

# EWP Funds Help the City of Jackson Repair Infrastructure

by Julie A. Best and Randall East,  
Natural Resources Conservation Service

**CLARKE** County, Alabama, has a history as rich as the soil along the banks of the Tombigbee and Alabama Rivers which form its boundaries. Jackson, Alabama, which was named after President Andrew Jackson, is one of five municipalities in the county. Jackson is a quaint southern town perched on the banks of the Tombigbee River.

Originating in Mississippi, the Tombigbee River enters Alabama at

Aliceville Lake in Pickens County. From there, it flows to the southeast and joins forces with the Black Warrior River, its largest tributary. The upper portion of the Tombigbee Basin encompasses about 9,000 square miles. Below the confluence with the Black Warrior River near Demopolis, Alabama, is the lower portion of the basin. Here, the river flows 175 miles and drains 4,659 square miles in seven Alabama counties before the Tombigbee merges with the Alabama River and becomes the Mobile River, which flows into the Mobile Bay.

The Tombigbee River, and all that goes with this mighty body of water, has a major influence on the City of Jackson. The river influences the industry of the town. Barges transport coal, ores, crude and fuel oils, chemicals, aggregates, and forest products up and down the river. While the river has a major economic influence on the town, it also plays a significant role in other ways. However, the City of Jackson has struggled for years with soil erosion along the banks of the Tombigbee River.

The soil along the river basin is sand



Stormwater from Hurricane Katrina caused erosion problems along several streets in the City of Jackson, Alabama. With financial and technical assistance from the Emergency Watershed Protection Program, which is administered by USDA-Natural Resources Conservation Service, several of these sites were repaired.

underlying a clay cap. Drew Wright, District Conservationist with USDA-Natural Resources Conservation Service (NRCS) in Clarke County, says, "Once this soil starts eroding, it goes. Recent damage from Hurricane Katrina left Jackson with a real problem. The wind and rains associated with the hurricane broke that clay cap and erosion became immense." The results were threats to public and private property of the citizens

removing debris and sediment from channels and ditches, and establishing vegetative cover to control erosion. The stabilization of gullies following Hurricane Katrina were the target of EWP in Jackson.

After Hurricane Katrina, the NRCS district conservationist serving Clarke County contacted each of the municipalities in the county to ascertain if there was damage to infrastructure. The City of

numerous sites throughout the city. In many cases, the old gullies became active after Hurricane Katrina, threatening homes, businesses, and roadways.

Miller says, "A city the size of Jackson cannot generate enough tax base to take care of problems generated by a hurricane. We have to have some federal assistance. NRCS knows what they are doing and the agency has been very helpful to us. They perform the damage survey reports, and they can tell us rather quickly if we can get assistance through the Emergency Watershed Protection Program. That is significant in itself—if NRCS can't help us, then we know right away that we need to look elsewhere for funds. NRCS talks straight to us."

After Hurricane Katrina, the City of Jackson applied for and received both financial and technical assistance to



Houses were in jeopardy from several of the sites where the gullies had serious erosion.

along with real safety concerns in some locations.

City Administrator Jesse Miller explains, "There are slopes on the East and West sides of town. The end result is eroded soil which forms gullies. Some of these gullies look like the back side of the moon. The crevices are so deep. The gullies have a tendency to eat into the streets of the town. The city has been working on these erosion problems for years."

Soil erosion in the City of Jackson is a constant battle. Add to that equation a natural disaster such as a hurricane and the problem is multiplied.

The Emergency Watershed Protection (EWP) Program is administered by NRCS to provide technical and financial assistance to municipalities that have experienced damage from natural disasters. Eligible measures include: repair of existing water control structures,

Jackson responded by filing a damage survey report (DSR), which is the first step in determining if a site is eligible for federal assistance through the EWP program. In any natural disaster situation, two conditions must be met in order to qualify for emergency funding: 1) the natural occurrence is sudden, unusual, and causes serious damage to life or property; and 2) the extent of the serious damage covers a wide area. The natural occurrence over a wide area must have inflicted unusual heavy economic loss to the community.

Hurricane Katrina was not thought of as a storm that affected the inland areas very much. However areas like Jackson, with its unique soils and erosion tendencies, suffered massive damage. The heavy rain and winds blew down trees. There was enough rain to cause enormous damages to infrastructure at

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repair infrastructure damage through the EWP program. Brian Coaker, Soil Conservation Technician with NRCS, worked closely with the municipal staff of the City of Jackson to get the gullies repaired. Structures in the steep terrain as in Jackson typically require multiple inlets to handle the large and intense rainfall events experienced with tropical storms and hurricanes in south Alabama. In many cases, safely transporting these flows down steep slopes required complex engineered structures. Many different methods have been applied in Jackson including riprap, pipe, and gabions.

Coaker tells about a site along Portis Avenue, "The drainage system failed in the storm. It was a system of PVC pipe that was crushed from the earth slides

caused by the storm. A large gully was threatening houses plus a dead-end street. To correct the problem, we replaced the PVC pipe system that drains literally a third of the town. We used a concrete pipe and a man-hole drop system that funnels the water into a stable riprap outlet. This new system of concrete pipe is a more durable material, which, when properly designed and installed, will withstand the harsh conditions of the gully environment for years to come.”

“The working conditions were difficult at best,” said Coaker. “The area is extremely limited and there must be some method to protect work as it is established.”

Sediment barriers consisting of silt fence and temporary mulch were installed to prevent damage to the work in process. Silt fences were used as temporary perimeter controls around the construction sites where the soil was disturbed to control sediment and erosion. The silt fence fabric was entrenched in the ground between the support posts to prevent sediment leaving the site in storm water runoff. A temporary diversion, consisting



**To carry the water to a stable outlet, a series of stepdown drains were installed on several sites.**

of an earth structure similar to a terrace, was installed to redirect stormwater flows away from the disturbed areas. Upon completion of the project, this temporary structure was removed and flows entered the new pipe system. During construc-

tion, straw mulch was evenly distributed on all disturbed areas to keep sediment from leaving the site and entering adjacent waterways.

Once temporary erosion control measures were in place and the diversion

## EROSION & SEDIMENT CONTROL

was installed, construction on the repair sites began. Using tracked excavators, the main drain was established from the outlet working back upstream. Elevation control was critical and the man holes were installed with each line of pipe using the track hoe. The downstream toe of the embankment was backfilled as work progressed toward the inlet. Following installation of the man holes and riprap, seeding was applied directly to exposed soil by hand seeders with species adapted to south Alabama.

**High water absorption in the blanket provides a long-lasting source of moisture to promote vegetation growth.**

Primary vegetation established was common bermudagrass and Pensacola bahiagrass. Then, erosion control blankets were unrolled on all exposed slopes and stapled into place following the

manufacturer's recommendations. Erosion control blankets restrict soil and wind erosion while accelerating germination. Once applied, erosion control blankets prevent seed and soil disturbance from light to heavy runoff velocities. High water absorption in the blanket provides a long-lasting source of moisture to promote vegetation growth.

At another site, the road was jeopardized. Coaker says, "The road at this site was the only access to the neighborhood. The gully came right to the edge of the road in two places. The corrective method chosen was a system of pipe drops—pipe inlets to pick up water off the street, and then a second drop outlet to stabilize it into a riprap basin."

"Each construction site took about six weeks to complete—from clearing the site area to planting vegetation. Riprap was used everywhere practical. In our area, it is the most economical method for erosion control and gully stabilization. Occasionally, we encounter situations where rock simply will not work," said Coaker. "In those situations, NRCS engineers and technicians work with the

city's engineer to determine the most cost-efficient method that will remove the hazard. In some situations we faced in Jackson, we had to install a pipe drop structure to get the water to a stable outlet. Getting the water to a stable outlet prevents erosion by moving the water safely down the slope in a mechanical structure. Using pipe, rock, or concrete in the proper situation allows the velocity and concentration of water to be controlled and prevents erosion of the in place material."

Being cost effective yet removing the hazard is the goal of NRCS in assisting municipalities through the EWP process. Successful gully control requires installing the proper water disposal method based on site conditions.

Mayor Long says, "Everything in the town runs to the river. Over the past few years, NRCS has done an excellent job in helping us repair many of these gullies. With a population of 5,419, Jackson can't make these kinds of repairs by ourselves. If NRCS did not provide the cost-share assistance, and the City of Jackson provide the matching funds, we would still

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have multiple gullies in the town. The EWP program has been a God-send. To be able to repair three and four gullies all in one year has made a tremendous difference. We just couldn't make that kind of progress on our own."

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The EWP projects in Jackson have truly been a team effort. The city officials have learned the system Alabama NRCS has in place. NRCS local employees and contracting officials at the NRCS Alabama state office have worked out a system to provide timely delivery of the program. "This program is a classic win-win," said Drew Wright. "We are able to stop massive erosion, protect public and private property, remove safety hazards to the public, and do it in an efficient, cost-effective manner. I believe it is one of the best programs we have in NRCS to assist municipalities suffering infrastructure damage following storm events."

The total cost of projects completed in the City of Jackson since Hurricane Katrina was \$1,869,677. NRCS paid 75 percent of the cost of the repair; the City of Jackson picked up the remaining 25 percent. **L&W**

*For more information contact Julie A. Best, USDA-NRCS, (334)887-4549, e-mail: [Julie.Best@al.usda.gov](mailto:Julie.Best@al.usda.gov).*