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Reforming Teacher Contracts: A Look at the Impact of Q Comp on Student Achievement in Minnesota



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University Printing Services

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The Center for Urban and Regional Affairs (CURA) is an applied research and technical assistance center that connects the resources of the University of Minnesota with the interests and needs of urban communities and the region for the benefit of all.

The *CURA Reporter* is published 2–3 times annually to provide information about CURA’s programs, projects, and publications. Subscriptions are free upon request at z.umn.edu/subtoreporter.


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This publication is available in alternate formats upon request.

 Printed with agribased ink on recycled paper, including 20% post-consumer fiber.

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Reforming Teacher Contracts: A Look at the Impact of Q Comp on Student Achievement in Minnesota

By Elton Mykerezzi, Aaron Sojourner, and Kristine West



Photo © Steve Schneider, 2007.

Adoption of Minnesota's pay-for-performance teaching bonus program Q Comp leads to an additional month's worth of learning, on average, in reading scores.

Abstract: Until recently, teacher employment and pay across the United States was strictly determined by education and experience, even though research shows that teachers with similar credentials and experience vary widely in their ability to influence student outcomes. As a result, there has been a surge in interest nationally in "pay-for-performance" contracts that tie pay to various measures of performance. Critics of pay-for-performance, often including teacher unions, raise concerns about incentives to narrow curricula (aka "teaching to the test") and adverse effects on teacher collaboration, among others.

Minnesota's Q Comp is one of the nation's largest and longest-lasting pay-for-performance programs; it delivers reform via a voluntary "grantor-grantee" format that ensures political feasibility. Districts design alternative contracts with their unions, then propose them to the state for extra funding. We studied the effect that adoption of Q Comp in Minnesota districts had on student achievement growth and found program adoption leads to an additional month's worth of learning, on average, in reading scores. Similar gains were observed in math scores, but with less statistical precision. We found no notable evidence of student or teacher movements

in response to the program, nor any significant evidence of "teaching to the test." We concluded that the program increased test scores by providing incumbent teachers with the incentives and tools to adjust their practices in ways that increase test scores. Gains were obtained at relatively low cost, so the program is cost effective. However, the size of the gain was not sufficiently large for such voluntary pay-for-performance to be relied on as the only tool for improving education quality. A well-designed "grantor-grantee" type pay-for-performance program can be a valuable tool in policymaker's arsenals, for improving education quality.

In the United States, teacher contracts have long mandated that compensation and other personnel decisions be either strictly or heavily based on teacher education and experience. This “steps and lanes” approach references the two-dimensional salary schedule at the heart of most teacher contracts. Recent research highlights that teacher effectiveness (typically measured through student outcomes) varies substantially even within cohorts of teachers of similar education and experience. This finding has led to a surge in the design and implementation of policies that tie teacher compensation and other personnel decisions to factors other than education and experience.

Minnesota’s Q Comp is one of the nation’s largest and longest-lasting programs to, in part, implement departures from traditional teacher contracts. We studied the performance of the program with the hope of understanding whether or not the reforms implemented through Q Comp helped increase student test scores. (Note: We studied the effects on test scores because they are readily available, quantitative, and have unambiguously desirable outcomes. We do not mean to suggest that standardized test scores are the *only* relevant output of an educational system.)

Background and Significance

Minnesota has a rich history of educational reform, and efforts to introduce changes to teacher contracts predate Q Comp. Significant state-wide changes started to appear in the early 2000s. Legislative change in 2002 made it possible for districts, in collaboration with teacher unions, to design pilot compensation programs that augmented the steps and lanes approach and made use of alternative measures of performance. Importantly, these reforms were implemented through a “grantor-grantee” mechanism. The grantor (in this case, the state) set parameters for what is considered acceptable reform, and the grantees (the districts) designed plans that fit within the scope of the program in exchange for extra funds. Five districts applied to be part of this early reform effort, and in 2003 they started participating in the program, which offered an annual increase of \$150 per student in funding. The funds were offered in return for adopting some elements of what would eventually become Q Comp. Additionally, in 2004, all schools in the Waseca district and three Minneapolis schools started

participating in the Milken Foundation’s Teacher Advancement Program (TAP).

Q Comp became law in 2005 with bipartisan support. It maintains the grantor-grantee structure of the 2003 pilot and some of the definitions of “performance,” but it also draws heavily on TAP for defining what reforms are acceptable and how to measure performance. Under Q Comp, districts are invited to design reforms that satisfy certain criteria in exchange for \$260 in additional funding per student each year. Because the criteria that Q Comp-eligible contracts need to satisfy were, to a large extent, inspired by those used in TAP, sites that were participating in TAP were automatically enrolled into Q Comp, while the five districts participating in the 2003 pilot were given the option to modify their contracts to meet Q Comp requirements or to continue with their existing programs and receive \$150 per year, until 2009 (instead of \$260).

Once Q Comp was taken to scale, traditional public school districts and charter schools state-wide began applying to the program. In its first official year, 2005, nine districts applied to Q Comp; all adopted. In 2006, 38 more districts applied, of which 29 adopted and 9 failed to adopt. Of all 361 districts in the state in 2006, 42 were participating in Q Comp, 9 were rejected, and 310 had not applied. This second year of the official program had the largest application and adoption cohorts. By 2009, the final year of our achievement data, 56 districts (16%) were participating, 20 (5%) had previously applied but were not participating, and 281 (79%) had never applied.

Q Comp has several attributes that make it an interesting policy experiment. First, the program is voluntary (districts chose to apply) and somewhat selective (the state could choose not to fund proposals). Q Comp was adopted by a sizable number of districts, over multiple years, while some districts were rejected. This structure allows us to separate the impact of the program itself from other possible explanations (generally a difficult thing to achieve without an experimental design). For instance, consider a case where all districts adopt in the same year. It would be impossible to determine if any change in test scores was because of the program or because of something else that happened in the same year to encourage applications to Q Comp. Also, because some districts that wanted to join the program were

unable to do so, we could rule out the possibility that it is the intent of an ambitious administration to “shake things up” that matters and not the reforms that come with Q Comp.

Second, the program is large and was implemented as a permanent (or at least long-lasting) regime. This is important, because it may take time for teachers to adjust to the new incentives and take advantage of the professional development opportunities. Experiments are generally considered superior to secondary data analysis for dealing with confounding factors in program evaluation, but because they are short-lived, they trail large policy experiments such as Q Comp in terms of external validity and generalizability.

Also, as noted, the program follows a grantor-grantee structure, where the district (grantee) first comes up with a proposal that has the support of the administration and teachers (represented by the union) and then proposes it to the Minnesota Department of Education (grantor), which, in turn, ensures that the proposal is within required reform parameters. This structure ensures that reform is both feasible and that it adheres to the intent of the legislation that made it possible in the first place. It is perhaps due to these desirable features that this grantor-grantee format is now used by large federal programs, such as the \$1.6-billion Teacher Incentive Fund and the \$4.4-billion Race to the Top program. Q Comp presents the first opportunity to evaluate an instance of such an approach to teacher labor market reform.

The state mandated that, in their applications, districts specify the bonuses each teacher is eligible to earn for three types of criteria:

1. the formal classroom-observation process;
2. school- or district-wide goals for student achievement usually on standardized tests;
3. quantifiable goals negotiated within the school (between administration and teachers) for student achievement defined at the teacher, team, or grade level but not usually based on standardized tests.

For classroom observations, the state encouraged districts to use the Danielson Framework for Teaching, the most widely used evaluation rubric nationally, and to conduct at least three

observations per year using a trained evaluator and with pre- and post-observation conferences. Teachers are rated on measures of planning and preparation, classroom environment, professional responsibility, and instructional practice. Depending on the district, the evaluator is the principal or another administrator, a peer, or a hired consultant (e.g., senior teacher from other districts or retired teacher).

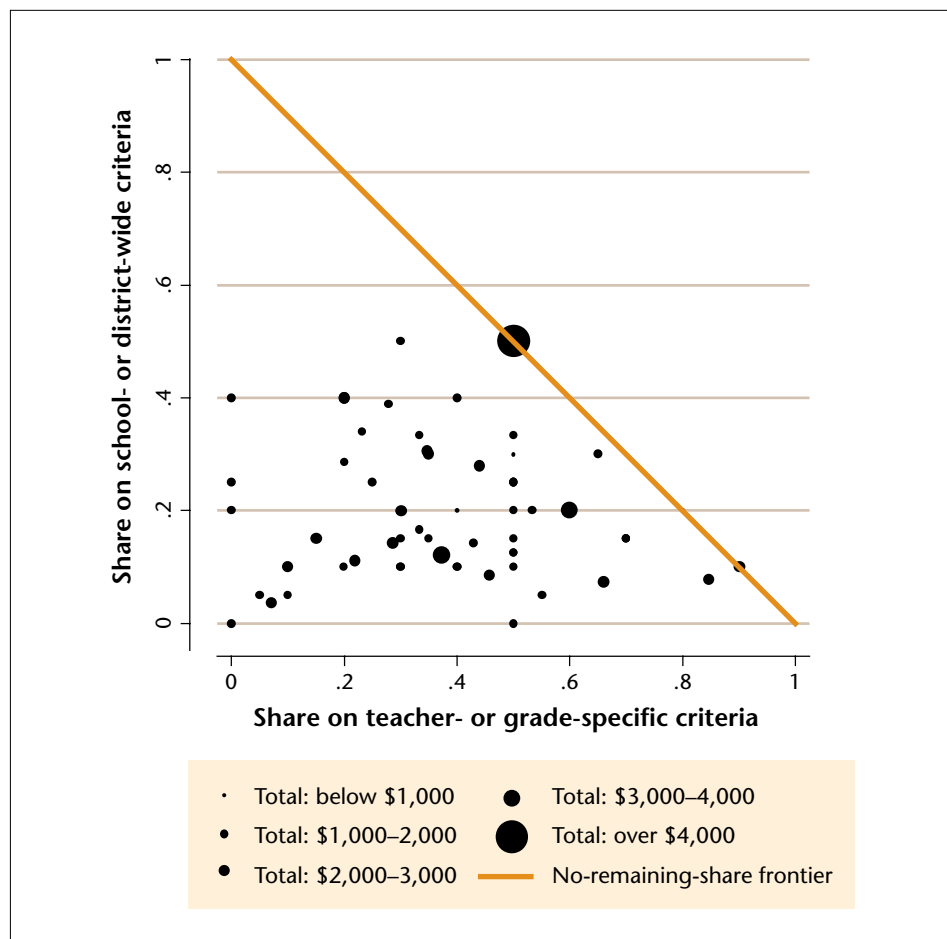
Bonuses for school- or district-wide goals tied to standardized tests would be based on specific objectives laid out in the initial Q Comp application, and/or updated in annual reports to the Minnesota Department of Education (MDE) prior to the start of each school year. These are awarded to all teachers in the school/district if the goals are met, and to no teachers otherwise.

Individual teacher or small team bonuses were typically linked to goals that were set and measured in the context of a complementary management practice, which MDE refers to as “job embedded professional development.” Specifically, with the support of their administration, teachers form professional learning communities. Here, teachers collaborate on selecting performance targets that form the basis for Q Comp’s individual or small-group bonuses and help each other achieve those targets. They meet regularly to analyze classroom practice, to learn new instructional strategies and tactics, to field-test them in the classroom, and to report the results to each other.

Across Q Comp districts, the average bonus available to teachers tied to each of these criteria was \$1,107, \$243, and \$850 per year, respectively. Classroom observations had the most stakes tied to them. School-wide goals based on standardized achievement tests had the least.

There was a lot of variation around these averages. Figure 1 shows the wide variety of programs adopted; the size of the dot indicates the total amount each teacher was eligible to earn, the share tied to teacher or grade-level goals is along the x axis, and the share tied to school- or district-wide goals is along the y axis. The distance from the frontier measures the amount tied to the formal observation cycle. For example, the small dot at the origin represents a district that offered a bonus of between \$1,000 and \$2,000, none of which was tied to teacher or grade-level goals, or to school- or district-wide goals, thus all of it was tied to formal observations.

Figure 1. Variety of Pay-for-performance Bonuses Offered by Q Comp Districts



Alternatively, the large dot in the middle of the frontier represents a district that offered a bonus of more than \$4,000, half of which was tied to teacher or grade-level goals, half of which was tied to school- or district-wide goals, and none of which was tied to formal observations. The key point is that districts that adopted Q Comp came up with a large variety of contract designs.

Questions

We attempted to answer two questions:

1. **Did Q Comp adoption cause growth on student test scores that would not have been realized in its absence?** Increasing student achievement is the primary purpose of most recent reforms, so Q Comp’s impact on the path of student test scores is a question of primary interest.
2. **What were the mechanisms that produced the gains?** Q Comp is a large change and could operate through several channels. We examined if changes in test scores were explained by:

- (a) adopting districts attracting better students,
- (b) adopting districts simply getting extra money,
- (c) adopting districts attracting different kinds of teachers,
- (d) incumbent teachers in adopting districts changing practices, or
- (e) assessment-specific gains (often indicative of what is referred to as “teaching to the test”).

The answer to the second question is important because the different channels have very different implications. If adopters experienced better outcomes because the program attracted better students (option *a*), then there is no average gain across all students, just a reshuffling, with the potential for widening achievement gaps and little/no overall gain. Next, adopting districts got extra money, and that fact alone could bring about positive change (option *b*). If the additional dollars explained the effect, the implication would be that it is not necessary to design elaborate labor-market reform to achieve gains, just increase budgets.



Gains that districts had in standardized test scores after implementing Q Comp do not seem to be connected with teachers “teaching to the test.”

Clearly, explanation *d* whereby the reform provides incumbent teachers with the tools and incentives needed to change their practices in a way that achieves higher test scores, is the state’s best-case scenario. Explanation *c* might be equally desirable to the state, but only under certain circumstances. Explanation *c* works through differential selection of different types of workers into teaching positions. Presumably, individuals who are able to thrive in a high-stakes environment will be more likely to be drawn to teaching positions that have some performance stakes attached. Explanations *c* and *d* may be equally desirable from an overall policy perspective, depending on whether the “differential selection” is into the State’s teaching force, or a mere reshuffling of existing teachers across the Q Comp and non Q Comp schools. To the central authority (MDE in this case), it may not matter if scores increased because of differential selection into the teaching force or if the reform gave incumbent teachers the tools and incentives to approach their jobs differently.

If explanation *e* is at play, in practice, one would expect the program to initially reshuffle existing teachers. However, with growing coverage and tenure of Q Comp, all differential selection would eventually have to occur into the teaching force. In other words, pay-for-performance regimes, such as Q Comp, would have to become an expected, non-trivial, and widespread component of teacher pay in order to be reflected in the occupational decisions of young college students.

Explanation *e* underscores one of the most frequent objections to teacher labor reform that ties personnel decisions to student test scores. The idea is that, in order to increase test scores, teachers may either narrow the curriculum to focus heavily or explicitly on topics and skills that are directly tested and/or spend time teaching test-taking skills/techniques rather than substance. If the curriculum were narrowed, observed gains in test scores would represent an actual increase in knowledge, but at an unknown cost to other skill/knowledge that is not

directly tested. This can, to some extent, be mediated by designing better tests. Effort put into merely improving test-taking skill rather than subject-matter knowledge, on the other hand, generates relatively unproductive test score gains.

Methods and Results

To answer each question, we used the test score history of all Minnesota students in grades 3 through 8 at any point between 2003 and 2010. This includes full student histories of Minnesota Comprehensive Assessments (MCA) reading and math scores, as well as full student histories of Northwest Evaluation Association’s (NWEA) Measures of Academic Progress (MAP) when available.

The use of two separate assessments is important because they complement each other well. The MCA is used by all districts, but it is also high stakes for teachers and administrators in ways that are not related to Q Comp. Since this is the metric that is generally used for accountability to the state and under

the No Child Left Behind Act, schools already may have strong incentives to raise MCA scores and it could be subject to “teaching to the test” and other less-than-productive practices (explanation *e*). MAP is available only in districts that purchase it, so it does not have the widespread coverage that the MCA does, but it is used only as a diagnostic tool, so it is inherently a low-stakes assessment and more reliable in that sense.

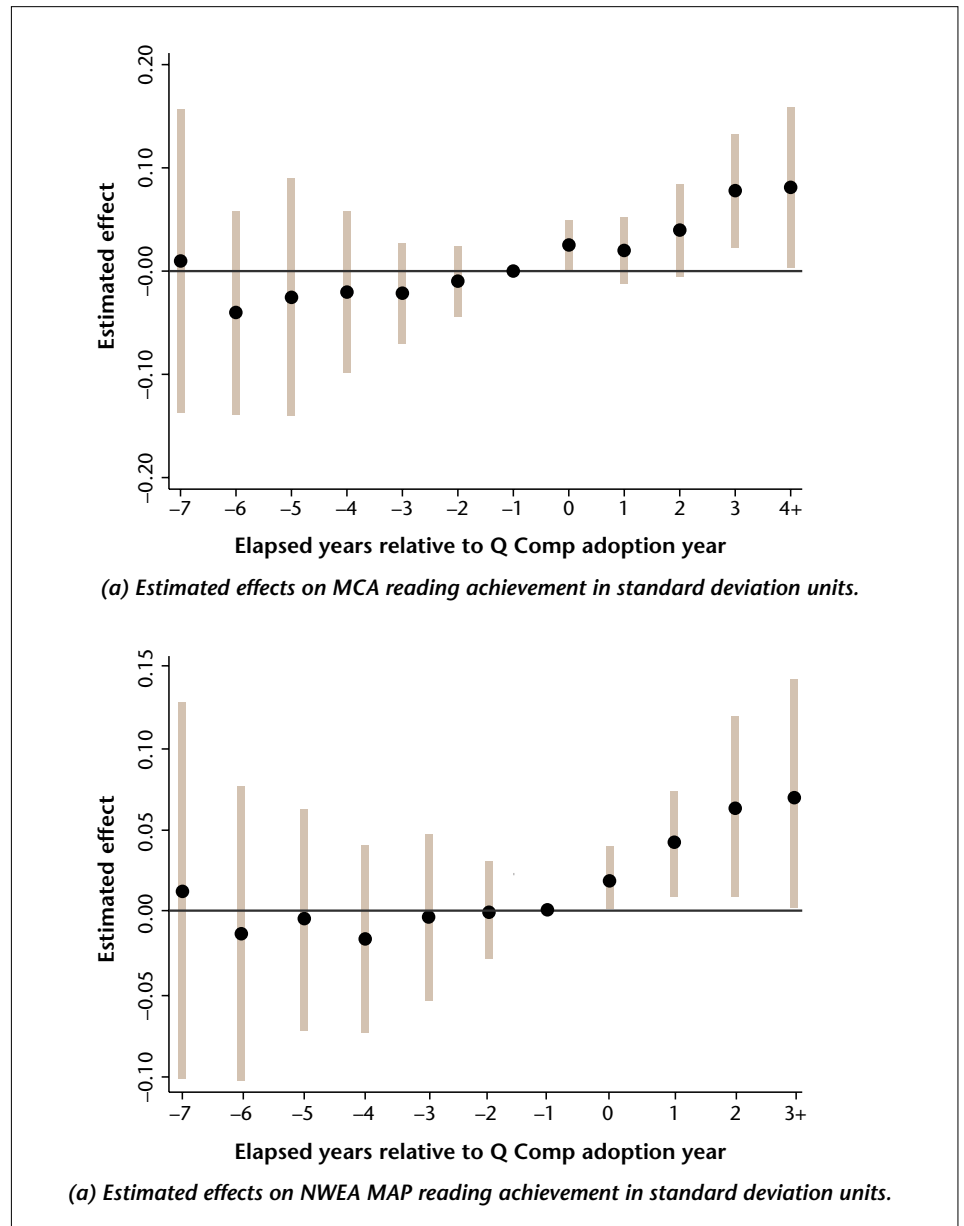
To answer the first question of “Did Q Comp adoption cause growth on student test scores that would not have been realized in its absence?” we then compared the test score histories of students whose districts adopted Q Comp at some point after the student took his or her first test, to the histories of similar students but whose districts never adopted Q Comp, and then to the test score histories of students whose districts attempted to adopt Q Comp but were unable to do so.

One of the most important concerns with evaluation of programs like Q Comp, that are voluntary, is that those districts that chose Q Comp are not randomly chosen. They made a deliberate effort to adopt a novel labor reform system. Such districts that are willing to put effort into reform, and able to successfully collaborate with their teachers (represented by the union) to design and implement this reform have demonstrated inclinations and capabilities that may not be present in other districts. Adopting districts may also be taking other measures to improve their scores, and Q Comp may only be a part of their overall improvement plan. If this were the case, it could be easy to mistakenly attribute higher growth in these districts, that may be due to a variety of factors, to Q Comp alone.

To rule out this possibility, we compared data on Q Comp and non Q Comp districts before and after adoption of Q Comp. For our evidence to be reliably interpreted as a Q Comp effect, we would have to find that Q Comp districts do not start to look any different from all other districts in the state until *after* they adopt the program.

Figure 2 presents highly reliable evidence that Q Comp caused higher test score growth in districts that adopted it. To produce Figure 2, regression techniques have been used to re-align student test score data for all students in the state in such a way that sets the year-to-year growth of all non Q

Figure 2. Differences Between Districts Adopting Q Comp and the State as a Whole by Year Relative to Adoption (Reading Scores)



Comp districts to zero, thus representing it on the horizontal axis. Test scores for Q Comp and non Q Comp districts are also fixed to be the same (and set to zero) on the last year prior to adoption. Differences in test score growth patterns between Q Comp districts and the rest of the state are then represented by the dots for each year, before and after adoption of Q Comp. Year 0 is the adoption year, negative numbers indicate years prior to adoption, and positive numbers indicate years into the program.

There are three plausible scenarios related to the effects of Q Comp: (A) districts that chose Q Comp were similar to those that didn't, but Q Comp had

no effect; (B) districts that chose Q Comp were already making other efforts to improve, so growth in these districts is really a continuation of pre-existing overall effort, not due to Q Comp per se. This scenario is often mistakenly interpreted as a program effect if one is not careful to look at relative growth in test scores before and after adoption; (C) districts that chose Q Comp were similar to those that didn't, but once they adopt they experience higher growth (most likely due to Q Comp). This scenario can be reliably interpreted as evidence of a Q Comp effect.

Under scenario A, the graph would show dots that overlap the horizontal axis throughout. Under scenario B the

dots would form a line that approaches the horizontal axis from below, crosses it at “-1” and continues to grow at about the same rate in post-adoption years. Our actual results (Figure 2) show that before adopting Q Comp, those districts that end up adopting look no different than the rest of the state, on average. The lines around the dots in Figure 2 represent statistical bounds that reflect margins of error. Only in cases when the line does not cross the horizontal axis are we reasonably certain that Q Comp districts are performing differently than the rest of the state. Figure 2 shows that this is nearly always the case after adoption, and never the case before. We thus conclude that the program did make a difference in increasing reading scores in adopting districts. We found the average size of the effect to be about one month’s worth of typical student learning.

We also found results that look relatively similar in Math, but the statistical margins of error were higher, so we are not able to interpret those as conclusive evidence of a Q Comp effect.

In terms of mechanisms, the evidence suggests that the program brought about reform that changed the practice of incumbent teachers. We use data on student demographics and expenditures by districts each year to rule out the possibility that the effect that we observe in Figure 2 is driven by movements of students in pursuit of, or away from Q Comp districts, or that the effect is simply explained by the fact that Q Comp comes with an additional \$260 per pupil each year. We also include teacher flows between districts in our analysis to test whether Q Comp changed the composition of participating districts’ teaching force in any way. We do not find evidence that Q Comp caused differential movements in teachers by experience or education levels, thus we conclude that teacher selection into Q Comp districts was not a factor in explaining the result.

Additionally, districts that use both assessments MCA and NWEA-MAP were able to choose to tie their incentives to either assessment in either subject (Math or Reading). We performed additional tests to see if districts experienced disproportionately high gains only on the incentivized test, rather than in the incentivized subject (across both assessments) and found no evidence of such. This implies that there is no evidence of less/unproductive practices, such as “teaching to

Q Comp’s Five Components

1. **Pay for performance:** *The state encouraged districts to tie bonuses to individual/small-team goals, school- or district-wide goals, and each teacher’s formal classroom observations. Districts varied in the amount allocated to each of these.*
2. **Classroom observations:** *The state encouraged districts to model their formal observations on Charlotte Danielson’s Framework for Teaching. Observation cycles included pre- and postobservation conferences. All observations were done by trained evaluators, often a school administrator.*
3. **Job-embedded professional development:** *The state encouraged districts to reform professional development using the model of professional learning communities, which provide time to devote analysis of student data, peer observation, and coaching.*
4. **Career ladders:** *The state encouraged districts to provide teachers with opportunities for taking different career roles and accelerating their advancement, through mentoring, involvement in program design and leadership roles.*
5. **Alternative compensation:** *The state asked each district to make a commitment to move away from basing pay increases on longevity and coursework. This component was often the most vague as details were left to future labor-management negotiations.*

We attempted to disentangle these components (and even the impact of the various bonuses within the pay-for-performance component). In the end, there was no clear story about which component, or combination of components, was most important. The results reported here treat Q Comp as a single reform that encompasses different combinations of the five components in each of the adopting districts.

the test.” We concluded that Q Comp had its impact primarily by changing incumbent teachers’ practices, resources and incentives.

How does Q Comp change teachers’ actions? Q Comp introduced incentives to pay closer attention to measureable outcomes but also the capacity to do so in practice. Teachers were given more time to consult with peers within professional learning communities and increased feedback by both administrators (in high-stakes observations) and colleagues (in low-stakes observations). While it is apparent that the program changed teaching practices, it is less obvious which particular part of Q Comp was most important, or even if the multiple components of the overall reform package can work separately. Because the program encouraged the introduction of reform as a bundle, it was impossible to evaluate the relative merits of the different kinds of incentives and the various reform elements.

Conclusions

Our study showed with high reliability that the implementation of Q Comp had a positive effect on student test scores, at least in reading. Two points about Q Comp are noteworthy:

The effect is relatively small, so one cannot rely on Q Comp as the sole tool for making substantial improvements in test scores or substantial reductions (or eliminations) in achievement gaps across student populations.

The program was highly cost-effective. To put this in perspective, the cost of educating one student in Minnesota over nine months is around \$10,000. So, to obtain the growth caused by Q Comp by simply adding resources to schools (even if we were to ignore the practical problems of adding one month to the school year), the cost would still be more than \$1,000. Q Comp gets the same result with \$260. Thus, efforts that would reallocate Q Comp’s revenue to general funds and do

away with the program's structure are likely ineffective.

Overall, we believe that Q Comp is an important tool in education policy in Minnesota. One of the shortcomings of the study was that it could not pinpoint the relative importance of the different types of incentives and the various reform elements. However, because Q Comp's framework is sufficiently flexible and able to incorporate diverse reforms into contracts, in politically feasible ways, we suggest that it can be used to deliberately pilot candidate interventions for future study.

This study also sheds new light on various matters of importance to education policy in general. Designing labor market reform for teachers is a very complex task, from both a theoretical perspective and in terms of practical application and political feasibility. We believe that the "grantor-grantee" format used by Q Comp overcomes many difficulties, but does impose some limits. For instance, one of the most important objections to pay for performance based on student test scores is the possibility that teachers will teach to the test or, as has sometimes been the case (e.g., in documented incidents in Chicago and Atlanta), intentionally manipulate test scores. One possible method to mediate this would be to attach bonuses not only to test scores, but also to peer and/or principal observations of teachers' in-classroom practice. Observations, on the other hand, come with added subjectivity; the need for observers raises questions of reliability across observers. The optimal mix of objective and subjective components of evaluation is not obvious, and can vary based on setting.

Another issue relates to an inherent tradeoff between strength of incentives and collaborative work. Economists believe that tournament-style competitions for bonuses, where agents compete for set prizes, are able to deliver the strongest incentives. However, if collaboration among teachers is important to productivity, tournament-style incentives or individual bonuses could prove unproductive by limiting incentives to collaborate. A solution to this might be to offer group bonuses to meaningful teams of teachers. Group bonuses, however, introduce a "commons" problem, in that the likelihood of a bonus depends less on a teachers' own efforts, and more on those of others; the

larger the group, the weaker the added incentive for each teacher. The optimal mix of individual and group bonuses, size of group, whether collaboration is meaningful within teachers of the same grade, subject or both are also questions that do not have easy answers. Teachers of the same subject can collaborate on techniques or content development, but teachers of the same group of students can synchronize curricula (e.g., to make sure that the math teacher covers content needed to make progress in science class).

The "grantor-grantee" model has a central authority (state or federal funder) that sets some boundaries on the types of reforms that are acceptable, but ultimately delegates the design details on the desired mix of stakes tied to standardized test scores, other student outcomes, or in-class observations of teacher practices to the district. The district also chooses the extent to which individual or group bonuses are awarded, and chooses how to determine group sizes and settings. Because districts are likely to have far better information on their own settings than a central designer (at a state or federal agency), they might be able to make choices that work better for them. In Minnesota, for example, some of the bonuses were operationalized through the Professional Learning Community structure, which was part of professional development practice in many districts statewide. Local design also ensures political feasibility, which is not to be taken for granted for a centrally designed reform package.

Local design, however does have its drawbacks. Local authorities may be able to design incentives and set targets that are not as challenging as they would be under central design, making sure that more teachers get the bonus. This would weaken incentives. This is where the grantor can play a role, by setting reform parameters that make it less likely for local designers to propose weaker incentive schemes, and by overseeing implementation and updating of reform packages from the viewpoint of an advocate of a strong incentive system.

Our study showed that Q Comp gave Minnesota districts an opportunity to design reform packages and districts did, in fact, choose a wide variety of designs. With all things considered, the widespread adoption of the program and

impact on test scores, shows that the policy design is capable of producing a positive cost-effective net effect on achievement.

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The research upon which this article is based was supported through a grant from CURA's New Initiatives program. These grants support projects that are initiated by faculty, community organizations, government agencies, or students and that fall outside CURA's existing program areas.

RCP Selects Carver County as Next Community Partner

The Resilient Communities Project (RCP) has selected Carver County in the Twin Cities west metro area as its partner community for the 2015–2016 academic year. The partnership will bring the expertise of University of Minnesota faculty and hundreds of graduate and professional students to sustainability-related projects identified by Carver County and its partners, which include the Carver County Community Development Agency; SouthWest Transit; Independent School District 112; and the Cities of Victoria, Chaska, and Watertown.

“Carver County and its partners are very pleased to be selected for this partnership with the University of Minnesota,” said Carver County Board Chair Randy Maluchnik. “The County’s proposal leverages long-standing relationships between partner agencies and communities in Carver County to address diverse challenges that result from the growth we are experiencing. The results University of Minnesota students will produce through this partnership will benefit our community for years to come.”

RCP organizes yearlong partnerships between the University of Minnesota and Minnesota communities. Each academic year, RCP chooses a city or county partner through a competitive request-for-proposal process, helps identify potential projects based on community-identified sustainability issues and needs, and matches those project needs with University of Minnesota courses.

The partnership provides the community with access to students from a wide range of programs and disciplines—from architecture, planning, and engineering to business, environmental sciences, and the humanities. Through work with RCP, the community is able to enhance its own capacity to advance sustainability. Students who participate in RCP projects benefit from real-world opportunities to apply their knowledge and training and bring



Courtesy of Carver County

Carver County’s proposal includes partnerships with the Carver County Community Development Agency; SouthWest Transit; Independent School District 112; and the Cities of Victoria, Chaska, and Watertown

energy, enthusiasm, and innovative approaches to address local issues.

“We’re very excited about our upcoming partnership with Carver County,” said RCP director and Humphrey School of Public Affairs associate professor Carissa Slotterback. “The enthusiasm of staff from the County and its partner cities and organizations as well as their clear commitment to advancing sustainability and resilience will ensure a productive and enjoyable collaboration that will benefit Carver County and provide community-engaged learning opportunities for University of Minnesota students.”

Carver County’s winning proposal identifies 34 potential projects, including enhancing bike and pedestrian facilities near park-and-ride locations, creating safe routes to schools, providing school-based mental health programs, developing alternative energy

sources, evaluating storm water reuse opportunities, developing employment opportunities for ex-offenders, assessing the needs of adult learners, expanding school readiness and early childhood programs for high-risk populations, engaging with new immigrant groups and communities of color, crafting an eco-tourism marketing plan, exploring opportunities for preservation of a historic farmstead, and evaluating the County’s aquatic invasive species program.

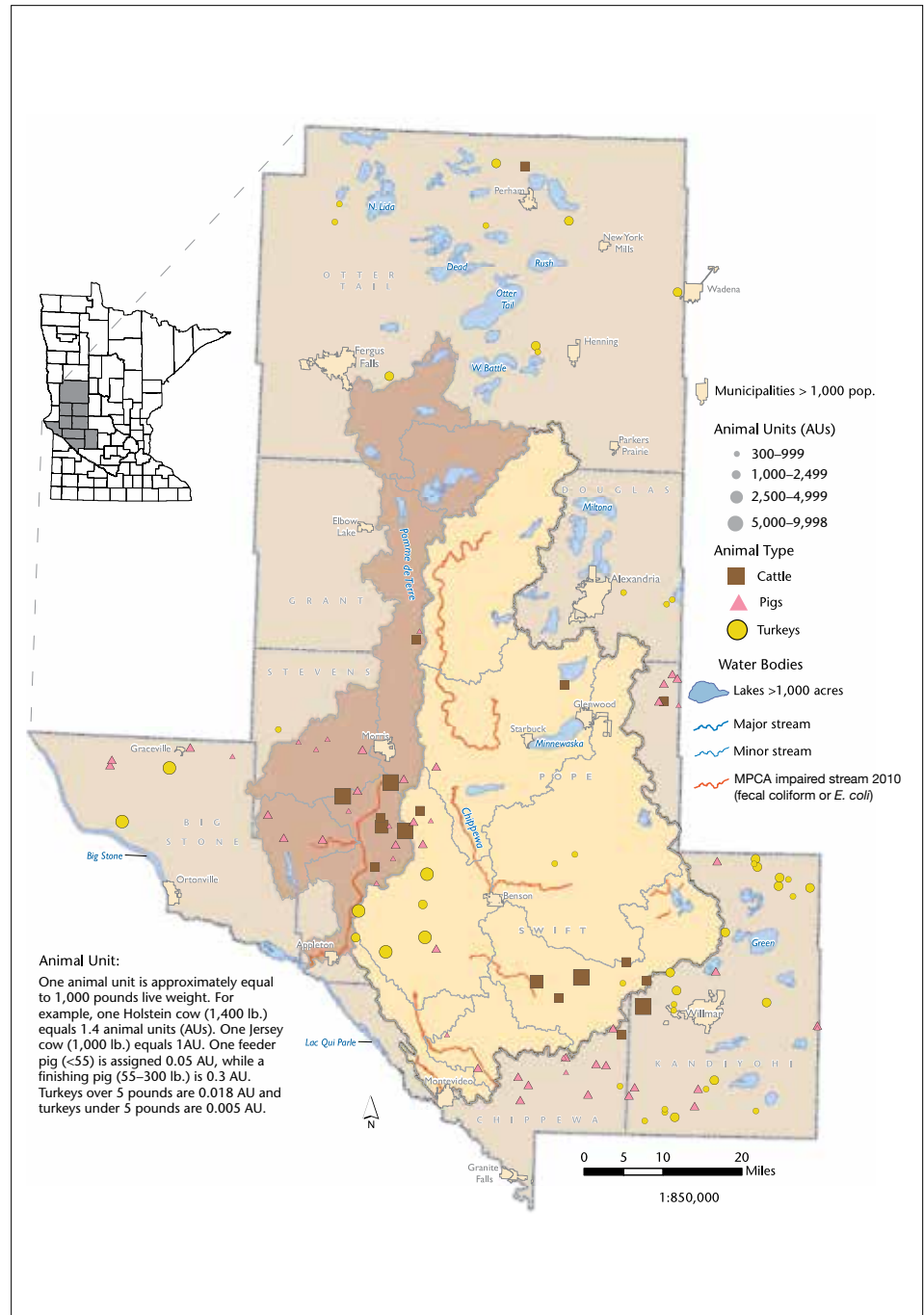
Over the next few months, staff from RCP and from Carver County and its partners will begin to define the scope of the individual projects and match them with courses offered at the University in fall 2015 and spring 2016. RCP program manager Mike Greco will administer the partnership on behalf of the University, and Carver County planner Nate Kabat will coordinate the County’s participation in the program.

Evaluating Animal Agriculture Impacts on Water Quality: Data Gaps in a West Central Minnesota Case Study

By Ed Brands

Abstract: Balancing the economic and food system contributions of animal agriculture with negative impacts such as water quality degradation has been a recurring question in Minnesota and other agricultural states (e.g., Iowa and North Carolina). Over the past 15 years significant federal- and state-level changes in the regulation of animal feeding operations (AFOs) and associated practices have attempted to improve water quality. The impacts of these changes are unclear; therefore, the main purpose of this project was to evaluate policies designed to protect water quality from manure runoff and spills within the context of a manageable geographic area. Project work was based on manure reports and other publicly available data (2010–2011) on large AFOs in nine counties that encompass the Pomme de Terre River and Chipewewa River watersheds in west central Minnesota. Based on summarizing and evaluating the completeness of annual manure reports, and an understanding of the distribution of and practices surrounding manure in the study area, it is clear that there has been progress in the form of collecting more information about manure generation and related practices, as well as keeping large AFOs farther from open water and perennial streams. However, there are still major data gaps (e.g., incomplete information about application methods, and a lack of water quality monitoring during the manure application season) that prevent more thorough evaluation of the effectiveness of manure application practices and AFO siting policies. Funding is required from the Minnesota legislature to enable the Minnesota Pollution Control Agency, local watershed groups, and producers to collaboratively address these data gaps; to compile, compare, and evaluate manure application best practices; and to revisit state policy related to siting AFOs near conduits to surface waters. The research in this article was supported by a grant from CURA's Faculty Interactive Research Program.

Figure 1. Large Animal Feeding Operations in West Central Minnesota Counties and Watersheds



Data Sources: Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, Minnesota Geospatial Information Office, United State Geological Survey

Ed Brands

Minnesota leads the United States in turkey production, produces the third-most swine in the nation, and is home to many large dairy and beef operations. Minnesota's meat and other animal products are vital to the state's economy and are significant contributors to state, regional, national, and international commodity markets (> 10% of the pigs and turkeys raised in Minnesota are headed to international markets). But in addition to their economic contribution, large animal feeding operations (AFOs) are also associated with water quality impacts, including fish kills and elevated nutrient and fecal coliform bacteria levels. Although AFO siting restrictions, design requirements, and manure application rules and record-keeping have become increasingly stringent over the past three decades, the U.S. Environmental Protection Agency (EPA) indicates that five of the ten leading stream impairment sources were still related to animal agriculture and included grazing near streams, grazing or feeding operations, and permitted runoff from concentrated animal feeding operations. In recent decades, federal and state regulations have increasingly focused on manure application practices. One recent water quality-related requirement has been for large AFOs to submit annual manure reports to state agencies such as the Minnesota Pollution Control Agency (MPCA). A second major change in Minnesota concerns the sites where manure is generated—in 2000, the state adopted a rule prohibiting large AFO construction or expansion on shoreland. AFO siting had previously been handled by county or other local government entities.

Major Findings and Recommendations

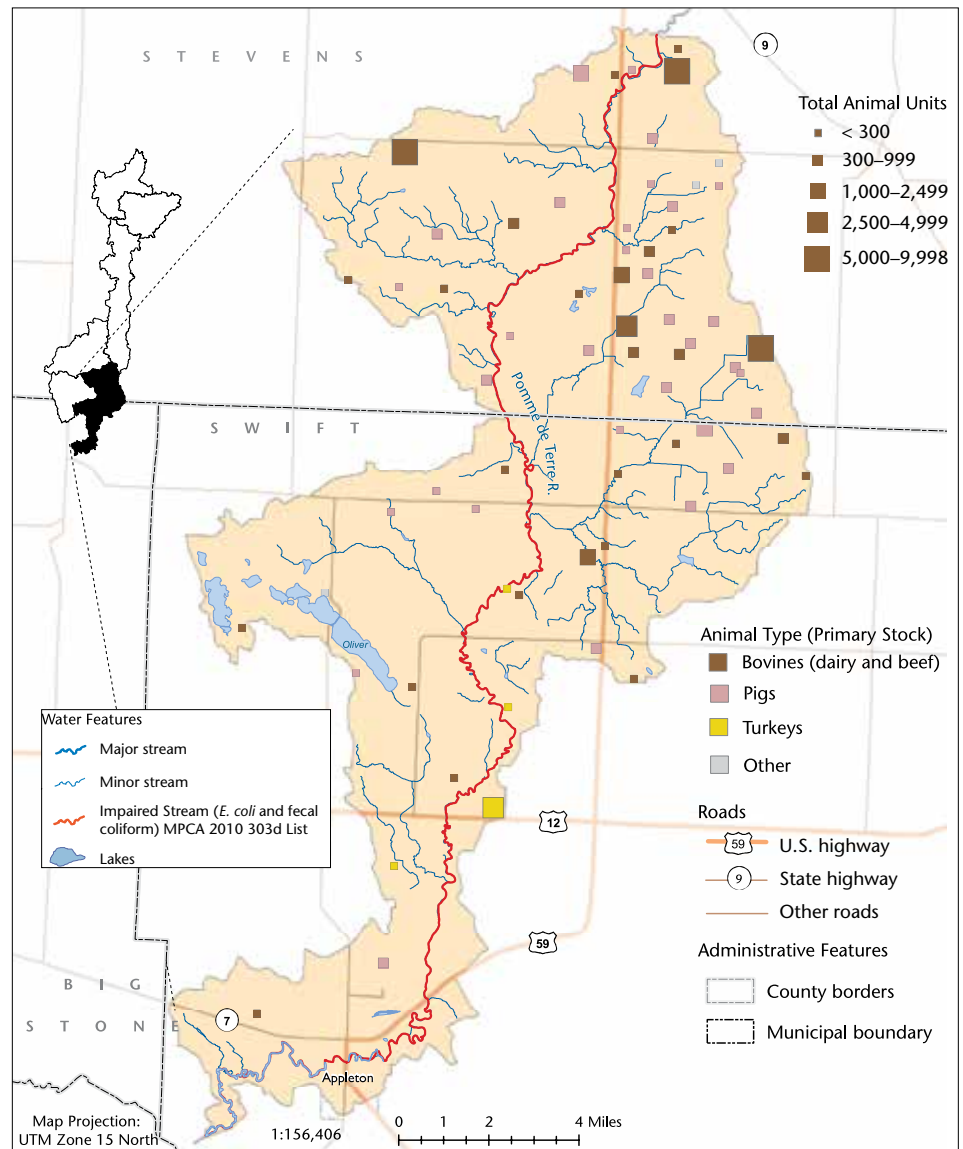
Annual manure reports include information about the amount and types of manure generated, whether manure was used onsite or transferred, and manure application practices and timing. Of the 111 large AFOs studied in 2010–2011, 107 reported manure generation; none of the reports indicated violations of MPCA rules. Eighty-six of the AFOs reported transferring manure to other parties, and reports were most complete when the AFO owners also applied manure to their own lands. When manure was sold or transferred to others, manure application practices (rates, timing, and methods) were typically included in less than one-fourth of annual manure reports. Transferred

manure accounted for nearly 80% of total manure generated by large AFOs.

The distribution of AFOs (and therefore manure generation) within the study area is highly variable. Some counties or watersheds have very few operations, whereas others have significant clusters of large AFOs (Figure 1). These large AFOs produced > 475 million gallons of liquid manure, and nearly 250,000 tons of solid manure. Nearly half (49%) of the liquid manure was generated in one county (Stevens), and three-fourths of the solid manure was generated in three counties (Kandiyohi, Stevens, and Swift). The Lower Pomme de Terre watershed covers only 153 square miles (2% of the study area) but contributed > 40%

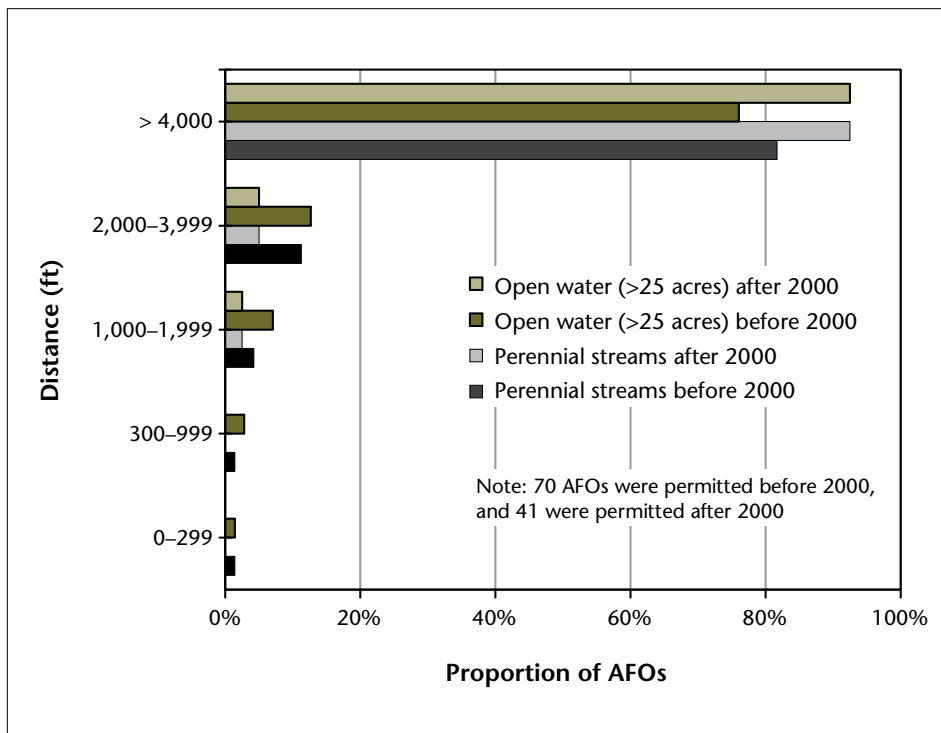
of the liquid manure and > 20% of the solid manure generated by large AFOs in the study area (Figure 2). Increasing geographic concentration of animal agriculture may be due to several factors, including rapid consolidation of the industry and clustering of integrated animal production facilities such as cow-calf-dairy operations, farrow-feeder-finish pig operations, and breeder-brooder-grower turkey operations. Another influencing factor may be county restrictions on AFO capacity, but only two of the nine counties in the study area had restrictions on the number of animal units (AUs; an AU is an animal of ~ 1,000 lb.) on a given production site: Pope (2,000) and Big Stone (3,000).

Figure 2. Animal Feeding Operations in the Lower Pomme de Terre River Watershed (2010–2011)



Data Sources: Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, Minnesota Geospatial Information Office, United State Geological Survey

Figure 3. Proportion of AFOs by Distance to Nearest Perennial Stream and Open Water



In 2000, the state assumed control over siting AFOs with respect to surface water bodies. Minnesota Rule 7020 was amended to prohibit construction or expansion (> 1,000 AUs) of AFOs within shoreland. Since 2000, no newly constructed AFOs in the study area were sited within shoreland and the average distance between AFOs and protected waters has increased (Figure 3). However, AFOs continued to be located near intermittent streams and drainage ditches, which in wet weather may serve as rapid conduits to perennial streams, wetlands, or lakes.

Several stream segments within both the Pomme de Terre and Chippewa River watersheds are impaired with *E. coli* or fecal coliform bacteria, and in both cases AFOs are listed by the MPCA as one of the contributing factors. Whereas the cluster of large AFOs in the Lower Pomme de Terre River watershed appears to coincide with the impaired stream segment (see Figure 2), there does not seem to be a similar pattern of association between large AFOs and impairments in the Chippewa River watershed. Given the sheer volume of manure generated by large AFOs, it seems likely that one or more AFOs are contributing to bacteria impairments.

Significant data gaps make it difficult to examine whether AFO siting or

manure practices, both, or neither are associated with water quality impairments. Such gaps include incomplete manure reports, especially on transferred manure, and water quality monitoring, which typically ceases in late September, before the majority of manure is applied to fields. Manure spills may also be a significant contributor to local water quality problems, and no publicly accessible database on spills exists. In 1998, the Minnesota legislature funded a Generic Environmental Impact Statement on animal agriculture. With the subsequent implementation of EPA rules for identifying and addressing impaired surface waters in the state, much more, yet still incomplete, information on water quality is available now. Therefore, funding is required from the Minnesota legislature to update the work done for the 1998 statement and to enable the MPCA and local watershed groups to address the data gaps in manure reporting, manure spills, and water quality monitoring.

Manure and Water Quality in the West Central Minnesota Study Area. The study area of nine largely agricultural counties in west central Minnesota contains the entirety of the Pomme de Terre and Chippewa River watersheds. Landforms in the area vary considerably and range from a swath

of moraine-dammed and kettle lakes, which stretch from central Otter Tail County to near Willmar, to the flat, deep-soiled former prairie dotted by shallow vegetation-dominated prairie potholes, which constitute the rest of the study area. In this latter part of the study area, < 1% of the pre-European settlement wetlands remain due to extensive and still ongoing tiling and other agricultural drainage practices.

Cultivated land is by far the dominant land use in all nine counties; however, this ranges from 47% (Otter Tail) to 87% (Chippewa). More than 10% of Otter Tail and Douglas counties are open water; whereas the remaining seven counties all have < 7.5% open water. Grassland makes up 10% or more of land cover in Otter Tail, Kandiyohi, Pope, and Douglas counties. Total maximum daily load processes are being implemented to address fecal coliform impairments in the Pomme de Terre and Chippewa River watersheds. In both cases, permitted runoff from concentrated animal feeding operations (CAFOs are large operations of 1,000 or more animals), manure runoff from fields, and animal feeding/grazing operations are listed as probable sources of fecal coliform.

Animal Feeding Operations. The current statewide distribution of AFOs and of manure production is rooted in historical trends of consolidation and concentration that have been ongoing for many decades and intensifying in the last 30 to 40 years. Data from the U.S. Department of Agriculture (USDA) Census of Agriculture illustrate the concentration of animal agriculture in Minnesota between 1974 and 2007. Numbers of cattle, pig, and turkey farms have decreased, while pig and turkey inventories have increased significantly. According to the Census of Agriculture, in 2007:

- ▶ 97% of pigs were raised on farms with 500 head or more, an increase from only 27% in 1974.
- ▶ 30% of cattle were raised on farms with 500 head or more, compared with 6% in 1974.
- ▶ Although concentrated production became standard practice much earlier in the poultry industry than with either pigs or cattle, the percentage of turkeys sold on farms with 60,000 or more birds still increased from 87% in 1974 to 96% in 2007.

Compared to changes in Minnesota from 1974 to 2007, the study area overall has lost a smaller percentage of its bovine inventory, gained proportionally fewer swine, and experienced a similarly rapid growth in turkey inventory. But these changes varied significantly by county. Virtually all of the turkey operations in the area are found in Kandiyohi, Otter Tail, and Swift counties, and most of the growth in turkey inventory occurred in these counties between 1978 and 2002. Of the 174,000-head increase in swine inventory, 128,000 were accounted for in Stevens County alone. Bovine inventory also increased significantly (56%) in Stevens County between 1992 and 2007, whereas there was either no change or a significant decrease in inventory in all other study area counties.

The majority of the large AFOs in the study area were turkey (46) and pig (47) operations, with only 18 bovine operations. More than half (58) of the AFOs had between 1,000 and 2,500 AUs, while 38 had between 300 and 999 AUs and only 12 had > 2,500 AUs. Most of the largest AFOs in the study area were located in a band from near Morris to southeast Kandiyohi County, with the highest concentration of major AFOs in the Lower Pomme de Terre watershed. All of the largest AFOs (> 5,000 AUs) were dairy operations.

Annual Manure Reports. Large AFOs are considered point sources of pollution and must obtain a Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit. The MPCA implements the NPDES program in Minnesota as a part of its feedlot program. The annual manure report requirement is a recent addition to the MPCA feedlot program requirements, and 2012 was the first year that large AFOs were required to submit annual manure reports. The several reporting categories of the manure reports are discussed next.

All of the large AFOs in the study area completed an annual manure report for the October 2010 to September 2011 crop year. Four of the AFOs, one of which was under construction, reported zero manure for the year, and 107 reported some amount of manure was generated (generally liquid for dairy and swine; solid for beef and poultry). Fourteen AFOs reported generating both liquid and solid manure. Eighty percent of the AFOs reported transferring at least some of their manure to other parties.

Two-thirds of the AFOs that transferred manure reported the monthly volume or tonnage of transfers; nearly 80% of liquid manure transfers occurred from late September to early November.

Seventy-nine percent of both solid and liquid manure was transferred for use by others, with the balance utilized as fertilizer on lands owned by the AFOs. Although data were incomplete, based on those AFOs that did report this information, there were three possible uses for manure:

1. the majority was applied to land for fertilizer;
2. some turkey litter (e.g., from Willmar Poultry Company sites) was combusted for electricity production at the Benson FibroMinn plant;
3. one AFO reported engaging in manure composting activities.

Less than half of the AFOs reported application dates and methods (e.g., surface broadcast, injection) of manure application. Of those that were reported, nearly 80% of field application took place from late September through early November. Knife or sweep injection was the application method used on three-fourths of the fields on which liquid manure was applied; solid manure was all applied by surface spreading with subsequent incorporation into the soil by tillage.

Distribution of Manure Generated in the Study Area. In crop year 2010–2011, large AFOs in the study area reported generating nearly 477 million gallons of liquid manure and nearly 250,000 tons of solid manure.

- ▶ Nearly half (232 million gallons, 49%) of the liquid manure was generated in Stevens County. Swift County (103 million gallons, 22%) was the only other county where > 100 million gallons were generated.
- ▶ Three counties generated three-fourths of the solid manure: Kandiyohi (70,000 tons, 28%), Swift (64,000 tons, 26%), and Stevens (59,000 tons, 24%).

Large AFOs in the Chippewa River watershed generated nearly 140 million gallons of liquid manure, or 63% of the estimated total for all AFOs in the watershed. Eighty percent of those 140 million gallons was generated in the Shakopee Creek sub-watershed, a 304-square-mile area with two large dairies (> 12,500 AUs combined) and one

large pig operation (2,200 AUs). Large AFOs in the Pomme de Terre River watershed generated > 230 million gallons of liquid manure, or nearly 80% of the estimated total. Of those 230 million gallons, > 195 million gallons (84%) were generated in the Lower Pomme de Terre sub-watershed, a 153-square-mile area with three large dairies (> 28,500 AUs total) and five large pig operations (> 5,000 AUs total) (see Figure 2).

Compared to liquid manure, solid manure generation was less dominated by large AFOs. Large AFOs in the Chippewa River watershed generated > 70,000 tons of solid manure, or about 7% of the estimated total for all AFOs in the watershed. More than three-fourths of the solid manure from large AFOs was generated in the Lower Main Stem sub-watershed. Large AFOs in the Pomme de Terre River watershed generated > 58,000 tons of solid manure, or 22% of the estimated total. Large AFOs in the Lower Pomme de Terre watershed generated > 57,000 tons, or 98% of the total generated.

Water Quality Monitoring in the Study Area. Water quality impairments due to fecal coliform or *E. coli* exist along several stream reaches in the Chippewa River and Pomme de Terre River watersheds. In some cases (e.g., the Lower Pomme de Terre), these appear to be correlated with the largest concentrations of AFOs, but in others (e.g., the Chippewa River watershed) this does not appear to be the case. Total maximum daily load processes are being implemented to address fecal coliform impairments in both of these watersheds. Permitted runoff from AFOs, manure runoff from fields, and animal feeding/grazing operations are listed as among the probable sources of fecal coliform. Water quality monitoring in the two watersheds is largely conducted by two nonprofit organizations, the Pomme de Terre River Association and the Chippewa River Watershed Project. Each organization has a regular monitoring program, but both programs cease sample collection by late September or early October, which is typically when postharvest manure application begins in earnest.

AFO Siting Restrictions and Surface Water. Over the past 40 years in Minnesota, responsibility for regulating siting and expansion of AFOs near “waters of the state” has shifted between state and local governments. Minnesota Rule SW 54 (1971) prohibited the construction of new feedlots near rivers and lakes. Prior

Figure 4. Turkey Operation Sited Prior to 2000 Near Camp Lake



Virtual Earth Satellite

to 1971, local governments were responsible for all siting issues. Minnesota Rule 7020 (1978) repealed the statewide prohibition on constructing AFOs near surface waters, and land use planning was again left to counties and other local government entities, which likely encouraged the development of various local siting-related rules, discussed next. Finally, Minnesota Rule 7020 was amended in 2000 to reinstate restrictions on AFOs near public surface waters (lakes >10 acres, and perennial streams). Rule 7020 (2000) prohibits construction of new AFOs in shoreland as well as the expansion of existing AFOs in shoreland to > 1,000 AUs. Minnesota Statute § 103F.205 defines shoreland as land within 1,000 feet of a lake, or 300 feet of a river.

Based on satellite imagery, and consultation with state and county regulators, permit dates were determined and the locations of all 111 large AFOs were verified. Surface waters were split into those that are protected (perennial streams and lakes > 25 acres) by the siting restriction and those that are not. Using both ArcGIS and Google Earth, distances between AFOs and nearest surface waters were measured (see Figure 3).

Only four large AFOs permitted prior to 2000 had been sited in shoreland

and most of these were turkey operations (Figure 4), and none of the large AFOs sited after 2000 were in shoreland. On average, the distance between AFOs and surface waters has increased for those facilities constructed after 2000. The average increase in distance between AFOs and public waters was statistically significant for lakes, but not for rivers. After 2000, large liquid manure-producing facilities were still being permitted within 100 feet of intermittent streams and ditches. Although this practice is legal, it is worth noting that ditches and intermittent streams may serve as rapid conduits to public waters, particularly in wet conditions, as recently happened in southeastern Minnesota, where a manure pit wall failed, sending ~ 1 million gallons of liquid manure into a ditch, two creeks, and eventually into the Root River.¹

Improved Manure Management Practices. Although facilities producing and storing millions of gallons of liquid manure may be seen as significant pollution risks, manure production at such a scale also introduces an opportunity for energy production and

experimenting with alternative manure application practices. For example, at the Riverview Dairy (~ 10,000 AUs, ~ 60 million gallons of liquid manure per year) near Morris, liquid manure is first run through an anaerobic digester to extract methane for purposes of generating and selling electricity (Figure 5). The digested manure is then moved to a solids separator, after which the solids are used as bedding for cows. Liquids are sent to a settling pond to remove residual solids and then to large storage lagoons.

Most of the liquid manure is applied as fertilizer in October via sweep injection (Figure 6). The sweep injector is attached to a pressurized flexible hose, which itself is hooked to a hard pipe and a series of pumps leading back to the storage lagoon. Injection of manure is not possible where implements must turn (i.e., headlands), and so best practices dictate these areas should be tilled prior to and after application to facilitate infiltration and incorporation into the soil. Finally, in an effort to match nutrient applications to plant needs during the growing season, a small proportion of the liquid manure is applied to corn silage during the growing season through an existing irrigation system with drop hoses that spray below the leaf canopy.

¹ Marcotty, J. Million-Gallon Cow Manure Spill Fouls Root River Tributaries. Minneapolis Star Tribune (2008). (accessed on 2.25.2014) <http://www.startribune.com/local/203125981.html?refer=y>

What are the impacts of these practices on water quality? Several researchers from the USDA Agricultural Research Service are currently studying field-scale impacts of fertigation on nitrate in tile drainage. However, there are few or no known watershed-scale studies of fertigation or of various manure practices in Minnesota. Many of the AFOs in the study area that reported their manure application practices indicated they used sweep or knife injection for liquid manure application. And many of the AFOs incorporated within 24 to 48 hours solid manure that was spread on the surface of fields. But we do not know how prevalent such practices really are given the incompleteness of the annual manure reports.

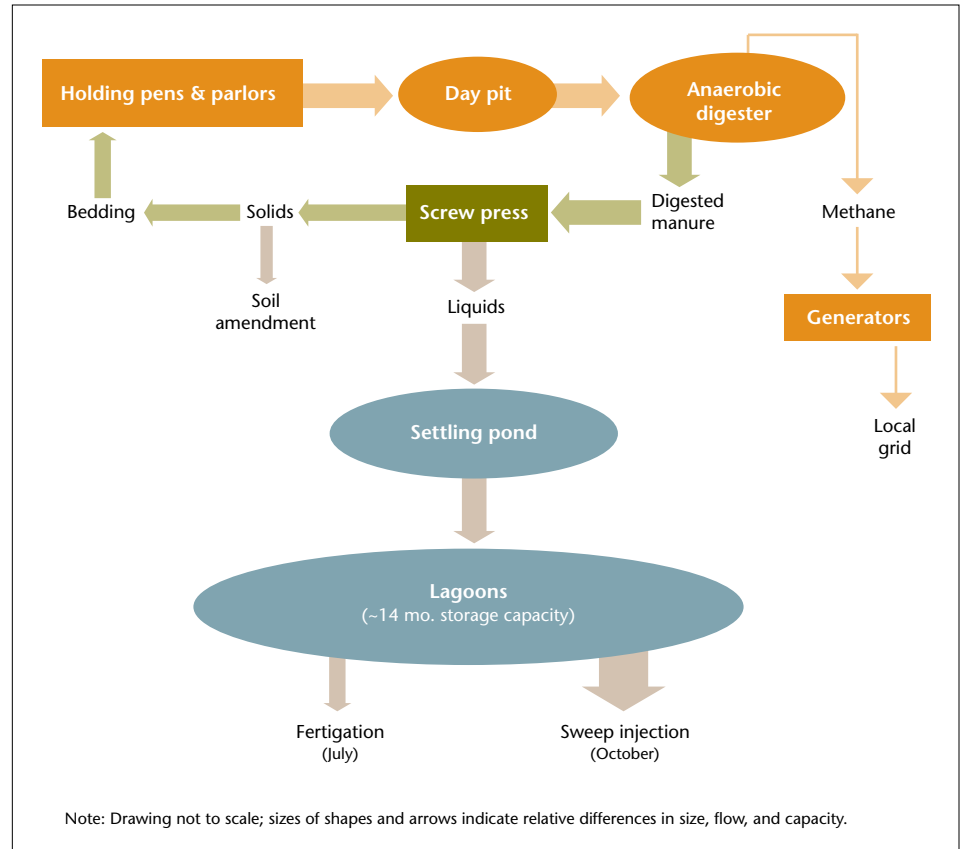
Data Gaps, Needs, and Recommendations

To combat problems associated with manure runoff from fields and from spills at production sites, more stringent manure reporting and application guidelines and siting restrictions have been put in place for AFOs. Animal agriculture appears to be continuing to consolidate, and there are often significant economic and logistical advantages to clustering several large facilities (e.g., farrow, feeder, finish) within a relatively small geographic area. With increasingly concentrated manure production, there are certainly opportunities (e.g., electricity generation) that arise from economies of scale. But the significant potential for water pollution problems makes addressing the data gaps identified in this project all the more urgent. The watershed-scale evaluation of manure management policies and associated practices is limited by three major data gaps:

1. incomplete reporting of manure application methods, timing, and rates, particularly for transferred manure, which makes up most of the manure generated by large AFOs;
2. sparse water quality monitoring efforts that often do not extend past late September and thus miss the “manuring season”;
3. lack of a manure spill tracking database in Minnesota (or any other state).

In 1998, the Minnesota legislature funded a Generic Environmental Impact Statement on animal agriculture. At the time, the MPCA had only begun to implement U.S. EPA requirements to identify and create plans for addressing

Figure 5. Manure Cycle at Riverview Dairy, Near Morris
Manure Storage, Processing, and Energy Recovery at Riverview Dairy
<http://riverviewllp.com>



Elissa Schloesser

Figure 6. Application of Liquid Manure to Fields via Sweep Injection



Ed Brands

impaired waters in the state. Between 1998 and 2012, the number of stream reaches identified by the MPCA as

impaired due to fecal coliform bacteria increased from 98 to 416. Animal agriculture is listed as a probable source of

bacteria in many of these cases. Closing the three major data gaps noted will help improve our ability to identify, replicate, and adapt best practices, and to identify and address problems in a timely fashion.

To help improve our understanding of the relationships between AFOs and water quality, the Minnesota legislature should make available funding for the following purposes:

- ▶ Revisit and update the Generic Environmental Impact Statement.
- ▶ Enable local watershed groups to extend water quality monitoring throughout the fall.
- ▶ Enable the MPCA to construct a searchable online database that

provides information to agency staff, researchers, and the public on AFOs and the generation and fate of manure, in concert with its ongoing transformation process to update its information management systems.

- ▶ Enable the MPCA (in collaboration with the Minnesota Department of Agriculture and/or University of Minnesota Extension) to study appropriate incentives (negative or positive) to producers to encourage full reporting of manure generation, storage, handling, transfer, and field application methods, dates, and rates. Currently the focus is on large AFOs, but smaller AFOs may also be contributing significantly to fecal coliform-related impairments.

The CURA-funded research in this article was also published in Environmental Science & Policy. Read the full article at z.umn.edu/utf.

Ed Brands is assistant professor of environmental studies at the University of Minnesota–Morris. His research centers on the science and policy surrounding water quality and animal and human waste. He teaches courses on environmental problems and policy, water resources policy, industrial ecology, and geographic information systems. Over the past 15 years, he has worked in higher education and other nonprofit and for-profit institutions on numerous projects related to water, environmental law and policy, and environmental education.

Project Assistance Available from CURA

The Center for Urban and Regional Affairs supports research and technical assistance through a number of individual programs, each with their own deadlines and application procedures.

■ **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. For more information, to discuss potential projects, or for assistance with applications, contact CAP coordinator Jeff Corn at 612-625-0744 or jcorn@umn.edu, or visit www.cura.umn.edu/cap.

■ **The Community Geographic Information Systems (CGIS)** program provides technical assistance in mapping, data analysis, and GIS to community-based organizations and nonprofits in the Twin Cities metropolitan area. Staff at the CGIS program specialize in parcel-level mapping,

demographic analysis, and Internet-based GIS technologies. The CGIS program has no formal application process or deadline to apply. Project requests can be made by phone, e-mail, or online at z.umn.edu/cgis/help, and generally can be turned around within two weeks. For more information, to discuss potential projects, or for assistance with data needs, contact CGIS program coordinator Jeff Matson at 612-625-0081 or jmatson@umn.edu, or visit www.cura.umn.edu/cgis.

■ **The Kris Nelson Community-Based Research Program** (the Nelson Program) provides student research assistance to community and neighborhood-based organizations and suburban government agencies in the Twin Cities seven-county metropolitan area. Priority is given to groups serving diverse communities. Projects may include any issue relevant to a neighborhood or community's needs and interests. For more information, contact CURA community programs coordinator Jeff Corn at 612-625-0744 or jcorn@umn.edu, or visit www.cura.umn.edu/nelson-program.

■ **The Minnesota Center for Neighborhood Organizing (MCNO)** supports place-based organizations to successfully take on local issues by developing the skills of community organizers and leaders through organizing training and strategic partnerships to build vital communities that value full participation and embody racial equity and economic justice. For more information about MCNO and the training opportunities available, contact Ned Moore at 612-625-5805 or nedmoore@umn.edu; Jay Clark at 612-625-2513 or clark037@umn.edu; or visit www.cura.umn.edu/mcno.

■ **CURA:Tech** offers technical assistance in information design and data visualization to make sense of complex issues in the city and region. We collaborate with community organizers, graphic designers, community-based organizations and others to create tools that can be used by people traditionally on the margins of policy development. For more information, contact Kristen Murray at 612-625-7560 or kmurray@umn.edu or visit www.cura.umn.edu/curatech.

Young and Living Alone

By Will Craig and Jeff Matson

More than one-quarter (28%) of Minnesota households consist of a single person. This is slightly above the national rate of 27%. For Minnesota, this meant more than 584,000 households in 2010. These numbers do not include people living in institutional settings like dorms, prisons, or nursing homes. These are people living in their own homes or apartments.

The number of one-person households has been relatively steady in recent years, but has not always been this high. In 1940 less than 8% of U.S. households consisted of a single person.¹ That number grew to 13% in 1960, 23% in 1980, and 26% in 2000. Social Security and better health gave older people without a spouse more freedom to live on their own. Younger people are more likely to live on their own because of later marriages and higher divorce rates than in previous years. A relatively strong economy gives individuals the freedom to live alone if they want to.

Amazingly, two-thirds (66%) of these people are under 65 years old. The old way of thinking had an older person, usually a widow or retired school teacher dominating the one-person households. Now it is mostly young people. To be sure, a large percentage of those more than 65 years old live alone (44%), but they are greatly outnumbered by the number of younger one-person households. In the Twin Cities, older people make up only 29.3% of the one-person households (Table 1).

We focused on the seven-county Metropolitan area because the concentration of young one-person household is highest. Overall, 20% of Twin City households are occupied by a single person under age 65. Hennepin and Ramsey counties have the highest rates in the state: 24% and 23%, respectively. Only two other counties have 20% or more—Cook County with 23% and St. Louis County with 20%.

¹ L. A. Jacobsen, M. Mather, and G. DuPuis. 2012. "Household change in the United States," Population Bulletin, 67,1 (2012), Population Reference Bureau..

Metro-wide, there are more than 300,000 one-person households. The largest age group is 35–64 years representing over half the total (Table 1). Nearly 60% of the two older age groups own their own homes, twice the rate of those aged 15–34, where the majority (69.7%) are renters.

These under-65-year-old one-person households behave differently than other, more traditional households in that age group and from over-65-year-old households. They are less likely to

be involved in community affairs and they demand a different set of goods and services. Maps showing the distribution of those households explain many of the mysteries of locations of bars and restaurants, along with declining enrollment and the closing of K–12 schools.

The first map shows the distribution of one-person households under age 65. One dot represents 30 households (Figure 1). It is easy to see a concentration of these younger, one-person households in Minneapolis and St. Paul,

Table 1: Age and Tenure of One-person Households in the Seven-county Twin City Metropolitan Area, 2010

	Age 15–34	Age 35–64	Age 65+	TOTAL
Owner Occupied	19,535	96,002	55,704	171,241
<i>Percent owner</i>	30.3%	59.5%	59.7%	
Renter Occupied	44,907	65,260	37,622	147,789
<i>Percent renter</i>	69.7%	40.5%	40.3%	
TOTAL	64,442	161,262	93,326	319,030
<i>Percent</i>	100.0%	100.0%	100.0%	
<i>Age Percent</i>	20.2%	50.5%	29.3%	100.0%

(Source: U.S. Census of Population and Housing, Summary File 1, Table H18)

Table 2: Metro Area Cities with More Than 4,000 One-person Households Under age 65, 2010

City	One-person Households aged under 65 years
Minneapolis	54,115
St. Paul	30,402
Bloomington	7,152
St. Louis Park	6,629
Plymouth	5,286
Eagan	5,121
Burnsville	4,761
Eden Prairie	4,529
Brooklyn Park	4,359
Minnetonka	4,220

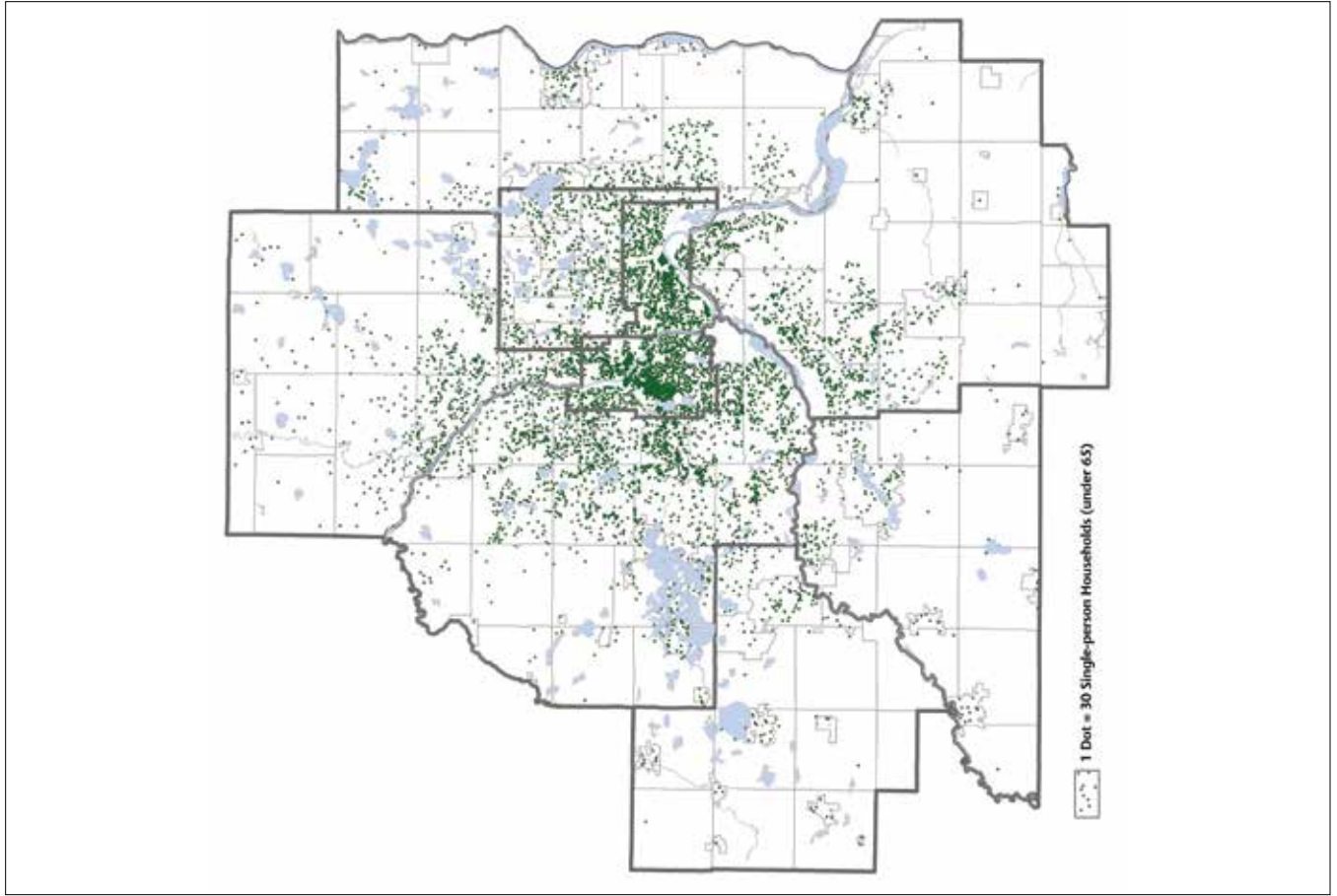
(Source: U.S. Census of Population and Housing, Summary File 1, Table P25)

Table 3: Metro Area Cities with Concentrations of 25% or More of Younger One-person households, 2010

City	Percent One-person Householders under 65 years
Excelsior	36%
Hilltop	36%
Minneapolis	33%
Spring Park	32%
Hopkins	32%
Lauderdale	32%
St. Louis Park	30%
St. Paul	27%
Coates	27%

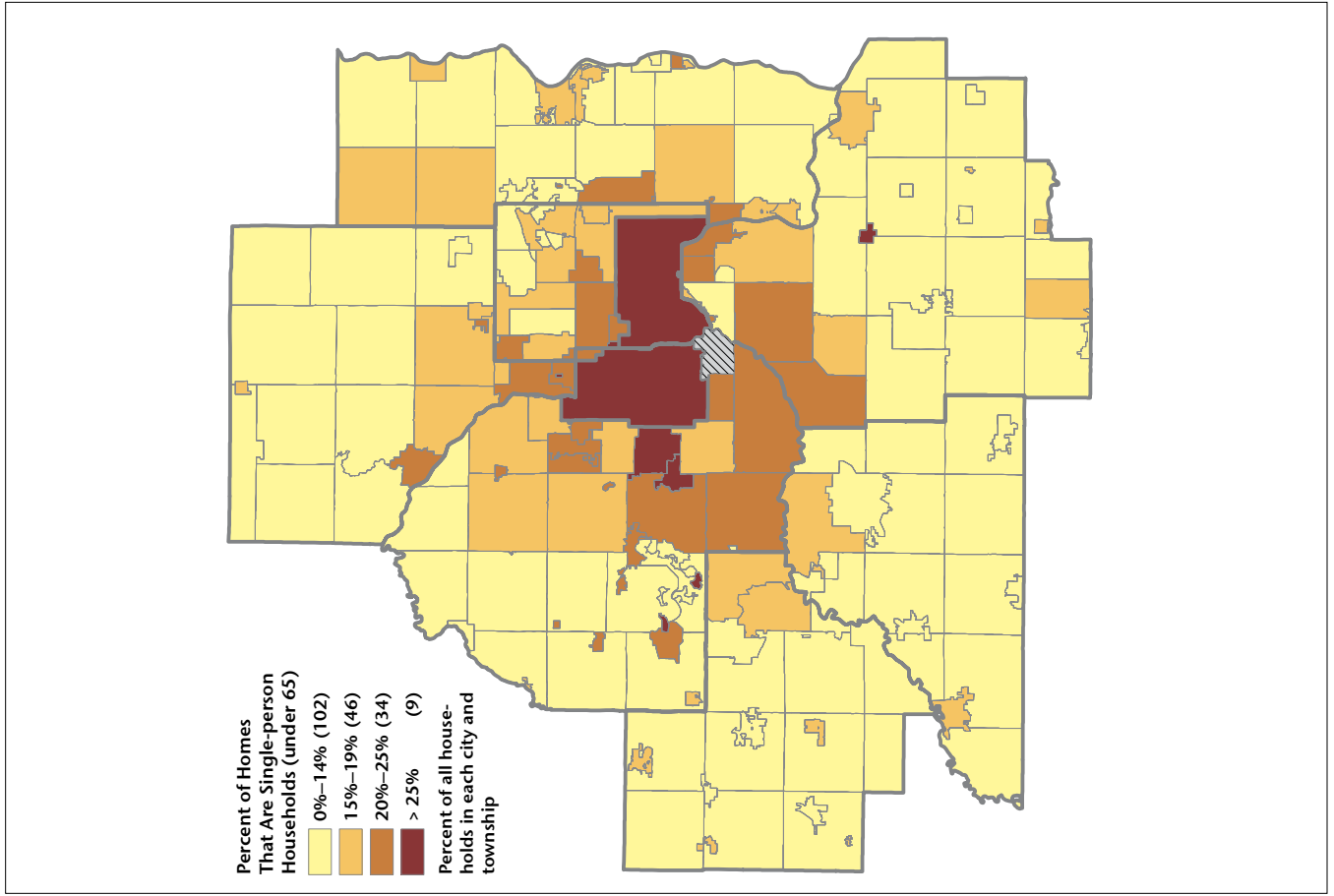
(Source: U.S. Census of Population and Housing, Summary File 1, Table P25)

Figure 1. Location of One-person Households Under Age 65 Across the Twin Cities Metropolitan Area, 2010



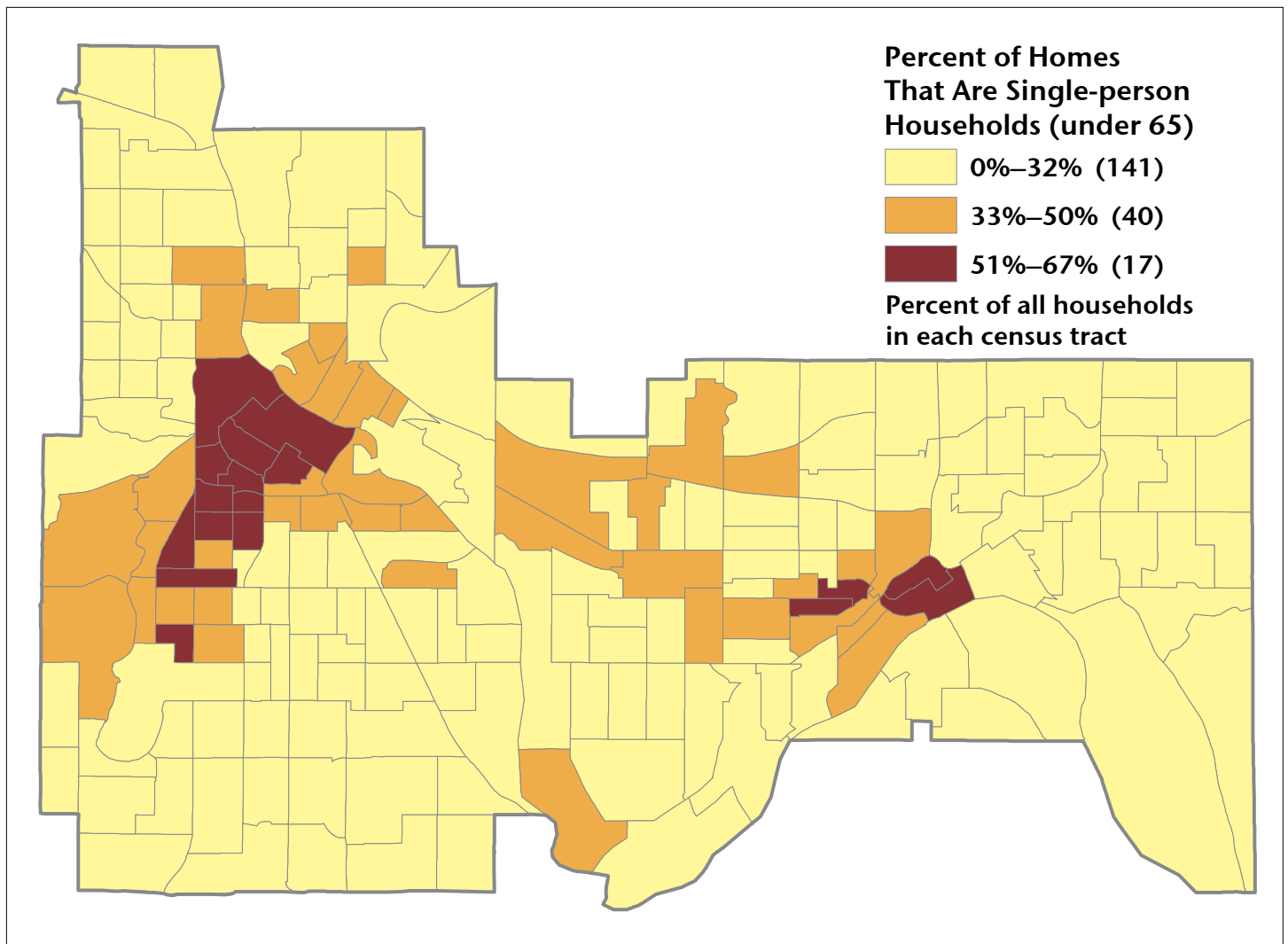
Source: 2010 Census of Population and Housing, Table P25

Figure 2. Title: Concentration of One-person Households Under Age 65 Across the Twin Cities Metropolitan Area, 2010



Source: 2010 Census of Population and Housing, Table P25

Figure 3. Concentration of One-person Households Under Age 65 within Minneapolis and St. Paul, 2010



Will Craig and Jeff Matson

Source: 2010 Census of Population and Housing, Table P25

but they are scattered widely across all of the heavily built-up area.

The largest populations of younger one-person households are in the two central cities of Minneapolis and St. Paul, but large numbers are scattered across inner- and out-ring suburbs (Table 2).

Another way of looking at the concentration of one-person younger households is to look at the percentage they represent of the total number of households (Figure 2). In Minneapolis, St. Paul, and a handful of other cities, 25% or more of the households are occupied by a single person under age 65 (Table 3). Each provides housing that is conducive to one-person occupancy; i.e., smaller homes, apartments, townhouses or, in the case of Hilltop, manufactured homes. Suburbs and smaller cities across the Metro area also have relatively high rates of younger

one-person households. Rural areas have low rates.

Some of the greatest concentrations of young one-person households are in Minneapolis and St. Paul. They include students living in new apartment complexes around the University of Minnesota and young professionals living in the two downtowns (Figure 3).

Within Minneapolis, the highest concentration stretches out from downtown to the Uptown area. Nearly one-third (30.7%) of the one-person households are occupied by individuals under age 35, much higher than the metro rate of 20.2%. In St. Paul, the highest concentrations are in downtown and nearby Cathedral Hill, with slightly lower concentrations running west along Grand Avenue, then up toward University Avenue and the University of Minnesota.

In both places, high-density housing and many commercial areas were built during the streetcar era, but rising demand is leading to new apartments, condominiums, and commercial establishments. These concentrations are self-sustaining and intensifying. They attract more young singles and more businesses. A cluster of single people provide support for shopping and entertainment opportunities. The cycle is circular and ensures vital communities with ongoing growth potential.

Will Craig is the Associate Director Emeritus and Program Director Emeritus of CURA.

Jeff Matson is the Coordinator of the CURA Community GIS (CGIS) program

The Community Equity Pipeline Makes the Legislative Process More Accessible

Recently the CURA Community Programs staff collaborated with the Wilder Foundation on their pilot program, the Community Equity Pipeline (CEP). This program is a public policy and leadership development program that engages community leaders from the Twin Cities metropolitan area in the political processes that play out during the state's legislative session. The program's vision is to increase decision-making power for communities of color at the state capitol by fostering a cohort learning community in which participants learn the technical skills and knowledge needed to successfully navigate the legislative session. Additionally, participants take part in an immersive learning experience that allows them to use their experiential expertise to achieve more impactful legislative outcomes as they advance policies impacting communities of color.

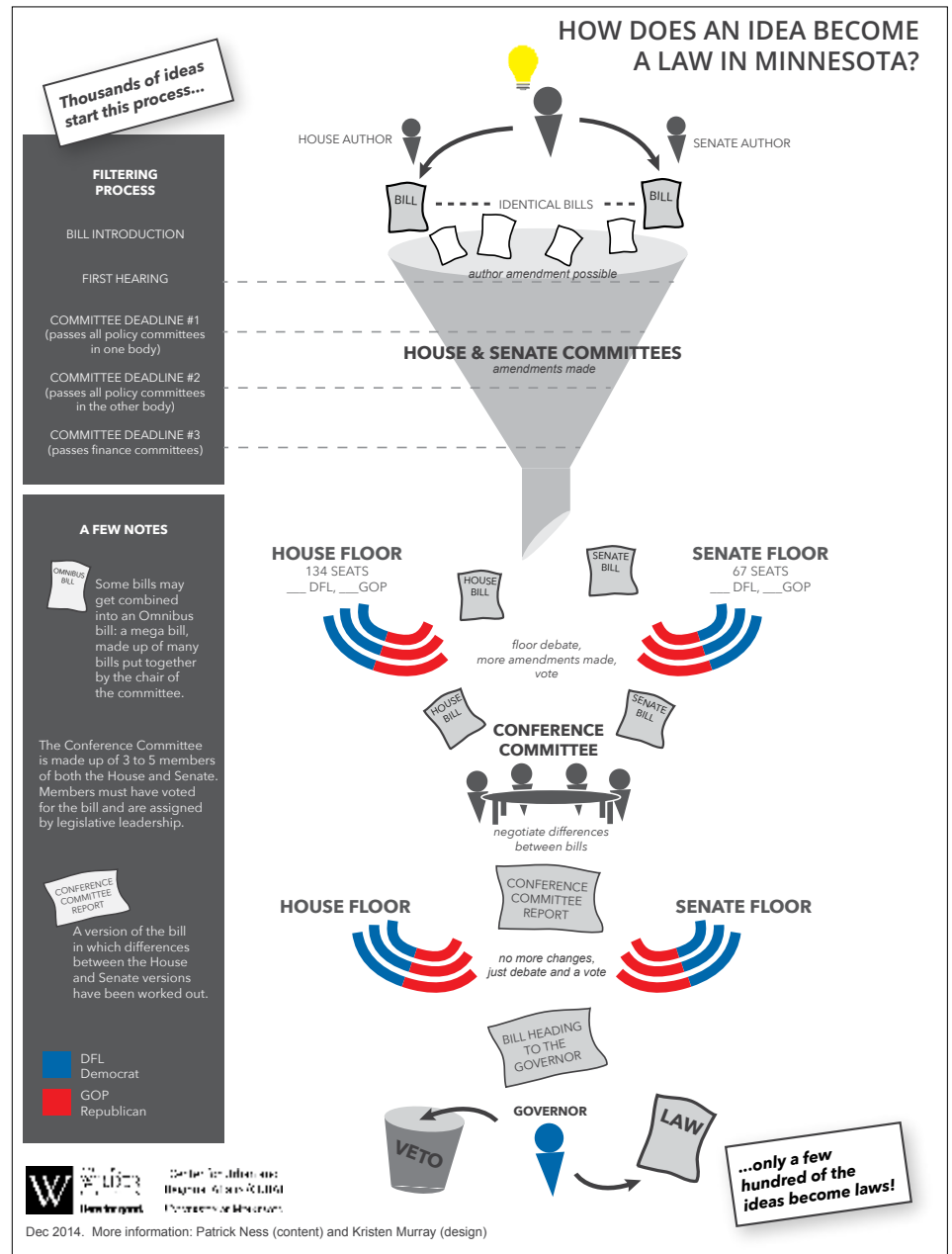
The CEP grew out of a series of think tank sessions that the Wilder Foundation hosted at which 30 community leaders, trainers, organizers, legislative advocates, nonprofit directors, and others explored the question: "What is necessary to increase the power of communities of color at the Minnesota State Capitol?" Participants identified eight essential areas on which to focus, one of which included a community training for organizers and leaders that could give them tools to strengthen themselves as legislative advocates, better understand political dynamics, and authentically engage grassroots community leaders in public policy.

This 2015 legislative session is the inaugural year of the CEP pilot. Prior to the start of the legislative session, fifteen CEP participants went through a four-day intensive training covering the structure of Minnesota state government, the legislative process and timeline, levers of power and influence, the role of advocates, and various other public policy issues. After the training, cohort members joined advocacy coalitions and others working to create bills and shepherd them through the Minnesota House and Senate committee and voting process.

Throughout the legislative session, fellows have continued to receive ongoing training and support from the program facilitators, their partner lobbyists and coalitions, as well as their fellow participants as they support efforts to pass bills focused on education, children,

housing, economic stability, health equity, and more. As the legislative session wraps up, the Wilder Foundation plans to use the learnings and recommendations from the first cohort and an evaluation done by Wilder Research to inform the future of the CEP.

Figure 1: How Does an Idea Become a Law in Minnesota?



Patrick Ness and Kristen Murray

CURA staff partnered with the Wilder Foundation to create several tools for the Community Equity Pipeline training, including this infographic that describes how an idea becomes a law.

To support the rollout of the pilot program, CURA staff partnered with the Wilder Foundation to create several tools for the CEP training, including infographics and other visual pieces to clarify the legislative process.

This work is part of CURA's CURA:Tech effort, which began as

a civic technology incubator and small grants program, and now offers technical assistance to community partners. University of Minnesota students and staff work with partners to make complex information (such as quantitative data, policies, and other processes) easier to understand through

data visualization and graphic design techniques. CURA:Tech works closely with CURA's established Community Geographic Information Systems program. For more information, contact Kristen Murray (kmurray@umn.edu) or visit www.cura.umn.edu/curatech.

CBR Project Summaries Spring–Summer 2015

Each issue of the *CURA Reporter* features a few capsule descriptions of new projects under way at CURA. These projects represent only a portion of those that receive support from CURA and its partners during the year. Please visit the CURA website for a full listing of supported projects and for more information on applying for the next round of Community-Based Research projects. Whenever possible, we have included the name and program of students attached to each project—those who are missing have not been assigned by time of press.

■ “Cleveland Neighborhood Tenant Organizing Project”

Cleveland Neighborhood Association
Sarah Rossman, Youth Development Leadership

The Cleveland Neighborhood Association (CNA) is a nonprofit organization that seeks to improve the quality of life in the North Minneapolis neighborhood. CNA has struggled with meaningfully engaging renters to participate in CNA beyond event attendance. The organization seeks to have all tenants engaged in every aspect of the organization and therefore have an accurate representation of the neighborhood and its needs. A graduate assistant will collect direct narratives and survey responses from tenants and landlords in the Cleveland Neighborhood. The student will also help host focus groups and prioritize contact with tenants to encourage engagement in events and committees. The results will help inform the CNA board and staff of ways to engage a previously under-represented group of residents with the hope that more tenants will be involved in the neighborhood's leadership.

Program: Kris Nelson Community-Based Research Program, Spring 2015

■ “Conservation District Impact Study for the Logan Park Neighborhood”

Logan Park Neighborhood
Collin Calvert, Master of Public Health

The Logan Park Neighborhood Association (LPNA) is a city-recognized neighborhood association for community engagement located in Northeast Minneapolis. Logan Park is one of the first planned communities of Minneapolis with a housing stock that consists of more than 50% duplexes. This has created a historic area of affordable housing within walking distance to downtown that has also become the center of the Northeast Arts District. The Minneapolis City Council has created a Conservation District designation that would focus on the design and aesthetic character of a neighborhood. A student researcher will research the feasibility and potential impact of creating a Conservation District within the Logan Park Neighborhood by looking at historic data on housing and analyzing communities where similar districts have been created. The final project should report on the feasibility for Logan Park Neighborhood to qualify for a Conservation District designation, the benefits and downsides of such a designation, potential design guidelines, and defined boundaries of the Conservation District(s). The goal is to find out if becoming a Conservation District will help keep housing affordable so Logan Park residents aren't forced to relocate by development pressures and to maintain the character of a historic neighborhood.

Program: Kris Nelson Community-Based Research Program, Summer 2015

■ “Cultivate Corcoran: A Grassroots Strategy for Full Storefronts”

Corcoran Neighborhood
Eric King, Master of Urban and Regional Planning

Corcoran Neighborhood Organization (CNO) was established in 1975 around a grassroots effort to create Corcoran Park on a closed school site. Since then, CNO has continued to unite and equip neighbors to improve and protect the neighborhood. This project is to create a community-authored and -driven strategy to cultivate a commercial real estate environment that is fully occupied, stable, and responsive to residents' needs, through strategic support and collaboration with business and property owners. A student researcher will gather, compile, and present demographic, economic, and business trend data to support this initiative. The student researcher will also work with a CNO consultant on the larger initiative to create a community-driven economic development strategy and will provide additional support for the initiative as workload and time allows. The final project will help support the larger initiative that aims to develop and cultivate ongoing roles for residents to drive a more responsive and mutually beneficial retail environment.

Program: Kris Nelson Community-Based Research Program, Summer 2015

■ “Exploring the Medicine Wheel as a Framework for American Indian Organizational Development”

American Indian Family Center
Lann Briel, Master of Professional Studies in Arts and Cultural Leadership

The American Indian Family Center (AIFC) is a nonprofit organization established under the St. Paul Ramsey County Children's Initiative in 1996. Its mission is to provide programs and services

enriched with American Indian values and culture to American Indian individuals and families residing in St. Paul. The Medicine Wheel is at the core of all AIFC services. The graduate assistant will help review the previous research project (which will provide a framework from which to work on), research how AIFC currently utilizes the Medicine Wheel, look at how its data is being managed and provide recommendations on how to more effectively manage its services and data to meet the needs of AIFC using the Medicine Wheel. The student may also connect with other American Indian and non-American Indian organizations to learn what is similar and different about the way they manage data and develop organizing strategies that incorporate the Medicine Wheel. The results will be compiled into a report that will help benefit everyone served by the AIFC.

Program: Kris Nelson Community-Based Research Program, Spring 2015

■ **“NEON Incubator/Coworking Space”**

Northside Ec Op Network

Lawrence Karongo, Master's of Public Policy

The Northside Economic Opportunity Network (NEON) seeks to address imbalances in racial and economic equity among lower-income entrepreneurs of color seeking to develop small businesses. NEON is currently building a business plan to create a traditional general business incubator and coworking space for community members and entrepreneurs in North Minneapolis. A student researcher will conduct a needs and interest survey and analysis of professionals and entrepreneurs that will likely utilize the space. The student researcher will also research and consolidate data from successful models that have been implemented in similar demographic areas. The research conducted will be used as an analysis to be included in the final business model for the NEON Incubator and be shared with community stakeholders and potential supporters to secure necessary funding for the project, and increase the program's success and sustainability.

Program: Kris Nelson Community-Based Research Program, Summer 2015

■ **“Ramping Up the Hazelnut Industry through Market Development”**

MN Hazelnut Foundation

Amanda Sames, Conservation Biology

The Minnesota Hazelnut Foundation (MNHF) was formed in 2008 with a mission of growing hazelnuts, hazelnut farmers, and hazelnut farming through outreach, education, and collaboration between members and their communities. Using the University of Minnesota Southeast Regional Partnership's successful Byerly's Apple Pie project as a model, this project will convene a focus group specific to hazelnuts to work through potential food product and marketing strategy in order to maintain and stimulate hazelnut production. A graduate assistant is interviewing Minnesota Hazelnut Foundation members about what they are currently doing with their nuts, products they are selling and to whom, and strategizing about other possible uses for locally grown hazelnuts. The graduate assistant will compile the interviews into a report, start a list of researchers who can contribute to product development components, and also convene a focus group of hazelnut buyers from the Twin Cities. All of this will be compiled into a final report where the results will be published and shared with existing and new growers so they are aware of the marketing avenues available before growing.

Program: Community Assistantship Program (CAP), Spring 2015

■ **“Renters' Rights in the Powderhorn Park Neighborhood: Assessing Renters' Knowledge Resource Access, Impediments, and Advocacy”**

Powderhorn Park Neighborhood Association

Erin Olson, Urban and Regional Planning, Public Health

The Powderhorn Park Neighborhood Association (PPNA) is a nonprofit neighborhood organization that works to enhance the quality of life in the Powderhorn Park neighborhood by facilitating community engagement, embracing a diversity of voices, and fostering economic and community development. This project will illuminate further issues and challenges for neighborhood renters, who comprise over half the neighborhood. PPNA will

determine the roadblocks for renters to understand and exercise their right to safe, healthy housing, and will coordinate with the student researcher and tenant leaders. PPNA has established its renter networks and these residents are eager to be a part of this project. A student research assistant will work with PPNA to develop and implement a research project that will assess renters' knowledge. PPNA will use these findings to shape its collaborative renter engagement work in 2015 and to better meet the needs of tenants to implement strategies.

Program: Kris Nelson Community-Based Research Program, Spring 2015

■ **“Tools for Measuring the Yield of Community Farms and Gardens”**

Urban Farm Garden Alliance

Rachel Grewell, Sociology

Started in spring 2014, the Urban Farm and Garden Alliance includes leaders from six different community gardens who share ideas and resources and co-host education sessions on various garden topics. The Alliance is part of a network of community gardens in the Frogtown, Midway, and Summit-University neighborhoods that partner with other organizations and institutions to educate, create, and engage the neighborhood with a new model for growing healthy food. A student researcher will help test, and where necessary develop, practical ways for volunteers and backyard box gardeners to measure the yield of their work, both vegetative yield (the food they grow), and social yield (the relationships and skills people build through the Alliance gardens and backyard box gardening programs). Yield is a central measure of agriculture, providing a set of metrics for farmers to demonstrate what they produced for planning, securing credit, etc., but is very difficult for urban farmers to quantify for various reasons. An expanded understanding of how to measure yield would enable community food advocates to make their case to funders, assess how well they meet food needs directly, and also demonstrate the broader range of positive impacts the activities have on community food security.

Program: Kris Nelson Community-Based Research Program, Summer 2015



Minneapolis neighborhood leaders meet at the Corcoran Neighborhood Organization office in August 2014 for a tenant-organizing training session led by CURA's Minnesota Center for Neighborhood Organizing.

Center for Urban and Regional Affairs Connects University Resources with Community Groups

By Jacob Wascalus

The Corcoran Neighborhood in Minneapolis, a roughly 40-block area situated a few miles south of the city's downtown, is made up primarily of residential buildings and several stretches of commercial sites. The dominant housing type is the single-family, detached home, and more than half of the area's 2,300 households—nearly 58 percent—are owner-occupants.

Eric Gustafson, executive director of the Corcoran Neighborhood Organization (CNO), describes his neighborhood of 6,000 residents as stable, well-connected, and engaged. But to explain the more nuanced reality of his racially and economically diverse community, he invokes a literary reference.

"It's a tale of two cities," he says. "If you look into the numbers, you'll see a growing divide between the people who own their homes and the people who rent."

Case in point: 42 percent of the families in Corcoran who rent are living in poverty, compared to 11 percent of

the families who own.¹ *Living in poverty* means that a family of four—two parents, two dependents—had a household income of \$23,283 or less in 2012.

Gustafson got involved with the CNO soon after moving to the neighborhood in 2003, and in his various positions there he has learned about the challenging realities that many of his neighbors, particularly the renters, face. While his experience with the CNO has provided a wealth of knowledge about the neighborhood and its residents, for other data on the demographic composition of the neighborhood—as well as information about other community resources—he often relies on assistance from a longtime community partner: the Center for Urban and Regional Affairs (CURA), based at the University of Minnesota's Twin Cities campus.

"For the past few years, we've been working with CURA to identify

emerging issues around rental housing," he says, noting that the relationship between the two organizations has existed for decades. "We've discovered that a small group of bad landlords is taking advantage of some particularly vulnerable people, and with CURA's help we've been able to address some of these issues."

A History of Partnerships

In 1968, the University of Minnesota formed CURA to elevate its role in helping address some of the critical issues facing communities during that era. Over the course of its 46-year history, the organization has built a rich track record of partnering with neighborhood groups, nonprofit organizations, and state and local government agencies to support projects aimed at strengthening Minnesota communities, with an emphasis on the Twin Cities metropolitan region.

"The Center for Urban and Regional Affairs is outward-looking by mission and exemplifies the best of what a

¹ For more on this widely used federal poverty threshold, visit www.census.gov/hhes/www/poverty/data/threshld/index.html.



land grant university should do,” says Edward Goetz, director of CURA. “By conducting applied research and technical assistance for public-oriented entities, we provide an opportunity for the community to access the resources of the university.”

At present, CURA operates more than a dozen programs designed to address different aspects of its partner organizations’ needs, from providing technical support in the application of geographic information systems (GIS) technology to researching tailored solutions for challenges that beset a wide range of neighborhoods. Each of the programs has its own criteria for selecting projects to work on; while some require interested parties to submit formal applications, others need nothing more than an e-mail or a telephoned request. Most of CURA’s programs provide assistance for free, though some contract with organizations to conduct fee-for-service work. Combined with philanthropic and university support, the funds collected through these efforts pay for the organization’s operating budget.

To date, some of CURA’s major accomplishments include supporting the development of GIS technology, helping to launch both the Minnesota Council of Nonprofits (www.minnesotanonprofits.org) and the Minnesota Housing Partnership (www.mhponline.org), and funding research that identified affordable methods to reduce toxic arsenic levels in public well-water supplies in Minnesota.

Currently, CURA has 19 part- and full-time staff members and also employs roughly 80 undergraduate and graduate students each year.

Providing Analysis and Advice

For its recent work with the Corcoran community, CURA helped address issues that affect residents’ quality of life and financial health. CNO’s Gustafson lists off a series of complaints that his organization and neighborhood partners fielded in 2014 from more than 200 households in 19 different apartment buildings in the Corcoran area: bedbug infestations, frequent rodent sightings, peeling paint and plaster, unsecured common entryways, water leaks from neighboring apartments, drafty windows. This last grievance relates to a particularly costly issue: renters must pay utility bills that invariably jump—sometimes significantly—during cold months. According to Gustafson, the buildings’ owners are apportioning these energy bills among apartments, and the apportionments are based on square footage, not on usage. Combined, the charges can add between 10 and 20 percent to a tenant’s rent.

“Family budgets are breaking because of this,” he says, noting that many residents lack control of thermostats that regulate the temperature in their apartments. “These buildings have rickety, single-pane glass and no storm windows, and the tenants are not legally allowed to make physical upgrades to their units, like installing

energy-efficient windows. Nor should they have to.”

With assistance from CURA, Gustafson and CNO launched a tenant-advocacy campaign based on information and engagement. CURA’s Community Geographic Information Systems (CGIS) program, which was established in 2007 to provide high-quality geospatial data analysis and technical assistance, supplied a steady stream of maps and spreadsheets that Gustafson has used in conversations with City of Minneapolis policymakers and personnel, the CNO’s board of directors, and other neighborhood groups. These included statistics, such as the average rent of a two-bedroom apartment in the neighborhood; and data-rich maps displaying information related to tenant livability, such as which residential structures in the neighborhood are licensed rental properties and where they are situated. Gustafson has used this information in building a case for the city to support tenants’ rights through more effective code enforcement and communication as well as in holding discussions with community residents and stakeholders.

For on-the-ground outreach, CURA’s Minnesota Center for Neighborhood Organizing, which works with community groups to develop the organizing skills of neighborhood outreach staff and leaders, worked with CNO’s community organizer to develop strategies for engaging Corcoran renters, many of whom speak English



Jeff Matson coordinates the Community GIS program, which offers walk-in mapping, data analysis, and GIS training.

as a second language.² According to Gustafson, CNO's intention was to build leadership among the renters themselves by empowering them to act on their own behalf. With tips from CURA, CNO's community organizer successfully engaged 78 households in 2014 and prompted 48 to take action of some kind, such as petitioning their landlord or city councilperson to address a problem or requesting an official inspection from a city inspector. As of November 2014, these tenant actions had resulted in a series of building improvements and repairs, such as the installation of new windows and entry doors; the patching and repainting of splotchy and peeling walls and façades; the repairing of water-damaged roofs; and, in one apartment building, the removal and replacement of a carpet in the common area that, according to Gustafson, was crawling with bedbugs.

"Tenants are often held responsible for bedbug infestations," he notes, "but how can they effectively eradicate them from their apartments if the areas outside of their units are infested?"

CNO also worked with the CURA:Tech program to develop a resource guide for tenants that better explains the city's code concerning occupancy in rental housing. CURA:Tech, which was established in 2013, works with neighborhood stakeholders to solve community issues through the development of high-tech

tools (e.g., web applications) and low-tech tools (e.g., printed communications). CNO and CURA:Tech researched Minneapolis municipal codes and, with help from the City of Minneapolis Regulatory Services Department,³ designed a pamphlet to explain how many people are legally allowed to occupy a residence and where they can sleep. The guide, which uses graphics and is written in both English and Spanish text, also includes information on resources that tenants can use to seek out legal advice or report problems.

By mid-2015, CURA:Tech and CNO aim to release another pamphlet that explains the minimal housing conditions landlords must provide for apartments in buildings with four or more units and informs tenants about what recourse they have for issues like drafty windows or pest infestations. Like the occupancy code guide, this one will include illustrations and will be translated into multiple languages.

"CNO realized there is a need for more information and greater transparency around rental ordinances, and we were happy to partner with them," says Kristen Murray, director of CURA:Tech.

CURA's recent involvement with CNO has extended to other neighborhood concerns as well. For instance, in 2010, CNO requested and received research and analysis of parking

demand around an area of the Corcoran neighborhood that had been subject to development pressure. The work was conducted by the Kris Nelson Community-Based Research Program, which provides organizations and public agencies in the Twin Cities with undergraduate and graduate students who conduct community-based research projects. The resulting report was recently used by traffic engineers as they completed a Traffic Demand Management Plan in support of a major redevelopment project. Other examples of the research this program conducts include an examination of economic development strategies used to revitalize commercial corridors in underinvested areas and an exploration of ways to create hospitality-focused workforce training programs directed toward people of color.

Staying the Course

Over the years, CURA's purpose has remained constant: to strengthen urban and regional communities by sharing the knowledge and passion of university faculty and students. But its program offerings have evolved to accommodate technological advances and the changing dynamics of the communities it serves. CGIS, for instance, was established in 2007, and CURA:Tech was established in 2013.

"Our mission hasn't changed, and it isn't going to change a decade from now," observes Edward Goetz, "but a decade ago, I wouldn't have been able to imagine the tools we're now using in our work with communities. If we want to remain effective and responsive, we'll have to remain flexible as an organization."

It's likely that whatever the future holds, there'll be no shortage of requests for CURA's assistance. After all, affordable housing, strong local economies, clean air and water, and healthy food were priorities for communities when CURA formed nearly 50 years ago, and they will no doubt remain so tomorrow.

View a video that accompanied the online version of this article at z.umn.edu/wnc.

Jacob Wascalus is a Community Development writer and analyst with the Federal Reserve Bank of Minneapolis and a former graduate assistant for CURA.

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² For example, Latinos make up 19 percent of the neighborhood population and 83 percent of them live in rental properties. (Figures are from CURA's analysis of the U.S. Census Bureau's American Community Survey 5-Year Estimates for 2007–2012.)

³ The Regulatory Services Department oversees the safety and soundness of the housing stock in Minneapolis. For more on its role, see "Working with finite resources, Twin Cities rental housing inspectors reward good, target bad," in the October 2014 issue of *Community Dividend*, available via the Publications & Papers section of www.minneapolisfed.org.

RCP Recognized for Excellence and Innovation in Graduate Education

The Resilient Communities Project (RCP) has been selected as the 2015 recipient of the MAGS/ETS Excellence and Innovation in Graduate Education Award. Jointly sponsored by the Midwestern Association of Graduate Schools (MAGS) and Educational Testing Service (ETS), this annual award is given to a MAGS member institution in recognition of outstanding contributions to domestic and international graduate education at both the graduate school and program levels.

"We're honored to receive this recognition," said Carissa Slotterback, director of RCP and director of research engagement in the Office of the Vice President for Research at the University of Minnesota. "It has been our great pleasure to support so many graduate students in engaged learning opportunities that advance community sustainability."

RCP was nominated for the award by Henning Schroeder, Dean of the Graduate School at the University of Minnesota. Schroeder commended the program as "a shining example of the great things our faculty, students, and staff can achieve when disciplinary boundaries disappear" and possibly "the gold standard for advancing community sustainability practices while incorporating community engagement into the fabric of any university."

"The Resilient Communities Project is a model for promoting greater collaboration and engagement across disciplines," added Vice President for Academic Affairs and Provost Karen Hanson, in a letter supporting the nomination. "[RCP's] innovative approach not only provides sustainability solutions for our partner communities, but also enhances our curriculum with

interdisciplinary methods that are helping our students to develop the knowledge, skills, and agility that they will need as tomorrow's innovators, life-long learners, and global citizens."

RCP received the award at the annual meeting of the Midwestern Association of Graduate Schools on April 16 in St. Louis. The award includes a certificate and a \$2,500 prize that will be used to support the RCP program.

Past recipients of the MAGS/ETS Excellence and Innovation in Graduate Education Award include Miami University's Dublin School Leadership Program (2014), Loyola University Chicago's Mastering The Humanities: Growing, Diversifying, and Sustaining Humanities Education program (2013), and the University of Illinois at Urbana-Champaign's Transforming the Illinois Graduate Education Pathway program (2012).

Program and Staff Updates

The Resilient Communities Project is pleased to announce that **Carver County** has been selected as its partner community for the 2015–2016 academic year. The partnership will bring the expertise of dozens of faculty and hundreds of graduate and professional students at the University of Minnesota to more than 30 sustainability-related projects identified by Carver County and its partners, which include the Carver County Community Development Agency; SouthWest Transit; Independent School District 112; and the Cities of Victoria, Chaska, and Watertown. For more information about the partnership, see the announcement on page 10.

RCP was selected as the 2015 recipient of the **Excellence and Innovation in Graduate Education Award** from the Midwestern Association of Graduate Schools (MAGS) and Educational Testing Service. This annual award is given to a MAGS member institution



Jonathan Miller

The Resilient Communities Project hosted the Fourth Annual Sustainable City Year Conference at the University of Minnesota. The Knight Foundation and the University of Minnesota Office for Public Engagement sponsored this year's conference.



Photo provided by Southeast Como Improvement Association (SECIA)

The City of Minneapolis Health Department recognized the Southeast Como Improvement Association (SECIA) and their CURA-supported community-based research project TCEducate as a Local Public Health Hero on April 9, 2015.

The TCEducate program was developed because SECIA realized that a new outreach model was needed to truly communicate and engage with residents about the trichloroethylene (TCE) contamination of the neighborhood by the former General Mills research laboratory. The program uses a new and innovative model based on listening, response, and education to directly inform neighborhood residents affected by past industrial contamination.

The CURA's Kris Nelson Community-Based Research Program supported an intern that developed the lecture series and programmatic review evaluations to measure the program effectiveness.

"Without the Center for Urban and Regional Affairs and the work of our intern, Charlene Sundermann [pictured above], our work educating neighbors about Superfund law, remediation, and everything involved with our cleanup would have been shallow and without scope. CURA has expanded our operational capacity and improved the quality of our support to neighbors," said Ricardo McCurley, SECIA Executive Director.

Congratulations to SECIA on their award.

in recognition of outstanding contributions to domestic and international graduate education at both the graduate school and program level. RCP received the award at the annual meeting of the Midwestern Association of Graduate Schools on April 16 in St. Louis. For more information about the award, see the announcement on page 27.

RCP Program Manager Mike Greco made a presentation to the GreenStep Cities Steering Committee on March 20 at the League of Minnesota Cities offices in St. Paul. GreenStep Cities is a voluntary challenge, assistance, and

recognition program to help cities achieve their sustainability and quality-of-life goals. The presentation introduced the RCP program and its five-year strategic plan, and was a first step in exploring opportunities for RCP to work more closely with GreenStep Cities.

On April 12–14, RCP hosted the national **Fourth Annual Sustainable City Year (SCY) Conference** at the McNamara Alumni Center and Recreation and Wellness Center on the University of Minnesota Campus. The conference provided peer-learning opportunities for established programs (like RCP) patterned on the Sustainable

City Year model originally developed by the University of Oregon, and offered hands-on workshops for attendees from colleges and universities interested in newly adopting and adapting the SCY model to their home institutions. For more information, visit <http://z.umn.edu/scyconference>.

RCP hosted its annual **End-of-Year Celebration** on May 1 at the McNamara Alumni Center. This invitation-only event recognized and celebrated the more than 400 students and the dozens of University faculty and Rosemount staff and community members who participated in this year's RCP partnership with the City of Rosemount. The event featured a poster session showcasing some of the more than 45 student projects that were completed on behalf of Rosemount as a result of the year-long partnership, followed by a luncheon and formal program.

Jeff Corn was selected to take part in the **Minnesota Campus Compact Cultural Agility Collaboration**. This diverse, cross-racial cohort brings together students, community members, campus staff, and faculty for collaborative learning and leadership focused on developing inclusive, equitable campus-community partnerships, leadership development, and civic engagement programming. For more information visit z.umn.edu/wlx.

Esther Wattenberg, CURA's policy and program coordinator in family and child welfare, recently wrote an a piece for her series Notes from a Cluttered Desk titled "O The Harm that Good People Do: When a Guiding Principle in Child Welfare is Re-Arranged from 'Well-being' to 'Safety.'" You can read her piece at buff.ly/1E2SsU2.

Jonathan Miller, CURA's Communications Coordinator, started social media channels on Twitter, Facebook, and Tumblr (links to all of these pages can be found at www.cura.umn.edu or @curaumn). He has also partnered with other staff members at CURA to launch the #curathingoftheweek on our social media platforms. The purpose of the #curathingoftheweek is to put a thought-provoking piece of CURA's work out weekly—maps, program news, infographics, sketches, and maybe a muffin recipe? Stay tuned at #curathingoftheweek.

Jonathan is also working with CURA's former Associate Director **Will Craig** on rethinking the CURA publications library. Given the realities of the digital age we are in, we are looking at

consolidating the catalog with less physical copies and a better digital library. To this end a partnership with the **University of Minnesota Digital Conservancy** is being considered.

Will Craig retired in 2014, but continues to be engaged in CURA-related activities. He was the lead author on this issue's article on one-person households. He is an active member of the Office of Public Engagement's Economic Development Issue Area Network. Will is currently working on a guidebook on how to find and map information on the original settlement history of Wisconsin, something that is easily transferable to other Midwestern states.

In late October, **Kathie Doty**, program director of the **Hennepin-University Partnership (HUP)**, responded to a request from the **Hennepin County Medical Examiner's Office** for training related to their role in the case of an Ebola outbreak. Kathie connected the Medical Examiner's Office with the University's **Department of Environmental Health & Safety**, which provided expert guidance on the creation of policies and safety procedures around responding to Ebola deaths, as well as instruction for Medical Examiner staff on personal protective equipment donning and doffing.

The HUP hosted brown bags at Hennepin County sites called "The U comes to You" in November and January. In November, Professor **Ezra Golberstein**, **School of Public Health**, spoke about his research examining the relationship between unemployment and the health of children, including measures of children's mental health. In January, Professor **Rebekah Nagler**, **School of Journalism and Mass Communication**, spoke about communication inequalities and highlighted recent work that explored how Hmong, Somali, and Latina women engage with



Jonathan Miller

Ross Owen (center), Deputy Director, Hennepin Health and Dr. Kate Vickery (right), physician at Hennepin County Medical Center, presented information about the innovative Hennepin Health program and how research is proceeding to better understand its impacts. The event was facilitated by Professor Lynn Blewett (left), Principal Investigator and Director of the State Health Access Data Assistance Center, Division of Health Policy and Management at the University of Minnesota.

and react to health messages in the media.

The HUP posted a video on their website about the recent connection between the County's **Environmental Services** department and a **Law School** capstone class around sale of energy from the HERC facility where 1,000 tons of municipal garbage is converted to energy each day of the year. The video can be viewed at hup.umn.edu/collaborations.html.

Hennepin County research staff participated in two workshops on the statistical analysis of recidivism rates for individuals on probation. Professor Michael Rodriguez from the University's **Educational Psychology Department**, and Bruce Center and Katherine

Edwards from the University's **Center for Applied Research and Educational Improvement** conducted the workshops.

In February, the HUP hosted an event at the University for faculty, staff, and students with and interest in the County's novel program called **Hennepin Health**. Hennepin Health is an accountable care organization launched by Hennepin County to redesign the health care workforce and improve the coordination of the physical, behavioral, social, and economic dimensions of care for an expanded community of Medicaid beneficiaries.

2015–2016 Faculty Research Awards

CURA is pleased to announce the recipients of faculty research awards for 2015–2016 provided through the Faculty Interactive Research Program (FIRP). The purpose of the program is to encourage University faculty members to carry out research projects that involve a significant public policy issue for the state or its communities, and that include active engagement with groups, agencies, or organizations in Minnesota involved with the issue. Grants are available to regular faculty members at the University of Minnesota and are awarded annually on a competitive basis.

■ **Evaluating the Contribution of the Built Environment to Extreme Warming During Twin Cities Metropolitan Area Heat Wave Events.**

Most cities in the United States are warming at twice the rate of outlying rural areas and the planet as a whole. While an individual heat wave event may be responsible for the majority of warming in an urban area at a given time, a phenomenon called the urban heat island effect may exacerbate the warming and play a role in additional heat-related mortality, an increase in tropospheric ozone, and economic losses that can total in the billions of dollars. Using data from a dense meteorological network of 200 temperature sensors across the Twin Cities Metropolitan Area, this study will evaluate where and why particular regions warm the most with a focus on identification of at-risk populations. This project will include consultation with the Minnesota Department of Health, the cities of St. Paul and Minneapolis, and the Metropolitan Council. **Researcher:** Peter K. Snyder (Department of Soil, Water, and Climate)

■ **The Generations Project: Exploring Indigenous Voices Using Photovoice.**

The Generations Project proposes to engage indigenous community members in a Community-Based Participatory

Research process using Photovoice. Photovoice places cameras in the hands of community members so they may visually represent and communicate to others their lived experiences. Working with members of the Duluth Indigenous Commission, thirty indigenous community residents (10 youth, 10 adults, 10 elders) will be recruited to represent community “Generations” and to document community needs and strengths through photography. Photovoice contributors will convene to participate in a photo-based discussion to identify themes, suggest policy strategies, and formulate action steps to be addressed by resident-identified groups who will carry out social action. Project results will be disseminated through community forums that will promote dialogue across the indigenous and broader Duluth communities while enabling Photovoice participants to display photographic images that reflect and celebrate indigenous voices and culture. **Researcher:** James W. Amell (University of Minnesota-Duluth, Department of Social Work)

■ **Serious Kids’ Stuff: The Landscape of Youth Activities, Diversity, and Social Reproduction in the Twin Cities Metro Area.**

Organized, out-of-school activities have become an increasingly complicated and consequential component of developmental outcomes, life trajectories, and levels of social and familial inequality in the United States. To better understand how youth activities are accessed and experienced by children and parents from a diverse array of backgrounds, this study will include an extensive survey and multi-dimensional mapping of extracurricular youth activities and facilities in the Twin Cities Metro area. These data will visually show how facilities and programs are organized and vary across dimensions of physical location, cost, type of activity, travel, intensity of activity, and demographics. The macro-institutional landscape of extracurricular

youth activities will be linked with interviews of parents and children (from a related, separately funded study) to help assess the factors that facilitate participation in or limit access to extracurricular activities for children of various social backgrounds. This project will include partnerships with local organizations and program leaders at various sites to disseminate these findings, identify model programs, and develop implications for policy development. **Researcher:** Douglas Hartmann (Department of Sociology)

■ **Sewn Products in Minnesota: Identifying Policy Influences on Industry Development and Fostering a Skilled Workforce.**

As manufacturers chased rock-bottom wages around the world, the U.S. sewn products manufacturing industry withered. Today, rising wages coupled with increasing demand for quick-response manufacturing have made this strategy less and less sustainable. Further, for in-growth categories like medical devices and wearable technology the necessary precision and quality is very difficult to achieve with remote production. An extreme scarcity of skilled tradespeople domestically has made it difficult for manufacturers to return production to the United States. This project will approach this problem from two sides: in partnership with The Minnesota Makers Coalition and the Industrial Fabrics Association International, this study will conduct a quantitative and qualitative survey of the Minnesota sewn products industry to establish its current size and product assortment as well as identify barriers to growth with implications for labor and economic policy. In addition, with the Minneapolis WYCA and North High School, this project will develop community-based initiatives to engage 6 to 12th grade students in sewn products careers and provide the foundation for skilled trades. **Researcher:** Lucy E. Dunne (Department of Design, Housing, and Apparel)

Myles Shaver Named 2015-2016 Fesler-Lampert Chair in Urban and Regional Affairs

Myles Shaver, Professor of Strategic Management and Entrepreneurship at the Carlson School of Management, has been named the 2015–16 Fesler-Lampert Chair in Urban and Regional Affairs. Shaver is also the Pond Family Chair in the Teaching and Advancement of Free Enterprise Principles at Carlson.

Shaver is in the midst of a multi-year research project that aims to answer the question that everyone seems to have about the large number of corporate headquarters in the Minneapolis–St. Paul metropolitan area: why here? This sustained concentration plays a significant role in the region’s economic and social well-being. The choices that both public policy and business leaders make have had a positive impact on the conditions in the area. Shaver’s work attempts



Courtesy of Myles Shaver

to understand the elements of those choices that have influenced the metropolitan area’s economy and thereby provide a sound basis for future policy and corporate decisions.

He will use the resources provided by his appointment as the Fesler-Lampert Chair to complete data collection and analyses, advance and refine the implications of the findings for policy makers and corporate leaders, and combine the research and analyses into a book.

The Fesler-Lampert Chair in Urban and Regional Affairs is one of four endowed chairs made possible through the generosity and vision of David and Elizabeth Fesler to honor Mr. Fesler’s grandfathers, Bert Fesler and Jacob Lampert. The endowment is intended to stimulate interdisciplinary research and teaching through the appointment of distinguished, broadly learned scholars to endowed faculty positions at the University of Minnesota. The award is given biannually or as endowment funds are available.

Charles R. Krusell Fellowship in Community Development

Named in honor of Charles Krusell for his lifetime contributions to affordable housing and community development in the Twin Cities, the Fellowship is designed to prepare students of color in the University of Minnesota’s Master of Urban and Regional Planning and Master of Public Policy programs to be Minnesota’s next leaders and change makers in community development.

The fellowship will:

1. increase the supply of highly trained community development professionals from communities of color;
2. improve the representation of communities of color in agencies that serve those communities; and
3. provide hands-on work experiences to ensure students are prepared to meet the challenges in this ever-evolving field.

Charles Krusell was a pillar in the Twin Cities development community and he left an indelible mark on every effort he undertook. He was a champion for public housing and ardent advocate for urban renewal in the neighborhoods that needed it most. Krusell founded the Greater Metropolitan Housing Corporation to address the critical need for affordable housing in the Twin Cities. In recognition of his lasting contribution to the Twin Cities community, his family, friends, and colleagues have named the Community Development Fellowship in his honor.

Krusell Fellows receive full tuition support and graduate research assistantships with three community development or planning agencies during the course of their academic program. The assistantships are structured as one-quarter-time assistantships (10 hours/week) for the first academic year, full-time (40 hours/week) during the

summer, and half-time (20 hours/week) during the second academic year.

The Krusell Fellowship is a partnership between the University of Minnesota’s Hubert H. Humphrey School of Public Affairs and CURA. The Humphrey School is responsible for the recruitment and academic program for the fellows, and CURA manages the placement of fellows with community development agencies and administration for the assistantships.

The Krusell Fellowship represents an exceptional effort to support disadvantaged students in community development and planning, and increase the representation of people of color in agencies that serve increasingly diverse communities.

For more information on the program, visit www.cura.umn.edu/Krusell or contact Jeff Corn, jcorn@umn.edu, 612-625-0744.



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