Village of Thiensville Channelization Project

Photo of June 13, 2008 flood event in downtown area of Village of Thiensville.

Ozaukee County, WI – For nearly 50 years the downtown area in the Village of Thiensville had been plagued with constant flooding that repeatedly affected ten residential and thirty commercial properties because Pigeon Creek would overtop its banks during heavy rainfall. Having experienced six major flood events since 1973, four of which resulted in a federal disaster declaration, the village decided to do something about the creek. They came up with a project that not only remedied some of their woes but also received an award for ***Excellence in Project Design or Implementation*** from the Wisconsin Association for Floodplain, Stormwater and Coastal Managers.

"We had a storm in1985 and previous to that there were several storms in the early seventies and eighties that flooded downtown Thiensville," said Mike Campbell, project engineer. "As the consulting engineer, I identified major restrictions that had been placed in the creek, a lot of man-made obstacles."

Noteworthy obstacles included: (1) floodplain had been filled in (downtown area); (2) placement of two undersized, lengthy culverts; and, (3) construction of a dam upstream in the neighboring city of Mequon (which was also an obstruction to fish passage).

"When it rained, even with a 10-year storm event, Pigeon Creek would overtop its banks and downtown would flood causing damage to a number of buildings as well," said Campbell.

Applied for in 2003 and awarded in 2006, the City of Thiensville received a Pre-Disaster Mitigation grant totaling $2,308,620. The Federal Emergency Management Agency (FEMA) provided 75 percent ($1,731,460). The project was administered by Wisconsin Emergency Management. The Village Board amended the Tax Incremental Financing District to assist with the remaining funds needed to defray project cost.

Photo of clear span bridge that replaced culverts

The flood mitigation project was executed in three phases.

Phase – One: Easements were obtained to detain storm water at targeted intersections. A plate was installed on the upper half of an outlet culvert which controls the culvert's outflow during high water events.

Phase – Two: Two restricting undersized culverts, which allowed roadway passage from a parking lot to a commercial building, were removed and replaced by a 50-foot clear span bridge.

Phase – Three: High flow channel of the creek was widened from its pre-existing footage of five to ten feet, in some areas, to 60 ft. to increase the capacity of the creek. A meandering 25 ft. wide rock lined low flow channel was created for fish passage. Invasive trees were removed and replaced with native species. Wetland and prairie plants were added along the creek's bank to prevent erosion.

The project was costly and the task tedious; however, stakeholders plowed ahead with the mitigation project. While grant funding played a primary role other things came into play. Patience, perseverance and "political will" fostered completion of the project.

"We had a tough time coordinating with utility companies because the project was 'on again, off again resulting from a lack of a full commitment to move forward," said Campbell. "We had to fast track the construction contracts to. They were bumping into each other because of it."

"A motivating factor included the fact that we had an original board (no new members to question whether it was a good project), who knew about all the years of flooding and who probably thought 'If we don't do it now, folks are going to be sitting here a 100 years from now dealing with the same thing'. They didn't want to pass the problem on to another board," said Karl Hertz, Village President.

According to Andrew LaFone, Director of Public Works, the village has had three flood events in 2010 that would have normally caused road closures and property damage in the downtown area. That did not occur due partly to the project.

View of a portion of Pigeon Creek's rock lined low flow channel and newly constructed retaining wall.

"Water flows from two directions into Pigeon Creek, northeast and northwest and it all dumps in about a block and a half before Pigeon Creek gets to the Milwaukee River," said Hertz. "This project took care of the northwest water. We have executed two or three projects over the years to handle the northeast flow, including securing funding for the construction of detention ponds. One of which is located in the city of Mequon." Thiensville had previously received a FEMA grant through the Hazard Mitigation Grant Program to construct one of the detention ponds

Hertz credits the village administrator, Dianne Robertson, for her resourcefulness in securing grants for project funding.

Heralded as a great mitigation measure, the project fostered other positive aspects including partnerships with: (1) an association, in neighboring city, Mequon, for upper storage, (2) private property owners who provided easements for the project and (3) the coordination of other agencies such as the Department of Natural Resources. It also had a positive effect for fish habitat.

“Would we do it again? Yes we would. We had an end goal in mind and we followed procedure,” said Campbell. “I’m glad it’s done. It had a lot of road blocks, but the project is functional and it’s also beautiful. It gave Pigeon Creek a totally new look,” added Robertson.