

SURVIVING & BUILDING BETTER

The New Grand Forks, North Dakota

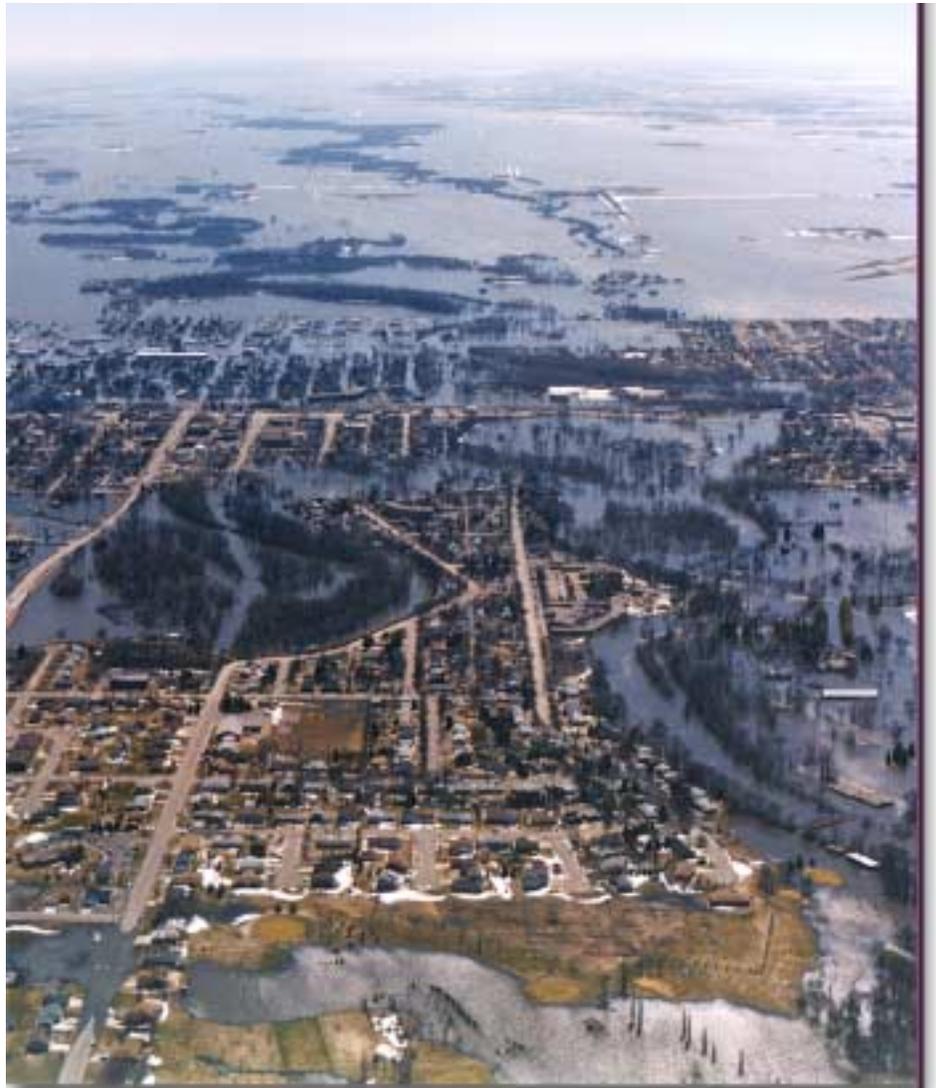
In April 1997,
the world watched as the city of Grand Forks,
North Dakota became a natural disaster
war zone.

Case Studies

GRAND FORKS, NORTH DAKOTA

Extensive efforts to keep the raging Red River of the north at bay had failed. The city's 52,000 residents were awakened in the middle of the night and told to leave. Water was rushing from one neighborhood to another. In the midst of it all, a fire broke out in the downtown business district, hopping from building to building while firefighters braved rising water trying to get the flames under control.

When the fury ended, 11 buildings downtown had burned and about 90 percent of the city had seriously flooded. City figures show that the flood affected an estimated 8,600 homes—75 percent of the total number of single-family units. More than 1,600 of the estimated 15,000 apartments were impacted. And in downtown, all of the 315 businesses were affected.



The Midwest Floods of 1997

Grand Forks, North Dakota

Stunned residents returned to the daunting task of rebuilding their lives. Some thought it was hopeless and moved away, leaving their wrecked houses behind. But it was not hopeless. Three years later, a new Grand Forks has emerged. Faith, hard work, and vision have prevailed. Lessons have been learned. And the city, once termed an “island in a prairie sea,” is poised to show the world that it is back better than ever.

“We’ve come a long way in our recovery,” said Pat Owens who, as mayor, guided the city both through the tragedy and the first three years of recovery. “A key factor was that we formed partnerships among our citizens, community leaders, businesses and city, state and federal staff. It was not only important to rebuild our city, but it was important to do it in such a way that we wouldn’t be so devastated from another disaster. When your city is on a river, the risk is always there.”

City leaders set the tone for rebuilding almost immediately after the water receded. Under enormous pressure to make exceptions to local floodplain ordinances, city officials instead held firm and enforced local regulations that required building back with special measures to reduce future losses.

“We have a federal government in place,” said Owens, “but they cannot come to our aid again and again and again if we do not take care of ourselves. We need to take control of and manage our own lives.”



Floodwaters inundated the Grand Forks Water Treatment Plant in April 1997. The city was without drinkable water for 23 days because of the damage to the facility. Photo courtesy of Advanced Engineering, Inc., Grand Forks.

Rebuilding better is about saving lives, protecting property, protecting the economic and social fabric of Grand Forks, and saving people from the heartache of disaster.

Case Studies

Grand Forks, North Dakota

The city's water treatment plant has been rebuilt with a number of special features designed to keep it operational not only through floods, but blizzards and severe storms as well. During and after the 1997 flood, the city was without drinkable water for 23 days because the plant's critical electrical and mechanical systems were inundated. Now, the plant's electrical transformers and panels have been elevated above the 1997 record-flood level. Crucial air compressors and important records have been relocated to upper floors. Hollow-core metal shields have been custom built to fit over the outside of main doors and windows to keep out water. The shields will be attached when the danger of a flood exists.

These measures, coupled with an extensive written flood emergency operations plan, will ensure that the plant can function in a future disaster, even if the buildings are totally surrounded again by water.

599 residential and 40 business properties in the floodplain were voluntarily sold to the city through a buyout program.



If the Red River tops this dike again, all that will flood is open space instead of neighborhoods.

And finally, no new building will occur at the present site on the banks of the Red River. Forty acres of land were purchased west of town for a new water treatment facility that will be built when new capacities or technological advances, beyond the current facility's capability, are required.

A new elementary school, named Phoenix Elementary, now sits above the base-flood elevation. It replaces two long-time schools that were substantially damaged by

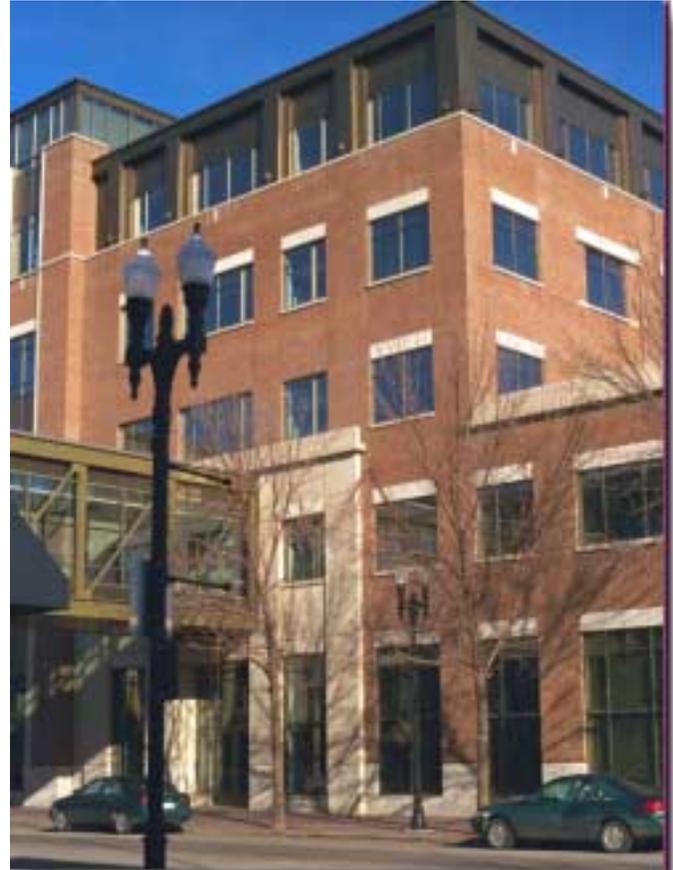
Grand Forks, North Dakota

floodwaters. The site was raised one foot before the Phoenix Elementary was built.

Businesses are taking disaster-resistance measures as well. One local businessman, who relocated his business and built an adjoining shopping center, spent \$25,000 on fill dirt alone to raise the base of the entire shopping center seven feet above the base-flood elevation.

City leaders had a portion of Grand Forks' new 450,000 square-foot events center redesigned to eliminate a potential flood problem, even though the site is miles from the river and outside of the

Funding for the buyout came from a variety of sources. About \$12.5 million in hazard mitigation grants was funded by the Federal Emergency Management Agency (FEMA) and another \$1.7 million came from the State of North Dakota. The rest of the buyouts were funded with Community Development Block Grants and city funds.



Grand Forks' new five-story corporate center features built-in flood protection measures.

floodplain. The city was in the contract document stage for the facility when the flood occurred. Now the main event space, originally intended to be recessed 14 feet into the ground, has been elevated to ground level to reduce the impact of any possible flooding. The site could be used for a disaster staging area in the future.

Case Studies

Owens says she is proud of the resilience and courage of the city's residents. Recovery from this level of devastation takes time. But so many things are better now, she says, and the extra attention paid to building back in ways that will reduce or prevent future flood damage will pay off.

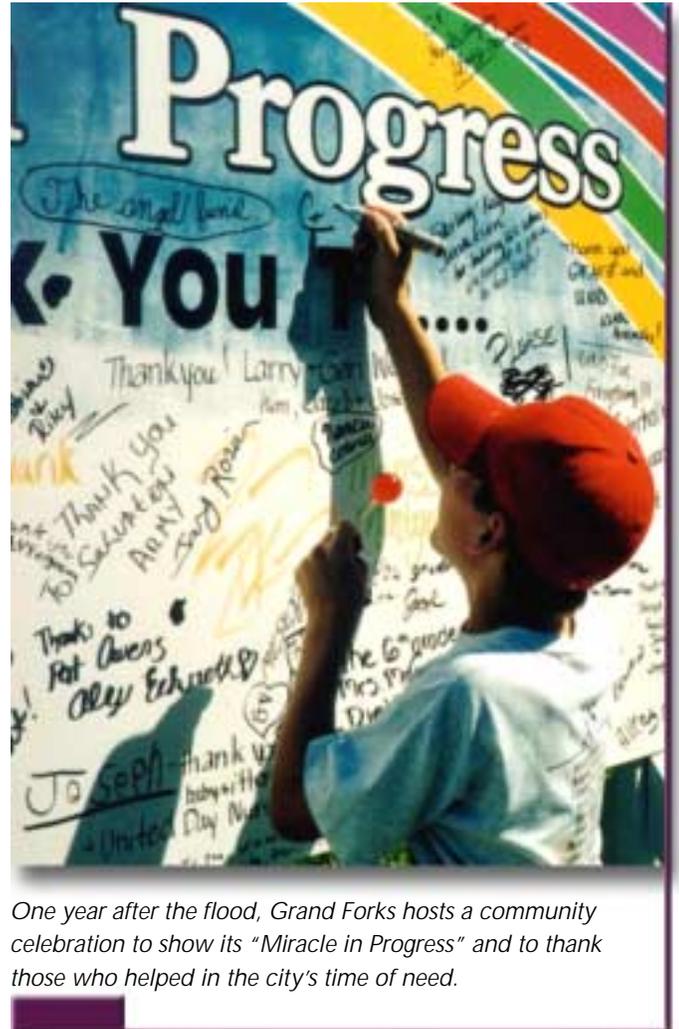
Results

Through the first three years of recovery, the new disaster-resistance philosophy has taken hold.

Most significantly, 599 residential and 40 business properties in the floodplain were voluntarily sold to the city through a buyout program.

The program removes vulnerable structures from significant flood-risk areas to prevent future damages. Of the 639 properties, about 350 residences and about a third of the businesses were adjacent to a city dike that lines the river.

Because of the buyout, home and business owners have moved out of harm's way to safer areas, the flood-ravaged buildings have been demolished, and the resulting green space will remain open and undeveloped forever.



One year after the flood, Grand Forks hosts a community celebration to show its "Miracle in Progress" and to thank those who helped in the city's time of need.

Grand Forks, North Dakota

To restore flood protection for the city, an existing dike has been repaired, an interim secondary dike has been built to the level of the 1997 flood and a larger permanent dike, expected to cost about \$350 million, is scheduled to be completed by the year 2006.

Amid the charred ruins of the business district, a new corporate center has been built as a commercial anchor, replacing most of the burned office space. The center, comprised of two multi-story buildings, has been flood-proofed and utilities have been located both on upper floors and the roof. There is no basement.

Elsewhere in downtown, several blocks of buildings - some of which are historic - have been renovated or restored, new street lights and brick sidewalks have been installed, a flood memorial park now occupies half a block where burned and flood-ravaged buildings once stood, and a new open-space town square is under construction. As of August 2000, businesses, government offices and some non-profit organizations occupied about 90 percent of the downtown area. About 75 percent of the businesses that were downtown at the time of the flood/fire have returned to the area in newly redone spaces. The remaining businesses either relocated to other parts of Grand Forks or closed.

A new five-story county office building has been built in the downtown area, replacing the old building that was severely flooded. The new building is elevated five feet and the utilities have been located on the top floor to keep them dry in the event of another flood.



New county office building, completed in January 2000, is better protected from future flooding.

“We’ve had floods before but never like we had in 1997,” Owens said. “Rebuilding with disaster-resistance measures is the best advice we’ve ever been given and I have the greatest trust that they will work. They’ve worked in other communities. We feel now that the many measures we’ve put in place will work here too and that we can manage better if there is another flood.”



A stainless-steel paddlewheel, reminiscent of the steamboats that came to the city more than a century ago, frames the entrance to the new Town Square.

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