2015 Achievement Awards
Virginia Association of Counties

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2015.** Please include this application form with electronic entry.

PROGRAM INFORMATION

Locality: Hanover County

Program Title: Backflow Prevention Program Database

Program Category: Information Technology and Customer Service

CONTACT INFORMATION

Name: Steven Herzog

Title: Director

Department: Public Utilities

Complete Mailing Address: PO Box 470, Hanover VA 23069

Telephone # 804-365-6022 **Fax #** 804-365-6245

E-mail: spherzog@hanovercounty.gov

SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: Cecil R. "Rhu" Harris Jr.

Title: County Administrator

Signature: Cecil R. Harris Jr.

Hanover County - Backflow Prevention Program Database

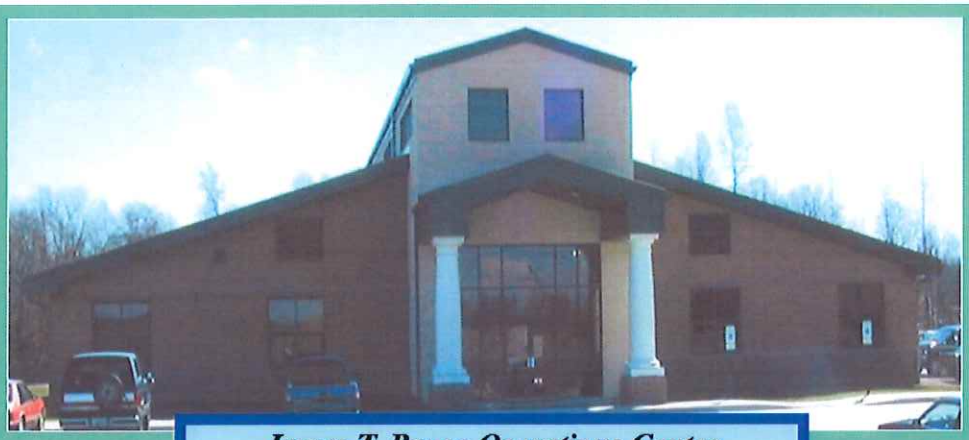
Overview and Summary

Hanover County's Department of Public Utilities (Hanover DPU) provides water and wastewater service to approximately 18,000 residential and 1,600 commercial customers. Like all municipal water systems, Hanover DPU has a backflow prevention program to insure the quality of the water supplied to its customers. The goal of this program is to prevent the public water system from being contaminated by water that has passed through a private water system.

Until 2014, Hanover utilized a Microsoft Excel spreadsheet to track the status of individual backflow prevention devices and generate notices to customers. The spreadsheet worked well when Hanover's water system was smaller but, with over 1,000 devices to track, using a spreadsheet to manage the program became increasingly unwieldy and time consuming. To address the shortcomings of its old spreadsheet system, Hanover DPU personnel developed a database, using Microsoft Access, to help it manage the program. The database was developed and tested in December 2013 and put into service in January 2014.

During 2014, the use of the database significantly reduced the staff time required to administer the backflow prevention program and helped us improve customer service. All program administration is now managed using the database. Hanover DPU would be happy to share its database and experience with other utilities. Access is part of the Microsoft Office Suite. The database can be used as is or can easily be customized to help any small or mid-sized utility manage their backflow prevention program.

HANOVER COUNTY
DEPARTMENT OF PUBLIC UTILITIES



James T. Bruce Operations Center

MISSION STATEMENT

To provide water and wastewater services that, within regulatory guidelines, meet or exceed our customers' needs and expectations for safety, quality and quantity; To provide these services at a competitive price and in a fair, equitable and environmentally responsible manner; and, To provide opportunities for personal and professional development for employees at all levels of the department.

Hanover: People, Tradition & Spirit!

Hanover County - Backflow Prevention Program Database

Challenge:

Hanover County's Department of Public Utilities (Hanover DPU) provides water and wastewater service to approximately 18,000 residential and 1,600 commercial customers. Like all municipal water systems, Hanover DPU has a backflow prevention program to insure the quality of the water supplied to its customers. The goal of this program is to prevent water that has passed into a customer's private water system, which might become contaminated, from flowing backward to the public water system and contaminating it.

Until 2014, Hanover utilized an Excel spreadsheet to track the status of individual backflow prevention devices (BFPs) and generate notices to customers. The spreadsheet worked well when Hanover's water system was smaller but, with over 1,000 devices to track, Hanover DPU increasingly found using a spreadsheet to manage the program unwieldy and time consuming.

Innovative solution:

Hanover DPU decided there must be a better system to manage this growing and ever more time consuming program. After investigating options, including commercially available programs, the decision was made to develop an Access database to help manage the program. A member of the administrative staff had used Access in the past and was interested in developing the database.

The entire project was completed using in-house resources. It took approximately 40 hours of staff time to develop the database. This consisted of approximately 32 hours for the staff member developing the database and 8 hours for the backflow program administrator. First the staff developer and program administrator met to discuss the program and review the

spreadsheet so the developer could gain a detailed understanding of how the program was managed and administered. As part of these meetings they discussed the biggest issues related to the use of the existing spreadsheet.

After these meetings the staff developer, a term we use loosely, checked "Access for Dummies" out at the local library and went to work creating the database. A beta-version was developed early in December 2013 and shared with the program administrator. Based on feedback from the program administrator, the database was modified. Late in December 2013 notification letters were produced using both the database and the old spreadsheet. The results were identical but producing the notification letters took less than one-half the time using the database the first time it was used. With a successful pilot completed, in January 2014 Hanover DPU went live with the new database and has been using it ever since. Since this time Hanover DPU has continued to refine and improve the database.

There were three particular areas where managing the program with the spreadsheet was becoming problematic.

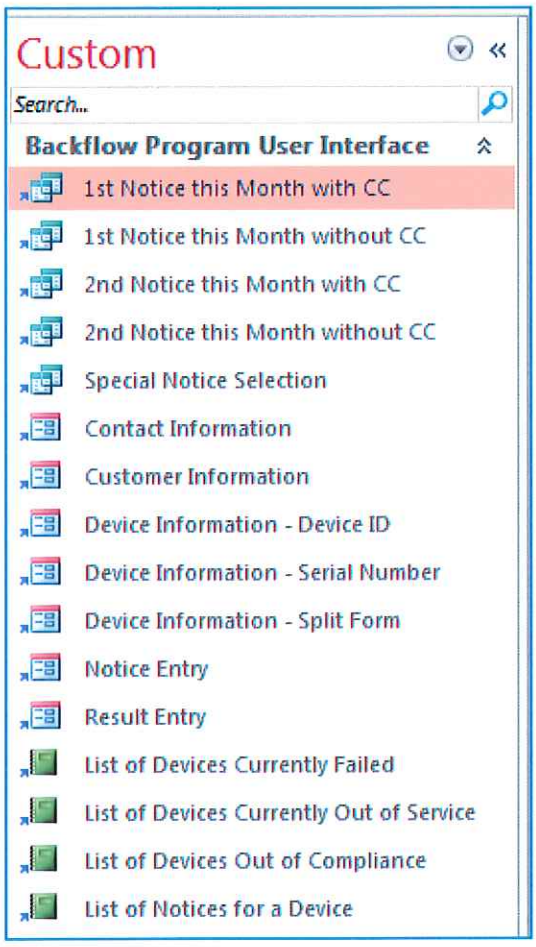
The first was the preparation of monthly notices. Approximately 80 first notices and 30 late notices are sent each month. To identify which devices required notices, the spreadsheet had to be manually sorted by date, the appropriate fields exported to a Word mail merge template and the notices printed. With the database, a query is utilized to identify those devices for which notices are required. The results of the query are exported to a Word mail merge template and the notices are printed. After use of the database was implemented, staff time to prepare notices was decreased by more than half. This is equivalent to a time savings of 2 to 4 hours per month.

It also enabled us to answer the questions of customers who have multiple devices more quickly and accurately. In the spreadsheet, each device was independent, not linked to other devices that a customer might have. When a customer called with a question, it took time to check all devices related to that customer. Normally the program administrator would have to get a name and phone number, carefully go through the spreadsheet and then call the customer back with the answer to their question. With the database, multiple devices are linked to a single customer, enabling them to be identified quickly. Now when customers call, most questions can be answered during the initial call. This both improved customer service and reduced staff time related to answering questions. Another advantage is when a facility is sold or a new tenant moves in the customer information only has to be updated once, saving time and minimizing errors.

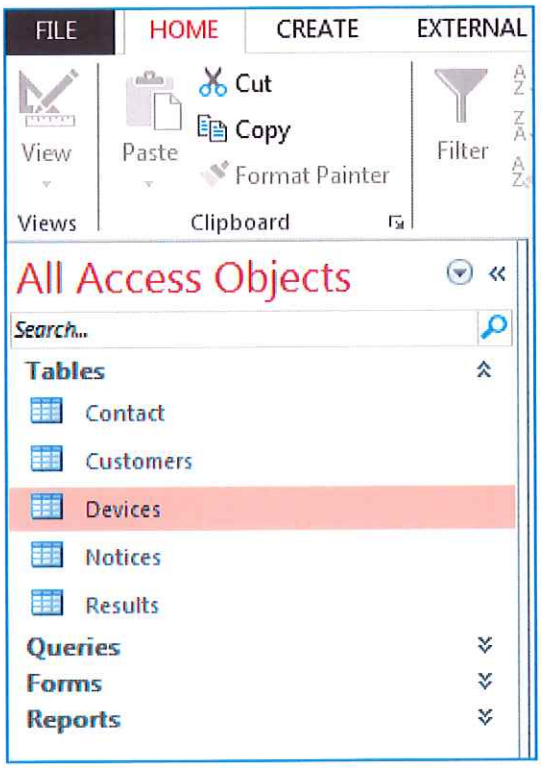
The third area of improvement had to do with updating and tracking compliance. With the spreadsheet, only the last result for each device was kept. Old results were overwritten as new results were entered into the spreadsheet. To look at a device's compliance history, copies of inspections had to be searched and examined. With the database, a summary of all testing results is kept so the compliance history can be easily determined.

The database was designed with an eye toward a future plan to move all backflow inspection records to a new digital records retention system being rolled out by Hanover County, Laserfiche. The database automatically assigns each device a unique identifier which can be utilized as a key field in Laserfiche. While not directly related to the database project, beginning in the summer of 2014 and finishing in the fall of 2014, Hanover DPU personnel scanned the paper compliance records related to this program and placed them in Laserfiche. The

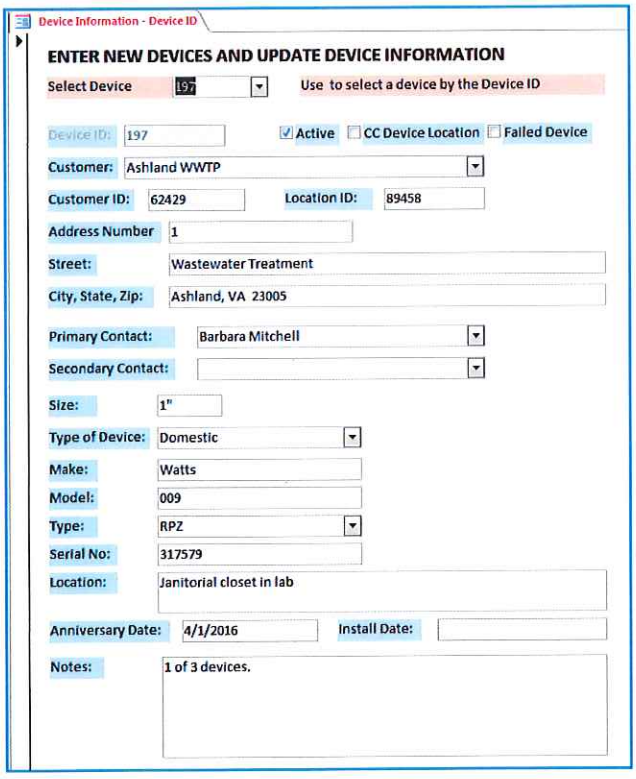
combination of the database and new digital records retention system makes researching testing results and providing customers with copies of their records much easier and less time consuming. While Hanover DPU utilized Laserfiche as its digital records retention system, the database could be used with any system.



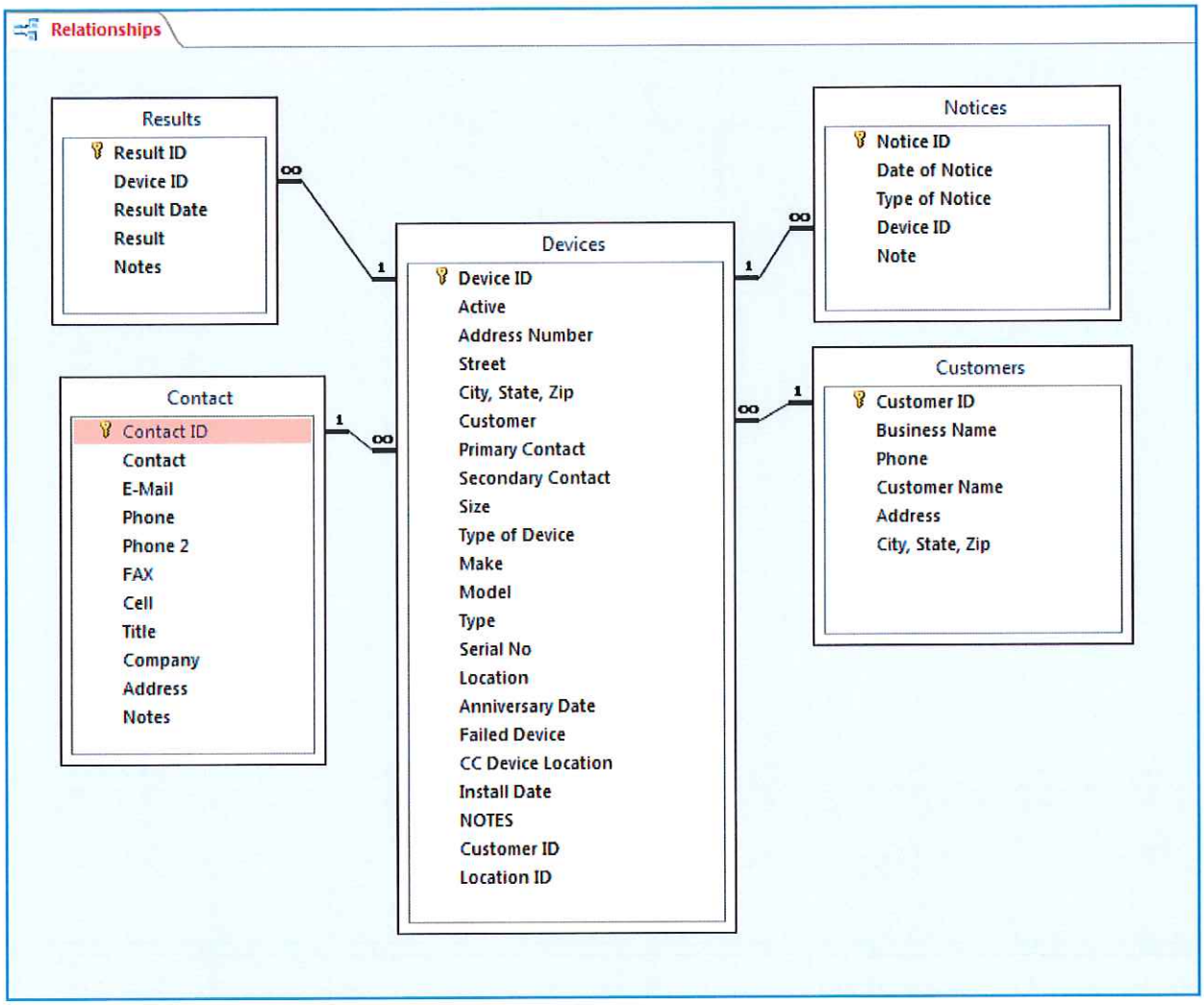
The screen shot to the left shows the forms, queries and reports that are most often utilized when working with the database. The top five items are queries that were developed for the standard notices and special notices that are sent to customers. The next seven items are forms developed to allow information to be easily entered into the database and to search the database. The last four items are standard reports developed to help manage the program.



The screen shot to the left shows the tables included in the database. The "Contact" table contains information on the person or entity to contact regarding devices. Up to two contacts can be assigned to each device. The "Customer" table includes information about the customer. The "Devices" table contains information about each individual device. The "Notices" table allows notices or contacts with a customer to be tracked. The "Results" table contains the results of individual inspections.



The screen shot to the left shows the data entry screen for an individual device and the data fields utilized with each device. Users have the option of using the data entry forms or using the data tables shown in the screen shot above to enter information into the database.



The screen shot above shows the relationship between the five tables that make up the database and the information fields contained in each table.

In conclusion, the use of the Access database has significantly reduced the time required to administer the backflow prevention program and allowed staff to provide fast, real-time answer to customer inquiries. With minimal Access knowledge, the database is easily customizable for use by other utilities. Hanover DPU would be happy to share the database and its experience with other utilities.