



CURA REPORTER

CURA and the University Northside Partnership



Also Inside:

- Home Visiting At-Risk Families: The Dakota Healthy Families Program
- Searching for the Sources of Error in Child Protection
- Implementation of Alternative Urban Areawide Review Mitigation Efforts
- Would Reductions in Class Size Raise Minnesota Students' Test Scores?

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In This Issue:

- Engaging the Northside Community: CURA and the University Northside Partnership 3
- Open House for Community-University Partnerships April 11 . . . 9
- Home Visiting At-Risk Families: The Dakota Healthy Families Program 10
- What Happens after Environmental Review? A Review of the Implementation of AUAR Mitigation 12
- Project Funding Available from CURA 17
- Searching for the Sources of Error in Child Protection: When We Make Errors, Why Are They So Hard to Correct? 18
- Would Reductions in Class Size Raise Minnesota Students' Test Scores? Evidence from Minnesota's Elementary Schools . . . 20
- Lectures on Emerging Issues in Soil and Water April 12 28



Photo on Cover: As part of a CURA-sponsored project on Minneapolis' Northside, Juxtaposition Arts youth artists worked with community artists and landscapers to install this sculpture garden at the corner of Second Street North and West Broadway. (Photo courtesy of Juxtaposition Arts)

UNIVERSITY OF MINNESOTA

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Engaging the Northside Community: CURA and the University Northside Partnership

by Thomas M. Scott and Kris S. Nelson

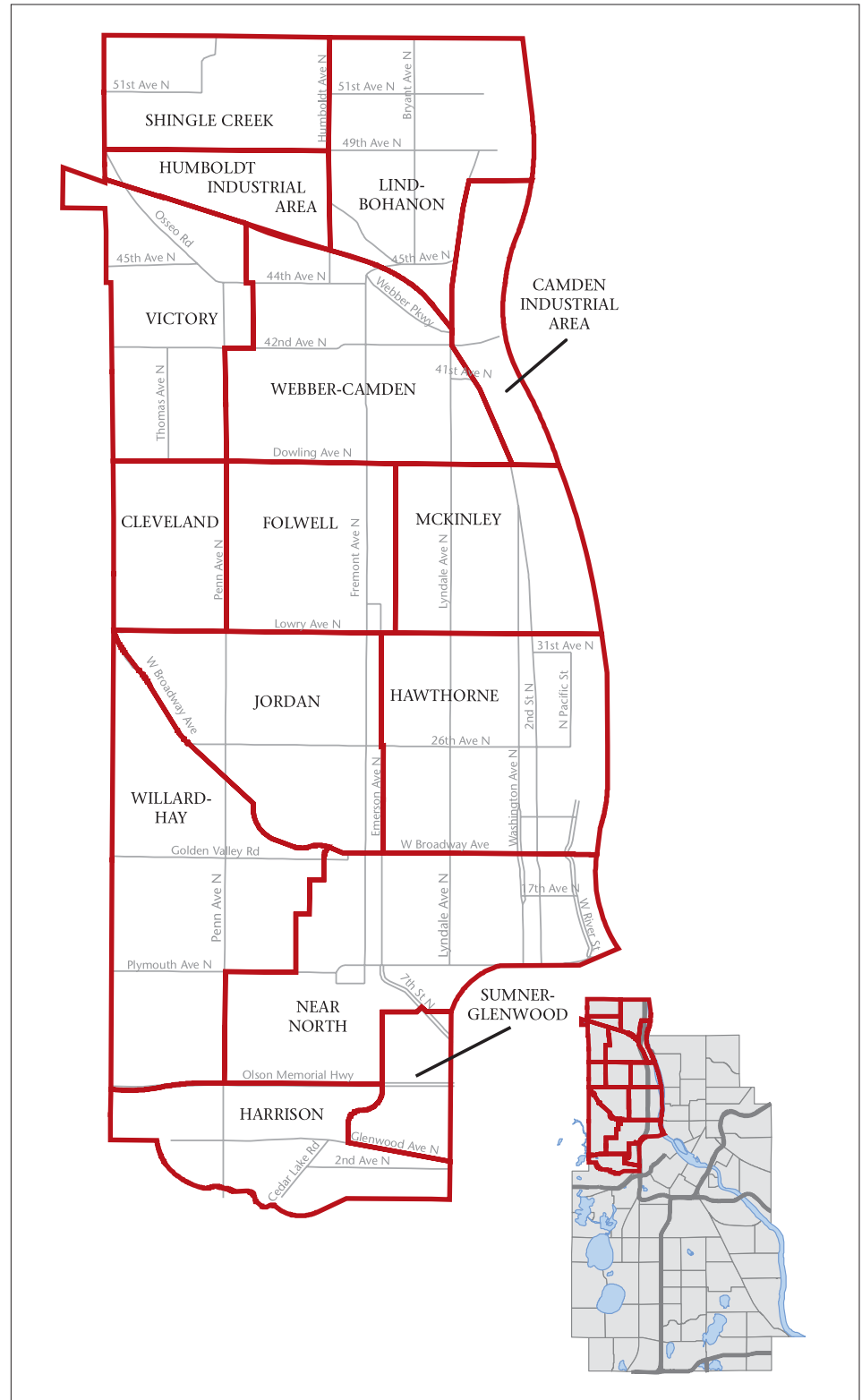
The new University Northside Partnership (UNP) is one of the few instances in the United States where a major research university is committing important research and teaching resources to a particular community in its own region. The partnership is a collaborative effort to enhance the health, vitality, social well-being, and economic opportunity of the North Minneapolis community (Figure 1). Partners with the University in this effort include the City of Minneapolis; Hennepin County; the Minneapolis School Board; the Minneapolis Park and Recreation Board; and various community organizations, including neighborhood associations, nonprofit and advocacy groups, and grassroots organizations. Initially, the partnership will focus on the well-being of children and families, enhancing educational success, encouraging economic development, and assisting community-based organizations.

Although there is currently great interest in the University embarking on a new, unique, and significant partnership with the communities and organizations in North Minneapolis, the fact is the University of Minnesota has had a special relationship with the Northside for many decades, and CURA has played a large role in that story. Since it was established in 1968, CURA has been involved in more than 100 projects on the Northside. The commencement of a new University Northside Partnership provides a useful juncture to reflect on CURA's experience working with the people, organizations, and communities of North Minneapolis. This article describes how CURA's work with the Northside has evolved during the past 40 years, examines in detail a contemporary Northside partnership with Juxtaposition Arts, and concludes with a discussion of how CURA's work fits within and can help inform the work of the University Northside Partnership.

CURA and North Minneapolis: Collaboration in the Early Years

The University of Minnesota's first formal support and outreach efforts on Minneapolis' Northside began more

Figure 1. North Minneapolis



than 40 years ago during the 1960s. Modern urban development was rapidly under way in the years following World War II. By the early 1960s, the University was preparing to establish teaching and research programs specifically directed to emerging urban issues such as affordable housing, poverty, and employment opportunities. At the same time, by the mid- and late 1960s, social and political turmoil had become widespread in cities throughout America. This unrest was related to a number of social and political issues, including opposition to the war in Vietnam, increasing racial strife, and the growing Civil Rights movement. Some communities experienced widespread violence—including arsons, shootings, and looting—that at times came close to open warfare. The most dramatic and serious violence took place in larger cities such as Detroit, Newark, Los Angeles, and Chicago, but North Minneapolis experienced its share of urban unrest as well. According to a January 16, 2005, article in the *Star Tribune* titled “An Era Defined by Defiance,”

In the summer of 1967, Twin Cities police received more than 100 calls predicting the kind of violence here that already had roared through other big U.S. cities. In July, it hit Minneapolis. There were firebombs, looting, shootings and helmeted police officers marching shoulder to shoulder as Plymouth Avenue businesses went up in flames. Cars were overturned, a white bar owner shot a black man and scores of others were injured. After three days of race riots, more than \$420,000 worth of property was damaged, and Gov. Harold LeVander had called up 600 National Guard troops.

Tensions again reached a high (but nonviolent) point during a march through the near Northside following the assassination of Dr. Martin Luther King Jr. the following year, in April 1968.

In this context of rapid postwar urban change and widespread urban violence, the University’s Board of Regents in September 1966, on the recommendation of University President O. Meredith Wilson, authorized the creation of a “Center for Urban and Regional Affairs.” Speaking before the Board of Regents in support of the center, Minneapolis Mayor Arthur Naftalin suggested that the need for

attention to urban problems was “total and pervasive.” One regent opined that in 10 or 15 years, the federal government would be giving “as much attention to urban affairs as to national defense.” And the recommendation of a faculty committee that supported establishment of an urban affairs center noted that the University could not remain “an ivory tower” and that the risks a public university takes in helping to resolve complex and sensitive social issues are worth it and, sometimes, necessary.¹

In the fall of 1967, incoming University of Minnesota President Malcolm Moos convened the CommUniversity Conference to seek ways to strengthen connections between the University and the community. His interest in University-community engagement included strong support for CURA.² However, organizational planning and funding for the new center were not resolved until 1968, with the impetus provided by the continued urban uprisings in other cities and our own experience in Minneapolis, which included burned property, citizen marches, and rising tensions in North Minneapolis. Although CURA was formally functioning by March 1968 under the direction of Assistant Academic Vice President Fred Lukermann, CURA did not have an annual operating budget until the 1968–1969 fiscal year, when geography professor John Borchert became director.

The Center for Urban and Regional Affairs was immediately assigned a wide range of activities designed to implement the University’s response to “demands” from the community, primarily from low-income communities and communities of color, many of which were located in North Minneapolis. As Borchert noted in the first issue of the *CURA Reporter* in June 1970, CURA projects were designed to match community requests with available University resources, to promote pilot and experimental projects, and “to help build successful projects into an appropriate part of the academic or community agency structure.” Early examples of CURA projects included the Martin Luther King (MLK) and Higher Education for Low Income Persons (HELP) programs, which expanded counseling

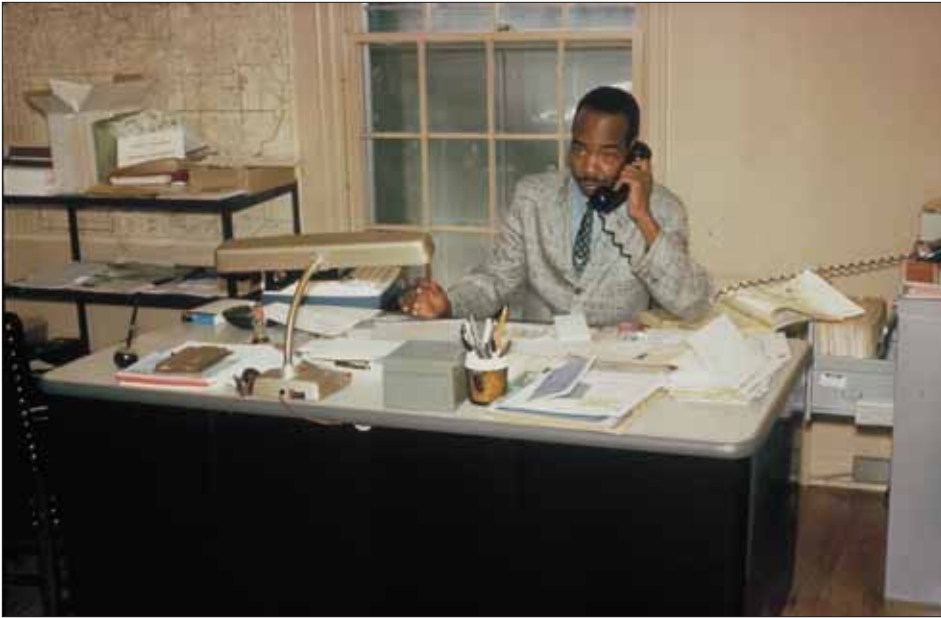
¹ Irv Letofsky. “‘U’ Urban Affairs Center Looks Anxiously Ahead.” *Minneapolis Tribune*. 18 September 1966. np.

² Stanford Lehmborg and Ann M. Pflaum. *The University of Minnesota 1945–2000*. Minneapolis: University of Minnesota Press, 2001. p. 111.

for minority and low-income students; the “Storefront University,” where residents in North Minneapolis and other communities and neighborhoods not previously served by the University could take college-level courses for credit; and the Center for Youth Development and Research (CYDR), which provided training for and research about the problems of teenage youth. The Storefront University delivered more than 40 courses to 1,300 students on the Northside in its first two years, many of them taught at the Pilot City location (now Northpoint, operated by Hennepin County). As the University became better organized to respond to newer community needs, these four experimental programs were transferred to other University departments—MLK and HELP to the General College and College of Liberal Arts, the Storefront University to Continuing Education-Extension, and CYDR to the College of Home Economics. In most cases, they became permanent University programs.

Through the mid-1970s, CURA continued to support minority and low-income communities on the Northside and elsewhere in a variety of ways—providing tutoring for students and adults, preparing instructional materials for public schools, offering vocational opportunities in correctional institutions, and supporting research projects on racial disparities and economic development opportunities. Other CURA projects during this period included the Black CommUniversity Project, the Migrant Tutorial Project, the “Way” Pre-School program, American Indian Education Development project, Model Cities Alternative School, the Afro-American Studies Laboratory, the Business Education for American Minorities program, the Plymouth Avenue Business Study, and Ethnic Studies program development at the University of Minnesota. Many early CURA projects on the Northside were supported through a program originally called CommUniversity Personnel Grants. Later shortened to simply CommUniversity, these grants funded a part-time graduate student to provide additional “personnel” to assist with research or technical assistance at community-based nonprofit organizations.

By the mid-1970s, many of the local, state, and (especially) federal programs and funding created to respond to the urban crises of the preceding decade were gone or on their way out as the country found itself in the midst of



In its first decade of existence, CURA supported minority and low-income communities on the Northside and elsewhere in the Twin Cities through such initiatives as the Business Education for American Minorities (BEAM) program, a joint project with Minneapolis' Urban League that eventually became the Metropolitan Economic Development Association.

serious financial difficulty, best exemplified, perhaps, by New York City's bankruptcy. One inevitable consequence of the nation's and Minnesota's fiscal situation and the resulting cutbacks in programs and funding was the limiting of further growth in University resources devoted to inner-city and urban issues. Nonetheless, CURA, on behalf of the University, continued to develop research and educational projects and programs in low-income and minority communities in the inner cities of Minneapolis and St. Paul, including North Minneapolis, throughout the late 1970s and early 1980s.

For the most part, University faculty members and graduate research assistants carried out these projects. However, an increasingly important component of these projects was an emphasis on more active participation by community partners. An emphasis on citizen participation in the decisions that affect their lives is one of the most significant legacies of the intense federal involvement in the urban crisis during the 1960s and early 1970s. This emphasis was embodied in the phrase "maximum feasible participation," and eventually included requirements in a wide range of federally supported urban programs that citizens must be directly involved in the development and implementation of those programs. There was even a brief period when the federal government cut city and

county governments out of the funding process and provided program monies directly to local citizen-led organizations. CURA's programs reflected these changes and, over time, have increasingly emphasized citizen and community participation. The Communiversities program was one of the first to formally adopt this philosophy, and CURA's Neighborhood Planning for Community Revitalization (NPCR) program further formalized this concept by linking directly to Minneapolis' Neighborhood Revitalization Program, which empowered citizens to participate directly in decisions affecting their own communities. Although maximum feasible participation is still not fully realized, this philosophy of citizen participation has become so engrained that today we take it for granted that citizens must be involved in public decisions.

The projects that CURA supported and participated in during the mid-1970s included an examination of housing for American Indians in Minneapolis, development of minority businesses in the Twin Cities, analysis of the housing stock in North Minneapolis and throughout the city, a study of American Indians and African Americans in the criminal justice system, a needs assessment in the Harrison Neighborhood, and an extensive survey of low-income residents in the Twin Cities. By the late 1980s, CURA research projects focused on inner-city Minneapolis

and the Northside community had expanded to include studies of problems with absentee landlords, housing development in the Harrison Neighborhood, homelessness in Hennepin County, adolescent parents and mandatory social services, analysis of out-of-home placements for children in at-risk families, and several cooperative projects with the W. Harry Davis Foundation.

Neighborhood Planning for Community Revitalization on the Northside

In 1993, CURA received a \$1.1 million grant from the U.S. Department of Housing and Urban Development's (HUD) Urban Community Service Program to encourage greater involvement of higher education institutions in their surrounding communities, and Neighborhood Planning for Community Revitalization (NPCR) was born. The NPCR program was established specifically to serve community-based organizations involved in neighborhood revitalization, and involves a consortium of nine schools of higher education in the Twin Cities, with the program's administrative home at CURA. Following the model of the Communiversities program, community organizations initiate NPCR projects by submitting a brief proposal for a student researcher to provide assistance with a specific project. Students from any of the NPCR member institutions can apply for the position with the community organization. Once the community decides which student can best carry out the project, CURA places them on the CURA payroll. The community determines the purpose of the project and the research product, and supervises the research assistant. Research assistants typically work out of the community office and conduct their research in the community, often with the direct involvement of community members. NPCR projects also engage faculty members as mentors to support the student researcher, offer advice and guidance on research methodology and references, and provide a sounding board for research questions and findings. Students provide the community organization and CURA with a final report that documents the research and findings.³

Since 1994, NPCR has supported more than 40 projects on the Northside

³ Reports from NPCR projects, as well as other CURA publications and reports, can be located online through CURA's Publications Catalog at www.cura.umn.edu/search/index.php.

with 17 organizations serving all parts of the community. These projects have covered a range of issues from housing conditions to public art and economic development, but all have focused on how the community organization can enhance its capacity to plan and carry out revitalization activities. Community organizations consistently report that these projects have value to their work, with 90% reporting in a two-year follow-up interview that the research was “useful” and a sizeable percentage stating that the research was “catalytic” in initiating new strategies or programs. This indicates that the program is achieving its goal to “enhance the capacity of community organizations to undertake revitalization planning and program development.”

In 1997, CURA recognized that with the growing interest in and support for service learning on campus, University courses offered another resource to serve community organizations. The challenge was to help connect community organizations with specific project needs with faculty members teaching courses that could meet these needs through course-based student projects. The result was the University Neighborhood Network (UNN, online at www.unn.umn.edu), which provides a Web interface to facilitate these partnerships. Faculty are able to post their course-based student-project opportunities online, where community organizations can locate project opportunities that meet their needs. Community organizations can then submit their project proposals online for consideration by the faculty instructor and students in the class. Each year, UNN facilitates some 40 course-based projects in departments ranging from history and landscape architecture to computer science and photography. Recent projects on the Northside include creating GIS maps for community organizations to assess a variety of program activities and plan new projects and assessing the impact of predatory lending practices.

Faculty participating in UNN projects report that their students are highly motivated and challenged by community projects and the opportunity to apply their learning in the community. Community organizations are impressed by the professionalism of the students and the value of the students’ work to their organization. Moreover, UNN has helped engage students and faculty who previously had little knowledge of or experience with North

Minneapolis. Students who only know of the Northside from news reports frequently indicate how surprised they are by the level of commitment residents and organizations have to the revitalization of their community.

In addition to student involvement in community-based projects through NPCR and UNN, CURA has long supported faculty engagement in community research through the Faculty Interactive Research Program (FIRP). One of CURA’s most important programs for more than 20 years, FIRP provides direct support for University faculty research projects that involve engagement with community and public organizations and agencies throughout Minnesota. Many of these projects have directly or indirectly involved Minneapolis’ Northside or issues important to Northside communities. Recent projects related to the Northside include the following:

- ▶ a study of safety issues in middle schools
- ▶ the problem of subprime lending and foreclosures
- ▶ childcare demand and affordability
- ▶ the development and assessment of midnight basketball programs
- ▶ the impact of extended day/year schedules and community volunteers on school performance
- ▶ the psychological and situational predictors of successful transitions from welfare to work
- ▶ multicultural perspectives on family involvement in children’s learning
- ▶ teacher preparation for classrooms with diverse student populations
- ▶ the spatial mismatch between where jobs are located and where people live
- ▶ the impact of class size on student achievement
- ▶ academic risk and resiliency among homeless or “highly mobile” children

Case Study: Juxtaposition Arts

In 2002, CURA began an association with Juxtaposition Arts that has evolved into a continuing partnership. The story of this partnership provides an excellent example of the type of community engagement that CURA’s approach to University-community collaborations makes possible.

Juxtaposition Arts was founded in 1995 with a mission to “empower youth and the community to use the arts to actualize their full potential.” Started

with a \$1,500 grant to support an after-school arts organization for youth from a North Minneapolis public housing project, Juxtaposition Arts has grown into a nationally recognized community arts organization now serving more than 600 young people annually.

In addition, the organization now plays an important role in the revitalization of West Broadway, a major commercial artery in North Minneapolis. West Broadway starts in North Minneapolis near the Mississippi River and adjacent industrial area, crosses Interstate 94, and continues to the western border of Minneapolis. The street is lined with aging commercial buildings. One of the most significant recent developments is a strip-style shopping center, Hawthorne Crossings, which abandoned the street front by placing a block-long surface parking lot along the sidewalk. Target closed its doors on West Broadway due to low sales in this low-income community, and because customers from outside the community avoided the store due to the community’s reputation for criminal activity. A major grocery store has now replaced Target and is the only major grocery serving all of North Minneapolis.

The challenge of revitalizing West Broadway was noted in a November 4, 2003, *Star Tribune* editorial titled “West Broadway; Bringing It Back to Life,” which noted that, “More than any other commercial street in the Twin Cities, West Broadway retains a scary feeling of abandonment.” In 2001, Juxtaposition Arts purchased and began developing a corner of West Broadway and Emerson Avenue. This corner is the nexus for the Hawthorne, Jordan, and Near North neighborhoods. Juxtaposition Arts purchased three storefronts and transformed one of the buildings into their studio/exhibition, classroom, and organizational office space to grow their program.

To help plan for the use of the other two storefront buildings, Juxtaposition Arts applied to NPCR in the fall of 2003 and was approved for a graduate research assistant to help with the project. The organization chose a talented University of Minnesota landscape architecture student, Satoko Muratake. Muratake conducted demographic and historical research for the West Broadway area. She also reviewed the many plans that had accumulated over the years to revitalize the avenue. She began to realize that what happened on the street had a greater impact than the uses to which



A Juxtaposition Arts student (left) and University of Minnesota landscape architecture student measure the sidewalk for the West Broadway pedestrian area analysis.

the buildings might be put. Thus began what became known as “Remix: Creating Places for People on West Broadway.” The idea of expanding their purview to the public street resonated with Juxtaposition Arts since much of their program involved public art. Over the years, the organization had created many street murals (including the well-known cows mural on the Kemps building on West Broadway). Muratake sought the advice of landscape architecture faculty and began to solicit their involvement.

The scale of the challenge to assess West Broadway as a public corridor and to plan public art to enhance the corridor as a viable public realm conducive to pedestrians required additional resources. Juxtaposition Arts and NPCR applied for a Building Social and Economic Capital Planning Grant from the Minnesota Campus Compact, a higher education coalition committed to the civic purposes of higher education. Funding from this grant enabled Juxtaposition Arts to hire Muratake

after she graduated to coordinate the West Broadway Remix Project.

Meanwhile, George Latimer, distinguished urban affairs professor at Macalester College, taught an Urban Studies seminar in spring 2004 that took West Broadway as the focus for a semester-long class project. This connection was made through UNN. Student projects in the course included field observations to document current conditions on West Broadway, research of current and future plans and projects that could impact West Broadway, historical research about West Broadway Avenue, review of current land use and zoning regulations along the street, and development of a work plan to serve as a framework for implementation.

In addition, NPCR provided support for a dual-degree urban planning and landscape architecture graduate student, Craig Wilson, for fall 2004 and spring 2005 semesters. Wilson identified three potential public art sites along the gateway (the eastern edge of West Broadway), contacted site owners to garner support for the public art projects at those sites, and began to build relationships with neighborhood and organizational partners.

During the 2005 spring semester, a Department of Landscape Architecture studio and design seminar at the University of Minnesota taught by Professors Kristine Miller, Clint Hewitt, and Marcy Schulte joined the West Broadway project. Students in the seminar not only conducted studios and class projects focused on West Broadway, but they also worked with 15 Juxtaposition Arts youth artists to conduct site analysis and develop models for public art installations.

Juxtaposition Arts continued this work in the summer of 2005 with 20 neighborhood kids to develop specific designs for two public art installations in the West Broadway gateway area: a mural on the Canadian-Pacific Railroad bridge that intersects West Broadway in the riverfront industrial park, and a sculpture garden located on Second Street and West Broadway closer to the Mississippi River. Professional architects James Garrett, Jr., and Ryan Rademacher committed their time to work with Muratake, the Juxtaposition Arts instructors, and the youth participants.

Juxtaposition Arts involved the West Broadway Area Coalition and the Hawthorne Area Community Council

to raise funds, and together they implemented the sculpture garden in the summer of 2006 on the Vogel Paint property at the corner of Second Street North and West Broadway. Juxtaposition Arts youth artists worked with experienced artists and Twin Cities Tree Trust landscapers to install the sculpture garden. In addition, Juxtaposition Arts youth artists designed and fabricated hand-painted light post banners, which were erected on West Broadway between Dupont and Fremont, and on Emerson Avenue.

As a result of the initial engagement of students and faculty, as well as the growing body of research developed through these partnerships, longer lasting relationships have been formed between University researchers and Juxtaposition Arts. Professor Kristine Miller, who co-taught the landscape design studio, became interested in the pedestrian implications of a proposed bus rapid transitway on West Broadway. She applied for and was awarded a CURA Faculty Interactive Research Program grant in 2005 to support the project. Miller and her colleagues have continued to focus both the design studio and seminar on West Broadway.

In the winter of 2006, Juxtaposition Arts youth conducted six hours of person-on-the-street interviews with more than 40 individuals to assess the community's perceptions of and dreams for West Broadway. Juxtaposition Arts produced a short film titled *Speak Your Mind* to summarize the street interviews. A second round of street interviews is planned for spring 2007, in collaboration with Asian Media Access—another Northside community youth program—and Twin Cities Public television. This resource will provide valuable input into the City of Minneapolis efforts to plan the future of West Broadway. Juxtaposition Arts and its collaborative partners also have secured national funding support from the Ford Foundation and Partners for Livable Communities to grow its community engagement and public development work, leveraging the arts as bridge and glue in its fragile urban community.

CURA's association with Juxtaposition Arts illustrates how the University of Minnesota can partner with small community organizations and increase their capacity to undertake important community work. Beginning with an initial project to explore how Juxtaposition Arts could best develop two storefronts, a growing network of University



Juxtaposition Arts youth artists worked with experienced artists and landscapers to install this sculpture garden at the corner of Second Street North and West Broadway in North Minneapolis.

faculty and student research assistants have become involved in community-led projects that will literally transform the Northside community. The key to the success of this and other CURA projects is a consistent emphasis on the importance of community and University partners drawing on their respective strengths and unique perspectives to work toward a larger community-identified goal. These partnerships developed organically through continual engagement based on past knowledge, experience, and outcomes. At each step, the results of the partnership were assessed to determine how that knowledge and experience could be developed further.

Conclusion: The Future of University-Northside Collaborations

As we indicated at the outset, the University of Minnesota is preparing to embark on a major initiative on Minneapolis' Northside, known as the University Northside Partnership (UNP). At the moment, the agenda for the partnership includes (1) strengthening the community through economic development, stronger job skills, and reduction of poverty; (2) building human capital through education and early childhood development; and (3) improving health through mental health services for children and families and the elimination of health disparities. Already, more

than 40 faculty members from across the University have been identified as being engaged in various projects and programs on the Northside. One of the goals of UNP will be to increase collaboration among these and other faculty, staff, and students working on the Northside to strengthen the university's overall impact in the community. In general, CURA's role in UNP will be to continue to build relationships with individual community organizations and to help them by strengthening their capacity to govern themselves and participate as full partners with the University.

More specifically, as part of the University Northside Partnership, CURA has developed a new program to foster community-University engagements. The Northside Seed Grant program, initiated in the fall of 2006, supports community-initiated research projects by providing a graduate research assistant and faculty member to work with the community organization. Four projects were funded in fall 2006. Community interest in the program has prompted the University to provide additional funding

to support projects for the next three years. More information about CURA's Northside Seed Grant program can be found at www.cura.umn.edu/NSG.php.

CURA has a long history working on the Northside, going back to its formation in 1967. Over this time much has been attempted, many things learned, and much accomplished. The most enduring lesson learned from this experience is the value of engaging University resources in response to community-identified issues and to work closely in partnership with the community to ensure that community interests are respected and lead the University's engagement. As a land grant University located in the state's largest metropolitan area, the University of Minnesota has a special role to play in the life of the community. CURA's work with communities—and particularly the Northside community—demonstrates how the University can provide research and technical assistance to increase the capacity of communities throughout Minnesota. Just as important, partnerships with the community provide University faculty and students with

challenging research, learning, and civic opportunities that broaden and enrich the lives of all participants.

Thomas M. Scott is professor of political science at the University of Minnesota and director of the Center for Urban and Regional Affairs (CURA). **Kris S. Nelson** is program director for CURA's Neighborhood Planning for Community Revitalization (NPCR) program.

CURA's Northside Seed Grants support community organizations that operate programs serving residents of the Northside community by providing student research assistants and faculty researchers to carry out neighborhood-initiated and neighborhood-guided projects. Applications from Northside organizations are accepted three times a year. Deadlines are March 15, June 15, and October 15. For more information or to download an application form, visit www.cura.umn.edu/NSG.php.

More information about the University Northside Partnership can be found at www.academic.umn.edu/system/projects/northside/.

Open House for Community-University Partnerships April 11

The University of Minnesota's Year-End Open House Celebration of Community-University Partnerships will be held Wednesday, April 5, 2006, from 4:00 to 6:00 PM in the Great Hall of Coffman Memorial Union on the East Bank of the University of Minnesota Twin Cities campus. The event is free and open to the public.

This annual, year-end event offers an opportunity to share information about the wide array of community engagement programs and opportunities on the University of Minnesota campus, acknowledge the time and energy that University and community staff have devoted to collaborative work for the public good, and inspire attendees to think about ways to initiate or expand community-university partnerships. The structure of the open house is informal and attendees are invited to enjoy hors

d'oeuvres while viewing posters and other displays that showcase examples of service learning, community-based research, volunteer tutoring and mentoring, student consulting, internships, and active citizenship programs.

This year's open house is part of the University's first Public Engagement Day, and will cap off a day-long series of workshops and presentations on the theme "Community and University as Respectful Partners in Knowledge Production." Goals for the day of engagement include:

- ▶ providing a deeper understanding of what public engagement means both to the University and its community partners;
- ▶ learning from examples of community and university work about the many dimensions of public engagement;
- ▶ inspiring interest and cultivating new relationships.

The open house is sponsored by the University's Office for Public Engagement and hosted by the Campus Community Coordinators Alliance, whose members include Business and Community Economic Development, Career and Community Learning Center, Center for Urban and Regional Affairs, Community-Campus Health Outreach Liaison, Deborah E. Powell Center for Women's Health, Healthy Youth Development-Prevention Research Center, Konopka Institute for Best Practices in Adolescent Health, Literacy Initiative, and Student and Community Relations.

For more information about the Open House Celebration of Community-University Partnerships, as well as other Public Engagement Day events, visit www.engagement.umn.edu/public_engagement_day/index2.html

Home Visiting At-Risk Families: The Dakota Healthy Families Program

by Gay Bakken

Almost a decade ago, the Dakota County Board of Commissioners allocated \$500,000 over five years for a unique project to prevent child abuse called Dakota Healthy Families. For many years, commissioners had struggled with the high cost and disappointing results of “deep-end” interventions. The county’s juvenile detention facility’s annual per-bed cost at that time was \$85,000 (\$120,000 today), and more than 50% of the young detainees were child abuse victims. Clearly, there had to be a better way.

Dakota Healthy Families (DHF) is an intensive, home visiting program for first-time parents. Participation in the program is voluntary. Partnerships with healthcare providers, school districts, Dakota County Public Health, and community-based agencies form the bedrock of DHF, and representatives from these groups form the 15-member steering team. Partner clinics and hospitals identify and refer families prenatally or at birth. The Dakota County Public Health Department receives the referrals, conducts in-home assessments to identify eligible families, and then assigns families to home visiting partner agencies. Intensive, long-term home visiting is provided by home visitors from school district Early Childhood Family Education programs, Head Start, and a community agency matched to each family’s strengths, needs, and communities. Home visit protocol is based on research on parent-infant attachment, as well as best practices from proven programs such as Healthy Families America and Growing Great Kids, Inc.

In 2004, Dakota County received a grant from CURA’s community-based research programs to hire Kevin Monroe, an applied economics graduate student at the University of Minnesota. Monroe conducted a formal evaluation of DHF to document the economic benefit of the program. Monroe’s analysis showed that DHF was a cost-effective program that reduced child protection cases. Based on this assessment, a coalition of human services



Photo illustration by Dave Hansen, U of M Agricultural Experiment Station

Dakota Healthy Families is a voluntary, home visiting program for first-time parents.

and public health directors is now replicating the DHF model throughout the seven-county metropolitan area using private funding, with the hope that state funding will follow.

Prevention Pays

Art Rolnick, senior vice president of the Federal Reserve Bank of Minneapolis, has found significant economic benefit in high-quality early childhood programs. Rolnick concluded that investing and intervening as early as possible with the most at-risk youngsters generates an impressive return of 17%. In an interview in the *St. Paul Pioneer Press* in February 2007, Rolnick states, “The literature is overwhelming on this, if you do high-quality childhood education, starting early—and by early, we mean pre-natal—they’re much more likely to graduate school, get a job, stay off welfare.” According to Robert Lynch, researcher at the Economic Policy Institute, government investment in a comprehensive early-childhood development program for all children from low-income families would reach a break-even point in 17 years, and by 2030, the benefits would exceed costs by \$31 billion.

Dakota County’s outcome study shows short-term savings from Dakota Healthy Families. This study was the first of its kind nationally to demonstrate that home visiting for the most at-risk families produces immediate cost avoidance/savings. Monroe’s analysis concluded that as a result of program interventions during a two-year period, only 7% of the most at-risk DHF families had confirmed cases of child abuse, compared with 53% of similar families in a comparison group. The conclusion is that DHF nearly pays for itself in the short-term by avoiding cases of child abuse. The study also showed that the cost of providing DHF’s preventive services to one family is about one-quarter of the expense of investigating and prosecuting a single case of abuse in the county’s child protection system (roughly \$26,000 per case).

Success Factors

So what makes Dakota Healthy Families successful? Four key interrelated factors are critical to the program’s success:

1. Providing services intensively and long-term. A look at abuse victims by age (Figure 1) suggests that

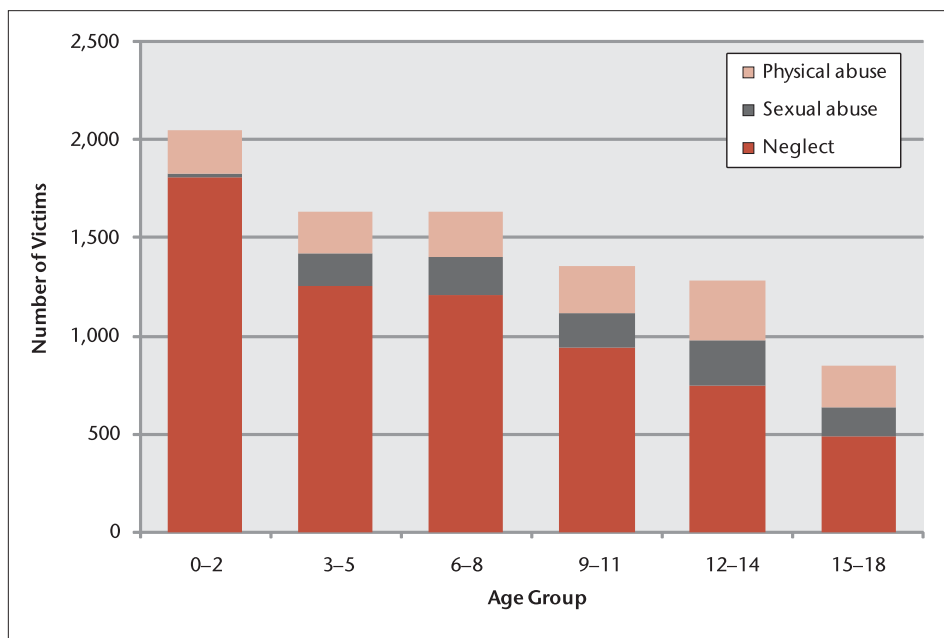
families require frequent contact and support, particularly during the first two years when parental stress is greatest and parent/child attachment occurs. Building the skill and confidence of new parents requires consistent, frequent support over a long time span—as frequently as weekly visits during the first 12 months. Home visits end when a child becomes connected with community-based early-learning opportunities, generally around four years of age.

2. Focusing on the target population. The focus of DHF is to intervene with families facing the greatest challenges to parenting success before their parenting patterns are established. A standardized parent assessment tool identifies families in greatest need and first-time parents are enrolled either prenatally or when their baby is born.
3. Building trust by focusing on parents. A responsive and dependable relationship between the home visitor and the family is critical to success. Staff are sensitive to the values and cultures of the families and are familiar with community resources. Continuity of staff is critical to sustaining trusting relationships with families, which is the cornerstone of success.
4. Budgeting for a long timeframe. Dakota Healthy Families budgets are developed with a 2- to 2.5-year horizon. This long timeframe is essential for achieving program outcomes because it ensures families that long-term support will be available to them and it encourages experienced, well-trained staff to stay with the program.

Metro Alliance for Healthy Families

Noting DHF's results, health and human services directors from the seven counties in the Twin Cities metro area have committed to its replication in the region. A regional approach for DHF makes sense given that at-risk families are often the most mobile and need consistent services no matter where they live.

Figure 1. Substantiated Abuse by Age of Victim and Abuse Type, 2005



Source: Minnesota Department of Human Services (#06-68-13)

In August 2005, the Metro Alliance for Healthy Families was established as the organizational structure for the metro-wide expansion. Six of the seven metro-area counties have approved a joint powers agreement (Ramsey County is expected to take action on the agreement in March 2007), and the initial rollout of the program is slated for mid-2007. Because one-half of all Minnesota births occur in the Twin Cities region, if the metro counties can successfully launch this program, it will build a strong case for state support for the initiative.

Private funders are enthusiastic about a regional approach because they value the efficiency and effectiveness a coordinated and comprehensive (rather than county-by-county) approach offers. The alliance has received funding from one foundation and has applied for funding from three others. A combination of new private funding and redirected county dollars will result in an estimated 300 high-risk families receiving home visiting services during the next two years. This includes roughly \$2 million in private funds and \$2 million in county funds at \$6,000 per family per year for two years.

Conclusion

Breaking the cycle of child abuse and neglect is extremely difficult, but the savings in human lives and dollars is incalculable. The economics of child abuse prevention and the science of early brain development provide powerful support for the Dakota Healthy Families approach. Targeted weekly home visiting has shown tangible results in Dakota County, and the regional approach being launched this year in the Twin Cities shows great promise of extending that success.

Gay Bakken is coordinator of the Dakota Healthy Families program in Dakota County, Minnesota.

This project was supported by CURA's community-based research programs, which provide student research assistance to community organizations and government agencies in Minnesota.

For more information about Dakota Healthy Families and the Metro Alliance for Healthy Families, visit www.co.dakota.mn.us/HealthFamily/HealthyLiving/HealthyCommunities/DHF.htm or contact Gay Bakken at 651-554-6370 or gay.bakken@co.dakota.mn.us.

What Happens after Environmental Review? A Review of the Implementation of AUAR Mitigation

by Carissa Schively

Photo © Steve Schneider, 2007



Brown's Creek and the Old Stone Bridge, just southwest of the intersection of Highway 5 and Highway 96 in Stillwater. This area was included in the AUAR for an 1,800-acre annexation area.

The process of reviewing the environmental impacts of proposed development can be very complex. For communities, identifying water, air, traffic, and other impacts; responding to public concerns; and navigating the agency review process can be time consuming and expensive. What happens after the environmental review has been completed often poses an even greater challenge, but when managed effectively, can present a unique opportunity to achieve the dual objectives of effective community planning and environmental protection.

This article examines the challenges and opportunities associated with implementing the outcomes of local-level environmental review. Focusing specifically on the alternative urban areawide review (AUAR), the article presents the results of a study of the implementation of environmental review outcomes, documenting the varying approaches and tools communities use to carry out mitigation efforts. The AUAR tool was selected as the focus for this study because it is an increasingly important environmental review tool for communities in Minnesota. The

AUAR represents an alternative to the more typical environmental assessment worksheet (EAW) and environmental impact statement (EIS) processes used to assess project-specific impacts. In contrast, AUARs are intended for use in assessing environmental impacts at a larger scale such as a redevelopment or annexation area, or in large undeveloped areas facing development pressures. The AUAR is used for prospective environmental review to identify potential environmental impacts in advance of a community receiving specific development proposals. The AUAR

also identifies mitigation measures to address environmental impacts, which can be implemented at the landscape or ecosystem scale rather than just on a single site. These characteristics make the AUAR not simply an environmental review tool, but also a mechanism for communities to identify environmental issues and to help create plans and policies that minimize environmental impacts and promote ecosystem-scale environmental management. The research on which this article is based was funded by a grant from CURA's Faculty Interactive Research Program.

Purpose of the Study

A number of issues stimulated this research. First, as noted in the introduction, the AUAR has become an increasingly important and more frequently used environmental review tool. The AUAR option was added to the Minnesota Environmental Policy Act in 1988, although the first AUAR was not completed until 1993. The impetus for creating the AUAR was an increase in the number and frequency of environmental review documents being prepared for development in fast-growing communities. The tipping point occurred when the City of Eagan completed five EAWs between 1986 and 1987. To address this issue, the Minnesota Environmental Policy Act was modified to include the AUAR, which allows multiple projects or large-scale future development areas to complete a single environmental review document and facilitates mitigation of environmental impacts at the landscape or ecosystem scale. Since 1993, the AUAR has increased in popularity, as illustrated in Figure 1. As of August 2006, 59 AUARs

have been completed across the state of Minnesota. Although communities in the Twin Cities metropolitan area completed many of the AUARs, an increasing number of communities in Greater Minnesota are beginning to use this tool.

Another reason for this review is the use of AUARs in a wide range of contexts—from small-scale development projects to large-scale community planning. The AUAR statutes and Environmental Quality Board documentation on the use of this environmental review tool lack specificity regarding types of projects for which the AUAR can be used. There continue to be instances where the AUAR is being used for site- or project-specific analyses. In such situations, an EAW or EIS would likely have been a more appropriate tool. In other cases, the AUAR is applied appropriately in analyzing the environmental impacts of large redevelopment areas, annexation areas, and even entire communities. This study seeks to assess variations in implementation across the range of applications.

Third, there appears to be some skepticism about the effectiveness of Minnesota's environmental review program and its outcomes. Although AUARs are legally binding documents just like comprehensive plans and zoning ordinances, there is no formal check on implementation. The Environmental Quality Board has only two staff members and the agency is not charged with overseeing implementation. Rather, communities themselves are responsible for implementation. Only through questions or legal challenges from the public, nonprofits, or agencies does implementation come under scrutiny. Additional

concerns about environmental review more generally are highlighted in a 2003 report from the North Star Chapter of the Sierra Club titled, *Improving Environmental Review in Minnesota: A Survey with Recommendations*. The report notes a number of issues, including (1) bias in cities conducting their own environmental reviews; (2) failure to address comments from agencies, organizations, and the public; (3) failure to adequately address cumulative impacts; and (4) failure to review all relevant information.

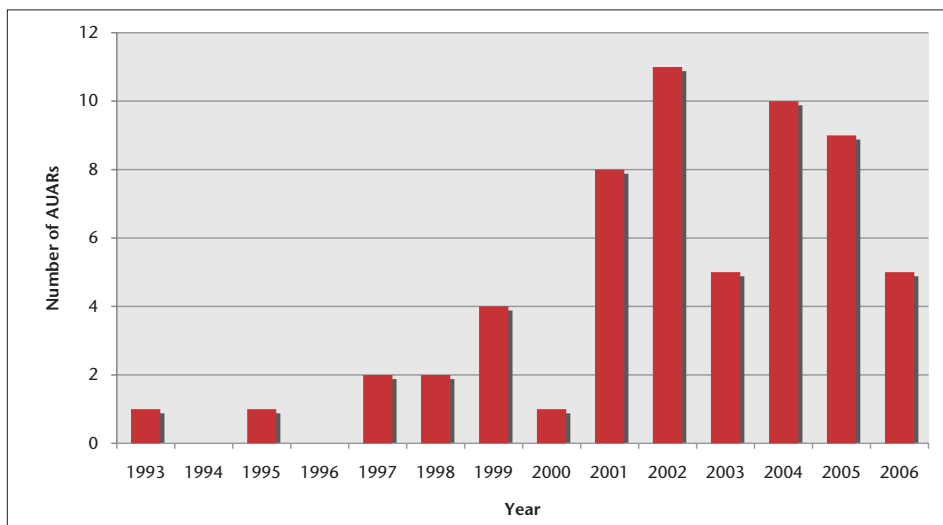
Another key point of concern is the use of the tool for specific projects, rather than as a prospective environmental review tool. As part of this study, we conducted a set of preliminary interviews with regional, state, and federal agency staff; consultants who work on AUARs; and environmental advocacy organizations. Some of the interviewees were critical of the AUAR as short-cutting the environmental review process that might occur through a more traditional EIS. Although the AUAR is intended to provide a level of analysis that is equivalent to an EIS, its use for specific projects remains a point of contention, particularly among state agency and advocacy organization representatives. Other concerns related to the AUAR include its ability to address cumulative impacts, a lack of public participation in AUAR processes, inconsistencies in the content of AUAR mitigation plans, and lack of guidance in preparing periodic AUAR updates.

Finally, this research is intended to advance the discussion of the AUAR as a planning tool. Although clearly established as a means of reviewing the environmental impacts of future development, AUAR remains underutilized and untapped as a planning tool. This study is intended to illuminate the planning applications of the AUAR tool for a wide range of projects, focusing on how environmental review outcomes can shape planning policies and decision making.

Methodology

The issues noted above lead us to three key research questions for this study: (1) What happens after the AUAR is completed? (2) How are communities using the environmental impact information and mitigation strategies included in the AUAR? and (3) Are communities using the AUAR as a planning tool? To investigate these questions, we completed a comprehensive review of implementation under the varying applications of the AUAR tool.

Figure 1. Number of Alternative Urban Areawide Reviews per Year, January 1993 to August 2006



To capture the range of uses of the AUAR tool, five AUARs were selected for the study. The selected cases represent varying contexts—urban, suburban, and outstate—and include applications related to annexation, redevelopment, specific projects, and comprehensive planning. The cases, all completed prior to 2002 to allow some time for implementation, include:

- ▶ Stillwater Annexation Area AUAR. This AUAR, for a 1,800-acre annexation area, was completed in 1997. Key issues in the AUAR include water quality in Brown’s Creek and Long Lake, storm water management, and transportation facility impacts.
- ▶ Maple Grove Gravel Mining Area AUAR. This AUAR was completed in 1996. The AUAR addresses environmental impacts and mitigation associated with the redevelopment of a 1,900-acre gravel mining area. Key issues include groundwater protection, storm water management, and transportation.
- ▶ ADC Telecommunications World Headquarters AUAR. Completed in 1999 in Eden Prairie, this case represents a project-specific application of the AUAR. The document evaluated the environmental impacts of more than one million square feet of office, laboratory, and light manufacturing development on a 91-acre greenfield site that includes wetland and prairie resources.
- ▶ Stinson Technology Campus AUAR. This AUAR for a 30-acre industrial redevelopment project located in Minneapolis was completed in 2000. Although 3.4 million square feet of high-tech office development was planned for the site, only a limited amount of development has occurred. The primary issue addressed in the AUAR was traffic, but other issues included air quality, existing site contamination, and storm water management.
- ▶ Hutchinson Area AUAR. Completed in 2002 as part of a comprehensive plan update, this AUAR focused on the entire 17,000-acre community of Hutchinson, located 60 miles west of the Twin Cities. The AUAR evaluated the future land use plan for the whole community and considered a wide range of environmental impacts.

To assess the implementation of the AUARs in these communities, we

attempted to determine whether planning and development decision making was consistent with the implementation strategies contained in the AUAR documents. Key sources of data in this effort included interviews with city staff and consultants to determine how the AUAR is used in day-to-day decision making and the status of implementation efforts. With the assistance of city staff, we also reviewed relevant planning documents (e.g., development agreements, ordinances, plan updates, internal memos, staff reports, and planning commission and city council minutes) for evidence of implementation. We looked for specific mentions of the AUAR, but also tracked more indirect discussions of issues and mitigation addressed in the AUAR document.

Reviewing AUAR Implementation

Based on the review of information described above, a number of findings come to light. First, and not surprisingly, implementation is difficult to track. In many cases, AUAR mitigation strategies are quite general, making it difficult to determine whether implementation has occurred, even through a comprehensive review of documents. For example, one document calls for continuing “to support alternative modes of transportation.” The intent of this mitigation is not entirely clear because it does not discuss which modes should be supported and it is not clear what “support” means—whether it

refers to funding, research on feasibility, or simply encouragement of public use of alternative modes. Another document calls for adopting a groundwater monitoring program. The mitigation measure includes no information about what pollutants should be monitored, nor who would be responsible for monitoring.

However, not all of the mitigation measures were general. For example, one document notes that

Management plans will be developed and implemented for the sedge meadow and wet prairie habitats. Management efforts will likely include the use of fire, mechanical, and chemical treatments to favor species typical of those habitat types. Monitoring of vegetation and hydrology of those areas will be conducted to evaluate success of management efforts and provide information necessary to modify management plans.

This example provides a clear sense of the mitigation tools to be used and calls for monitoring the potential impacts.

A second key finding is that none of the communities formally track implementation of the AUAR on a day-to-day basis. However, many of the communities show evidence of implementation through the use of development agreements or conditions/negotiations applied through the planned unit development process. For example, in



ADC Telecommunications world headquarters in Eden Prairie. The AUAR for this project evaluated the environmental impacts of more than one million square feet of office, laboratory, and light manufacturing development on a 91-acre greenfield site that includes wetland and prairie.

Photo © Steve Schneider, 2007

the ADC Telecommunications World Headquarters AUAR, because the AUAR focused on a single project, it was easy to see that mitigation implementation was accomplished through the development agreement. The City of Maple Grove relied heavily on the use of planned unit developments, such as the Arbor Lakes Town Center and the Fountains at Arbor Lakes, for development in the Gravel Mining Area. Stillwater used the planned unit development process, but also created new tools including alternative design standards and a tool similar to impact fees to pay the costs of capital facilities improvements. The city also created an open-space committee to review and implement open-space protection. In the city of Hutchinson, which

represents a unique application of the AUAR through a comprehensive planning process, implementation occurred less formally by relying on existing ordinances and planning documents. Julie Wischnack, Hutchinson Planning Director until spring of 2006, noted that AUAR implementation is ingrained in the day-to-day planning and development processes in the community.

Although none of the communities in the study track AUAR implementation on a daily basis, Stillwater documented AUAR implementation through an audit document prepared in 1998, approximately 18 months after completion of the AUAR. The audit was intended to illustrate to state agencies that progress was being made in implementing the mitigation measures by formally

tracking progress related to each mitigation measure in the AUAR document. In addition to documenting the city's own efforts to implement the AUAR, the audit identifies how other agencies and organizations contributed to mitigation implementation. Excerpts from the AUAR audit are provided in Table 1. The audit also includes copies of relevant ordinances, monitoring data from Brown's Creek (a key natural resource addressed in the AUAR), development review summaries, and other information related to implementation. This proactive audit approach provides accountability relative to AUAR implementation and helps identify opportunities to partner with other agencies and organizations on implementation. Further, the use of this formal method

Table 1. Excerpts from Stillwater Annexation Area Alternative Urban Areawide Review (AUAR) Audit, 1998

Mitigation Strategy	Contributing Agency or Organization	Implementation Effort
Protect and enhance in-stream habitat and riparian trout stream habitat along Brown's Creek and its tributaries in areas of existing development, including vegetated buffer areas, groundwater recharge areas, pools, riffles, and other critical components of trout habitat.	City of Stillwater	Zoning regulation that restricts activity within a 200-foot buffer area protects Brown's Creek and its tributaries located in the City of Stillwater. A park, open space, trails, and greenways plan designates areas for protection, and park use has been approved by the Open Space Committee and Parks Board.
	Trout Unlimited	Trout Unlimited received a \$5,000 grant from its headquarters in 1998. Work was completed on June 13 and 17 to plant tree shrubs and flowering plants to help provide cover and food sources and improve the trout habitat along a stretch of Brown's Creek within the boundaries of the Oak Glen Golf Course. An additional purpose of this work was to help provide bank stabilization for an anticipated increase in sediment loads when construction from the rechanneling project occurs upstream. In addition, informational signs about the project were placed along the golf course pathways to help inform the public about the significance of the stream project.
Implement a water-quality monitoring program, including water temperature, dissolved oxygen, and water quality and quantity parameters, in accordance with the Minnesota Pollution Control Agency (MPCA) and Metropolitan Council water-quality monitoring guidelines.	City of Stillwater	The City of Stillwater has continued to monitor temperature and flow rates at three locations. The temperature data have been provided to the Soil and Water Conservation District (SWCD), the DNR, and Trout Unlimited on an annual basis.
	Department of Natural Resources	The DNR continues to monitor stage discharge and temperature at one station. DNR officials have installed four permanent data loggers that provide temperature monitoring every 15 minutes. The DNR has partnered with other public and private groups to accomplish a dye study to measure movement and time of travel. The DNR is also leading a macro invertebrates study over the past two seasons.
	Washington County Soil and Water Conservation District (SWCD)	The SWCD maintained the outlet monitoring station at the mouth of the creek. This station continuously records flow, temperature, dissolved oxygen, and conductivity throughout the year. Three additional rain gauges were set in the watershed. Lake water-quality monitoring was done 14 times over the growing season.
	St. Croix Research Station-Science Museum of Minnesota	The St. Croix Research Station is constructing a set of monitoring stations that will greatly increase the amount of data available for analysis.

for implementation tracking allows the AUAR to function more like a planning document rather than just an analysis tool, thereby making implementation a more important focus.

Another benefit of tracking implementation is that it can help facilitate continuity despite changes in planning and public works staff. In some cases, where staff changes had occurred, it was difficult to identify someone with specific knowledge of the AUAR. In other cases, where staff remained in place after completion of the AUAR, it was much easier to identify relevant contacts. Because of the threat of a loss of institutional knowledge that occurs when staff leave an agency, tracking implementation can be an important means of maintaining relevant information and promoting accountability.

Finally, relative to whether communities are using the AUAR as a planning tool, Hutchinson provides the clearest evidence that this link between planning and environmental review is being made. To assess the environmental impacts of future development and identify mitigation efforts to address them, the city engaged in a comprehensive review of its future land use plan. In the other communities that we looked at, the connection is less clear. For those communities where the AUAR was conducted for a large area, it is easy to see its function as a proactive tool, but the focus remains on using environmental review to facilitate the development process rather than on gathering environmental information to inform planning efforts. In Stillwater, the key planning issues included land use and environmental protection, whereas in Maple Grove, the AUAR functions as an important economic development tool allowing the community to proactively address environmental issues to facilitate future development. In Minneapolis, the city attempted to use the AUAR as a stimulus for redevelopment, but the location has yet to show significant demand. Lastly, for Eden Prairie, the AUAR was used for a specific project and thus its use as a prospective planning tool is limited.

Recommendations on the AUAR Process and Implementation

The findings related to AUAR implementation described above point to a number of recommendations related to agency guidelines and community use of the AUAR tool. First, because the AUAR is a legally binding document intended to inform planning decision making, just

like a zoning ordinance or comprehensive plan, it is essential that communities provide as much specificity as possible in identifying mitigation efforts. In addition to providing specific language related to environmental planning and development outcomes, it also may be useful to identify relevant ordinances and plans, as well as implementation responsibilities for developers, departments within the local governmental unit, and other agencies and organizations. Stillwater used this approach in its AUAR. Further, when AUAR areas are large, it also is important to identify the geographic extent and areas of focus for mitigation efforts. Ensuring an appropriate level of specificity and focus can be useful in providing a clear record of the intent of the AUAR and in facilitating AUAR implementation despite changes in city staff, political representation, public support, and agency staff.

A second recommendation is that communities take a more formalized approach to tracking implementation. Although the Environmental Quality Board does not require tracking, it has the potential to make the five-year AUAR update easier. Tracking implementation also may help communities deal with challenges from elected officials, the public, and state and federal agencies related to failure to implement. Further, as with the recommendation above, tracking also helps avoid the loss of institutional knowledge that can occur when staff

members leave the community. Finally, the process of consistently reviewing the progress of mitigation measures can help remind staff and elected officials about implementation needs.

Third, communities have the opportunity to be more proactive in implementing AUAR outcomes, taking advantage of the full range of tools that are available to them. Although planned unit developments and development agreements can be an effective way to address mitigation for specific developments, there are many other implementation tools that can be used to integrate AUAR implementation into planning practice. These tools, listed in Table 2, are commonly used to implement comprehensive plans. If a community chooses to track implementation, as described above, the tracking or auditing process may help communities to think about the range of tools and identify untapped implementation opportunities. In addition to taking advantage of the range of implementation tools, communities also should identify opportunities to address environmental issues at the landscape scale.

Finally, to facilitate the use of the AUAR as a planning tool, a number of changes in the Minnesota State Environmental Policy Act and Environmental Quality Board guidelines might be considered. First, it is important that only appropriate projects be allowed to use the AUAR tool. Project- and site-specific developments, typically with a single owner and single developer,



In Maple Grove, the AUAR functions as an important economic development tool, allowing the community to proactively address environmental issues to facilitate future redevelopment of a 1,900-acre gravel mining area.

Photo © Steve Schneider, 2007

Table 2. Possible Alternative Urban Areawide Review Implementation Tools

Implementation Tool	Example(s)
Ordinances and regulations	Wetland buffers, tree preservation ordinance
Capital improvements	Retrofit wastewater system with constructed wetlands, install traffic signals
Incentives	Density bonuses for open-space protection
Acquisition	Purchase sensitive wetland areas
Taxes and fees	Transportation impact fee to fund pedestrian and bicycle facilities
Processes and plans	Wildlife corridor plan, design guidelines for cluster development

should be required to complete the EAW or EIS process. Second, the state and the Environmental Quality Board should provide more specific guidance related to tracking implementation. They might consider requiring an AUAR audit as part of the five-year update, or even more frequently. The Environmental Quality Board also should provide guidance related to the use of the AUAR as part of the comprehensive planning process. Although only one community has taken this approach since the AUAR was established more than two decades ago, that case does show that integration of the environmental review and

comprehensive planning is possible. It is important for the state and the Environmental Quality Board to identify when it is appropriate to use the AUAR and when it is not. Further, providing examples of appropriate use of the AUAR and highlighting its planning applications (e.g., ecosystem restoration, annexation decision-making, redevelopment) can be important in elevating awareness and use of the AUAR in the planning and development communities.

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The research upon which this article is based was supported by a grant from CURA's Faculty Interactive Research Program. The program was created to encourage University faculty to carry out research projects that involve significant issues of public policy for the state and that include interaction with community groups, agencies, or organizations in Minnesota. These grants are available to regular faculty members at the University of Minnesota and are awarded annually on a competitive basis.

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Project Funding Available from CURA

The Center for Urban and Regional Affairs supports community-based research projects through several different programs. If you represent a community organization or agency and are unsure which program listed below is most suitable for your project proposal, simply complete a general Community Program Application Form at www.cura.umn.edu/Programs/curaappform.html and we will route your request to the appropriate program.

■ **The Communiversity Program** funds quarter-time graduate student assistantships for one semester to help community-based nonprofit organizations or government agencies with a specific project. The application deadline for fall 2007 assistantships is June 30, 2007. For more information, contact CURA community program assistant Jeff Corn

at 612-625-0744 or curacbr@umn.edu, or visit www.cura.umn.edu/communiversity.php.

■ **The Community Assistantship Program (CAP)** matches community-based nonprofit organizations, citizen groups, and government agencies in Greater Minnesota with students who can provide research assistance. Eligible organizations define a research project, submit an application, and if accepted, are matched with a qualified student to carry out the research. The deadline for applications for fall 2007 support (early September to mid-January) is June 30, 2007. For more information, to discuss potential projects, or for assistance with applications, contact CAP coordinator Will Craig at 612-625-3321 or wrcraig@umn.edu, or visit www.cura.umn.edu/cap.php.

■ **Neighborhood Planning for Community Revitalization (NPCR)** provides student research assistance to community organizations in Minneapolis, St. Paul, and metro area suburbs that are involved in community-based revitalization. Projects may include any issue relevant to a neighborhood's or community's needs and interests, including planning, program development, or program evaluation. Priority is given to projects that support and involve residents of color. Applications from organizations collaborating on a project are encouraged. Applications for fall 2007 support (early September to mid-January) are due June 30, 2007. For more information, visit www.cura.umn.edu/npcr.php or contact NPCR program director Kris Nelson at 612-625-1020 or kns@umn.edu.

Searching for the Sources of Error in Child Protection: When We Make Errors, Why Are They So Hard to Correct?

By Esther Wattenberg



Photo © Najlah Feanny/CORBIS SABA

Almost every complex system has its methods of looking into mistakes that have led to large-scale tragedies or terrible consequences. Retrieving the contents of the “black box” in plane crashes is the method of tracking the source of airline disasters. Searching for the “x” on the wrong site for surgery or counting the number of sponges missing are methods of identifying operating errors. When a child known to the child protection system is murdered or dies under unexplained circumstances, the system is opened up, briefly, for public scrutiny and an intense inquiry is initiated, shaped by the search for an explanation.

In November 2005, Eileen Munro, Reader in Social Policy at the London School of Economics, spoke at an interdisciplinary forum hosted by the University of Minnesota’s Center for Advanced Studies in Child Welfare on the topic, “Sorting Out the Evidence for Interventions that Work in Child Protection: Intuition, Experience, and Technology.” The forum was sponsored in part by the Center for Urban and Regional Affairs. This article provides a brief summary of Munro’s remarks.

According to Munro, in about 70 to 80% of inquiries into unexplained deaths in the child protection system, there is a consistent result: The blame is placed on human error. The thrust of the response

to reduce error is to bring erratic human behavior under control and “make them behave better in the future.” Blaming the frontline worker usually results in increased surveillance of staff to make sure they are following all the instructions. With respect to child protection, the system is changed to reduce their role, adopt rigorous protocols, and formalize and mechanize child protection to limit individual judgment. Not only does this increase paperwork but it also leads to defensive practice in which there is a strong impression that the primary purpose of the work is to protect the worker and the agency. Protecting the child is third in priority. This adds up to a huge distortion of practice.

For Professor Munro, an alternative “systems” approach in explaining mistakes could lead us to genuine improvement. This approach assumes one can identify human error, but then proceeds to ask, “Why did they make a mistake?” There is a pattern to child fatality reviews: imperfect decisions made in imperfect circumstances. In using a systems’ approach, there are three key areas for understanding what contributes to a final outcome: factors in the individual, resources, and organizational context.

For factors in the individual, we look to the child protection workers’ skills and knowledge and their emotional wisdom. We expect pilots to have emotional maturity, and we should have the same expectation for child protection workers. As Munro puts it,

Are we training them in the right kind of reasoning skills and knowledge to actually do the kind of assessments we want . . . [I]n fatality reviews there is clear evidence that workers do not have adequate skills in interviewing children . . . and in interviewing men . . . [W]orkers find it easiest to talk to the adult mother rather than the partners or the children. Yet a wide range of sources of information are needed to make a proper assessment.

Critical thinking—which includes a space for our intuitive grasp of the situation—means actively dealing with information, testing a hypothesis, and rejecting or adding to it. And supervision is the key for helping frontline workers to think. An overworked and understaffed system does not provide time for critical thinking. Supervision is a major support, both emotionally and intellectually, in managing a caseload. There are a variety of instruments for collecting information and it is the role of the supervisor to prevent the frontline worker from being overwhelmed and paralyzed by the enormity of information collected. In Britain, supervision is tilting toward checking on paperwork, not the quality of thinking about the information for assessment and case planning. Reduced time for this kind of supervision is a serious matter.

Stability of resources is another factor in managing a caseload of families in crisis. The availability of support services for strengthening families enables a frontline worker to be effective in tangible ways.

With respect to organizational context, we need to be reminded of three

key features of a good system: (1) we want it to be *effective*—that is, to “do no harm” in the process of trying to help children, to be aware of the unintended consequences of intervention, and to avoid traumatizing a family in the process of investigating maltreatment reports; (2) we want it to be *efficient* through a careful use of public money; and (3) we want it to be *ethical*, balancing respect for a family’s privacy with a child’s safety. The organizational context has become an audit and inspection system with an emphasis on completion of paperwork, with minimal attention to the accuracy and usefulness of documentation. We could say there is a conflict between putting the child’s well-being first or putting the audit system first. In general, we have prioritized paperwork over casework. Paperwork has increased to the point where it is unusable—for example, procedural manuals, giving guidance on how to work, are printed in several volumes. There is a strong sense that paperwork represents documentation primarily for management and has little value for the worker. This has resulted in a certain kind of insincerity with a casual regard for entering data accurately. The organizational context should ensure a protective, nurturing working environment allowing frontline workers to focus on the children and not on the administrative tasks required by an audit system.

Finally, there is a very serious complication that needs to be studied: Political interventions are now providing loads of change in education, health, criminal justice, and child welfare. Every part of these systems is trying to change the way we are dealing with children. But it is only at the frontline that you are going to see how these changes, in an interactive way, affect the child and the family. The frontline worker will be required to understand and interpret the impact of these changes. In this context, we may have to scrutinize complex interactive systems to see whether they have delivered their message of good practice with clarity. Then we may fully understand the sources of error when children are murdered or die under unexplained circumstances.

Commentary from the Judicial System

The court of appeals appears to be a source for understanding errors from the perspective of parents. When parents think that an error in judgment has been made regarding their capacity to parent, they can turn to the judicial system to speak their truth to

the power of the system. According to Judge Terri Stoneburner, once the court system is involved, the central issue is whether the decision (most appeals are challenges to a termination of parental rights) is supported by “clear and convincing” evidence. The focus is not on the best interests of the child.

Inta Sellars, human services judge, observed that her office has a surveillance role: looking at the evidence that the county presents when the maltreatment determination is challenged. Counties with limited resources to transcribe all interviews have to rely on summaries of caseworker notes. In a legal sense, the judge has to sort out hearsay from direct evidence. A caseworker’s notes may not disclose the details that satisfy the standard of “clear and convincing” evidence.

Anita Fineday, chief judge for the White Earth Band of Ojibwe, discussed the struggle of caseworkers to grasp the cultural context of maltreatment reports. The judicial system at the White Earth Reservation is creating a children’s court. Children are always welcome in the courtroom. Judge Fineday invites children to talk to her in her chambers. This procedure provides information and insights that can reduce the margin of error.

Concluding Remarks

Professor Munro observed that public sector services in all developed economies have had to face new demands for accountability and transparency leading to the creation of complex audit systems. Professor Munro reminds us that while the audit system is concerned with efficiency, our professional commitment must be focused on effectiveness: to ensure that children are securely attached to persons who are capable of providing safety, nurturance, and well-being for the duration of childhood. Reconciling these demands of a child protection system is a formidable challenge.

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A full-length version of Dr. Munro’s talk, on which this summary version is based, is available online at www.cura.umn.edu/publications/Munro.pdf.

Would Reductions in Class Size Raise Minnesota Students' Test Scores? Evidence from Minnesota's Elementary Schools

by Hyunkuk Cho, Paul Glewwe, and Melissa Whitley

Policymakers, parents, school principals, and pundits are all concerned about how much, or in some cases how little, students learn in America's schools. Despite substantial research in recent years, much is unknown about the impacts of specific education policies on student learning. One education policy that has received much attention is reductions in class size. Intuitively, smaller classes should allow teachers to provide more attention to each student and to reduce time spent disciplining disruptive students, and thus should increase students' learning. Indeed, there appears to be a consensus among parents, teachers, and school administrators that small classes improve students' academic achievement, especially among elementary school students.

Yet this consensus is not supported by academic research, which has found conflicting evidence on the impact of class size on learning. The basic problem is that students in small and large classes may differ in many other ways. If one has data on these differences, a variety of statistical methods can be used to account for these differences. But if one does not have data on these differences, then almost all standard estimation methods will lead to biased estimates of the impact of class size on student learning.

Perhaps the best method to measure the impact of class size reductions (and many other types of education policies) on student learning is to randomly assign some children to small classes and other children to large classes, and compare the educational outcomes of interest across the two groups. Random assignment ensures that, on average, the two groups of students have the same observed and unobserved characteristics. In the United States, only one study has implemented this type of research on a large scale: Project STAR (Student/Teacher Achievement Ratio Experiment), which was conducted in Tennessee from 1985 to 1989.



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Early results from Project STAR suggested that students in small classes scored higher on mathematics

and reading tests than did students in regular-size classes. These results influenced policies in other states.

For example, California's decision to reduce class sizes in grades K–3 to less than 20, which was first implemented in the 1996–1997 school year, was directly influenced by the results from Project STAR. Also in the 1996–1997 school year, Wisconsin initiated a program to reduce class size in grades K–3 to less than 15. The U.S. federal government also became involved when it implemented the Class-Size Reduction Program in fiscal year 1999, which provides funds to states for hiring new teachers to reduce class size in grades 1–3.

Should Minnesota follow the lead of these other states and reduce class size in the first grades of elementary school? Even if reducing class size would increase test scores, class size reductions may not be a wise policy choice because class size reductions are very expensive. That is, there may be other policies that increase learning by an equivalent amount yet at a lower cost. California spent \$11 billion and Wisconsin spent \$463 million from 1996 to 2005 to attain their class size reduction goals. Before committing such large amounts of money, a clearer idea of the likely benefits in terms of child learning is needed. This article provides estimates of the likely effect of class size reductions in Minnesota, based on test score data from 1997–1998 to 2004–2005 for children in grades 3 and 5 in Minnesota public schools. The research presented here was supported by a Faculty Interactive Research Program grant from CURA.

A Review of the Literature on the Impact of Class Size on Learning

Ever since the publication in 1966 of *Equality of Educational Opportunity* (also known as the Coleman Report), social science researchers have attempted to estimate the influence of a variety of factors on student learning, including class size. Yet the research up to the mid-1990s was of variable quality because of inadequate data and serious estimation problems. The uneven quality of the research led to a lack of consensus on the impact of class size on learning. In a 1997 review of the literature from the late 1960s to the early 1990s published in *Educational Evaluation and Policy Analysis*, Eric Hanushek reported that, of 277 studies that attempted to estimate the impact of class size on student performance, 15% found an unexpected statistically significant positive effect (that is, increased class size increased



Intuitively, smaller classes should allow teachers to provide more attention to each student, thus increasing students' learning. However, studies have found conflicting evidence on the impact of class size on learning, as well as the degree of such impacts.

student performance), 13% found the expected statistically significant negative effect (increased class size decreased student performance), and the remaining 72% found no statistically significant effect whatsoever.

In the last 10 years, much more careful analyses have been done of the impact of class size on student learning. The best studies focus on removing or at least reducing likely sources of bias in estimates of that impact. Almost all sources of bias arise because class size is correlated with unobserved student, parent, or school variables that directly affect student learning. For example, parents who are very concerned about their children's education may be more likely to move to areas where schools have small classes, which would lead to a situation in which students in schools with small class sizes have, on average, parents who provide more support at home for their children's education. This will cause overestimation of the impact of class size reductions on student learning if estimation methods do not account for this relationship between class size and parental aspirations (which will be difficult to do if there are no data on parental aspirations or parental support at home, which is usually the case). The intuition here is that part of the positive association between small class size and learning is really caused by the fact that parents who make extra efforts for their children's education are also more likely

to enroll their children in schools with small classes. A second problem is that parents may enroll their children in schools that they perceive to be of high quality, thus increasing class sizes in schools perceived to be of high quality. If some or all of the school quality characteristics that parents use to form their perceptions are not in the data set, this behavior will lead to a situation in which schools with large class sizes also tend to be of better quality, which will cause underestimation of the impact of reductions in class size on learning.¹ A third problem is that educators may assign students to classes of different sizes depending on their abilities; estimates will be biased if student ability is not taken into account, and the direction of bias will depend on whether high-ability or low-ability students are assigned to small classes.

A number of research approaches have been used to overcome the problem of bias. The approach we chose is to employ multiple regression methods that use "instrumental variables." This requires an additional variable in the data set that affects class size but does not directly affect student learning. Caroline Hoxby used this

¹ Technically, the estimation problem arises when school quality characteristics that are not in the data influence parents' choices of schools for their children; if all school quality characteristics that influence parents' choices are in the data, standard multiple regression methods (explained below) would provide unbiased results.

approach in a study of public schools in Connecticut published in the November 2000 issue of *Quarterly Journal of Economics*. More specifically, she used an instrumental variable approach to exploit variation in class size due to year-to-year variation in births in each school's "catchment area" (the geographic boundaries that determine the assignment of children to specific public schools). The basic idea of this method is simple. The number of children born in a school's catchment area varies each year due to random events that determine when children are born. This random variation in births generates random variation in class size when those children reach school age and enroll in their neighborhood schools. This random variation in class size over time in the same school can be used to estimate the impact of class size on learning in each school; these estimates are based on variation within schools in class size, not variation across schools in class size. This method requires at least two years of data for each school because estimates are based on changes in class size over time within each school. Hoxby found no effect of class size on test scores in mathematics and reading among fourth-grade and sixth-grade students in Connecticut.

Estimates Based on Minnesota Data

Almost all of the data used in our research are publicly available from the Minnesota Department of Education's Web site. The most important data are test score data. Beginning with the 1997–1998 school year, Minnesota has administered the Minnesota Comprehensive Assessment (MCA) test to third-grade and fifth-grade students each spring, usually in March.² The MCA test consists of math and reading for both third and fifth graders, plus a writing test for fifth graders only. Each year, about 60,000 third graders and 60,000 fifth graders in approximately 900 schools in Minnesota take the test.

Test score data are publicly available for the eight school years from 1997 to 2005, but some schools do not have test scores available for all eight years because they did not exist for all eight years, they did not participate in the test in some years, or they had fewer than 10 students in grades 3 or 5 in a

² Beginning in 2004, the MCA test was expanded to higher grades. In 2006, the MCA test was revised and is now referred to as MCA-II. We use data only up through the 2004–2005 school year, and only for grades 3 and 5.

given year (in which case data are not publicly available to protect students' privacy). Because comparisons of unadjusted test scores are not very informative, our research uses test scores divided by the standard deviations of the distribution of students' scores for the regression analysis, as is done in almost all research of this type.

The demographic data available from the Minnesota Department of Education consist of the number of children in each grade by race, gender, eligibility for subsidized lunch, limited English proficiency, and special education status. As will be seen below, all of these variables have strong predictive power for student test scores.

Unfortunately, not all of the elementary schools in Minnesota can be used in the regression analysis. About 1–2% of the schools were dropped from the sample because demographic variables used in the regression are not available. Another 8–9% of schools were not included because they have fewer than 10 students in grades 3 and 5, and so test scores are not reported for privacy reasons. Another 7–8% of the schools were dropped because they did not have test score data for at least two years, which is essential for doing estimation with school fixed effects.

Finally, data on class size are not available from the Minnesota Department of Education Web site; the site includes total enrollment for each year, but to obtain class size information, total enrollment must be divided by the number of classes (or the number of teachers). This information is often available from a school's Web site or by simply asking parents whose children go to a given school, but information for past years is more difficult to obtain. To obtain the number of classes in past years, we simply called the schools to ask. Many schools were able to provide this information, but others were not. Missing data on the number of classes caused about 35% of the schools to be excluded from our analysis.

Fortunately, comparisons of schools with and without information on the number of classes in past years reveal no significant differences in any of the other variables. Table 1 shows summary statistics on enrollment and school level means for demographic characteristics, both including and excluding the schools with missing data on the number of classes (and thus missing data on class size). Examining the larger sample, the average school had about 74 students

in grade 3 and about 80 students in grade 5. About 7% of students in both grades were Black and 4% were Latino; about 82% were White. In each year, about one-third of children were eligible for a free or subsidized lunch.³ Approximately 6% of students had limited English proficiency, and 12–13% were enrolled in special education classes.

The descriptive statistics for the smaller sample, for which class size can be calculated, are almost identical to those of the larger sample, in terms of both means and standard deviations. This suggests that missing data on the number of classes in each school is random, so there is little cause for concern about selection bias. The average class size for grades 3 and 5 in each school was calculated by dividing grade enrollment provided by the Minnesota Department of Education by the number of classes for those grades. In the smaller sample, the average school has a class size of 22.4 in grade 3 and 24.4 in grade 5.

As mentioned above, parents, teachers, and school administrators usually agree that reducing class size has a strong impact on learning. What evidence is there from Minnesota to support this claim? The simplest way to examine this is to group schools by small and large class sizes and examine their mean test scores. This is done in Table 2.

When Minnesota's elementary schools are divided into two groups of equal size—those with class sizes that are less than the median and those with class sizes greater than or equal to the median—there is very little difference in the test scores of grade 3 and grade 5 students across the two groups. Indeed, counter to conventional wisdom, the test scores are slightly higher in the schools with larger class sizes, for both grades 3 and 5 and for both reading and mathematics. When schools are divided into three groups of equal size (bottom half of Table 2), among grade 3 students the middle group has higher reading and math scores, whereas among grade 5 students the group with the highest class sizes has the highest reading and math test scores.

Yet these simple comparisons are not particularly convincing because schools with different class sizes could vary in other ways. Multiple regression analysis offers a simple method to control for

³ Children from families whose income is less than 185% of the federal poverty line are eligible for reduced-price lunches, and children from families with incomes less than 130% of the poverty line are eligible for free lunches.

Table 1. Descriptive Statistics, by Grade, for Schools with and without Class Data

	Schools with demographic data and ≥ 2 years of test data		Schools for which there is also data on the number of classes	
	Mean	Standard Deviation	Mean	Standard Deviation
Grade 3				
Enrollment	73.7	43.4	75.9	41.3
Class size	—	—	22.4	4.7
White (%)	81.5	24.2	81.3	23.9
Black (%)	6.9	14.4	7.2	14.0
Latino (%)	3.8	7.5	3.8	7.3
Asian (%)	4.9	9.7	5.0	8.8
American Indian (%)	2.3	7.8	2.1	6.9
Male (%)	51.2	7.5	51.1	7.2
Eligible for subsidized lunch (%)	33.8	22.2	32.3	22.6
Limited English proficiency (%)	6.0	11.8	6.1	11.1
Students in special education (%)	11.8	6.5	11.8	5.9
Number of schools	922		502	
Grade 5				
Enrollment	80.1	58.3	79.8	45.7
Class size	—	—	24.4	5.4
White (%)	81.7	24.0	81.1	24.4
Black (%)	6.9	13.9	7.4	14.5
Latino (%)	3.4	6.6	3.5	6.8
Asian (%)	5.1	10.0	5.3	9.8
American Indian (%)	2.3	7.6	2.2	6.4
Male (%)	51.3	7.3	51.2	7.2
Eligible for subsidized lunch (%)	33.1	22.1	32.1	22.9
Limited English proficiency (%)	5.4	10.8	5.6	10.6
Students in special education (%)	13.5	6.5	13.4	5.8
Number of schools	895		482	

Note: These averages are calculated for all years from 1997–1998 to 2004–2005 for which data were available on a particular variable. Each school year is given equal weight.

differences in other *observed* variables. *Ordinary least squares (OLS) multiple regression* methods estimate the (linear) relationship between a “dependent” variable, in this case test scores, and one or more “explanatory” variables. If there is only one explanatory variable, OLS amounts to drawing a line with the “best fit” for a set of data points in a two-dimensional scatter plot graph. This method can be extended to two or more explanatory variables. The estimated relationship can be expressed in an equation where the dependent variable, call it “*t*” (for test score), is predicted by the sum of several explanatory variables, call them $x_1, x_2,$ etc. The impact of each x variable on t is measured by its coefficient, which is denoted by b . For example, when there are three x variables the equation is:

$$t = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + e,$$

where e (the “error”) is the difference between the value of t predicted by the equation and the actual value of t . OLS multiple regression produces estimates of $b_0, b_1, b_2,$ and $b_3,$ and if the estimation method does not suffer from any problems of bias (a very big “if”), these coefficients can be interpreted as measuring the causal impact of the x variables on t . Of particular interest is the x variable that measures class size; the associated b estimates the impact of class size on student test scores.

OLS estimates of the determinants of student test scores are presented in Table 3. These estimates have negative coefficients on class size, which suggests that increased class size reduces student performance in both reading and mathematics in both grades 3 and 5. Almost all impacts are statistically significant at the 5% level (the one exception is significant at the 10% level)⁴, and those combining across both grades into a single regression with a higher sample size yield coefficients on class size that are statistically significant at the 1% level. The coefficients on class size in Table 3, which range from -0.0040 to -0.0054, suggest that reducing class size by 10 students would increase test scores by about 0.04 or 0.05 standard deviations (of the distribution of student test scores), which translates to roughly 8 to 10 points

⁴ Statistical significance refers to the probability that the “true” b coefficient is zero. Statistical significance at the 5% level indicates that the estimated coefficient is sufficiently far from zero that the probability that the “true” value is zero is less than 5%. The analogous statement holds for statistical significance at the 10% or 1% levels.

Table 2. Comparisons of Test Scores by Class Size

A. Dividing schools by class size into two groups of equal size

		Class size < median class size (2)	Class size ≥ median class size (1)
Grade 3	Average math test score	1,510.9	1,512.1
	Average reading test score	1,500.7	1,500.9
Grade 5	Average math test score	1,507.3	1,518.8
	Average reading test score	1,545.0	1,554.9

Note: Median class sizes are 22.8 and 25.0 for 3rd and 5th grades, respectively. Class sizes less than 10 or more than 40 were excluded from the calculation. The number of students tested was used to weight each observation.

B. Dividing schools by class size into three groups of equal size

		Bottom 1/3 (1)	Middle 1/3 (2)	Top 1/3 (3)
Grade 3	Average math test score	1,509.2	1,517.5	1,507.7
	Average reading test score	1,497.0	1,508.6	1,495.9
Grade 5	Average math test score	1,504.3	1,510.1	1,523.6
	Average reading test score	1,541.0	1,548.0	1,559.2

Note: The cutoff class sizes are 21.0 and 24.5 for 3rd grade, and 23.0 and 26.5 for 5th grade. Class sizes less than 10 or more than 40 were excluded from the calculation. The number of students tested was used to weight each observation. The number of observations for each column is 1,017 and 964 for 3rd and 5th grades, respectively.

on the test. Although the direction of these impacts is intuitively plausible (unlike the results in Table 2), their size is quite small. Assuming that test scores follow a normal distribution (which is a reasonable approximation for these data), a student who is in the middle of the distribution (at the 50th percentile), will move only up to the 52nd percentile if his test score increases by 0.04 or 0.05 standard deviations. This is a small benefit for a decrease in class size by 10 students (which would be quite expensive to implement). Yet, as explained above, there are reasons to think that simple OLS results may be biased.

Before turning to results from other estimation methods, note that the coefficients on the other variables that are shown in Table 3 have intuitively plausible effects. Relative to White students,⁵ Black students (and to a lesser extent, American Indian students) perform

worse in both subjects in both grades, whereas Asian students perform better (especially in math). The performance of Latino students is not significantly different from the performance of White students after one accounts for differences in income (as measured by eligibility for a subsidized lunch) and proficiency in English. Male students have lower reading scores than female students in both grades. Low income, as indicated by eligibility for a free or subsidized school lunch, is associated with lower test scores, as is limited English proficiency (which presumably affects many Latino students), and greater numbers of students in special education is also associated with lower scores.

The two pooled regressions in Table 3 are regressions that combine the data from grades 3 and 5 into a single regression. The impacts (that is, the coefficients) of all variables were allowed to differ by grade, but for almost all variables, the differences by grade were statistically insignificant. Thus combining the data in this way will not yield misleading results, and it has the advantage of estimating the impact of class size more precisely (although the problems of bias discussed

⁵ There is no coefficient for White students in Table 3 because they are the “base group,” so that all race effects are measured with respect to that group. In effect, the coefficient on White students is set to zero. The same is true for female students. They are chosen as the base group (for comparison with male students), and thus the coefficient for female students is set to zero.

Table 3. OLS Estimates of Effect of Class Size on Math and Reading Test Scores

	Dependent variable = math test score			Dependent variable = reading test score		
	Pooled (1)	3rd grade (2)	5th grade (3)	Pooled (4)	3rd grade (5)	5th grade (6)
Class size	-0.0045 ***	-0.0054 **	-0.0040 *	-0.0040 ***	-0.0041 **	-0.0040 **
Black	-0.0050 ***	-0.0059 ***	-0.0038 ***	-0.0064 ***	-0.0067 ***	-0.0061 ***
Latino	-0.0008	-0.0017	0.0003	-0.0012	-0.0023	-0.0002
Asian	0.0052 ***	0.0045 **	0.0056 ***	0.0035 ***	0.0029 *	0.0038 **
American Indian	-0.0023 *	-0.0018	-0.0027 **	-0.0023 **	-0.0011	-0.0033 ***
Male	-0.0005	-0.0012	-0.0005	-0.0030 ***	-0.0036 ***	-0.0023 ***
Eligible for subsidized lunch	-0.0105 ***	-0.0072 ***	-0.0107 ***	-0.0102 ***	-0.0078 ***	-0.0102 ***
Limited English proficiency	-0.0051 ***	-0.0048 ***	-0.0053 ***	-0.0072 ***	-0.0064 ***	-0.0076 ***
Students in special education	-0.0073 ***	-0.0064 ***	-0.0087 ***	-0.0085 ***	-0.0082 ***	-0.0090 ***
R ²	0.48	0.40	0.54	0.60	0.56	0.64
Number of schools	526	464	433	527	464	438
Number of observations (an observation is one year for one school)	4,407	2,263	2,144	4,432	2,266	2,166

Note: The test score variable was normalized so that its mean is zero and its standard deviation equals one. These regressions also include dummy variables for each year (for any year, a dummy variable equals 1 for that year and 0 for all other years). Pooled regressions, which combine both grades, include grade dummy variables and include only schools for which observations were available for both grades.

*** Statistically significant at the 99% level of confidence, which means there is a less than 1% probability that the difference in scores is a result of chance.

** Statistically significant at the 95% level of confidence, which means there is a less than 5% probability that the difference in scores is a result of chance.

* Statistically significant at the 90% level of confidence, which means there is a less than 10% probability that the difference in scores is a result of chance.

above are not reduced by combining the data from both grades). The impacts of class size in the combined regressions are statistically significant at the 1% level. A final result, which is not shown in Table 3, is that the class size variable was interacted with the various demographic variables to see whether class size effects were particularly strong for certain types of students. For example, one might think that lower class size is particularly helpful to students from disadvantaged backgrounds. Yet it turns out that none of these interactions were statistically significant, which implies that reduced class size affects all students more or less equally.

The estimated impacts of these demographic variables are quite large compared to the impact of class size.

Indeed, since these variables are measured as percents (i.e., they range from 0 to 100), multiplying their associated coefficients by 100 gives the impact on a single student of belonging to a particular group. For example, the coefficient of about 0.006 for Black students implies that, after controlling for other factors in the regression, Black students test scores are about 0.6 standard deviations below the scores of White students. Returning to the estimated impact of reducing class size, the estimated coefficients of 0.0040 to 0.0054 imply that reducing the average class size for Black students by 10 students will increase their test scores by only 0.04 or 0.05, less than 10% of the gap between White and Black students. The coefficients on eligibility

for a subsidized lunch are even larger than those on Black students, ranging from 0.0072 to 0.0107, which implies that reducing class size by 10 students will close the gap between poor and non-poor students by only about 5%. Similarly, the estimates indicate that only about 10% of the gap between students with limited English proficiency and students who are more proficient in English can be removed by reducing class size by 10 students.

Yet OLS estimates are likely to be biased for several reasons, as explained above. This implies that one must turn to a method that avoids the bias that is caused by class size being correlated with unobserved factors that directly affect learning. This is in fact what Hoxby's method attempts to do by

Table 4. FE-IV Estimates of Effect of Class Size on Math and Reading Test Scores (instruments based on school-level estimates of enrollment trends)

	Dependent variable = math test score			Dependent variable = reading test score		
	Pooled (1)	3rd grade (2)	5th grade (3)	Pooled (4)	3rd grade (5)	5th grade (6)
Class size	-0.0047 **	-0.0028	-0.0066 **	-0.0040 **	-0.0058 **	-0.0024
Black	-0.0071 ***	-0.0074 ***	-0.0066 ***	-0.0075 ***	-0.0075 ***	-0.0073 ***
Latino	-0.0026	-0.0038 *	-0.0009	-0.0026 *	-0.0043 **	-0.0007
Asian	-0.0031 *	-0.0034	-0.0026	-0.0031 *	-0.0037	-0.0023
American Indian	-0.0057 ***	-0.0058 **	-0.0057 ***	-0.0065 ***	-0.0059 ***	-0.0071 ***
Male	0.0002	-0.0005	0.0009	-0.0017 ***	-0.0014 *	-0.0021 ***
Eligible for subsidized lunch	-0.0044 ***	-0.0045 ***	-0.0044 ***	-0.0042 ***	-0.0041 ***	-0.0042 ***
Limited English proficiency	0.0004	0.0009	-0.0005	-0.0043 ***	-0.0029	-0.0059 ***
Students in special education	-0.0083 ***	-0.0076 ***	-0.0090 ***	-0.0101 ***	-0.0101 ***	-0.0100 ***
R^2	0.10	0.09	0.12	0.17	0.16	0.17
Number of schools	526	464	433	527	464	438
Number of observations	4,407	2,263	2,144	4,432	2,266	2,166

Note: The test score variable was normalized so that its mean is zero and its standard deviation equals one. These regressions also include year-fixed effects. Pooled regressions include grade-fixed effects.

*** Statistically significant at the 99% level of confidence, which means there is a less than 1% probability that the difference in scores is a result of chance.

** Statistically significant at the 95% level of confidence, which means there is a less than 5% probability that the difference in scores is a result of chance.

* Statistically significant at the 90% level of confidence, which means there is a less than 10% probability that the difference in scores is a result of chance.

using “natural” variation in births over time within school catchment areas to predict variation in class sizes. The results from applying Hoxby’s method to the data from Minnesota are shown in Table 4. The estimated impact of class size on test scores is about the same as in Table 3, although slightly less precisely estimated (as indicated by the lower statistical significance). Of the four regressions that are grade-specific, the estimated negative impacts of class size on test scores are statistically significant at the 5% level for two regressions, grade 5 math and grade 3 reading. Both pooled regressions are statistically significant at the 5% level as well, and they show that reducing class size by 10 students would increase student

test scores by about 0.04 to 0.05 standard deviations (of the distribution of student test scores). The results for the other variables in the analysis are very similar to what they were in Table 3. Yet even though these impacts of class size are statistically significant, they are still quite small, which confirms the finding in Table 3 that large reductions in class size are unlikely to have strong impacts on students’ academic achievement.

Conclusion

Our research on class size in Minnesota suggests that reducing class sizes in elementary schools in Minnesota would have only very small impacts on student learning as measured by test scores. This may be surprising to many parents, but

it is consistent with recent research. Even among those studies that have found some correlation between class size and student learning, none predict that reductions in class size will result in large improvements in test scores—certainly not as large as the gaps in test scores found between White and Black students, between poor and non-poor students, and between students with and without limited English proficiency.

Because these reductions in class size are very expensive to achieve, our results imply that schools and parents need to look elsewhere for policies that can lead to sizeable increases in student learning. Exactly what such policies may be is an important topic for future research.



The authors' research suggests that reducing class sizes in elementary schools in Minnesota would have only very small impacts on student learning as measured by test scores, and that schools and parents should therefore look elsewhere for policies that can improve student learning.

Although the method used here suggests that class size reductions would have small effects on student learning, it is important to point out that the data were fairly limited and, more generally, almost any non-experimental method could lead to biased results. The best research method is probably a randomized evaluation, as was done in Tennessee's Project STAR. Education authorities in Minnesota should seriously consider undertaking a similar study in Minnesota. Although randomized studies of education policies have been very rare in the United States (whereas, in contrast, randomized studies are quite common in health research), the U.S. Department of Education's Institute of Education Sciences has recently become much more supportive of these types of studies.

Such research would not only provide a better assessment of the impact of class size, but more importantly it could be used to find more promising policies to improve the learning of all children in Minnesota's schools.

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For a more detailed discussion of the research on which this article is based, see "Do Reductions in Class Size Raise Students' Test Scores? Evidence from Population Variation in Minnesota's Elementary Schools," by Hyunkuk Cho, Paul Glewwe, and Melissa Whitler, Department of Applied Economics, University of Minnesota. For a copy of the paper, contact Paul Glewwe by e-mail at pglewwe@umn.edu or by telephone at 612-625-0225.

Lectures on Emerging Issues in Soil and Water

April 12

The role of geospatial technology in land use and the threats to soils posed by urbanization and agriculture will be the topics of the Fifth Annual William E. Larson and Raymond R. Allmaras Emerging Issues in Soil and Water Lectures, to be presented on April 12, 2007 from 2:00–4:30 pm in room 335 Borlaug Hall at the University of Minnesota. The lectures are cosponsored by CURA, and are free and open to the public.

Dr. Gary Petersen, distinguished professor emeritus of soil and land resources in the Department of Crop and Soil Sciences at Pennsylvania State University, will discuss “Geospatial

Technologies in Land Use Decision Making.” Petersen will analyze trends in land use and their consequences for farmland, the environment, and the socio-economic structure. He will also consider how geospatial technologies such as remote sensing, geographic information systems (GIS), global positioning systems (GPS), visualization, and web-based modeling and dissemination can assist in land-use decision making.

Dr. Ronald Amundson, professor in the Division of Ecosystem Sciences at the University of California at Berkeley, will consider the question, “Are Soils Endangered?” Amundson

will discuss human-induced changes in soil produced by urbanization and agriculture during the last 150 years, including GIS-based analyses of soil diversity that show many soil types in the United State are endangered, and a handful are extinct. The lecture will describe the methodology for characterization of extinct and endangered soils, as well as the need to preserve landscapes across a broad spectrum of climate, geology, and landform age.

For more information, contact Dr. Satish Gupta at sgupta@umn.edu or 612-625-1241.



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