

CHAPTER FOUR

The Civil Works Program II: Flood Control Projects

Throughout the last quarter of the twentieth century, much of the St. Paul District's civil works efforts focused on the Mississippi River. However, that waterway was not the district's only responsibility; it also performed flood control projects on rivers and lakes throughout North Dakota, Minnesota and Wisconsin. Just as district undertakings on the Mississippi showed the impact of environmentalism on the Corps' civil works mission, so too did these other flood control projects demonstrate the evolution of the St. Paul District's environmental awareness. In these other regions, the Corps faced different problems than in the Mississippi River Basin. For one thing, agriculture dominated the Northern Great Plains, where many of these projects were built, leading to conflicts between urban environmentalists intent on halting undertakings and rural agriculturists who, in their estimation, needed the projects to survive. For another, the flat topography and cold climate of the Northern Great Plains ensured that Corps' activities would consist primarily of flood control, with few navigational concerns. Indeed, the La Farge project in Wisconsin, the Devils Lake undertaking in North Dakota, the Grand Forks/East Grand Forks project in North Dakota and Minnesota and the South Fork Zumbro River undertaking in Minnesota, raised several interesting quandaries for the district and are especially good examples of the controversial issues and innovative solutions that developed between 1975 and 2003.

La Farge, Wisconsin

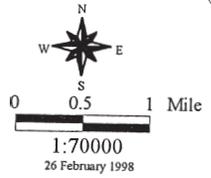
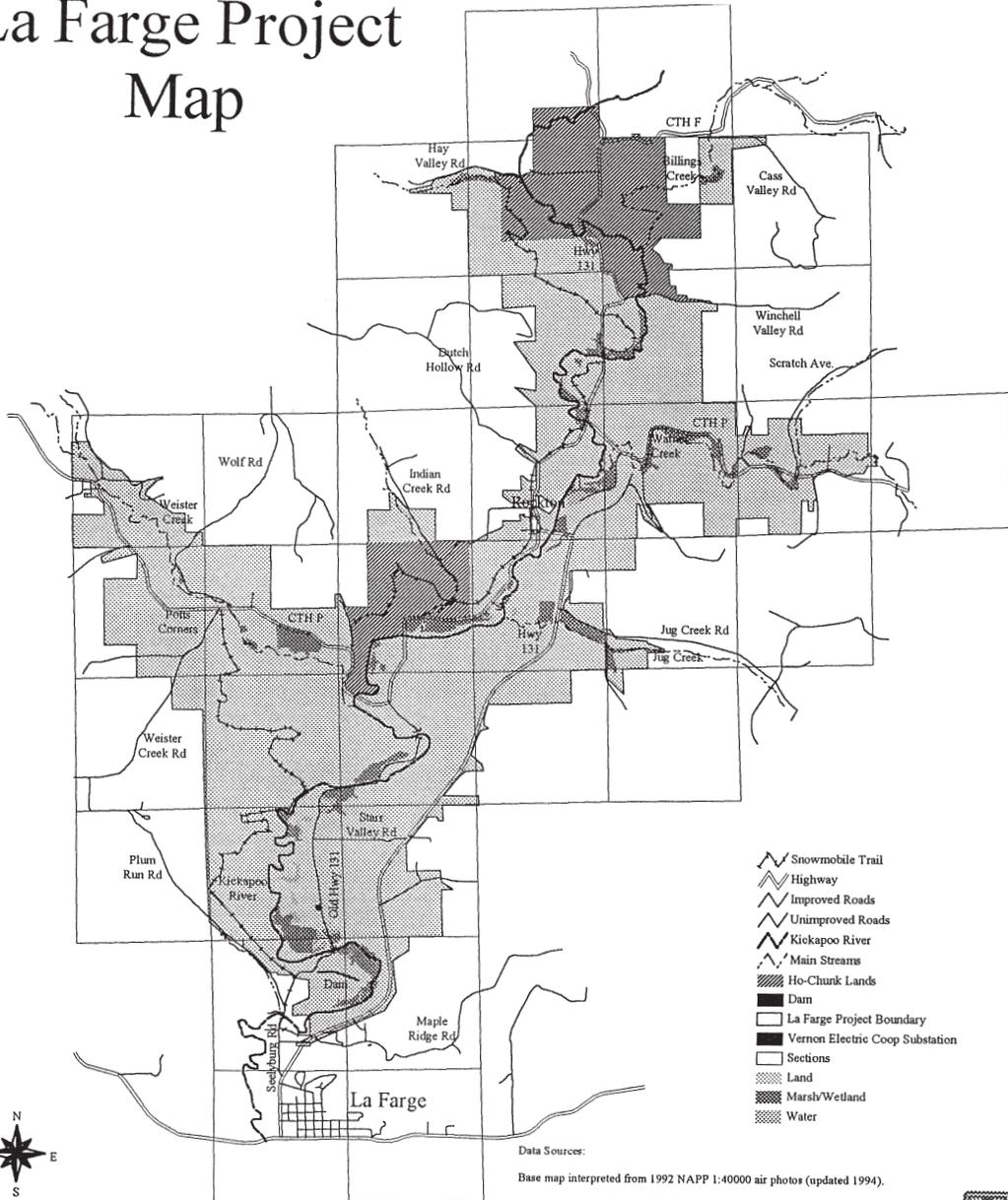
The La Farge Project in southwestern Wisconsin was an attempt to tame the Kickapoo River, a waterway that flows 95 miles through nine communities ranging in population from a hundred to more than seven hundred. The river mainly traverses hilly farmland before emptying into the Wisconsin River only 16 miles from the Wisconsin's juncture with the Mississippi. Other than the development of the Corps' Upper Mississippi River policies, perhaps no other project better highlights the impact of the National Environmental Policy Act, or NEPA, and the environmental movement on the Corps' civil works program. The beginnings of the project stretched back to the 1930s, when Kickapoo Valley residents, tired of floods that had inundated the region in 1907, 1912, 1917 and 1935, asked the Corps for assistance. In 1938, the Corps performed a preliminary examination of the river but the outbreak of the Second World War stalled any decisive action. In January 1962, the St. Paul District issued a report recommending that a dam and reservoir be constructed at La Farge for flood control, fish and wildlife enhancement and recreation purposes, and Congress authorized the project that same year. In order to build the dam and reservoir, the district acquired 348 tracts of land, totaling 8,569 acres, from private residents in the Kickapoo Valley in 1969.¹



La Farge: An artist concept drawing of La Farge Lake and Dam produced in 1972. (Courtesy St. Paul District, Corps of Engineers)

When the Corps began constructing the dam, Congress had just passed NEPA, thereby requiring federal agencies to take into account environmental effects of their actions. Bolstered by this statute, environmentalists quickly objected to the La Farge Dam, believing that the resulting 1,800-acre lake would inundate a scenic portion of the Kickapoo River, would be environmentally unsound and would damage endangered plant species such as arctic primrose and northern monkshood. The Corps' own Environmental Advisory Board, created on April 2, 1970, to provide recommendations and aid to Corps' leadership on environmental issues, requested the La Farge project be used as a test case to implement Environmental Advisory Board suggestions as to how the Corps should interface with the public on controversial issues. However, in 1971, Environmental Advisory Board chairman Charles H. Stoddard charged both the St. Paul District and the North Central Division with, in the words of historian Martin Reuss, "undermining the Board's efforts in the case of the La Farge Dam." Stoddard believed that district and division representatives had pressured state officials to review recommendations for flood control rather than forming an independent panel for that purpose, meaning that no significant dialogue had been conducted about flood control alternatives. Instead, construction of the dam merely continued.²

La Farge Project Map



Data Sources:
 Base map interpreted from 1992 NAPP 1:40000 air photos (updated 1994).
 Project Boundary, Snowmobile Trail, Horse Trails, Dam and Agricultural Lease Fields were digitized from St. Paul District data and overlaid on the base map. The Ho-Chunk Lands were digitized on screen using the boundary information obtained from the St. Paul District Office.
 Other elements were manually digitized from 1:24000 USGS quad maps.



La Farge: Project Map, 1998. (Map courtesy of St. Paul District, Corps of Engineers)

In the early 1970s, the Sierra Club filed two lawsuits against the Corps to stop Corps' work at La Farge but both were dismissed. Late in 1974, the issues reached a head. Wisconsin Governor Patrick Lucey and U.S. Senator Gaylord Nelson (D-Wisconsin), both former proponents of the dam, called for a halt to construction after a University of Wisconsin report revealed the lake would probably be rich in nutrients and susceptible to weeds and algae due to farmland runoff. Lucey and Nelson asked the St. Paul District to consider alternatives to the dam and reservoir. Schooled in traditional Corps' beliefs that dams and reservoirs were the best flood control devices regardless of environmental effects, District Engineer Max Noah reluctantly agreed, but observed, "I think we do owe it to the [Kickapoo Valley] community as a whole to continue the project."³ James Braatz, St. Paul District spokesman, also expressed skepticism about alternatives, stating the original proposal was "the only way to go."⁴ Such comments prompted the *Capital Times* in Madison, Wisconsin, to editorialize,

Nothing better exemplifies the ossified, stratified, obdurate bureaucratic mind at work than the attitude of the Army Corps of Engineers toward any suggestion that, maybe, the dam they are constructing across the Kickapoo River at La Farge might be an environmental mistake.⁵

The differences between environmentalists and the Corps over the La Farge Dam reflected the general tensions that abounded in the 1970s between the two groups. Whereas environmentalists perceived engineers as narrow-minded dam builders who were insensitive to environmental concerns, engineers saw environmentalists as unrealistic "tree-huggers."⁶ Part of the problem was different perceptions of flood control. Environmental groups such as the Sierra Club endorsed nonstructural solutions to flooding, such as removing development from the floodplain and other management techniques, while the Corps still focused mainly on structural answers, such as dams and reservoirs. Although the Corps would eventually begin to implement nonstructural solutions, the La Farge Project saw it clinging to the structural method.

The St. Paul District agreed to study alternatives to the dam. It formed a partnership team for that purpose and even issued a report reviewing alternatives, but it still believed that the dam and reservoir were the only viable solutions. After the partnership team issued a report in March 1975, affirming the eutrophic nature of the proposed lake and the expense of trying to improve its water quality, Noah defiantly declared, "It's never been my intention to review alternatives," adding that as long as Congress provided the necessary funds, the district would continue to construct the dam.⁷ A Kickapoo Valley organization, Citizens for Kickapoo, agreed with Noah's stance, presenting Governor Lucey with a 7,000-name petition in support of the dam. Faced with the obstinacy of Noah and Kickapoo Valley residents, Nelson, who wanted to relocate individuals from the floodplain and create a riverway park system, and U.S. Senator William Proxmire (D-Wisconsin), who was concerned about the escalating costs of the dam, took the matter to the

Senate Subcommittee on Public Works and eliminated construction funding in November 1975. In response, La Farge residents burned Proxmire in effigy and buried him in a mock funeral, angered that he had helped place the project in a state of “bureaucratic limbo.”⁸

Proxmire’s vilification highlighted another significant theme – the battles between urban and rural residents over flood control. Most of the opposition to La Farge came from residents of Madison and Milwaukee; most of the proponents were centered in the Kickapoo Valley. “Kickapoogians” believed the recreation potentials of the dam and reservoir were needed in order to stimulate the area’s economy and claimed the reservoir was necessary to prevent farmland flooding. They resented the intrusion of “outsiders,” people who they believed had no economic interest in the project. Jane Johnson, a resident of La Farge, expressed her discontent with Nelson and others who were “playing on our emotions,” while Bernice Schroeder, also a La Farge citizen, stated that opposition to the dam “shows the insensitivity of the urban people to the needs and wants of the people here.”⁹ Ward Rose’s despair went even deeper, as he believed it did not matter what La Farge residents actually wanted because, “We are going to end up with what some rotten politicians want us to have.”¹⁰ Environmentalists disagreed, arguing that “the fate of the Kickapoo Valley is of great concern to all Wisconsin residents, as the Kickapoo River is an important natural treasure enjoyed by residents from all areas of Wisconsin.”¹¹ The St. Paul District was caught in the middle, wanting to build the dam and reservoir but facing intense opposition from the other side.

By the time Nelson and Proxmire successfully persuaded Congress to cut the dam’s funding, the Corps had spent approximately \$18 million and completed nearly forty percent of the project. The dam itself lay across the valley, stopping just at the river. A concrete intake tower was finished, as was a conduit tunnel and a maintenance building.¹² Because no taxes were levied on the lands the Corps had purchased from valley residents, the community suffered a decrease in tax revenue. Those who sold the property criticized the Corps for removing them from their homes for no purpose. With such problems, it became imperative either to de-authorize the project or to find another solution. Several proposals were introduced, including Nelson’s idea to build a riverway park for the National Park Service to administer. But early in 1976, the Interior Department declared that the stretch of the Kickapoo River, including La Farge, did not meet the criteria for national park or scenic waterway status.¹³ In 1977, President Jimmy Carter recommended the abandonment of the La Farge Project as part of his fight against unnecessary flood control projects, advocating instead the need to focus on nonstructural alternatives in the Kickapoo Valley.¹⁴

The need to resolve the flooding became more urgent in 1978 when the region experienced severe summer inundations that caused an estimated \$10 million in damages.¹⁵ After water at a



La Farge Project: The La Farge Project soon after work was suspended, 1979. The concrete intake tower is in the foreground. (Photo courtesy St. Paul District, U.S. Army Corps of Engineers)

depth of six feet flowed down its main street, Soldiers Grove, a community of five hundred on the Kickapoo, worked with the Department of Housing and Urban Development to relocate its homes and businesses a half-mile away, placing them out of the floodplain.¹⁶ Other towns, including La Farge, were not so willing to uproot. Thus, when Steven Gunderson (R-Wisconsin) began serving in the House of Representatives in 1981, he decided to try to find a less radical solution to the Kickapoo Valley's problems. Gunderson asked the St. Paul District to consider completing the dam as a dry dam, with no resulting reservoir. District Engineer Colonel William Badger agreed to study the proposal, but admitted that ultimately, Congress had the responsibility of telling the district what to do with the project. "I'd be willing to do whatever Congress, in its wisdom, decides," Badger stated.¹⁷ But Congress took no steps toward de-authorization, leaving Badger somewhat frustrated: "It really creates problems for me because it is not being funded and yet I have to maintain it. I have to keep it clean and keep security on it."¹⁸

Despite Badger's concerns, the dam remained in limbo. In 1983, Congress appropriated funds for the dry dam study, which was completed in 1984. This report concluded that neither a dry dam nor a wet dam was feasible for several reasons, including poor benefit-cost ratios and inadequate flood protection.¹⁹ With no relief forthcoming, some Kickapoo Valley residents decided to take matters into their own hands and instituted lawsuits against the Corps to force the completion of the dam. In October 1985, Martha Rose Driscoll, who had sold 200 acres to the Corps in 1970; Ronald Driscoll; and Pat Driscoll filed a suit seeking \$110,000 in damages and requiring the St. Paul District to finish the dam. Two months later, Leita Slayton, Darold and Loretta Hanson and Schwert Farms filed a similar suit, claiming that stoppage of the project had led to "loss of jobs, tax revenues, and profits," and that the lack of flood protection "hurt property values and left crops unprotected."²⁰ U.S. District Judge Barbara Crabb dismissed the suits in December 1988, but stated that if residents "were to show that the Corps acted improperly, they might be entitled to have the Corps redetermine whether the project should be completed." Pat Driscoll thus redirected his efforts and filed another suit in December 1989, asking the Corps sell acquired land back to the landholders if it could not finish the dam.²¹ In September 1990, U.S. District Judge John C. Shabaz dismissed the suit, stating that because Congress had not provided funds to the Corps for the dam, the Corps could not be obligated to complete it.²²

With no solution forthcoming, La Farge residents and the St. Paul District continued to wait. Some of the land itself, however, was still in use. The St. Paul District leased the maintenance building to the town of Stark, Wisconsin, and more than a thousand acres of land to nearby farmers. In addition, the Corps allowed some events to occur in the vicinity, including annual dog training clinics by the Blackhawk Retrievers Club and a couple of gatherings by the Rainbow Family, a group promoting alternative lifestyles.²³ A final resolution of the project was still necessary.

In 1991, Governor Tommy G. Thompson of Wisconsin asked the people in the Kickapoo River Valley to study the problem and devise a solution. Assisted by Alan Anderson, an economic development specialist with the University of Wisconsin-Extension, the residents developed a proposal for the government to transfer the disputed 8,500 acres of land to the state which would then have a local board administer it as public land. In addition, the locals asked the St. Paul District to complete improvements to State Highway 131, a road the Corps was supposed to have relocated after the dam was constructed. Thompson, stating that the plan went "far towards putting this twenty-five year source of pain and conflict behind us all," asked Gunderson to usher it through Congress.²⁴

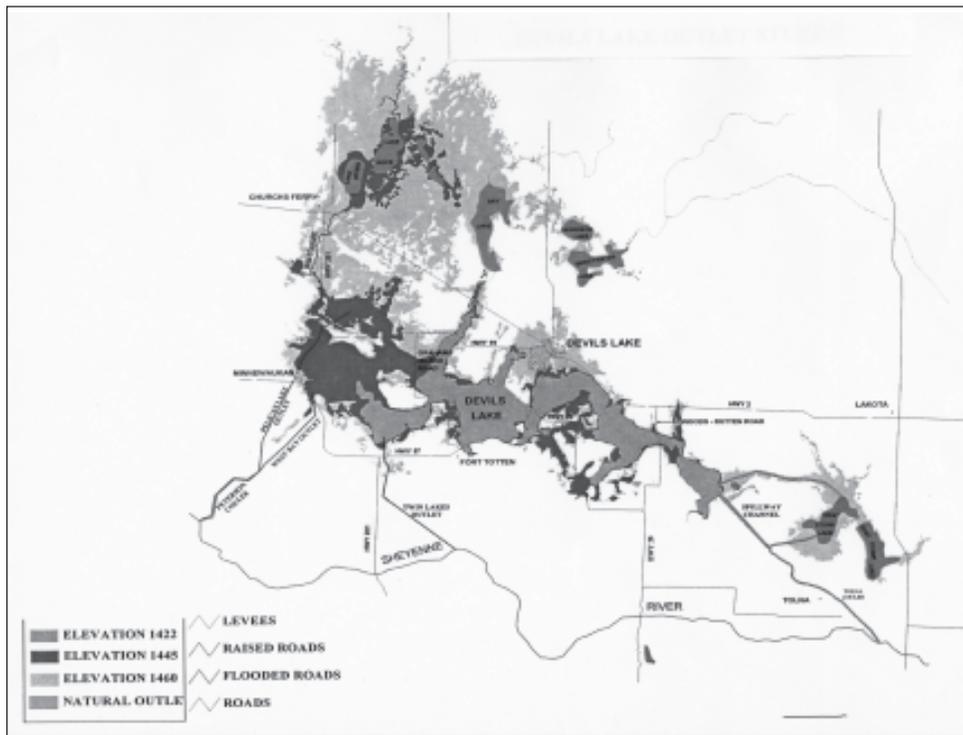
In June 1994, Gunderson and U.S. Representative Thomas Petri (R-Wisconsin), together with U.S. Senators Russell D. Feingold (D-Wisconsin) and Herbert H. Kohl (D-Wisconsin)

introduced legislation implementing the proposal. It stated the land would be transferred to the state of Wisconsin and designated as the Kickapoo Valley State Reserve. It also set up a local citizen's board to manage the land and provided \$17 million to complete the road construction and to develop recreational features. The law also provided for a part of the 8,500 acres to be given to the Ho-Chunk Indian Nation, which resided in the area. Since the early 1970s, numerous surveys in the Kickapoo River Valley had uncovered hundreds of archeological sites in the area. When Alan Anderson discovered this in the process of developing the transfer proposal, he contacted the Ho-Chunk to determine the tribe's view of these historic and cultural resources. Two Ho-Chunk leaders, Joann Jones and Chloris Lowe, subsequently asked the federal government give all 8,500 acres to the Ho-Chunk. The Water Resources Development Act of 1996 stipulated that no more than 1,200 acres be given to the tribe and stated that negotiations over the final amount had to be concluded with the Ho-Chunk before the State of Wisconsin could receive its land.²⁵

For several months, the Corps and state representatives negotiated with the tribe. In October 1997, the two sides agreed the tribe would take 1,200 acres – 840 acres south of Wildcat Mountain State Park and 360 acres near Black Hawk Rock in the southern section of the reserve.²⁶ After this land reverted to the Ho-Chunk, the remaining acreage would go to the State of Wisconsin to be governed by the Kickapoo Reserve Management Board. The board promised not only to preserve the unique environmental characteristics of the valley but also to promote its use “in a manner that encourages an appreciation and advocacy of a natural area.” Kickapoogians hoped that increased tourism would arise from this settlement and that the natural reserve would mitigate future flooding.²⁷

Meanwhile, the St. Paul District used the \$17 million provided in the law to improve State Highway 131 and to clean up some environmental hazards. The district filled in the concrete intake tower, capped numerous wells, extricated contaminated soil from old dumping sites and conducted real estate surveys. When these necessary functions were completed, the district transferred the deeds to the land to the state and the Department of the Interior. Except for the ongoing construction on State Highway 131, the Corps no longer had a presence at La Farge.²⁸

The unfinished dam remained at the site, a symbol, according to former district historian John Anfinson, of the impact of NEPA. Anfinson and others did not see the incomplete dam as a Corps' failure; instead, it merely represented how NEPA had affected the Corps' civil works program. Had the project been constructed before the passage of the act, nothing could have been done to stop the destruction of endangered plants, scenic beauty and archeological remains. After NEPA became law, it was no longer appropriate for the Corps to build without any regard for environmental effects and the project was stopped. As Anfinson related, “The Corps did an excellent job of building that project and working on that project and doing what it was supposed



Devils Lake: Map of Devils Lake, North Dakota, and the vicinity. (Map courtesy of St. Paul District, Corps of Engineers)

to do. It couldn't do anything about NEPA being passed and implemented," except adapt itself to the new regulations.²⁹ Because of controversies like La Farge, it became increasingly clear to the Corps that such adaptation was both necessary and desirable.

Devils Lake, North Dakota

Although the La Farge project ultimately reached a reasonable and acceptable solution for all sides, such an answer remained elusive for the St. Paul District and the residents of Devils Lake, North Dakota. Perhaps no other project illustrated the difficulties that could result when congressional delegations from different states pursued opposing solutions to the same problem, and perhaps no other project presented as many interested parties – federal, state, local and international – all clamoring for what they thought was best for Devils Lake. Whereas most flood control situations occurred on rivers, Devils Lake was a closed-basin lake with unpredictable water levels. As the lake continued to rise and inundate property in the 1990s, Devils Lake residents pushed for the St. Paul District to build an outlet into the Red River of the North. This

proposal met neither legal nor Corps' standards and caused an outcry from various other "publics," including the Canadian government whose officials claimed that it would dump damaging levels of saline into the Red River, which ultimately flowed into Canada; the Spirit Lake Tribe, which believed that the water was sacred and should not be manipulated; and environmentalists, who believed that the adverse environmental effects of an outlet exceeded its benefits. Caught in the middle of these various perceptions, the Corps struggled to find a solution that would meet the different concerns and still be within its own rigid justification guidelines.



Devils Lake: A flood control diversion channel constructed by the North Dakota State Water Commission in the northeastern part of the Devils Lake watershed, 1979. (Photo by Lyle Nicklay, courtesy of St. Paul District, Corps of Engineers)

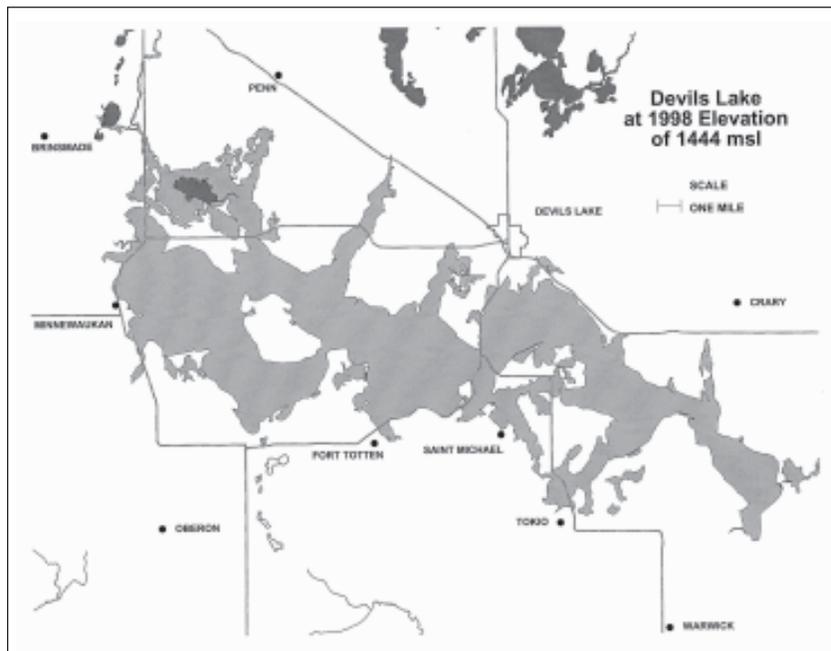
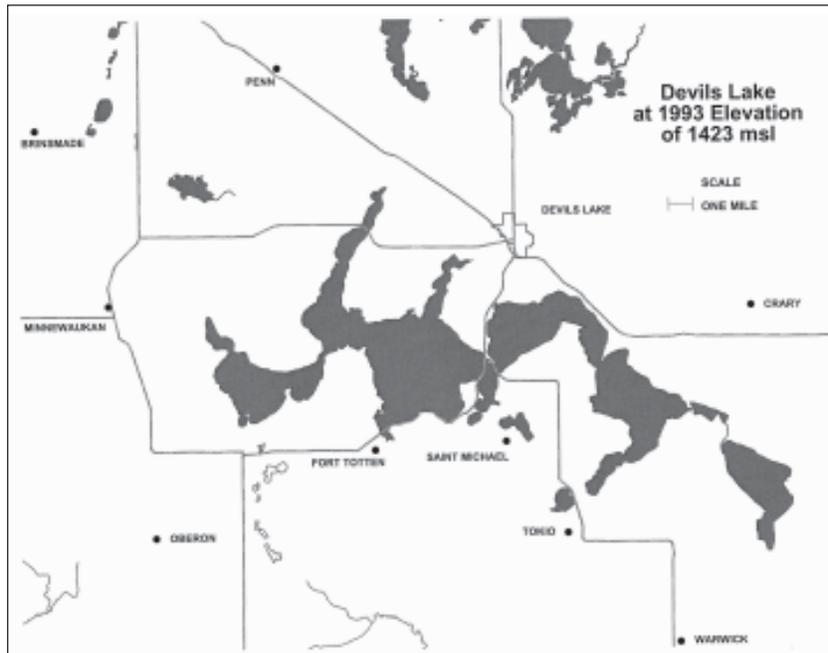
Devils Lake, described by North Dakota journalist Peter Salter as “a wooded jewel in [the] middle of the prairie,”³⁰ lies at the extremity of a closed subbasin of the Red River of the North Basin in north central North Dakota. Unlike most lakes, the waterway has no natural outlet unless its water level reaches approximately 1,457 feet above mean sea level, whereupon it spills into the Sheyenne River.³¹ Surrounded by the communities of Devils Lake, Minnewaukan, Fort Totten and the Spirit Lake Indian Reservation, the lake has been an important economic resource in the area for many years, bringing in approximately \$50 million annually from recreation.³² Because of climatic swings, water levels have traditionally fluctuated between rising and falling cycles. Around 1860, the lake entered a falling phase that dropped the water level from 1,438 feet to 1,402 feet in 1940.³³ The lake then shifted into a rising cycle that eventually resulted in flooding. In 1979, lake levels reached 1,426 feet, wiping out railroad bridges and culverts.³⁴ The lake continued to rise, leading Congress to authorize the Corps in 1983 to conduct studies to determine the best way to protect communities from the rising water. Many residents believed the only solution was to provide a man-made outlet for the water. “It is impossible to manage the water level in the lake without an outlet,” an editorial in a local newspaper suggested.³⁵ Jack Zaleski, managing editor of the *Devils Lake Journal*, agreed. “The cost of no outlet. . . will, in the long run, be very expensive,” he stated.³⁶

St. Paul District leaders did not necessarily oppose construction of an outlet, but explained it would not be feasible until the lake rose an additional seven feet.³⁷ Colonel Edward Rapp, district engineer from 1982 to 1985, cautioned community members to consider rising lake levels in their long-term context: “In a very real sense, mother nature owns all that property

below the natural outlet at 1,457 feet.” Rapp declared that floodplain management was necessary no matter what other flood control solutions were implemented and committed the district to a thorough investigation of the problem, no matter how long it took. “You should not be panicked into a quick fix which could be bad in the future,” he counseled the community.³⁸ In the meantime, the Corps installed levees to protect the City of Devils Lake to a level of 1,440 feet, a project that was completed in 1987.³⁹

Part of the reason for the district’s reluctance to place an outlet in the lake was the complicated nature of a conduit. William Spychalla, Devils Lake project manager, explained there were several obstacles the district needed to overcome before an outlet could be constructed. For one thing, the outlet was embroiled in a larger debate over the Garrison Diversion reclamation project.⁴⁰ Authorized in legislation passed by Congress on August 5, 1965, the Garrison Diversion Unit would have provided water to eastern North Dakota from the eastern end of Lake Sakakawea, a reservoir first formed by the construction of Garrison Dam in the late 1940s. The original authorization of the unit called for the diversion of Missouri River water to Devils Lake to reduce its high salinity, while also recommending the discharge of Devils Lake water into the Sheyenne River, which drains into the Red River, thereby tying an inlet and an outlet together. In 1974, the Bureau of Reclamation abandoned this plan because of adverse effects it would have on the water quality of the Sheyenne and Red rivers, but the idea continued to be debated. Some entities, including Canada and the state of Minnesota, objected to the strategy because diversions would allegedly transfer water and biota from the Missouri River Basin to the Red River, which ran into Canada, in violation of the 1909 Boundary Waters Treaty between Canada and the United States.⁴¹

Because of public clamor for an outlet, the St. Paul District studied the possibilities and concluded in a 1988 draft feasibility report that an outlet could be constructed at the western end of Devils Lake. The report also proposed studies on regulating upper basin drainage areas, evacuating low-lying structures and regulating lakeshore development. That summer, however, North Dakota and other Midwestern states entered a period of severe drought which dropped the lake from its 1987 high of 1,428 feet to 1,422 feet by 1993, prompting fears of fish kills and other recreational and environmental harm from the high salinity of the remaining water. The Corps thus examined how to solve both high- and low-water problems in the lake. In 1990, Congress appropriated funds for a reconnaissance study for a complete lake management plan conducted by the Corps and the Bureau of Reclamation, and, in February 1992, a draft report tentatively found that both an outlet and an inlet were economically feasible.⁴² Some officials within the St. Paul District were not comfortable with this recommendation. Colonel Richard W. Craig, district engineer from 1991 to 1993, believed the district acted too quickly in recommending feasibility. “I’m not sure it’s in the best interests of the Corps for there to be a Devils Lake project,” he stated in 1993. The ultimate solutions, he believed, were more policy-oriented than technology-oriented.⁴³



Devils Lake: Two maps of Devils Lake, North Dakota, show the dramatic expansion of the water in the 1990s. (Maps courtesy North Dakota Department of Natural Resources)

Conditions again changed in the summer of 1993, when wet conditions drastically elevated water levels. Between June and November, the lake rose five feet to 1,427 feet, and its expansion continued. In 1991, the edge of the lake was approximately six miles away from the City of Minnewaukan, but by 1995, water was lapping at the community's sewage lagoon. Hence, the Corps implemented emergency flood measures in coordination with other federal, state and local agencies to protect lakeside communities from the water's rapid expansion, including the construction of a protective berm around Minnewaukan's lagoon.⁴⁴ When the lake continued to rise in 1994 and 1995, the St. Paul District completed a contingency plan that outlined measures the district could take, including an emergency outlet, upper basin water management, relocation of residents and businesses and infrastructure protection.⁴⁵ In June 1996, the City of Devils Lake requested emergency assistance from the Corps to raise its levees an additional five feet (later extended to ten feet), and the Corps complied.⁴⁶ The district also participated in the Devils Lake Basin Interagency Task Force formed in 1995. This organization, according to chairman Michael J. Armstrong, used "the coordinated activity and commitment of numerous federal, state and local government entities along with elected officials, private citizens, environmental groups and representation from the Spirit Lake Sioux Tribe" to "find and propose intermediate solutions to reduce the impacts of high lake levels in the Devils Lake Basin." By 1997, the task force had helped to develop floodplain maps for the entire basin, to relocate twenty-one homes on the Spirit Lake Indian Reservation, to move the sewage lagoon in Minnewaukan, to create with the North Dakota State Water Commission 30 thousand acre-feet of upper basin storage under the Available Storage Acreage Program and to implement agricultural programs to assist farmers who had lost money from flooding or from the Available Storage Acreage Program.⁴⁷

Despite the best efforts of the district and the task force, the lake continued to rise, causing alarm for those living around it. In 1996, the lake sat at 1,438 feet and engulfed approximately 77 thousand acres. This was a significant increase from 1993, when the lake rested at 1,428 feet and covered only 45 thousand acres. As the water continued to spread, seventy-eight homes in the area qualified for the Federal Emergency Management Administration's flood insurance buyout, while the Spirit Lake Nation moved more than fifty homes on the reservation. Some estimates placed flood damages at \$70 million.⁴⁸ Just as important were the psychological effects. Bobby Michels, a lifetime Devils Lake resident, farmed the same land as his father. In 1993, his property was a good distance from the lake; but in 1996, the water rested only a mile from his house after swallowing 150 acres of his pasture land. The situation convinced him to sell his farm and leave the area, notwithstanding his ties to the land. "I don't have any qualms about leaving," he stated. "We've been under so much stress here." John Grann, a farmer who had lost 7,000 of his 8,000 acres to the rising water, agreed. "It's pretty hard to have any optimism," he related.⁴⁹

Faced with this situation, many Devils Lake residents clamored again for a man-made outlet, believing this solution would alleviate the situation. As Tim Heisler, Ramsey County

emergency management director, argued, “There’s only one solution, getting rid of some of the water. We need to stabilize the lake.”⁵⁰ Acting on this public sentiment, North Dakota’s congressional delegation, consisting of Senators Kent Conrad and Byron Dorgan and Representative Earl Pomeroy, requested in May 1996 that the St. Paul District prepare an Emergency Outlet Plan, and the district complied, issuing the report in August 1996. This plan, prepared under the direction of Thomas Raster, a civil engineer for the district, delineated the best place for an outlet as the West Bay of Devils Lake, where water would be pumped through Twin Lakes and the Fort Totten Indian Reservation until it reached a natural divide and flowed downhill to the Sheyenne River. The report also indicated that had an outlet been in place since 1985, it would have only lowered the lake’s level by one foot because of pumping capacities, high salinity concerns and Sheyenne River water levels. In addition, the same outlet concerns raised in the 1980s still existed: Canada, Minnesota, environmental organizations and citizens living along the Sheyenne River did not want Devils Lake water in their river, whether because of water transfer issues or because of fears that an outlet would exacerbate Sheyenne River flooding. Likewise, the Corps needed permission from the Spirit Lake Nation before outlet construction could begin since the unit would run across its reservation.⁵¹

Aware of these concerns, the federal government still decided to take action. In March 1997, President Bill Clinton sent a supplemental disaster aid bill to Congress that included \$32.5 million to complete the design of an emergency outlet.⁵² Canada immediately registered its



Devils Lake: A house surrounded by the rising water shows the predicament faced by many Devils Lake, North Dakota, residents. (Courtesy of the North Dakota State Water Commission)

objections. Lloyd Axworthy, Canadian minister of foreign affairs, told the *Winnipeg Free Press* that Canada continued to oppose “any interbasin transfers of water as these may cause serious biota problems and degrade water quality in other basins.” Manitoba Premier Gary Filmon explained that Canada could not “support actions that will have adverse and possibly disastrous consequences for Manitoba and Canada.” Filmon urged Axworthy “to push every diplomatic button necessary to block the U.S. congressional proposal for the emergency outlet.”⁵³

This was not the first time the Corps clashed with Canada over a flood control project. In the 1970s and 1980s, the Corps examined ways to protect the city of Minot, North Dakota, from Souris River floods. The Souris River begins in Saskatchewan, flowing south for 217 miles before entering the United States and North Dakota. The river continues in a southeasterly direction through Minot to Velva, North Dakota, where it turns to flow north back into Canada, eventually joining the Assiniboine River in Manitoba, draining a 24,800-square-mile basin. Severe flooding in 1969 and 1970 pushed the Corps to develop a flood control plan for Minot, and in 1970 Congress authorized a two-pronged approach: modifying and straightening the channel and constructing a dam and reservoir at Burlington. Environmental groups and the U.S. Fish and Wildlife Service protested these proposals, especially since the resulting reservoir would periodically inundate the Upper Souris National Wildlife Refuge. Regardless, the channel modification plan proceeded on schedule and was completed in 1979. But the furor over the dam caused its deferment in 1982 in favor of a four-foot raise of Lake Darling Dam, a unit constructed in northern North Dakota by the Fish and Wildlife Service in the 1930s for migratory waterfowl management.⁵⁴

Some groups protested the Lake Darling decision, leading local interests to begin discussions with Canada about other solutions. At the time, Canadians were developing plans for two dams in Saskatchewan to provide increased power development in the area. In the late 1980s, the Corps and Canadian officials reached an agreement whereby the United States would purchase 400,000 acre-feet of flood storage in the Canadian reservoirs, thereby providing Minot and other North Dakota communities with protection against a hundred-year flood event. Under the leadership of Louis E. Kowalski, chief of the St. Paul District’s Planning Division from 1979 to 1996, the Corps successfully coordinated the agreement with Canada. Both dams, known as Rafferty and Alameda, were completed by the mid-1990s, giving North Dakota some measure of flood protection from the Souris River.⁵⁵ In this case, interaction with the Canadians resulted in a favorable outcome.

But cooperation between Canada and the United States on the Devils Lake issue was not as forthcoming. In June 1997, Congress, ignoring Canadian opposition to a Devils Lake outlet, passed a bill authorizing the expenditure of \$5 million by the Corps for preconstruction engineering and design on an emergency outlet, as well as the preparation of an Environmental Impact Statement, or EIS.⁵⁶ The driving forces behind the bill included Senators Conrad and Dorgan,

both of whom believed the outlet was the best alternative. Because of their efforts, Congress also appropriated \$5 million in October for the initial building stages, requiring, however, that before any construction began, the Corps show that an emergency truly existed, that the outlet was technically sound, that it had a favorable benefit-cost ratio, that it would comply with NEPA and that it would not violate the Boundary Waters Treaty Act of 1909. Conrad and Dorgan also had to agree to shelve any plans for an inlet into Devils Lake, mainly because of the opposition of Senator Christopher Bond (R-Missouri), who publicly objected to the mixing of water between watersheds but privately worried that an inlet supplied with Missouri River water would reduce reservoir releases for commercial barge traffic on the river, thereby adversely affecting an economic segment of the State of Missouri.⁵⁷ Even with this funding, the Corps estimated it would take at least thirty months to construct the outlet, now designed to be a 14-mile-long pipeline running from the west end of Devils Lake along Peterson Coulee to the Sheyenne River.⁵⁸



Devils Lake: Levee construction in 1998 on a southern section of the project, adjacent to North Dakota Highway 57. (Photo courtesy, St. Paul District U.S. Army Corps of Engineers)

As the Corps began the studies mandated by Congress, it also continued to investigate other ways of controlling the flooding, especially since the lake had risen in July 1997 to 1,443 feet. Not only were buildings threatened but essential roads and state parks faced damage as well. In the spring of 1997, Highways 20 and 57, which provide access to the south side of Devils Lake and the Spirit Lake Reservation, were flooded, necessitating road elevation measures, while four state parks, including Narrows and Grahams Island state parks, experienced flooding as well. Faced with these problems, the Corps worked with other agencies, including the North Dakota State Water Commission and the Fish and Wildlife Service, to implement two other solutions to the problem: basin-wide water management and infrastructure protection. Together with the emergency outlet proposal, these constituted a “three-legged stool” approach to the problem, with each “leg” dependent to some degree on the others. The water management strategy built on the Available Storage Acreage Program started by the North Dakota State Water Commission and the Devils Lake Basin Interagency Task Force in 1995, expanding the number of acres used for upper-basin storage to 75,000 acres. Meanwhile, the Fish and Wildlife Service identified thirty-six projects in the Devils Lake area that had the potential to store 12,774 acre-feet of water permanently and completed eight of them in 1996. It also called for wetland restoration in the area. As part of the infrastructure protection “leg,” the Corps and the state elevated seventeen roadbeds around Devils Lake in 1997 and relocated some pipes and pumps in the Ramsey

County sewer system. The St. Paul District's Devils Lake levee raise project fit into the infrastructure protection category as well.⁵⁹ As Colonel John M. Wonsik, district engineer from 1995 to 1998, related in January 1998, balancing environmental concerns with the protection of the surrounding communities had made Devils Lake "a major challenge for the district."⁶⁰

The district received help from other Corps' entities as mitigation measures continued. The Institute for Water Resources prepared a report to Congress explaining whether or not an emergency outlet met the required criteria, while staff at the Corps' headquarters assisted the district on two other issues: exploring the possibility of waiving the normal NEPA process in order to expedite the outlet's construction and consulting with Canada through the International Joint Commission, or IJC, established by the Boundary Waters Treaty of 1909 to deal with water quality matters affecting both the United States and Canada.⁶¹ A decision on whether or not to expedite the NEPA process became more critical in October 1997 after a hearing before the Senate Committee on Environment and Public Works. In that hearing, Senators Conrad and Dorgan, Representative Pomeroy and North Dakota Governor Ed Schafer all pleaded for an accelerated process, while Gary Pearson, vice president of the Dakota Prairie Audubon Society, strongly counseled against such a waiver.⁶² On December 19, the St. Paul District met with John H. Zirschky, Acting Assistant Secretary of the Army, to discuss an expedited schedule, but after consultation with the Council on Environmental Quality, the overseer of NEPA compliance, Zirschky decided the district should "comply fully with the NEPA by completing the Environmental Impact Statement and Record of Decision using a normal NEPA process." Zirschky counseled the district to try to complete the work by December 1999 to ensure a construction starting date in spring 2000.⁶³

At the same time, consultations occurred among Corps' headquarters, the IJC and the Department of State over Canada's concerns with the emergency outlet. In October 1997, Raymond Chrétien, Canadian ambassador to the United States, reiterated his country's concern that "interbasin transfers have the potential to seriously damage Canadian waters and Manitoba's multimillion dollar fishery."⁶⁴ In March 1998, Zirschky asked the State Department to consult with the IJC about Devils Lake. Although initial reports indicated the outlet would have only a minimal effect on water quality once it reached the Canadian border, the Corps still committed itself to additional hydrologic, hydraulic and water quality modeling of the border water.⁶⁵

But as the studies and consultations extended into 1999, problems developed with the Peterson Coulee outlet route. For one thing, the Spirit Lake Nation withdrew its support of the course, stating that "the proposed Western Emergency Outlet would violate a majority of the sacred sites of the Spirit Lake Nation without regard to tribal and Federal laws to protect these culturally sensitive areas."⁶⁶ For another, EIS study numbers indicated that the Peterson Coulee route did not have a favorable benefit-cost ratio. Finally, it seemed that Peterson Coulee could not meet water quality standards on both the Sheyenne and Red rivers unless fresher water could be brought into the outlet from the north. Although it was feasible to divert water from northwestern

bodies such as Pelican Lake to Peterson Coulee, it would escalate project costs to between \$75 and \$110 million, making it even more difficult to justify the project economically. Because of these concerns, the St. Paul District examined other options, including diverting water from the eastern end of Devils Lake into the Stump Lakes. Since the Stump Lakes were within the Devils Lake basin, there would be no transfer of water and biota from one watershed to another. However, dumping water in the lakes would adversely affect a Fish and Wildlife Refuge in the area. The need to examine these other alternatives delayed completion of the EIS.⁶⁷

The lake rose to 1,447 feet in 1999. After discussions with Major General Russell L. Fuhrman, director of civil works for the Corps; Joseph Westphal, Assistant Secretary of the Army for Civil Works; and Conrad, Dorgan and Pomeroy, Major General Phillip R. Anderson, the Mississippi Valley Division division engineer appointed a team in May 1999 composed of division and district employees to decide what conditions would warrant the construction of the emergency outlet.⁶⁸ When the team issued its report in June, it concluded that none of the outlet plans had a favorable benefit-cost ratio. However, it also determined that if an outlet operated when the lake reached 1,454 feet, it “would have substantially lower adverse effects than a natural overflow” and could “protect the population around the basin at a certain elevation.” It, therefore, recommended that construction of an outlet commence if the lake reached 1,453 feet, or six feet more than its current level.⁶⁹ Based on this report, Anderson informed Conrad, Dorgan, Pomeroy and Governor Schafer that “while I understand your concern and frustration in finding a timely remedy for the rising lake, I have not reached a conclusion that an outlet is a necessary or appropriate solution to the recent rise of water in Devils Lake.”⁷⁰

Upon hearing the report’s recommendations and Anderson’s conclusions, proponents of the outlet were infuriated. “My skin prickled when I read the report,” Schafer related before suggesting that state workers might start an outlet “and see if anybody stops us.” Schafer could not understand the Corps’ benefit-cost analysis. “To me, this is like fourth-grade math,” he declared. “It costs \$100 million to build an outlet. It costs us \$25 million in damages every time the lake rises a foot. So if they let it go up another six feet, that’s \$150 million in damages.”⁷¹ Conrad agreed. “The cost/benefit ratio is totally flawed,” he stated. “The economic analysis of the Corps is completely detached from reality.”⁷² Residents living within striking distance of the lake’s lapping waters were even more livid. “I wish powerful lobbyists could experience the anguish we in Devils Lake feel whenever heavy rains or another winter storm further raises the level,” one Devils Laker wrote. “Delaying actions of environmental organizations, downstream interests, and ... [the] Mississippi Valley Division have caused clinical depression among many of our citizens.”⁷³ Others were not so refined in their expressions; some citizens began wearing T-shirts emblazoned with the phrase “Six More Feet My Ass.”⁷⁴

One cause of the outcry was that critics either did not understand or did not agree with the method the Corps used to calculate the benefit-cost ratio. When deciding on a flood control project on a river, the Corps looked at the probabilities of occurrence of a hundred- or five hun-

dred-year flood event and then calculated the benefits and costs based on those risks. Applying this method to Devils Lake caused problems because Corps' data indicated that the lake had not flooded – or exceeded 1,457 feet msl – for hundreds of years. Since the probability of the lake reaching this elevation was unlikely, the project had a low benefit-cost ratio. A scenario-based approach recognizing that problems were occurring even though the lake was below 1,457 feet would produce a high benefit-cost ratio, but the rigidity of Corps' guidelines for flood control projects did not allow the application of such a scenario in its analyses.⁷⁵ Understandably, Devils Lakers could not comprehend why the Corps refused to abandon its guidelines, especially since the waterbody was a lake and not a river. But the Corps believed it had to maintain its standards, especially since Congress had stipulated when making its Devils Lake appropriation that the Corps use its normal economic evaluation principles and guidelines when analyzing benefits and costs. In the words of Colonel James T. Scott, district engineer from 1993 to 1995, “When you analyze [the lake] with those river methods, you find that there’s no project authorized ... , but we can’t cut through the politics, the red tape associated with our standard system.”⁷⁶

The district, then, faced a major dilemma. As Colonel William J. Breyfogle, who served as district engineer in St. Paul for six months in 1998, explained, on the one hand, studies showed the inadequacy of an outlet and its lack of economic viability because of the difficulty of predicting whether or not the lake would continue to rise. On the other hand, North Dakota’s congressional delegation and residents in the area kept pushing for an outlet, believing it was the region’s only hope. “I think that’s why you didn’t really see us doing anything besides just sitting back and studying it,” Breyfogle commented, “because the powers in USACE knew that it was a losing battle.”⁷⁷

No matter what justification the Corps used for shelving the outlet, Conrad, Dorgan and others continued to fight for it. The situation reached a head in July 1999, when Conrad, frustrated by Anderson’s outlet position, told the division leader that he was “done meeting with [the Corps] because they’re not serious about this and the people of Devils Lake deserve better.” After this stormy meeting, Conrad requested that all Senate business affecting the Corps, including promotions, be halted, and also, in the company of Dorgan and Pomeroy, met several times with White House Chief of Staff John Podesta, Joseph Westphal and other Clinton Administration officials to underscore the importance of an outlet. The pressure tactics worked, as Corps’ headquarters assumed responsibility for Devils Lake flood control in July 1999, and in October, overruled Anderson’s earlier decision by announcing the Corps would resume design and engineering work on the outlet.⁷⁸

When environmental groups heard about the resumption, it was their turn to criticize the Corps. “The politicians have the Corps buffaloed on this one,” remarked Gary Pearson of the Audubon Society. “At this point, the science has all been thrown out the window.”⁷⁹ Many environmentalists believed the ultimate solution to the problem was better management of the



Devils Lake: Biologist Randy Devendorf prepares distribution of 175 copies of the two-volume Environmental Impact Statement on Devils Lake, 2002. (Photo by Peter Verstegen, courtesy of St. Paul District, Corps of Engineers)

floodplain, evacuation of those residing in the lake's bed and a restoration of wetlands in the area. In fact, using North Dakota State Water Commission documents from the 1950s and 1960s, environmentalists claimed that wetland drainage was the chief culprit of the rising lake. When they remarked that people should have known better than to settle in the lake bed, however, they were accused of being unsympathetic to the plight of Devils Lakers.⁸⁰

Tensions between the different groups mounted as the lake steadily rose. Reaching an all-time high of 1,448 feet in August 2001, the lake persisted in creating problems. The St. Paul District, meanwhile, maintained its commitment to examining upper basin water storage and infrastructure protection. The district completed the levee raises around Devils Lake in 2001, receiving a 2001 Chief of Engineers Design and Environmental Merit Award for the project.⁸¹ The district also continued with the EIS and outlet studies, but, because of the environmental and economic difficulties with the Peterson Coulee and Stump Lakes outlets, it began focusing on a Pelican Lake outlet, whereby fresh water coming into Devils Lake from the west would be

diverted south into the Sheyenne (see map of Devils Lake and the vicinity). A draft EIS came out in February 2002; and, in February 2003, Chief of Engineers Lieutenant General Robert B. Flowers decided the outlet to Pelican Lake was the best course to pursue.⁸²

Flooding at Devils Lake was one of the most complex and controversial problems the St. Paul District attempted to solve in the last quarter of the twentieth century. Along with the environmental issues that it raised about interbasin transfers, it also saw the Corps working and negotiating with several different entities, all of which had their own beliefs about what was best for Devils Lake. In addition, the Devils Lake project raised several questions about the process of deciding how and when flood projects are justified. Should a different economic standard exist for closed-basin lakes than for rivers? Is the benefit-cost ratio the best way to determine a project's economic viability? Should projects be allowed to continue because of political pressure when they do not meet environmental and economic standards? Who would stop them if the political pressure became too strong? The Corps would continue to wrestle with these questions. As David Loss, who assumed management of the project in 2000, related, Devils Lake showed the Corps that "we need to remain objective, look at the big picture, and understand that we are doing what is best for the federal interest" no matter what criticisms or pressures are levied.⁸³ Even then, the chances of pleasing all sides are slim.

Grand Forks, North Dakota/East Grand Forks, Minnesota

At the same time the St. Paul District dealt with Devils Lake, it was also deepening its involvement in a flood control project on the Red River at Grand Forks, North Dakota, and East Grand Forks, Minnesota. As with Devils Lake, this project contained elements of controversy, especially since the Corps had initial difficulties in obtaining public support and cooperation. Unlike Devils Lake, however, a major catastrophe, the 1997 Flood, helped to convince residents of both Grand Forks and East Grand Forks that the Corps' flood control plan was necessary. An examination of the project also shows some of the problems that arose from new cost-sharing measures that were delineated in the Water Resources Development Act of 1986.

The cities of Grand Forks and East Grand Forks rest in the heart of the Red River Valley, a predominantly agricultural region located approximately 70 miles south of the Canadian border. Characterized by its severe winters, the basin, situated in a flat glacial plain that allows water to spread in every direction, continually experienced spring flooding from the Red River, which forms near the cities of Wahpeton, North Dakota, and Breckenridge, Minnesota, and runs north for 400 miles before draining into Lake Winnipeg in Canada. Throughout the 1800s and 1900s, the Red flooded periodically, but severe floods became more frequent in the 1960s and 1970s. Flooding was exacerbated by the fact that spring snowmelt poured into the southern portions of the waterway and flowed north into still-frozen reaches of the river, creating ice jams that pushed the river from its banks and into the surrounding communities and farmland.⁸⁴

In the spring of 1978, the river crested only a foot-and-a-half below the top of emergency levees in Grand Forks, intensifying an existing debate over the effects of agricultural diking on flooding. Beginning in 1975, farmers south of Oslo, Minnesota, had constructed dikes to protect their crops from flooding. After the dikes successfully stopped the water, farmers constructed 38 more miles on the Minnesota side and 10 miles on the North Dakota side, providing them with protection against ten- and fifteen-year flood levels. Following the 1978 flood, however, residents of Grand Forks charged that the more numerous Minnesota dikes had pushed water to the North Dakota side and called for their removal. The St. Paul District investigated the situation, and, according to Peter Fischer, a district hydrologist, concluded there was a “potential [for] adverse impacts if [farm] levee construction were to continue uncontrolled.” The Corps instructed farmers to remove some of their dikes, but agriculturists refused to comply, stating the structures would remain until the state or the federal government provided sufficient flood protection. In reply, the Corps threatened legal action.⁸⁵



Ice jam on the Root River, 1982: Ice jams are one cause of frequent floods in the shallow river valleys of northwest Minnesota and northeast North Dakota. (Photo by Lyle Nicklay, courtesy of St. Paul District, Corps of Engineers)

Before anything could happen, the worst flooding since 1897 hit Grand Forks and East Grand Forks in the spring of 1979 and easily overtopped the farm dikes. The Red River crested at nearly 49 feet, more than 20 feet above flood stage, sending 82,000 cubic feet per second of water through its channel at Grand Forks. Almost before the water receded, politicians and citizens called for solutions to the flooding problems and looked to the Corps for answers.⁸⁶ U.S. Representative Arlan Stangeland (R-Minnesota) convinced the House Committee on Public Works and Transportation to hold a hearing in East Grand Forks on the 1979 floods and told his constituents that he could “no longer tolerate the lackadaisical attitude of the bureaucrats in Washington” about Grand Forks/East Grand Forks flooding.⁸⁷

Because of Stangeland’s influence, the St. Paul District examined more closely flood control in East Grand Forks. Actually, the district’s authorization to perform studies on the Red River at East Grand Forks issued from the Flood Control Acts of 1948 and 1950. Following the passage of these laws, the district had prepared flood control plans but could not get the community to agree to local cooperation until 1975. After several years of analysis under the leadership of Martin McCleery, project manager, the district rejected any channel modification and dam and reservoir solutions in the early 1980s and tentatively proposed building earthen levees and concrete flood-

walls in East Grand Forks at a cost of between \$10.7 and \$21.6 million to the federal government and between \$9.8 and \$11.6 million to the city. In part because of the cost and in part because the main plan the Corps favored would mean the relocation of numerous homes and businesses, the reaction of East Grand Forks residents to the proposal was, in the words of one newspaper account, “colder than dike patrol duty at 2 a.m. on a late March morning.” In order to give itself time to explore its options, the city declared it would take a few years to make a final decision as to whether or not to implement the Corps’ plan. In December 1986, the Corps completed a general design memorandum, which proposed placing a flood barrier around part of the city, constructing levees, floodwalls, closure structures and interior drainage facilities within the city, and evacuating residences and businesses that remained unprotected. But in July 1988, the city decided to withdraw its support for the project because of high economic and social costs. One month later, the project was classified as inactive.⁸⁸

East Grand Forks’ rejection of the flood control project highlighted some of the effects of new cost-sharing requirements implemented by the federal government in the Water Resources Development Act of 1986. These provisions stipulated that non-federal interests would have to pay from twenty-five to fifty percent of a flood control project’s cost and fifty percent of any feasibility study undertaken by the Corps. In addition, local sponsors were responsible for real estate acquisition and relocation of businesses and residences.⁸⁹ Since many buildings in East Grand Forks required moving, this cost, coupled with the other required funds, made the project too expensive for East Grand Forks. Although other factors were involved, cost-sharing measures ultimately convinced the city that federal flood control was too expensive and not worth the trouble. According to Colonel Kenneth Kasprisin, East Grand Forks was not alone. The problem with cost sharing, he explained was “that there are a lot of communities that cannot pay; they don’t have the money to pay.” More and more, Kasprisin argued, the Corps would have to deal with its responsibilities to those communities that did not have the necessary funds.⁹⁰

Meanwhile, the City of Grand Forks faced problems because the Corps could not find a project that met its economic feasibility guidelines. In the 1950s, the Corps had constructed a permanent levee project, but now no other projects had favorable benefit-cost ratios. “That doesn’t mean the city can’t protect itself physically,” Tom Raster, an engineer for the St. Paul District, explained, “but we had to get a dollar or more back with every dollar we spent there. On Corps’ standards, we couldn’t do it.” Because the district’s hands were tied, the city dealt with the problem itself, improving emergency levees along the river and working on an upward channel diversion of the English Coulee. According to Raster, such improvements would protect the city against fifty-year flood levels. “The city, I think, is doing just a fantastic job of self-help, in light of federal limitations,” he concluded.⁹¹

In 1985, however, city engineers and leaders in Grand Forks requested assistance from the St. Paul District to develop a more extensive flood control system. In response, the district



Red River Flooding: North Main Stem, 1997, at U.S. Highway 2 (Kennedy) Bridge. (Photo courtesy St. Paul District, Corps of Engineers)

completed a draft reconnaissance report in April 1991 that concluded a couple of different plans might exist with favorable benefit-cost ratios. Based on this determination, the Corps began feasibility studies of the different proposals in January 1994. But despite city officials' requests for help, the district had to try to heighten public support for flood control in Grand Forks. According to Edward McNally, who served as study manager for the feasibility report, city engineers realized Grand Forks did not have adequate flood protection, but the citizens themselves believed no problem existed. "They had flood fights that they had successfully been able to weather," McNally related, "and they had a spirit that said, 'We can do it again, and we don't need anybody's help.'" In addition, the flood of 1979 was a distant memory. Although flooding occurred in 1989, it did not approach the levels experienced in 1979. The challenge for the district, McNally explained, "was convincing them that the water could get" as high or higher than 1979, "and, in fact, at some point would get that high." Moreover, he continued, "it was in their interest to be proactive," especially if economically viable solutions were available.

As the feasibility study neared completion early in 1997, the public began to accept the Corps' position.⁹² But before the study could be issued, nature proved the need for additional flood protection. During the winter of 1996-1997, a record amount of snow fell in the Red River

Valley, including Grand Forks, which had an accumulation of 97.7 inches. In February and March, the National Weather Service predicted severe flooding in the Red River Valley. When a blizzard hit the region on April 6, it only added to the problems. Then, warmer temperatures arrived, causing a rapid snowmelt. With meltwater pouring in, the Red River rose to 53 feet at Grand Forks, far above flood level stage and four feet above the 1979 crest. Despite the best efforts of the Corps and the citizens of Grand Forks and East Grand Forks to prepare for the flooding, the water breached dikes and levees, sending torrents of water through the two cities, knocking out power and contaminating water supplies. Nearly everyone in East Grand Forks was forced to evacuate and ninety percent of Grand Forks' 52 thousand citizens had to leave as well, especially after fires broke out in the downtown area, burning eleven buildings. By the time the river crested at 54.3 feet, more than 26 feet above flood stage, water and fire had nearly wiped out both communities.⁹³

In the wake of the devastation, citizens in Grand Forks and East Grand Forks clamored for the Corps to provide flood protection. As McNally related, "The issue at that point of [citizens] trying to say that there was not a potential for flooding and that they weren't really at risk ... was pretty much gone."⁹⁴ Before the flood hit, the Corps' feasibility study was calling for hundred-year flood protection plan consisting of construction of a ring levee around Grand Forks at a cost of \$39 million, with local costs slightly less than \$10 million.⁹⁵ In order to expedite the construction process, however, the Grand Forks feasibility study was never finalized; instead, planning, engineering and design authority for the East Grand Forks project was reactivated in May 1997, and the authority was expanded to include Grand Forks. As part of the planning, engineering and design process, the St. Paul District prepared a General Reevaluation Report to ascertain the best plans for flood protection in the two communities.⁹⁶

In preparing the draft General Reevaluation Report, completed in August 1998, the Corps examined and rejected several primary strategies for flood protection, including upstream reservoir storage (because of the flat drainage area upstream) and evacuation (because of its social unacceptability). The district also determined that the alternative preferred by the two cities, a split-flow diversion channel, was not cost effective, having a benefit-cost ratio of 0.4. Instead, the Corps decided that a large setback levee and floodwall system along both sides of the river was the most feasible plan, whereby the Corps would build three "rings" of levees around the cities. But because the communities had already seen levees fail in the 1997 flood, they were reluctant to accept the Corps' analysis, and some even believed the district was intentionally skewing the figures against a diversion. To forestall such criticisms, consultants were hired to study the diversion channel, and they reached the same conclusion as the Corps – a diversion could not meet the economic standards and would be twice as expensive as the levees-only plan. The communities accepted these conclusions and, on February 26, 1998, voted to approve the levees-only project, which was estimated to cost \$342.7 million, \$170.8 million of which was required as the non-federal cost.⁹⁷

Throughout 1998, the Corps worked to finalize its General Reevaluation Report and the EIS under the leadership of Lisa Hedin, project manager, and Edward McNally, technical manager. In doing so, it encountered some opposition from residents of both communities over the placement of the levees. In order to provide the best flood protection, the levees would have to be set back on the riverbank, requiring the removal of residences and other structures. Just as in the 1980s in East Grand Forks, landowners were not pleased with this requirement, but district officials, through a series of public meetings and studies conducted by outside consultants, finally convinced citizens that most of the structures could not be protected and would have to be removed. At the same time, the public's objections forced the Corps to examine other options, and in some cases, the district was able to use innovative alternatives, such as a mechanically stabilized earthwall and an invisible floodwall, to preserve some of the structures.⁹⁸

With the levee placement resolved, the district completed its Final General Reevaluation Report and Environmental Impact Statement in 1999, issuing it less than eighteen months from its conception rather than the normal thirty-two to forty-eight months, in large part because of the diligent work of the project's planning team. This effort was recognized in September 1999, when the district received an Outstanding Planning Achievement Award for Civil Works for the Grand Forks/East Grand Forks General Reevaluation Report and EIS from the deputy commander. The expedited schedule also allowed Congress to authorize the project in an omnibus spending bill in 1999, meaning that plans for construction could proceed.⁹⁹

Only two years after the devastating flood, then, the Corps had the authorization and money for the Grand Forks/East Grand Forks project. This was not only important for the two communities but also for the St. Paul District, which was experiencing a decline in large flood control projects. In 1995, for example, Colonel James T. Scott, outgoing district engineer, noted that "St. Paul's work load is falling off." He lamented this drop, especially since the district "has had a great history of flood control and navigation within its area of responsibility."¹⁰⁰ The Grand Forks/East Grand Forks project reversed that decline and proved itself a boon to the district, both in terms of work load and employment. In the words of McNally, it was a "big step" for the district to receive authorization for the project.¹⁰¹ Colonel William Breyfogle echoed those sentiments, stating that Grand Forks was "something that we could do that would really make a difference."¹⁰²

With congressional funding, Phase I construction on the levees themselves began in the summer of 2001, with the completion date of the entire project estimated to be 2004. Upon its completion, Grand Forks and East Grand Forks would have protection against a 210-year flood equivalent to the 1997 disaster.¹⁰³ The St. Paul District involved both communities in meetings, making their leaders feel like part of a team.¹⁰⁴ Grand Forks and East Grand Forks residents questioned the project before the 1997 flood, but they later cooperated with the district, providing suggestions and accepting Corps' decisions, albeit with some grumbling. The productive

collaboration stemmed in part from the good relationships that district employees established with residents during the flood fight in 1997, in part from the communities' desire to protect themselves against future floods and in part from the Corps' willingness to use outside consultants to validate its conclusions.

South Fork Zumbro River at Rochester, Minnesota

Probably the best example of citizen cooperation on a civil works project was the South Fork Zumbro River Flood Control project at Rochester, Minnesota, completed in the 1990s. As Colonel James T. Scott said in 1995, this undertaking was "one of those classic projects that I would recommend to other district engineers to look at and to study if they want to know how to run a project."¹⁰⁵ Few other developments enjoyed the amount of local financial support as Rochester and few won as many awards. Although there were some environmental controversies, the project was one of the major civil works successes for the St. Paul District in the last quarter of the twentieth century.

The city of Rochester, located in southeastern Minnesota about 80 miles south of St. Paul, is located on the floor of the South Fork Zumbro River Valley. At Rochester, three other streams join the Zumbro, a 50-mile tributary of the Mississippi, including Cascade Creek from the west, Silver Creek from the east and Bear Creek from the south. Some describe Rochester as sitting in a bowl, as the southern and western parts of the city consist of high undulating land while the eastern and northern ends have high bluffs and steep ridges. Because of the topography of the area and the confluence of the four waterways, Rochester, with approximately a third of the city located in the floodplain, is susceptible to flooding, especially after heavy rainstorms.¹⁰⁶

Flash flooding had periodically inundated the city since its founding in 1854. In order to solve this problem, Congress authorized the Corps to complete a study on the Rochester area in 1936, but little action occurred until a major flood in 1962 caused more than \$1.6 million in damages. By 1972, the St. Paul District completed preliminary examinations of channel improvements, floodwalls and levees for Zumbro River, Bear Creek and Cascade Creek; and by the mid-1970s, the U.S. Department of Agriculture's Soil Conservation Service (now known as the Natural Resources Conservation Service) had initiated plans to construct seven headwater reservoirs in the area. Congress endorsed these proposals in 1974; and for the next four years, the Corps worked with the Soil Conservation Service, the Minnesota Department of Natural Resources and local interests to develop the plans, completing a Phase I General Design study in 1977.¹⁰⁷

Before the Corps could complete any further reports, however, a torrential rainstorm devastated Rochester. On the evening of July 5, 1978, approximately six inches of rain fell on the city, swelling Cascade Creek, Bear Creek and the Zumbro itself. By the next morning all three waterways had overflowed, pouring water into downtown Rochester. When the Zumbro finally crested



Zumbra River Flooding: Rochester, Minnesota, 1978. (Photo courtesy Russ Snyder, St. Paul District, Corps of Engineers)

at 23 feet, it was 19 feet higher than it had been twenty-four hours earlier. The deluge of water killed five people, forced five thousand more from their homes and caused \$60 million worth of damage.¹⁰⁸ In response to the flood, Representative Albert H. Quie (R-Minnesota) asked Congress to authorize the construction of the planned flood control project, stating that had it been in place in time for the rainstorm, “damage to personal property and public buildings would have been minimal.”¹⁰⁹

Unfortunately, declarations of the necessity of the Rochester project occurred when congressional and executive support for federal water projects was ebbing. Because of environmental concerns, budget deficits and the policies of both Jimmy Carter and Ronald Reagan, no omnibus water resource authorization bills passed between 1976 and 1986, and the Rochester project itself received no funding. Although the undertaking seemed worthwhile, construction funds were unavailable until 1986.¹¹⁰

In the mid-1980s, Congress and the Reagan Administration finally agreed that local and



The South Fork Zumbro River, before and after: The first photograph (top) shows the construction of walls along the river near the Civic Center. Note the houses in the background that the project would protect. The second (below) shows the completed project, with the area of the first image in the lower right quadrant. (Courtesy of Russel Snyder, St. Paul District, Corps of Engineers)

state governments should make significant contributions towards flood control projects. Based on that idea, Congress passed the Water Resources Development Act of 1986 which implemented new cost-sharing requirements and authorized a hundred and fifteen flood control projects for construction or study, including the project at Rochester.¹¹¹ Under the new stipulations, Rochester had to contribute more than \$17 million to the estimated \$68 million necessary for the project, rather than the \$7 million under the old plan, but the city was prepared. Although the project had hung in limbo for several years, city leaders believed it would eventually gain approval. In 1982, Rochester had added a one percent increase to the state sales tax and devoted the proceeds to flood control, collecting \$10 million by 1987. These accumulated funds, together with the money that continued to accrue, largely handled the city's cost-sharing requirements. As Jim Gagnon, a St. Paul District project manager explained, the city "had great foresight in setting up the sales tax."¹¹²

By assuming a portion of the project's costs, Rochester not only fulfilled its legal requirements, but also made itself a partner with the Corps, enabling city leaders to offer suggestions and work with the district to ensure its desires were met.¹¹³ St. Paul District employees, who were not used to such involvement, soon realized local sponsors could provide meaningful dialogue and useful ideas in a project's construction. Although conflicts inevitably developed, both the district and the city learned to work well together, providing the Corps with an example of what could happen with good partnerships.¹¹⁴

With cost-sharing funds and congressional authorization in place by 1987, the city signed a Local Cooperation Agreement and construction began. Following its 1970s proposal, the district, under the leadership of project manager Deborah Foley, began deepening and widening the channels of Zumbro River and Cascade and Bear creeks. Most of the undertakings occurred in downtown commercial areas, residential neighborhoods, parks and a municipal golf course. In order to provide slope protection, the district lined banks of the waterways with riprap, concrete and steel-sheet piling. Coupled with the storage reservoirs built by the Soil Conservation Service in the 1980s and 1990s, these changes provided Rochester with protection from a two hundred-year flood event.¹¹⁵

Despite the district's best efforts, controversies arose. By 1990, the estimated cost of the project had escalated from \$86 million to \$120 million, and the district had to spend much time justifying these increases to the city. Because of the higher costs, Congress also had to reauthorize the project. Reflecting these delays, the Corps calculated the project could not be completed in 1994, as it had originally estimated, but would now stretch into 1997. The city objected to this revised timeline, forcing the district to reconsider its reckonings. Upon a reexamination, the district determined that if all went well, it could complete the project in late 1995. "There will be no slack in the schedule," Foley admitted, "but it's a doable schedule."¹¹⁶

At the same time, environmental criticisms began to emerge. Although the Corps tried to



Zumbro River: Channel modifications on the South Fork Zumbro River in Rochester, Minnesota, showing the pedestrian bridge and riprap implemented by the St. Paul District, 1995. (Photo courtesy St. Paul District, U.S. Army Corps of Engineers)

mitigate the riprapping effects, many residents complained about the aesthetic degradation of the river, as well as the destruction of numerous trees lining the Zumbro's banks. One letter to the Rochester *Post-Bulletin* objected to the Corps' "rape of nature," stating the project destroyed "dozens of beautiful oak trees and a pristine area of wildflowers, flowering shrubs and trees, a sanctuary for birds, squirrels and other wildlife."¹¹⁷ Others called the project "outdated, expensive, impractical, and destructive," believing it would only create "riprapped mud flats" at the expense of numerous trees.¹¹⁸ As one critic bluntly declared, "If this is [the Corps'] idea of 'aesthetic design,' please refrain from showing me any more of it."¹¹⁹ In response to the complaints, the district intensified its efforts to provide aesthetically pleasing features, laying topsoil and sod over riprap, commissioning artist Anne Plummer to create a mural for a downtown section of floodwall, placing decorative handrails throughout the project, using native plants for landscaping and emphasizing sustainable development wherever possible.¹²⁰

Other problems arose from the destruction of wildlife habitat, especially fisheries, because of channel deepening. The Minnesota Department of Natural Resources requested the Corps purchase lands adjacent to the Keller Wildlife Management Area to mitigate these impacts. Although it initially rejected that proposal, the Corps eventually acquired 140 acres near the Keller area and deeded them to the State of Minnesota. The Corps also placed rock structures in the river to serve as current deflectors and fish cover, concentrated water depths in low-flow channels during dry seasons and used rock clusters, groins and weirs to create fish-spawning pools. In addition, the city's Park and Recreation Department stocked the Willow Creek Golf Course and Chester Woods reservoirs with fish.¹²¹ These measures helped to dissipate some of the criticism, as did a prevailing belief that the project was necessary despite the environmental costs. "Any destruction of trees and natural habitat is a cause for regret," an editorial in the *Post-Bulletin* explained. "We would prefer a natural, meandering stream, but not at the cost of a never-ending risk of a disastrous flood."¹²²

As construction continued in the early 1990s, the Corps and the city were happily surprised when costs began dropping. In October 1991, construction bids for one portion of the project came in at less than sixty percent of the original estimate, providing a considerable savings.¹²³ Innovations led to lower costs as well. For example, moving residences rather than building a half mile of proposed levee at the upstream end of Cascade Creek saved \$800,000 and decreasing the scope of channel modifications on that creek from 9,000 to 4,000 feet recovered an additional \$5 million, while also preserving existing parks and neighborhoods. According to Foley, value engineering accounted for a discount of \$4 million. These reductions meant that instead of the \$123 million projected in the early 1990s, the total cost of the Corps' portion of the project decreased to \$97 million.¹²⁴

When the Corps finished its construction in August 1995, one month ahead of schedule, all parties seemed pleased. Rochester Mayor Chuck Canfield declared it "the best project in the country" and many citizens agreed.¹²⁵ Even before final completion, people were using the 6.5 miles of recreational trails developed along the river, as well as the pedestrian plazas and picnic shelters. Frank Star, a planner for the district who helped design the recreational aspects, said he "felt good" when he saw how much people enjoyed the trails.¹²⁶ Others in the district also recognized the "enthusiastic local response" to the project, proudly claiming that "rather than mere satisfaction, the project has elicited delight from ... the citizens of Rochester, for its flood protection and social and economic benefits."¹²⁷

People outside of the St. Paul District also acknowledged the superiority of the project. In 1996, when the Minnesota Society of Professional Engineers proclaimed it one of the "Seven Wonders of Engineering" for that year, the judges emphasized the effective coordination between the Corps and the city.¹²⁸ That same year, the project won the prestigious Award of Excellence from the Chief of Engineers Design and Environmental Awards Program. Although a Corps'

award, a non-Corps' jury, which had to be unanimous, selected the winner. By 2004, the St. Paul District received four other Awards of Excellence – for the Lock and Dam 1 rehabilitation in 1983; for the Weaver Bottoms Rehabilitation Project in 1989; for the St. Paul, Minnesota, Flood Control Project in 1998; and for the Pool 8 Islands Project in 2004. In addition, Foley received the Corps' Project Manager of the Year Award in 1996, and George V. Fortune, a design engineer on the Rochester project, received the 1996 Corps' Design Engineer of the Year Award.¹²⁹

For those associated with the project, it was not difficult to understand why it received so many accolades. Foley attributed it to numerous factors, including her capable district staff, the coordination between the district and the city and the recreational and aesthetic elements.¹³⁰ Russel K. Snyder, a project manager and landscape architect in the district, believed the Rochester project was an ideal example of how cost sharing created a working partnership between the Corps and a local sponsor.¹³¹ A Corps' summary of the project explained that its success stemmed from cooperation between federal, state and local government agencies which generated “innovative solutions to benefit the public.” No better example existed, the summary continued, “of recreational planning, attractive design, and environmental sensitivity integrated with high quality, cost effective urban flood control.” In fact, it concluded, the major reason for the project's success “was the spirit of partnering and teamwork that prevailed throughout its design and construction,” whereby the local sponsors “became active members of the project team.”¹³²

This project, then, was a showcase for the St. Paul District's competence in civil works. Although environmental concerns were raised about the project, the Corps' own mitigating efforts, coupled with aid from the city, mollified these criticisms to a large degree. Perhaps no other project developed better cooperation between the district and the local sponsor, and this cooperation, as with the Grand Forks/East Grand Forks project, ensured the success of the undertaking. Relationships were not always perfect between district representatives and city leaders, but the creation of a team mentality facilitated good relations and enabled the Corps to implement efficiently a project that provided security, recreation and economic benefits. As Colonel James Scott declared, “It was just a win/win situation.”¹³³

Conclusion

The civil works projects discussed above were by no means the only important undertakings for the St. Paul District between 1975 and 2000. As with Rochester, other projects received prestigious awards, such as the St. Paul Flood Control Project. Undertakings other than Devils Lake also had international implications. As with Grand Forks/East Grand Forks, other Corps' work received more attention after disastrous floods, such as the Red River Project at Wahpeton, North Dakota, and Breckenridge, Minnesota. Finally, other undertakings besides the La Farge Project, including the Prairie du Chien Project of the 1970s and 1980s, were drastically affected by environmental concerns. But the La Farge, Devils Lake, Grand Forks/East Grand Forks and

South Fork Zumbro undertakings clearly highlighted the major themes that the St. Paul District faced in the last quarter of the twentieth century. Environmentalism, cost sharing, benefit-cost analyses and cooperation with international, federal, state and local agencies all influenced the district and the Corps throughout this period. Because of these issues and because of important legislation such as NEPA and the Water Resources Development Act of 1986, the Corps' civil works program changed dramatically. The successes of the St. Paul District resulted in large part from its willingness to accept that change – difficulties with environmentalists, local communities and politicians arose, at least to some degree, from inflexible attitudes. As Colonel Kenneth Kasprisin explained, if district employees “see [the] opportunities with ... change then we'll continue to do extremely well. If they hide from it ... then there will be problems.”¹³⁴ Nowhere was this more apparent than in the St. Paul District's civil works program.

Chapter 4: Endnotes

1 “La Farge Lake and Channel Improvement, Kickapoo River, Wisconsin,” *Water Resources Fact Sheet*, 3 September 1975, pp. 1-2, Box 6407, SPDAR; Merritt, *Creativity, Conflict and Controversy*, pp. 413-414.

2 Martin Reuss, *Shaping Environmental Awareness: The United States Army Corps of Engineers Environmental Advisory Board, 1970-1980* (Washington, D.C.: Historical Division, Office of Administrative Services, Office of the Chief of Engineers, 1983), 1, 14, 20.

3 Quotation in “Corps to Look at Alternatives to La Farge Dam Construction,” *Winona Daily News*, 12 January 1975. See also Merritt, *Creativity, Conflict and Controversy*, p. 415.

4 Quoted in “Corps Coached Pro-Dam Group on Pressure Tactics,” *Capital Times* (Madison, WI) 10 January 1975.

5 “Kickapoo Alternatives,” *Capital Times*, 9 January 1975.

6 Quotation in John Anfinson interview by Matthew Godfrey, St. Paul, MN, 25 October 2002, p. 21; see also Jamie W. Moore and Dorothy P. Moore, *The Army Corps of Engineers and the Evolution of Federal Flood Plain Management Policy* (Boulder: Institute of Behavioral Science, University of Colorado, 1989), p. 91.

7 Quotation in “Corps Builds, No Matter What,” *Capital Times*, 18 March 1975; see also “National Register of Historic Places Registration Form, La Farge Reservoir and Lake Dam,” Section 8, p. 33, File La Farge Management, Box 6410, SPDAR.

8 Quotation in “Congressmen Still Fret Over La Farge Dam,” *La Crosse Tribune*, 25 January 1976; see also Merritt, *Creativity, Conflict and Controversy*, p. 416; “National Register of Historic Places Registration Form,” Section 8, pp. 34-37.

9 “Army Halts LaFarge Dam Work,” *Wisconsin State Journal*, 10 April 1975.

10 “Study Proposals Inundate La Farge,” *La Crosse Tribune*, 27 April 1976.

11 “June 19 LaFarge Dam Hearing Hit by Audubon Society,” *Courier Press* (Prairie du Chien, WI) 22 June 1981.

12 Richard J. Otto interview by Matthew Godfrey, St. Paul, MN, 23 October 2002, p. 3. Otto, a recreation and natural resources planner in the La Crescent, Minnesota, field office of the St. Paul District, had charge over the La Farge project for many years after its deauthorization.

13 “National Register of Historic Places Registration Form,” Section 8, p. 37; “Kickapoo Denied Designation as Park, Waterway,” *La Crosse Tribune*, 27 June 1976.

14 Merritt, *The Corps, the Environment, and the Upper Mississippi River Basin*, 78.

15 “Draft, Position Paper, La Farge Lake and Channel Improvement, Wisconsin,” 3 December 1981, p. 2, File 1501-07 Reference Paper Files – La Farge, Wisconsin, Box 7932, SPDAR.

16 Merritt, *The Corps, the Environment, and the Upper Mississippi River Basin*, 79.

17 Unidentified newspaper clipping, 20 February 1981, File 870 La Farge, Wisconsin (1980-1981), Box 3864, SPDAR.

18 Badger Interviews, p. 22.

19 U.S. Army Corps of Engineers, St. Paul District, *Special Report: Reevaluation of La Farge Dam, Kickapoo River Valley, Wisconsin, Dry Dam and Wet Dam Alternatives* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1984), p. 43.

20 Quotes in "Lawsuits Push Dam Project," *La Crosse Tribune*, 19 December 1985; see also "LaFarge Dam Project Subject of Suit Filed Against Fed. Govt.," *Courier Press*, 30 October 1985.

21 "La Farge Dam Fight Not Over Yet," *La Crosse Tribune*, 7 January 1990.

22 "Dam Project Dead in Water," *La Crosse Tribune*, 6 September 1990.

23 "LaFarge Project Waits for Deauthorization," *Crosscurrents* 10 (May 1987): pp. 8-9; "St. Paul District Successfully Manages Rainbow Event," *Crosscurrents* 15 (July 1992): pp. 1-4; Otto Interview, pp. 3-4.

24 Tommy G. Thompson, Governor, to The Honorable Steven Gunderson, 14 April 1994, File La Farge Correspondence, Box 6407, SPDAR.

25 "Master Plan for the Kickapoo Valley Reserve," p. 2-3, File 1110-2-1150a La Farge Flood Control Record of Decision, Box 6417, SPDAR; Marcy West to Dawn Make Strong Move, 13 February 1997, File LaFarge Ho Chunk, Box 6410, SPDAR; Ron Wilber to Larry Garvin, HoChunk Researcher, 10 February 1997, File LaFarge Ho Chunk, Box 6410, SPDAR; U.S., Congress, House, Committee on Public Works and Transportation, Water Resources and Environment Subcommittee, *The Water Resources Development Act of 1994 and Issues Related to Reauthorization of the Civil Works Program of the U.S. Army Corps of Engineers: Hearings Before the Subcommittee on Water Resources and Environment of the Committee on Public Works and Transportation, House of Representatives*, 103d Cong., 2d sess., 1994, p. 113; U.S. Army Corps of Engineers, St. Paul District, "Information Paper, Subject: Proposed Deauthorization of the La Farge Dam Project," 24 July 1995, copy provided by Richard J. Otto, St. Paul District; "Focus: Kickapoo Valley – Ho-Chunk Add to Trust Holdings," *Wisconsin State Journal*, 29 October 1997; John Anfinson Interview, pp. 12-14.

26 "Focus: Kickapoo Valley – Ho-Chunk Add to Trust Holdings," *Wisconsin State Journal*, 29 October 1997; John Anfinson Interview, p. 13.

27 "Master Plan for the Kickapoo Valley Reserve," pp. 1-2.

28 Otto Interview, pp. 6-8.

29 John Anfinson Interview, p. 15. Anfinson tried to get the incomplete dam listed on the National Register of Historic Places in 2000, even though it was not yet eligible under the fifty-year requirement. Although he insisted that the dam deserved listing because of its significance as a symbol of the effects of NEPA, the Wisconsin State Historic Preservation Office did not agree with his arguments and rejected the nomination.

30 "City, State Under Dangerous Siege," *The Bismarck Sunday Tribune*, 15 September 1996.

31 The North Dakota State Water Commission estimated the natural outlet at 1,459 feet. See Notes from Thomas Raster, Civil Engineer, St. Paul District, 19 November 2003, copy in possession of the author.

32 “History and Effects of Devils Lake Flooding,” *Devils Lake Outlet EIS Newsletter* 1 (March 1998): p. 2.

33 “Devils Lake Flood Fact Sheet, February 1998,” File Devils Lake Miscellaneous, Box 6447, SPDAR.

34 “Devils Lake Floodwaters Flow,” *Grand Forks Herald*, 17 May 1979.

35 Unidentified newspaper clipping, File 228-10 IHP Devils ('83), Box 3846, SPDAR.

36 “Corps Dike is Needed, But is Step Backwards in Managing Lake Level,” *Devils Lake Journal*, 29 August 1984.

37 “Lake Outlet Apparently is On Hold,” *Devils Lake Journal*, 16 August 1984.

38 Unidentified newspaper clipping, File 229-10 IHP Devils ('83), Box 3846, SPDAR.

39 U.S. Army Corps of Engineers, St. Paul District, *Operation and Maintenance Manual: Section 205 Flood Control Project, Devils Lake, North Dakota* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1992), pp. 1-2.

40 “Lake Outlet Apparently is On Hold,” *Devils Lake Journal*, 16 August 1984.

41 Garrison Diversion Conservancy District, “Abbreviated History, 1944-2001,” <<http://www.garrisondiv.org/pages/publicinfo/history/index.epl>> (5 February 2004); “Garrison Diversion and the Devils Lake Outlet: The Canadian Position,” <<http://www.canadianembassy.org/environment/garrison-e.asp>> (6 June 2003); “Statement of Gary L. Pearson on Behalf of the Dakota Prairie Audubon Society Submitted at the Hearing of the Committee on Environment and Public Works, United States Senate, Regarding the Proposal to Construct An Emergency Outlet from Devils Lake to the Sheyenne River in North Dakota,” 23 October 1997, <http://80-web.lexis-nexis.com.weblib.lib.umn.edu:2048/congcomp/document?_m=7701530145029adf8c74d315780642db&_docnum=7&wchp=dGLbVtb-lS1AA&_md5=259852c2189ade895507a0b950f5775d> (6 June 2003).

42 U.S. Army Corps of Engineers, St. Paul District, *Devils Lake Feasibility Study: Concept-Level Plan of Study* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1995), pp. 2-3; North Dakota State Water Commission [NDSWC], “Assessment of Potential Devils Lake Flood Damages, October 1994,” p. 2, copy in File Devils Lake – Roads, Box 6452, SPDAR.

43 Colonel Richard W. Craig interview by John O. Anfinson, St. Paul, MN, 20 July 1993, p. 11, Oral History File, St. Paul District, St. Paul, Minnesota.

44 NDSWC, “Assessment of Potential Devils Lake Flood Damages,” p. 4; Notes from Thomas Raster, Civil Engineer, St. Paul District, 19 November 2003.

45 U.S. Army Corps of Engineers, St. Paul District, *Devils Lake, North Dakota, Contingency Plan* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1996).

46 U.S. Army Corps of Engineers, St. Paul District, "Devils Lake Levee, North Dakota," <http://www.mvp.usace.army.mil/fl_damage_reduct/default.asp?pageid=31> (6 June 2003); "Three Major Initiatives Underway for Devils Lake," *Crosscurrents* 19 (September 1996): p. 1.

47 "Testimony of Michael J. Armstrong, Associate Director for Mitigation, Federal Emergency Management Agency, Before the Senate Committee on the Environment and Public Works Regarding the Devils Lake Basin Interagency Task Force," 23 October 1997, <http://80-web.lexis-nexis.com.weblib.lib.umt.edu:2048/congcomp/document?_m=7701530145029adf8c74d315780642db&_docnum=6&wchp=dGLbVtb-LS1AA&_md5=5fc5961bbd2a9b8660cc98d187ad88aa> (6 June 2003).

48 "City, State Under Dangerous Siege," *The Bismarck Sunday Tribune*, 15 September 1996.

49 "Farmers, Bedeviled by Rising Lake, Look for a Lifeline," *Los Angeles Times*, 10 November 1996.

50 "Solution Slower Than Rising Waters," *The Bismarck Tribune*, 17 September 1996.

51 U.S. Army Corps of Engineers, St. Paul District, *Emergency Outlet Plan: Devils Lake, North Dakota* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1996), pp. 1-3; "Three Major Initiatives Underway for Devils Lake," *Crosscurrents* 19 (September 1996): pp. 1-2; Thomas E. Raster email to John M. Wonsik, Charles E. Crist, William W. Spychalla, David R. Raasch, and Robert F. Post, 16 August 1996, File Devils Lake Stage 2A, Box 6451, SPDAR. The District's Devils Lake Basin Planning Team's work on the Emergency Outlet Plan earned it the Chief of Engineer's Outstanding Planning Team Award in 1996.

52 "Clinton Asks \$32.5 Million for Devils Lake," *Grand Forks Herald*, 20 March 1997.

53 Quotations in "Canadian Officials Oppose Devils Lake Outlet," *Grand Forks Herald*, 22 March 1997 and "Canada Takes Tough Stand," *The Bismarck Tribune*, 25 March 1997.

54 Marvin Zeldin, "Souris: Mouse That Roars," *Audubon* 78 (November 1976): pp. 135-138; U.S. Army Corps of Engineers, Missouri River Division, *Water Resources Development in North Dakota 1991* (Omaha, NE: U.S. Army Corps of Engineers, Missouri River Division, 1991), p. 30.

55 "Canadian Dams Play Important Part in Souris Basin Project," *Crosscurrents* 10 (June 1987): p. 6; "Kowalski Reflects on 39 Years of Federal Service," *Crosscurrents* 19 (May 1996): pp. 6, 8; U.S. Army Corps of Engineers, St. Paul District, "Souris River Basin Flood Control Project: N.D.," <http://www.mvp.usace.army.mil/fl_damage_reduct/default.asp?pageid=43> (6 June 2003).

56 Public Law 105-18, 12 June 1997, <http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=105_cong_public_laws&docid=f:publ18.105> (6 June 2003).

57 "Devils Lake Levee Becomes Critical Priority," *Crosscurrents* 21 (March 1998): p. 5; Notes from Thomas Raster, Civil Engineer, St. Paul District, 19 November 2003; see also "Panel Approves \$5 Million for Devils Lake Outlet," *The Forum* (Fargo, ND), 26 September 1997.

58 "Questions/Answers/Discussion concerning the Emergency Outlet from Devils Lake to the Sheyenne River, ND," 18 February 1998, Attachment A to "Scoping Meeting for the proposed Peterson

Coulee Outlet Project for preparation of the Draft Environmental Impact Statement,” File Devils Lake Outlet – Correspondence, Box 6453, SPDAR. One of the reasons why the Peterson Coulee route was adopted was because of concerns raised by members of the Spirit Lake Nation about the Twin Lakes proposal. In the summer of 1997, the tribe approved the Peterson Coulee route because it only crossed a few miles of the reservation. The Twin Lakes route, on the other hand, would have run through several hundred acres of reservation land, including tribal trust land. “Route and Plan Selection, Emergency Outlet, Devils Lake to the Sheyenne River, ND: Executive Summary,” File Devils Lake Outlet Design and Alternative Reports, Box 6453, SPDAR; “Spirit Lake Tribe Endorses One of Devils Lake Outlet Proposals,” *The Forum*, 26 June 1997.

59 “History and Effects of Devils Lake Flooding,” p. 2; “Strategies and Actions: The Three-Legged Stool,” *Devils Lake Outlet EIS Newsletter* 1 (March 1998): p. 3.

60 Colonel J. M. Wonsik interview by John O. Anfinson, St. Paul, MN, 20 January 1998, p. 8, Oral History File, St. Paul District, St. Paul, Minnesota.

61 Col. J. M. Wonsik Memorandum for Commander, U.S. Army Corps of Engineers, 21 November 1997, File Devils Lake Outlet – Correspondence, Box 6454, SPDAR. The Boundary Waters Treaty was not ratified by the U.S. Senate until 1910, meaning that the IJC did not meet for the first time until 1911.

62 See “Capitol Hill Hearing Testimony Before the Senate Committee on Environment and Public Works,” 23 October 1997, <http://80-web.lexis-nexis.com.weblib.lib.umt.edu:2048/congcomp/doclist?_m=93b5adbc8842f4b5195e90c4089832a6&wchp=dGLbVtb-ISIAA&_md5=1b43b30249f4dc0c255868433d87b1b6> (6 June 2003).

63 John H. Zirschky, Acting Assistant Secretary of the Army, Memorandum for the Director of Civil Works, 28 January 1998, Miscellaneous Folder on Devils Lake, Box 6447, SPDAR.

64 Raymond Chrétien, Ambassador, to the Honourable John H. Chafee, Chairman, Committee on Environment and Public Works, United States Senate, 22 October 1997, File Devils Lake Outlet – Correspondence, Box 6453, SPDAR.

65 “Draft, Senator Dorgan Questions,” 23 March 1998, File Devils Lake Outlet – Correspondence – Congressional, Box 6454, SPDAR.

66 Quotation in Richard Bad Moccasin, Executive Director, Mni Sose Intertribal Water Rights Coalition, Inc., to Robert Whiting, Chief, Environmental Resources Section, 30 September 1998, File Devils Lake Outlet – Correspondence, Box 6453, SPDAR; see also “Devils Lake Emergency Outlet Regulator Meeting Summary, January 13, 1998,” pp. 2-3, File Devils Lake Outlet – Environmental Studies and Reports, Box 6453, SPDAR.

67 “Devils Lake, North Dakota, General Information, March 1999,” File Devils Lake Outlet – Correspondence – Congressional, Box 6454, SPDAR; “Lake Region Frustrated by Army Engineers’ Meanderings,” *Devils Lake Journal*, 25 March 1999.

68 Maj. Gen. Phillip Anderson, “Devils Lake Emergency Tiger Team Memorandum of Instructions,” Miscellaneous File on Devils Lake, Box 6447, SPDAR.

69 U.S. Army Corps of Engineers, Mississippi Valley Division, “Mississippi Valley Division Devils

Lake Division/District (Tiger) Team Technical Report, June 1999, Executive Summary,” <<http://www.swc.state.nd.us/projects/pdf/ExecSum.pdf>> (6 June 2003).

70 Phillip R. Anderson, Major General, U.S. Army, Division Engineer, to Honorable Edward T. Schafer, Governor of North Dakota, 17 June 1999, File Devils Lake Outlet – Correspondence – State Agencies, Box 6453, SPDAR.

71 “Stalling Outlet for Devils Lake Invites ‘Disaster,’” *The Forum*, 11 June 1999.

72 “State, Local Leaders Find Corps Plan Unacceptable,” *Devils Lake Journal*, 11 June 1999.

73 Judith M. Ovre to Lt. General Joe Ballard, Chief of Engineers, US Army Corps of Engineers, 29 July 1999, File Devils Lake Outlet – Correspondence, Box 6454, SPDAR.

74 “A Rising Lake Puts Corps in Hot Water,” *The Washington Post*, 11 September 2000.

75 David Loss interview by Matthew Godfrey, St. Paul, MN, 21 October 2002, p. 5.

76 Colonel James T. Scott interview by John O. Anfinson, St. Paul, MN, 30 May 1995, p. 11, Oral History File, St. Paul District, St. Paul, Minnesota; see also Notes from Thomas Raster, Civil Engineer, St. Paul District, 19 November 2003.

77 Colonel William J. Breyfogle interview by Matthew Percy, St. Paul, MN, 28 November 2001, p. 14, Oral History File, St. Paul District, St. Paul, Minnesota.

78 Quotation in “Senator Wants to Put Corps on Hold,” *Devils Lake Journal*, 16 July 1999; see also “A Rising Lake Puts Corps in Hot Water,” *The Washington Post*, 11 September 2000; “Devils Lake: Corps Change Earns Praise,” *Grand Forks Herald*, 26 July 1999; “Corps Uses Emergency Powers to Speed Devils Lake Solution,” North Dakota’s Congressional Delegation Press Release, File Devils Lake News Clippings, Box 6100, SPDAR.

79 “A Rising Lake Puts Corps in Hot Water,” *The Washington Post*, 11 September 2000.

80 For examples of criticism of environmental groups, see “Devils Lake Situation Getting Some Attention,” *Devils Lake Journal*, 14 May 1999. For examples of the environmentalists’ explanations of the flooding, see “Statement of Gary L. Pearson on Behalf of the Dakota Prairie Audubon Society Submitted at the Hearing of the Committee on Environment and Public Works, United States Senate, Regarding the Proposal to Construct An Emergency Outlet from Devils Lake to the Sheyenne River in North Dakota,” 23 October 1997 (see footnote 39); Kent Conrad, United States Senate, to Joseph Westphal, 16 August 1999, File Devils Lake Outlet – Correspondence, Box 6454, SPDAR.

81 “Merit Award Goes to Devils Lake Levees Project,” *Crosscurrents* 25 (August 2002): pp. 3, 8.

82 U.S. Army Corps of Engineers, St. Paul District, “Devils Lake Basin, North Dakota,” <http://www.mvp.usace.army.mil/fl_damage_reduct/default.asp?pageid=14> (6 June 2003); U.S. Army Corps of Engineers, St. Paul District, “Outlet Identified as Preferred Alternative at Devils Lake,” Press Release, 26 February 2003, <<http://www.mvp.usace.army.mil/pressroom/default.asp?pageid=648>> (6 June 2003).

83 Loss Interview, p. 11.

84 U.S., Congress, House, Committee on Public Works and Transportation, Oversight and Review

Subcommittee, *Flooding of the Red River of the North and Its Tributaries: Hearing Before the Subcommittee on Oversight and Review of the Committee on Public Works and Transportation, House of Representatives*, 96th Cong., 1st sess., 1979, p. 250; U.S. Army Engineer District St. Paul, *Red River of the North Post Flood Report, 1978* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1978), p. 2. At the time, there was no clear reason why flooding became more frequent in the 1960s and 1970s. The District informed the House Committee on Public Works in 1979 that “perhaps all we can conclude [from the increased frequency of floods] is that a number of large floods tend to be grouped into rather short periods interspersed with longer periods without large floods.”

85 Quotation in “Corps Outline Farm Dike Control,” *Grand Forks Herald*, 26 April 1978; see also “1979 Red River Flood Set Records for Damage,” *Minneapolis Tribune*, 10 May 1979; “Flood Danger Eases at Grand Forks,” *The Forum*, 14 April 1978; “Crest Moves North,” *Minot Daily News*, 14 April 1978.

86 “1979 Red River Flood Set Records for Damage,” *Minneapolis Tribune*, 10 May 1979.

87 “Staying in Touch! Congressman Arlan Stangeland,” *Benson Monitor* (MN), n.d., clipping in File 870 Red River of the North Flood 1979, Box 3858, SPDAR.

88 Quotation in “Levee Plans Not Popular At Meet,” *Red Wing-Republican Eagle*, 29 October 1983; see also “EGF to Study Flood Plan Tuesday,” *Grand Forks Herald*, 8 October 1983; U.S. Army Corps of Engineers, *Water Resources Development in Minnesota 1995*, pp. 69-70; “Fact Sheet: General Investigations,” File 1110-201150a East Grand Forks Flood Control (‘97), Box 8072, SPDAR.

89 Bory Steinberg, “The Federal Perspective,” in *Water Resources Administration in the United States: Policy, Practice, and Emerging Issues*, edited by Martin Reuss (East Lansing: Michigan State University Press, 1993), p. 264.

90 Colonel Kenneth Kasprisin interview by Virginia Gnabasik, 13 July 2001, St. Paul, MN, p. 10.

91 “GF Hasn’t Dropped Guard in Protecting from Flood,” *Grand Forks Herald*, 23 October 1983.

92 Edward McNally interview by Matthew Godfrey, St. Paul, MN, 22 October 2002, p. 3.

93 U.S. Army Corps of Engineers, St. Paul District, *Draft General Reevaluation Report and Environmental Impact Statement, East Grand Forks, Minnesota and Grand Forks, North Dakota* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1998), p. 1; “A Day That Began with Sirens Blaring in the Night Ends with Devastation,” *Grand Forks Herald*, 18 April 1997; “‘We’re Losing’: Downtown Grand Forks Hit by Fire as Well as Flood,” *St. Paul Pioneer Press*, 20 April 1997; “Flames Beaten in Grand Forks, But Red’s Rising,” *The Forum*, 21 April 1997; “Flooded Grand Forks, N.D., Will Be Deserted When Clinton Visits Tuesday,” *Grand Forks Herald*, 21 April 1997; “District Puts in Herculean Effort Against the Flood of ‘97,” *Crosscurrents* 20 (Summer 1997): pp. 1-6.

94 McNally Interview, p. 3.

95 “Description of 100-Year City-Wide Plan (Preliminary),” File 10-1-7a Grand Forks Feasibility Study 1995, Box 4575, SPDAR.

96 U.S. Army Corps of Engineers, St. Paul District, *Draft General Reevaluation Report and Environmental Impact Statement*, p. 2.

97 U.S. Army Corps of Engineers, St. Paul District, *Draft General Reevaluation Report and Environmental Impact Statement*, pp. 2, 13-16; “‘Down to One Plan, One Project’ at Grand Forks,” *Crosscurrents* 21 (March 1998): p. 1; McNally Interview, p. 6. The two cities ultimately received financial help from the states of Minnesota and North Dakota.

98 McNally Interview, pp. 6-7. According to one source, East Grand Forks was the first city to install the invisible floodwall, a structure developed in Germany to minimize scenic changes from flood protection structures. Using the invisible floodwall, the Corps constructed a permanent concrete base along the river. In times of flooding, the Corps would insert vertical columns into the concrete base and connect these columns with interlocking horizontal planks. Therefore, the floodwall only exists when a flood threatens; at other times, the unobtrusive concrete base is the only visible structure. See “Flood Protection in East Grand Forks,” <http://www.draves.com/gf/egf_dike.htm> (12 August 2004).

99 U.S. Army Corps of Engineers, St. Paul District, “Flood Control, Red River of the North: Grand Forks, N.D./East Grand Forks, Minn.,” <http://www.mvp.usace.army.mil/fl_damage_reduct/default.asp?pageid=18> (6 June 2003); “District Earns 3rd Planning Award,” *Crosscurrents* 22 (September 1999): p. 3.

100 Scott Interview, p. 11.

101 McNally Interview, p. 2.

102 Breyfogle Interview, p. 13.

103 “Flood Control, Red River of the North: Grand Forks, N.D./East Grand Forks, Minn.”

104 McNally Interview, p. 9.

105 Scott Interview, p. 8.

106 U.S. Army Corps of Engineers, St. Paul District, *Draft Revised Environmental Impact Statement, Flood Control and Related Purposes, South Fork Zumbro River Watershed, Rochester, Olmsted County, Minnesota* (St. Paul, MN: U.S. Army Corps of Engineers, St. Paul District, 1976), p. 8; “Zumbro Ditch is Cost of Ending Flood Risk,” *Post-Bulletin* (Rochester, MN) 17 July 1990.

107 U.S., Congress, House, Committee on Public Works and Transportation, Water Resources Subcommittee, *Water Resources Development Act of 1978: Hearings Before the Subcommittee on Water Resources of the Committee on Public Works and Transportation, House of Representatives, 95th Cong., 2d sess., 1978*, p. 468; “Engineers OK City Flood Control Plans,” *Post-Bulletin*, 10 July 1972; “Cooperative Planning . . . Zumbro River at Rochester,” *Crosscurrents* 1 (January 1978): p. 3.

108 “Flood Project All Because City Built in Wrong Place,” *Post-Bulletin*, 23 February 1993; “Flood Control Provides Recreation Opportunities,” *Post-Bulletin*, 4 April 1995.

109 “Statement of Hon. Albert H. Quie, a Representative in Congress from the State of Minnesota,” in House Subcommittee on Water Resources, *Water Resources Development Act of 1978*, p. 508.

110 Moore and Moore, *The Army Corps of Engineers and the Evolution of Federal Flood Plain Management Policy*, p. 132. For a discussion of this time period and the events leading up to the passage of the Water Resources Development Act of 1986, see Martin Reuss, *Reshaping National Water Politics: The Emergence of the Water Resources Development Act of 1986* (Fort Belvoir, Va.: U.S. Army Corps of Engineers, Institute for Water Resources, 1991).

111 Moore and Moore, *The Army Corps of Engineers and the Evolution of Federal Flood Plain Management Policy*, pp. 133-134.

112 Quotation in “Rochester Gets Go-Ahead in Water Bill,” *Crosscurrents* 10 (January 1987): p. 1; see also U.S., Congress, House, Committee on Public Works and Transportation, Water Resources Subcommittee, *Water Resources Development – Cost-Sharing Aspects of President’s Water Policy Initiatives: Hearings Before the Subcommittee on Water Resources of the Committee on Public Works and Transportation, House of Representatives, 96th Cong., 1st sess., 1979*, p. 231.

113 Russel K. Snyder interview by Matthew Godfrey, St. Paul, MN, 23 October 2002.

114 Wonsik Interview, p. 7; “Rochester, Minnesota Flood Control Project,” summary provided by Russel K. Snyder, Project Manager, St. Paul District.

115 “Rochester Gets Go-Ahead in Water Bill,” p. 1; “Information Paper, Rochester, Minnesota, Flood Control Project, June 1991,” Loose Papers, Box 7842, SPDAR.

116 Quotation in “\$12.4 Million Requested for Flood Control,” *Post-Bulletin*, 4 February 1991; see also “Flood Project May Go Into 1997,” *Post-Bulletin*, 30 October 1990; Colonel Roger L. Baldwin interview by John O. Anfinson, St. Paul, MN, 1 July 1991, p. 8, Oral History File, St. Paul District, St. Paul, Minnesota. Neither Baldwin nor Foley explained what caused the significant increase in cost; Baldwin merely said that “the job is a more expensive job than we had anticipated.” “\$12.4 Million Requested for Flood Control,” *Post-Bulletin*, 4 February 1991.

117 Quoted in “Some Not Happy with Flood Control Project,” *Post-Bulletin*, 10 July 1990.

118 Quoted in “Zumbro Ditch is Cost of Ending Flood Risk,” *Post-Bulletin*, 17 July 1990.

119 David F. Hansen Letter to the Editor, *Post-Bulletin*, n.d., clipping in File 22840 IHF Rochester, MN 1990, Box 4144, SPDAR.

120 “Minnesota Engineers Honor Rochester Project,” *Crosscurrents* 19 (February 1996): pp. 1, 3; “Project’s End Gets Flood of Praise,” *Post-Bulletin*, 29 September 1994.

121 Mark Heywood, Regional Fisheries Manager, Minnesota Department of Natural Resources, to Randy Devendorf, Corps of Engineers, 21 October 1994, File 11-2-240a Zumbro River at Rochester, Box 2964, SPDAR; Louis Kowalski, Deputy District Engineer for Project Management, to Mr. Mark Heywood, 5 December 1994, *ibid.*; “Rochester Flood Control Project: Summary”; “Flood Control Provides Recreation Opportunities,” *Post-Bulletin*, 4 April 1995.

122 “Zumbro Ditch is Cost of Ending Flood Risk,” *Post-Bulletin*, 17 July 1990.

123 “City Surprised by Low Bids for Flood Project,” *Post-Bulletin*, 2 October 1991.

124 “Minnesota Engineers Honor Rochester Project,” p. 3; “Rochester Flood Control Project: Summary,” p. 3.

125 Chuck Canfield, Mayor, City of Rochester, to Colonel J. M. Wonsik, Army Corps of Engineers, 19 March 1996, File 672 Awards, Box 7823, SPDAR.

126 Frank Star interview by Matthew Godfrey, St. Paul, MN, 21 October 2002, p. 4.

127 “Rochester Flood Control Project,” p. 3.

128 Quotation in “Minnesota Engineers Honor Rochester Project,” p. 1.

129 “District Project Earns Top Honors,” *Crosscurrents* 19 (April 1996): p. 4; “St. Paul District Achieves Top Recognitions in ‘96,” *Crosscurrents* 19 (December 1996): p. 1; Terry Birkenstock email to Matthew T. Percy, March 1, 2004, copy supplied to the authors.

130 “Deb Foley: Corps Project Manager of the Year,” *Crosscurrents* 19 (June 1996): p. 5; “Minnesota Engineers Honor Rochester Project,” pp. 1, 3.

131 Snyder Interview.

132 “Rochester Flood Control Project: Summary,” p. 1.

133 Scott Interview, p. 9.

134 Kasprisin Interview, p. 14.