



## Key Facts:

**Industry:** Utilities

**Problem:** Coordinate ongoing data collection from multiple localities into a centralized database with data model and quality requirements

**Solution:** FME Server

**Results:** An efficient, web-based data upload, validation and loading service

**Location:** Virginia, USA

## CASE STUDY

*"We now have a system that can quickly get the localities' data into our hands, without having to worry about whether the locality is meeting the specified data model and quality requirements,"*

– Clay Wise,  
Senior Programmer  
Analyst for HRSD

## Summary

Hampton Roads Sanitation District (HRSD) needed to create a regional hydraulic wastewater model to identify areas of their collection system they could improve to meet new sanitary sewer overflow reduction requirements from the Virginia Department of Environmental Quality (DEQ). To create this new regional model, HRSD needed to centralize pipeline and pump station data from their own system and the systems of 14 localities in their jurisdiction. They achieved this by implementing an online data validation and loading service, powered by FME Server, that provides an automated way to routinely contribute localities' data to the regional database according to HRSD's specifications.

## The Organization

Hampton Roads Sanitation District is a wastewater utility that was created in 1940 to prevent pollution, protect public health and support community development by providing wastewater collection and treatment. Today the utility is a recognized leader in the wastewater industry and serves 17 cities and counties in the Commonwealth of Virginia, USA, overseeing more than 500 miles of pipes, 102 pipe stations, and nine major treatment plants that process 231 million gallons of wastewater per day.



HRSD used FME Server to create a hydraulic wastewater model for their continued efforts to protect the Chesapeake Bay watershed from pollutants.

## The Situation

The Virginia Department of Environmental Quality recently introduced new sanitary sewer overflow reduction requirements to aid in lowering the environmental impact of wastewater systems on surrounding environments. To meet these new requirements, HRSD had to identify areas of their collection system which could be improved to reduce the inflow and infiltration (I/I) overflows for their local Chesapeake Bay watershed. They decided that the most efficient way to identify the areas for improvement would be to centralize pipeline and station data from their own force main system and those of their 14 participating localities into a common regional hydraulic wastewater model.

## The Challenge

Knowing from previous projects how much coordination time and collaboration effort that data centralization can consume, HRSD wanted to find a way to automate the process of creating their wastewater model, moving data collection online so that localities could upload their data without involving HRSD staff.

However, a centralized database is only valuable if the data it contains is valid. To ensure that the data received from the localities maintained the project's standardization and quality requirements, they needed to quality check uploaded data before loading it into their database – to validate that the incoming data's model was correctly standardized and that it met their specified criteria.

In the past, many resources had been consumed performing manual quality control and data cleanup on data they received for other projects. To prevent this ongoing burden on resources, HRSD wanted to find an automated solution for this validation task. However, they didn't want to just reject invalid data, but rather provide the localities with specific reports that would outline why a given dataset had failed testing so it could be corrected efficiently.



## The Solution

Realizing how difficult and costly it can be to develop and maintain a custom system of this magnitude, HRSD decided to look for a commercial system that could help them create an online data uploading service that automatically performs quality checks on incoming data, returns reports to users, and loads validated data into a centralized database. HRSD found the solution in Safe Software's FME Server, a scalable, web-based platform that provides flexible spatial data distribution and loading services.

FME Server has enabled HRSD to create a custom data upload and validation service to centralize localities' data over the web. To create the service, HRSD identified which validation tests they would require and then used FME to create a spatial data workflow for the geometric and attribute quality checks that would be performed on the pipeline data prior to it being loaded into the database. Once this workflow was published to FME Server, it became available for use.

HRSD's centralized database is now kept up-to-date through the FME Server powered data upload and validation service. The FME Server workflow is accessed through a simple online form where data can be uploaded and automatically run through the validation process. If corrections are required, a concise report identifies areas of the dataset that need to be fixed before the data can be loaded, eliminating data clean-up guesswork. If the data passes validation, it is automatically loaded into HRSD's centralized ESRI® SDE™ database.

## The Benefits

The new system provides HRSD with a centralized, up-to-date and accurate view of the data for their entire wastewater collection system, enabling them to identify areas for improvement to meet the DEQ's requirements.

Because the system provides an online data delivery method and performs validation tests automatically, HRSD doesn't need to invest ongoing time and resources to perform manual data collection, cleanup or centralization tasks. This approach not only saved weeks of time in creating the original database, but it saves time on an ongoing basis for the updates that are necessary to keep the centralized database current.

Ongoing maintenance that would have consumed weeks of effort over the course of several months was able to be quickly set up once using FME Server; now any time updates are required, an automated process can handle the task of validation and loading in one to two minutes. Plus, any time the dataset being uploaded fails validation testing, users are provided a specific report so they don't need to waste time guessing what to correct before re-submitting their data to the database.

Using FME Server, HRSD has been able to implement their new data upload and validation system at a fraction of the cost of developing it in-house, and now have the flexibility to modify the system as their needs change. Updating data validation requirements is as simple as modifying the workflow using an intuitive graphical interface.

The project has been so successful that HRSD has found other areas where FME Server can be used to increase efficiency. They have begun designing a service that will help the jurisdictions' modelers share data with HRSD engineers for their day-to-day operations.

## What They're Saying

"We now have a system that can quickly get the localities' data into our hands, without having to worry about whether the locality is meeting the specified data model and quality requirements," says Clay Wise, Senior Programmer Analyst for HRSD. "In the past, HRSD poured a lot of resources into data centralization projects, including staff time spent manually cleaning up data coming in many different formats. By implementing FME Server, we can now keep our centralized database current in a fraction of the time it would take to do this manually."

## Learn More

To find out more about how FME Server can help you implement web-based data validation, loading and distribution services, visit [www.safe.com/FMEServer](http://www.safe.com/FMEServer).