

## Investing in New Approaches: Donation Leads to Advances in Disaster Management in St. Charles Parish

St. Charles Parish, LA – Some forms of federal grant assistance for the repair and improvement of critical infrastructure and residential property only become available following a Presidentially-declared disaster. After Hurricane Katrina in 2005, a number of communities in Louisiana, many with limited resources, had the opportunity to apply to the State for significant amounts of grant money. A portion of these monies allowed some communities to enact mitigation measures that help resist future damages from natural or man-made disasters.

St. Charles Parish is one area that was benefited by federal grant money in Katrina’s wake. “Grant money of the magnitude the parish received wasn’t available until after Hurricane Katrina,” said Holly Fonseca, grants officer for St. Charles Parish.

The federal grant money awarded the parish was immediately put to use by a team that included the grants office and the newly increased staff of the Public Works department. While recognizing the value of popular forms of mitigation such as structural elevations or property acquisitions – where flood-threatened homes are purchased and demolished by local communities and the land then permanently converted to green space – St. Charles Public Works and grants staff were more interested in identifying potential projects to reduce flood risks on a more widespread scale.

This team quickly began identifying potential projects to alleviate flooding issues. But in doing so, they took a chance that ultimately proved a strong advantage for St. Charles Parish: the team conducted conceptual engineering designs for nearly 20 potential projects.

This up-front expense (nearly \$500,000) was a calculated risk, since it was not certain if the projects would qualify for assistance. However, the quality of the work done by the team and their deliberate choices of viable potential projects allowed the grants office to identify appropriate grants to pursue. Their risk paid off. When it came time to submit their applications for available funding, St. Charles Parish already had their paperwork completed and ready for review.

“Elevations are great because you prevent homes from flooding, but that only addresses the individual properties,” said Fonseca. “Streets are still going to flood, and emergency services won’t have access to all the areas they might need to get to. We wanted to positively impact hundreds of homes and solve drainage issues causing flooding in the first place.”

As the Public Works staff assessed flood challenges, they noticed one trend stood out. During high water events, the canals, swales and culverts were choked with large amounts of debris that would be pushed down the conveyances until they reached the water pump stations.

“When we would get a significant rain event, the debris would stack against the bar screens at the pump stations,” said Sam Scholle, St. Charles Parish’s interim Public Works Director. “The debris would pile up to such an extent that the pumps would actually start shutting down. Once the pumping stations stopped, water would inevitably begin to back up and cause flooding, flowing over the streets and too often into residents’ homes.”

To address the problem of the debris jams shutting down the water pumps, the parish pursued grants for the installation of automatic bar screen cleaners at several pumping stations. Like a garbage truck's "trash masher," once debris piles up against the screen, the automated cleaners lift the debris up and over the mechanism onto a platform, where it is later collected and taken to local landfills.

Grants for the automated bar screen cleaners amounted to more than \$18 million and St. Charles was the first parish in Louisiana, and the first community in the U.S., to receive a grant for such a mitigation measure.

In total, nine of the bar screen cleaner upgrades were completed and the last one was installed in early 2016.

Another major improvement in the parish involved the upgrade of a culvert in the heart of the town of Destrehan. Over a period of 12 months, on at least five occasions, the Public Works department observed that drainage backups were causing water to flood a primary thoroughfare through the community, forcing major road closures, not only inconveniencing residents but also creating potential critical delays for emergency services like police and fire departments.

After inspecting a nearby culvert system, they discovered that it had sustained significant damage and wear over the years. They also determined that the culverts were inadequately sized and no longer able to adequately convey water to the nearby pumping station. The decision was made to replace the three damaged 60-inch corrugated metal culverts with a 28-foot pre-cast concrete arch system supported by pilings. Estimated increased water flow through the culvert system went from an insufficient 350 cubic feet per second to an impressive 1,413 cubic feet per second.

"It immediately solved the whole problem...and it allowed us to re-establish flow capacity at the nearby pump station" said Scholle.

While the bulk of the funds originated from the grant program initiated following Hurricane Katrina, additional grant money awarded after Hurricane Isaac in 2012. These grants led to the upgrades of another water pumping station. Further grants pursued after Hurricanes Rita, Gustav, Ike and Isaac led to more culvert improvements, as well as the completion of several acquisition projects and the elevation of a number of residential structures. In all, since Hurricane Katrina, St. Charles Parish has pursued and received more than \$33 million in grant monies to perform mitigation to reduce the parish's flood risk.

Scholle summed up "Every time we get a significant rain event, we go out and study the areas and look at the causes of high water and identify what we can do to improve the internal conveyance system. There's always more to do. When you come in with the focus to help the residents and the people, it spreads. We try to get everyone in Public Works involved, including the people out in the field. When we have our meetings, you'll see people from the drainage crews and other groups in here. We ask for their input and by involving them, they end up wanting to make suggestions, and come up with new ideas. If you don't make them a part of it, then they quit trying. If you get them involved, they'll wade out there into the middle of a flood and try to figure out what's wrong and what they can do to fix it. It's a real team effort."