

Summary
Floodplain Development Feasibility Study For the Urbandale Area of Lansing Charter Township (1998)
October 23, 1998
Developed By W.A. Wilson Consulting Services Williamston, Michigan &
Resource Engineering Consulting services Dimondale, Michigan

Introduction

Floods and flood damage are a serious and persistent problem throughout the state and nation, causing more property damage than any other type of natural disaster. The Urbandale area of Lansing Charter Township is one of the areas that has experienced very serious and consistent flooding throughout its history. So much so, that many of the structures in Urbandale have been damaged and are in need of maintenance and repairs. Recognizing this, Lansing Charter Township has contracted with Wallace A. Wilson of W.A. Wilson Consulting Services and James S. Boulton of Resource Engineering/Consulting Services to prepare a Floodplain Development Feasibility Study for the Urbandale area.

The enclosed study reviews and analyzes:

- Past floods and estimated floods for regulatory purposes
- Interior drainage changes and their impacts on flooding
- The relationship between projected gage reading at the U.S.G.S. gage in East Lansing and flood depths at Kalamazoo Street and Michigan Avenue,
- Local, state and federal floodplain policies
- Local ordinances
- Emergency response plans
- Development or redevelopment with and without flood protection works
- Funding options

The study also recommends actions to be taken to begin to address the problems associated with the Urbandale area.

Prediction of Flood Depths

A review of topographic information from a 2 foot contour map prepared by Abrams Aerial Survey Corporation for the City of Lansing, indicates flood waters will first start entering the Urbandale area of Lansing Charter Township at about elevation 828.5. This elevation is somewhat less than the projected 10-year flood elevation of 829.5 as shown in the Lansing Township Flood Insurance Study. When relating these elevations to the U.S.G.S. Gage on the Red Cedar River at the From Lansing Bridge in East Lansing, the 828.5 elevation at Kalamazoo Street would be caused by an elevation of 833.5 at the gage or a gage height of 9.1 feet. By setting up a relationship between the predicted U.S. Weather Service gage heights at the gage in East Lansing and the resulting flood elevations at Kalamazoo Street and Michigan Avenue underpasses of U.S.-127, the projected depth of water at the two underpasses can be estimated from the predicted gage height. For instance, if the U.S. Weather Services predicts a gage height on the Red Cedar River at East Lansing to be 12.5 feet at 12:00 noon, the depth of floodwater at Kalamazoo and Michigan Avenues will be 6.2 feet and 3.2 feet respectively.

Recommended Actions

This section lays out the recommended actions the leadership of Lansing Charter Township should consider taking in beginning to address the problems associated with the Urbandale Area. These actions will take perseverance, foresight, and most likely the assistance of various offices and various levels of governmental agencies. Partnerships with these offices and with private industry and a multi-objective approach to solving these problems will have the greatest likelihood of success.

- The Township should, as a first priority, seek an alliance with a commercial developer(s) that would have the interest and financial resources to initiate and carry out a redevelopment of the Urbandale Area. The focus for potential building sites should be placed on areas that are least

prone to flooding, i.e., the highest in elevation. These areas would typically lie in the northernmost sections of the study area with a one or two square block portion in the center that is subject to lower levels of flooding. The remainder of the area, that with a flood hazard of more than three or four feet, should be vacated and returned to open space. It should be utilized for parks, recreational areas, wetlands and nature interpretive areas. These areas should be linked to the system of riverwalk trails that exist or are planned from the Michigan State University campus past Potters Park.

It is important to remember that funds for the displacement of renters will need to be allocated as any redevelopment project takes place. If private funds are used for property acquisition, a percentage will need to be set aside to assist renters in finding new housing under the provisions of the Uniform Relocation Assistance Act administered by the Department of Housing and Urban Development. If federal grants are utilized in this process, a set percentage of the grant is set aside for relocation assistance.

- Financial resources should be supplemented through all available means. Lansing Charter Township should consider hiring an individual skilled in grant writing and financial resource procurement. If funds are limited for a full-time position, a limited term or part-time position may work well, at least in the initial stages of the process. Unless the interest of a large-scale developer is readily gained, the redevelopment of the study area will necessarily be slow to mature. It should not be allowed to reach a standstill however. There are too many tools available to let that happen.
- Only low-level flood depths of from zero to three feet entering the study area should attempt to be controlled to protect the redeveloped area. All new building sites should be either elevated on fill borrowed from the lower areas or on piers, post or pilings. If open post or piling construction is utilized, the area below the habitable floor area could be reserved for parking or incidental storage. Requirements of the National Flood Insurance Program and the building code for enclosed spaces would have to be followed closely. Compensating for the loss of floodplain storage with equal or greater excavations volumes is not required in this area. Permits would be required from the Michigan Department of Environmental Quality under the provisions of Part 31, Water Resource Protection. Since there is no floodway within the study area, the permit review would not require a complex hydraulic study. If there are existing, regulated wetlands or if wetlands mitigation banking is an option, permits or approvals would also be required from the MDEQ under the provisions of part 303, Wetlands Protection.
- Until redevelopment occurs, the protection of existing homes and businesses should be done to the extent possible. For instance, an emergency levee could be placed at Kalamazoo Street that could hold back floodwaters up to 6 feet in depth. A corresponding levee at Michigan Avenue would need to hold back three feet of water. The protection available would be 2.5 feet about the 1975 flood depth and 2.1 feet below the 100-year flood depth. The Township's Emergency Response Plan should detail where all required materials and personnel are located and develop an emergency time table for all emergency action measures, including evacuation. These actions should be coordinated with the County Emergency Services Coordinator. U.S. Weather Services predictions and a close watch on stream gages should be utilized in the decision making process
- Potential development types compatible with the area would typically be associated with the following, to name a few:
 - Retail Stores
 - Light Industry
 - Office Buildings
 - Condominiums
 - Hotels
- The Township should ensure that those persons on its staff responsible for floodplain management duties, building inspection, and heading or working on emergency response teams are well trained.

Various training courses exist at the state and federal level from no-cost to very low-cost that will enhance the staff capabilities immeasurably.

- The Township should obtain better topographic mapping of the entire Township. This mapping should be of sufficient scale so as to be readily useable and have contour intervals no greater than one or two feet. Mapping of the Urbandale Area is currently available from Abrams Aerial Surveys, completed for the City of Lansing in April 1978.
- Currently, there are 166 residential structures (SEV=\$1,823,800), 81 non-residential (SEV=\$4,229,800) and 49 non-taxed structures in the study area. If the above approaches to redevelopment are unattainable, the Township should follow a systematic approach to removal, relocation or elevation of existing residential structures. As a first step, the Township should initiate having completed a flood mitigation plan that follows and encompasses the nine requirements of the Emergency Management Division of the Department of State Police utilized in their administration of the Flood Mitigation Assistance Program discussed earlier in this study. Once an accepted plan is in place, federal funds can be requested (on a 75% federal to 25% local match ratio) to begin addressing the flooding problems identified in the plan. Through this approach in conjunction with strong enforcement of existing laws and codes, the problems associated with the flooding of Urbandale can be addressed in the long term.