

**ALLIANCE FOR INNOVATION
Havlick and Muehlenbeck Award Nomination**



Jason Yarborough
Utilities Director
Palm Bay, Florida

Palm Bay Utilities Department
250 Osmosis Drive, S.E.
Palm Bay, FL 32909

Phone: (321) 952-3410
Fax: (321) 674-1852

yarboj@palmbayflorida.org

Over the past thirty years, the City of Palm Bay, Florida, has experienced significant growth in population creating an increased demand for water service. With limited resources and mixed responses from the public to previous attempts to expand the water system, the City decided to focus its expansion efforts in areas where property owners had the most interest in connecting and were most likely to connect should public water become available.

In order to determine where these areas existed, the Palm Bay Utilities Department commissioned a *Water Demand Survey* which provided invaluable insight in determining where to focus water service expansion efforts. By utilizing the findings in the survey, the City has been able to make crucial decisions about where to invest new water mains so the most customers desiring public potable water are served. The survey will also guide the department as it develops a marketing plan to communicate effectively with residents who are interested in connecting to the municipal water service.

The *City of Palm Bay* is located on the east Central Florida coast midway between Jacksonville and Miami, in south Brevard County, adjacent to the Indian River Lagoon which is part of the Intercoastal Waterway. The Kennedy Space Center is 50 miles to the north and Disney World is 65 miles to the west. The Melbourne International Airport is only minutes away, and the Orlando International Airport is within 60 miles.

With approximately 100 square miles of territory, Palm Bay is the largest incorporated area in Brevard County and the seventh-largest geographically in the state of Florida. Palm Bay is also the 21st most populous city in the state. Based on existing committed development, the City of Palm Bay is estimated to have a build out population of 257,344 residents and a total of 103,388 housing units.

Between 1980 and 1990 the population of Palm Bay increased approximately 237% growing from 18,560 to 62,632. That population has continued to rapidly increase, and as of December 2007 the City's population was 107,277 – for total increase of 478% over a span of approximately 30 years. Due to this growth and a quick rise followed by a dramatic fall in the housing market, Palm Bay has felt the growing pains on many levels, including the need to expand its existing water service infrastructure. Palm Bay, however, is a unique City because thousands of homes do not have access to municipal water services and a large number of residents that do, still receive their water from private wells. The City does not impose mandatory connections to these services at this time. Therefore, those wishing to tap into the City's water must either buy a home in a subdivision with services already available; pay an impact fee and a main line extension fee based on front lot footage to install a service line; or wait until the Utilities Department allocates funds for an infrastructure improvement project.

Currently, the City of Palm Bay Utilities Department has 29,547 water customers and 14,135 sewer customers, which demonstrates the need for further system expansion considering the City's current population is over 107,000. With such a vast number of homes without access to municipal water, the water demand survey addressed the dilemma of where to begin with new extension projects. The survey considered the public's interest and intent on connecting, which allowed management to develop priorities based on the projects' benefit to cost ratios.

The Palm Bay Utilities Department initially developed a Water Master Plan that set forth goals and improvements that were necessary to maintain its system over the next ten to twenty years. Improvements suggested within the Water Master Plan, uncovered a vital underlying need to develop a Water Demand Study to serve as a necessary guide or “roadmap” for future expansion.

To develop the Water Demand Study, the Palm Bay Utilities Department hired Wade-Trim Engineering to issue the survey and compile the results. The cost of this project was \$101,400, which has proven to be a beneficial investment for the Department and City of Palm Bay. The innovative Water Demand Study has become a working document within the Palm Bay Utilities Department. It has provided a basis for why expansion projects are needed in certain areas of the City and the priority in which those projects should be constructed. As a working document it has provided internal guidance for budget projections and allocations as well. The study has provided vital demographic information about specific areas of the City which prove to be key discriminators when residents consider connecting to the City water system. Income level, age, education, and property ownership are all contributing factors to a resident’s probability of connecting.

Tangible benefits of this study are easily tracked by the number of linear feet of actual water lines that have been put in the ground and how many new customers have benefitted from our services. Also, through this study, the City of Palm Bay is better able to control the growth pattern of the City; meaning that businesses and individuals will most likely grow in the areas where public water service is available. Based on the results of the study, the City can be assured it is getting the best return on its capital investment projects.

Those who have benefited from this innovation are numerous. The community, specifically those in expansion areas, are benefitting from the additional service lines that have been placed in the ground and the services that have been extended. The study identified several Units of the City where improvements were priority. Currently, the City has several projects underway:

- Unit 10 is under construction and 95% of project pipe length is in the ground. This project included the installation of 62,605 linear feet of line, and will provide 1,086 lots with water availability. This project was designed in-house by the Department’s engineering staff which has reduced project costs even more and also allowed the Utilities Department to oversee the project more efficiently. Project Cost: \$1.9 Million.
- Units 11: This project has been approved by the Palm Bay City Council and is also being designed by the Utilities Departments engineering staff. Work on this project is scheduled to begin in spring 2008 and will include 76,202 linear feet of water lines. 1,221 lots will receive access to the municipal water system. The project cost will be approximately \$2.3 Million.
- Unit 12: This project will also be designed in-house and will include 95,395 linear feet of water lines. Approximately 1,643 lots will receive access to municipal water through this project. The project cost will be approximately \$3.6 Million.

- Units 16 & 31: These units are being considered for a Special Assessment Project. The Water Demand Study provided information to the Department that it may be most beneficial to pursue this expansion through a Special Assessment Vote. If the residents vote in favor of the Special Assessment, Unit 16 will receive approximately 111,000 linear feet of water lines, providing approximately 1,949 lots with access to the public water system. Unit 31 would receive about 105,000 linear feet of water lines, providing 1,772 lots with availability to City water. The project cost for Unit 16 will be approximately \$4 Million, and the project cost for Unit 31 will be approximately: \$3.8 Million.

The Utilities Department has benefited from the organizational guidance the study has provided. City officials have utilized this resource and its objective conclusions to assist in making sound and justifiable decisions concerning the implementation of new projects.

While the Water Demand Survey has served and will continue to serve its purpose well, there is always a risk associated with commissioning such a study. When funds are expended to conduct a survey the results may not be worth the money and/or time invested. The study could have returned results indicating areas within the City need services that Palm Bay Utilities Department could not deliver with its current infrastructure; Or when the survey was complete, the department may have wished it had considered other factors and/or issues; Or the Water Demand Survey could have been met with resistance from members within the organization – stifling further progress. In addition, citizens may not see the value of using funds that could provide water service on such studies.

Fortunately for the Palm Bay Utilities Department, this innovative study was approved and widely accepted by City Management and the City Council. The reason for such acceptance may have been a result of the logical progression of its development. The idea for the Water Demand Study was initiated based on recommendations made in the Water Master Plan that was developed by the Utilities Department. The Palm Bay City Council approved the Water Master Plan and consequently the Water Demand Study. Each Community Investment Program presented to the City Council regarding the expansion of municipal water that has been supported by the results of the study has gained approval.

Hindsight is always 20/20 and lessons are learned when a task of this magnitude is tackled. One thing the Palm Bay Utilities Department learned was that projection costs used in the study need to be as realistic as possible. Inflated costs can alter the result of the study, negating some of its effectiveness. Wade-Trim made minor adjustments to the project costs after the study was finalized due to falling contractor pricing as a result of the housing slow down. These adjustments only slightly altered the findings of the study and did not impact the decisions for new projects.

The idea to develop the Water Demand Study was championed by several individuals and departments City-wide. Support and execution of this came from the City Managers' Office, Utilities Administration, City Council, Utilities Advisory Board, and the Office of Economic and Business Development. This project and its value would not have been realized without the input and direction of these organizational units.