

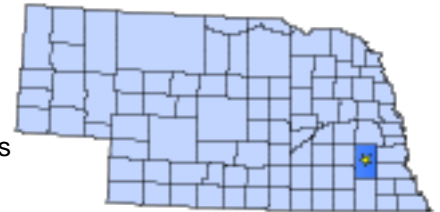


## Mitigation of Essential Structures Helps to Keep Water Treatment Plant Open

### Full Mitigation Best Practice Story

#### *Lancaster County, Nebraska*

**Lincoln, NE** - In January 2000, the Nebraska Emergency Management Agency (NEMA) approved Hazard Mitigation Grant Program (HMGP) funds for the City of Lincoln’s Waste Water Treatment Plant (WWTP), Theresa Street location. The WWTP had requested funds to provide flood protection around an electrical substation and transformers that would be in danger of failing during a potential flood event.



The electrical substation was originally enclosed by a chain-link fence that was open to potential floodwaters from Salt Creek. The HMGP grant helped to pay for the construction of a six foot brick and reinforced concrete wall to enclose the electrical substation. The entrance was engineered for stop logs (removable flood shields) to be inserted during the time of a flood warning, completing the barrier and protecting the substation from floodwaters. The gates are tested on an annual basis to ensure proper fit.

On the west side of the WWTP an electrical transformer was mitigated by raising it three feet over the 100-year flood elevation. The transformer was set up on top of a brick and cement foundation structure effectively raising and protecting it.

The plant’s sludge-processing tanks’ below-grade stairwells were susceptible to flooding. The stairwell was mitigated by being partially elevated with concrete and enclosed with approximately 12 inches of stainless steel. The stairwell entrance has also been designed using a similar technique used on the electrical substation, incorporating stop logs to prevent floodwaters from filling the stairwells.

The project had a total cost of approximately \$298,000.00 of which \$178,000.00 was awarded through the HMGP grant. The benefits of the project greatly outweigh the initial cost. These protective measures help to protect vital components of the WWTP from the Salt Creek that runs along the side of the plant.

#### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region VII**

State: **Nebraska**

County: **Lancaster County**

City/Community: **Lincoln**

### Key Activity/Project Information

Sector: **Public/Private Partnership**  
Hazard Type: **Flooding**  
Activity/Project Type: **Flood-proofing; Elevation, Structural; Elevation, Utilities**  
Structure Type: **Concrete, Reinforced; Masonry, Reinforced**  
Activity/Project Start Date: **01/2000**  
Activity/Project End Date: **01/2002**  
Funding Source: **Hazard Mitigation Grant Program (HMGP)**  
Funding Recipient: **Lifelines - Water/Sewer**  
Funding Recipient Name: **City of Lincoln Wast Water Treatment Plant**  
Application/Project Number: **unknown**

### Activity/Project Economic Analysis

Cost: **\$298,000.00 (Estimated)**  
Non FEMA Cost: **20000**

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **No**  
Value Tested By Disaster? **Unknown**  
Repetitive Loss Property? **Unknown**

### Reference URLs

No URLs were submitted

### Main Points

No Main Points were entered.



Flood protection wall and stop-log brackets built to protect the main electrical substation



West transformer mitigated by raising the structure three feet



Stairway and lower entrance to anaerobic digester mitigated with cement pad and steel casing