
*Chapter Two:
Economic Development
in the Crow River Watershed*

CHAPTER 2: Economic Development

ETHANOL PRODUCTION AND CONSUMPTION, by Hannah Gelder and Anna Waugh, Map by Hannah Gelder and Anna Waugh

Ethanol production is reaching unprecedented levels in the United States.¹ When people use the word ethanol, they are most likely referencing “a clean-burning, high-octane motor fuel that is produced from renewable sources.”² Essentially, it is a grain alcohol. The majority of ethanol in the United States is produced from corn, but it can be made from any grain. Ethanol is 35% oxygen, so when the alcohol is blended with unleaded gasoline it increases the oxygen content of the fuel. This blend burns cleaner than standard gasoline. Ethanol plays an important role in clean-air fuel programs. By adding ethanol to our fuel, we are able to reduce our dependence on foreign oil. In addition, it helps the economy grow.

With President Bush announcing in his 2007 State of the Union Address that the nation will reach for the goal of reducing gasoline consumption 20% by 2017, the demand for ethanol is projected to continue rising. Because 98% of ethanol is made from corn or corn-based products, it will create an extraordinary need for corn, even as new alternatives for ethanol production, like switch grass, are explored.³

Ethanol production increases the demand for corn and agricultural products, which can raise the price that farmers receive for these crops. This can lead to economic development in rural areas.

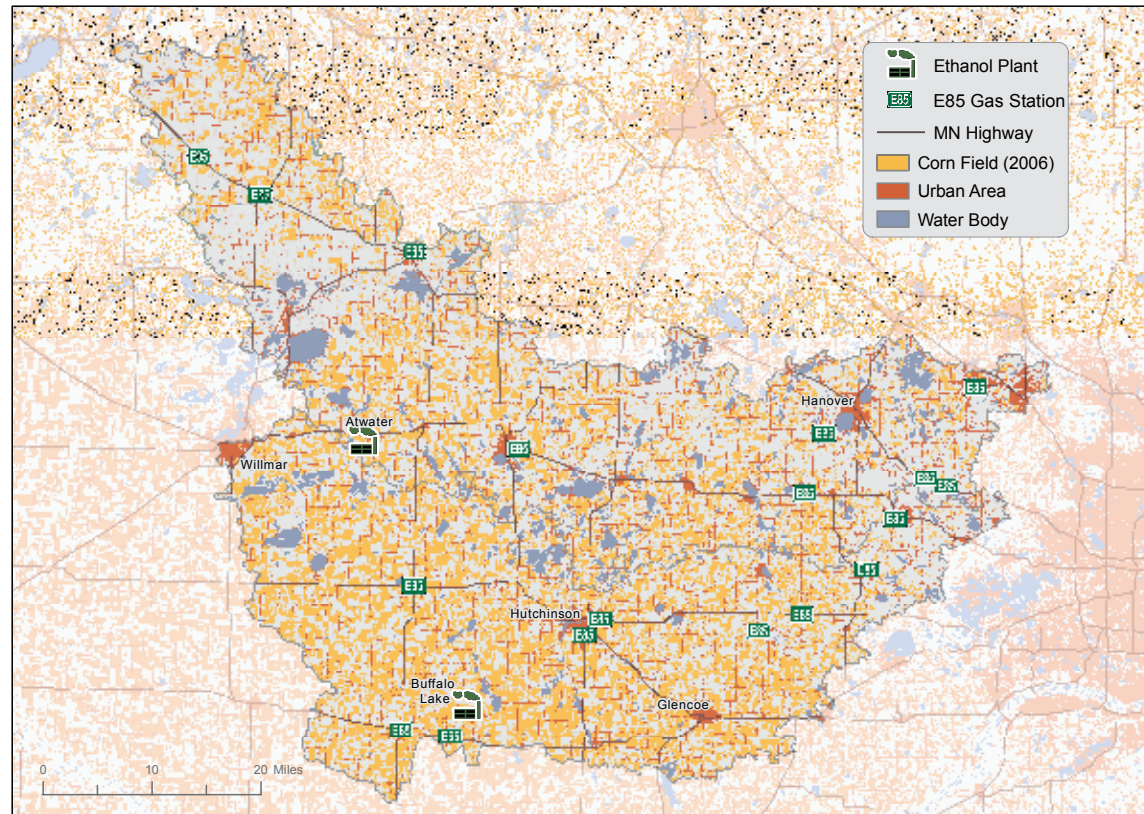
per bushel in areas around an ethanol factory.⁴

According to the Minnesota Corn Growers association, all gasoline sold in the state is 10% ethanol.

The American Coalition for Ethanol states that 46% of the United State’s gasoline contains ethanol – often an E10 blend. All vehicles can operate with this fuel. E85 refers to a particular program in which gas stations sell a blend of gasoline that is 85% ethanol. The E85 blend is made for Flexible Fuel Vehicles (FFVs), which are cars and trucks with engine and fuel system modifications that allow them to run off gasoline with higher concentrations of ethanol. These vehicles run similarly to a normal car or truck, however, they get 20-30% fewer miles to the gallon when running off E85, because the fuel contains less energy than a gallon of gasoline.⁵ Minnesota has more than

150,000 FFVs and more than 325 E85 fueling stations.⁶ Approximately 6% of all gas stations in the state have an E85 pump.⁷ However, this figure is higher than any other state in the nation.

Ethanol Production and Consumption, 2006



Cartographers: Anna Waugh & Hannah Gelder. 4 April 2008. Projection: NAD83 UTM Zone 15N. Data Sources: MN Dept. of Agriculture 07/2007; USDA 2006; American Lung Association 2008.

Many ethanol production plants are farmer-owned cooperatives. Approximately 40% of the nation’s entire ethanol-producing capacity is owned and controlled by farmers and other local investors. The American Coalition for Ethanol states that ethanol increases the price of corn 5-10%

Though growing corn for ethanol has expanded options for farmers and infused new life into rural economies, recent scientific evidence shows that ethanol may not be the godsend ‘clean energy’ solution it was once thought to be. Growing corn takes a tremendous amount of water, and has helped to drain thousands of acres of wetlands. Carbon emissions from petrochemical fertilizers may exceed those saved by not burning gasoline, and it inflates food prices.⁸ Finally, with growing corn prices, the financial incentives to convert previously conserved land into corn fields may threaten the country’s nearly 35 million privately owned acres set aside as preserved lands.⁹

“Since 1998, Minnesota has been a leader in promoting ethanol use by serving as the national pilot market. The project has resulted in the largest ethanol-based fueling network in the U.S., multiple production plants, and thousands of flexible fuel vehicles on Minnesota roads.”¹⁰ In 2006, 15%, or 196 million bushels, of Minnesota’s total annual corn crop was made into ethanol. It is anticipated that ethanol will consume approximately 25% of the state’s corn crop in 2008.¹¹

The map on page 50 illustrates the high prevalence rate of corn and corn-based economic activities occurring in the Crow River Watershed. It identifies the corn farms, the gas stations offering E85 and the two ethanol-production plants in the watershed. There is Bushmills Ethanol, Inc. in Atwater and Minnesota Energy at Buffalo Lake. The plant in Atwater is a cooperative of 415 farmers. It opened in December 2005. The plant produces 49 million gallons of ethanol every year.¹² Buffalo Lake is also a farmer cooperative with 325 shareholders.

It opened in 1997 and produces 19 million gallons of ethanol per year.¹³ Agriculture is the predominant land use in this region. According to the MN Department of Employment and Economic Development, corn made up 16.6%—the 2nd largest sector— of cash farm receipts from 1998-2000¹⁴. The map highlights the importance of corn in this region.

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A NUMBER ONE INDUSTRY: TURKEY PRODUCTION IN MINNESOTA, by Andrea Blake, Maps by Namara Brede

Ah, turkey. Just reading, writing and listening to the word conjures an array of images from families sitting around the dinner table at Thanksgiving to unnerving reports of the spread of an avian flu virus that kills not only birds but humans as well. Benjamin Franklin referred to the turkey as “a true original native of America,” and a “bird of courage,” that “would not hesitate to attack a grenadier of the British Guards who should presume to invade his farm yard with a red coat on.”¹ Since Ben Franklin’s patriotic display of affection and admiration for the bird, the turkey has continually been held in high esteem as a significant animal in American society.

Historically, the turkey has been one of the most important animals in various food and farm industries throughout the United States, and the number of turkeys raised per year has increased drastically. In 1929, for example, 18 million turkeys were raised country-wide. By 2007, that number had increased to approximately 272 million turkeys raised.² Minnesota in particular has had a close relationship to turkey production for several decades, and has consistently been one of the top turkey producing states in the country for equally as long. In fact, Minnesota is currently the top ranked turkey producing state, beating out its long-term leading rival, North Carolina, in 2001 after raising 43.5 million birds that year alone.³ As the turkey producing industry continues to grow throughout the United States, the industry in Minnesota also thrives. The success of the turkey industry within the state has as much to do with growth of the national demand for turkey over the last few decades as it does with the strength of industry’s highly developed, supportive, and adaptive infrastructure.

Why is the turkey production industry so special in Minnesota?

Minnesota has a long history of turkey production, and the industry continues to be an important component of economic gain for the state. As the top turkey producing state in the country in 2006, Minnesota farmers raised approximately 45 million birds,⁴ or about 1.2 billion pounds of processed turkey meat.⁵ The Crow River and Elm Creek Watershed areas, in particular, contain a high number of turkey growers. In fact, Kandiyohi and Meeker counties are part of the top ten turkey producing counties in the state, producing over 9 million turkeys combined annually. Kandiyohi County is the number one turkey growing county in the state, and is also ranked as the number five largest turkey producing county in the nation.⁶

The success of the turkey industry in Minnesota has been dependent upon the growth and strength of industry’s infrastructure. The industry, in fact, and the related businesses that support it, make up nearly 26,000 jobs throughout the state.⁷ Over 600 growers own over 250 farms, and approximately 7,600 people are employed in the processing plants around the state.⁸ Other related businesses that employ several thousands of people in the state include the soybean and corn growers that provide essential feed for turkeys, feed processors, the transportation industry, veterinarians, agricultural researchers, insurance companies, communications associations, and several other organizations.⁹

Growers and processors around the state receive support and advice from several organizations invested in the turkey producing industry. The University of Minnesota and the Minnesota Board of

Animal Health regularly conduct research in order to address turkey health issues and other industry concerns. The Minnesota Turkey Growers Association and the Minnesota Turkey Research and Promotion Council, both located in the heart of the watershed area in the city of Buffalo, serve as liaisons between growers, consumers, and other people involved or interested in the industry. Additionally, according to Steve Olson, the director of the Minnesota Turkey Growers Association, turkey growers in Minnesota are particularly skilled and successful, and many of them have been raising turkeys for generations. It is common to find second, third, or fourth generations of growers working on the same farm or in the same area where they grew up.

Turkey production also coincides with other agricultural industries in the state that have proven to be beneficial to the development of the turkey producing industry over the past decades. As shown in the *Minnesota Turkey Farms: As a Percent of All Farms by County* map on the next page, there is no county in the state in which turkey farms make up more than 16.5% of all farms within that county. Soy and corn production, for example, are two other highly lucrative industries in the state of Minnesota that also make up a high percentage of the variety of farms in each county. Turkey growers often have the advantage of being close to these crops which are used for feeding. As feeding costs are generally the largest expense to growers, being close to the source of the feed dramatically cuts related costs such as the transportation of feed to the turkey farms.¹⁰

Most importantly, as Mr. Olson at the Minnesota Turkey Growers Association emphasized, there is

a generally stable balance between turkey growing and turkey processing in Minnesota, which has strengthened the industry and allowed it to expand. Turkey farms, for example, tend to be located near processing plants, which tremendously reduces transportation costs of moving turkeys from various farms to the plants. Additionally, there are several facets of turkey production beyond simply growing and processing. Farmers grow turkeys for varying lengths of time

and for several reasons. Conversely, processors produce special cuts of meat for diverse markets around the world.

How does turkey production work?

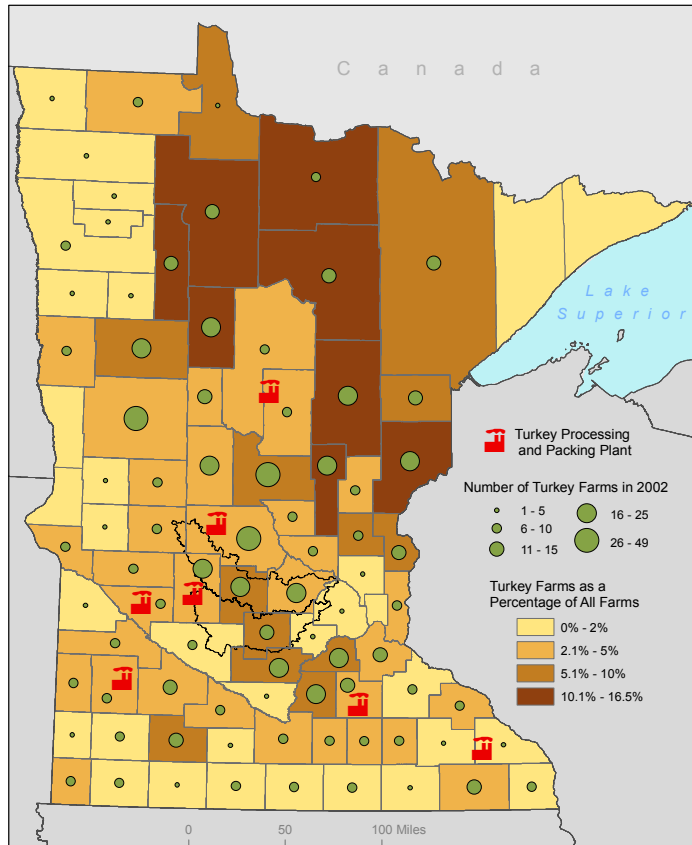
According to an overview of the United States turkey industry by the National Agricultural Statistics Service (NASS), turkey growing and processing traditionally took place together on the same agricultural unit or turkeys were slaughtered very close to where they were raised. Over the last few decades, however, the turkey producing industry has become highly specialized and automated, and current farms and processing plants have intensified production tremendously. As shown in the *Minnesota Turkey Farms: Percent Change by County* map to the right, the mechanical changes in turkey production have led to decreasing amounts of farms in some areas with historically large numbers of farms. Yet these shifts in turkey production and the overall increase in the demand for turkey products have also led to increasing numbers of farms in areas with historically smaller numbers.

Today, there are several different kinds of turkey growers and processors that work together to create and profit from

a final, processed product. Eggs, for instance, are produced at laying facilities by hens that have often been bred at special breeder operations in order to maintain particular genetic strains of turkeys that have historically been efficient meat producers and turn out a greater profit. After the hens produce a sufficient amount of eggs, they are reused for another laying cycle, or moved onto processing plants with other turkeys.¹¹

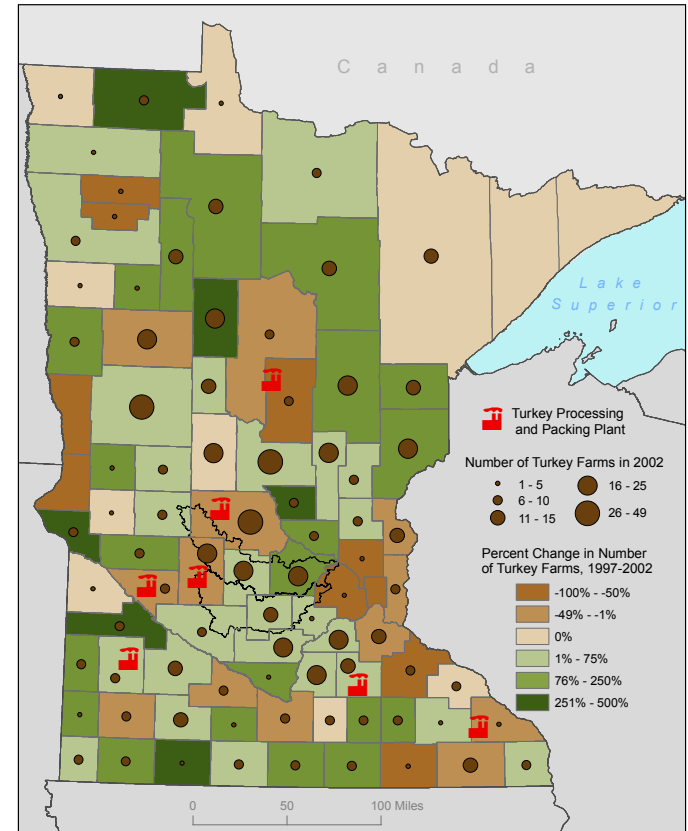
The eggs are transported to hatcheries, where

Minnesota Turkey Farms
As a Percent of All Farms by County, 2002



Cartographer: Namara Brede, 18 April 2008; NAD 1983 Zone 15 N.; Data Source: U.S. Census of Agriculture 2002; Classification: Natural Breaks.

Minnesota Turkey Farms
Percent Change by County, 1997-2002



Cartographer: Namara Brede, 18 April 2008; NAD 1983 Zone 15 N.; Data Source: U.S. Census of Agriculture 1997 & 2002; Classification: Natural Breaks.

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Figure 1. Recently hatched poults.
Photo courtesy of the Minnesota Turkey Growers Association.

they are incubated and eventually hatched less than a month later.¹² Newly hatched birds, also known as poults, are moved to brooder barns, where they are raised in enclosed facilities until they are four or five weeks old (see Figure 1). Afterwards, they are shipped to grow-out barns, where they usually remain until processing (see Figure 2). Hens remain in grow-out barns for 8 to 12 weeks and are processed and sold at 10 to 16 weeks old. Likewise, Toms (male turkeys) stay in grow-out barns for 10 to 18 weeks and are processed and sold at 18 to 22 weeks old.

Processing operations are just as, if not more, specialized than growing operations. Processing employees work at various sections of the slaughtering floor within the plant. Employees generally work in two and a half shifts, and during another half shift a cleaning crew washes the entire area and equipment is inspected to make sure that it is functioning properly before the start of the next processing shift. Addition-

ally, several other employees serve important roles at processing plants, such as the quality assurance inspectors and the employees working in sales and human resources departments.¹³

Conclusion

Turkey production throughout the United States has continually been gaining momentum from increasing demands by consumers throughout the country and world. As the national and international markets for turkey products grows, the top turkey producing industries profit greatly. The Minnesota turkey producing industry is currently the number one turkey producing industry in the country, and it owes its success not only to the growth of the general market, but also to the strong state infrastructure that supports it. The state infrastructure has proven to be as fluid as the turkey growing and production process, and as the industry continues to grow, the infrastructure, too, continues to adapt and provide for the needs of growers and processors.

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Figure 2. An inside view of a grow-out barn.
Photo courtesy of the Minnesota Turkey Growers Association.



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EDUCATION AND WORKPLACE POPULATION, by Gautam Mani, Maps by Gautam Mani

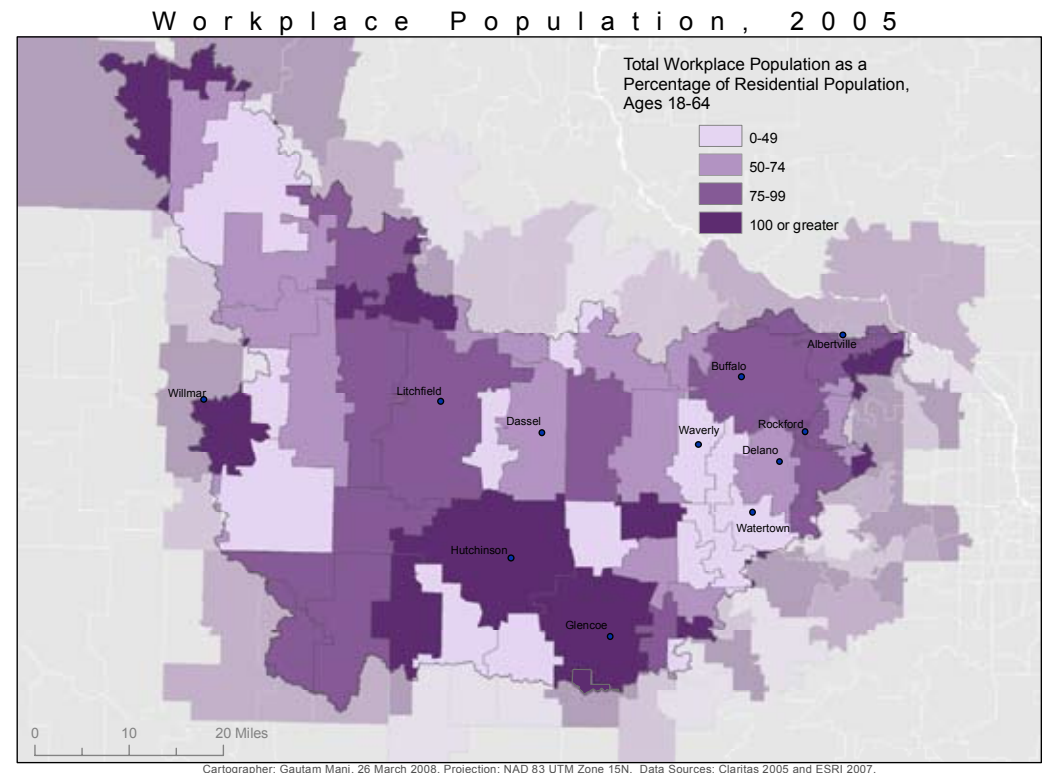
One of the critical questions facing the cities and towns in the watershed is whether they will become job centers, employing people from the town itself and surrounding area, or whether they will be dependent on the Twin Cities, and its immediate suburbs, for job opportunities. The dramatic expansion of the state and federal highway systems over the last half-century has made the once distant towns of the watershed much more accessible to the job market of the Twin Cities metro area, and increased commuting substantially. At the same time, the lack of a viable alternate mass transportation system between the satellite towns and the Twin Cities motivates people in the Crow River Watershed to find jobs closer to home.¹ Furthermore, education level plays a role in determining what types of jobs people are able to obtain. In the Twin Cities and its immediate suburbs, there has been a huge increase in service sector jobs over the last two decades, whereas towns further away in the watershed still maintain high numbers of manufacturing and agricultural jobs.²

The first map in this section (see *Workplace Population, 2005*) shows workplace population in each zip code of the watershed for the year 2005. A larger area on the pie chart signifies a larger percentage of people with that level of education. Workplace population refers to the total number of employees in each zip code, across all civilian industries. The age group 18-64 was used to measure total residential population in each zip code, since this is the age group that is most likely to be in the labor force. Of course, not all people ages 18-64 are in the labor force. In fact, according to the 2002 Minnesota Employment Review³, an estimated 28 percent of the total population of the Crow River

Watershed is not counted as part of the labor force by the Bureau of Labor Statistics because they are retired, institutionalized, serving in the military, in school, or not actively seeking work. This workplace population was calculated and expressed as a percentage of the total residential population in order to show whether a particular area attracts people from outside the zip code, making it a job center, or whether it experiences a loss of its residential population during the workday. In that case, the zip code does not provide enough jobs or the proper type of jobs for its residents. Areas with workplace populations that are 100% or more of their residential populations attract a net gain in people during the workday, whereas those areas with less than 100% have a net loss because people commute to jobs elsewhere.

The second map in this section (see p. 57) shows educational attainment and median household

income for each zip code in 2005. Educational attainment is divided into four categories, and each expressed as a relative percentage in the pie charts. In general, zip codes showing higher percentages of people with graduate, doctoral or professional degrees had higher median household incomes. These high income areas were concentrated near the Twin Cities. Further west in the watershed, the percentage of people with higher education levels decreases gradually, as does median household income. However, there are places in the far western part of the watershed with low median household incomes and high levels of people with graduate, professional or doctoral degrees.



One possible reason for this break in the trend is that these regions are located furthest away from the Twin Cities, and while they have high education, they are unable to gain access to higher paying jobs because of the distance to these jobs.

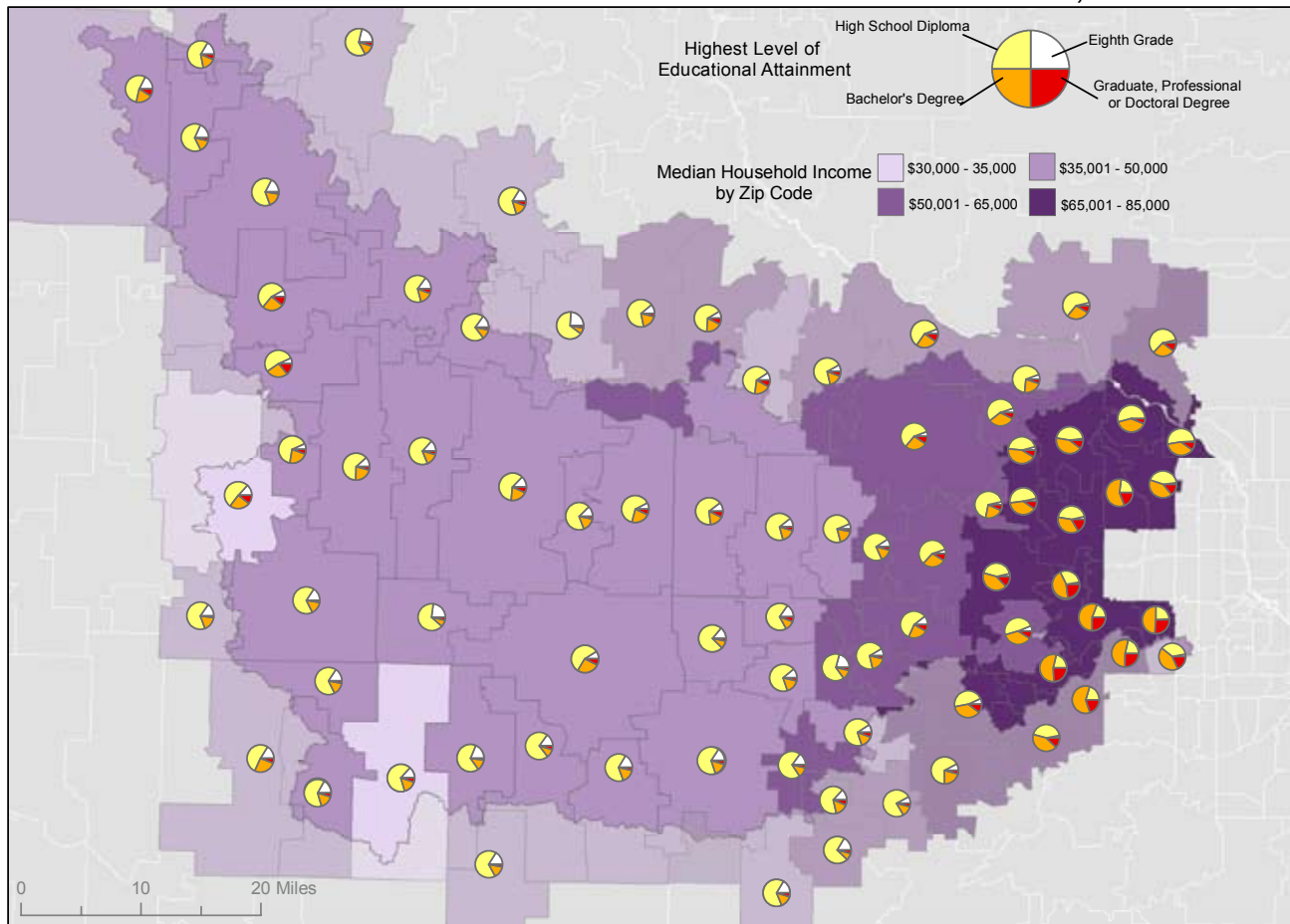
In comparing the two maps, it can also be seen that the areas of high education levels and low income are located in areas that have high relative workplace populations. While the jobs in these areas do not appear to be high-paying, these zip codes still experience a net gain of population during the workday, indicating a willingness to travel by people from neighboring zip codes where relative workplace populations are lower. Higher workplace populations occur more sporadically throughout the watershed, and the distribution does not form a pattern that correlates with either high income levels or high education levels. Small areas closest

to the Twin Cities experience net gains in population during the workday, as do the areas around the towns of Hutchinson, Glencoe, and Willmar, and small areas of the northeastern watershed. These high workplace populations indicate that these areas are becoming job centers and have some economic independence from the Twin Cities. However, this should not be confused with higher

incomes, and these areas are still dependent on the Twin Cities for trade and products. In contrast, smaller towns and suburbs are located in areas with lower levels of workplace population, indicating some dependence for jobs on other towns and the Twin Cities. There appears to be major commuting in these areas, meaning future efforts to expand the watershed's transportation system should

focus on those cities and towns where the most people have to commute for work outside of their immediate areas.

Educational Attainment and Household Income, 2005



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BRIDGING THE GAP: ANALYSIS OF THE CLINIC CAB COMMUTER LINE IN BUFFALO, MINNESOTA, by Joe Parilla, Maps by Anna Waugh

The decentralization of population has been the defining trend of American metropolitan areas over the past half-century. Minneapolis-Saint Paul is no exception; as concentrated western expansion has subsumed small towns on the western fringe such as Buffalo, where population growth has nearly doubled since 1990.¹ Unsurprisingly, this population growth has been accompanied by an increase in traffic congestion along Highway 55, the main transit corridor between Buffalo and Minneapolis (See the *Populations Changes in Cities and Towns Along Minnesota State Highway 55* map series). In response to increased congestion, Clinic Cab, a private transit service, introduced a commuter bus service from Buffalo to downtown Minneapolis. Shortly after its establishment, Clinic Cab discontinued service along Highway 55, citing the financial infeasibility of private bus service in Buffalo without public subsidies.

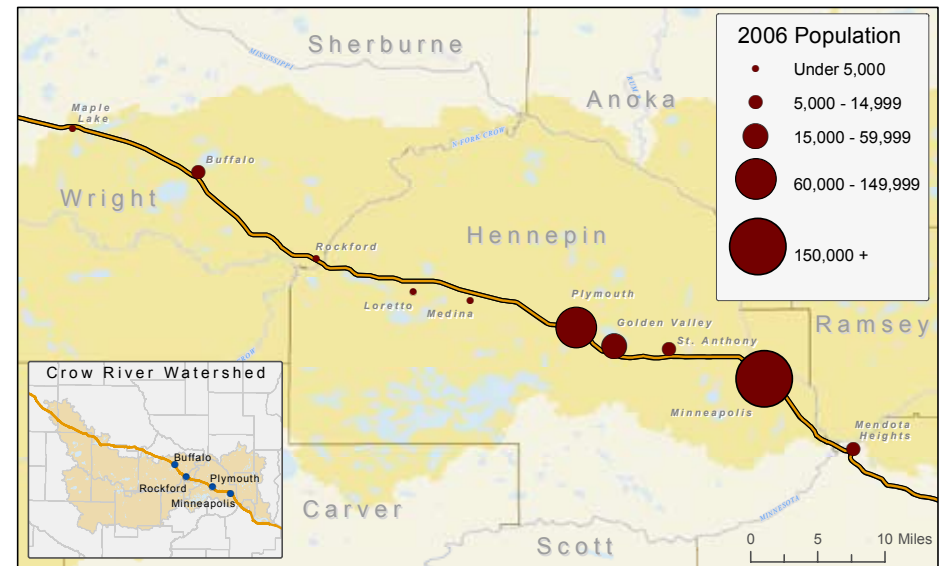
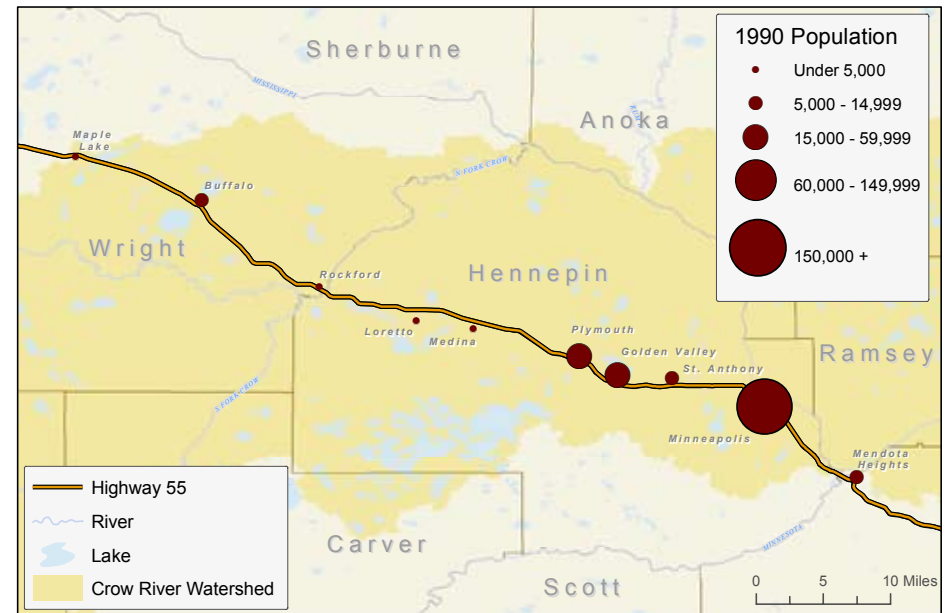
The Buffalo and Clinic Cab case study illustrate three issues facing metropolitan areas. First, Buffalo's rapid growth epitomizes the trend of population decentralization apparent in American urban areas. Second, Buffalo is experiencing the subsequent strains on existing infrastructure felt by many of America's high growth small cities. While this case study focuses on traffic congestion and public transit, unplanned populations also overcrowd public schools, overwhelm stormwater infrastructure, and necessitate expansion of healthcare and senior services. Third, through the lens of the Clinic Cab commuter bus service, the importance of competent public-private partnerships in providing services to growing communities becomes clear.

A Defining Trend: Metropolitan Decentralization

Historically, population decentralization in America's metropolitan areas occurred for many reasons including the desire for more space, cheaper land and home prices, outer ring highway construction, cheap and abundant gasoline, and the decline of inner-city public schools. Population growth in Buffalo over the past fifteen years has occurred within the context of small city growth nationwide. During the 1990s, small cities – those with a population less than 50,000 – grew 18.5%, substantially outpacing large cities (9.1%) and medium cities (12.9%).²

Outward growth in the Twin Cities is es-

Population Changes in Cities and Towns along Minnesota State Highway 55



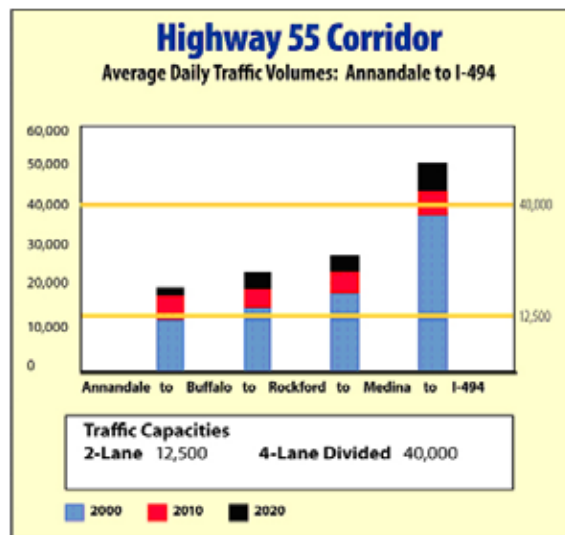
Cartographer: Anna Waugh, April 2008. Projection: NAD83 UTM Zone 15N. ESRI, Natural Breaks.

Table 1: Highway 55 Corridor Growth Areas

	1990	2005	Change
Hennepin County	1,032,431	1,150,912	11%
Wright County	68,710	110,836	61%
City of Buffalo	6,856	13,251	93%

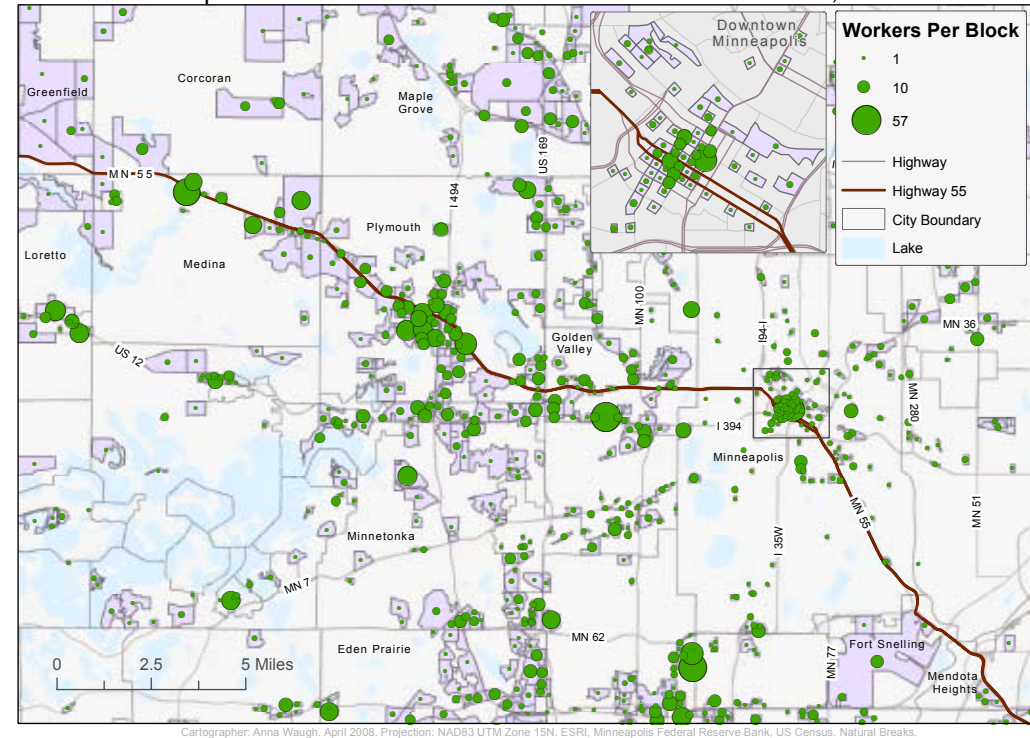
Sources: Data are from the Highway 55 Corridor Coalition (2008).³

Table 2. Average Daily Traffic Volumes along the Highway 55 Corridor



Source: Highway 55 Corridor Coalition.

2006 Workplaces of the Residents of Buffalo, Minnesota



pecially concentrated in western Hennepin County and Wright County, where Buffalo has increased its population by 93% since 1990.³ (See Table 1). Buffalo’s growth pattern is reflective of the common trend in which metropolitan areas continue expanding until they develop around formerly rural areas, effectively linking them to the urban core through an exchange of people, goods, and ideas.

Highway 55: Population Growth and Congestion

The out-migration of population from central cit-

ies and first ring suburbs accounts for a significant portion of growth in small cities – including Buffalo. These residents typically still work in and around the urban core, but accept longer commutes in exchange for natural amenities, less density, and cheaper land. The 2006 *Workplaces of the Residents of Buffalo* map (see next page) shows the number and location of Buffalo residents working in and around Minneapolis. Larger circles refer to higher concentrations of workers. The combination of population growth, longer commuting distances, and an aging highway infrastructure has increased congestion in the Twin Cities at a faster pace than other metropolitan areas of similar sizes.⁴

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Table 3. Economic Analysis of Commuting Costs

Year	Avg Gas Price*	Fuel Economy (2004)**	Roundtrip Commute (miles)	Cost of Gas Per Month	CC Monthly pass***	CC Monthly pass w/ subsidy	Without Subsidy			With Subsidy		
							1 Month Savings	1 Year Savings	5 Year Savings	1 Month Savings	1 Year Savings	5 Year Savings
2005	\$2.01	24.6	90	\$161.78	\$250.00	\$200.00	-\$88.22	-\$1,058.63	-\$5,293.17	-\$38.22	-\$458.63	-\$2,293.17
2006	\$2.76	24.6	90	\$222.15	\$250.00	\$200.00	-\$27.85	-\$334.24	-\$1,671.22	\$22.15	\$265.76	\$1,328.78
2007	\$2.66	24.6	90	\$214.10	\$250.00	\$200.00	-\$35.90	-\$430.83	-\$2,154.15	\$14.10	\$169.17	\$845.85
2008	\$3.24	24.6	90	\$260.78	\$250.00	\$200.00	\$10.78	\$129.37	\$646.83	\$60.78	\$729.37	\$3,646.83
	\$4.00	24.6	90	\$321.95	\$253.52	\$202.81	\$68.43	\$821.19	\$4,105.96	\$119.14	\$1,429.64	\$7,148.18
	\$4.50	24.6	90	\$362.20	\$255.42	\$204.34	\$106.78	\$1,281.30	\$6,406.51	\$157.86	\$1,894.31	\$9,471.55
	\$5.00	24.6	90	\$402.44	\$257.12	\$205.70	\$145.32	\$1,743.80	\$8,718.98	\$196.74	\$2,360.89	\$11,804.45
	\$5.50	24.6	90	\$442.68	\$258.67	\$206.93	\$184.02	\$2,208.21	\$11,041.05	\$235.75	\$2,829.01	\$14,145.03
	\$6.00	24.6	90	\$482.93	\$260.08	\$208.06	\$222.85	\$2,674.21	\$13,371.03	\$274.87	\$3,298.39	\$16,491.95

*Prices are from twincitiesgasprices.com

**Average fuel economy for US automobile fleet (miles per gallon).

***Clinic Cab Monthly Pass are with no public subsidy. Price changes are estimated using the percentage of costs for fuel for bus companies.¹³

Traffic congestion makes metropolitan areas less economically competitive and stymies economic growth.⁵ In 2005, Twin Cities rush-hour commuters spent an average of 43 hours per year stuck in traffic, bringing the total cost of traffic congestion in the region to \$1.1 billion, nearly \$800 per peak traveler.⁶ Predictably, in a 2003 poll conducted by the Metropolitan Council, area residents ranked traffic congestion their number one livability concern, ahead of crime, education, and housing.⁷

The costs of congestion are not equally shared by all Twin Cities commuters. A disproportionate share of congestion costs are borne by workers who commute on the most overcrowded and heavily traveled transit corridors such as Highway 55 (see Table 2).

For instance, near Buffalo, vehicle trips per day are predicted to nearly double between 2006 and 2030.⁸

According to Minnesota Department of Transportation engineer Robert Busch, “Highway 55 is the most heavily traveled two-lane highway in all of District 3 (13 counties in central Minnesota including the St. Cloud and Brainerd areas).”⁹ From these findings it is evident that population growth along the Highway 55 corridor will only exacerbate traffic concerns. The Minnesota Department of Transportation (MNDOT) recognizes the need to upgrade two sections of Highway 55. However, due to a shortage of state funding for transportation infrastructure, neither project is planned for before 2030.¹⁰ In short, the demo-

graphic processes shaping Buffalo and its surrounding areas are fundamentally influencing traffic patterns, increasing congestion and its associated costs, and overwhelming the transportation infrastructure in the northwestern metro.

Clinic Cab

Enter Clinic Cab, Inc. and its Vice President Matt Liveringhouse. Clinic Cab, based in Buffalo, operated the Buffalo/Rockford Commuter Service until January 2008 as a private, for-profit business. Clinic Cab used small 12-passenger busses to bring commuters from Buffalo and Rockford to the western suburbs and downtown Minneapolis in less than

an hour. While ridership was low (5-6 passengers consistently used the service daily), Liveringhouse believes the Commuter Line's downfall was a lack of public funding.¹¹ At \$250 per month, the financial costs exceeded the benefits for a commuter traveling to downtown Minneapolis (see Table 2, p. 59). However, Clinic Cab's business model was partly based on public funding totaling \$80,000 over five years. According to Liveringhouse, the passenger subsidy would amount to \$1.29 per rider, resulting in a monthly fare closer to \$200, an additional \$50 savings that may have encouraged commuters to change their mode of transportation. One thing is clear: there is plenty of room for public transportation growth in Buffalo. In 2000, only 0.2% of commuters used public transit as compared to 80.7% who drove alone to work.¹²

Table 3 on page 60 shows the effect of gas price changes on a commuter's financial well-being. The cost of commuting by car was simulated from Buffalo to downtown Minneapolis for a range of gas prices. Table 2 shows significantly lower costs for commuters who ride the Clinic Cab Commuter Service daily. Currently, even without public subsidies, the Commuter Line is a cheaper alternative to driving to downtown Minneapolis. Buffalo residents would save almost \$130 a year by taking the bus. Increasing the price of a gallon of gas to \$4.00 raises this savings to over \$800 per year. Not only would commuters save on gas money, but also they would be able to utilize their time on the bus productively instead of driving.

Conclusion

The increased outmigration of centralized populations in America's cities has been occurring for the past half century. As metropolitan areas expand, a new set of policy and planning challenges confront new growth areas. Buffalo is a useful case study because it currently faces the transportation infrastructure and congestion challenges accompanying unplanned growth, as shown by increased traffic and accidents along Highway 55. These problems are only worsening as Buffalo and its surrounding areas continue to attract new residents. Unfortunately, MNDOT has not budgeted for Highway 55's expansion until after 2030, leaving the local communities responsible for resolving congestion problems.

The Clinic Cab Commuter Bus Service was a potential solution that would relieve the burden on Highway 55, offer commuters an alternative to long commutes and congestion, and lower commuters' expenses by decreasing their gas consumption. However, a lack of public support permitted the closing of the Commuter Bus Service in January 2008. Local private-public partnerships, especially in underdeveloped areas with small but growing populations, are crucial to providing services to the community. The Clinic Cab and Buffalo partnership exemplifies the challenges facing public-private partnerships in small, developing communities. It is therefore imperative for small cities to pool their limited resources, work efficiently, and plan wisely to provide services and infrastructure that sufficiently accommodates rapid growth.

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CHAPTER 2: Economic Development

BALANCING “SMALL TOWN FEEL” WITH ECONOMIC DEVELOPMENT: DOWNTOWN REVITALIZATION IN WATERTOWN, MINNESOTA

by Leah Roth-Howe, Map by Robert Heyman

Downtown revitalization represents a nationwide response to decentralized patterns of the 1950s that greatly diminished the vitality of downtowns. Reinvestment in downtown reflects widespread desires to live and work in walkable places that are conducive to social interaction and instill a unique sense of place throughout the built environment.¹ In this section, I examined downtown revitalization strategies that uphold historic preservation and “small town feel” through a case study of Watertown, MN. For the purpose of this study, “small town feel” refers to relationships between architectural aesthetics and the familiarity, comfort, and strong sense of community small towns embody.

Challenges For Watertown, Minnesota

While strolling along Watertown’s recently renovated Lewis Avenue, one can feel its historical presence pulsating from all directions. Paralleling the scenic Crow River and Luce Line Trail, Lewis Avenue’s built environment reverberates its historical character and unyielding community desire to maintain its small town feel amid infringing sprawl, growth and economic development.

Downtown revitalization is particularly important for Watertown’s growing community. The city’s revitalization plan seeks to enhance downtown economic investment in collaboration with its current population growth, which is expected to increase by 33% over the next 20 years.² Generating economic development along Lewis Avenue is a primary goal integrated into Watertown’s redevelopment plans. Community wide participation

reinforces Watertown’s conscientious approach to implementing concrete and enduring revitalization efforts that will promote economic re-investment and social livelihood into its historic downtown. Despite traditional economic incentives that underlie most downtown redevelopment plans, Watertown stands out in its dual commitment to nurture and preserve its small town feel amidst re-investment and development.

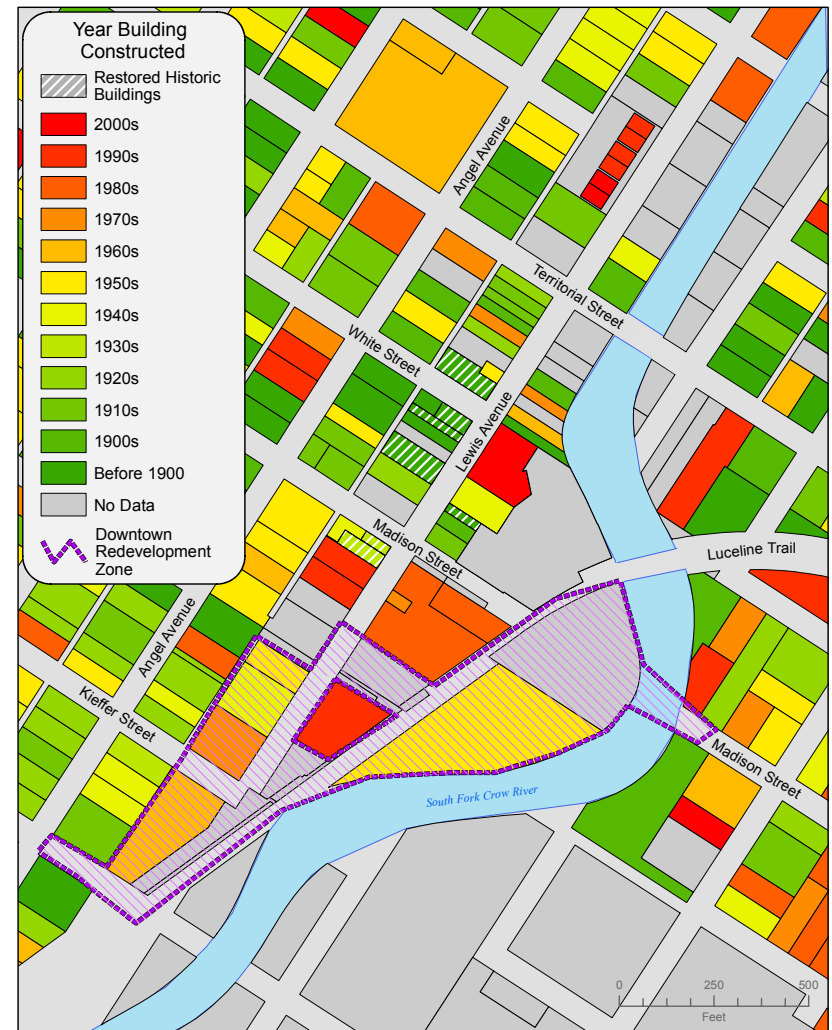
How is it possible for a small town like Watertown to achieve successful downtown revitalization that does not compromise unique character, but instead enhances small town feel by incorporating historical preservation into future development plans? A difficult task indeed, but one that Watertown exemplifies and should serve as a reference for other small-towns seeking to maintain tight knit community and sense of place.

Priorities for Downtown Revitalization

Watertown’s downtown redevelopment strategies strongly correlate to those designed for larger-scale cities. However,

despite its small size, the leading principal guiding Watertown’s revitalization plans is its commitment to increasing economic development while maintaining the small town feel that is central to Water-

Downtown Watertown: Past, Present, and Future



Cartography By Robert Heyman; 3 April 2008; Projection: NAD 83 UTM Zone 15 N
Data from MNDOT, Metropolitan Council, MNDNR, City of Watertown

town's collective identity. Thus, Watertown's revitalization plan adapts the main tenets of large-scale downtown revitalization methods to fit their specific needs. Principal components listed in the City of Watertown 2020 Comprehensive Plan include:

- Increasing connectivity between the waterfront, streetscapes, and open spaces
- Upholding architectural regulations to ensure that future redevelopment will reflect Watertown's historical "small town" character
- Integrative planning approaches that emphasize design of the built environment, pedestrian-friendly spaces, and public collaboration to enhance perceptions of downtown.
- Transforming the Crow River into a community asset that is conducive to social gathering
- Attracting commercial and economic development into the central business district

Despite the gradual process of downtown revitalization, Watertown's redevelopment principles outlined above are palpable throughout Lewis Avenue's riverfront. The Small Cities Development grant of 2004 allocated \$553,400 for exterior renovations along Lewis Avenue, thus increasing architectural aesthetics and uniformity.³ Another grant allowed the city to remodel sidewalks and add benches along Lewis Avenue, enhancing the aesthetic quality of its built environment *and* increasing its pedestrian-friendly ambiance. Improvements to the Luce Line Trail and the creation of a park overlooking the Crow River encourage recreational activities in close proximity to downtown, increasing connectivity of social spaces between the waterfront and downtown.



Figure 1. Renovated buildings along Lewis Avenue above illustrate how architectural design enhances uniformity as well as the aesthetic quality of downtown. The brick building on the right was built in the 1800s, while the two on the left are recent additions to Lewis Avenue.⁴



Figure 2. Built in 1858, Watertown used funding from the Small Cities Development Grant to renovate the exterior of this building, using design standards to preserve historical character.⁵ Photos by Leah Roth-Howe.

Community Participation

How has Watertown successfully increased economic development while preserving its historical integrity and small town feel? Watertown maintains its unique sense of place with consistent public participation and active engagement throughout the planning process. A committee of city planners, community members, and economic developers spearhead Watertown's planning process. Although public participation is one of the most overlooked components to downtown revitalization efforts, the highly acclaimed National Trust Main Street Center highlights it as an essential force in ensuring a planning process that will produce a built environment reflective of community needs and desires. Active participation in Watertown's civic meetings and community surveys guarantee a collaborative approach to defining the *type* of growth that best suits Watertown, as well monitoring *how* the growth will be executed. The values of Watertown's tight knit community are best reflected in its promotional message used to increase positive associations of downtown. Emphasizing the community's most valuable assets, signs throughout town promote Watertown's strong identity (see Figure 3 on page 64).

Creating positive associations of downtown is central to changing perceptions and increasing emotional and economic investment. The slogan encourages economic investment by contextualizing the city's current downtown development and natural amenities in relation to its historical origins. Not surprisingly, the current marketing scheme is reminiscent of a prior era when Watertown first established itself and its impending

CHAPTER 2: Economic Development

identity in relation to natural surroundings and a growing Main Street. Situated along the Crow River, the city took advantage of this natural amenity and quickly developed into a mill town and agricultural center. The current marketed image of Watertown is therefore an extension of its historic roots, honoring its value in forging relationships between natural amenities and the historic downtown. Additionally, geographically identifying in relation to the Twin Cities frames Watertown as an extension of the urban center, thus strengthening associations of Watertown's as a livable community for an expanding working population.

Land Use

While the heart of downtown emits a lively social atmosphere, the landscape of Lewis Avenue's distinct "small town" features dramatically changes into a predominantly industrial area at the southern end.



Figure 3. "150 Years and Growing, Stake Your Claim Now!" "Watertown, MN: Become a Part of the Most Vibrant Community in the Western Twin Cities Area," and "On the Trail, On the River, In Our Renewed Downtown." Photo by Leah Roth-Howe.



Figure 4. The only parking lot along Lewis Avenue is located at this juncture. Situated next to a supermarket and "True Value," the only chain store in downtown, the parking lot serves as a buffer between the industrial zone and the commercial "downtown." Photo by Leah Roth-Howe.

As opposed to the two-story buildings along Lewis Avenue that are tightly packed and aesthetically cohesive, this area feels out of place. Not surprisingly, a large portion of Watertown revitalization plan focuses on transforming this industrial area to include low-income housing and independent living facilities for elderly residents. The plan will convert the once barren industrial landscape into a lively residential neighborhood in close proximity to downtown, and its growing resources. Furthermore, housing on the southern portion of Lewis Avenue will generate more social activity in downtown, and will serve as a catalyst for attracting entertainment and community activities into downtown.

Conclusion

Although Watertown's ambitious revitalization plans have yet to be completed, the town is undoubtedly taking advantage of its natural resources and illuminating them with aesthetic integrity and economic development. As suburban sprawl continues to encroach upon historic small towns, threatening to envelop their distinct character, more attention must be paid to socially cohesive and economically viable downtown revitalization plans. Watertown serves as a positive example of a community able to preserve its historic character amidst growth. Although Watertown is a small community with specific needs, its struggles to attract economic development without compromising its historic small town feel are not unique. Cities of all sizes face impending growth and irresponsible development that, more often than not, jeopardizes the very features



Figure 5. Mixed use, commercial, and residential buildings with ample green space enhance public perceptions of downtown as more accessible and community oriented.⁶ Image courtesy of the City of Watertown.

that create distinctive downtowns; mixed-use spaces that preserve the irreplaceable social fabric used to instill a sense of community belonging by connecting people to their surroundings. Given the increasing disintegration of downtowns, other cities seeking to enhance their downtowns would be wise to look to Watertown, and the resources Watertown used in its revitalization plans.

Future References

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FOR SALE: COMMERCIAL CENTERS, by Emily Goodman, Maps by Gautam Mani

These two words affixed to a sign promise to completely change the landscape of a place. Across the United States, “For Sale” signs have been the death knoll for the way we were and been the trumpeters harkening the arrival of the way we will be. Of the many types of development that these signs might herald, their foretelling of the appearance of commercial centers has the greatest potential for changing the face of the Crow River Watershed.

Defined as a cluster of stores of varying types at which a variety of consumer needs can be met on the fringe of cities or on separate locations between cities, commercial centers are ideal focal points for studying regional development. They are telling markers of general commercial and residential growth in a region. Commercial centers are also increasingly the preferred shopping venue because most modern consumers prefer multi-purpose shopping trips or one-stop shopping.

This section is focused on three primary questions: Where are commercial centers located in the Crow River Watershed? What factors determine these locations? What can projections about these factors tell us about the future of

commercial real estate in the Crow River Watershed?

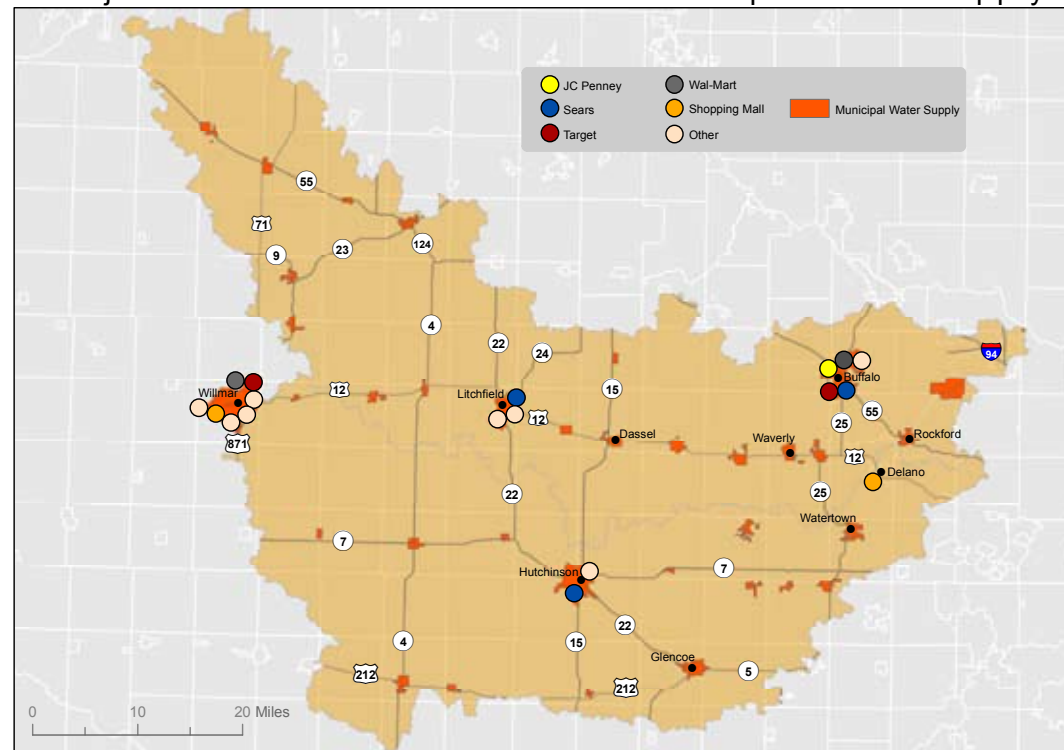
Where are commercial centers located?

An old-fashioned road trip along US Routes 12, 22, 25, and 55 paired with a Google Earth search provided the answer to this question. In addition,

ment was “pretty slow right now” or that “there were no plans” in the works, particularly for ex-urban areas where commercial centers might be located. In addition a survey of real estate companies offering land for sale confirmed the views expressed by the city government officials.

The accompanying maps in this section are the product of this fieldwork. They show clusters of commercial centers in Willmar, Litchfield, Hutchinson, and Buffalo. Two distinct levels of places exist in the watershed. The first level places are Willmar and Buffalo. The second level places are Litchfield and Hutchinson. The first level places contain all of the commercial functions of the second level places in addition to others. There is a geometric pattern related to hierarchy of commercial capacity. Willmar and Buffalo exist at different ends of the Crow River Watershed, while Litchfield and Hutchinson occupy the space in between, creating a sort-of diamond shape. While this pattern is interesting in itself, it is the factors with which the locations of the commercial centers are correlated that make this pattern truly significant to the people of the Crow River Watershed.

Major Retail Establishments and Municipal Water Supply



What factors are correlated with the distribution of these commercial centers?

Four factors provided interesting geographic correlations to the location of shopping centers in the Crow River Watershed: Availability of utilities, population density, location of other retail establishments, and consumer spending power.

Sewer and water. A Vice President of Inland Commercial Property Management, Inc. expressed his adamant view that this was the most salient positive correlation (see *Major Retail Establishments and Municipal Water Supply*, p. 66). Without city sewer and water, developers have to provide their own – a huge financial burden. While this informant was convinced by his experience as a commercial developer, geographers offer academic support, describing how investments by the public sector lead to complementary investments by the private sector and overall development in an area.

Population density. There is an obvious positive correlation between population density and commercial centers (See *Retail Establishments and Population Density* map). Commercial develop-

ment is based on convenience for the shoppers. As the developer argued, “It’s all about rooftops...If there are rooftops in an area, retailers will come.”

Retail establishments. These are positively correlated with the location and density of commercial centers in a given area. While it seems obvi-

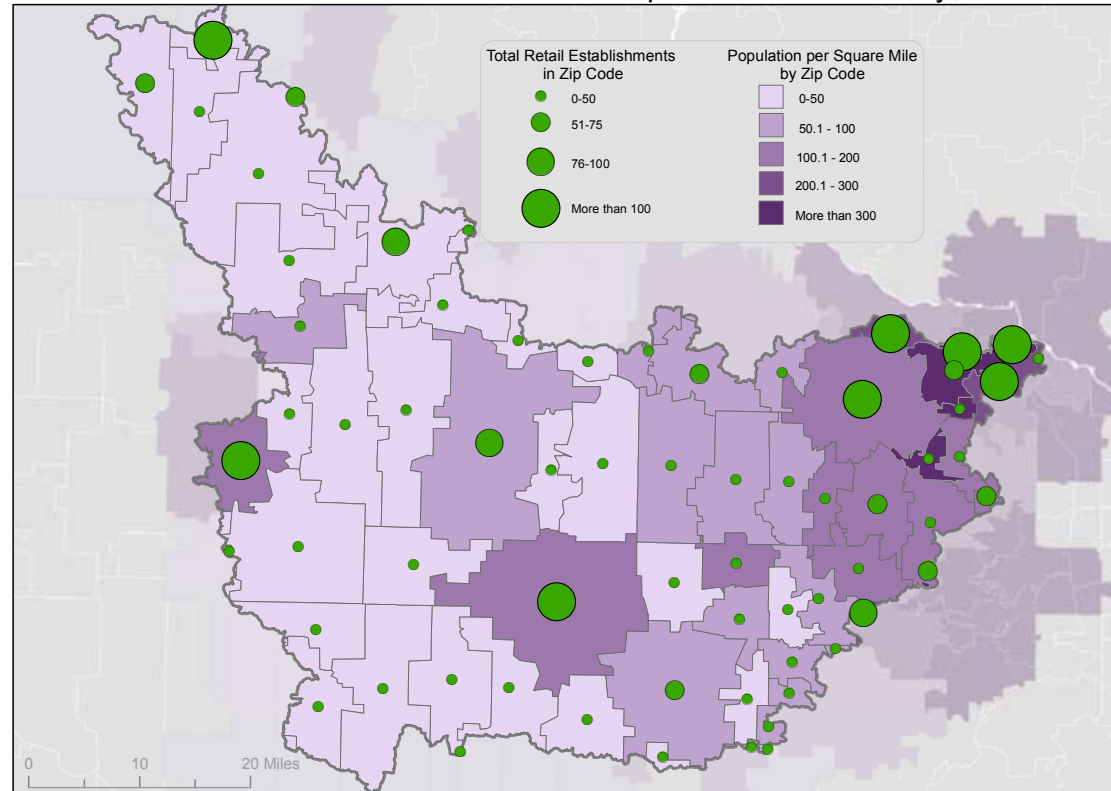
the luxury of opening a store in a virgin area that may not make a profit for five years, but most commercial establishments do not. Thus, most establishments follow existing retail developments.

Consumer spending. This factor tells a more complicated story (see the *Retail Establishments and Consumer Retail Spending* map). The per capita data indicates that the four commercial centers are all located in areas with low consumer spending. This may indicate something about the median incomes of these areas. Jobs related to commercial centers, such as sales associate positions, are generally not particularly well paying. If these commercial centers are staffed by people who live nearby, it is understandable that individuals in those areas might have less liquid income available for shopping needs. These commercial centers are also sandwiched by areas of higher consumer retail spending, and those individuals with greater means are more able to

ous that commercial centers would be found near other commercial establishments, this relationship should not be dismissed. It is hard to be a pioneer. Large commercial organizations like Target have

travel greater distances in order to purchase goods. However, a more complete story can be understood when we consider the population density

Retail Establishments and Population Density, 2007



Cartographer: Gautam Mani, 4 April 2008. Projection: NAD 83 UTM Zone 15N. Data Sources: Geolytics 2006, Claritas 2007, ESRI 2007 & Google Earth 2008.

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data (see the *Retail Establishments and Population Density* map). While the average spending power of an individual may be lower in the areas in which commercial centers are located, the large number of people in these areas yields more net spending power. The data indicate that the location of commercial centers has a positive correlation with net consumer retail spending in an area.

As with many things, attempting to explain the whole in terms of its parts can be a useful tool, but should be recognized as such, and not confused with the complex reality of a situation. Context and inter-relationships are essential for complete understanding. City sewer and water can essentially dictate where commercial real estate establishments are built, but those utilities are often linked to population needs. On the other hand, some commercial centers operate under an “if you build

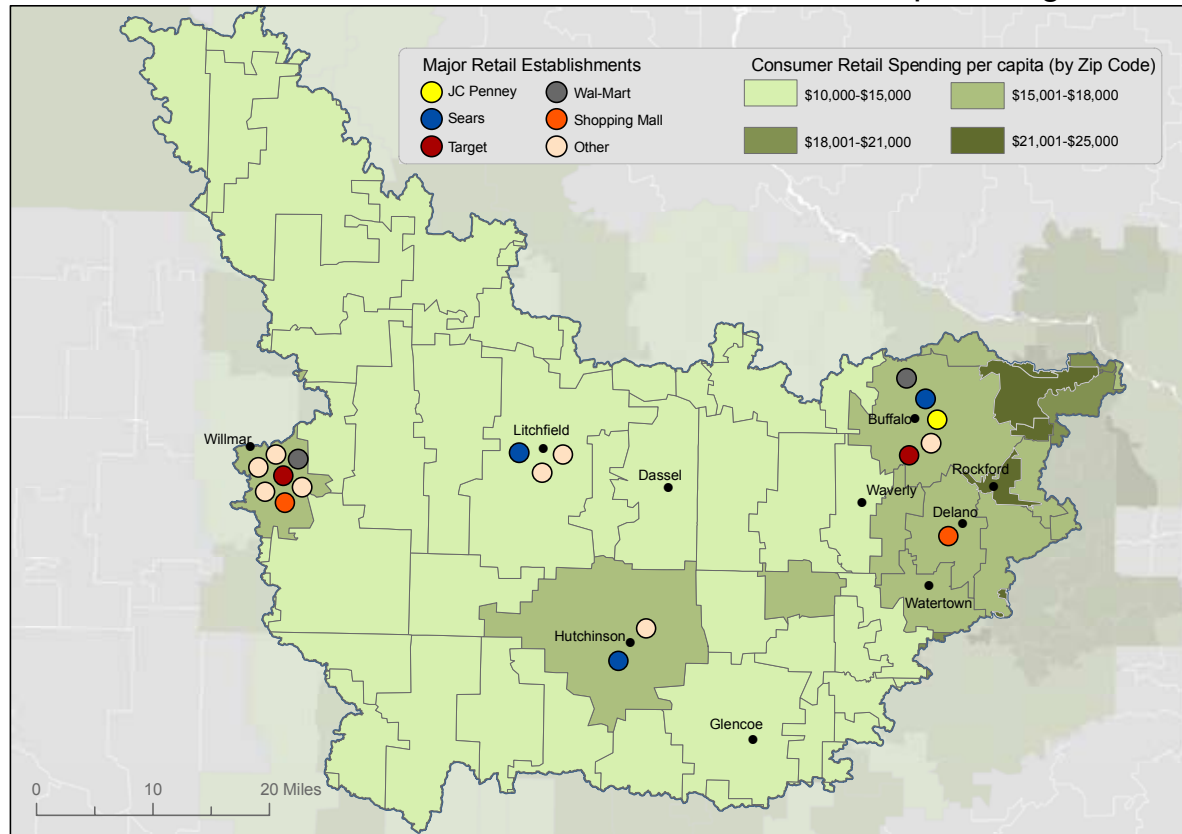
it, they will come” development strategy, and can cause a population shift and development of utilities. Given these reservations it is possible to use projections available for some of these four factors to hypothesize about the future of commercial centers in the Crow River Watershed.

What can projections about these factors tell us about the future of commercial real estate in the Crow River Watershed?

Sewer and water. It is reasonable to expect that the municipal water and sewage supply lines will continue to expand outward. It is difficult to predict the rate of expansion, and most of the city

governments in the area have no plans for such expansion in the near future. However, the Metropolitan Council determines the extent of regional sewer and water systems. The area served by these utilities is called the Metropolitan Urban Services Area (MUSA). Officially, the outer limit of the MUSA, the MUSA Line, is not a growth boundary per se, and its the goal is to synchronize urban growth with the provision of infrastructure needed to accommodate growth. However the location of the MUSA Line, and it is projected expansion is a clear indicator of where development will take place. The extension of the MUSA Line by 2020 will only affect the easternmost por-

Retail Establishments and Consumer Retail Spending, 2007



Cartographer Gautam Mani. 2008. Projection: NAD83 Universal Transverse Mercator Projection. Data Sources: ESRI 2007, Google Claritas 2007 & Google Earth 2008.

tions of the watershed, so with the high cost of putting in sewer and water, only the easternmost portion of the watershed is likely to become a corridor for commercial real estate development. Without a large predicted increase in municipal sewer and water from city or regional systems, it seems unlikely that we will see a boom of commercial centers in the Crow River Watershed.

Population. According to the state demographic center, the State of Minnesota is going to experience population growth. However, slow population growth or decline is projected in much of western Minnesota, including in the Crow



Photo courtesy of Victoria Harris.

River Watershed. We can expect, the development of commercial centers to mirror this trend.

Retail establishments. We can expect the positive growth pattern between existing and future retail establishments to continue.

Consumer spending. Consumer retail spending varies with the nature of the economy as a whole. It is presently in a period of slow growth and so cannot support the

establishment of new centers in the watershed.

Conclusion

Indeed, projections for all of these correlates and their interactions support the reports by the local governments and real estate brokers and indicate that the Crow River Watershed will experience slow growth of commercial centers. For now, at least, there will be few “For Sale” signs staking a claim in the landscape.

Rick Plessner provided information for this chapter.

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PRESERVING THE RURAL TOWN “MAIN STREET”: AN ANALYSIS OF THE HISTORIC DEVELOPMENT AND PRESERVATION IN BUFFALO, MINNESOTA’S DOWNTOWN, *by Matt Wicklund, Maps by Robert Heyman and Matt Wicklund*

The Crow River Watershed contains many towns that are typical of other population centers found in Minnesota and in the rest of the Midwest. These towns developed as agricultural centers and were often connected to other centers by river, rail, or road. Buffalo, Minnesota though is unlike typical towns because of its situation on a lake and its relatively young, post 1890, downtown. Buffalo, the seat of Wright County, is located forty-four miles northwest of Minneapolis and is today one of the largest towns in the Crow River Watershed, with a 2000 Census population of 10,100. As in other towns within the Watershed, Buffalo has a number of commercial buildings in its downtown which frame its “main street.” Before the automobile-age, the main street was the primary location for a town’s retail and business establishments, entertainment, offices, and social meeting spaces. While the “main street” is often identified as a single street, commercial space in a town often covers multiple blocks. As Buffalo’s downtown grew between the 1890s and 1930s it developed a collection of one and two story buildings spread over approximately six blocks. Since 1940, despite losing buildings for parking lots, Buffalo’s downtown has maintained its scale and street-scape character.

Traditional, pre-automobile main street density and scale reflect a spatial organization that emphasizes the importance of pedestrian-oriented development. Businesses in downtown had to be centrally located because it was the most efficient organization for customers who largely arrived on foot. During the early twentieth century, the automobile gradually made travel to other downtowns easier, but it was not until highways that auto-oriented

development began reduce the importance of the main street as a commercial center. As commercial centers developed along highways around towns, the economic vitality of the traditional main street declined. In order to retain business, towns built parking lots in their downtowns in order to compete with peripheral commercial development. Parking lots though helped to decrease density and open the former pedestrian streetscape to automobiles.

Main Street Preservation

Main street preservation originated as a means to revitalize a community’s downtown through the reuse of existing structures. By reusing existing structures, the aesthetics, density, and scale of main street are maintained. The National Trust for Historic Preservation initiated its “Main Street” program in 1977 in order to revitalize main street commercial areas by redesigning them around pedestrian traffic and by reusing older existing buildings that give main street its scale and character. The National Trust has since implemented its program in over 1,400 communities nationwide. However, there are no towns in Minnesota that have used this program.¹ As a model for preservation-based downtown economic revitalization, the National Trust program presents a successful system that shows how existing buildings can be reused. In addition, older buildings can character to a main street as well as lend a sense of place. This “place,” whether it be identified as historic or something similar, can be used to promote the town in order to increase private investment.² While

the preservation of older buildings is central to main street preservation, the development of new buildings that fit the traditional main street scale is also important. Main street preservation thus has the potential to benefit a town economically while preserving its older buildings and history.

A Short History of Buffalo

Buffalo’s downtown is relatively recent compared to other towns in the Crow River Watershed. In 1867, Buffalo became the county seat of Wright County, due to its centrality, and twenty years later was incorporated. Buffalo’s population began to grow when a railroad line passed around the town and replaced a crooked road as Buffalo’s connection to the Twin Cities. The railroad line enabled the development of a resort industry based on the lakes, Buffalo and Pulaski, which edge Buffalo.³ By 1894, Buffalo’s population had reached 1,000,⁴ and by this time, a business district of wood structures had formed around the County courthouse. These buildings were destroyed in a series of fires in the 1890s and Buffalo’s downtown was rebuilt at its current location on the northeastern shore of Lake Buffalo. This tourist industry declined with the advent of the automobile as travelers could go farther from the Cities by car or to places not reached by the rail line.

Historic Downtown Growth

For the analysis of historic growth between 1894,

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1937, and 2008, Buffalo's downtown is defined by the boundaries of Central Avenue (MN-25) on the east, 2nd Street NE on the north, 2nd Avenue S on the west, and 1st Street S on the south. This definition was determined by identifying the extent of commercial establishments in 1937. Using Sanborn Fire Insurance maps from 1894, 1900, 1909, 1915, 1922, 1930, and 1937 land uses noted in the maps were categorized and parcel use maps were created for each Sanborn map.

Categories include:

- Livery / automotive: livery defined before 1909. Livery: horse stables; Automotive: auto parts, gas garage, sales.
- Services: bank, post office, telephone exchange, hospital, school
- Agricultural: agricultural implement storage, creamery
- Business: General store, retail, offices, lumber yard, tin and blacksmith
- Social Space (social gathering places): church, lodge hall, movie theater, hotel, restaurant
- Residential
- Vacant land

(See 1894 and 1937 land use maps on page 72) Between 1894 and 1937, Buffalo's downtown businesses spread northwest from the intersection of Division Street and 1st Avenue NE to cover the

block bounded by Central Avenue, 1st Street NE, 1st Ave NE, and Division Street. In addition, businesses filled the block of Central Avenue north of 1st Street NE. This general spread away from the eastern edge of the downtown was due to the geographic nature of the downtown. On the east, a steep hillside stood in front of parcels facing 2nd Ave S. This hill acted as a wall and cut off these parcels from street frontage. Consequently, developers found the parcels difficult to develop and left them to be developed last. In 1894, businesses were focused at the intersection of Division Street and 1st Avenue NE. Around these buildings there were many houses on large lots and vast number of undeveloped parcels. As decades passed, houses were pushed to the north and south of the expanding downtown and vacant land was developed. Social spaces between 1894 and 1937 remained largely the same as there were two main churches in the town, a hotel, and restaurants. One space that vanished by the 1920s was Dudley's Opera House, a meeting

hall and entertainment venue, on the northeast corner of Central Avenue and Division Street. The owner of this building owned the block and decided to make the space into a park complete

Downtown Buffalo Structures by Decade of Origin



Cartography by Robert Heyman; 22 April 2008; Projection: MN Wright Lambert Conformal Conic
Data from Wright County, Sandborne Maps, Matt Wicklund, MN Dept. of Natural Resources

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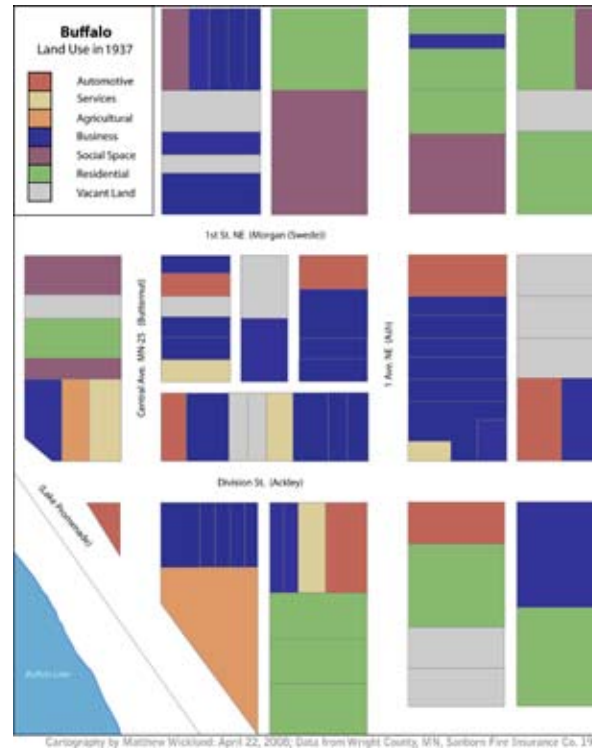
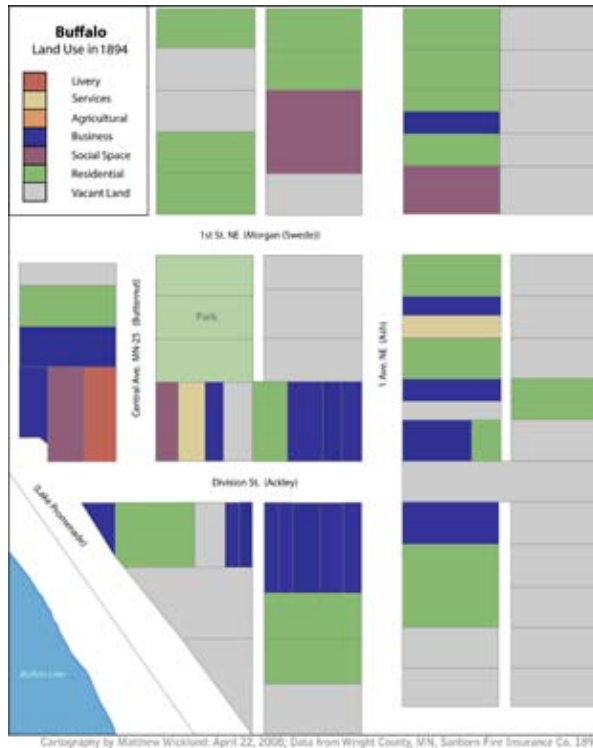
with a fountain and dancing platform.⁵ Over the decades, the park gradually shrank as the expanding business area developed and grew around and then into the park. The 1937 equivalent of the Opera House would have been the Masonic Lodge Hall at the northern end of Central Avenue or a movie theater across from where the park had been. Another change in land use that became evident between the 1910s and 1930s was the increase in automobile related retail. In the 1920s, Buffalo's downtown gained three new auto showrooms (Hudson, Ford, and Chevrolet) in a three year period. These establishments were in addition to parts dealers and to four gas stations along Division Street. Adding to the growing interest in auto-

mobiles, Minnesota highway 25 was routed along Central Avenue. Today, this roadway forms a barrier between the lake shore and the downtown and is broken by only one stoplight at 1st Street NE.

While a rail line did connect the town to other population centers, the line skirted the downtown by nearly one mile. Commercial development did not shift away from the old center towards the rail line and station; instead, Buffalo's downtown stayed close to county court house and other important governmental offices.

(See 2008 landuse map, below right) Since 1940, Buffalo's downtown has grown and included more auto-oriented development. In the 1950s,

the blocks south of Division Street were developed and parking lots were paved to handle the storage needs of more automobiles. Nearly twenty percent of parcels in 2008 are used for parking and thirty percent have pre-1940 buildings (see *Buffalo Structure by Decade of Origin* map, p. 71). Because parking lots though were placed away from major streets behind buildings their visual intrusion is limited. In 2008, of the 25 buildings built before 1940, some had been demolished for parking or for newer buildings, four had been greatly altered physically, 16 had been maintained with little alteration, and 2 were privately restored. Maintained buildings include the 1923 Ford showroom and the 1917 National



Bank both of which have added wood awnings. Preserved buildings include a 1902 post office, an 1899 Minneapolis Brewing Company saloon, and the 1910 Boyd's Building former general store. These structures are dispersed throughout the downtown and are mixed with some newer buildings of the same scale. In the 2000s, a new movie theater was built in the style of a 1920s theater to maintain the scale of the street-scape.

Buffalo does not currently have an official system of preservation, but in 2006 the city council organized the Historic Preservation Committee to catalogue buildings and advocate preservation. Buffalo's downtown today has maintained and preserved the scale of its main streets and preserved a number of its pre-1940 buildings despite the presence of the automobile. As spaces become more dependent on the automobile, pedestrian movement is limited. Because traditional downtowns were organized around pedestrian movement, it is important to preserve these spaces and the buildings that shape them. Downtown preservation is a community effort that when applied has the potential to revitalize a centrally located space of historical importance for long term use.

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CHAPTER 2: Economic Development

'SELLING THE FARM': PLACE MARKETING IN RURAL AMERICA, by Patricia Bass

What is “small town America”? In the U.S., where the majority of citizens either reside in urban or suburban places¹, rural areas are portrayed as separate in time, space and meaning from everyday life: unlike “real life”, they include peace and quiet, wholesomeness, “traditional” values, old ways of life, and spiritual fulfillment². Rurality is seen as a sort of time travel to the idealized past - an impression that is developed, ironically, from media based primarily in urban and suburban areas³.

Although larger settled areas (such as cities and states) have consciously manipulated and promoted their images since the birth of the nation, only recently have the towns of rural America begun taking charge of their portrayal. The following exploration of rural place promotion reveals what local residents value and imagine as the essence of their landscape by examining the advertising slogans residents choose to represent their towns.

What is “Place Promotion”?

In the realm of advertising, the word “place promotion” indicates the conscious use of marketing to communicate chosen images of geographic areas to a target audience⁴. Place promoters use a variety of marketing techniques, such as creating slogans, cultural events, and logos, “to replace either vague or negative images previously held by residents, investors and visitors.”⁵ These methods ultimately transform places into products that can be advertised, sold, and consumed.

Just as the marketing and advertising of other products skyrocketed since the 1950s, the marketing

Town Name:	Slogan(s):	Theme(s):
Buffalo	Where the Old Meets the New	History and Tradition
Cokato	In the Midst of Opportunity	Urbanity
Delano	The Spirit of Community	Home
Glencoe	Small City, Big Future	Urbanity and Home
Hanover	The Little City on the Crow	Home, Urbanity and Nature
Hutchinson	Minnesota's Hometown	Home
Independence	The City with Farms and Rural Atmosphere The Community with Room to Work and Play	Urbanity and Home Nature, Urbanity
Litchfield	On Lake Ripley	Nature
Maple Plain	Welcome Home	Home
Montrose	Where Quality of Life is our Mission It's Good to be Home	Quality of Life Home
New London	A Little Town Making Big Waves	Home, Nature and Urbanity
Paynesville	A Lifetime Opportunity An Area for all Seasons	Urbanity Nature

of place now occurs more aggressively and more frequently than ever before, creating “place wars” where cities and states promote themselves to compete for their economic survival⁶. This is only possible because investors, residents and companies are now mobile, allowing them to choose between a variety of places to site their resources. Also, the new, lucrative field of tourism is very responsive to place promotion, and this tourism creates local investment, jobs, and economic growth⁷.

A Unique Case Study: “Home-Made” Place Promotion in the Crow River Watershed

In rurality, place marketing was originally *for* the displaced consumer (e.g. tourists) *by* a displaced advertising agent (e.g. business), without giving the locality itself agency or connection to its own place.

This tourist place marketing creates images based on stereotypes associated with rurality, because the image-makers are on the outside, marketing to other outsiders. To look at self-made image, I look at the rarely-studied phenomenon of residents promoting their towns for new residents. In these rare cases, advertised images of places are created by insiders based on real experience, making place promotion not just a marketing tool, but an indicator of the values residents invest in their own “place”.

This study examines the Crow River Watershed, where town advertising is done solely by residents for future residents. This will become increasingly visible and important, as county populations in the watershed are growing at an average rate of 3.33% every three years, according to 2003 census data,

and towns must compete to gain the benefits of this growth. Of the 24 towns in the watershed, I focused on the twelve towns which had town slogans, an indicator of conscious place promotion.

Framework

This section builds upon a framework developed by Jeffrey Hopkins in 1998, which examines place promotion “socio-semiotically” – by looking at symbols in place advertisements to determine how the symbolic space of the countryside is socially produced. However, instead of examining the advertisement of rural tourist destinations for commercial purposes (as Hopkins does), I examine the advertisement of rural towns for residential purposes.

Like Hopkins, I look at the symbolic landscape created by place promotion through slogan analysis. Slogans are important, as these short memorable phrases reveal both the ideology and the recurring themes which place promoters wish potential consumers would associate with their place. In the case of the towns examined, these place promoters are residents themselves, and thus the themes constitute a mythic identity of a town that they both identify with and want to share. After identifying themes that constitute the self-imagined rural landscape. The study compares them to the themes imagined by outside agents, like tourism agencies and business, which construct similar landscapes from a displaced, yet dominant, viewpoint.

Slogan Analysis

I identify three main themes within the town slogans of the Crow River Watershed: home, urbanity, and nature. Most towns employ two seemingly-opposed themes, such as urbanity and rural atmosphere (ex: “Small City, Big Future” of Glencoe), in the same slogan, attracting attention by the contrast between the two benefits and also constructing a “best of both worlds” situation. Other towns focus on one theme, such as Litchfield, whose tag line “on Lake Ripley” focuses solely on the amenity of the natural environment.

Home. The most common theme in town slogans was the idea of home and community, present in such slogans as Hutchinson’s “Minnesota’s Hometown”, Montrose’s “It’s Good to be Home”, and Maple Plain’s “Welcome Home.” Jason Ziemer who created the “welcome home” tag line, attributes it to the “small town personality of Maple Plain, a basic feeling people have here”.⁸

Similarly, Laurel Iverson, the local artist who created the slogan “A Little Town Making Big Waves” explains it as a reference to both the natural environment of New London, as well as “how friendly people in this town are”.⁹ As one example of a “big wave”, Iverson describes how “in New London, anyone who drives by will wave to my kids - in other places, they don’t do that”. The “Big Wave” slogan serves as a key example of watershed place promotion tactics, referring to aspects of home, nature and larger, urban influence (“big waves”) all in one phrase.

Urbanity. The presence of urban resources and opportunities is another common theme in the



town slogans studied, often portrayed in contrast to the intimacy of rural life. Cokato markets itself as “in the midst of opportunity,” New London boasts “big waves”, and Paynesville indicates it is “A Lifetime Opportunity”, all while the towns hold fast to their image as intimate and friendly. Don Levins, City Administrator of Cokato, refers to his town’s focus on opportunity as a description of “the direction of the city, going to urban from rural”¹⁰. He cited a large amount of change occurring in the city, and “with changes, come opportunity”. Other towns indicate their urban resources by referring to themselves as ‘cities’ as opposed to ‘towns’ in the slogans themselves, a strategy used by Hanover, Glencoe, and Independence.

Nature. I identify nature as the final theme, an amenity for which many watershed towns show pride. Hanover describes itself as the “Little City on the Crow”, Paynesville as “An Area for All Seasons”, and Independence as “The City with Farms and Rural Atmosphere.” Most of these towns show a particular focus on bodies of water, with Hutchinson prominently featuring their dam in their logo, Litchfield mentioning only Lake Ripley, and Hanover’s identification with



CHAPTER 2: Economic Development

the Crow River. Even New London's website introduces the town by referring to "great fishing, boating and canoeing" in the first sentence. The second follows up with other water amenity references, including the "scenic view of our Mill Pond dam" and the "award-winning Little Crow water ski team". Clearly, towns' locations on the Crow and other nearby water resources play a large role in the identity of residents and their hometowns.

Who are the Place Promoters?

All of the place promotion occurring in the Crow River Watershed is done by local residents, many as informal volunteers. Glencoe, for instance, has a volunteer marketing team, and Independence thought up their slogan during a community input session, using the free volunteer services of a resident to create their promotional website.

When promotional methods *are* contracted out, it is to local artists. Buffalo hired a local graphic designer to create their website and slogan; Hutchinson artist Jane Powell created their town logo; and local small business owner Laurel Iverson designed the New London website.

Also notable is that due to the small scale of watershed towns and the intimacy of this place promotion as opposed to commercial place promotion, most of these actors play several roles. Hutchinson's artist Powell was simultaneously a member of their Tourism Board; Iverson of Hutchinson was previously secretary of their Chamber of Commerce; Jason Ziemer of Maple Plain, is both city administrator, resident, and sole member of the city's "web team".

Conclusion

Advertising is a powerful narrative; it can indicate as well as manipulate values and ideals¹¹. Here, "home-made" place promotion both reveals a self-identification of watershed towns with nature, community, and opportunity, as well as a desire to share this self-imagined landscape with others. Previous research identifies the following themes in tourism (outsider) place promotion: harmony, innocence, spirituality, memorable, and magical¹². These perceptions of rurality differ substantially. Whereas residents identify and advertise their places by tangible amenities such as natural landscape, friendly community, and opportunities for happiness, commercial agents identify and advertise rural places by intangible amenities (harmony, innocence, spirituality) and subjective, often transitory, traits (innocence, magical, memorable).

I attribute these differences to two reasons. First, tourism markets to consumers who only briefly experience rurality, and thus want an easily-digestible and enjoyable one-time experience. To them, it makes more sense for rurality to be portrayed as "memorable" or "magic". Conversely, home-made place promotion markets to consumers who may remain in the promoted place all their lives, so concrete lifestyle benefits are emphasized: community, nature, and opportunity.

Secondly, I attribute these differences to the marketers themselves. Commercial place promoters do not consume the landscapes they promote, so they base their promotional image on stereotypes, as they hold little accountability to whether these stereotypes have long-term validity. Residents who promote their own towns, on the other

hand, have a vested interest in promoting the aspects they appreciate in order to attract compatible fellow community members. As members of a place, the validity and value of their promotional image reflects upon them, and discrepancies or simplified stereotypes in a promoted image are visible to fellow residents and potential residents who share their lived experience of place.

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Chapter Three:

Environmental Perspectives on the Crow River Watershed

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2001 LANDCOVER IN THE CROW RIVER WATERSHED, by Namara Brede and Carolyn Loeb, Map by Namara Brede and Carolyn Loeb

Minnesota and the Crow River Watershed have experienced significant change in land cover as a result of human activity over the past few hundred years. Maple-basswood forest, brush prairie, and mixed prairie-wetland dominated the pre-settlement landscape of the Crow River Watershed. In 2001, the EPA estimated that of the lands in the North Fork of the Crow River, 63% were croplands and 53% were forested (overlapping use included). The South Fork of the Crow River was comprised of 88% cropland and 24% forested areas (with overlapping use). The Crow River Watershed exhibited a 57% growth in population from 1970 to 2000, and a further 22% increase is expected by 2020 (MPCA, 2000). Keeping this in mind, residents should pay close attention to how land cover and environment are impacted by changing demographics and new development.

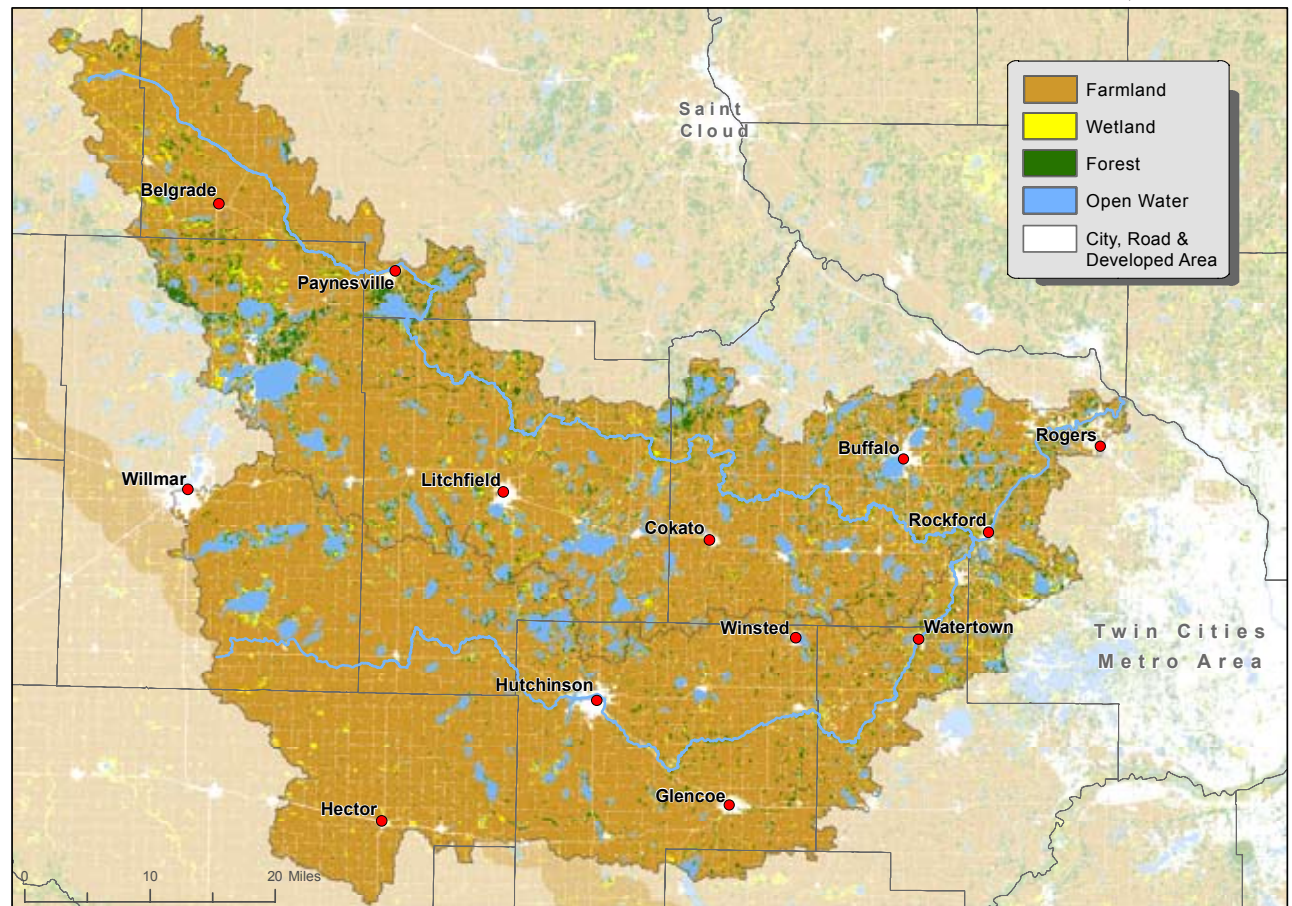
The Crow River Watershed contains numerous water bodies, including valuable wetlands. Wetlands perform many crucial functions for both people and the environment. They retain and filter surface waters, and provide additional protection for development and agricultural activities by creating holding areas for floodwaters. Wetlands are also ecologically rich, recreationally important, and aesthetically appealing. Before 1860, Minnesota had an estimated 18.6 million acres of wetland; today that number has been cut in half. In addition, many remaining water bodies are considered “impaired” because of pollutants, damming, or other factors that severely decrease the ability of the water body to adequately function (MN DNR,

2008). Because of the value of retaining healthy water bodies, we need to continue to carefully monitor environmental impacts in the watershed.

This map displays critical landcover features in the Crow River Watershed in 2001 at a resolution of 90-foot (30 meter) cells. The map indicates that, as of 2001, the vast majority of the watershed was used for agriculture and agriculture-related

activities (brown). Wetlands (yellow) are generally found near lakes, rivers, and ponds. A large percentage of forested areas (green) also tend to cluster around wetlands and water bodies. Impermeable surfaces (white) indicate developed areas. Given the watershed’s proximity to the Twin Cities and Saint Cloud, it makes sense that much of the development in the region falls in the central

Critical Land Cover in the Crow River Watershed, 2001



Cartographers: Namara Brede & Carolyn Loeb; April 29, 2008. Projection: NAD83 UTM Zone 15N. Data Sources: USGS Land Cover Institute 2001; Minnesota Department of Natural Resources 2005.

and eastern portions of the watershed. As is typical in the land of 10,000 lakes, the Crow River Watershed contains numerous streams, rivers, lakes, and ponds, many of which fall north of Hutchinson.

This data was obtained from the USGS Land Cover Institute (LCI) 2001 database.

- *Brown* includes agricultural areas defined as pasture/hay, cultivated crops, and grassland herbaceous areas that can be used for grazing.
- *Green* includes deciduous, evergreen, and mixed forested areas.
- *Yellow* includes woody and herbaceous wetlands.
- *White* includes impermeable surfaces such as roads and developed areas.

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Please contact nbrede@macalester.edu or cloeb@macalester.edu with any questions pertaining to the mapping of this information.

Please contact Richard Vandersnick, MRLC Database Coordinator, at 605-594-6518 or vanders@usgs.gov for any questions pertaining to data and data collection.

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WATER QUALITY IN THE CROW RIVER WATERSHED, by Lauren Morse and Elise Pagel, Maps by Lauren Morse and Elise Pagel

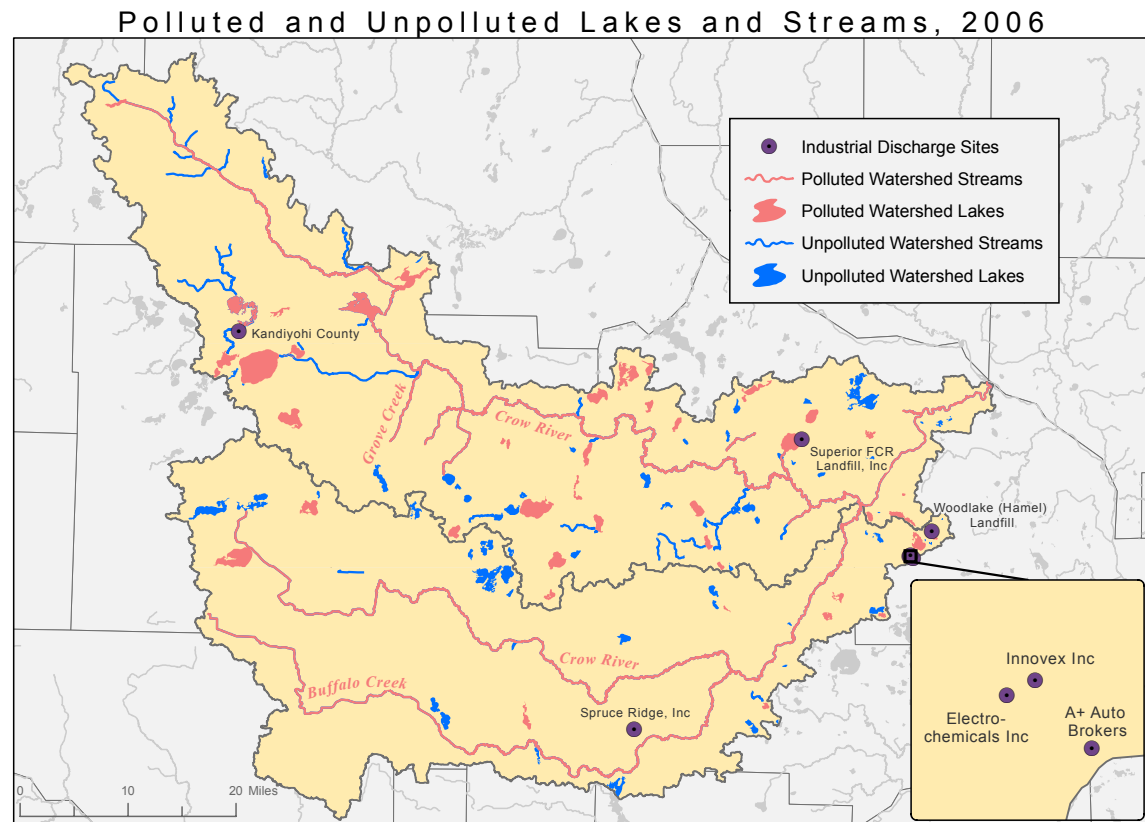
"More so than any other state, the quality and quantity of water in Minnesota is central to our way of life. It helps define who we are and what we value."

- Governor Pawlenty (cwc.state.mn.us)

Clean water is essential to the well-being of Minnesota's plant, animal, and human populations. Unfortunately, water pollution is an urgent issue the Minnesota Pollution Control Agency (MPCA) is dealing with across the state. Water pollution is difficult to track and eliminate because water naturally flows across political boundaries. Complying with federal regulations, the MPCA has developed plans and goals to improve water quality. They partner with local and state government agencies, community organizations, and water utility companies. With these maps, we draw attention to pollution affecting the community's water.

The map of polluted waters shows all of the Crow River Watershed lakes and streams that were assessed by the MPCA in 2006. Polluted lakes and streams failed to meet one or more of the quality standards of the Clean Water Act when they were assessed. Specifically, many of the polluted streams and lakes showed significant levels of mercury. Other examples of pollution included high levels of bacteria, unbalanced levels of nutrients, and excessively cloudy or murky water. If the water bodies are classified as polluted, they may not be suitable for swimming, fishing, or other recreational and economic purposes.

In general, the map shows more unpolluted waters in the central and western areas of the watershed. However, the unpolluted waters tend to



Cartographers: Elise Pagel & Lauren Morse, 05 March 2008. Projection: NAD83 UTM Zone 15N. Data Sources: Minnesota Pollution Control Agency (MPCA) 2006; Metropolitan Council 2002; ESRI 2006. Polluted lakes and streams do not meet one or more Clean Water Act standards for water quality as determined by MPCA.

be smaller lakes and shorter streams. As the second map of industrial discharge permits shows, nearly all the waters in Hennepin County are polluted. The prevalence of polluted waters is concerning, since pollution inhibits the economic and recreational potential of the waters.

The maps showing industrial discharge permit locations indicate specific points within the watershed that are contributing to large amounts of wastewater to public sewers. Each point represents the location of a company that has been issued a permit to dis-

charge industrial wastewater (Metropolitan Council, 2002). The industrial wastewater entering the public sewer system will eventually travel into surrounding waterways. Then, all wastewater has the potential to pollute local lakes, rivers, and streams.

These points are highly clustered in the eastern portion of the watershed in Hennepin County, which is shown in greater detail with the map of the watershed's industrial discharge permit sites. There are many polluted water bodies in this area, especially near the Mississippi River and Minneapolis. This

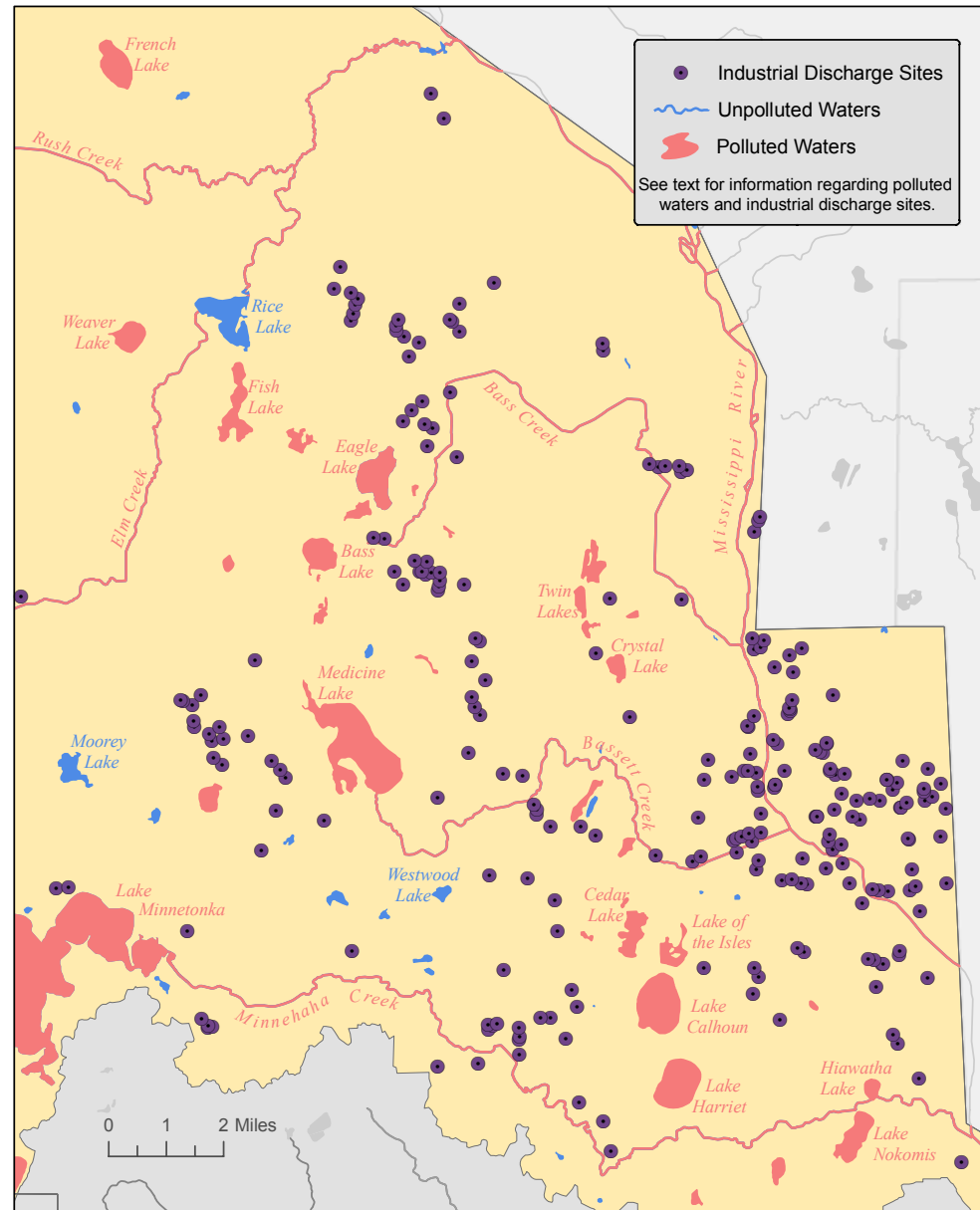
occurs because a large city has more businesses and services and requires larger amounts of wastewater to be discharged into the public sewer system.



Photo courtesy of Victoria Harris.

It is interesting that there are areas in the western part of the watershed with polluted waters, yet few industrial discharge locations. The pollution in these areas is potentially from the two discharge locations located in this area, but it is important to note that this map represents only one type of pollution and there are several other potential sources contributing to water pollution.

Industrial Discharge Permit Sites (2006)



Cartographers: Elise Pagel & Lauren Morse. 05 March 2008. Projection: NAD 1983 UTM Zone 15N.
Data Sources: Minnesota Pollution Control Agency (MPCA) 2006; ESRI 2006; Metropolitan Council 2002.

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LAND USE AND WATER QUALITY IN THE CROW RIVER WATERSHED, by Victoria Harris, Maps by Carolyn Loeb

Clean river water is important for the health of people and the environment. People need clean water to drink, as well as for recreation such as canoeing, swimming and fishing. Fish and other aquatic life need clean water to live and grow. Currently, the water in the Crow River, including the North Fork, South Fork and Buffalo Creek, is not very clean. There are chemicals in the water that are bad for fish, birds and other wildlife that use the streams, and are also bad for people who want to swim in the water or eat the fish they catch. During the spring of 2008 research the water of the Crow River was conducted with the goal of understanding what is in the water, where it is coming from, and how it can be cleaned up to make the river healthy again. The population of the area is expected to grow in the coming years, and it is important that the water be healthy enough to support more people as time goes on.

The project was divided into two major components; the water and the clean-up. The research about the water itself focused on three major parts; one looked into what the pollutants in the water were and what the possible sources could be, another looked at the different kinds of land-use and the relationship between land use and water quality and the last looked at what kinds of stream bed the water flows through in different parts of the watershed, including river bed, stream bed and ditches, to see if the kind of stream bed had an

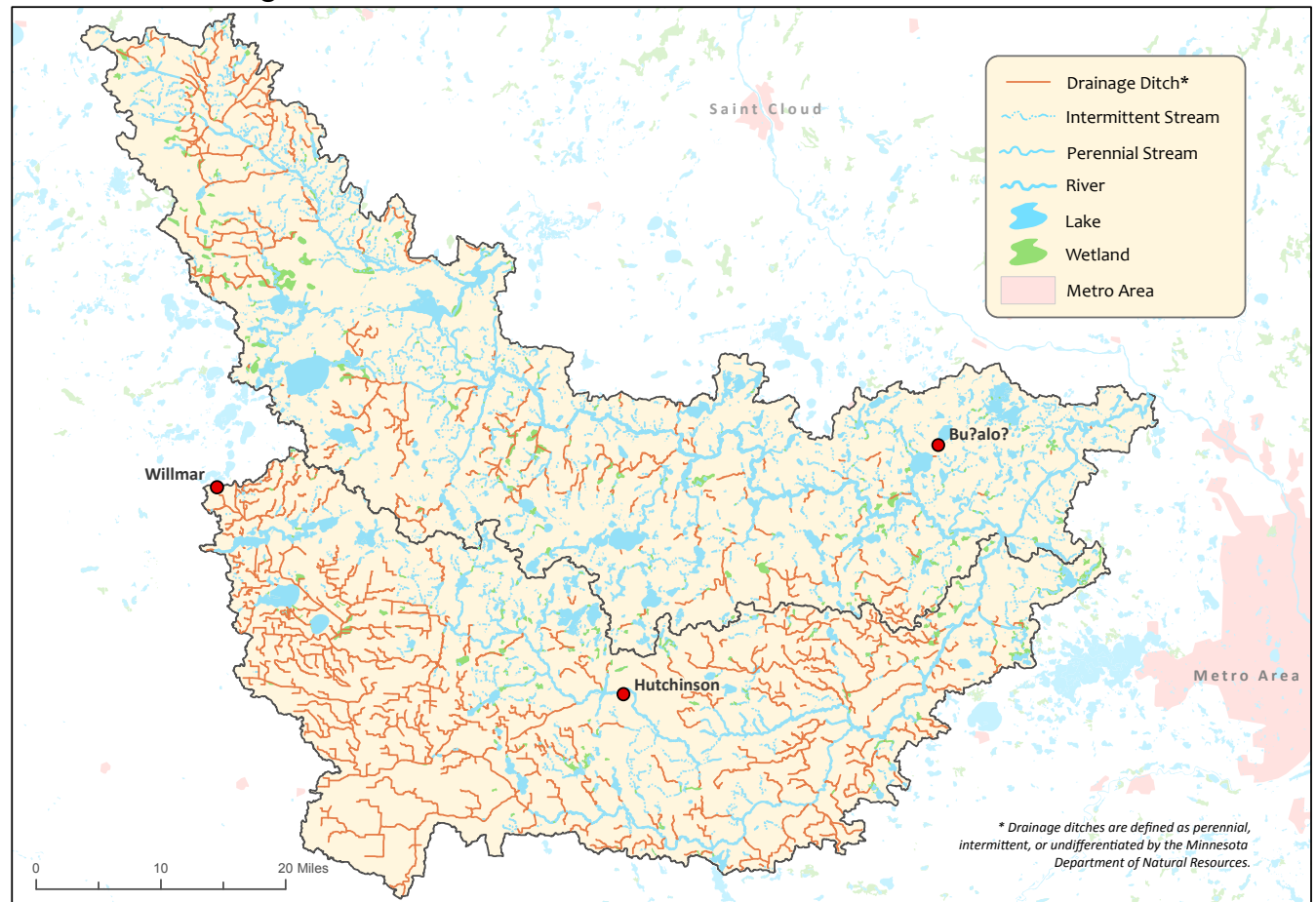
effect on the pollution in the water. Land use refers to what types of activity the land is being use for, and included agriculture, pasture and range, forest, wetland, and urban. Because the issue of clean-up can be a very political issue and there are already organizations charged with the task of cleaning the water of the Crow River, the research about how to clean up the water took a broader approach and

looked at policy suggestions that could help make clean-up efforts cheaper, faster and more efficient.

Data

Data for this project came from several sources. Land use data came from the Minnesota Department of Natural Resources (2006) and the Minne-

Drainage Patterns in the Crow River Watershed, 2001



By Carolyn Loeb, 18 April 2008. Projection: NAD 1983 UTM Zone 15N. Data Sources: ESRI 2000, Minnesota Department of Natural Resources 2001

sota Pollution Control Agency (2000) which also provided data about water quality (1999/2000). Further pollution information came from the Minnesota Department of Natural Resources (2008). Information about pollution came from the Environmental Protection Agency, the Minnesota Pollution Control Agency, the Environmental Management journal, the online Water Encyclopedia and the Chehalis River Council. It is important that the data sources be mentioned before the analysis because of the unique problems posed by gathering data from so many sources. The data was not all collected by the same organization or during the same year. This means that different groups collecting data were doing so using different definitions and standards, and none of the data representing the variables of land use and water quality can be directly compared or discussed. We can talk about these variables as parts of general trends and make our best educated guesses as to what happened while data was not being collected.

Land Use & Water Quality

Nothing unexpected appears in the data about land use in the Crow River Watershed. The land is mostly agricultural, especially in the area of the South Fork. In the North Fork there are concentrations of forest and pasture/waste/farmstead/non-agricultural. This land use category came pre-defined in the data. In both the North and the South Forks the greatest diversity of land use is closest to the Twin Cities metro area where all the different land use types are represented, although this happens in the west end of the North Fork as well. There are also lakes and wetlands

in both forks, with a higher concentration of these water bodies in the North Fork. Both Forks have urban centers that create patches of urban land use, including Buffalo, Litchfield, Rockford and Cokato in the North Fork and Willmar, Hutchinson, Glencoe, and Delano in the South Fork.

The water in the South Fork of the Crow River contains lead and mercury. These elements can build up in fish and are harmful to humans who drink the untreated water, swim in the river or eat fish from the river. Lead and mercury can enter the water in small amounts from natural sources in the environment, but also through car and factory exhaust and industrial waste. It is difficult to pinpoint the exact locations where these elements are entering the water, but it is vital that the sources of these toxins be located and eliminated as soon as possible. Because these elements can be stored in the fatty tissue of fish, it could take several years after the sources are eliminated to fully remove the possibility of human contact. The sooner these toxins are cleaned-up the better.

There are other pollutants in the water as well, measured by water quality monitoring performed by the Minnesota Pollution Control Agency. Nitrates, phosphates and ammonia are present throughout the watershed. These are common in agricultural fertilizer which is the most likely source. These are naturally occurring compounds which provide necessary nutrients to plants, but when added to water in unnatural quantities it can cause a sudden overgrowth in algae that block out sunlight, sucks oxygen out of the water and can kill everything living in the water. If these compounds are used on farms as fertilizers they

can end up in the water after watering or rain, as the fertilizer washes off the fields and into the stream. Most of the places where the water was monitored showed that there was a higher than healthy level of nitrates and ammonia in the water, and about half showed too much phosphates.

Aside from elements, chemicals and other compounds, there are other things to measure in water to see if it is healthy or not. Conductivity and suspended solids are both ways of measuring the amount of little tiny particles that are floating around in the water. Conductivity measures particles that can conduct heat, electricity and sound. Too many of these particles could lead to blocked sunlight or a change in water temperature that is bad for fish and other aquatic life. Suspended solids are other types of dirt and silt, too much of which could block out sunlight, cause the stream to fill up with mud or harm small fish and other life. While almost all monitors showed normal and healthy levels of suspended solids, almost all also showed unhealthy conductivity. This is also a sign that the majority of pollution in the stream is related to agricultural sources, including manure. Another indication of whether the water is healthy for fish and aquatic life is dissolved oxygen. Oxygen in the water is necessary for fish to survive, but pollution can take this dissolved oxygen out of the water which is harmful for the fish. Most of the water had healthy levels of dissolved oxygen when it was measured.

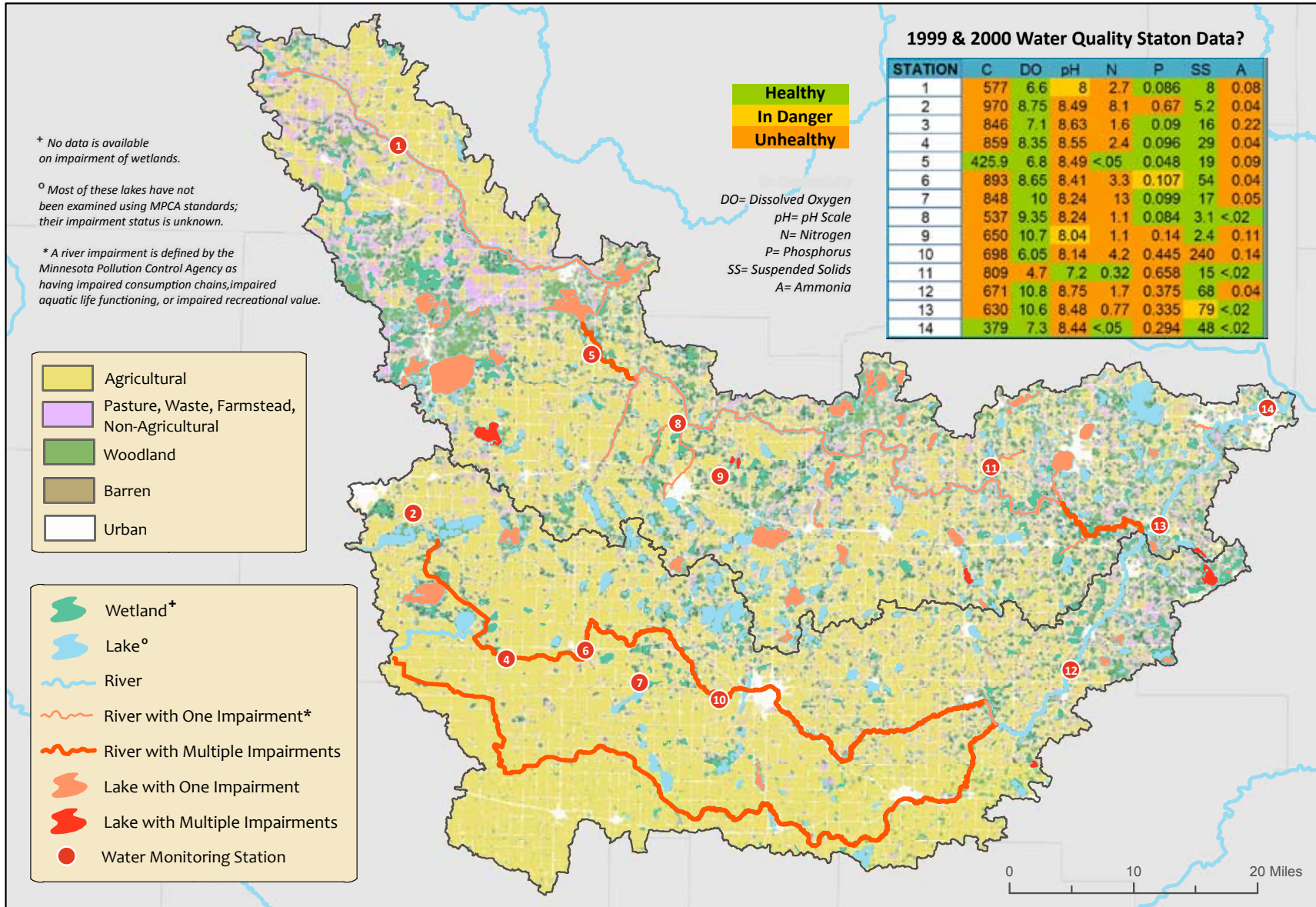
Map

All of this information about land use and water quality can be seen in the map *Land Use and Impaired Waterways* on page 87. Land use is the back-

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ground of the map, with each color representing a different type of land use. The most common form of land use is agriculture, shown in yellow, and the most common form of agriculture in the Crow River Watershed is corn. The lakes, the largest streams and the main course of the river are represented by blue lines if they are deemed healthy by the Minnesota Pollution Control Agency and in orange and red if they are deemed impaired. Impaired means that the water is too dirty and unhealthy for people to use or swim in or for the aquatic life to live in. The red circles show the places where the Minnesota Pollution Control Agency monitored the water quality in the summer of 1999 or 2000. The numbers refer to the chart in the upper right corner of the map, which show what the different levels were for each measure of water quality.

Land Use and Impaired Waterways in the Crow River Watershed, 2006



By Carolyn Loeb, 18 April 2008. NAD 1983 UTM Zone 15N. Sources: ESRI 2000, US Department of Agriculture 2006; Minnesota Pollution Control Agency 2006 & 2008; Minnesota Department of Natural Resources 2008

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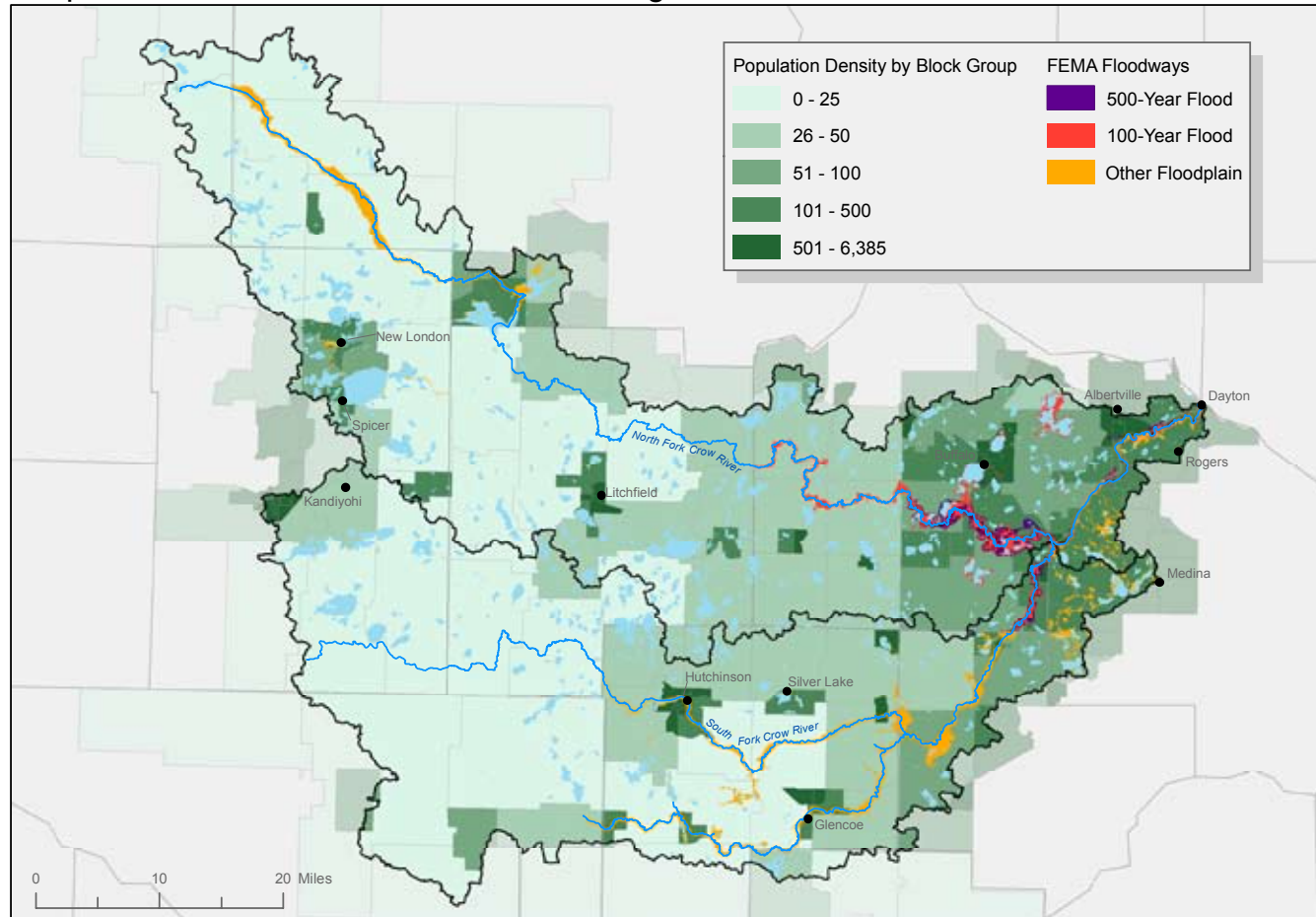
POPULATIONS AT RISK OF FLOODING, by Stephanie Kleinschmidt and Wade Miller, Map by Stephanie Kleinschmidt and Wade Miller

Flooding is an important consideration for areas located along waterways or water bodies. Serious flooding can critically impact affected areas. Rebuilding after a flood can be an economic burden, due to both public and private losses. For example, structural corrective measures are sometimes required following flood damage. An additional adverse effect of serious flooding in developed areas can be fatalities. Although floods serious enough to cause significant damage are not common, the presence of development along waterways and water bodies increases the risk that those areas will be impacted. Highly developed areas have more people and properties that can be damaged or lost. For this reason, organizations such as the Federal Emergency Management Agency (FEMA) determine areas that are the most at-risk for flood-

ing and take precautions to prevent serious damage, such as requiring flood insurance for people living in those areas. In this map, the relationship

between population density and floodplains and floodways in the Crow River Watershed is examined. A floodplain refers to all of the area surrounding a waterway or water body that is covered during a flood. A floodway refers to the channel and adjoining floodplain necessary for the transportation and flow of floodwater.

Populations at Risk of Flooding in Crow River Watershed, 2003



Cartographers: Stephanie Kleinschmidt & Wade Miller. 30 April 2008. Projection: NAD83 UTM Zone 15N.
Data Sources: LMIC 1984; National Hydrography Dataset 2006; US Bureau of Census 2000; FEMA 2003; ESRI 2000.

ing and take precautions to prevent serious damage, such as requiring flood insurance for people living in those areas. In this map, the relationship

between population density and floodplains and floodways in the Crow River Watershed is examined. A floodplain refers to all of the area surrounding

highest risk of flood damage. This layer provides data for 500-year floods and 100-year floods, as well as some additional flooding data. Five hun-

This map was created with two variables. The first variable was Federal Emergency Management Agency (FEMA) floodways. This data was originally published by FEMA in hardcopy Flood Insurance Rate Maps (FIRMs). Although its name places particular importance on floodways, the data includes the entire floodplain, because those areas are where development is located and thus where there is the

dred year floods are the worst-case scenario floods that have a 0.2% chance of occurring every year, while 100-year floods are the worst-case scenario floods that have a one percent chance of occurring every year. While these floods are not a common occurrence, they do present danger to people that they may impact. For example, the Red River of the North flooded in 1997, resulting in the worst flood in the past 100 years for that river. Despite the fact the cities along the river were prepared for flooding, they could not fully prepare for a flood of this magnitude and suffered many losses. The additional flooding data comes from occurrences of flooding that were reported, but were not initially included in the hardcopy FIRMs published by FEMA. The map's second variable was population density by block group, which was provided by the US Census Bureau. This data allowed us to analyze the likelihood of people being affected by one of these types of floods, based on overlaps of the floodplains of large flood events and areas with a high population density.

As one would expect, moving further away from the Twin Cities there are less people that could be at risk of flooding. In the case of this watershed many of the towns that have been established are along a river. This means that further west into the watershed there are higher density populations located on the river. Therefore, there is a possibility of flooding damages for those towns. It is also important to note that the worst flooding tends to be towards the downstream parts of the river. This creates interesting problems for the people living near those downstream waters. It is easier for those areas to flood than the others because they have collected water from all of the streams,

and other sources of water. Therefore, it is possible to have larger floods in those regions, and it is also more likely for those areas to flood more frequently. Knowing that this is possible, communities in those areas should be prepared for floods of the 100-year variety. This is an interesting dynamic in this watershed because these high-risk areas for flooding tend to be where the most people are located, both in numbers and in density.

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MAKE IT HAPPEN: FUNDAMENTALS OF COOPERATIVE COMMUNITY DEVELOPMENT PROJECTS, by Ashley Nepp, Map by Lauren Morse

Driving along highway 15 through downtown Hutchinson and over the South fork of the Crow River, you will notice many changes that have taken place in the past few months. The old metal dam has been replaced with a lovely natural spillway, and the bridge has been rebuilt to allow bikers and pedestrians under the highway. These structural changes are a part of Hutchinson's river restoration plan to increase recreational use and beautify the river and riverfront area. This decade-long project was a collaborative effort of the city of Hutchinson, the Minnesota Department of Natural Resources (DNR), and Barr Engineering. The project coordinators decided the best way to achieve their vision of a beautiful, safe waterfront area was to replace the dam with a fish ladder. This project was made possible by the clear vision of the planning group, transparency in the planning process, the support of the surrounding community and the close professional relationships between cooperating organizations and individuals.

Cleaning up the Crow

For the past twenty years Hutchinson city officials have been concerned about the quality of the river, but changes are slow and implementing change can

portion of the south fork of the Crow River with river clean-ups, stabilizing shorelines and improving aquatic life. As a part of this river restoration, the city wanted to replace the old Crow River dam.

The Crow River dam was a municipally owned and operated dam located just north of downtown Hutchinson. In the early 1990's the city began to realize that the dam was no longer practical when every-other year high flows caused flooding upstream and downstream of the dam. The city wanted to be prepared for a hundred-year flood in addition to normal seasonal changes in water flow. However, flow capacity was not the only problem with the dam; its presence discouraged water recreation around the downtown waterfront area for safety reasons. The dam was beginning to look run down and did



Cartographer: Lauren Morse, 11 April 2008. Projection: NAD83 Lambert Conformal Conic. Data Sources: City of Hutchinson

take decades: "It's a lifetime of work," says Dolf Moon, head of Parks and Recreation in Hutchinson. Recently, the city has been trying to clean up their

not fit the image Hutchinson was trying to cultivate; Dolf Moon commented that aesthetics were a big focus in the replacement project. When the

top of the dam was replaced in 1995, Barr Engineering, the engineering firm used for many Hutchinson projects, estimated the update was a “ten year fix.” The city needed to get planning.

The Plan

Fortunately, the city had cultivated excellent professional relationships with all the people needed to make this enormous project happen. The DNR, Barr Engineers and several others sat down to decide what the best solution for floodwater management would be. Rob Collet, the area hydrologist from the DNR had been working with Hutchinson on other river restoration projects such as shoreline stabilization. Barr Engineering had been working with Hutchinson for years and had previous experience with natural spillway designs. This group of organizations decided a natural looking “pool and weir” fish ladder would be the best solution for the Crow River dam replacement.

A pool and weir fish ladder allows fish to migrate up and down the spillway by either wiggling their way through the boulders or by jumping up each weir; the concentric half circles that make up the fish ladder create pools for fish to rest in between jumps. Allowing the fish to migrate will help regenerate fish colonies that have been devastated due to loss of spawning ar-

reas upstream of the dam. Fish ladders also add to the quality of the river, the turbulent rapids simulated by the concentric rings of boulders increases the oxygen levels downstream of the fish ladder. This type of spillway provides a ‘run of the river’ environment that decreases water fluctuations. A fish ladder is also much safer than a traditional dam; flow over a dam is usually at a higher speed and higher capacity than the ‘run of the river’



Figure 1. Hutchinson fish ladder. Photo courtesy of the City of Hutchinson.

flow patten over the fish ladder. An adult will easily be able to stand in the flow over the pool and weir system, which the planners hope will prevent drowning. The natural spillway is much more aesthetically pleasing which will encourage people to sit by the river and use the riverfront parks renovated after the completion of the fish ladder.

The Hutchinson fish ladder construction was a part of the city’s larger vision for the waterfront area near the downtown. There were several smaller projects included in the fish ladder construction such as the clearing of the flood plain, the implementation of the shoreline ordinance, and the main street bridge replacement. With some federal funding the city was able to buy out three businesses located in the fringe flood range, including an old lumberyard that was later converted into a park by the local VFW. Shop-co bought out some houses in the flood plain and built a store on these sites. The shoreline ordinance was implemented to decrease run-off pollution into the river from shoreline property owners, including residential and agricultural properties. The Main Street bridge crossing the Crow River over the fish ladder site, was becoming dilapidated and could not accommodate a hundred-year flood scenario. The bridge needed to be replaced and Hutchinson decided to construct the bridge and the fish ladder simultaneously to ensure compatibility in design and construction. This brought the Minnesota Department of Transportation (MNDOT) into the collaboration efforts and planning. All of these smaller projects combined helped to realize the city’s larger vision for the riverfront area.

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The Players

These three entities, DNR, Barr Engineering, and MNDOT working in cooperation with the city of Hutchinson made up the primary planning group. However, these organizations were not the only people included in the planning and construction process. Hutchinson city officials felt it was important to include all departments and organizations within the municipal government on the planning decisions. Police, Fire, Gas and Electric Utilities, Parks and Recreation, Zoning, and Engineering departments all met once a month to outline projects and future plans. Here every city worker could voice concerns and potential problems. This often brought to light problems that the general planning group would have overlooked or not considered. These meetings encouraged partnership between city departments and acknowledged individual expertise and authority. By conducting these meetings, many problems were solved or addressed before construction, saving time and money. Citywide planning meetings also made sure every department involved in the project was following the environmental guidelines and safety standards for their leg of the project. The transparency of planning and construction smoothed the way to making Hutchinson's fish ladder a successful collaborative project.

Community Support

The citizens of Hutchinson were aware of the state of the South Fork Crow River because of its designation as an impaired waterway; however, the city of Hutchinson still needed to gain public support

for the fish ladder and bridge project. Public planning meetings were held for public education on the project, and for any suggestions or questions citizens of Hutchinson had about the effects of the fish ladder. The environmental advantages of the fish ladder definitely lent themselves well to marketing the project to Hutchinson, as well as the improved aesthetic quality of the waterfront. In the shoreline ordinance implementation, the city held meetings for property owners along the waterway to educate them on shoreline maintenance, and what resources were available to them for assistance. After gaining public support, more community

members got involved with river clean up efforts in preparation for construction and the city even received donations of boulders from local farmers. These donations will significantly reduce the cost of the next stage in the fish ladder project, which is the construction of the final riffle downriver from the spillway. The Hutchinson community came together to make their vision of the city happen.

Conclusion

The Hutchinson fish ladder project has been a very



Figure 2. View of new bridge, fish ladder, the Luce Line trail and downtown Hutchinson. Photo courtesy of the City of Hutchinson.

successful collaborative community development project in the Crow Watershed. The city was able to implement a design that helped accomplish their vision for the waterfront area of Hutchinson. By cultivating close professional relationships with city workers and professionals within the DNR, MNDOT and Barr Engineering the city was able to negotiate the needs of the community with funding and design. Transparency within the project's planning process help to include all members of the community and allowed the public to be involved in the project, this helped gain public support for the fish ladder development. Together these factors produced a great asset to the community, to the health of the Crow River and a waterfront area that Hutchinson will be able to enjoy for years to come.

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MANAGING WATER: OVERSIGHT OF THE CROW RIVER WATERSHED, by Robyn Schindeldecker, Maps by Lauren Morse

The Crow River originates in the Belgrade area in Stearns County, traveling about 270 miles before joining the Mississippi River near Dayton in Hennepin County. Throughout its course, it travels through ten different counties, two Watershed Districts (WDs), several Water Management Organizations (MWOs), and numerous cities and municipalities. With multiple entities either partially or fully located within the Crow River Watershed, successful management and preservation of the Watershed is often a daunting task. In particular, it begs the question, *who* exactly is responsible for managing the Crow River?

Unlike areas such as cities and municipalities, water does not follow politically defined boundaries. Since water flows from place to place, a water resource problem in one location may be caused by events in another location. By managing water resource issues on a watershed basis – by following the natural ecosystem rather than arbitrarily drawn boundaries – communities are able to collaborate with each other and coordinate their efforts to achieve improved outcomes for everyone.

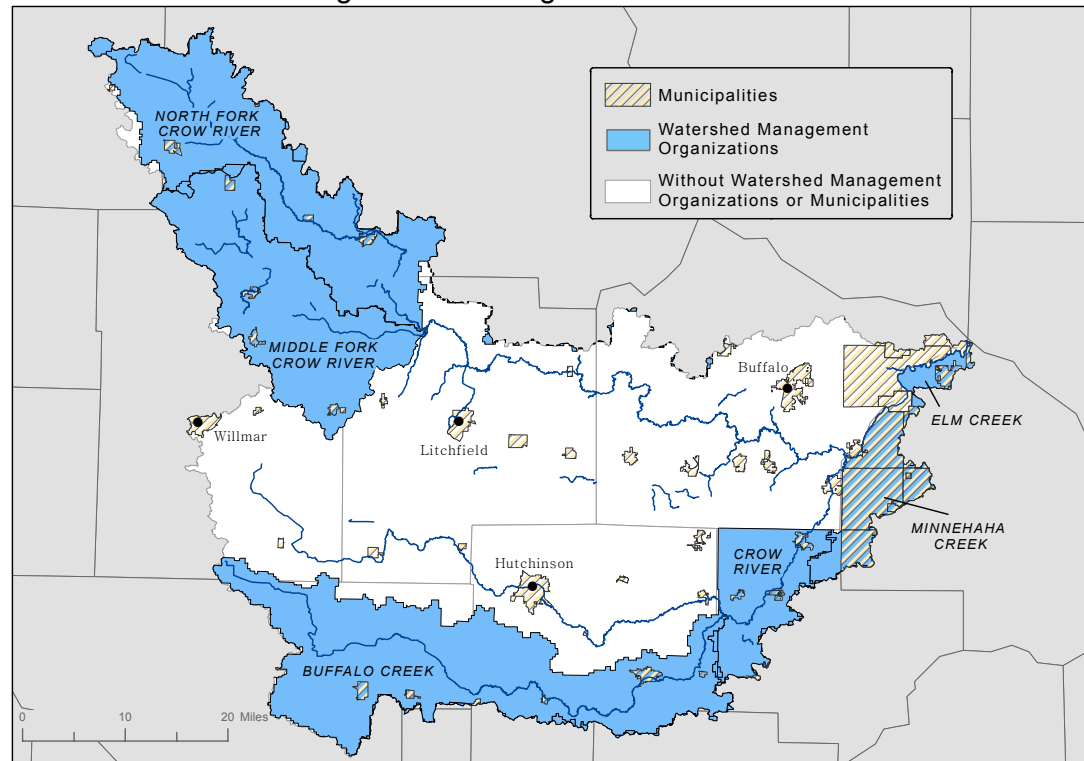
The Crow River is vital to the sustainability of communities in the watershed, for reasons ranging from environmental preservation to providing a source of recreation. Recently, however, the effects of rapid urban growth, new and expanding

oversight is inevitable. Therefore, governing on a watershed basis is essential to ensure that they effectively function and coordinate with each other.

While Watershed Districts are the main governing bodies that manage and regulate a watershed, there are numerous other organizations involved in areas such as water quality protection and improvement and erosion and sediment control. The administrative jurisdictions of these organizations and the overlap between their boundaries are shown in Map 1.

Because of these overlapping jurisdictions, it is important not only to discuss what exactly these organizations do, but also to examine the collaborations and conflicts that result from these intersections. Accordingly, this will lead to a better understanding of the presence and contribution of these organizations along the Crow River.

Watershed Management Organizations & Administration



Cartographer: Lauren Morse, 11 April 2008. Projection: NAD83 UTM Zone 15N. Data Sources: WDMO 2008; ESRI 2006; MN Department of Transportation 2001.

wastewater facilities, and erosion from agricultural lands in Central Minnesota have concerned a diverse number of actors, including concerned citizens, homeowners, and local, state, and regional governments. Without any coordination between these groups, a certain degree of overlap and

Watershed Districts

In 1953, Congress approved the federal Watershed Protection and Flood Protection Act, providing financial assistance to local agencies responsible for the management of secondary watersheds (a

subdivision of a primary watershed such as the Mississippi River). This led to the enactment of the Watershed Act in Minnesota in 1955. While this act was being developed, many of its proponents advocated for WDs to be run by people somewhat removed from the political process in order to insulate them from political backlash. Thus it was decided that WD managers would be appointed rather than elected.

The general purpose of a Watershed District is “to conserve the natural resources of the state through land planning, flood control, and other conservation efforts.”¹ WDs work and collaborate with states, counties, cities, and Soil and Water Conservation Districts to ensure both high water quality and the protection of wetlands. In doing so, they confront several issues including water quality protection and enhancement, water conservation, drainage system management, flood control, sediment control, and stream channel improvements. WDs have the authority to levy taxes in order to accomplish these endeavors.

There are two Watershed Districts with jurisdiction over the Crow River: the Middle Fork

Crow River Watershed District (MFCRWD) and the North Fork Crow River Watershed District (NFCRWD). These two WDs have undertaken a number of studies and campaigns in response to water resource issues in the Watershed. One such

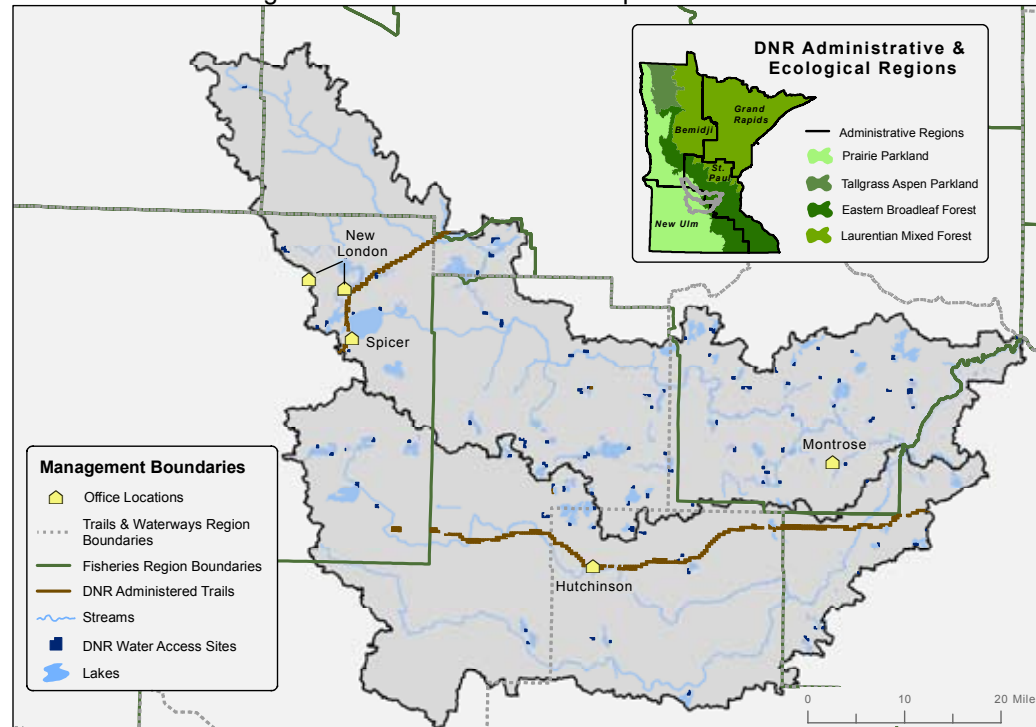
project was designed to evaluate and reduce pollution in lakes that were showing signs of degradation caused by phosphorus loading and sedimentation from runoff, a growing problem that adversely affects the Crow River Watershed and lakes and streams nationwide.

This project was designed to evaluate and reduce pollution in lakes that were showing signs of degradation caused by phosphorus loading and sedimentation from runoff, a growing problem that adversely affects the Crow River Watershed and lakes and streams nationwide.

Watershed Management Organizations

Unlike Watershed Districts, Watershed Management Organizations have no authority to levy taxes, thus assuming more of an advisory or special purpose role created to fulfill a specific or temporary objective. They were established in order to address intercommunity water issues within the watershed and to ensure that projects adhered to accepted standards and guidelines. WMOs can be located entirely within the seven-county Twin Cities Metropolitan Area or can be established specifically to perform some of the functions of a WD. One such WMO is the Crow River Organization of Water (CROW) whose mission is to encourage and facilitate the

Administrative Regions of the Minnesota Department of Natural Resources



Cartographer: Lauren Morse. 11 April 2008. Projection: NAD83 UTM Zone 15N. Data Sources: Minnesota Department of Natural Resources (DNR) 1999, 2002, 2003, & 2004; ESRI 2006.

development has been the Clean Water Partnership, which was devised primarily to develop a lake management plan that protects, maintains, and enhances water quality. The Districts have also been involved in homeowner projects, septic tank and soil absorption systems implementation, ero-

and guidelines. WMOs can be located entirely within the seven-county Twin Cities Metropolitan Area or can be established specifically to perform some of the functions of a WD. One such WMO is the Crow River Organization of Water (CROW) whose mission is to encourage and facilitate the

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cooperation of local governments, agricultural communities, businesses, and citizens in the preservation and restoration of the River.² However, it has no regulatory, permitting, or taxation authority.

CROW works closely with local water planners, watershed districts, Soil and Water Conservation Districts, and the Natural Resource Conservation Service offices to educate citizens and encourage the use of appropriate practices throughout the watershed. From 2001 to 2003, the organization conducted a diagnostic study on the entire Crow River Watershed in order to determine the extent to which rapid urban growth, new and expanding wastewater treatment facilities, erosion and drainage from agricultural lands, and other land uses were affecting the Crow River.

Currently, CROW is conducting a three-year diag-

nostic study of water pollution in the Crow River Watershed. Monitoring programs were implemented in cooperation with local municipalities, WMOs, and homeowner associations. Jenny Lee, the watershed project coordinator, notes that, “The diagnostic study is necessary to determine the extent to which rapid urban growth, new and expanding waste water facilities, and erosion from agricultural lands are affecting the Crow River.”³ In addition, this project will help to identify areas of the watershed that need protection and restoration.

Another undertaking that CROW organized was the Crow River Clean Up Day, in which more than 250 citizens from 14 communities across the Crow River Watershed removed garbage and debris from the banks of the River and its tributaries. Many businesses also contributed to this effort, further

demonstrating the importance of the Crow River to communities located in the Watershed. Diane Sander, Coordinator for CROW stated that, “This truly is a community event. We have citizens, businesses, cities, and townships giving their time and resources to improve the Crow River.”⁴

Three Rivers Park District

Another party with vested interest in the Crow River Watershed is the Three Rivers Park District. This organization primarily focuses on water quality issues, as the condition of water directly impacts other areas such as wildlife preservation and quality of life for residents in communities located within the Watershed. In order to obtain the knowledge, expertise, and support required to carry out its projects, Three Rivers works closely with Watershed Districts, homeowners associations, municipalities, and other organizations. According to Commissioner Marilyn Corcoran, one challenge is not having the necessary authority at the periphery of the District. While the seven counties within the Metropolitan Area are required to follow rigid guidelines set by the Metropolitan Council, the communities directly on the other side of the border are not regulated by the same measures. Consequently, there is often new development at the edge of the defined Metro Area that negatively affects water quality within the seven-county area.

Collaboration, Not Conflict

Commissioner Corcoran states that, “There are many players involved in the Watershed and they

Table 1. *Watershed Management Organizations*

Name of Organization	Type of Organization	Jurisdiction	Function
Middle Fork Crow River Watershed District (MFCRWD)	Watershed District (WD)	Middle Fork of the Crow River	Engage in land planning, flood control, and other conservation efforts
North Fork Crow River Watershed District (NFCRWD)	Watershed District (WD)	North Fork of the Crow River	Engage in land planning, flood control, and other conservation efforts
CROW Joint Powers	Watershed Management Organization (WMO)	Crow River Watershed	Address intercommunity water issues
Three Rivers Park District	Park District	Seven-county Twin Cities Metropolitan Area	Promote environmental stewardship through recreation and education

all wear different hats.”⁵ As she suggests, there are various groups concerned with the management and preservation of the Crow River, each with its own philosophy and each with its own approach, as shown in Table 1. While conflict of interest between groups is inevitable, the fact that they are drawing attention to critical issues affecting the Watershed is itself a necessary first step for exacting change.

While it may at first seem a confusing and overwhelming task to try to make sense of who exactly governs the Watershed and how this is accomplished, it is important to remember that no one organization has complete jurisdiction. Rather, it is a collaborative and synergistic relationship between these governing bodies that lead to positive outcomes for the Crow River. All of the organizations discussed, from local homeowner associations to Watershed Districts, are necessary in order to maintain and enhance the achievements that have been made thus far. After all, the sustainability and vitality of the Crow River Watershed – like all watersheds – depends upon the existence and interactions of these entities.

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Conclusion

CONCLUSION

BRINGING A GEOGRAPHER'S PERSPECTIVE INTO THE PUBLIC IMAGINATION, *by Assistant Prof. Dan Trudeau*

The geographical atlas is an invaluable tool we can use to expand our knowledge of the world. This atlas in particular aims to provide perspective, advance knowledge and stimulate new questions about the connections between people and environments of the Crow River Watershed. This atlas is not only about the people and places of the Watershed; it was produced with them and for them too. This atlas is thus noteworthy as a form of public scholarship.

Public scholarship refers to research that informs and is informed by the public good. This type of scholarship endeavors to create knowledge that contributes directly to the “public imagination.” We can think of this as a term that describes people’s common sense understanding of the world in which they live. Public scholarship is different from basic research, which reflects scientists’ curiosity about essential questions, such as “how did the universe begin?” The answers to such questions offer no direct contribution to the public good. As a departure from basic research, it is

the intention of public scholarship to “join serious intellectual endeavor with a commitment to public practice and public consequence.”¹ Public scholarship is thus meant to produce knowledge and

ing a geographical perspective to the examination of contemporary issues in the Watershed. We hope that such a perspective proves useful for thinking about the relationships between people and their environments in the Crow River Watershed. Furthermore, we hope that this atlas identifies the public virtues of thinking geographically and types of insights that a geographical perspective offers.

Geographers document the distributions of phenomena over the landscape and analyze the processes that explain the patterns they observe. Yet, the landscape is a peculiar thing. It is at once “patently obvious and terribly mystified.”² Landscapes are patently obvious because they are seemingly self-evident. For instance, as Emily Goodman explains in Chapter 2, commercial properties in the Watershed cluster around large population centers. Similarly, Ashley Nepp describes in Chapter 3 the process through

which the City of Hutchinson replaced a conventional dam with a fish ladder. Indeed, the essays in this atlas as a whole document that people and



Students and faculty on the Crow River in February 2008.

insights that are immediately practical and useful. The scholarship in this atlas makes a practical contribution to the public imagination by bring-

places in the Watershed are responding to the pressures of growth and change. So far, such statements as these are unremarkable, if not obvious.

But if you ask *why* and *how* questions, the self-evidence of the landscape begins to break apart. In this way, the landscape is terribly mystified. It is not obvious *why* commercial properties cluster where they do, nor is it obvious *how* the fish ladder in Hutchinson came to fruition, for example. Geographers may focus on the obvious characteristics of the landscape, but the explanations and interpretations they give are by no means self-evident. The geographical perspective focuses on understanding the local history and the internal and external relationships of a place that combine to shape the lay of the land. This perspective enhances people's ability to see what makes places unique and what connects them to other places. As the essays in this atlas show, some connections are not at all obvious.

Indeed, geographers also focus on the inconspicuous characteristics of the landscape. For example, in Chapter 3, Robyn Schindeldecker describes the public and nonprofit organizations that manage the Crow River Watershed. These organizations are not visibly present on the landscape, but their efforts are evident, once you know what to look for. More importantly, Schindeldecker shows that these organizations play an important role in contributing to the health and welfare of the people and the natural environments in the Watershed. In this way, Schindeldecker's essay, in addition to others, raise awareness of the conditions, people and forces that animate and affect the social and natural environments of the Watershed in ways that are not immediately evident.

Whether they focus on explaining the obvious or accounting for the inconspicuous, the essays in this atlas all aim to be useful. This atlas features research that helps the public think about some of the contemporary issues facing the people and environments of the Crow River Watershed. These issues are economic, demographic, social and environmental in nature. To be sure, the essays cover a diverse set of topics in this endeavor. But the essays are all connected by a commitment to promoting greater understanding of—and attention to—specific conditions, developments, and relationships that affect communities in the Watershed.

In order to increase the usefulness of the atlas, many of the scholars who contributed essays consulted with community members and leaders in the Watershed. This allowed the scholars to ensure the relevance of their research and include the voices and perspective of people living in the Watershed. The research that they conducted should prove useful in one of two ways. On the one hand, some of the essays offer explanation of where developments are taking place, why, and indicate some of the implications of these developments. The essays of this sort are thus aimed at enriching the public imagination by informing pertinent questions and helping to raise new questions that ought to be answered. On the other hand, some of the essays analyze how a specific community or organization in the Watershed was able to create change in deliberate and intentional ways. The essays of this sort are hence aimed at providing the public imagination with a model of action that other communities may choose to follow or adapt. We hope these two approaches provide valuable resources that the people and

organizations of the Crow River Watershed can use to gain perspective and take informed action.

In the end, the essays in this atlas are united by their commitment to inform people in straightforward language about matters of concern to the public good. Indeed, by bringing a geographical perspective into the public imagination, we intend to offer an atlas that enhances people's ability to make informed decisions about the future of the Watershed. As the adage goes, change is inevitable, but progress is optional. We thus hope that the materials in this atlas provide people in the Crow River Watershed with information and insights necessary to effect change in intentional ways that mark progress and improvement in the public good.

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