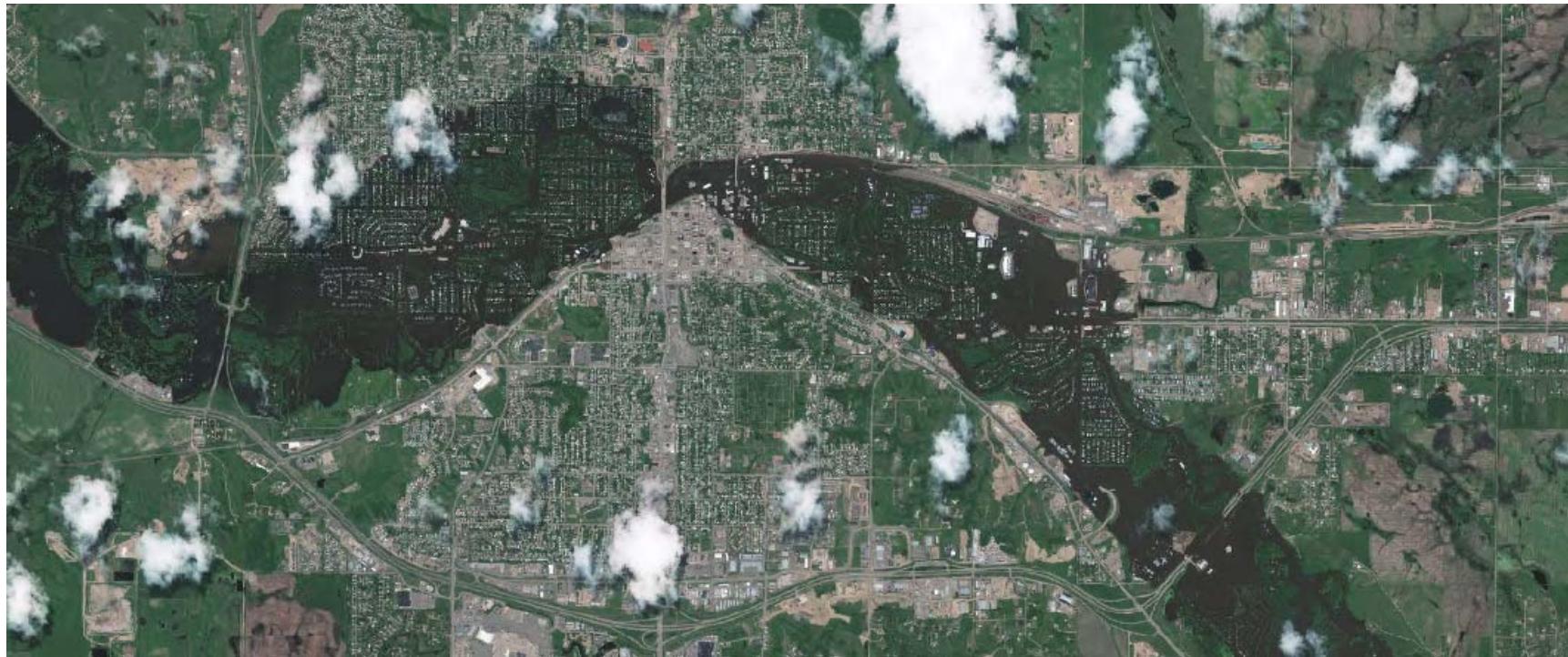




CHAPTER 3

Flood Chronology





Aerial view of Minot flooding, June 25, 2011 (Minot Geneva Satellite photo)

Flood Chronology

Overview

The City of Minot was inundated with flood waters on June 22, 2011 as a result of, according to the U.S. Army Corps of Engineering, high soil content, above average snow pack, and persistent moderate spring rainfall and larger summer rainfall combined to produce multiple flood peaks and record flooding throughout the Souris River Basin.

Concern about flooding started in January 2011 when it was announced that the Saskatchewan Watershed Authority had to do first ever winter releases from the Rafferty Reservoir. Rivers and creeks which were normally dry in the fall were flowing well above. By early April 2011 the Mouse River in the Minot started to rise and continued to rise throughout May. On May 23, 2011, emergency levee operations began and on May 31, 2011, the City ordered the first of two mandatory evacuations of residents in the valley. The river crested approximately one foot below expectations and residents were allowed to return.

Unfortunately, things did not improve and work began on a secondary dike system to protect vital infrastructure in Minot as the

Saskatchewan Watershed Authority announced "reservoirs have no capacity to store further inflows." With additional releases water began to overtop levees in the Souris River Basin and in Minot. On June 22, 2011, a mandatory evacuation order was called in Minot and 11,000 residents were displaced from their homes within the valley.

The river crested on June 26, 2011, at 1,561.72 feet above sea level which is the highest recorded in Minot's history. The next most significant flood was in 1969 which crested at 1,555.4 feet above sea level.

Flood waters in the Souris River Basin were expansive beyond city limits. According to the flood summary included in the Souris

Basin Regional Recovery Strategy, prepared by the Federal Emergency Management Administration (FEMA,) approximately 11,456 acres of land in Ward County were inundated with anywhere between two and fifteen feet of



water, impacting more than 4,800 structures in the County of those 4,100 in Minot.

The most impacted area included a four mile swath of the Mouse River Valley that includes downtown and the oldest, most heavily developed portion of the Minot containing the majority of the City's affordable of the housing stock.

Specific timeline facts are available on the 2011 flood events as prepared by the Minot Daily News.

Residential

Damage to the city's housing stock included 4,100 homes flooded with 3,100 lost or extensively damaged displacing over 11,000 residents. Estimated damages to residential structures alone is more than \$480 million, with losses to commercial, public and farm structures estimated at over \$210 million.

This flood event occurred on the heels of vast development pressure in Minot due to the development of the nearby Bakken oil shale field which has resulted in unprecedented growth and a population boom to Minot and much of eastern North Dakota. The flood made an acute housing shortage into a crisis. According to City Assessor's office statistics, the flood damaged at least 2,360 rental housing units (800 single family, duplex, and triplex retail homes, 60 apartment buildings with at least four units per building and 1,500 stick-built real units) not including mobile homes. Other housing facts:

- FEMA brought in over 1,550 temporary housing units to address some of the housing need- the third largest housing mission in FEMA's history.

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- The flood exacerbated an already limited supply of rental housing due to demand for rental by oil field development. Current wait list (summer 2013) for Section 8 housing assistance was over 350 families with another 325 households waiting for public housing.
- Majority of flood housing units were not in the FEMA designated 100-year floodplain, therefore many homeowners elected not to carry FEMA flood insurance. Only ten percent of the properties damaged were insured. FEMA funding \$84 million for rental assistance and home repair. SBA approved \$185 million in low-interest loans for home repair or replacement.
- Critical factor to the un-met housing need is expansion of water and sewer services to growth areas.
- April 2012 U.S. Department of Housing and Urban Development allocated \$67,575,964 in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to the City to assist recovery in the most impacted and distressed areas.

Businesses

- Minot is an important service center for the region; meeting the health care, service and shopping needs of an area extending into eastern Montana and Canada. Businesses located along the Mouse River were most impacted by the flood. Businesses were impacted by property loss, inventory loss, building damage and interruption of daily operations. Based on a survey prepared by the Minot Area Chamber of

Commerce (MACC); Minot Convention and Visitors Bureau (MCVB) and Minot Area Development Corporation (MADC) and distributed to 867 businesses in Minot, 164 reported as being severely impacted resulting in 550 employment opportunities.

- Downtown Minot suffered extensive damages to buildings but also below ground infrastructure. Downtown revitalization is an essential element for growth and sustained development. The city must revitalize its damage downtown to create renewed areas for housing, economic development and community gathering. The downtown portion of this plan sets to create a comprehensive downtown revitalization strategy for land uses, streetscape, parks and gathering areas with specific implementation steps to renew this important heart of Minot.

Downtown Minot during 2011 flooding



- Extensive damage occurred throughout the floodway corridor to public facilities include parks and infrastructure including:

Schools – Six Minot public schools were severely damaged including two schools, Erik Ramstad Middle School and Lincoln Elementary, which were deemed a complete loss. The School District experienced over \$75 million in loss and more than 1,200 students and 162 staff were affected.



Ramstad Middle School, above, and Perkett Elementary School, below, during the flood



Parks – Extensive park damage including: 51 park buildings, 29 zoo buildings, Oak Park splash pad, 9 playgrounds, 5 baseball fields and Roosevelt pool and bathhouse a complete loss. There was more than \$11.5 million in damages across the park system. One of the hardest hit areas was Roosevelt Park and Zoo with the Zoo need complete evacuation. Major grants including funds from the City is helping the Park District restore these facilities. Oak Park won “America is Your Park” online campaign by Coco-Cola that provided funds to restore and improve Oak Park.

Roosevelt Park and Zoo were inundated



Churches – Within the valley 12 churches were damaged.

Infrastructure
damage included: 20 + water main breaks, 12 of 27 sanitary lift stations inundated with water, all water wells inundated with flood water; 30+ sink holes, three pedestrian bridges and two highway/street bridges damaged, 51 miles of roads, sewer and water lines were damaged and 33 miles of storm sewers were damaged.



All of these public facilities and infrastructure are essential to the restoration of housing and neighborhoods.

In total the estimated total damage to personal property and contents as well as commercial and farm structures has been set at more than \$650 million by the U.S. Army Corps of Engineers. Adding to that the totals for public, institutional, infrastructure and future flood control projects, the total could reach one billion dollars.

Flood Recovery

At the moment that the Mouse River overtopped the levees, organizations and agencies from across the region, state and nation descended on Minot to provide immediate recovery assistance. Many of these efforts, programs and activities are ongoing today, three years post flood. The amount of

volunteerism shown to Minot was unprecedented and the resiliency of residents and business owners continues to shine through today. Full recovery from a disaster of this magnitude will not happen overnight or even within five or ten years. Yet there is a lot that has been accomplished and more rebuilding that the residents and specifically neighborhoods can do together. This plan focuses on *Minot River Front and Center* neighborhoods within the valley that are recovering from personal and neighborhood wide disaster and finding their voice in what they want to see as their neighborhood recovers, rebuilds and restores. The whole of Minot is greater because of these unique and historical neighborhoods that provide a special place in the heart of Minot.

