Convenience filed with the Pennsylvania Public Utilities Commission (PPUC). State regulations also require public notice of the purchase. If public opposition is raised, the PPUC decides if the purchase is in the public interest. No public opposition was received in any of these sales.

WHY WAS THE PROJECT SUCCESSFUL?

- Support of the public utilities commission was important
- Public information campaign raised support for the project

In the Loganville and Mid-Penn/West Manchester acquisitions, support from the PPUC was cited as a major factor in the projects' success. The PPUC encouraged the York Water Company to acquire these small, troubled systems. Another important factor in both transactions was an extensive effort to increase public awareness of the projects. Letters were sent to the affected public outlining the scope and details of the transactions. The Loganville Borough Council conducted open sessions when considering the project.

LESSONS LEARNED

- **Support of the Public Utilities Commission can facilitate the process**

The Chairman of the PPUC was supportive of the project and of large regional water systems in general. PPUC support was instrumental to achieve fast approval of the Certificate of Public Convenience.

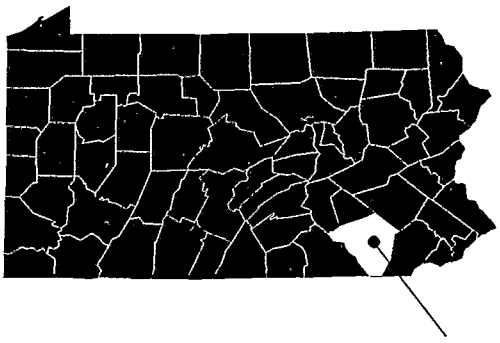
CONTACT

William Morris
President
York Water Company
130 East Market Street M-89
York, Pennsylvania 17405
(717) 845-3601

DRINKING WATER

Contract Operation and Maintenance

PUBLIC WATER SYSTEM
LITITZ, PENNSYLVANIA



Lititz, Pennsylvania

- **Due to increasing problems with water quality in the wastewater and drinking water systems and a lack of qualified personnel, the Borough of Lititz contracted with PSC Engineering to operate and maintain their water supply system**
- **Unlike most operation and maintenance agreements, the contract combined services under one contract for both utilities**
- **The partnership of PSC and the borough led to improved water quality and cost-effective operation of both utilities**

SUMMARY

The Borough of Lititz, Pennsylvania contracted with PSC Engineering to operate and maintain both the drinking water supply and wastewater treatment systems. The systems were experiencing increasing water quality problems and lacked the necessary technical personnel to deal effectively with those problems. Combining operation and maintenance of both utilities under one contract contributed to the success of the project. The arrangement increased efficiency and minimized duplication of efforts, water quality problems were solved and operating costs were held within 1 percent of those incurred under public operation.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Lititz, Pennsylvania
Private Partner	PSC Engineering Services
Population	7,590
Median Household Income	$13,360
Form of Government	Borough Council
Project Initiated	June 1988
Project Completed	Ongoing

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Lititz needed a private partner with technical expertise to ensure that water supply and wastewater services met environmental standards

Due to the continual upgrading of federal, state, and local health and sanitary requirements, the Borough of Lititz was experiencing difficulty maintaining water quality in both the drinking water supply and wastewater treatment systems. The costs of maintaining the systems (which included a 3.5 mgd wastewater treatment plant and a 3.0 mgd drinking water plant) were straining the financial resources of the borough as increasingly sophisticated engineering expertise was required. The ability of the borough council to properly respond to utility problems was also difficult due to the highly technical nature of modern water systems. The options for the borough council were to upgrade the relatively small systems with expensive equipment/expertise and seek substantial rate increases to pay for the improvements, or hire a private firm to provide efficient operation and maintenance services.

WHAT WERE THE FINANCING ARRANGEMENTS?

- The private partner is paid a monthly fee and is reimbursed for certain costs above that amount

The drinking water supply and wastewater treatment systems are owned by the Lititz Sewer Authority which leases the systems back to the borough. The borough entered into a 3-year contract with PSC Engineering for operation and maintenance of the drinking water and wastewater systems. The contract calls for paying PSC a standard monthly fee that remains constant throughout the life of the contract. PSC is also paid a monthly "reimbursable" fee for costs incurred above those covered by the standard fee. The cost structure for the reimbursable fee is based on increases in pollutant strength, water volume, and power costs. When additional costs have not been incurred, the reimbursable fee must be returned to the borough.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- The Borough Council issued an RFP

PSC Engineering approached the Lititz Borough Council with a proposal for operation and maintenance of the two water systems. The council agreed originally to contract directly with PSC however, after consultations with the union representing plant personnel, they decided to issue an RFP. Although several firms responded to the RFP, PSC was deemed the most qualified and competitive in cost. The agreement with PSC included retention of several of the original plant personnel.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

PSC Engineering

- Operate and maintain both the water and wastewater systems
- Provide chemicals and other supplies
- Provide power for system operations
- Hire and pay employees
- Comply with all permits and applicable regulations (PSC is liable for fines up to $20,000 if non-compliance is due to PSC negligence; system must be back in compliance within 30 days of non-compliance detection)

Borough of Lititz

- Make capital improvements
- Read meters and bill customers
- Determine the rate structure

Lititz Sewer Authority

- Own the drinking water and wastewater systems (lease back to the borough)
- Issue revenue bonds to finance system upgrades and improvements

HOW WAS THE PROJECT IMPLEMENTED?

- Formal state approval was not required but personnel must be licensed by the state

Requirements for implementation of the contract were minimal. All PSC presentations to the borough council were conducted in open sessions in accordance with state law. No formal state approval of the contract was required however, all operation and maintenance personnel were required to be licensed by the state.

WHY WAS THE PROJECT SUCCESSFUL?

- Combining operation and maintenance of both utilities under one contract contributed to the success of the project

The provision of both drinking water and wastewater operation and maintenance services under one contract was cited as a factor contributing to the success of the project. The arrangement increased efficiency and minimized duplication of effort as PSC technical personnel could be responsible for both of the relatively small systems. The arrangement also enhanced interaction and cooperation with the borough since management of the utilities was conducted by one borough department.

WHY WAS THE PROJECT SUCCESSFUL? (Continued)

- Retaining some municipal personnel eased the transition to private operation and maintenance

Retention of several members of the original staff was also cited as a factor contributing to the project's success. The presence of those personnel eased the sometimes difficult transition from public to private operation and management. Finally, the support of the borough council for the project was highlighted as a major success factor.

LESSONS LEARNED

- It is important to work with an experienced private partner

It is important to find an experienced partner. As PSC had numerous contracts with other water systems, a broad range of technical expertise could be called on to respond to any problem that arose.

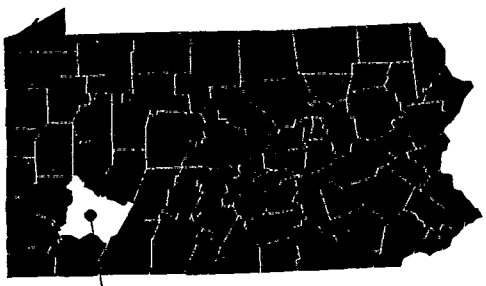
CONTACT

Peter Low
Vice President
PSC Engineering Services Inc.
649 North Lewis Road
Limrick, Iowa 18468
(215) 495-0303

DRINKING WATER

Contract Operation and Maintenance

PUBLIC WATER SYSTEM
WESTMORELAND COUNTY, PENNSYLVANIA



Westmoreland County, Pennsylvania

- **The Westmoreland County Municipal Services Authority contracted with American Commonwealth Management Services for operation and maintenance of the county drinking water system**
- **Effective management by the private partner has led to a significant expansion of the water system and industrial/ residential growth in the county**
- **Higher bond ratings resulting from American Commonwealth's participation facilitated acquisition of 17 small water systems**

SUMMARY

Under contract to the Westmoreland County Municipal Services Authority, the American Commonwealth Management Services operates and manages the drinking water system serving the general Pittsburgh area. American Commonwealth's scope of duties far exceed the routine services provided to drinking water systems in most contract operation and maintenance agreements. Those duties include the supervision of all departments, maintenance of accounts and records, arranging for purchases of supplies, development of rate schedules, and assistance with long-range planning and expansion. The partnership of the county authority and American Commonwealth has led to an unprecedented growth in the water system. Since the formation of the authority and completion of the management agreement, 17 separate small water systems have been acquired. In the past 5 years, an average of 62 miles of waterlines have been installed and 1,000 new service connections have been added.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Westmoreland County Municipal Services Authority
Private Partner	American Commonwealth Management Services
Population	90,683
Median Household Income	$15,987
Form of Government	County Commissioners
Project Initiated	April 1943
Project Completed	Ongoing
Total Capital Cost	$31 million

WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- Private partner was chosen to provide experienced personnel and technical guidance on plant expansion

The primary reasons for creating the Westmoreland County Municipal Services Authority were to regionalize local systems, acquire small troubled water systems, and extend water service to those areas of the county without service. A critical factor in the acquisition of additional water systems was the need for qualified personnel to manage the plants and pumping stations, and to provide technical guidance on system expansion. The authority considered using existing personnel however, the members concluded that they did not have the necessary engineering experience. In response, the county entered into a contract with American Commonwealth Management Services to provide operation and maintenance services.

WHAT WERE THE FINANCING ARRANGEMENTS?

- Fees paid to the private partner are a percentage of user charges collected
- The authority financed purchase of additional water systems with revenue bonds; bond ratings increased due to private partner's excellent operating record

Under the contract with American Commonwealth, fees paid to the firm are a percentage of total revenues received from user charges by the authority. Properly planned expansion of the water system was therefore, in the best interest of both the authority and American Commonwealth.

Efficient operation and maintenance by American Commonwealth were also critical in securing financing to acquire additional water systems. The authority issued revenue bonds to pay for the systems. American Commonwealth's good record in operating the water systems significantly increased the ratings of the bond issues.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- A formal procurement process did not take place

When the partnership was created, American Commonwealth was the only firm in the area with the necessary expertise to successfully participate in the project. No formal Request for Proposal was issued. The newly formed authority contracted directly with American Commonwealth.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

American Commonwealth Management Systems

- Supervise all departments
- Maintain accounts and records
- Provide routine engineering services
- Hire/discharge work force
- Apply for and comply with appropriate permits
- Purchase supplies
- Develop and implement rate schedule
- Review records, policies, and procedures
- Assist with planning acquisitions and expansions
- Community relations
- Follow trust indentures

Westmoreland County Municipal Services Authority

- Collect user charges
- Oversee American Commonwealth operations
- Approve acquisitions and arrange financing

HOW WAS THE PROJECT IMPLEMENTED?

- The Westmoreland County Municipal Authority was created to provide a regional water system
- The authority contracted with American Commonwealth and issued revenue bonds to purchase small local water systems

In 1943, the lack of an integrated county-wide water system was seriously hindering industrial and residential development in Westmoreland County, Pennsylvania. Scattered water systems were providing limited service and large areas were without the convenience of a water system. To address the problem, the Westmoreland County Municipal Services Authority was formed. The authority immediately entered into an operation and maintenance contract with American Commonwealth and began to acquire small local systems financed by revenue bonds.

WHY WAS THE PROJECT SUCCESSFUL?

- The Westmoreland County Commissioners provided strong support and administrative assistance
- With participation of American Commonwealth in the project, bond ratings increased to AAA

A significant factor in the success of the project was the strong support received from the Westmoreland County Commissioners. They provided the necessary administrative assistance, particularly in the early stages, for the formation of the authority. Another significant factor was the high bond ratings resulting from American Commonwealth's participation in the project. The AAA bond ratings facilitated the authority's acquisition of other local water systems.

LESSONS LEARNED

- Effective management by a private partner can be a force for growth and expansion of water systems

Effective overall management of the water system through a public-private partnership was the critical force behind the growth of the water system. That growth was evidenced by an increasing investment in water services from $2 million in assets when the authority was formed to over $200 million today.

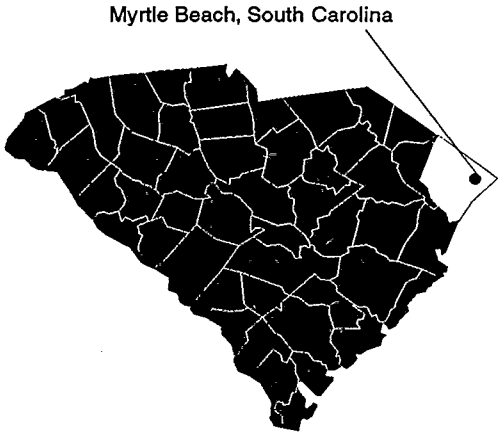
CONTACT

Robert Harner
Vice President
American Commonwealth Management Services
800 West Hershey Park Drive
Hershey, Pennsylvania 17033
(717) 533-5000

DRINKING WATER

Turnkey Contract

PUBLIC WATER SYSTEM
MYRTLE BEACH, SOUTH CAROLINA



- **Infilco-Degremont Inc. designed, constructed, and maintained an ozone treatment plant for Myrtle Beach, South Carolina on a turnkey basis, agreeing to construct a system that would meet explicit performance specifications set by the city**
- **Construction of this innovative form of treatment plant has resulted in the provision of high quality drinking water to Myrtle Beach customers**
- **The turnkey arrangement allowed the city to reap the benefits of applying a sophisticated and innovative technology without taking the risk of investing in a system that might not measure up to performance expectations**

SUMMARY

To address a severe water quality problem in the drinking water system, the City of Myrtle Beach decided to construct an ozone pre-treatment plant. As ozone treatment is a new and innovative technology requiring specialized expertise, the city contracted with Infilco-Degremont Inc. (IDI) to design, construct, and maintain the plant. Due to its innovative nature, the city gave IDI significant flexibility in the design and construction phases of the project. To ensure construction of an effective treatment system however, the city required IDI to meet specific "start-up" and performance specifications for the plant. The agreement between Myrtle Beach and IDI resulted in the provision of high quality drinking water to residents of Myrtle Beach.

PARTIES INVOLVED AND TIMEFRAME

Public Partner (owner)	Myrtle Beach, South Carolina
Private Partner	Infilco-Degremont Inc.
Population	27,800
Median Household Income	$16,298
Form of Government	Mayor/City Council
Project Initiated	July 1985
Project Completed	Ongoing
Total Capital Cost	$2.2 million

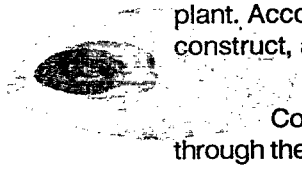
WHY WAS A PRIVATE PARTNER CHOSEN/ALTERNATIVES CONSIDERED?

- The city needed a treatment plant that could provide ozonation; the private partner had the technical expertise to design and construct such a plant

In 1985, the Myrtle Beach area was experiencing severe water quality problems in their drinking water system. The water, which was pumped from a local aquifer, contained high levels of fluoride and sodium. As these levels exceeded both state and federal drinking water standards, the city was issued a state enforcement order to bring the system into compliance.

To comply with the order, the city considered removal of the contaminants in the aquifer. Preliminary studies however, indicated that the cost of such a project would be prohibitive. In addition, the studies revealed that the aquifer had become severely depleted, only having enough capacity to last until the year 2010.

As a more cost-effective solution, the city decided to use fresh water from the intercoastal waterway as the drinking water source. Although in abundant supply, studies indicated that the water contained high levels of organics and color and would require circulation through a pre-treatment plant. Ozonation, a pre-treatment process using ozone, was found to be the only form of treatment capable of removing the undesirable organic substances and high color. Ozonation is an innovative and technically complex process. The city lacked the necessary expertise to design, operate, and maintain such a plant. Accordingly, Myrtle Beach contracted with IDI to design, construct, and maintain the system.



WHAT WERE THE FINANCING ARRANGEMENTS?

- Construction was financed with revenue bonds; increased operation costs were paid by a 20 percent increase in user charges

Construction of the ozone treatment plant was financed through the issuance of revenue bonds. Operation and maintenance of the plant was financed through a 20 percent increase in user charges.

IDI was first awarded a fixed price contract for design and construction of the plant, with services remunerated on a performance basis. IDI was subsequently awarded an optional 3-year contract for maintenance services, with payment for these services based on an annual payment schedule.

Construction of the ozone treatment plant was financed through the issuance of revenue bonds. Operation and maintenance of the plant was financed through a 20 percent increase in user charges.

WHAT WERE THE PROCUREMENT ARRANGEMENTS?

- City issued an RFP with broad specifications for design of a treatment plant

A standard RFP was issued by the city for the contract. With regard to the design of the system, offerors were given very broad specifications as to need for an ozone treatment system, but were allowed to utilize their own expertise in designing details of the system. To ensure construction of an effective treatment plant, the contract also required that the plant meet specific start-up and performance specifications. Use of such performance specifications implied that the private partner shared in the financial risk inherent in the construction of such an innovative system.

WHAT WAS THE DIVISION OF RESPONSIBILITIES?

City of Myrtle Beach

- Own the plant and pre-treatment system
- Operate the ozone pre-treatment system
- Operate the water plant
- Issue bonds to finance the system

Infilco-Degremont Inc. (IDI)

- Design the system
- Construct and start-up the system to demonstrate performance
- Maintain the ozone system

HOW WAS THE PROJECT IMPLEMENTED?

- The state was only involved in licensing plant personnel
- The city undertook a public information campaign

Formal state approval of the contracts was not required. All maintenance personnel required state licensing. The City of Myrtle Beach undertook a massive public information campaign to relay information about the new system, outline reasons for rate increases, and respond to early technical problems that caused poor tasting water.

WHY WAS THE PROJECT SUCCESSFUL?

- Cooperation between the public and private partners
- The city provided IDI with independence and flexibility in design as long as performance specifications were met
- Public relations campaign raised support

Outstanding cooperation between the City of Myrtle Beach and IDI was cited as the most significant contributor to the project's success. The city was dedicated to ensuring the success of the project and to the provision of high qualitydrinking water to the public. As the ozone system was a new and innovative technology, the city also provided IDI with sufficient independence to modify the design where needed during the construction process.

The extensive public relations campaign by the city concerning the plant's importance and impact on residents was also cited as an important factor for the success of the project.

LESSONS LEARNED

- Contract flexibility and performance specifications were important for the success of the project

Contract flexibility allowed IDI to utilize their own expertise early in the process, while performance specifications ensured construction of an effective system. The RFP issued for construction of the ozone plant outlined broad specifications for the plant, but allowed the individual contractors to develop the specific design. This flexibility in design specifications was in contrast to the traditional approach where a contractor bids on construction of a specifically designed plant.

CONTACT

Mike Dimitriou
Product Manager for Ozone Systems
Infilco-Degremont Inc.
P.O. Box 29599
Richmond, VA 23229
(804) 756-5000

For More Information or Additional Copies Contact:

U.S. Environmental Protection Agency
Office of the Comptroller
Resources Management Division
(H-3304)
401 M. Street, S.W.
Washington, DC 20460

Telephone: (202) 245-4020

EPA
(H3304)
United States
Environmental Protection
Agency
Washington, DC 20460

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