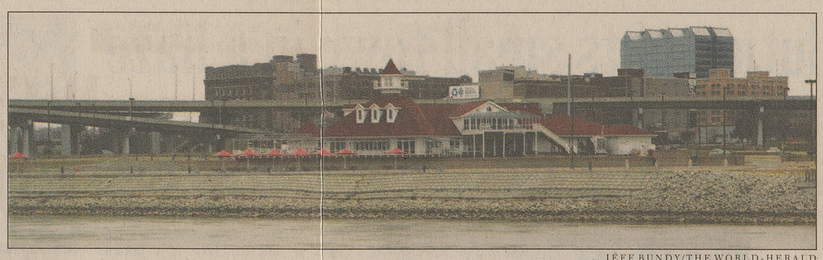
Post-Katrina safety standards might call for costly upgrades in riverside towns.



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The levee, left, that protects downtown Omaha from the Missouri River runs in front of Rick's Cafe Boatyard. Below, Howard Slama of Valley takes a spin on the paved top of the levee that shields Waterloo from the waters of the Elkhorn River.

Towns in fiscal fix over levee rules

By Matthew Hansen
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KENT SIEVERS/THE WORLD-HERALD

HOOPER, Neb. — A financial fallout caused in part by Hurricane Katrina is soaking tiny Hooper — and might also wind up drenching other riverside cities, including Omaha.

The Hooper City Council learned this spring that the mile-long dirt levee protecting the north side of town from the Elkhorn River isn't high enough to meet tougher new federal standards implemented after Katrina ravaged New Orleans and other parts of the Gulf Coast in August 2005.

The town of 827 residents must contract with an engineering company, pay for a complex set of structural tests, add as much as a foot of dirt to the top of the levee and make other changes.

The total cost: as much as $1 million.

"We all sat around and looked at each other and thought 'How are we going to pay for this?'" City Clerk Roxanne Meyer said of the council's reaction.

The potential cost has left city officials dumbfounded, because the levee is a simple, pyramid-shape earthen embankment that snakes around the golf course and grade school, protecting homes and businesses for decades.

The levee hasn't changed. It's the Federal Emergency Management Agency that is different.

Stung by criticism and threatened with Katrina-related lawsuits, FEMA is preparing to examine nearly two-dozen levees in Nebraska and hundreds of federal levees across the United States. The agency plans to decertify levees that aren't tall enough or strong enough to meet U.S. Army Corps of Engineers standards for a once-in-a-century flood.

That process is putting towns like Hooper in a financial quandary.

Upgrading their levees to meet the new standards can come with an eye-popping cost. Simply adding 6 inches of dirt to Hooper's levee could cost as much as $500,000, Meyer said.

Or, towns can leave their levees alone and risk seeing the federal government erase the non-repaired levees from flood maps.

Changing the flood map matters, because it could force businesses and homeowners behind the uncertified levees to buy costly flood insurance and halt development in areas newly deemed to be in a flood plain.

Either way, the federal government isn't planning to pick up the check — a fiscal reality that could swamp the budgets of small towns and big cities alike in the years ahead.

Omaha may get a financial bath as soon as this summer. A preliminary Corps of Engineers test shows that the city's flood wall, which protects downtown from the Missouri River, needs more testing and could require repairs to meet the new standards, said Randall Behm, chief of flood-risk management at the Corps' Omaha office.

Five levees in the Omaha metro area, including the flood wall, could need repair in the next two years. The City of Bellevue owns two of those levees.

Western Iowa has about two dozen levees that also must be tested by 2010, Behm said.

"I know it's going to be difficult for some communities, and I personally think (the government) should help them out no matter what size they are," Behm said. "But the truth is that, in the future, if you live in a high-risk zone, you are going to have to pay to live there."

Hooper and Waterloo are among the first U.S. towns to face this new reality of life along a flood-prone river.

The Corps of Engineers built the levees in both towns, and for years the structures passed their annual visual inspections without problems.

Then, on Aug. 29, 2005, Hurricane Katrina's 125-mph winds and torrential rainfall hit New Orleans. Two major levees that were supposed to protect New Orleans — levees that federal engineers had judged to be unsafe as early as 1985 — crumbled and failed. More than 1,000 people died, many drowning in the floodwaters.

In the aftermath of Katrina, politicians and engineers increasingly questioned the safety of the nation's other levees, some of which date back to the Great Depression.

The result: a new national accreditation system designed to ensure that the levees will conform to standards that ensure they will hold in a worst-case scenario storm or flood.

Federal officials knew decades ago that the country needed updated flood maps and repaired levees, said Julie Grauer of FEMA's regional office in Kansas City, Mo. Congress actually earmarked the initial money for the flood map upgrades before Hurricane Katrina, Grauer said.

But the storm helped to force the issue, Grauer said, and may guarantee continued congressional funding for the certification project.

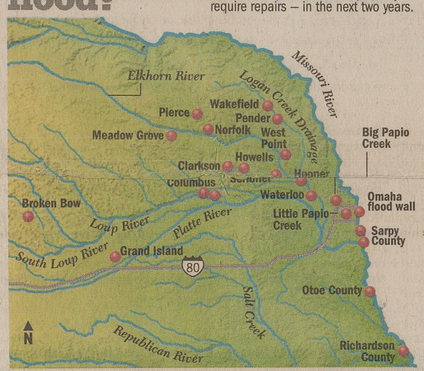
She said the remapping would have happened eventually across the country, with or without Katrina — though perhaps not as quickly and maybe without as much cooperation from towns protected by levees.

"One thing is for sure. When you have a disaster, it gets people's attention," said Grauer, a map modernization specialist.

The certification process applies only to levees already recognized by the federal government, and those generally are owned by cities. It doesn't apply to levees built by farmers or private landowners.

Financial flood?

Of the 37 federally regulated levees in the state, the U.S. Army Corps of Engineers expects these 22 to go through a certification process — and possibly require repairs — in the next two years.



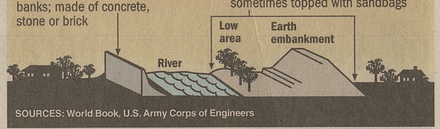
SOURCE: U.S. Army Corps of Engineers DEAN WEINLAUB/THE WORLD-HERALD

Methods of flood control

The two most common ways to try to contain flooding rivers:

Flood wall Barrier built along riverbanks; made of concrete, stone or brick

Levee Wide embankment built along riverbanks; made from clay, sand or soil; sometimes topped with sandbags



SOURCES: World Book, U.S. Army Corps of Engineers

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Questions raised about levees

Hooper

Problem: Levee needs to be 6 inches to a foot higher to meet new federal standards, according to preliminary tests.

Cost of repair: $500,000 to $1 million, according to city officials

Waterloo

Problem: Levee needs to be higher, according to preliminary research. To do that, the city may have to tear out a hiking and biking trail built atop the levee.

Cost of repair: Unknown, although city officials estimated that in the worst case, it could run into the millions.

Omaha

Problem: Flood wall protecting downtown Omaha needs more testing and could need repair to meet the new federal standards.

Cost of repair: Unknown. The flood wall needs more testing before it's clear what or how much repair work is needed. The Omaha metropolitan area is also protected by five levees that may need upgrades. The flood wall is the only one that has been preliminarily tested.

Waterloo meeting

The Waterloo Village Board will meet at 5 p.m. Wednesday to discuss the village's levee. The public meeting will be at Village Hall, 509 S. Front St.

To remain accredited, the levees now must pass a height check. Some were never built to the height deemed necessary to withstand a so-called 100-year flood — a severe flood that has a 1-in-100 chance of happening during any given year.

Other levees met or exceeded the 100-year standard when they were built, but they no longer meet it because some river and creek levels have risen over the years.

Levees also must undergo a series of tests to show that things such as sewer lines poked through a levee or the decaying roots of a dying tree growing on a levee won't cause it to fail in a flood.

The goal is to ensure that the physical and financial ruin caused by a catastrophic failure such as that in New Orleans doesn't happen again, said Behm of the Army Corps.

"The cities are looking at this as a financial issue first, but my perspective, this is a safety issue first," he said.

In some Nebraska towns, the process is more of a bureaucratic headache than a financial burden. Scribner Mayor Steve Swanson said he was working with Sen. Ben Nelson's office to get the proper paperwork from the Corps of Engineers to FEMA to prove that Scribner's levee was up to snuff.

In other towns, such as Waterloo, it could cost "a phenomenal amount," said Nancy Hert, the city administrator.

Waterloo's 40-year-old levee, which sits 25 yards from some parts of the Elkhorn River, likely will need to be built higher to meet the new standards, Hert said.

City officials weren't yet sure how much higher. And the project may be complicated further because of the biking and hiking trail that Waterloo paved on top of the levee.

If the city doesn't pay to meet the new levee standards, much of Waterloo could be redrawn into a flood plain, Hert said.

An engineering firm has estimated that "worst-case scenario, it could be 2 or 3 million dollars," Hert said. "It's kind of frightening to see those sorts of numbers on paper."

An Iowa levee eventually may put Mills County in a similar predicament, Behm said, although the levee certification process isn't as far along in western Iowa as it is in Waterloo and Hooper.

Behm also mentioned levees in Hamburg, Iowa, and Sioux Falls, S.D., as potentially problematic for those communities.

Waterloo plans to ask Nebraska's congressional delegation and the State Department of Natural Resources for help, Hert said. City leaders also hold out hope that some federal grant money may be made available.

"There should definitely be a compromise here. Problem is, I don't know that the government wants to compromise right now," Hert said.

Other Nebraska cities, such as Omaha, have barely begun to deal with the certification process.

The Army Corps' initial test of the floodwall is the only work that has been done in the metropolitan area thus far, Behm said. That test showed that if the city's storm water system failed, the flood wall itself could fail, he said.

The Army Corps will examine each of the metropolitan area's other levees — one on Big Papillion Creek, one on Little Papillion Creek and the three on the Missouri River — in the next two years, Behm said.

Marty Grate, the city's environmental services manager, said it was too soon to say whether Omaha will need to upgrade levees — or to estimate how much that might cost.

John Winkler, general manager for the Papio-Missouri River Natural Resources District, said he and staff members who have spoken with federal officials expect that at least a few Omaha-area levees will need repairs.

No one was certain whether the City of Omaha, suburban communities or the Papio NRD would have to pay for such upgrades.

"It's not a stretch to say there's going to be some deficiencies. The more deficiencies, the higher the cost," Winkler said. "And the ultimate question is: Who is going to bear that burden?"

Levees: Most not engineered for flood protection – most not engineered at all

Continued from Page 1

their owners or, in the case of the Willow River, a drainage district.

State and federal officials don't know how many of these levees exist, much less where they all are or their condition, said Bill Cappuccio, an engineer in the Iowa Department of Natural Resources' flood plain management program.

Within two years, Behm expects the federal government to begin an effort to map and assess all levees — including the one on Willow Creek.

In the meantime, he's working with officials from Crawford, Harrison and Monona Counties, as well as some state and federal agencies, to develop a plan for dealing with the Willow River and Boyer River levees.

The group plans a watershed study that would help find flood control measures upstream to protect areas such as Missouri Valley that are at risk for downstream flooding, said Weston Dittmer, soil conservationist with the Natural Resources Conservation Service of Iowa.

The project is in its early phases, but participants hope memories of last year's flood will help move it forward.

"We want to get the ball rolling before any interest is lost," Dittmer said.

Levees along the Boyer and Willow Rivers fall under the Harrison and Pottawattamie Drainage District. That district is managed by three area farmers — an elected board of trustees — who use a portion of area property taxes to maintain the levees.

When the levee broke last May, water was running so quickly down from the Loess Hills, it literally was tearing the bottom out of its own streambed. Surrounding fields were littered with more than two feet of sand — evidence of the water's violent downstream surge.

After the break, Jim Olson, who maintains the levee, and his crew immediately began repairing a dump truck-size hole in the side of the dike.

Once that was done, they started an ongoing project of widening and strengthening the levee by using available deposits of silt and soil from inside the stream to reinforce the levee's back side.

Though the levee looks fine now, that doesn't mean the people of Missouri Valley are safe, Behm said.

"I don't want people thinking that they have a couple piles of dirt that run along a channel and they're safe when they're really not," Behm said.

The problems with the Willow River levees are problems of design. The situation is not the fault of Olson or the drainage district trustees, Behm said.

"They do a fantastic job of what they do with the very limited resources they have," Behm said. But their diligent maintenance won't turn a spoil bank levee into one designed to protect against major flooding.