The 1997 Grand Forks Flood: A Historical Assessment

Charles F. Sill Jr.
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THE 1997 GRAND FORKS FLOOD: A HISTORICAL ASSESSMENT

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THE 1997 GRAND FORKS FLOOD: A HISTORICAL ASSESSMENT

A Master Thesis

Submitted to the Faculty

of

American Military University

by

Charles F. Sill Jr.

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Arts

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Charles Town, WV
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DEDICATION

I dedicate this thesis to my family. First to my wife Lisa, for your unconditional love, unwavering support, and infinite patience for the precious moments my studies took from our time together. Also to my children, Elisabeth, Chase and soon to be Byron and Samantha, each of you is an inspiration to me. You are also an assurance that the future is indeed in good hands. Additionally, I devote the following to my parents who taught me to believe in myself and fostered in me a lifelong commitment to education.

Finally, I dedicate this thesis to the brave and wonderful souls of Grand Forks, North Dakota. You welcomed my family and me into your hearts and homes. I will always cherish the friends and family we made there during our three and a half year sojourn to the northern plains.
ACKNOWLEDGEMENTS

I would like to thank Dr. Dawn Spring for her astute insights, gentle guidance, and reassurance through this difficult if rewarding process. Your patient advice was priceless and made this product far better than it would have been otherwise. I would also like to thank Dr. Mark Bowles for his counsel, support, and enduring commitment to my graduate education. Your encouragement challenged me to find just the right thesis topic and you have my deepest appreciation. I would also like to thank the staff at the Elwyn B. Robinson Department of Special Collections, Chester Fritz Library at the University of North Dakota. Your indulgence and cheerful assistance were inimitable and made my research both pleasant and edifying. Finally, I would like to thank the faculty and staff of American Military University. You were a joy to work with and expanded my hobby into a calling. Each of you has my sincerest thanks.
ABSTRACT OF THE THESIS

THE 1997 GRAND FORKS FLOOD: A HISTORICAL ASSESSMENT

by

Charles F. Sill Jr.

American Public University System, July 17, 2016

Charles Town, West Virginia

Professor Dawn Spring, Thesis Professor

In 1997, the Red River of the North flooded Grand Forks, North Dakota leaving thousands homeless and nearly destroying the city. Unlike community reactions after major flooding there in 1950, public sentiment following the 1997 event vacillated between disbelief, disappointment, and even anger. Despite the millions of federal disaster dollars spent between 1950 and 1997 and the efforts of thousands of emergency management workers, many Grand Forks residents believed the federal government had failed to protect them. A historical analysis of period newspaper articles, private correspondence, disaster response, and related legislation determined that public sentiment evolved between the 1950 and 1997 floods. Moreover, prominent federal disaster legislation introduced after the midcentury flood and continuing throughout the Twentieth Century created both a moral hazard and a false sense of security within the populace. Increasingly generous federal disaster aid lulled Grand Forks residents into denial of geological and meteorological realities spurring greater development in flood plains and increasing reliance on government intervention. Federal, state and local flood
control efforts after 1950 further reinforced this paradigm. Those actions, while well
intentioned, may have only postponed greater devastation in Grand Forks and the
surrounding area from a larger flood in the future.
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CHAPTER I
INTRODUCTION

On April 21, 1997, the Red River of the North crested both its permanent levees and in excess of a million and a half sandbags intended to protect Grand Forks, North Dakota from flooding. The breach proved a significant event on many levels. In terms of its devastation, the resulting inundation nearly destroyed an American city and forced the evacuation of approximately sixty thousand people. The Red River left city residents homeless and emergency responders and disaster managers despondent. Little remained untouched by the river or free of its muddy residue. This disaster ranked among the Nation’s most expensive with a price tag of more than two billion dollars.\(^1\) However, this was not the first time the Red River had overflowed its banks or left devastation in its wake.\(^2\)

In 1950, another major flood occurred in the Red River valley. Unable to prevent the flood, state and federal officials responded afterward intent on helping the community rebuild. With little federal assistance previously in place, residents across the Red River community expressed gratitude for the aid and generosity received in the wake of this destructive event. With the help of area politicians, the 1950 Red River flood became the catalyst for much of the federal disaster policy passed during the last half of the Twentieth Century. Those policies sought to lessen the public’s fiscal, social, and emotional burden brought about by similar “natural” disasters into the future. American

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policymakers wanted to help their neighbors and provide a safety net from nature’s fury.\textsuperscript{3} Emboldened with federal support protecting them from the worst of the elements, Grand Forks residents joined the post war nation in rebuilding and growing their community.\textsuperscript{4}

Nevertheless, forty-seven years later in the aftermath of the 1997 flood many in the Grand Forks community blamed government for failing to protect them. While state and local government officials endured scorn, federal agencies received the lion share with the National Weather Service foremost for allegedly blowing its predictions.\textsuperscript{5} Public sentiment seemed to change markedly in forty-seven years. Appreciation had turned to anticipation even expectation of federal government intervention against natural phenomena. A historical exploration to determine the potential causes for a shift in sentiment and whether allegations of government incompetence did in fact cause the 1997 flood is due. Moreover, a historical examination of flooding in Grand Forks and a scholarly assessment of related public sentiment will determine if policies intended to help had in fact created a different vulnerability. Perhaps a moral hazard fashioned through an overabundance of benevolent federal policies created the illusion of invincibility within the community. Greater reliance on government institutions and broader risk dispensed across the larger body politic helped to mitigate personal liability. Nevertheless, it may have also supplanted individual responsibility, self-reliance, and even good judgment in the flood fight paradigm. In an age of increasingly severe weather

conditions attributed to climate change and coupled with national fiscal insolvency, American historians can ill afford to ignore this topic.\(^6\)

However, few have addressed public sentiment of flooding holistically. Some scholars have explored individual events providing outstanding and comprehensive histories of those or contributed to the larger historical narrative of Grand Forks.\(^7\) Nonetheless, previous examinations of singular Grand Forks floods, though expansive, have not fully explored the relationship between public sentiment and disaster policy. None has thus far turned their attentions toward a historical assessment of flooding, policy, and corresponding public sentiment in that community. Gauging public sentiment of the federal government’s role in flood mitigation between 1950 and 1997 is important for several reasons. Among those the remarkable insights provided to future policy makers seeking to understand the relationship between costly government intervention practices and individual responsibility in the federal disaster paradigm. Moreover, analyzing the Red River flood of 1950 and subsequent federal disaster policies instituted afterward into the late 1990s will provide greater perspective putting the 1997 Grand Forks flood into historical context. In addition, determining how public opinion evolved in Grand Forks, and by inference across the nation, will offer historians a greater understanding of flooding there and its catalytic role in prompting national disaster policy. Thus, the 1950 event serves as the starting point for assessing public sentiment toward flooding and the nascent federal stake in flood mitigation and response.\(^8\)

\(^{6}\) Platt, *Disasters and Democracy*, 9-10.
\(^{8}\) Platt, *Disasters and Democracy*, 1-43.
In *The Raging Red: The 1950 Red River Valley Flood*, Ramsey and Skroch note the importance of studying the 1950 flood, as “one of the last natural floods of the Red River of the North.”\(^9\) In the decades afterward a multitude of dikes, levees, dams, and other man made flood control measures followed creating a massive engineered watershed across North Dakota, Minnesota, and Manitoba.\(^10\) Public officials at every level pressed for enhanced weather forecasting technologies, more responsive emergency management capabilities, and unprecedented funding for flood prevention measures. With bipartisan support, Congress passed a multitude of flood control and relief acts. Among those initiatives the “National Flood Insurance Act of 1968” and “Flood Disaster Protection Act of 1973,” each pivotal legislation in the flood fight.\(^11\) Foremost in those, the need to mitigate fiscal loss due to flooding, federal subsidy of flood insurance, land use criteria, and establishing a unified approach to “flood plain management.”\(^12\) Political efforts also saw Presidential Executive Order 12148 merge a number of national agencies into the Federal Emergency Management Administration in July of 1979. All intended to unify private and public efforts and alleviate fiscal loss and individual suffering from natural disaster.\(^13\)

By the early spring of 1997, the Red River Valley and Grand Forks community in particular, with the help of the Army Corps of Engineers and other agencies, had refined

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\(^9\) Ibid., 12.
\(^10\) Ibid., 12-13.
\(^12\) Ibid.
flood control to nearly an exact science. The devastation wrought by the 1950 flood, a distant memory for some, and folklore from a bygone generation to others. A near miss in the flood of 1979 demonstrated the success of nascent emergency response measures, and the resolve of the Grand Forks community and its determination to beat back the Red.\textsuperscript{14} However, the last natural flood of 1950 serves as a baseline to better understand how public sentiment toward federal government intervention evolved during the last half of the Twentieth Century.\textsuperscript{15} Comparing and contrasting how public perception and expectations of flood control evolved between 1950 and the inundation of 1997 will provide scholars a fuller understanding of this topic.\textsuperscript{16}

Period newspaper, magazine and trade articles, census data, legal proceedings, local urban development, federal and state flood mitigation efforts and similar artifacts are perhaps the best examples to illuminate evolving public perspectives. While some articles from the \textit{Grand Forks Herald} exist, many more were lost in the devastation of its namesake city in 1997. Area news services carried by the \textit{Associated Press} including the \textit{Bismarck Tribune}, \textit{Winona Daily News}, and \textit{St. Paul Pioneer}, among others, provide supplementary material with which to assess public sentiment. Moreover, primary source documents in the \textit{1997 Red River Valley Flood Collection}, at the Chester Fritz Library, Elwyn B. Robinson Department of Special Collections located at the University of North Dakota, include community-meeting notes, civic presentations, emergency

\textsuperscript{14} Ramsey and Skroch, \textit{The Raging Red}, 311-315.  
\textsuperscript{15} Ibid., 12.  
\textsuperscript{16} Pielke, “Who Decides?” 83-98.
correspondence, letters, press releases, interviews and memoirs invaluable in assessing public sentiment.\textsuperscript{17}

\textsuperscript{17} The 1997 Red River Valley Flood Collection, 1997-1999, Elwyn B. Robinson Department of Special Collections, Chester Fritz Library, University of North Dakota, Grand Forks, North Dakota.
CHAPTER II

LITERATURE REVIEW

The history of flooding in Grand Forks, North Dakota often represents only a small part of a larger history or a singularly focused work. Elwyn B. Robinson’s *History of North Dakota*, Robert and Wynona Wilkins’ *North Dakota: A Bicentennial History* and William Lass’ *Minnesota: A History* exemplify the former. In addition to these broader texts, D. Jerome Tweton’s *Grand Forks: A Pictorial History*, provides a compelling and beautiful history of its namesake city. Though each provides an outstanding and comprehensive history and backdrop for this work, all speak generally of flooding in Grand Forks or the Red River Valley. While Ramsey and Skroch’s *The Raging Red: The 1950 Red River Valley Flood*; Ashley Shelby’s, *Red River Rising: The Anatomy of a Flood and the Survival of an American City*; Bakken’s, *Come Hell and High Water: The Incredible Story of the 1997 Red River Flood* and Christopher Sprung’s, *Fighting Back: The Blizzards and Floods in the Red River Valley, 1996-1997*, are all examples of the later. Each examines a specific seasonal flood including weather phenomena, chronicle of events, prominent local decision makers and their actions, civil and emergency responses, the personal devastation involved and the struggle of

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19 Tweton, *Grand Forks*.

communities trying to resume life in the aftermath. In the case of *The Raging Red*, the authors provide some background of flooding before 1950 and historical context afterward into the 1980s. In both *The Raging Red* and *Red River Rising*, the authors provide an especially comprehensive history for the floods of 1950 and 1997 respectively.

However, none provide a comprehensive view of public sentiment about flooding or its relationship to disaster policy in Grand Forks over time including the 1997 disaster. Nor do they fully explore how local perspectives may have evolved creating higher expectations of flood control. Some works including, Alice Fothergill’s *Heads Above Water: Gender, Class, and Family in the Grand Forks Flood*, speak to the sociological implications of flooding. In this work, the author examines the disastrous 1997 flood of Grand Forks from a societal standpoint illuminating the incongruent experiences of those who endured the ordeal. She notes the heavier toll experienced by women and lower income families who became destitute when their homes, located in alluvial plains, flooded irreparably. This valuable prospective offers insight beyond the pale into lesser-seen segments of society.


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21 Ibid.
25 Ibid.
combines a United States and Canadian historical account with an anthology of survivor stories, poems and photographs. Each of these is meaningful and well written providing an assessment of a specific genre and personal insights for those affected. However, all treat the prospect of flooding as an inevitable battle with nature. None questions local expectations of prevention measures or examines why the Grand Forks community would build and rebuild in alluvial plains that have historically proven to flood despite all the best intentions or mitigation efforts. The political implications of flooding are different from each side of the border along with economic impacts affecting communities there as well.

Moreover, a number of scholarly articles have explored the political economy of flooding incidents in Grand Forks or similar communities. Most pertinent among those include Roger Pielke’s “Who Decides? Forecasts and Responsibilities in the 1997 Red River Flood,” Morss and Wahl’s, “An Ethical Analysis of Hydrometeorological Prediction and Decision Making: The Case of the 1997 Red River Flood,” and Ciglar, Stiftel and Burby’s “Rural Community Response to a National Mandate: An Assessment of Floodplain Land-Use Management.” Pielke questions the common narrative that the National Weather Service and other federal agencies failed to warn and protect the Grand Forks community before the 1997 flood. His research proves particularly important as it analyses the disaster from a fresh perspective and supports part of the case argued in this

27 Ibid.
work. He demonstrates the historical accuracy of forecasters, though those predictions went relatively unheeded by a public whose expectations appeared fixated on levees and the height of floodwaters reported rather than an overall outlook.29

Pielke also argues that prior to the 1997 event, forecaster’s in the Red River Valley were under tremendous pressure from city managers to make conservative flooding estimates so as not to wreak havoc on limited emergency response budgets. Ciglar, Stifel and Burby note a similar theme. They point to the fiscal inability of more rural communities to comply with federal mandates and perhaps leading to development in flood plains and related insurance deficits.30 Their work provides further perspective and perhaps insight into why the vast majority of residents in Grand Forks chose not to purchase flood insurance before the 1997 flood.31 Perhaps this occurred due to a public misperception of weather forecasts or overconfidence born from previous successful predictions. Morss and Wahl provide an in depth and valuable analysis of the technical complexities, decision points and communication barriers faced by forecasters trying to explain the weather phenomena that wrought the 1997 flood.32 A comprehensive assessment of multiple factors will demonstrate why the Grand Forks community believed they were safe. Research into other communities may offer a macro perspective helping to explain why those flooded and the part played by federal intervention.33

Among those works providing a comprehensive examination of natural disasters include, Acts of God: The Unnatural History of Natural Disaster in America by Theodore

30 Cigler, Stifel, and Burby, “Rural Community Responses,” 113-130.
31 Pielke, "Who Decides?" 88.
33 Ibid.
Steinberg, *Disasters by Design: A Reassessment of Natural Hazards in the United States* by Dennis Mileti, and Klein and Zellmer’s *Mississippi River Tragedies: A Century of Unnatural Disaster*. Each examines disaster prone locations and related tragedies historically surveying the larger and contributory political, social, and economic factors that led to a given community’s expectations of relative safety. Though none speak to Grand Forks directly, each challenges the concept that disasters, flooding of cities included, are inevitable or natural. All point to a history of responsive if shortsighted policy makers, economic stimuli for land use in alluvial plains and over-reliance on engineering solutions designed to control flooding. Each offers valuable insights into the study of Grand Forks in considering why alluvial plain communities, elected officials, subsequent policies, and flood control efforts seemingly ignored historical and geographic realities in the late Twentieth Century. Certainly, stress played a role for communities under the threat of flooding or other weather related disasters.

Allen Barton’s *Communities in Disaster* examines the stressors placed on a population impacted during disasters. He examines a number of national and international tragedies and speaks to the behavioral adaptations communities make in response to natural disasters. Barton also explores trauma’s historical impact on public sentiment and expectations in communities experiencing disaster and prolonged stress, as in the case of

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35 Ibid.
Grand Forks. Federal disaster policy created after the 1950 flood sought to lessen the trauma endured by communities in the aftermath of disaster. White and Haas’ *Assessment of Research on Natural Hazards* provides a clinical examination for the success and failures of public policy and associated programs designed to prevent disaster or respond to those during the mid to late Twentieth Century. Another source in this vein is Rutherford H. Platt’s *Disasters and Democracy: The Politics of Extreme Natural Events*. His work adds depth and aids in analyzing flood control and disaster mitigation policies, created in the mid to late Twentieth Century, and designed to alleviate hardship in communities such as Grand Forks. In addition to topic specific sources, a broader viewpoint will afford a historical backdrop for the period considered. Hofstadter’s *The Age of Reform; From Bryan to F.D.R.*, Zinn’s *A People’s History of the United States*, Foner’s *The New American History*, and Patterson’s *Restless Giant: The United States from Watergate to Bush v. Gore*, provide historiographical perspective putting events under investigation in Grand Forks into larger historical context. That backdrop is essential in exploring Grand Forks’ path toward settlement on the late Nineteenth Century prairie and along the flood plain of the Red River of the North.

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38 Platt, *Disasters and Democracy*.
40 Ibid.
CHAPTER III

“The story of North Dakota begins with geology.”41

-Elwyn B. Robinson

THE OTHER BLACK GOLD

Despite the illusion of safety one may invoke looking at the seemingly flat eastern North Dakota prairies or normally tranquil Red River of the North, severe flooding is a recurring geographic reality in this otherwise bucolic setting. The geologic record explains both Grand Forks’ propensity for flooding and its allure to Nineteenth Century settlers. Approximately one million years ago during the late Pleistocene Ice Age massive glaciation the last of which, the Wisconsin period, gouged its way southward as the Arctic icecap advanced.42 As it began to melt approximately 11,700 years ago, it formed the largest North American Lake ever known to exist, Lake Agassiz, covering approximately 365,000 square miles.43 The southern tip of glacial Lake Agassiz terminated generally in what is now the Wahpeton, North Dakota, and Breckenridge, Minnesota area creating the headwaters for the Red River of the North. It stretched from there into the future Canadian Provinces of Saskatchewan, Manitoba, and Ontario and the northern half of what would become Minnesota and eastern North Dakota.44 Grand Forks, located along the banks of the Red River of the North, lies literally at “the bottom of Lake Agassiz.”45

41 Robinson, History of North Dakota, 1.
42 Ibid., 4-5.
44 Ibid.
45 Robinson, History of North Dakota, 6.
For approximately 2700 years, the Red River basin, improperly categorized as a valley, lay under water. Toward the end of this period nomadic residents of the Red River basin saw the climate warm, cool, and warm again, over half a millennia as the glacier receded, re-advanced, and retreated northward again. Lake Agassiz eventually drained into Lake Superior, Hudson Bay, the Mississippi basin, and Lakes Winnipeg and Manitoba. However, the Wisconsin glaciation and Lake Agassiz were not the only geologic formations that left an impression upon the Red River basin. Despite those formations emerging during the last of the Pleistocene Epoch, evidence suggests that the Red River area “was repeatedly occupied by glaciers, lakes and rivers.” The geologic record also indicates that heavy melting followed those periods of glacial encroachment. A cycle of melting, retreat and encroachment repeated several times transforming the environment from terrestrial to aquatic and back creating perennial wetlands.

The Pleistocene Epoch made its mark upon the topography of the Red River basin including the future site of Grand Forks, (see fig. 3). However, unlike other geologic formations, the Red River valley appears deceptively flat and void of striking topography to the eye. In addition, most of the year from its headwaters in Wahpeton/Breckenridge to the international border, a river distance of approximately “394 miles…the slope, in general, is slight and diminishes toward the north.” To put the subtleness of the gradient into context, over a total of approximately 550 miles the Red River of the North travels before emptying into Lake Winnipeg, it drops a scant 208 feet or “approximately one-half

46 Ibid.
47 Ibid.
48 Robinson, History of North Dakota, 4-12.
foot drop per mile.”  The shallow grade of the basin “produces a very sluggish condition, and considerable pooling occurs.” Nevertheless, this condition combined with slight littoral banks creates an alluvial plain rich in organic minerals and prehistoric sediments. One characterized, in Grand Forks and other Red River areas by ancient river sediment composed of “clay, silt, sand and disseminated organic debris…more than a meter (3 feet) thick.” In the Red River basin, the organic material is largely composed of grasses pressed down over several millennia with repeated flooding creating a rich, black, chernozem soil ideal for agriculture.

Though appearing flat the Red River valley forms a basin, albeit a shallow one constituting a prehistoric lake, wetland, and drainage area of approximately “45,000 square miles.” Indeed, “the Red River Valley is not a river valley; rather, it is the bottom of a glacial lake.” Principal tributaries, from as far as South Dakota in the Wild Rice River, eight more in North Dakota and another eight from Minnesota drain into the Red River of the North. Though the margins are often obscure or unclear the Red River basin is approximately “60 miles across at its widest” and ranges in elevation between “1200 and 1600 feet (360 to 480 meters) above sea level.” The basin’s glacial lake bottom nature explains why flooding occurs very broadly if shallowly, a principle known as “over land flooding,” and a prominent characteristic of the Red River area. Whereas at Grand Forks the elevation varies between approximately 832 and 835 feet above sea

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50 Ibid.
51 Red River Research Investigation, 12.
53 Robinson, History of North Dakota, 9.
54 Red River Flooding, 9.
55 Ramsey and Skroch, The Raging Red, 18.
56 Ibid., 9-10.
level. A reality that exacerbates the city’s already precarious geographic position on the western banks of the Red River, at the confluence of the Red Lake River, and well within the alluvial plain, (see fig. 2 and 3).57

Alluvial plains constitute some of the best soils available for agriculture. Late Nineteenth Century farmers knew this fact well. In a published letter to his compatriots in Norway shortly after his arrival to the Red River valley in 1867, Paul Hjelm-Hansen noted, “the soil is fertile to the highest degree and is exceptionally easy to cultivate, for there is not as much stone or stump in the way of the plow.”58 Hjelm-Hansen in the same letter also spoke to the advantages of the Red River area and its climate for Scandinavian farmers and predicted, “immigrants are likely to stream in here within the next year…this tract of land will in ten years be built up and under cultivation.”59 The agricultural potential of the alluvial plain drew the vast majority of early settlers. Historians Robert and Wynona Wilkins argue that agriculture, “from the beginning of settlement until the present…has been the most important economic fact of life in North Dakota.”60

Conversely, the climate in the Red River basin that Hjelm-Hansen spoke so highly of is one of extremes. Temperatures routinely reach 95 degrees Fahrenheit in summer with winter climes nearer the -30 mark.61 However, Red River communities may experience summer temperatures reaching 110 degrees or winter ones of -50 degrees

59 Ibid.
60 Wilkins, North Dakota, 196.
61 Red River Research Investigation, 13.
Fahrenheit, or colder. Moreover, those extremes change rapidly as “winds move freely over the central plain of North America, influencing both temperature and rainfall.”

Despite flooding that can and does occur, water remains a precious and often limited commodity for farmers. The annual rainfall in the Red River valley varies between “16 to 34 inches,” with an average of “20.11” inches. Combined with a short growing season of between “103 and 139 days,” limited rainfall explains why the river remains dear and farmers’ encroachment into the alluvial plain to tap into the precious soil and water it offered. However, Hjelm-Hansen did not err on either count. The exceptional soil, the other “black gold,” drew settlers and those that stayed learned to endure, even embrace the climate.

In fact, the North Dakota climate worked to bring settlement to fruition much more rapidly than predicted. Grand Forks owes its founding to a “flatboat race to Fort Garry, ‘a jollification,’ and an early freeze-up,” in the early winter of 1870. George Winship, who later established the *Grand Forks Herald*, noted that a lost keg of beer was at the root of the town’s founding. While trailing a rival flatboat line, Captain Alexander Griggs crew secured a keg of beer lost overboard by their challenger. Lost because snow and sleet made their competitor's boat too heavy and some of the cargo broke free and went into the river. Griggs’ crew imbibed heavily of their foe’s loss and remained unable to function until the following day. Overnight the weather turned cold and the river froze, virtually stranding Captain Griggs and his crew. With few alternatives, Griggs ordered

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62 Ibid.
64 Wilkins, *North Dakota*, 187.
66 Ibid.
the cargo unloaded and temporary shelters constructed. All remained along the banks of the frozen Red until the spring thaw. Captain Griggs determined the site an ideal location on which to establish a river town.  

By 1872, Griggs established “a boardinghouse, a hotel, a steamboat warehouse, three saloons, a stage station, a sawmill, and seven residences.” Moreover, as Hjelm-Hansen foretold, homesteads dotted the landscape along the Red River from its headwaters in the southern part of the state to Grand Forks. Griggs platted his town site in 1875 shortly after the establishment of Grand Forks County. Despite a landmark flood in 1882, by 1887 Grand Forks found itself at the confluence of two rail lines as well as two rivers. The addition of two rail lines, the Great Northern running generally east to west and the Northern Pacific traveling north to south, created the ideal conditions for the town to thrive and grow. And prosper it did as the railroads brought settlers “to both the city and the country’s rich farm lands.” In such a setting Grand Forks residents, and the farmers many supported with goods and services, reaped the benefits from the emerging “Golden Age of Agriculture.”

In 1897 students at the North Dakota Agricultural College, later known as North Dakota State University, noted the importance of Lake Agassiz for creating an agricultural treasure trove and drawing settlers to the Red River basin. In an article entitled “Lake Agassiz,” the author claimed this area “forms one of the most fertile

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69 Ibid., 10-11.
70 Robinson, History of North Dakota, 130.
71 Ibid.
72 Tweton, Grand Forks, 10-11.
73 Ibid., 24.
74 Ibid., 54.
regions in the world, unsurpassed by the valley of the Nile, or the plains of Lombardy.”  

North Dakota farmers agreed and within a few years approximately, “61 percent of the entire land area of the basin was in farms.” The number of acres increased by 1930 and farms extended to approximately “77 per cent of the entire land area.” The residual twenty three percent, lands “largely composed of swamp, muskeg, and peat,” remained mostly undeveloped throughout the first half of the Twentieth Century. Nevertheless, those did not remain wetlands into the future instead becoming residential or commercial areas.

In addition to thoughts on agricultural vitality, the spring of 1897 also brought the largest recorded flood of the Red until the 1997 event. The 1897 flood wreaked havoc in Red River communities including Grand Forks. It along with similar disasters in other parts of the country helped establish the National Rivers and Harbors Congress in 1901. Elwyn B. Robinson described the 1897 flood in North Dakota, perhaps a foreshadowing of far greater destruction to come:

The winter of 1896-1897 saw a very heavy snowfall, and some towns were without train service for a week. When the snow melted in the spring, a great flood spread along the Missouri, James, Sheyenne, and Red rivers. It swept away property, drowned many deer, inundated towns, covered twenty-five blocks of paving in Grand Forks, damaged bridges, and made a lake thirty miles wide and a hundred and fifty miles long in the Red River Valley. Families and livestock huddled on the tops of haystacks.

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76 Red River Research Investigation, 14.
77 Ibid.
78 Ibid.
79 Harrison and Bluemle, Flooding in the Grand Forks, 8-12.
81 Robinson, History of North Dakota, 168-169.
However, seasonal flooding in the Red River valley was not a principal concern in the first half of the Twentieth Century. Although Fargo, North Dakota and its twin city across the Red River in Minnesota, Moorhead, suffered severe flooding in 1916, it was largely a season of drought. Nevertheless, that event was the catalyst for a seven-year study conducted by the Department of Agriculture. Its subsequent “Simons-King report published in 1922,” became a template for future flood proposals in this area. The report called for 1.5 million dollars to fund the Lake Traverse-Bois de Sioux project to reduce flooding on the Red and combine flood control measures with water conservation steps. Support for the project stalled and the Great Depression delayed it further. Finally, with passage of the Flood Control Act of 1938, the Federal Government acquired rights-of-way, easements, or direct titles for any lands deemed part of the flood control paradigm. Funding the following year paved the way for channel enhancements, dikes, dams, and improvement of Lake Traverse a feeder tributary to the Red.

While seasonal flooding of the Red River was not a major factor for Grand Forks during this period, summer storms often produced rain in torrents and debilitating high winds. In a Bismarck Tribune article from July 11, 1935 entitled “Woodworth Man is Knocked from Bunk in Which He Slept,” the author noted the dramatic damages caused by a severe summer storm. The storm caused considerable flooding that damaged highways, rail tracks, and destroyed crops. In Grand Forks, where the heaviest precipitation brought 2.8 inches of rain, streets flooded into the sewer system and

82 Ramsey and Skroch, The Raging Red, 21.
83 Ibid., 20-23.
basements filled with water. Despite those damages, concerns most revolved around crops.84

New Deal efforts underway, public sentiment reflected a turn toward institutional solutions to Red River basin problems. In March of 1938, Andrew Peterson wrote in, “Why Not Divert the Missouri,” that prolonged draught, not flooding, was cause for concern in the Red River community. Peterson argued that additional water resources diverted to the Devil’s Lake area from the Missouri would alleviate seasonal flooding along that river while providing needed water to farms along the Red River. The tone of this article, rather than the plan, is most illuminating. In it Peterson noted,

Perhaps it is a great deal too much to expect our state legislature to do something really constructive with the time in which they are in session, but surely if sometime one or two of our representatives should turn their thoughts from personal gain to consider the purpose for which they were elected, they could not overlook the fact that water resources of North Dakota are rapidly diminishing and that unless some plan like that of the diversion of the Missouri River is accomplished, North Dakota will be a state with no water resources.85

In another article entitled “Wildlife Needs United Effort,” again from March of 1938, the author took a different approach to the issues of land use, draught, and responsibilities. In this piece, the unnamed author decried the making of a “Man-Made Desert” from once fertile agricultural lands and supported President Franklin D. Roosevelt’s newly established “National Wildlife Week.”86 In his view, the devastation

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of farmlands resulted from the “thoughtlessness” that led to “agricultural drainage” of an area larger than the landmass of the United Kingdom proper.\footnote{Ibid.} He noted that “drainage crimes” combined with draught conditions turned rivers into sewers, lakes into deserts and caused “poor farmers” to go bankrupt.\footnote{Ibid.} He also spoke to the denuding of wetlands as a cause for greater and more destructive flooding. Furthermore, the author expressed the message that “farmer[s] must lead” conservation efforts as they control the great bulk of natural resources.\footnote{Ibid.}

It is clear that those hearty souls who founded Grand Forks endured intense conditions and weather that often vacillated between bitter cold and sweltering heat, floods and draught. Historic public sentiment demonstrated the draw of this otherwise inauspicious river town. Black gold, the rich chernozem soil created by millennia of glaciation and flooding, and so named for the agricultural pursuits that flourished in it. Located midway along the alluvial plain that is the Red River basin, many would come to Grand Forks from a continent or an ocean away to make their lives. Some experienced posterity as residents who transformed it from frontier town to an emerging oasis of culture, education, and industry. However, none of the refinement of modernity, expanding reach of New Deal policies, post war infrastructure or farmer’s grit could fully prepare Grand Forks and the Red River community for the coming spring of 1950.\footnote{Tweton, \textit{Grand Forks}, 10-138.}
CHAPTER IV

“Only people who have been flooded out can truly comprehend the troubles associated with a flood. They understand the waiting, the thinking, and the wondering. Most of all, it’s the wondering.”

- Douglas Ramsey and Larry Skroch

THE 1950 FLOOD

The descendants of those drawn to the Red River basin for agricultural pursuits witnessed a devastating flood in the spring of 1950. That event also marked a seminal juncture in the development of federal disaster policy. Before the 1950 flood, political thought held that disaster response fell within the purview of charitable organizations and the individual states. The American Red Cross, Salvation Army, and faith based organizations provided for the immediate needs of survivors and the local community served as emergency first responders. Congress assessed individual natural catastrophes on a case-by-case basis, passing only “128 specific acts” before the late 1940s. Those offered token federal assistance to states and municipalities with little going directly to individuals. The bulk of such legislation, river and harbor acts, created or improved dams, dikes, and other flood control measures. In lieu of federal aid, neighbor helped neighbor and financial assistance in time of crisis came through private means. However, after years of New Deal policies and World War II the public embraced a shift in the disaster response archetype. The destruction wrought by the 1950 flood brought about major changes in both federal policy and public sentiment of the government’s role in

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91 Ramsey and Skroch, The Raging Red, 18.
92 Platt, Disasters and Democracy, 1.
disaster response.\textsuperscript{93} Subsequent legislation created the expectation of federal leadership for disaster aid and relief efforts into the future.\textsuperscript{94}

However, in 1949 few in Grand Forks predicted tragedy and most welcomed the post war years, nearly as warmly as their sons and daughters returning from World War II. The economic surge that followed victory saw agriculture and related pursuits flourish throughout North Dakota and especially in Grand Forks. The community had done its share at home and abroad, enduring the war years with want of necessities and a shortage of available consumer goods. With little to buy, high commodity prices and abundant harvests Grand Forks residents “more than tripled” their deposits in local banks.\textsuperscript{95} The local population too boomed growing more than a third between 1940 and 1950. The new decade began with approximately “26,836” residents calling the city home.\textsuperscript{96} In late 1949, Grand Forks inhabitants eagerly anticipated the coming prosperity.\textsuperscript{97}

Nevertheless, those in Grand Forks soon experienced a challenge to that promise. The fall of 1949 brought with it meteorological and hydrological conditions that cumulatively created a disaster in slow motion. A record breaking seasonal flood of the Red River valley would ensue. Spring flooding normally results when excess frozen moisture trapped in soil across the entire drainage basin, along frozen tributaries, and in the Red River itself releases quickly. The Red River drainage basin at Grand Forks constitutes an area upstream of more than 30,000 square miles.\textsuperscript{98} Moreover, during winter the normal frost depth in Grand Forks is about four and half feet though it can

\textsuperscript{93} Ibid., 1-7.
\textsuperscript{94} Ibid., 1-22.
\textsuperscript{95} Tweton, \textit{Grand Forks}, 136.
\textsuperscript{96} Ibid.
\textsuperscript{97} Ibid., 136-137.
\textsuperscript{98} Harrison and Bluemle, \textit{Flooding in the Grand Forks}, 9.
reach depths of seven feet.99 As conditions warm, melting ensues and varies depending on the season’s meteorological and hydrological conditions. Flooding occurs when several months of accumulated precipitation thaw within a shallow basin and over a handful of days. Freezing conditions downstream, due to the northerly flow of the Red River toward Winnipeg, exacerbate this condition.100

The Red pitches north gently, as previously discussed, due to its lineage as glacial lake rather than true river valley. During normal conditions such as summer, this gradient causes “an average velocity” at Grand Forks of “about 1 foot per second” or approximately .66 miles per hour.101 However, “during floods it probably reaches speeds of 8 feet per second” or approximately “5 ½ miles per hour.”102 Manmade obstructions such as bridges, levees, roads, and culverts artificially restrict waters and thereby increase velocity anywhere along its path. Ice jams too become problematic and retard flow causing increased flooding and higher velocities. Any of a number of these variables can exceed hydraulic capacity upstream forcing waters both vertically and laterally flooding great swaths of the basin and resurrecting Lake Agassiz.103

However, as summer turned to fall with the confidence of a thriving economy and a harvest to collect, few in Grand Forks focused on flooding in 1949. Early autumn began unseasonably warm and beautiful that year, until the rains of October. That month the entire “eastern third of North Dakota” received more than two inches of precipitation,
well beyond the norm.\textsuperscript{104} In fact, October of 1949 set the record for many parts of the Red River basin as amongst the wettest. Conversely, November and early December registered among the warmest months on record. Warm temperatures did little to ameliorate “the excessive precipitation [that] caused increased stream flow, filling ponds and swamps, and charging…the soil,” beyond capacity.\textsuperscript{105} However, on December 12, an arctic blast threw the region into a bitter cold locking all excess moisture in until the spring thaw.\textsuperscript{106} These climatological conditions produced “high soil moisture…combined with frozen ground,” among the antecedents necessary for record-breaking flooding in the Red River basin.\textsuperscript{107}

Furthermore, the months of January and February set records for sustained frigid sub-zero temperatures across the Red River community and into Manitoba, “only February 1936 was colder,” in North Dakota.\textsuperscript{108} January also witnessed precipitation amounts almost two and a half times normal level. However, precipitation a pleasant euphemism for the blinding blizzard conditions, wreaked havoc across the Red River basin. In many cases, those storms deposited snowdrifts in areas protected from the wind. As winds shifted so too did drifts, further hampering clearing, and removal efforts. February offered some respite with snowfall slightly below normal. Nevertheless, by March hydrographers on both sides of the border and local weather experts expressed concerns. The high levels of precipitation and unwavering cold deposited a heavy snow pack across the entire Red River basin. In the Grand Forks area, the snow pack “had a

\textsuperscript{104} Ramsey and Skroch, \textit{The Raging Red}, 25.
\textsuperscript{106} Ibid., 115-319.
\textsuperscript{107} Ibid., 118.
\textsuperscript{108} Ramsey and Skroch, \textit{The Raging Red}, 26.
water content of five inches or more.” Rather than the relief spring typically brings to North Dakota, March remained bitterly cold and brought above average precipitation.109

The headline on the March 27, 1950 edition of the Bismarck Tribune read “Late Blizzard Paralyzes State.” A related article described the fourteen inches of snow and “55 mile per hour winds” endured by North Dakotans over the weekend.110 Drifts reached “up to 10 feet high” closing airports and downing telephone and power lines across the state.111 In Grand Forks and other eastern portions of the state, snow turned to rain before turning to freezing rain Monday. Precipitation from the storm added to the approximately fifty-two inches of snow the area received over the winter.112 Severe storm conditions lasted almost four days before tapering off on Tuesday. The storm closed highways and roads outside of the town even as plows worked to clear those. It also stranded numerous motorists along roads and highways across the state. With typical North Dakota grit the author noted, “fortunately for those stalled, it was not too cold,” with temperatures approaching 30 degrees Fahrenheit across the area.113 Another storm on March 31 dropped four additional inches on Grand Forks. City engineer A.F. Hulteng’s estimate of a 35-foot flood crest seemed likely. In 1950, with no permanent levees in Grand Forks, flood stage stood at 28 feet.114

Moreover, the massive storm that dumped snow and freezing rain on Grand Forks caused heavy rains on the southern portion of the valley below Fargo. The rainfall

109 Ibid., 26.
110 Ibid.
112 Ibid.
113 Ramsey and Skroch, The Raging Red, 59.
114 "14 Inches Of Snow."
115 Ramsey and Skroch, The Raging Red, 60.
spurred thawing conditions in the southern valley exacerbating the water content and flows toward areas downstream. Concerns grew until early April brought thawing to a halt in North Dakota and Minnesota. It proved one of the coldest Aprils in recorded history. North Dakotans had not experienced such conditions since 1920. In Minnesota, the cold snap set a new record. To make matters worse, more than three times the normal snow amounts accumulated in North Dakota during this period.

By April 11th federal weather observer, Frank J. Bavendick declared that snowfall amounts exceeded all previous records. He warned of “unusually heavy runoff” when the snows began to melt. Grand Forks residents received Bavendick’s assessment while still digging out from under the latest storm. Projections now anticipated a crest of up to 42 feet. Eight families evacuated their homes in the low-lying areas of Grand Forks along Lincoln Drive, (see fig. 1). The Red Cross evacuated those and placed them with friends and neighbors. City officials warned that that figure would reach 100 families should the Red reach the predicted depth of 42 feet.

Four days later on April 15, nearly five consecutive months of frigid conditions with well below record averages ended. Rather than a slow thaw, the mercury climbed into the fifties and sixties across the area. In Fargo, approximately eighty miles south of Grand Forks the river level dropped as melting conditions sent water northbound. Meanwhile, at Grand Forks the river rose to 35.08 feet. This phenomenon, though temporary, demonstrated the larger hydraulic effect of warmer waters pressing against

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116 Floods of 1950, 115-120.
119 Ibid.
colder frozen ones downstream. A physical characteristic typical of flooding in the Red River basin and shortly demonstrated on a grand scale.  

As April 17 arrived, the *Bismarck Tribune* reported the Red rising at both Fargo and Grand Forks. That same day temperatures climbed into the sixties and floodwaters reached 39 feet in Grand Forks. Lincoln Drive lay inundated under six feet of water. Across from the now swollen Red her smaller sister city, East Grand Forks, had her 38.2 foot levees breached. Large portions of East Grand Forks soon flooded. The Red Cross reported the evacuation of more than sixty families between the two towns before the day was out. Most evacuees went to stay at homes with friends and relatives, though some stayed in public buildings around town.

Across North Dakota, the storyline remained much the same with fifteen counties in the state declared disaster areas. Minnesota reported six counties in a similar state. However, the news only worsened. Without a dedicated field office in Grand Forks, city officials routinely contacted United States Weather Bureau meteorologists in Fargo for flood estimates. On April 18, Ralph Schulz, the head meteorologist at the Fargo field office, gave Grand Forks city officials an alarming estimate. Schulz predicted a 44.5-foot crest in Grand Forks within the next four to five days.

Already in the throes of dealing with a river at the 40.24-foot mark on Tuesday, City engineer Hulteng and Red Cross chief R.P. Trubey scrambled to find boats, moving vans, tractors, and trucks to aid evacuation efforts and warn those in low-lying areas to

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121 Harrison and Bluemle, *Flooding in the Grand Forks*, 1-14.
124 Ibid., 62-65.
leave their homes. Later that night police officers from East Grand Forks closed the Minnesota Point Bridge one of three connecting the grand cities. The next day, April 19, the river surpassed 42 feet and continued to rise. With Red Cross resources diminished, those left homeless by rising floodwaters along with some of their prized possessions sought shelter on the grounds of the University of North Dakota.  

Conditions across Grand Forks continued to deteriorate likening the area to a combat zone. National Guard units from across the state joined in the flood fight. Officers from the 231st Engineer Battalion “ignited demolition charges” to lessen the overflow of floodwaters into the English Coulee, a natural stream bed that flows around the college grounds, (see fig. 1). Bulldozers also tore up roads in an effort to re-channel floodwaters. The waters continued to expand vertically and laterally, creating a surreal scene as they covered headstones at area cemeteries. Soon principal arteries in and out of the city flooded. Floodwaters inundated most roads and railroads leading out of the city. Only the Great Northern line to Crookston, U.S. Highway 81 to Fargo, and State Route 7 remained open, for now.

On April 20, most observers believed a crisis existed for residents of North Dakota and Minnesota. The headline on the April 20 edition of the Bismarck Tribune read, “Truman Studies Floods.” North Dakota Governor Fred G. Aandahl requested emergency assistance from the president. President Truman advised a concerned populace and considered his aid options. The following day Truman authorized $100,000

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125 Ibid., 62-64.
126 Ibid., 63.
127 Ibid., 62-64.
for emergency relief in North Dakota and declared many parts of the state “emergency
disaster areas.” 129 Minnesota also became an emergency disaster area and secured 50,000
dollars from the president. Neither amount would make much of a dent. Considering that
the Commander-In-Chief in 1950 had a total of $1,000,000 in discretionary relief funds,
Truman demonstrated as much compassion as finances would allow. He gave more
before the 1950 Red River flood ended. 130

Meanwhile, City engineer Hulteng braced for a 44.5-foot crest to arrive over the
weekend. He “estimated that about twenty-five blocks in Grand Forks and East-Grand
Forks were underwater.” 131 The only good news came from the Red Cross bolstered with
much needed emergency supplies. The number of evacuees continued to grow. A full
court press ensued. Flood fighters filled thousands more sandbags, built temporary dikes
around buildings, and worked to remove ever-increasing floodwaters from basements.
High school and college students, released from classes, joined their ranks. Volunteers
observing from small aircraft, normally employed for crop dusting, reported seeing large
expanses of roads and infrastructure underwater. Farmers on tractors wearing waders and
large trucks braved floodwaters to extract more people and their valuables from homes.
Others used small aluminum, outboard fishing boats to navigate the town. In low-lying
Lincoln Park, floodwaters passed the second stories of many homes and reached to the
rooftops at others. An estimated 600 people had abandoned their homes in Grand Forks
or East Grand Forks. Red Cross volunteers saw to their needs as best they could. Most

129 Ramsey and Skroch, The Raging Red, 302.
130 Ibid., 302-303.
131 Ibid., 64.
took what little solace they had in the warm weather and mild winds, but that too was short lived.  

On April 24, another blizzard descended on Grand Forks. It brought frigid temperatures and thirty mile per hour winds propelled several more inches of snow on the area. That same day the National Weather Service predicted the Red would crest in Grand Forks at 46.5 feet, the Associated Press carried the news nationally. The Red Cross redoubled their efforts reporting that the floods in North Dakota and Minnesota affected more than 13,000 people to date. With a prediction of 46.5 feet, additional volunteers joined their neighbors expanding emergency crews. A day later, the Red Cross reported “6408 families” homeless in North Dakota and Minnesota due to Red River flooding.

At 45 feet, many residential areas in Grand Forks would flood. In addition to lower-lying areas, downtown areas including commercial and residential areas would also flood, (see fig. 1 and 4). Similar to other Midwest towns in the post war era, downtown Grand Forks contained the business district and much of the city’s non-agricultural wealth. As the depth approached 47 feet, many of the well to do homes and large sections of downtown would flood. In 1950, the prospects of a 46.5-foot crest frightened the community. Hard meteorological and hydrological data went only as far back as 1882 when the Army Corp of Engineers installed gauges at Grand Forks and other river stations. Historical reconstructions of flooding events from 1826 and 1852


lingered, though truly estimates. A 47-foot flood occurred once since hydrologic records began with the devastation of 1897. That flood crested in Grand Forks at 50.2 feet. It became the extreme standard, a one hundred year event. Though in actuality, this term merely indicates the probability for a flood of that magnitude occurring once in one hundred similar episodes.135

Nevertheless, concerns of greater tragedy quickly diminished Wednesday, April 25, as hydraulic gauges indicated a receding river. It had crested at 43.77 feet. City engineer Hulteng may have been relieved but with an estimated “$500,000” in damages to homes and commercial enterprises in Grand Forks, it remained little comfort.136 Floodwaters laid siege to the city, surrounding parts of it and inundating low-lying areas. Some essential services weathered the storm, the water treatment facility, and “Northern State Power Company” among those.137 Period photographs show buildings encircled by sandbags with floodwaters threatening to breach the protective barrier.138 The scene took on medieval semblances as muddy water lapped at the perimeter. The newspapers compared the flood to a plague.139

In dire straits at the magnitude of this disaster, community leaders from across North Dakota and Minnesota reached out to their local representatives, congressmen, and senators for relief. A select group composed of Senators Edward Thye, Hubert Humphrey, Congressman Harold Hagen, and Joseph Nelson the Adjutant General from Minnesota, and Colonel L.G. Yoder of the Army Corps of Engineers in St. Paul,

135 Harrison and Bluemle, Flooding in the Grand Forks, 30-51.
137 Ibid., 64.
138 Ibid., 61.
responded. On April 25, the delegation toured flooded areas in and around Grand Forks and her sister city across the Red. Later that day they met at Grand Forks city hall to listen to concerns from the community and discuss options. Senator Thye and Representative Hagen both noted the President’s limited relief fund of one million dollars. However, both acknowledged that the need exceeded this relatively paltry amount. Senator Thye along with other senators, principally Milton Young from North Dakota, supported a bill to establish a relief fund in the millions. Congressman Hagen “estimated that flood damage in Minnesota would run thirty million dollars; with another twenty million dollars damage suffered in North Dakota.”\(^{140}\) He said he would introduce a bill in the House seeking another twenty million dollars for the “President’s disaster fund.”\(^{141}\)

Conversely in rural areas, where agriculture and the occasional farmstead occupied alluvial plains, the attitude took on a less dismal tone. Insights from a Red River valley farmer just downstream from Grand Forks expressed a different sentiment. Elmore Bergh, a lifelong farmer across the river in Minnesota published his diary entries and other thoughts he had between 1944 and 1992, in his work entitled *The Norwegian Sodbuster*. On April 25, 1950 while federal, state, and local authorities surveyed the damage wrought in Grand Forks and discussed the millions lost in developed areas, Bergh focused on salvaging the goods in his freezer. He wrote the following,

> The snowfall during the day amounted to about four inches. With the help of Louis, Sander and Stanley, I had the freezer raised up over four feet from the kitchen floor. For this we used 50-gallon oil drums which we filled with water and placed cement blocking on top of the drums. As there was now almost two feet of water on the floor we had to wear hip rubber boots. I was the first one to

\(^{140}\) Ibid.  
\(^{141}\) Ibid.
enter the house. When the rest entered I was able to serenade them with a popular song, ‘If I knew you were coming I’d a baked a cake.’ Well, at least I tried to serenade them because I certainly don’t have any talent as a vocalist. After finishing this work, we helped Sander load his cattle on a truck and I didn’t note in the diary where the cattle were hauled.142

Meanwhile on April 28, conditions appeared to improve and the river dropped more than three feet from its earlier crest. City officials reported the depth at 41.20 feet and falling.143 However, the flood had caused considerable damage to infrastructure. Travel in and around Grand Forks became nearly impossible. A washed out bridge and other damage closed State Route 2 approximately fifteen miles west of town. North bound travel too proved nearly impossible as floodwaters had yet to subside along State Route 81. Heading south, that same artery remained passable although with reduced speed limits. Secondary roads across the Red River basin had flooded, washed out, or remained in a state of disrepair. A few days later on May 2, the Great Northern and Northern Pacific Railways regained limited service northbound by sharing lines. Travel north via rail involved a series of convoluted detours of extended duration west to bypass flooded areas.144

Nevertheless, the Red River community eagerly sought the return of normalcy. In rural regions around Grand Forks that meant the start of planting season. Farmers impatiently waited to access flooded areas and begin planting. Agronomists from the North Dakota Agricultural College estimated delays of a week or more for those efforts. By all accounts, this delay would span into mid-May and make this a “record for late

spring seeding.” A shortened growing period, always a concern for farmers in northern climes, became more so when complications delayed that process. Although delayed, agricultural experts predicted that farmers could still profit depending on their crop selections and future weather conditions.

Spring also represented calving season in the Red River basin and limited access to rural roads affected livestock. The inability of ranchers to provide feed to emaciated cattle reached critical levels. Already slender from a long hard winter with severe temperatures and record conditions, livestock remained at risk. The Red Cross responded, as did the National Guard bringing feed to cattle in otherwise inaccessible areas. A combination truck and boat, Army ducks helped bring sugar beet pulp from local plants to affected ranchers in the area. Despite those efforts, many across North Dakota feared grievous losses to livestock. The brutal extended winter, massive flooding, and inability to reach herds combined to deal a mighty blow to an industry during its most fragile season.

Meanwhile in Bismarck officials from the North Dakota Governor’s office, Red Cross and officials from various cities across the state made initial estimates for relief funding. While the Red River community suffered devastation from flooding so too had municipalities in the Missouri River basin and the city of Jamestown. In 1950, relief came from bank loans made to those suffering financial loss due to any number of circumstances including natural disaster. The entity responsible for coordinating low

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146 Ibid.
interest loans from banks to disaster survivors was the Reconstruction Finance Commission or (RFC). Established in 1932 under then President Herbert Hoover and later expanded under the New Deal policies of Franklin Roosevelt. The RFC served as both conduit and underwriter of sorts between banks and state and local governments, agricultural enterprises, business and industry. Under RFC rules, those with financial losses in areas declared disaster areas could obtain a loan of any amount, at an interest rate of four percent for a period of up to ten years. However, loan amounts and number of years remained contingent upon the borrowers’ ability to pay. As a declared disaster area, residents of the Red River valley along with those across North Dakota became eligible for RFC loans. Nonetheless, conditions across North Dakota, western Minnesota and southern Manitoba, would grow worse as the Red had yet to finish.149

On May 6th Elmore Bergh noted in his diary “the river started to rise again after it had dropped…we had one day of rain, snow, lightening and thunder…’Uff-Da!’”150 Wicked weather returned to the Red River basin inundating residents with freezing rain and colder temperatures. At night freezing rain turned into snow and back again on and off over several days.151 By May 10, meteorologists in Fargo predicted, perhaps unbelievably, another crest of the Red. In Grand Forks, river gauges registered in excess of 45 feet. Residents there saw the river gain almost four and a half inches overnight.152

Floodwaters washed away secondary roads, railroad beds, bridges, and damaged culverts reversing previous gains made to open travel routes. Localized efforts to fortify

151 Ibid.
dikes by filling and stacking additional sandbags helped protect individual buildings. Notwithstanding those labors, a sea of muddy water once again surrounded Grand Forks. All highways leading out became impassable again choked with water. Some routes extended no further than a few blocks while others terminated several miles outside of town. Those who made the trek outside of town saw only the occasional farmhouse or tree poking up through floodwaters. Rural residents, always adaptable, used small motorboats to travel several miles back and forth to town making their rounds and lending a hand to family, friends, and neighbors.\textsuperscript{153}

In town, floodwaters compromised city sewers on May 11. Those began discharging floodwaters mixed with effluent and solid sewage in some areas. Waste contaminated water sought low-lying neighborhoods such as Lincoln Park, further compounding residents’ woes. Moreover, floodwaters entered “the underground tubes carrying steam heating pipes through Grand Forks and the vapor, which rose from manholes” and obscured street level views created an eerie scene.\textsuperscript{154} The steam so reduced visibility at one prominent intersection, “Third Street and DeMers Avenue,” that the police department fashioned smokestacks over manhole covers as an emergency expedient to vent the steam and pressure.\textsuperscript{155} Discussing the situation with Governor Aandahl a couple of days later, city manager Byron Rockwood explained that prior to venting the steam the sewer covers vibrated in the streets making a rattling sound.\textsuperscript{156}

On May 12, 1950, the second crest of 45.61 feet occurred early in the morning hours. The \textit{Bismarck Tribune} incorrectly reported a depth slightly higher but for residents

\textsuperscript{153} Bergh, \textit{The Norwegian Sodbuster}, 48.
\textsuperscript{154} \textit{Floods of 1950}, 124.
\textsuperscript{155} Ramsey and Skroch, \textit{The Raging Red}, 150.
\textsuperscript{156} Ibid., 150-151.
of Grand Forks, a moot point.\textsuperscript{157} By May 13, the river receded and residents took heart. The 1950 flood has endured as a unique event in that it had two crests. The second crest occurred higher than the first by 1.82 feet. At that level it became the third highest in Grand Forks history to that point, surpassed only by the one hundred year flood of 1897 with a height of 50.2 feet and that of 1882 registering 46.3 feet.\textsuperscript{158} Unfortunately, the flood of 1950 did not maintain that standing as the Twentieth Century progressed.\textsuperscript{159}

Additionally, for residents slightly north of Grand Forks proper, the flood continued. To the north, the Red River formed a massive lake, see figure 16 for an example of this scene.\textsuperscript{160} Exemplifying the hydrological effect witnessed earlier, floodwaters encountered yet frozen moisture trapped in ice and soil on a larger scale and formed a lake. In addition to exacerbating flood heights, this affect also causes destructive overland flooding. Due to the geological makeup of the Red River basin, overland flooding remains endemic if unpredictable and protecting nearby infrastructure becomes nearly impossible.\textsuperscript{161} To better illustrate the severity and scope of this phenomenon, consider the extent of damage caused by waves created during a severe windstorm on May 13, 1950 and captured in this narrative from Elmore Bergh:

\begin{quote}
A wind storm that we old timers aren’t likely to ever forget as it did so much damage in the flood area. The waves on the open flooded prairie knocked several granaries off their cement foundations. But that old school house building held its place. I suppose there was enough water in the building to weigh it down to withstand the pressure of the waves. But those gale-driven waves knocked every window out of the building; when the flood receded, we found the organ in a heap at the opposite end of the school room.\textsuperscript{162}
\end{quote}


\textsuperscript{158} Harrison and Bluemle, \textit{Flooding in the Grand Forks}, 51.

\textsuperscript{159} Ibid.

\textsuperscript{160} \textit{Floods of 1950}, 124.

\textsuperscript{161} Harrison and Bluemle, \textit{Flooding in the Grand Forks}, 9.

\textsuperscript{162} Bergh, \textit{The Norwegian Sodbuster}, 48.
However, in Grand Forks the disaster abated. As the river went down townspeople rolled up their sleeves and began the arduous process of rebuilding their homes, businesses, and community. Lower lying areas of the city remained flooded for three weeks or more. Homes in Lincoln Park and Riverside remained covered with water and later muddy residue into summer. In downtown, business owners along the main drag, known as DeMers Avenue, continued to pump water out of their basements for weeks. Two weeks later on May 27, highways opened again, though speed limits restricted travel to forty-five miles per hour due to damaged roads and infrastructure.\textsuperscript{163}

The Red River did not recede below flood stage in Grand Forks until June 3, 1950. While the 1897 event maintained its status as the highest flood to date, the 1950 disaster took the title for longest in duration lasting from April 9 to June 3.\textsuperscript{164}

At about the same time Grand Forks residents started cleaning up from the devastation, President Truman began a whirlwind tour of the state. On May 15, 1950, he visited Fargo by train. In a speech to a crowd of more than twenty thousand, the president “termed the floods the concern of the entire nation.”\textsuperscript{165} In true Fair Deal manner, he promised relief in federal funding. Though unprecedented, the president justified relief subsidies explaining that the scope of the damage warranted federal intervention. Truman furthered that, for those suffering from such tragedies, prevention rather than restitution should remain the aim of the federal government. He championed measures including small and large dams and levees upstream from the Red to prohibit flooding of the kind

\textsuperscript{163} Ramsey and Skroch, \textit{The Raging Red}, 150-152.
\textsuperscript{164} \textit{Floods of 1950}, 124.
recently endured by North Dakotans. Perhaps indicative of public works projects to come, the president called investments in infrastructure of this nature “money soundly invested in the future welfare and prosperity of our country.”\footnote{Ibid.} A week later initial monetary figures for infrastructure damages sustained began to appear.\footnote{Ibid.}

The staff of the \textit{Bismarck Tribune} conducted a survey of county auditors from across the state trying to determine the full extent of the damages wrought by the 1950 flood. The initial figure exceeded over 18 million dollars in North Dakota alone. Carl Arp, city editor, published the results on May 23, 1950. The survey accounted for infrastructure only, including damages to “roads, bridges and buildings.”\footnote{Ibid.} It excluded any figures estimating losses to homes or businesses due to unrealized profits or lost inventory. The assessment also excluded a fiscal accounting for damaged crops, seed stock, livestock, or agricultural machinery and damages to railroad infrastructure. The survey found that “more than 1000 bridges and culverts” were “either completely washed out or badly damaged.”\footnote{Ibid.} Grand Forks County auditor C.E. Overland estimated damages to more than fourteen hundred miles of “highways and secondary roads” in his county alone.\footnote{Ibid.} When calculated with a common Consumer Price Index quotient, the 1950 flood stands as the most costly to Red River basin infrastructure in history.\footnote{Harrison and Bluemle, \textit{Flooding in the Grand Forks}, 3.}

The 1950 flood, undeniably a disaster in slow motion, had lasted nearly eight months and resulted in the deaths of six people.\footnote{Floods of 1950, 152-156.} It also cost nearly $33 million in the
United States and $30 million in Canada, in 1950 dollars.\footnote{Ibid.} In greater Grand Forks, one person died.\footnote{Ibid.} Financial losses there exceeded $7.4 million, including Red Cross figures of 1005 buildings damaged, and 650 families that suffered economic hardships.\footnote{Ramsey and Skroch, \textit{The Raging Red}, 304-305.} North Dakota Governor Fred Aandahl petitioned President Truman for additional aid. The President declined sending a telegram on June 2. He told Governor Aandahl he already spent what he could on North Dakota and little remained in his relief fund.\footnote{Ibid.} Truman had in fact picked up the tap for a total of $250,000 of losses in North Dakota and $150,000 in Minnesota, nearly forty percent of his available disaster aid.\footnote{"Aandahl's Fund Request Denied," \textit{Bismarck Tribune}, June 2, 1950, accessed May 4, 2016, \url{https://www.newspapers.com/image/55462251/}.}

However, the president’s intent was clear and, true to his word, he supported flood prevention measures signing Public Law 81-516. This legislation allocated $8 million for flood control projects in the Red River basin.\footnote{Rivers and Harbors Act of 1950, Public Law 516, 81st Cong., 2d sess. (May 17, 1950), 15.} In addition, Public Law 81-769, the Federal Aid Highway Act, passed on September 7, 1950, amended provisions from the earlier acts from 1944 and 1948. The 1950 act sanctioned the use of federal monies to build or repair farm to market roads. This became a significant development as it authorized and specifically earmarked $150 million for expenditure on predominantly rural roads.\footnote{Federal-Aid Highway Act of 1950, Public Law 769, 81st Cong., 2d sess. (September 7, 1950), 785-786.} North Dakota Congressman Lemke and Minnesota Congressmen Harold Hagen had listened to their constituents’ concerns.\footnote{"Red River Drops."}
Moreover, the congressional delegates from North Dakota and Minnesota co-sponsored legislation for multimillion dollar relief funding. Though initial bills met with opposition, this landmark bill passed in a bi-partisan fashion. That legislation, the Federal Disaster Relief Act of 1950 (P.L. 81-875), became “the most significant general federal disaster assistance policy adopted in the nation’s history to that date.”\(^{181}\) In the short term, it allocated 5 million dollars for disaster assistance to Red River communities. However, it also formalized, unified, and articulated the federal government’s role in disaster management for the future. Perhaps more impacting, this legislation put the decision making and authority for federal response with the Chief Executive rather than the legislature. It also became the first of several disaster mitigation polices that greatly expanded the federal government’s role in disaster response and mitigation.\(^{182}\)

Disaster relief prior to 1950 remained piecemeal at the federal level. Responsibility for disaster relief and remediation resided chiefly with local government, religious and charitable organizations, civic groups, family, and neighbors. However, the magnitude of 1950 flood brought about changes in public sentiment toward the federal government and its role in disaster response and recovery efforts. Certainly, almost two decades of New Deal policies and World War II helped bring about these changes in public perception. While the 1950 Act limited federal disaster commitment to emergency aid rather than supplanting other relief mechanisms, it marked the beginning of a new era in government involvement. Although it did not stipulate direct funding aid to the states and local governments, it did provide for disaster assistance in the form of facilities,


equipment, supplies, and personnel without recompense. Perhaps more significantly, it created the legislative expectation that the federal administration would coordinate aid from both governmental and non-governmental entities going forward.\textsuperscript{183}

This legislation would prove pivotal, as the 1950 flood did not stand as the last incident of major flooding in the Red River basin. However, North Dakotans with their pioneer pedigree and easy familiarity with hardship pressed on bending the prairies and badlands to their will. Included in their assessment were environmental challenges to urban growth and suburban development. Grand Forks residents were clearly no exception rooted as they were in an alluvial plain. Still, the next four decades promised ample opportunities to test the community’s tenacity and resiliency. Building on the groundwork laid by the Act of 1950, public sentiment continued to evolve as residents developed new expectations for the role of government in disaster relief.\textsuperscript{184}


\textsuperscript{184} Harrison and Bluemle, \textit{Flooding in the Grand Forks}, 1-51.
CHAPTER V

“From compassion to entitlement.”\(^{185}\)
- Rutherford H. Platt

POLICIES, MANMADE SOLUTIONS, AND EVOLVING SENTIMENT

The 1950 Red River basin flood profoundly affected disaster policy. It became the catalyst behind the Federal Disaster Relief Act of 1950. Political scholars argue that prior social policies from the New Deal era and continued in the Fair Deal acclimated many in America to an array of similar programs. Popular social programs included home loans for veterans, farm subsidies, public assistance for college, and federal funding for highway construction among others.\(^{186}\) Flood control efforts joined that list.\(^{187}\) The 1950 Act, the first in a continuing effort by Twentieth Century lawmakers, designed to mitigate the “financial and social impacts of natural disasters on the American people and their communities.”\(^{188}\) Throughout the next four decades, presidential administrations endorsed policies and congress passed legislation intended to indemnify the public from loss due to natural weather occurrences. The National Flood Insurance Act of 1968, Disaster Relief Act of 1970, and the Stafford Act of 1988, represent a few examples. In addition to legislation and policy, disaster mitigation and emergency response became a self-sustaining bureaucracy within the federal government. Nevertheless, the increasing benevolence of those policies wrought a new hazard within the populace, a moral one.\(^{189}\)

That threat, termed a “moral hazard,” manifested as the willingness of individuals to disregard caution and good judgment in making geographic and environmental

\(^{185}\) Platt, *Disasters and Democracy*, 9.
\(^{186}\) Ibid., 11.
\(^{187}\) Ibid., 279.
\(^{188}\) Ibid., 9.
\(^{189}\) Ibid., 1-42.
decisions. Despite the likelihood, that though those decisions subjected them to personal peril and financial loss. Moreover, that policies intended to benefit communities, agriculture, and businesses could likewise have similar if counterproductive results. By the mid-1990s, policy makers too began to question whether a codependent relationship with the federal government and those suffering from natural disasters existed. One in which all parties became part of a perennial “cycle of loss, compensation, reconstruction, and new losses.”

However, in 1950 Republican Congressmen Harold Hagen of Minnesota, a longtime Red River valley resident, had no such premonitions. He introduced a disaster relief bill weeks after visiting distraught communities across the flood plain. Grand Forks was among the communities he toured joining the congressional delegation and meeting with community members at Grand Forks city hall on April 25, 1950. Congressman Hagen listened intently to concerns expressed by farmers as they lamented the loss of secondary roads and their struggles to get produce to market. His legislation sought to lend farmers a federal hand in rebuilding those vital if rural thoroughfares. Following the mid-Twentieth Century flood, few in Grand Forks, or the larger Red River community demonstrated susceptibility to a “moral hazard.” In the spring of 1950, Elmore Bergh understood the perils involved in building too close to the flood plain. He also comprehended the environmental concerns of disturbing wetland hydrology with manmade irrigation ditches. He recorded the following in his diary,

> At this time I was undecided as to whether or not I should build a new home at this place. I had already spent time and money building a cistern, a road and a garage. To start building a place on my land a mile west of Hallock meant leaving

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190 Ibid., 9, 40.
191 “Red River Drops.”
a good natural wind break and planting one on the prairie. Dad and Arlo were both giving me the advice that it would be a folly to build there now knowing how destructive the floods can be. I remember Dad saying that with the amount of ditching being done in the valley I would live to see many more floods.192

Elmore took his father’s advice and built his new homestead further from the Red. He, like so many in the Red River basin, spent the next several years building their communities and enjoying the prosperity of the post war years.193

By the mid-1950s, Grand Forks enjoyed a thriving economy and a population explosion. Initially city leaders acquired some forty-seven acres south and west to accommodate dramatic housing and commercial expansions.194 Despite the newfound prosperity, Grand Forks Mayor Oscar Lunseth asked for federal assistance in the flood fight. This occurred during congressional testimony in 1956. The mayor explained that a damaged section of temporary dike protecting his town needed a more permanent structure. The costly project remained beyond the financial wherewith all of the community. He noted the high costs of procuring property rights along the river. He asked legislators to consider a right of way mandate, as the city had no funds to buyout current owners. The Grand Forks mayor spoke at this hearing and advocated for flood relief. The congressmen convening the subcommittee intended to discuss dam and irrigation projects for North Dakota farmers, not flood control.195

In any event, Mayor Lunseth’s petition succeeded and Grand Forks residents witnessed the addition of a permanent levee built at Lincoln Park in 1958. The Army

194 Ibid.
Corps of Engineers selected this neighborhood due to its propensity for flooding during the 1950 event. Resolution of the hazard there required an elaborate flood control system. It consisted of more than 5000 linear feet of earthen dike, a concrete flood barrier 770 feet in length and a complex structure of drainage piping within those levees. Lincoln Park at the time could have represented any middle-income community in America. However, unlike other neighborhoods of the era it remained vulnerable to flooding and mostly encircled by a dramatic curve in the Red River, (see fig. 1). The levee promised protection from a 52-foot flood, a one hundred year event. It required moving several homes, purchasing land rights near the river and cost over 1.3 million dollars. Federal taxpayers paid almost one million dollars of those expenses, due in part to Mayor Lunseth’s efforts and provisions contained in the Federal Disaster Relief Act of 1950. 

By 1959, urban development had extended an additional 344 acres again pushing west from the river and south along it. Significant expansions occurred in city services including police, fire, water treatment, and sewers. Additionally, infrastructure in paved roads and public schools more than doubled by 1960. The business district downtown witnessed major renovations with many of the older buildings, some damaged by earlier floods, torn down. Newer, larger, and more expensive facilities replaced those. Moreover, the University of North Dakota saw its enrollment reach 4000 students by 1960, after a low of 800 during the war years. New construction in buildings occurred across the campus grounds. Motels, apartment complexes, restaurants, and supermarkets went up. Most built along the newly established Washington Street running south and inside the

197 Harrison and Bluemle, Flooding in the Grand Forks, 41.
flood plain. These activities clearly indicated public sentiment in favor of growth and demonstrated an increasing moral hazard.\textsuperscript{198}

In addition, the Cold War period proved a boon for the city. Grand Forks found new affluence in the United States Air Force. The recently established Department of Defense decided in 1954 to locate an air base near Grand Forks. The federal government bolstered the local economy pumping over 23 million dollars into construction of the nearby airbase. By 1958, the Grand Forks Air Force Base operated approximately fifteen miles west of town on land donated by the city. Almost from inception, Grand Forks symbolized the jewel of the prairie, even more so with the postwar years. Many North Dakota natives considered it a bastion of culture, education, enterprise, and a major transportation hub. Between 1950 and 1960, the population of Grand Forks rose 28 percent. Moreover, the area saw sixteen hundred additional military personnel and their families arrive as well as a quadrupling of university students.\textsuperscript{199} Grand Forks blossomed, due in no small part to federal expenditures for defense and related public works projects.\textsuperscript{200}

However, a scan of 1960 newspaper articles and editorials indicates that some in the Red River basin voiced opposition to even popular federal entitlement programs. Grace Schroeder wrote an editorial in the January 29, 1960, \textit{Daily Journal} in which she discussed farm subsidies. She noted, “I recall a time, long ago, when no man or woman on the farm would take a dime they didn’t earn. Nor would anyone else, for that

\textsuperscript{198} Tweton, \textit{Grand Forks}, 145-162.  
\textsuperscript{199} Ibid.  
\textsuperscript{200} Ibid.
In a 1960 article entitled “Highway Program in Bad Shape,” another author suggested that the federal highway construction program exhibited “gross extravagance,” poor oversight, favoritism, abuse, and corruption. Although, Reverend Dr. Carroll Simcox may have made one of the more poignant statements describing his view of character in the Red River Valley community. The North Dakota native stated the following in a speech to the 1961 graduating class of the University of North Dakota at Grand Forks:

The children of these prairies do not grow up expecting that all the bonbons of this world are going to be fed them with a runcible spoon by pampering destiny. Here you sweat by summer and shiver by winter and work and pay for everything you get, so that by the time you are an adult you are spiritually prepared for more hard work…North Dakota life has been meant to make of you a tough fighter, a hard worker.

Perhaps Dr. Simcox and the other authors simply expressed a generational perspective. Nevertheless, the demographics and possibly public expectations of flood control changed in North Dakota. Those not employed in agricultural pursuits surpassed those who did between 1950 and 1960. Moreover, by 1960 more than forty-seven percent of the population no longer lived on farms, rather choosing to live in towns across the state. During those years, Grand Forks hosted one sitting president in 1952, with Truman and in 1960 a future one in Richard Nixon. John F. Kennedy made the third visiting Grand Forks in 1963. The early 1960s also witnessed good crop yields, steady

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204 Robinson, History of North Dakota, 563.
business expansion, and stable inflation. As the sixties progressed, the community saw continued decentralization for many of its downtown businesses. Many of those moved further south and west with an ever-increasing suburban sprawl but remained in the alluvial plain.²⁰⁵

Prosperity continued unmistakably and Grand Forks residents had little concern of flooding as 1964 ended. That winter passed colder than normal and precipitation in snow pack stayed moderate. However, cold temperatures and a considerable frost depth remained as spring approached in early 1965. Extensive spring rains continued throughout the Red River basin. These conditions caused considerable flooding. Surface water rose vertically and across frozen soil and tributaries. In Grand Forks, the Red crested on April 17, 1965 at 44.9 feet. Less than three quarters of an inch from the highest crest reached in 1950.²⁰⁶

Volunteers from across the city joined forces to fill sandbags and build temporary dikes creating a scene reminiscent of 1950. In addition to residents and students, a contingent of airmen from the local base joined in the flood fight. In all Grand Forks spent a little over $200,000 building and maintaining the dikes, cleaning up afterword and repairing damaged sewers. The Federal Office of Emergency Planning, a newly established office in the Defense Department, picked up the tab. In addition to these losses, Grand Forks and her sister city suffered approximately $3 million in damages to developed areas along the Red. The 1965 flood cost the Red River community a combined $14 million.²⁰⁷

²⁰⁵ Tweton, Grand Forks, 145-162.
²⁰⁶ Harrison and Bluemle, Flooding in the Grand Forks, 16-18.
²⁰⁷ Ibid.
The 1965 flood also made Army engineers reevaluate previous proposals for flood control in the Red River basin. Almost a year later, as Grand Forks residents braced for yet another flood, Brigadier General Roy Dodge testified to the previous year’s event. He explained to a senate appropriations subcommittee that the severity of the 1965 flood required a broader study of causative factors. He also noted that protection of additional areas would be required to mitigate flooding damage. General Dodge asked the subcommittee for $817,000 to accomplish the study. This represented a significant increase from earlier estimates.208

Meanwhile, extensive low temperatures accompanied by a massive blizzard struck the Grand Forks area. The storm lasted for three days beginning on March 3, 1966. It deposited approximately thirty-one inches of snow in Grand Forks and more than two feet across much of the valley.209 The weather conditions severely restricted travel and depleted provisions in town. Grand Forks put out an emergency request for milk as the city had run out of this precious commodity. The dairy in nearby Fergus Falls responded demonstrating a frontier willingness to help a neighbor in need. Folks there sent over thirteen thousand individual quarts and a bulk-shipping tanker with another 49,000 pounds of milk via train. The beleaguered town soon became awash in fresh milk.210

Shortly after the storm, weather forecasters predicted potential flooding of up to 51 feet.211 At this level, it would signify more than five feet above the 1950 crest. A

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209 Harrison and Bluemle, Flooding in the Grand Forks, 18.
211 Harrison and Bluemle, Flooding in the Grand Forks, 29.
flurry of activity ensued reminiscent of past floods. The community built dikes and braced for the worst. Colder weather across the basin slowed the melt, conditions moderated, and flood predictions anticipated a 47-foot crest. However, when it arrived in Grand Forks on April 4, 1966, it registered 45.6 feet. By then flood fighters sandbagged levees in place and able to withstand 47 feet of muddy water. Another flood had come and gone. The grand cities endured little worse for wear. Once again, federal taxpayers picked up the bill for building levees, repairing sewers and cleaning up the mess. It cost over $1 million.212

However, federal disaster policy would soon change. Unlike the 1950 Act, those transformations occurred due to other events and not due to flooding in the Red River basin. Rather those were the result of two previous disasters elsewhere in the United States. Attribution aside, those changes had a lasting impact on federal disaster policy and the expectations of residents in the Red River community. The first incident occurred in Alaskan with the earthquake of 1964. It happened on March 27 and registered 8.4 on the Richter scale. The devastation resulted in 114 deaths and left thousands homeless. Unlike past disasters, the Alaskan Earthquake Assistance Act mandated a holistic response from every federal agency able to assist. Funding came directly from each agency’s available budget with appropriations restoring those monies on the backend as time permitted. By streamlining funding channels, legislative delays or the appropriations process no longer delayed emergency response operations. All future federal disaster response efforts followed this pattern.213

212 Ibid., 18.
The second major incident occurred along the Gulf States in early September 1965. It became known as Hurricane Betsy. When her weeklong rampage ended, she had killed seventy-six people and caused in excess of $1 billion in property damages.\textsuperscript{214} Congress in bipartisan fashion and reeling from heavy financial losses tasked the federal administration with exploring a program of national flood insurance. The job proved a two-pronged effort by the Department of Housing and Urban Development and the Task Force on Federal Flood Control Policy. The gist of the final report determined that little private flood insurance existed and certainly none that average Americans could afford. As a result, federal taxpayers paid the increasingly higher costs of disaster relief for those in flood prone areas.\textsuperscript{215}

Expenses multiplied exponentially considering that flooding incidents constituted approximately ninety percent of all natural disasters in the country. Congress subsequently passed the National Flood Insurance Act on August 1, 1968. The Act provided for low-cost insurance to property owners in the event of a flood. However, and in combination with Executive Order 11296 it placed floodplain management foremost. Theoretically, each community took on responsibility for meeting certain floodplain use guidelines as a condition of acceptance into the National Flood Insurance Program. Together these efforts sought to reduce taxpayer liability by encouraging individuals to purchase flood insurance and communities not to develop in areas prone to flooding hazards.\textsuperscript{216} While well intended, these protocols remained voluntary and neither reduced financial losses in the near term. Moreover, little evidence exists that communities across

\textsuperscript{214} Ibid., 2136-2144.  
\textsuperscript{216} Ibid.
the country gave preemptive thought to changes in disaster policy. Grand Forks proved no exception. Residents there had enjoyed nearly three years without a major flood. That ended in the spring of 1969. That year Grand Forks residents experienced higher flood levels than in 1950. Floodwaters topped out at 45.69 feet. Once the waters receded and the mud cleared, the community tabulated its losses. The 1969 flood had cost almost $30 million in damage to agriculture and personal property in the Red River Valley.217

The 1969 flood of the Red River ran concurrently with flooding in the upper portions of the Mississippi River. An Army Corps of Engineers spokesman estimated that “emergency and temporary flood preparations” had cost federal taxpayers $7.5 million.218 Clean up and related flood expenses cost an additional $16 million. Moreover, some $29 million in damages had resulted to infrastructure including, airports, roads and rails. Furthermore, damages to urban areas along the flood plain accounted for another $24.3 million. Most affected areas lay inside the Red River basin. By comparison, the 1965 flood had cost the Red River valley $14 million in damages. The dramatic increases in costs a direct consequence of “considerable building on flood plains” in the later 1960s and hydraulic differences between individual events.219 Federal appropriations, grants, and services rendered via disaster relief efforts covered most of those expenses.220

Development within the Red River flood plain continued. Its perpetuation further demonstrated the community’s unwillingness to accept geographic realities. Still, not all approved of increased development into flood plains. In an article from 1970 titled “Must

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217 Harrison and Bluemle, Flooding in the Grand Forks, 18-19.
219 Ibid.
220 Ibid.
Guide Development of Flood Plain Areas,” Jack Conner questioned the popular contention that flooding characterized an “unpreventable natural phenomena.”221 He argued that man’s encroachment into flood plains not only subjected individuals to harm and loss but also the greater body politic. He pointed to the inability of Minnesota State and local governments to cover those losses creating greater dependence on federal resources and establishing a perpetual flood control paradigm.222 A cycle of “loss, compensation, reconstruction, and new losses.”223 Conner understood the moral hazard created when federal taxpayers paid the price for others choices to develop flood prone areas.224

Moreover, the omnibus legislation in the Disaster Relief Act of 1970 greatly expanded federal assistance and provided further benefits to individuals and communities. In addition to aid mandated by the 1950 Act and legislation previously discussed, the 1970 Act also included a number of benefits for state and local government. Among those, it increased funding for disaster planning, pre-event resources and post event clean up. Subsidies also covered firefighting, repair, or replacement of communal services, on-site federal disaster experts, and grants for lost public revenue. Additionally, the Act afforded contract preference to businesses within the disaster zone for reconstruction projects. It also augmented relief funding with interest caps on loans, and supplemented local communications and transportation infrastructure. Furthermore, it shifted the burden of loss from the individual or locality to the federal government. The

222 Ibid.
223 Platt, Disasters and Democracy, 9.
224 Connor, “Must Guide Development.”
1970 Act provided unemployment compensation and temporary housing for up to a year and at no charge. It also provided mortgage or rent assistance to those in need. The new provisions also offered free legal assistance for households in lower income brackets.\textsuperscript{225}

The authors of the 1970 Act sought benevolent and praiseworthy consequences. They hoped to lessen the economic, social, and emotional losses endured from widespread calamity. Still, it represents a political fatalism concerning natural disasters. It largely ignored the human component in causation and paid only scant attention to prevention.\textsuperscript{226} In the future, fewer would respond as Elmore Bergh had after the 1950 flood. He along with his family moved further away from the Red River after realizing their vulnerability.\textsuperscript{227} However, by removing similar individual responsibility and replacing it with blame of natural phenomena, little personal recourse or accountability remained. Public sentiment of responsibility shifted from person to entity. Liability or responsibility for land use, no longer the purview of the individual, moved to local or state government or the business community. The fiscal burden quickly inundated even those entities. The moral hazard of repeated, if avoidable, “natural” disasters overcame individual community’s abilities to sustain themselves. Federal succor became a necessity for continuing environmentally irresponsible actions and created a perennial flood hazard paradigm.\textsuperscript{228}

Nevertheless, the Nixon administration and some in congress started realizing the magnitude of this issue. Three years later, after Hurricane Agnes devastated the eastern

\textsuperscript{225} Bea, "The Formative Years," 2193-2227.
\textsuperscript{227} Bergh, \textit{The Norwegian Sodbuster}, 49-56.
\textsuperscript{228} Steinberg, \textit{Acts of God}, 80-89.
seaboard and a disastrous flood in Rapid City, South Dakota, congress took action. Lawmakers passed the 1973 Flood Disaster Protection Act. The Act represented a step toward greater individual responsibility. Annual expenditures for assistance due to flood losses stood at $2.5 billion nationally that year.\textsuperscript{229} Even isolated events became increasingly costly. For example, the flash flood in Rapid City had cost $165 million in damages, destroying over 1300 homes and 5000 vehicles.\textsuperscript{230} It had also killed 238 people and injured more than 3000.\textsuperscript{231} Hurricane Agnes had far costlier outcomes, strapping the federal treasury.\textsuperscript{232}

The 1973 Act attempted to curtail some of those losses. It built upon previous legislation transferring greater liability to homeowners through affordable and federally subsidized flood insurance. Specifically, the Act mandated that homeowners with federally regulated mortgages purchase flood insurance. It also required municipalities in flood prone areas to develop mitigation plans. While well intentioned, it had little teeth and compliance from banks and municipalities occurred marginally at best. The devastating and costly Midwest floods of 1993 demonstrated this reality. Though required since 1973, few individuals involved possessed flood insurance.\textsuperscript{233}

Consequentially, lawmakers took another look at flood insurance legislation. The National Flood Insurance Reform Act of 1994 passed as a result. It focused heavily on lending institution compliance of federally mandated mortgage criteria. Among those

\textsuperscript{229} Platt, \textit{Disasters and Democracy}, 28-33.
\textsuperscript{231} Ibid.
\textsuperscript{232} Platt, \textit{Disasters and Democracy}, 11-46.
stipulations included a flood hazard determination. It also required the purchase of insurance for properties prone to flooding. In addition, the Act called for a compliance report from the Federal Reserve.\textsuperscript{234} Approximately four years later lawmakers received the report in September 1999. It noted over two hundred flood related violations in mortgages completed by lending institutions across the country. The failure of lenders to determine the flooding potential of a given property represented the bulk of those infractions. The next most frequently cited violation - loaning money to purchase flood prone properties without mandatory flood insurance. While the Federal Reserve acknowledged these discrepancies, it cast them in a favorable light as mostly clerical errors.\textsuperscript{235}

Nevertheless, as late as 1999 less than twenty-five percent of properties in flood prone locations had the required insurance. The inability to penalize repeat offenders remained a historical deficiency of this Act and the subsequent National Flood Insurance Program. Property owners living in flood prone areas and with repeated claims accounted for approximately forty percent of all claims. Grand Forks residents stood among their ranks. Insurance claims amounted to over $2.5 billion in monies paid out by this program as of 1997. Moreover, few owners saw increases in premiums though they filed repeated claims. In fact, more than half of recurrent claimants owned properties that had flooded on three occasions, or more.\textsuperscript{236}

While the acts of 1973 and 1994 sought to restrict costs through subsidized insurance and mitigation efforts, the Disaster Relief Act of 1974 further expanded federal

\textsuperscript{234} Ibid.
\textsuperscript{235} Ibid.
\textsuperscript{236} Platt, \textit{Disasters and Democracy}, 28-33.
benefits for disaster survivors. This despite President Nixon’s desire to give primacy back to state and local communities. His administration believed that the federal government had usurped responsibility for disaster response and relief efforts. He petitioned congress for legislation that would re-emphasize the federal government’s role as supplementary to the states. The 1974 Act included some language to that end along with greater emphasis on mitigation. However, in reality it proved merely lip service, as waivers for those requirements often occurred as a foregone conclusion.237

In addition, cost-sharing mandates depended on the state’s ability to pay rather than the total amount of damages. In poorer states, such as North Dakota, the federal government picked up the lion share of those expenses. The law also placed a preponderance of authority in the president or his designee. Typically his designee, a political appointee heading the federal agency with disaster response, had oversight. The chief executive now possessed nearly complete power to waive any number of costs or provide direct grants to disaster survivors.238 A year after passage people in North Dakota and Minnesota benefitted from the new legislation.239

By 1975, Red River basin residents had acclimated to the occasional seasonal flood. However, flooding that year brought an unwelcome change of pace. The area endured not one, but two separate floods. The first occurred in April of 1975. The archetype seasonal flood, it crested in Grand Forks on the 23rd at 43.30 feet. It also wrought significant property damage, especially in areas where development extended well into the alluvial plain. Total damage in built up areas amounted to $1.3 million.

238 Ibid.
239 Harrison and Bluemle, Flooding in the Grand Forks, 19-21.
While rural losses in agriculture and infrastructure came in at $12.9 million.\textsuperscript{240} Less than three months later the community suffered another major flood due to torrential rains. The Red River basin received between 10 and 22 inches of rain in a three-day period. In Grand Forks, flooding occurred rapidly cresting at 43.08 feet on July 14, 1975. With little time to prepare, excessive damage occurred in developed areas. Total losses in the Red River community amounted to $6.4 million in urban areas. Another $239 million resulted in destruction to crops and rural concerns.\textsuperscript{241}

One must wonder at this point whether the public understood the hazards associated with living in alluvial areas or had become potentially tone deaf to those. In a letter to the editor entitled “Wetlands of Value in Many Ways,” Terry Lejeher argued against further development of flood plains. He also acknowledged the federal taxpayers’ burden associated with flooding in the Red River basin. As the area hydrologist for the Minnesota Department of Natural Resources at the time, his case has considerable merit. He stated the following on December 1, 1976,

> Wetlands play a key role in the hydrologic cycle. They are instrumental in retaining storm runoff and reducing flood severity. It is estimated that floods cost society 3.8 billion dollars annually excluding loss of life. We are all aware of who pays the bill for federally financed programs in the flood stricken Red River Valley. The magnitude of these floods has increased as the number of drained areas has increased in the Red River Watershed. Much of this needless expenditure would have been avoided if man left wetlands to perform their function as hydrologic buffers.\textsuperscript{242}

\textsuperscript{240} Ibid.

\textsuperscript{241} Ibid.

Clearly, some in the Red River community including Lejeher understood the perils of flood plain development. Also in evidence, the federal government’s role in paying for programs intended to mitigate flooding. Perhaps a moral hazard had taken root in the community. Grand Forks residents continued to build in flood prone areas despite repeated and increasingly severe floods. D. Jerome Tweton, long time Grand Forks resident and distinguished history professor, spoke to the community’s enthusiasm for increasing development. In his *Grand Forks: A Pictorial History*, he noted that between 1960 and 1996 residents voted for a number of “urban renewal” and infrastructure projects including construction of an expansive indoor mall.\(^{243}\) However, progress represented more than just suburban sprawl. Prairie residents always seemed to be fighting against the elements to survive. The history of Grand Forks portrayed the stout hearted overcoming adversity. City growth celebrated those accomplishments and offered a promise for the future. Growth became central to community pride and public sentiment. Development demonstrated tenacity and perseverance to succeed despite abundant hardships on the northern plains. In 1978, Grand Forks residents would once again test their mettle and battle their old nemesis, the Red.\(^{244}\)

Unlike the floods of 1975, forecasters predicted the 1978 flood months in advance. The National Weather Service issued a warning to valley residents by mid-February anticipating severe flooding for the coming spring. On April 18, 1978, the river crested at 45.75 feet in Grand Forks, the highest flood of the Twentieth Century there, to that point. Two people died as a result and notwithstanding the advanced warning and extensive precautions. In addition, the 1978 flood caused approximately $13 million in

\(^{243}\) Tweton, *Grand Forks*, 189-207.

\(^{244}\) Ibid., 162-207.
damages, principally in rural areas. Less than a year later Grand Forks found itself once more struggling to hold back muddy water.\textsuperscript{245} The subsequent inundation became the flood of the century according to contemporary reports. It crested in Grand Forks at 48.81 feet on April 26, 1979. Massive flooding occurred throughout developed parts of the city. Flood fighters had done their best spending more than $2 million in supplies and labor for protective barriers. Nevertheless, the 1979 flood destroyed $91 million worth of property, infrastructure, and agriculture in the Red River Valley. Grand Forks suffered over $1.2 million in damages to public property with an estimated 6000 homes damaged in North Dakota alone. The federal government reimbursed Grand Forks over $1.3 million for emergency dikes and infrastructure repairs.\textsuperscript{246}

Despite the increasing costs associated with disaster relief, federal ownership of the emergency management continuum only expanded. A tragedy one month earlier served as a catalyst for sweeping changes in national disaster and emergency management. That event, the partial meltdown of a nuclear reactor at Three Mile Island, Pennsylvania, perhaps the last in a series of calamities that motivated President Jimmy Carter to issue Executive Orders 12127 and 12148. Cumulatively, those orders brought a mass of disparate federal offices into a single organization in 1979, with establishment of the Federal Emergency Management Agency or FEMA. The brainchild of the National Governors Association, FEMA addressed all manner of emergency management circumstances henceforth. In the years to come its director would also become an ex officio presidential cabinet member. As such, he influenced the appropriation and

\textsuperscript{245} Harrison and Bluemle, \textit{Flooding in the Grand Forks}, 21-22.
\textsuperscript{246} Ibid., 21-27.
expenditure of immense national resources including those provided to flood ravaged communities.247

While policymakers expanded the role of government in disaster response, geologists and meteorologists expressed increasing concerns about flooding in the Red River basin. In a 1980 report, North Dakota geologists Samuel Harrison and John Bluemle dissected the 1979 flood. They also examined similar events from Grand Forks past. Based on their calculations a one hundred year event could likely reach depths of 51.4 feet with a five hundred year flood reaching 55 feet or more. They also noted that small shifts in climatology or meteorology could greatly increase the extent and occurrence of future flooding. Based on the 1980 infrastructure of Grand Forks, a hundred year event could likely reach areas considered high ground such as the new multimillion dollar Columbia Mall. While a five hundred year flood, approaching 55 feet would inundate much of the city including government buildings, schools, bridges, roads, and most commercial and residential areas.248

However, flooding of this nature exemplifies a normal condition for the Red River basin. Mankind’s intervention did not cause those circumstances nor will it stop it. Slight variations in weather patterns, increased soil deposits from agriculture, road building, and levee construction all exacerbate flooding. Still, those factors are not responsible for the widespread devastation and massive expenditures experienced in Grand Forks since 1950. The expense and destruction witnessed there resulted almost entirely from individuals building and developing in flood plains. Moreover, “city governments tend to ‘cave-in’ to pressure,” from individuals who “profit from ill-advised

248 Harrison and Bluemle, Flooding in the Grand Forks, 23-46.
development.” Individuals within this context neither bear the financial burden nor accept sole responsibility for their losses after floods. Increasingly, state and especially federal entities paid to protect, repair, and rebuild Grand Forks from seasonal flooding.

Forty-five years of compassionate intentions had indeed generated legislation aiding those suffering from disaster. However, legislators adopted a fatalistic mentality assuming that natural disasters represented inevitable phenomenon. Policymakers spent over two decades generally considering events in isolation. They viewed disasters as singular catastrophic phenomena with a low probability of repetition. Resultant legislation sought to make communities and individuals whole again after a once in a lifetime cataclysm. However, dramatic increases in disaster relief profoundly affected national expenditures. Some questioned the sustainability of such policies.

After twenty-five years, federal taxpayers found themselves paying “seventy times more” a year in disaster relief. This fact remains even adjusting for inflation. In the mid-1970s, congress attempted a course correction. Lawmakers sought to redistribute some liability back toward individuals living in flood prone areas and incurring repetitive damages. However, those efforts met with political opposition. The Flood Disaster Protection Act of 1973 and the Disaster Relief Act of 1974 only served to expand benefits to disaster survivors. While they did shift focus onto mitigation, those efforts often served to postpone the inevitable. Expedited solutions often resulted in greater financial losses in the long term. Moreover, mitigation strategies employed along the Red River such as temporary dikes or channeling ditches, often resulted in “short-term or

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249 Ibid., 45.
250 Ibid., 39.
251 Mileti, *Disasters by Design*, 874-921.
cumulative environmental degradation and ecological imbalance.”253 Those works commonly increased “the occurrence and severity of the next disaster.”254

Moreover, passage of the Robert T. Stafford Disaster Relief and Emergency Act of 1988 only accelerated this trend. Under the Stafford Act, the president could waive a portion or a state’s entire requirement to match twenty-five percent of total expenses for a disaster. With the swipe of a pen, the federal taxpayer became responsible for one hundred percent of the damages incurred due to any event declared a major disaster or emergency. Consequentially, federal expenditures for disaster relief increased exponentially as did the number of gubernatorial disaster declarations.255 What had begun as an empathetic attempt to lessen the economic and social anguish of a community had become an entitlement.256

In Grand Forks, two distinct outcomes became evident after ten major floods since 1950. First, residents there stayed true to their pioneering roots. They almost cheerfully took on adversities few others experienced or accepted. Second, that public sentiment had shifted after forty-five years of increasing reliance on the federal government for disaster relief. Clearly, a moral hazard now existed. The continued proliferation of Grand Forks further south and southwest along the river demonstrates this statement. Federal assistance had in fact lessened the cautiousness of individuals, businesses, and the larger community in investing in and developing flood prone areas.257

253 Mileti, Disasters by Design, 930.
254 Ibid., 930-938.
256 Platt, Disasters and Democracy, 9-10.
257 Ibid., 9.
As 1996 dawned, the Grand Forks population stood at 52,000 and welcomed greater infrastructure, suburban development, and commercial enterprise. The public initially rejected earlier infrastructure improvement proposals such as overpasses and a new civic center. Some of those even met with litigation over environmental concerns. However, in the late 1980s the public voted in numerous communitywide ballots approving extensive urban expansion and suburban development projects. Clearly, public sentiment favored building and expansion activities, even those into alluvial areas. Fortified with popular support, city leaders worked hard to infuse their beloved town with greater economic growth and vitality and seemingly ignored the flood hazard. In the last few years of the Twentieth Century, all looked well and the future promising.258 After forty-five years battling the Red with generous assistance from and reliance upon the federal government most had confidence in the future and perhaps a false sense of security born of moral hazard.259

CHAPTER VI

“But of course stop it we would, we always had in the past, and we always would. Or ‘they’ would. ‘They’ being the authorities. What ever happened ‘they’ would certainly take care of it…right?”  
-Don Zimmerman (flood survivor)

THE FLOOD

For nearly half a century, the Red River community chose to ignore the changing climatological realities of their valley. That sentiment reinforced by repeated successes and increasing federal succor in the flood fight created an entrenched moral hazard. In addition, Grand Forks residents became accustomed to seasonal flooding and corresponding mitigation efforts regarding both with a sense of normalcy and denying the potential for greater catastrophic outcomes. In the spring of 1996, for example, Grand Forks residents experienced a seasonal flood with a crest of 45.82 feet. This flood constituted the fourth highest in nearly 150 years. Bolstered by a veritable army of federal emergency respondents, volunteers, and dike systems the city handled the event with ease. That same year Grand Forks residents also witnessed the opening of a new National Weather Service (NWS) office in their town. Almost immediately, townsfolk noticed a newfound accuracy from NWS meteorological forecasts. Public confidence in their own abilities and the infallibility of federal flood measures reached its highest levels. Such remained the dynamic as the winter of 1996-1997 approached.

That November and December saw three distinct blizzards hit the state. The NWS office in Grand Forks predicted each with perfect accurately. Few in the public

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261 Shelby, Red River Rising, 6, 48.
262 Ibid.
understood that flood forecasting, still weeks out, did not reside with this office. That task fell to NWS hydrologists at the North Central River Forecast Center (NCRFC) located more than three hundred miles away outside Minneapolis. Nonetheless, the North Dakota State Operational Plan went into effect providing support to those hardest hit by the storms curtailing greater public hardship. Within the first nine days of January, two additional storms struck the Red River basin closing transportation arteries, collapsing roofs, and putting livestock at risk. The North Dakota Emergency Management Office stepped into action instituting its reporting and response protocols. On January 11, 1997, North Dakota Governor, and future United States Secretary for the Department of Agriculture, Edward Thomas “Ed” Schafer declared his state a snow disaster area. He reached out to President Bill Clinton for financial relief and emergency assistance.263

President Clinton responded the following day. He issued presidential disaster declaration FEMA-1157-DR-ND and the federal aid it promised. North Dakotans found it welcome reassurance especially in light of the first weather related death. Another eight fatalities would follow. Temperatures plummeted and high winds drove those down further to as low as 80 degrees below zero Fahrenheit. Carbon monoxide poisoning sent more than two-dozen to the hospital. A result of heating systems unable to vent past snow and ice drifts clinging to exterior walls. In addition, those brave enough to attempt travel soon found themselves stranded. Many experienced frostbite or exposure and in one case, those conditions claimed a second fatality. Reminiscent of past winters, smaller towns across the state unable to dig out soon ran out of milk.264

264 Ibid.
Two days later on January 14, Governor Schafer activated National Guard units across North Dakota to help with snow removal. He also put the State Emergency Operations Center (EOC), into high gear expanding its response efforts and hierarchy. That same day weather related fatalities stood at five dead. As in past winters, the community united to overcome adversity and neighbors helped each other reaching those stranded by snowmobile, tractor, and any other means available. The following day, on January 15, another blizzard struck the state. It foiled nascent snow removal efforts and claimed the life of a sixth individual from hypothermia.\textsuperscript{265}

Just as residents started to reclaim mobility, a seventh blizzard buried the eastern half of the state in more snow. Once again, temperatures dropped as winds blew with a newfound ferocity and wind chills reached -60 degrees. The weather claimed another human victim, the seventh fatality. Before the month ended two more would die. The weather also affected livestock. A reported 100,000 head of cattle risked death, a projected thirty-two percent increase above normal winter losses. Thus far, wicked winter weather claimed $32.7 million in livestock. In addition, more than 500,000 pounds of milk was lost because farmers could not get it to consumers across the state. The Deputy Secretary for the United States Department of Agriculture (USDA), reassured farmers by setting up a federal relief fund to help recoup their losses.\textsuperscript{266}

FEMA, USDA, the United States Army Corps of Engineers (USACE) and other federal agency representatives reported for duty at the state EOC in Bismarck. United States military liaison officers from the Air Force, Army, and Navy did likewise.\textsuperscript{267} On

\begin{footnotes}{\footnotesize
\textsuperscript{265} Ibid., 1-2. \\
\textsuperscript{266} Ibid., 2-3. \\
\textsuperscript{267} Ibid., 3.}
January 23, the first of many “interagency winter planning meetings” occurred.\textsuperscript{268} Those sponsored by the Corps of Engineers in St Paul. Ostensibly, the purpose of this and future meetings was to discuss emergency snow response. However, those discussions soon gravitated to spring flood preparations and disaster planning, principally for the Red River basin.\textsuperscript{269} In addition to the Corps, those in attendance included representatives from the National Weather Service, United States Geological Survey (USGS), FEMA and a host of local officials from Red River communities. The overwhelming concern expressed, the great propensity for excessive spring flooding in the Red River basin due to massive snow pack.\textsuperscript{270}

Moreover, Leo Bennett from the weather office in Fargo and Wendy Pearson from the NWS went to towns across the Red River Valley warning the public of impending spring floods.\textsuperscript{271} They visited shopping malls and went on television and radio shows to broadcast a singular message “expect to see more water this spring than you’ve ever seen in your life.”\textsuperscript{272} Other officials from FEMA, and North Dakota and Minnesota emergency management offices disseminated a flyer for public consumption entitled “Surviving the Storm.” The newsletter sought to prepare the public for continued winter weather and imminent spring flooding conditions. On February 1, the National Weather Service reported that the previous November, December, and January were the coldest three consecutive months ever recorded in North Dakota. Clearly, massive snowfall from

\textsuperscript{269}Ibid.
\textsuperscript{270}Shelby, \textit{Red River Rising}, 7-8.
\textsuperscript{271}Ibid., 8.
\textsuperscript{272}Ibid.
the past few months had not melted. It remained menacingly in place across the Red River basin.273

In addition to warning the public, North Dakota state officials informed county and municipal emergency managers of the impending threat from flooding. The North Dakota State Water Commission also redoubled their efforts to enroll communities not participating in the National Flood Insurance Program (NFIP). This in addition to news releases issued “urging North Dakotans to participate in the NFIP.”274 Moreover, Governor Schafer sought expertise from the Corps’ district offices in St. Paul and Omaha, Nebraska. The Governor’s office also developed flood preparedness articles and had those disseminated to a variety of local North Dakota magazines and journals.275 At about the same time the NWS-North Central River Forecast Center (NCRFC) delivered its spring flood outlook. It noted, “above normal soil moisture and high snowpack water equivalent represent a high spring snowmelt flood potential for the tributaries to the Red River, and severe spring snowmelt flood potential for the Red River.”276

The NCRFC outlook of February 14, for Grand Forks appeared more straightforward. It anticipated “severe potential for Grand Forks (record or exceed flood of record.)”277 The record flood for Grand Forks remained the 1897 event with a documented crest of 50.2 feet.278 Unfortunately, the United States Geological Survey, the organization responsible for charting the nation’s historical riverine hydrography, did not

273 Winter Storm Disaster, 6.
274 Ibid.
275 Ibid.
277 Chronology of 1997 Flood, 1.
278 Harrison and Bluemle, Flooding in the Grand Forks, 29.
count the 1897 flood as the flood of record due to a lack of concrete data. Instead, it chose the 1979 flood of 48.8 feet.\textsuperscript{279} The National Weather Service-NCRFC subsequently issued its numerical flood outlook on February 28, for the good folks of Grand Forks that number became 49 feet.\textsuperscript{280} The moral hazard built during the last forty-seven years had assuaged the public and all believed they could handle 49 feet.\textsuperscript{281}

In a letter written about a year later, Jerome Hoeppner described his incredulity of a devastating flood in Grand Forks. He wrote, “The whole thing seemed so unlikely as we have had floods before. When on the morning of...[April] 17\textsuperscript{th} a crest of 49 feet [occurred] on the Red River [as] predicted we were given a false sense of security as we had been through floods of that magnitude before.”\textsuperscript{282} However, in February officials at the National Weather Service found no such confidence. Among those concerned included Mike Anderson, a hydrologist at the NWS-NCRFC near Minneapolis. Anderson, with years of experience and an expert on Red River hydrology, made a point of noting the grievous nature of the coming seasonal flood. In an interagency meeting hosted by NCRFC on February 26, he adamantly warned of the catastrophic potential for this flood.\textsuperscript{283} He emphasized that this flood would reach or exceed record levels. He stressed this point repeating his concern that it would exceed record levels.\textsuperscript{284} National efforts to alert the public proceeded along similar lines.\textsuperscript{285}

\textsuperscript{279} Shelby, \textit{Red River Rising}, 8-10.
\textsuperscript{280} \textit{Chronology of 1997 Flood}, 1.
\textsuperscript{281} "Hoeppner Flood Story," Jerome J. Hoeppner and Ann Hoeppner to Grand Forks Herald, March 2, 1998, In the 1997 Red River Valley Flood Collection at the Elwyn B. Robinson Department of Special Collections, Chester Fritz Library, University of North Dakota, Grand Forks.
\textsuperscript{282} Ibid.
\textsuperscript{283} Shelby, \textit{Red River Rising}, 9-10.
\textsuperscript{284} Ibid., 10.
\textsuperscript{285} Ibid., 11.
A few days later Elbert “Joe” Friday, Director for the National Weather Service went on CNN with a simple message. He warned those watching that seasonal flooding in the Red River basin would be greater than any they had seen in the past. Director Friday’s labors to communicate the severity of the coming flood continued.286

Approximately two weeks later on March 18, he appeared at the National Press Club located in Washington D.C. He along with the NWS’ Hydrologic Information Center chief, Frank Richards, told the collective reporters that the spring of 1997 had the potential to be the worst flood the Red River basin had ever endured. Though invited, the directors for FEMA and the American Red Cross demurred. Director Friday’s comments left little to the imagination.287 He said, “these could be the highest floods in those areas in the 150 years we have been keeping records.”288 He continued, “You’re going to see hundreds of square miles underwater.”289 As if prescient Director Friday concluded by saying, “we want to make sure this doesn’t come as a surprise to anyone.”290

In addition and nearly in concert, regional NWS offices spoke to newspapers and media outlets from across the Red River area. All made it clear that the coming flood would be a seminal event.291 Likewise, engineers from the Corps’ St. Paul and Omaha districts took to the road from February 25 to March 20 warning the public. They conducted flood preparedness briefings for local officials and community leaders at towns throughout the Red River community, including Grand Forks. The American Red

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286 Ibid.
287 Ibid., 19-20.
289 Ibid.
290 Ibid.
291 Shelby, Red River Rising, 11.
Cross and Salvation Army too stepped into action with the later kicking off “Operation-We Care” on March 6. Volunteers from national and regional charitable organizations arrived in the Red River valley to establish hotlines, toll-free numbers, and emergency funds.292

At the state level, Governor Schafer took several actions in late February and throughout March to prepare the public for unprecedented flooding. He also directed several operations intended to mitigate high spring runoff. Those included an emergency proclamation to help communities stockpile provisions, ready equipment and prepare human resources for the impending flood fight. He also activated the North Dakota National Guard for emergency missions from communities preparing for the flood fight. Guardsmen took on any number of emergency management tasks including, dike construction, evacuation, response and even firefighting. Along with the state Department of Transportation, the United States Coast Guard, and the National Guard began “ice dusting,” a technique of seeding liquefying components into frozen river waters. This process sought to alleviate excessive surface moisture trapped in ice by frigid temperatures. In addition to mitigation strategies, the coordinator for North Dakota’s National Flood Insurance Program conducted seminars for insurance agents and lending institutions in major cities across the state, including Grand Forks. As March ended, federal and state officials believed they had addressed all points available to them along the disaster continuum: preparedness, response, and resiliency.293

In Grand Forks, emergency managers also prepared their city for the impending seasonal flood of 49-feet. The flood outlook calling for an event of “record or exceeding

292 Winter Storm Disaster, 6-8.
293 Ibid.
record levels,” seemed lost in translation. Requests for outside assistance from the emergency management office there demonstrated the normalcy of the anticipated flood. Those included assistance finding indoor storage for sandbags and snow removal from English Coulee by Corps of Engineers personnel. The most dramatic among those included a request for two amphibious vehicles. As the month ended, the emergency management office reported having 314,210 sandbags filled. Consumed by quantifying their efforts and possibly expectations, Grand Forks officials communicated those to a public increasing anchored by numbers.

Jane Varley, a graduate student and recent area transplant, noted, “our life revolved around numbers-dates, flood levels, and sandbag totals. The highest water level ever recorded in Grand Forks was 48.8 feet, in 1979.” The community fixated on 49-feet, a level all believed they could conquer as they had in the past. This may explain why so few in Grand Forks purchased flood insurance. Despite urgent warnings of record flooding by NWS and the Corps of Engineers and mass appeals to purchase flood insurance from North Dakota state officials and media outlets. Nonetheless, the third week of March came and went ending the thirty-day exclusion period to purchase flood insurance. Few in Grand Forks purchased it. A study conducted after the 1997 flood found that just shy of one hundred percent of the Grand Forks populace knew about flood insurance. However, “79.6% reported that the forecasts led them to conclude that flood

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294 Chronology of 1997 Flood, 1.
296 Winter Storm Disaster, 9.
297 Jane Varley, Flood Stage and Rising (Lincoln: University of Nebraska Press, 2005), 35.
298 Ibid.
insurance was not necessary.” 299 The moral hazard in play remained palpable even as the public ignored urgings to purchase flood insurance. 300

The first daily forecast from the NWS-NRCFC issued on April 3, reiterated the snowmelt flood outlook from the previous month calling for a crest of 49-feet. 301 The daily forecast, attempts a truer meteorological and hydrological prediction versus the snowmelt flood outlook conducted weeks and even months in advance of the potential flood crest. The snowmelt flood outlook estimates climatological conditions months in advance and in one of the most dynamic areas in the world for weather. 302 Glinda Crawford, UND sociology professor and longtime resident, noted a few months later, “denial of flood devastation was the unspoken code, as if we could ‘will’ the water away. ‘We will beat it!’ Few had any sense intellectually that they were threatened.” 303 Another part of the unspoken message, the hope for relief from the brutal winter weather spring promised. 304

The winter of 1996-1997 brought brutal weather. Even for the Red River community, accustomed to extreme adversity, it remained a tough battle. In Grand Forks, residents welcomed April after enduring seven horrendous blizzards that dumped an accumulated 83.3 inches of snowpack on their city. 305 April did not disappoint, initially. The first few days of the month brought warmer temperatures, rain, and moisture leaden

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300 Ibid., 87-91.
301 Chronology of 1997 Flood, 1.
304 Bakken, Come Hell and High Water, 11.
305 Ibid., 12.
mist. Snowmelt caused flooding conditions in the southern valley and along interstates 94 and 29. However, state troopers, National Guardsmen, and responsive community volunteers handily managed floodwaters encroaching into populated areas. Then, “Hannah” hit late on April 4. Describing Hannah in May 1997, North Dakota magazine noted, “it was a hurricane of ice and snow…more than a blizzard, the weather events of April 4, 5 and 6 reflected a duel between winter and spring. Spring lost.”

The first twenty-four hours brought heavy rain and plummeting temperatures to Grand Forks. Those conditions created a beautiful if dangerous crystalline topping over more than six feet of snow pack. Trees, roads, power lines, and rooftops covered in thick ice witnessed the next phase, heavy wind and snow. Another seven to ten inches of snow accumulated in Grand Forks and the surrounding area. Most of the snow came sideways as winds gusted to seventy miles per hour and drove wind chills below negative forty degrees. Glinda Crawford noted, “old-timers and young alike said this was the worst they had seen. Trees and power poles snapped like pretzels sticks. Hannah shut the place down.”

On April 7, Jim Campbell at the Grand Forks Emergency Management office reported that residents in town had no power, some for more than thirty-six hours. He projected that in rural areas of the county, the outage could last another week or more. He also noted that as of 4:00 pm the Red stood at 38.17 feet and reaffirmed the prediction of a 49-foot crest. In Bismarck, the governor and state emergency management officials prepared appropriately, already aware of Hannah and the damage left in her wake.

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307 “Moving to Higher Ground.”
308 Campbell, Grand Forks Emergency Management.
On April 6, Governor Schafer requested President Clinton issue a presidential disaster declaration for the entire state of North Dakota. Always responsive to such requests, the administration issued FEMA-1174-DR-ND on April 7. With this declaration, North Dakotans became eligible for a multitude of federal assistance programs including temporary housing, home repair, and a host of other disaster related expenses. So too did county and municipal governments across the state. The following day the NWS reported that Hannah increased the snowpack across the state from ten to twenty-four inches. That accumulation represented more than two and a half inches of additional water to an already saturated Red River basin. More than ten thousand North Dakotans remained without electricity even as National Guard and local power crews fought through blowing and drifting snow to offer relief. In Fargo, where the previous flood of record reached 37.5 feet, the river stood at 36.79 feet.

In Grand Forks, Jim Campbell reported the river at 42.05 feet as of 4:36 pm on April 11. As in all prior reports, he confirmed the projection of a crest at 49-feet. The scene in Grand Forks emulated a war zone. National Guard units with heavy earth moving equipment, trucks, and hundreds of fatigue clad citizen soldiers appeared everywhere. In addition, volunteer flood fighters clad in muddy garb and engineers from Corps remained on sight for more than a month building temporary dikes and fortifying the city against flooding. The Corps spent almost $3 million by this point and the work continued at a steady pace. Some of the townsfolk began to question a crest of 49-feet,

[^310]: Winter Storm Disaster, 11-13.
suggesting a crest as high as 52-feet. Though logical considering the precipitation from the latest blizzard, few believed it.\textsuperscript{312}

Meanwhile NWS hydrologist Mike Anderson at the NCRFC struggled to update his flood forecasts with no new information from USGS crews, Corps personnel, and others assigned to measure the river. The same storm that knocked out the power for so many had also dropped phone lines. It took ten days before Nodak, the local electric cooperative, restored power to greater Grand Forks and surrounding areas.\textsuperscript{313} The storm also impeded travel and made the mission of USGS crews, physically reading river gauges from bridges or banks, difficult and precarious. Moreover, electronic devices intended to automatically send data from river gauges malfunctioned due to the extreme weather conditions. Flights of the area to determine how much snow had deposited along the basin and where, grounded.\textsuperscript{314}

Three hundred miles away at the NRCFC the computer model projected a lower crest, below 49 feet due to renewed cold temperatures. Anderson and his associates intuitively knew that that could not be accurate. When data finally started trickling into hydrologists at the NRCFC, it proved inconclusive. Mike Anderson and his fellow hydrologists remained at least figuratively in the dark and unable to lay hold of the facts so critical in making their assessments.\textsuperscript{315} Moreover, before 1997 local communities paid dearly for overestimates by NRCFC, a fact not lost on hydrologists and meteorologists alike. A crest prediction over by as little as a foot could cost a community hundreds of thousands of dollars in funds for needless preparations. In addition, a needlessly high

\textsuperscript{312} Shelby, \textit{Red River Rising}, 40.
\textsuperscript{313} Hill and Brick, “Ice Storm Fury,” 6.
\textsuperscript{314} Shelby, \textit{Red River Rising}, 43-47.
\textsuperscript{315} Ibid.
prediction could cause panic among the constituency.316 With no new data, Anderson stuck by the outlook of 49-feet for Grand Forks. The NRCFC staff did not have better information for several days until April 14, when they issued their first operational forecast.317 Hydrologists anticipated a 50-foot crest to occur in Grand Forks sometime between April 19 and 22.318

The following day Grand Forks residents and emergency personnel picked up the pace. More than twelve thousand volunteers had turned out and more joined Corps personnel, National Guard members, and city engineers. Flood protection efforts became a round the clock operation, as Jane Varley noted, “sandbags were our mission.”319 All united in a singular task, building or increasing dikes, and other flood protection measures standing between the city and the swelling Red. City officials reported that crews filled “more than 1.3 million sandbags” and added those to protective dikes.320 Grand Forks emergency managers also employed amateur radio operators and remote equipment to monitor dikes via television imagery piped into the city EOC.321

Moreover, city engineer Ken Vein had developed an elaborate system of dikes to protect his city and its residents. Building on the levee systems from the 1979 flood, and lessons learned since he trusted his measures to protect Grand Forks from a flood crest of 52-feet. He also had complete faith in the flood predictions of the NWS.322 The community assumed it stood on secure ground. After all, it had been two weeks since the Grand Forks Herald determined that the city was better prepared for a flood than it had

317 Shelby, Red River Rising, 43-47.
318 Chronology of 1997 Flood, 2.
319 Ibid.
320 Winter Storm Disaster, 14-15.
321 Campbell, Grand Forks Emergency Management.
322 Shelby, Red River Rising, 45-46.
been at any time in the past.\textsuperscript{323} Apparently, engineers and newspaper reporters proved as susceptible to a false sense of security as the general public. In this case, one created by the moral hazard of federal succor increasingly protecting those inhabiting a historical flood plain.\textsuperscript{324}

At 8:50 am on April 17, the first cracks appeared in this illusion. Reality hit with the slow but massive force of the ever-advancing river. As the Red River topped 49.94 feet in Grand Forks, hydrologists at the NRCFC first noted a divergence in their forecasting models. The computer simulations proved inconsistent with actual conditions reported across the area. Discussions quickly escalated up the NWS hierarchy. Suddenly a crest in Grand Forks of between 51.5 and 52.5 feet seemed plausible. Six hours later at 9:25 pm, the NRCFC updated its forecast for a crest of between 51.5 to 52 feet. Grand Forks residents had less than forty-eight hours before that crest found its way to their city.\textsuperscript{325}

A frenzy of activity ensued. An army of state and federal emergency responders from more than two-dozen agencies worked around the clock to protect the city. Many stayed on site in Grand Forks for weeks and in the case of Corps, NWS, National Guard, and other North Dakota emergency management officials for months. The American Red Cross and Salvation Army reported that thousands of volunteers from across the country took part in the effort. In the last few days of the fight, the Salvation Army reported serving meals to almost twenty thousand volunteer emergency responders.\textsuperscript{326} With a newfound urgency and joined by thousands more volunteers they worked with abandon

\textsuperscript{323} Ibid., 49.
\textsuperscript{324} Ibid., 45-50.
\textsuperscript{325} Chronology of 1997 Flood, 3-5.
\textsuperscript{326} Winter Storm Disaster, 19.
to raise the dikes to 54 feet. Some stayed on the dikes to exhaustion, sleeping a few minutes before stepping back into line to load or stack sandbags. Grand Forks emergency manager Jim Campbell also made every effort to protect his city.

Failing to elicit the support he thought he should have received from FEMA and the Grand Forks Air Force Base, Campbell sent an emergency request for support directly to President Clinton. Also copied on the request included Vice-President Gore, Senators Byron Dorgan and Kent Conrad, Congressman Earl Pomeroy and FEMA Director James Lee Whitt. Campbell’s request contained an only slightly veiled threat, “I feel that it is in the best interest of all involved that this information not be made public.” That same day, April 17 officials answered his request and five hundred airmen from the local base arrived to join in the flood fight. In addition, more than that number of National Guardsmen volunteered as part of “Operation Good Neighbor.” Campbell made another request before the day ended, for “all available water pumps.” The dikes in Lincoln Park started failing.

Sometime in the early morning hours of April 18, the dikes at “Belmont Park, Lincoln Park and Central Park began failing at 51.6 feet…due to severe seepage and boils.” East Grand Forks had similar breaches across its levee system as muddy brown waters lapped against failing temporary dikes, (see fig. 9). That same night evacuations began in earnest for both cities. Incredibly, most denied the enormity of the disaster or the impending flood. Linda Larson watched rescue helicopters land and groups of seven

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327 Varley, Flood Stage and Rising, 34-39.
328 Campbell, Grand Forks Emergency Management.
329 Ibid.
330 Winter Storm Disaster, 16.
331 Campbell, Grand Forks Emergency Management.
332 Chronology of 1997 Flood, 4.
people, all from her East Grand Forks neighborhood, board and still she waited “to see if it was really necessary to go.”

Joey Arnason, a sixth grader at Holy Family School in Grand Forks at the time, wrote the following:

"It all started on Friday, April 18, 1997. That night we went to bed thinking that tomorrow would come as normal. Throughout that day we watched the news and were aware of the dikes breaking in other parts of town, forcing the evacuations of neighborhoods nearby. We never, in a thousand years, thought that the flood waters would reach our house. At 2:00 A.M. even though there was no water in sight we were being asked to leave the neighborhood. Our parents stayed up all night continuing to listen to the radio, the television and the civil defense sirens. Morning came fast. Upon waking we discovered that the flood waters had not spared us. Even though we were over ¼ mile from the river, we noticed waters filling up our street and starting to climb up our yard. My parents were already in full panic...we loaded into our two vehicles and started to leave only to see that the water in the street was too deep to drive through. Had we waited too long?"

Joey’s family did indeed make their emergency escape by driving across lawns and sidewalks before finding higher ground outside the immediate flood plain.

Meanwhile in the Grand Forks EOC, emergency managers continued the fight requesting another million sandbags. Within two minutes of that request, Jim Campbell made another at 4:47 pm on April 18. He asked FEMA, and officials at the state EOC for “blanket approval for all items needed to evacuate and house up to 70,000 people.”

Evacuation proved imminent. Floodwaters expanded across Grand Forks, resurrecting Lake Agassiz. The only question that remained was how many people would need evacuation. In Lincoln Park, Riverside Park, and Central Park, all areas of repeated historical flooding, evacuation became mandatory. Floodwaters topped the roofs of

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333 "Flood Story," Ellis Larson and Linda Larson to Grand Forks Herald, 1998?, In the 1997 Red River Valley Flood Collection at the Elwyn B. Robinson Department of Special Collections, Chester Fritz Library, University of North Dakota, Grand Forks.


335 Ibid.

336 Campbell, Grand Forks Emergency Management.
homes in Lincoln Park by early evening matching the level of the river, (see fig. 11). At approximately 9:40 pm on Friday night, the Grand Forks EOC and lower levels of the police station succumbed to floodwaters. The devastation only increased through the weekend.  

On Saturday morning, April 19, Jerry and Ann Hoeppner faced an evacuation order. The river reached nearly 53-feet though they believed evacuation unwarranted, and clung to a “false sense of security.” As Jerry later revealed, “Ann and I did not believe the water would engulf our neighborhood.” They did evacuate later that afternoon and floodwaters filled their basement “to within four inches of the main floor.” A short distance away on Campbell Street, Glinda and Richard Crawford reported hearing sirens screaming as a voice from a military truck blared, “you must leave your homes immediately.” Glinda later wondered what happened to, “our sleepy town, our quiet and simple lives were jarred into a new consciousness, beyond what any of us could imagine.”

That same day water extended four feet deep in downtown, (see fig. 7, 8 and 12). The water plant failed, all areas east of Columbia Road evacuated. In addition, more than fifty percent of Grand Forks flooded, (see fig. 10) and fire broke out downtown, (see fig. 13 and 14). The following days brought more of the same. Floodwaters forced the evacuation of all areas east of Interstate 29 and many homes, businesses, or government building had waters to the rooftops. National Guardsmen, police and firefighters made a

337 Bakken, *Come Hell and High Water*, 30-38.
338 "Hoeppner Flood Story."
339 Ibid.
340 Ibid.
341 “Moving to Higher Ground.”
342 Ibid.
343 Bakken, *Come Hell and High Water*, 38.
valiant effort, however eleven buildings in downtown Grand Forks burned down. State troopers closed Interstate 29 north and south of the city. Floodwaters ran into sewers mingled with waste and compromised the city’s entire water system. Conditions also forced the evacuation of the critically ill and infirm from the city.\textsuperscript{344}

Sometime “between April 20 and 22, the river gradually made its way to crest, 54.33 feet, surpassing 1897’s 50.2 feet.”\textsuperscript{345} The Army Corps of Engineers calculated the flood as “a 210 year event,” while the USGS decided its probability of repetition appeared closer to 118 years.\textsuperscript{346} In any case it did not reach the level of a 500-year event.\textsuperscript{347} In reality, neither number meant much. A similar flood could occur the following spring or any year in the near future. However, due to the last century of development and suburban sprawl it proved the worst flooding of an American city in the Twentieth Century, (see fig. 5, 6 and 15). In the aftermath, nearly sixty thousand people remained homeless. Destitute perhaps, but not abandoned. In true frontier spirit, the surrounding community opened their hearts, homes, and pocket books to aid the survivors.\textsuperscript{348} The federal response and promises of relief also occurred swiftly.\textsuperscript{349}

On April 22, 1997, before leaving for North Dakota, President Bill Clinton and Vice President Al Gore conducted a press briefing on the south lawn of the White House. In opening remarks, Al Gore said that one hundred year level flooding events in the Midwest had occurred six times in the past ten years. He also noted scientists’

\begin{itemize}
  \item \textsuperscript{344} Winter Storm Disaster, 16-19.
  \item \textsuperscript{345} Tweton, Grand Forks, 212.
  \item \textsuperscript{346} Shelby, Red River Rising, 186.
  \item \textsuperscript{347} Harrison and Bluemle, Flooding in the Grand Forks, 31-36.
  \item \textsuperscript{348} Ellen Earle Chaffee, "Listening to the People You Serve" (speech, AAHE Conference on Quality and Assessment, Miami Beach, June 13, 1997).
  \item \textsuperscript{349} "President Clinton's Remarks on Upper Midwest Floods," speech, Remarks by the President and Vice President Upon Departure, The South Lawn, Washington, in Federal Emergency Management Administration Newsroom (Washington: FEMA, 1997), 2.
\end{itemize}
contentions that ongoing climate change increased the probability of similar major
flooding into the future. He expressed a valid point, though one lost in the weeks to
come. President Clinton followed the vice president, and noted the enormous loss and
hardship of the Grand Forks community and pledged “our nation’s support to see that we
are doing everything we can do to help them.”

Later that day after an aerial tour of the devastation, President Clinton met with
other federal, state, and local officials at Grand Forks Air Force Base. He readily
announced that FEMA would “reimburse 100 percent of North Dakota’s cost[s] for
immediate disaster-related emergency work.” Federal disaster policies enacted since
1950 and discussed previously, put the financial burden for all emergency efforts since
April 7, on the American taxpayer. Moreover, President Clinton told those assembled
that he would ask congress for another $88 million dollars in supplemental aid for
affected areas. By June, Grand Forks saw $50 million in direct aid. In reality,
disaster relief and federal aid continued to pour into the Grand Forks community for
years afterward. Some estimates of the damage run as high as $2 billion or more. Even
rebuilding efforts fell under matching arrangements per national disaster policy ensuring
that federal taxpayers paid the lion share of those as well. Many expressed gratitude and
thanks to those who had worked so tirelessly to protect them. Others, perhaps grieving
their loss or trying to process a newfound fear of the river, sought to lay blame.

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350 Ibid.
351 Winter Storm Disaster, 19.
352 “President Clinton’s Remarks,” 5-6.
353 Winter Storm Disaster, 19.
354 Shelby, Red River Rising, 159.
Within two weeks, Mike Jacobs of the *Grand Forks Herald* wrote an article expressing his “disappointment,” with federal agencies for failing to communicate. He made a tangible point in that the Corps of Engineers and NWS used two different flood prediction curves during the 1997 event. Moreover, neither agency shared its conclusions before the flood and while preparations occurred. The curve used by the Corps’ indicated a slightly higher crest in Grand Forks than the one used by NWS hydrologists. However, the implication that using one model over the other or both would have improved the outcome is wholly unsubstantiated. Additionally, Grand Forks city engineer Ken Vein’s opinion that “with proper advance notice we could have protected the city to almost any elevation,” seems unlikely. As dikes built to sustain 52-feet failed in Lincoln Park at just over 51 feet. Moreover, the breadth of overland flooding promised flanking waters and private levee works upstream almost assured that the city’s dike system would suffer a wholesale breach.

In addition, any attempts to sacrifice parts of the city to save others from floodwater were politically unpopular and therefore unlikely. Another argument raised by the *Grand Forks Herald* claimed that NWS hydrologists ignored the flow dynamics of bridges and temporary dikes restricting floodwaters. There is validity in this point. Any impediment to flow creates backpressure and a corresponding elevation of floodwaters. A forensics report conducted in July 1997 by the NWS Disaster Survey Team determined that backpressure did indeed elevate flood levels. The NWS should have known the effect of backpressure caused by bridges since the 1969 flood and as indicated in a 1985 USGS

357 Ibid.
The impediments to flow of this nature caused an approximate one-foot increase in elevation. However, forecasters found themselves in uncharted territory. At 54.33 feet, the reality of the 1997 flood held that there “was no historical basis on which to produce a reliable forecast.” The lack of comparable historical data compounded by the dearth of information at the NCRFC due to storm Hannah made accurate predictions nearly impossible. Despite those circumstances, the 1997 NWS-NRCFC flood crest prediction in terms of percentage error, approximately ten percent, appeared better than the average for similar forecasts made between 1980 and 1997.

Beyond assessing blame however, the Grand Forks Herald article demonstrated insight into some aspects of public sentiment. Mike Jacobs seemed reticent to blame federal agencies outright for the disaster. However, he demonstrated little restraint in asserting that the federal government should pay for remediation. Moreover, in discussing the need for a floodway he asserted that “the federal government will need to build it, and it will need to buy out property owners who are in its path.” Perhaps emboldened by nearly half a century of increasingly generous aid for disaster survivors, Jacobs felt justified in demanding that federal taxpayers pay the bill.

Nevertheless, one of the stipulations for federal money included an agreement between Grand Forks officials and the Corps in which the city agreed never again to build in the 100-year flood plain. In addition, the agreement mandated removal of any structures currently located in this area. Though as previously stated, the 1997 flood went

361 Ibid., 91.
362 Ibid., 88-89.
363 Jacobs, “Disappointment, Not Anger.”
364 Ibid.
well beyond the breadth and scope of a 100-year event. Still, a “voluntary” federal buyout program began for homes within reach of a 100-year flood. In reality, little became voluntary about the program. Most receiving government buyouts believed the offer made on their home unfair and well below market value.365

The buyout program also perpetuated a well-entrenched moral hazard. Specifically, it penalized those who had participated in the National Flood Insurance Program. A monetary settlement from federal flood insurance reduced the sum paid out under the buyout program by the same amount. This decision effectively punished those who had exercised personal responsibility and responded to appeals from FEMA and others to purchase flood insurance. Moreover, it undermined a federal program intended to defer increasing disaster costs from taxpayers to the individuals responsible. The Grand Forks populace became well aware of this policy making it questionable whether any would demonstrate similar personal responsibility in the years to come. The dichotomy created also seemed certain. For some great benevolence bred appreciation for others, contempt and irresponsibility, even civil disobedience.366

For example, one Lincoln Park homeowner refused to abide by the city’s ban against inhabiting areas destroyed by floodwaters. A mandate intended to protect residents from extremely unsanitary conditions including sewer waste, chemical contamination, black mold, and pestilence. In this case, Kelly Straub a Lincoln Park resident defied repeated attempts by city officials including a personal request by Mayor Pat Owens to vacate her previous home site. Ms. Straub expressed her desire to find closure for her children as they dealt with the devastation of such a loss. Recently

366 Ibid., 159-166.
divorced and a single mother of three, she used the media and publicity to elicit sentiment from the community. Some in her Lincoln Park neighborhood commiserated with her sharing their sentiment and blaming government for failing to protect them. The bitter pill of below market home buyouts only exacerbated this condition. While perhaps understandable, her actions needlessly hampered efforts to remove structures from damaged areas and delayed new flood protection projects. She remained along with her minor children living in a health hazard for another three years before moving out. She like many of her neighbors eventually took the money offered under a city administered federal buyout.367

Another resident, Brenda Johnson expressed sorrow after learning that the Corps planned to build a multimillion-dollar greenway in her neighborhood. One largely funded by federal taxpayers. She stated, “now many of the houses we saved will be taken by the dike. Our neighborhood will be changed forever.”368 Recent floodwaters exacerbated the moral hazard in play. Some residents clearly held the federal government responsible. Others must help shoulder the consequences for those living in a historical flood plain. While some in the Grand Forks community, racked with pain and loss embraced this mantra, others plainly did not.369

Glinda Crawford commented that, “the area we call home behaves more like a lake than a river. And here we sit: precisely and smugly in the middle. Or is it: arrogantly

367 Ibid.
368 “The Flood Fight,” Brenda Johnson to Grand Forks Herald, 1998?, In the 1997 Red River Valley Flood Collection at the Elwyn B. Robinson Department of Special Collections, Chester Fritz Library, University of North Dakota, Grand Forks.
369 Ibid.
and ignorantly?”370 After the flood, she and her husband Richard struggled to reclaim normalcy. She explained, “the River had swept away the illusion of safety we had imagined. I (and all others of Greater Grand Forks) could no longer sleep in our beds with the safety we had imagined before. This could happen again and it could be worse.”371 Don Zimmerman, from East Grand Forks, expressed a newfound respect for “authorities” responsible for forecasting, emergency response, and those working to protect his community. He realized their humanity and the vulnerability of life in a flood plain. Far from the image of faceless bureaucrats posited away in an officious building he noted, “I guess we found out that we are people, and ‘they’ are just people too…that people have their limits, and mother nature doesn’t.”372

Public perception had indeed shifted and the reality of flooding became a bitter and tragic wake up call. Some blamed officials while others noted how government intervention had changed individual behavior. Perhaps the most powerful artifact indicating that shift in public sentiment came from Veronica Gregoire of Grand Forks. She noted, “my grandparents, Nathaniel [and] Lura Marshall lost their farm home [and] buildings in the EGF [East Grand Forks] Point area in the 1897 flood…they didn’t have insurance or FEMA to help them. It was more do it yourself. So they rebuilt on higher ground.”373 A similar future did not occur for Grand Forks. Mayor Pat Owens “the gritty and determined mayor…led the instant wall of faith to fight the river’s destruction,”

370 “Moving to Higher Ground.”
371 Ibid.
372 “The 97 Flood.”
assuring her people that they would rebuild their city.”\textsuperscript{374} With that the flood paradigm of the last half-century and its entrenched moral hazard continued in the Red River Valley of the North.\textsuperscript{375}

\textsuperscript{374} Hill and Brick, “Ice Storm Fury,” 12.
\textsuperscript{375} Ibid.
CHAPTER VII

“The struggle to control water is a struggle without end.”

-Terje Tvedt and Eva Jakobsson

CONCLUSION

In the wake of the 1997 Red River flood, the Grand Forks populous expressed disbelief, disappointment, and even anger. Human intervention proved futile against the forces of nature. Many in the community blamed the federal government for failing them. Some trying to ameliorate sentiments offered solace, others attempted to conciliate hard feelings toward federal, state, or local government officials. A headline from May 1997 in *North Dakota* magazine under a segment about the flood read “Neither easy to predict nor easy to contain.” The article continued, “that simple statement about the Red River explains the hardship inflicted on hundreds of thousands of river-valley residents this spring.” However, the history of this river contradicts the first premise of that statement. The Red River basin is the remnant of glacial Lake Agassiz. While Lake Agassiz eventually drained, the basin it created remains and any excess moisture causes its resurrection. Grand Forks is precariously located near the center of

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378 Hill and Brick, "Ice Storm Fury," 12.

379 Ibid.
this prehistoric lake bottom on the banks of the Red River of the North ensuring that it will flood again.380

However, similar to countless other river towns, Grand Forks emerged and prospered due to its proximity near the Red River of the North. Nevertheless, the real draw of this settlement remained agriculture. The rich chernozem soil, unsurpassed for agricultural use, attracted pioneers and immigrants eager to work this bountiful plain and the population grew. With population came the railroads, manufacturing, processing plants, and other development. Major floods in 1882 and 1897 challenged the nascent community but the self-reliance born of isolation saw the town through.381 Moreover, the first half of the Twentieth Century brought a season of draught generally and few worried over flooding. The community endured what little seasonal flooding that did occur through hard work and neighbor helped neighbor. Flooding required arduous if expected effort, the season between winter and summer. Those who found their homestead too close to the flood plain moved to higher ground. This scene repeated often until 1950.382

The 1950 flood changed the disaster paradigm in Grand Forks and across the country for several reasons. First, it occurred in the wake of New Deal policies, World War II and during the Fair Deal era. Those policies and events acclimated the nation to a more paternalistic federal government and ideas deemed too progressive or counter to free market principles of the past. In addition, public sentiment accepted a more comprehensive role for the federal government in everyday life. Second, the 1950 flood happened at the beginning of the Cold War. Agriculture is integral to the Red River basin

380 Harrison and Bluemle, Flooding in the Grand Forks, 1-7.
381 Ibid., 1-16.
382 Bergh, The Norwegian Sodbuster, 49-56.
and part of the larger breadbasket of the nation. Farming meant food and infrastructure supplied the means of transporting that to population centers, both national security concerns.  

The authors of the Federal Disaster Relief Act of 1950 had those concepts in mind when they crafted that legislation. In addition to the direct funding received by Red River communities, the 1950 Act also created an expectation that future administrations would consolidate and coordinate relief efforts. Third, the 1950 flood wrought immense devastation even by North Dakota standards of harsh weather. The flood cost nearly $33 million in the United States with $7.4 million of those damages occurring in Grand Forks. Many in the Red River community and congress incorrectly believed that the 1950 flood symbolized the event of the century there and unlikely to occur at those levels again in their lifetime.

Given the slight amount of flooding in the first half of the Twentieth Century, it is understandable that the Grand Forks community believed the 1950 flood represented a seminal event. However, major flooding occurred there often over the next forty-six years. Ten of those floods including the two in 1950 earned 100-year event status. Despite the severe flooding witnessed in this community, development along the flood plain continued. In the urban center, newer and more expensive buildings replaced older structures. Suburban sprawl and decentralization ensured rapid growth further south along the river and west in the floodplain. Clearly public sentiment supported further

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384 Ibid.
386 Ibid., 302-308.
development as most of the larger civil projects passed in open community votes.\textsuperscript{387} Moreover, infrastructure in roads, bridges, ditching, and levees impeded flow patterns and virtually guaranteed greater flooding across the area. With each major flood, monetary damages increased, yet the community rebuilt, and each progression saw more expensive structures than before.\textsuperscript{388} One must wonder why a community grounded in agrarian pragmatism with a history of rugged individualism, and proven self-reliance would do this repeatedly.\textsuperscript{389}

A viable explanation for that seemingly illogical paradigm is the creation of a moral hazard. The basis for this peril is the likelihood that overly benevolent federal disaster assistance will “serve to diminish the natural caution that individuals, communities, and businesses might otherwise exercise in adjusting to natural hazards in their investment and locational decisions.”\textsuperscript{390} Increasingly generous federal disaster laws passed in the 1970s and 1980s indemnified those in disaster prone areas like Grand Forks from grievous financial losses. Clearly, legislators had the best of intentions and sought to relieve financial and social suffering for those affected by the forces of nature. In addition, disaster legislation created a federal emergency management bureaucracy complete with an army of employees, meteorological and hydrological expertise and increasingly sophisticated forecasting and monitoring technologies. Moreover, helping neighbors in need remained politically popular and became a self-sustaining platform. However, those laws, policies, and associated infrastructure, even past successes created more than a moral hazard they also produced “a false sense of security” in the Grand Forks area.

\textsuperscript{388} Mileti, \textit{Disasters by Design}, 930-938.
\textsuperscript{389} Tweton, \textit{Grand Forks}.
\textsuperscript{390} Platt, \textit{Disasters and Democracy}, 9.
Forks populace. This statement is not an indictment of Grand Forks society, quite the contrary. If a moral hazard could take root in that grounded community, then none in the nation is immune.

However, in the aftermath of the 1997 flood, politicians at the federal, state, and local levels pledged to rebuild Grand Forks. Those efforts incurred a price tag of over $2 billion, largely paid by federal taxpayers. Public sentiment in Grand Forks and across the nation supported this direction. Over the next decade hundreds of millions of federal taxpayer dollars went to build an elaborate greenway in Grand Forks complete with levees, pumping stations, causeways, ditches and the like. The Army Corps of Engineers also removed structures previously located in the hundred-year flood plain and created a park like atmosphere in the greenway for public enjoyment, (see fig. 17-19). Corps personnel estimated that the new greenway would provide flood mitigation for an event similar to the 1997 flood. While the Corps’ estimated that the 1997 inundation denoted a 210-year flood, the USGS contended that it characterized a 118-year episode. In any event, given the geologic history of the Red River basin and ongoing climate change one fact remains, Grand Forks will likely flood again. Sadly, one must wonder whether past efforts to protect that community have continued the illusion of safety and only postponed the inevitable and increased the severity of the next major flood.

391 "Hoeppner Flood Story."
392 Platt, Disasters and Democracy, 1-46.
394 Shelby, Red River Rising, 186.
395 Mileti, Disasters by Design, 949.
Figure 2. Depiction of the geologic makeup for the Red River basin. Note the western shoreline of glacial Lake Agassiz at the lower left quadrant of the illustration. Harrison and Bluemle, *Flooding in the Grand Forks*, 7.
Figure 3. Depiction of the expansive Red River Basin from its headwaters in Wahpeton/Breckenridge to the international border with Canada, near Pembina North Dakota. United States Geological Survey, accessed June 15, 2016, https://www.google.com/search?q=red+river+of+the+north+drainage+basin&espv=2&biw=1920&bih=941&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjF6ru0iq3NAhUF0AT4KHbX_B4oQ_AUIBigB#tbm=isch&q=USGS+red+river+of+the+north+drainage+basin&imgref=r3FmFDcY2NcnqM%3A.
Figure 4. Map of greater Grand Forks depicting flood zones circa 1980. The darkest areas indicate locations prone to 10-100 year flood events. Of particular interest is the lighter gray band extending to the far left of the page indicating the reach of a 500-year event. Harrison and Bluemle, *Flooding in the Grand Forks*, 74.
Figure 17. Photograph taken in fall of 2015 by the author standing on top of the protective berm (see fig. 18) near downtown Grand Forks looking east across the Red River to East Grand Forks. Near the top of the obelisk is a ring indicating the extent of the 1997 flood (see fig. 19).
Figure 18. Photograph taken in fall of 2015 by the author standing on top of the protective berm facing northwest toward downtown Grand Forks.
Figure 19. Photograph taken in fall of 2015 by the author. Note the rings around the obelisk indicating the depth of past floods and the Sorlie Bridge in the background.
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