

Consortium on Law and Values In Health, Environment & the Life Sciences 2010-11 Consortium/JDP Member Proposal Cover Page

Applicant Information

Applicant Name	<u>Jennifer Kuzma, Ph.D. & Kathryn Quick, Ph.D. (co-PI)</u>	Email	<u>kuzma007@umn.edu</u>
Project Title	<u>Public/Expert Boundary Work in Environmental Risk Management: The Emerald Ash Borer</u>		
Depart./Center	<u>Center for Science, Technology, and Public Policy (CSTPP); Humphrey School of Public Affairs</u>		
Dept./Center Head's Name	<u>Steve Kelly</u>	Dept./Center Head's email	<u>kelle644@umn.edu</u>
Dean's Name	<u>Greg Lindsey (Interim)</u>	Dean's email	<u>linds301@umn.edu</u>

How did you hear about this funding opportunity? Through the Consortium.

Funding

Amount of funding requested: \$27,500

Explain how these funds will help the Consortium member or JDP partner program further their work on the societal implications of the life sciences. Indicate if more than one Consortium/JDP partner program is involved.]

This project will facilitate informed policy-making for managing the emerald ash borer, an emergent environmental issue in Minnesotan communities with complex societal implications. It is a case study in organizing public engagement around technically complex environmental issues in which there are competing bases of knowledge, notions of risk, and management resources. Research methods will include testing, in stakeholder meetings, strategies for facilitating understanding and democratic decision-making among parties with different frameworks for perceiving and managing the EAB risk. Through qualitative data analysis, the researchers will address gaps in our understanding of boundary work practices for addressing emergent environmental risks. This will further build CSTPP's portfolio of research and capabilities in public engagement at the nexus of the risk, policy, ecological, and social sciences, and in turn enhance the Consortium's capacity for helping to address public problems involving multiple stakeholders (e.g. municipal and state managers; interested publics) and diverse researchers.

Approvals

Check all appropriate approvals required for your proposal. Approvals must be obtained prior to receipt of funding. If you have applied for approval but have not yet received it, indicate that approval is pending.

IRB	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Application pending	<u>Upon notice of funding, we will apply for IRB approval.</u>
IACUC	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Application pending	_____
Other	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Application pending	_____

Checklist

- The proposal is 2000 words or less excluding budget, biographies, references & citations.
- The proposal includes a work plan with a timeline using months or quarters to identify work to be done and completion dates.
- The budget form is complete including the funds sought for this project, other pending applications for this project, and the amount/source of matching or other funds.
- Faculty descriptions and roles on the project are included.
- A biographical sketch for each investigator or project leader (limited to one page per investigator or leader) is included.
- Approval (via email) from the administrator with fiscal responsibility for the department, program, or center is included.
- All necessary approvals are pending or received.

Overview: The Center for Science, Technology, and Public Policy (CSTPP) of the Hubert H. Humphrey School of Public Affairs is seeking funds to launch a new project on the role and effectiveness of public engagement and dialogue for managing the emerald ash borer (EAB) in Minnesota. A stakeholder workshop will be convened in order to facilitate deliberation among academic, government, and industry representatives; community organizations; and interested publics about how to manage the EAB. In preparation for the meeting, the PI and Co-PI will strive to develop engagement and communication strategies for convening a productive dialogue among participants with conflicting perceptions of risk, knowledge bases, values, and management resources. Scholarly research on public engagement, participation strategies, and risk communication will help to prepare for and design the meeting. Through both qualitative data analysis of ongoing public efforts and evaluation of multi- and interdisciplinary literatures (risk communication, public engagement in S&T, conflict management, etc), different practices for convening public and expert opinion about managing the EAB will be analyzed. Impacts to be assessed will include individuals' learning about other perspectives (social learning), changes in the level of conflict and agreement on management approaches among stakeholders (conflict management), and the quality of any management decisions that they do reach (in terms of ecological risk mitigation, political viability, and efficiency). It will advance the Center's capacities to convene such dialogues and serve as the foundation to launch a broader research agenda on expert/public boundary work around emergent ecological risk challenges.

Background: The EAB is a small green beetle native to Asia. Since it was discovered in Michigan in 2002, the beetle has been slowly moving across the Midwest and eastern coast of the United States. Saint Paul, Minnesota, where it was first detected in spring 2009, is so far the westernmost occurrence of this pest in the U.S. The larvae feed on the inner bark of North American ash trees, often without being detected until they kill the tree 2 to 4 years later. Our state is home 870 million ash trees, one of the largest ash populations in the United States. The species is abundant both in our forests and urban environments and demonstrates no resistance to the EAB.^{1,2} The Minnesota Department of Agriculture has estimated that approximately 40% of our state has environmental conditions conducive to the pest,³ which has already killed tens of millions of ash trees in 13 U.S. states and 2 Canadian provinces and is estimated to cause billions of dollars of damage through lost timber sales and reduced property values. In developed areas of urban and suburban Minnesota alone, between 583,000 and 638,000 ash trees may need to be treated with insecticides or removed in the next decade, at a cost of \$260 to \$270 million (2009 dollars), to manage the EAB infestation.⁴

This emergent and pressing environmental policy challenge lacks well accepted scientific and public decision guidelines. Since its detection in Minnesota, life science researchers, municipal and state resource managers, and interested citizens have brought a diverse array of values, knowledge bases, perceptions of risk, and resources to the question of how we should manage this invasive species. Understandings of the problem and ideas for risk mitigation within and across these stakeholder groups are sometimes in conflict with one another. In sum, there are varying levels of confidence in existing scientific models and predictions of EAB persistence and survival, as well as in risk mitigation strategies for Minnesota:

- Some entomologists and foresters feel that it is a foregone conclusion that the entire ash population will at some point be destroyed by the EAB, based upon its behavior in other states. Given this information, some governments have elected to remove as many as ash trees as possible, even if they are not yet infested, while they have resources to remove them safely.
- Other life scientists caution against extrapolating from the rapid devastation observed in other states to assume that the same phenomenon will occur in Minnesota because of our colder climate. From this perspective, the best management option is to experiment rigorously with different treatments to manage the pest and preserve the ash population.
- Some foresters advocate a containment strategy of removing or girding all ash trees in the proximity of detected infestations would be effective. However, there are debates about numerous

technical aspects to this approach. In addition, considerable human resources are needed to monitor ash trees for the presence of EAB, which is not easily detected. Working from this perspective, University extension and nonprofit environmental and neighborhood organizations have been training groups of community volunteers to perform regular neighborhood tree censuses.

- Some residents are avidly resisting the removal of their street trees for preventive strategies to contain the pest, arguing that they are paying a high aesthetic cost for this public benefit. Individuals have offered to use personal funds to inoculate their ash trees, but environmental scientists have concerns about the total insecticide loads that might be needed to sustain ash populations over the long term.

There are few peer-reviewed articles regarding risk analysis of the EAB to inform our policy-making. Published articles focus on the transmission mediums and likely speed of its spread from Asia to and across the U.S. There is just one article regarding public attitudes towards its management, specifically outrage over Canadian authorities' removing all ash in a 600 km² area.⁵ There is little published guidance for policy-makers and scholarly contribution evaluating different mechanisms for engaging life science expertise and other perspectives to formulate responses to this significant societal problem.

Nature and Importance: Despite the lack of literature on EAB and public engagement, there is significant literature on the effectiveness and outcomes of public engagement strategies for issues in science and technology generally⁶ and on the role of public engagement in risk analysis and environmental decision-making under conditions of uncertainty like EAB's spread and control.⁷ Additionally, there is an extensive literature on risk perception and communication theory,⁸ including the important roles of trust, cultural values, social networks, risk and benefit distributions, bi-directional learning, and clear goals of communication. Under conditions of uncertainty, these factors become even more important in ensuring effective communication and engagement that promotes learning and understanding rather than conflict. Other literature addresses the role of expert engagement in policy-making. Technical expertise has traditionally been a privileged form of knowledge in policy design and the primary contribution of local and state public managers to deliberations.⁹ However, new research in public management and adaptive environmental management documents opportunities for organizing engagement processes to move the focus from the knowledge born by different stakeholders to facilitate an ongoing process of discovery and learning across institutional and knowledge boundaries.¹⁰ The organizational and sociological literature has introduced the concept of "boundary work" and "boundary objects" to describe practices for managing insider/outsider and expert/"local" knowledge distinctions.¹¹ Effective boundary work practices to engage experts, public managers, and the interested public can facilitate decision-making in complex public problems, but thus far there is little research on how they may be deployed to facilitate preventive and adaptive responses to emergent environmental risk.

Workplan and Specific Timeline: The PI and co-PI have begun laying the groundwork through this program. Together with a co-PI from the Entomology Department, they recently submitted a mini-grant request to the Institute on the Environment (IonE) to convene an interdisciplinary study group on the EAB. Diverse life science and social science researchers as well as practitioners from federal, state, and local government and nonprofit agencies are being recruited to participate. Meeting four to five times in the late spring and early summer, the group will familiarize its members with varying frameworks for perceiving and managing the EAB risk and attempt to work through areas of difference.

Summer 2011: The PI and co-PI will analyze the study group interactions to identify key areas where boundary work is needed to facilitate dialogue among the stakeholders. Additionally, they will analyze ongoing public discussions about the EAB in Minnesota and, with the help of a graduate RA, review literature in the areas of public engagement, risk communication, ecological risk analysis, and conflict theory. Based upon the outcomes of the study group, field observations, and the literature, they will design a range of communication and engagement strategies for a stakeholder workshop and train facilitators to deploy and assess their effects.

Fall 2011: The CSTPP will host a day-long stakeholder workshop that will involve approximately 60 individuals from around the state, identified in part through the study group. Staff of CSTPP and the Center for Integrative Leadership will assist in promoting and organizing the logistics for the workshop. Participants will be intentionally varied to include the widest range possible of stakeholders and points of view, and will include entomologists and foresters from the University of Minnesota and the research units of federal and state natural resource management agencies, social scientists, resource managers, and representatives of community-based stakeholder groups. The workshop will include presentations by individuals with pertinent technical expertise on the ecology and spread of the EAB, including a national expert to speak about how the EAB risk has been addressed in states hit earlier and harder. It will then move to facilitator-led, small-group discussions about how to respond in Minnesota that will engage mixed stakeholders and utilize a variety of engagement techniques to draw out different perspectives about the EAB risk, knowledge bases and values, and management options. A contracted professional videographer will record parts of these dialogues to facilitate subsequent content analysis. How engagement influences individuals' learning about other perspectives will be assessed through pre- and post- surveys of participants. Changes in the level of conflict and agreement about the EAB risk and management strategies will be assessed by the small group facilitators using a uniform assessment tool.

Spring 2012: The PI and co-PI will analyze the data and conduct additional reviews of the literature with the help of a graduate RA. Data sources will include workshop participant surveys, fieldnotes and videotapes, and media coverage of public discussions of the EAB risk and management options. Data will be analyzed qualitatively through coding to identify key frameworks, key boundaries among those frameworks, and the consequences of different kinds of risk communication and engagement techniques (designed by the PI and co-PI or organically introduced by the stakeholders) on those boundaries. Creation, strengthening, weakening, or redefinition of boundaries will be analyzed. Stakeholder recommendations will be evaluated by the IonE study group in terms of ecological risk mitigation, political viability, and efficiency.

Summer 2012: The PI and Co-PI will prepare a white paper, "Public/Expert Dialogue on Managing the Emerald Ash Borer Risk in Minnesota," that will include guidelines for life scientists and policy-makers on facilitating effective boundary-spanning discussion on this issue. They will also submit at least one article for peer-reviewed journal.¹² They will develop research grant applications to the USDA or NSF (Science and Society or Decision, Risk and Management Sciences) to continue researching strategies for public engagement and management under conditions of uncertainty in environmental risk.

Innovative Contribution: The ecological risk analysis, risk communication, public engagement, and boundary work literature described above have yet to be explored in the context of the EAB problem. Thus, the project is important from both scholarly and outreach perspectives. It will also build collaborations among multiple units of the university and community. The project is an experiment in making life sciences expertise accessible to the public in policy-making about an environmental challenge with significant societal implications. As such, it serves as a case study of boundary work practices for involving experts in the life and social sciences, municipal and state government managers, and interested members of the public in democratic deliberation about managing ecological risks under conditions of scientific uncertainty. Few studies are designed to explore public attitudes as they emerge. In addition, there is limited research on effective communication strategies for relaying life science expertise to support good public policy decisions. We propose to do both in real time, working on an urgent public issue.

Budget: Amounts, uses, and matching resources for the project budget is proposed on the following page.

Budget for Consortium and JDP Member Proposals

Project Title: Public/Expert Boundary Work in Environmental Risk Management: The Emerald Ash Borer

	Personnel costs	Description & justification Salary = ___hrs x ___ hrly wage	Requested funding	Matching/other funding	
			Amount	Amount	Source
1	Jennifer Kuzma, PI, data analysis and writing time	2 weeks summer salary, including fringe	6,181.92		
2	Kathryn Quick, Co-PI, data analysis and writing time	3 weeks summary salary, including fringe (+1 additional week from matching/other funding)	6,733.81	2,317.51	Hiring package (1 week summer salary, including fringe). <i>Committed.</i>
3	Research assistant, spring 25% FTE	10 hrs/week @ 17.09 + 107% fringe (2010-11 rate) - spring 2012	6,896.28		
4a	Sophia Ginis - outreach manager, CSTPP	30 hours @ 16.15 + 40.1% fringe (+ 30 additional hours from matching/other funding)	678.78	752.337	Staff support, Ctr for Integrative Leadership, 30 hr @ \$21.48 +fringe. <i>Committed.</i>
4b	Leah Wilkes - project manager, CSTPP	45 hours @ 21.48 + 40.1% fringe	1,354.21		
5	Personnel Subtotal		21,845.00	3,069.85	24,914.85
6	Speaker Honoraria	1 keynote speaker, national expert on EAB risk management, for stakeholder	500.00		
7	Supplies & Services	Space rental for stakeholder workshop (\$600); meals, materials for stakeholder workshop (60 persons @\$25); training additional moderators for small group sessions at stakeholder workshop (2 persons at \$250); videographer and editing for stakeholder workshop (\$900)	4,100.00	5,000.00	<i>Pending</i> proposal to IonE for 2011 mini-grant for: RA support (outreach, meeting organization, and data analysis) and logistics support (travel, materials) for EAB study group, Summer-Fall 2010, and grant-writing technical assistance for follow-up research proposals
8	Equipment	None requested	0.00		
9	Travel	Mileage for travel to 3-5 community meetings for data collection (observation), 100 miles @\$0.55/mile; \$1000 for guest speaker for stakeholder workshop	1,055.00		
10	Subtotal research supplies, equipment, travel, other		5,655.00	5,000.00	10,655.00
11	TOTAL BUDGET		27,500.00	8,069.85	35,569.85

1. Stipend justification. You must justify the amount of stipend you are requesting by identifying the number of hours you plan to work on the project and the hourly wage used for research assistants in your department. Include fringe benefits.

2-4. Identify all other personnel to be paid from this grant including interpreters, travel guides, etc. and justify their salary by identifying the number of hours they will work and the hourly wage. What is the hourly wage based on?

6. For colloquia, identify the number of speakers and the amount of honoraria you will provide.

7. Supplies and services. List out all supplies and their estimated costs. Explain in line 7 or in the body of your proposal what the supplies will be used for.

8. Equipment costs are allowable only if the justification clearly shows that the equipment is necessary for the project. Include explanation of what will happen to equipment at completion of project.

9. Travel costs must include a description of the purpose of the travel, start and stop dates of travel, transportation costs, housing costs, and allowable per diem (use University rates found at [http:// travel/umn.edu](http://travel.umn.edu)).

Research Biographies: Dr. Jennifer Kuzma, PI, is Associate Professor of Science, Technology, and Environmental Policy at the Humphrey School of Public Affairs. Prior to this position, she served as study director for several U.S. National Academy of Sciences reports related to biotechnology and bioterrorism and as an American Association for the Advancement of Science (AAAS) Risk Policy Fellow at the U.S. Department of Agriculture where she worked on risk analysis for foodborne hazards such as E. coli 0157:H7 and BSE. Her current research focuses on risk and oversight policy for emerging technologies. She is a Resident Fellow of the Institute on the Environment and under this fellowship, is exploring the use of system dynamics for risk policy associated with emerging technological products in the environment. She is also a faculty member and co-PI for the NSF-funded IGERT on Risk Analysis for Introduced Species and Genotypes, and has co-taught the Risk Analysis for Introduced Species and Genotypes and Problem-Solving Practicum in this Ph.D. minor. She has published widely and spoken nationally and internationally in the areas of science, public policy, and risk analysis. She has served on the Governor's Biosciences Advisory Committee, Board of the Biobusiness Alliance of MN, Executive Committee of the Society for the Study of Nanoscience and Emerging Technologies (S-NET), the UN WHO-FAO Joint Expert Meeting on the Applications of Nanotechnologies to the Food and Agriculture Sectors, and the European Union's Advisory Group for the Science and Society Work Programme. She is Chair-Elect of the Risk Policy and Law subgroup of the Society for Risk Analysis and Chair Elect of the Gordon Research Conference on Science and Technology Policy. At the U of MN, she teaches courses in risk analysis and public policy, nanotechnology and societal implications, and science and technology policy. She is currently pursuing research with an interdisciplinary team (U of WI, NCSU) on an NSF grant focusing on risk communication for nanotechnology, which includes data collection from several public engagement strategies and testing of risk communication theories. The proposed work is complementary to this NSF grant. Through her work in government (1997-1999), at the NRC-NAS (1999-2003), and as associate and interim director of the Center for Science, Technology and Public Policy (2003-2008), she has convened numerous stakeholder and expert dialogues on issues of pressing S&T policy importance, including those in environmental and human health risk analysis and can bring practical experience on convening controversial dialogues to the table as well.

Dr. Kathryn Quick, co-PI, Assistant Professor in the public and nonprofit management and leadership are of the Humphrey School of Public Affairs, specializes in democratic participation in addressing public problems. Prior to reentering academia, she worked in environmental management and planning in Indonesia for a decade and as a senior manager for social service, human relations, and housing services for two California cities for seven years. She is a certified community conflict mediator and a founder of the Cornell University Program on Environmental Conflict Mediation. Engagement and facilitation practices have been at the core of her professional work, allowing her to bring together diverse groups of stakeholders to initiate collaborative approaches to a wide range of challenges (e.g., mounting a community response to anti-Islamic hate crimes, creating an award-winning children's transportation program). Her research focuses on engagement practices, utilizing ethnographic case study methods to analyze positive exemplary cases of effective public engagement across a broad array of public issues (e.g., environmental planning efforts, municipal budgeting challenges, zoning ordinance revisions, and conflicts over gentrification and redevelopment), contributing to the literature in organizational studies, public engagement, public management. This project will allow her to contribute her expertise in organizing public engagement to facilitate discussion of the EAB problem, and to advance her research regarding how experts and non-expert members of the public can mediate diverse and sometimes competing values, knowledge bases, and decision-making logics. It complements two other research projects she is conducting to evaluate effective boundary work practices for including public managers, subject matter experts, and the public in decision-making on technically complex, emergent public issues, one related to urban transportation planning and the other to municipal budgeting.

References:

- ¹ Hahn, Jeffrey. 2009. Emerald ash borer. <http://www.extension.umn.edu/distribution/horticulture/M1242.html>. Produced by University of Minnesota Extension, accessed 2/1/11.
- ² Liu, H. et al. 2003. Exploratory survey for the emerald ash borer, *Agrilus planipennis* (Coleoptera: Buprestidae), and its Natural enemies in China. *The Great Lakes Entomologist* 36: 191-204.
- ³ Selness, A.R. and R.C. Venette. 2006. Minnesota pest risk assessment: emerald ash borer, *Agrilus planipennis*. Minnesota Department of Agriculture Publication number PRA-APLA-001.
- ⁴ Kovacs, K.F., R.G. Haight, D.G. McCullough, R.J. Mercader, N.W. Siegert, and A.M. Liebhold. 2010. Cost of potential emerald ash borer damage in U.S. communities, 2009–2019. *Ecological Economics* 69 (3): 569-78.
- ⁵ Mackenzie, B.F. and B.M.H. Larson. 2010. Participation under time constraints: landowner perceptions of rapid response to the emerald ash borer. *Society & Natural Resources* 23 (10): 1013 -22.
- ⁶ See for example: Rowe, G. and L. Frewer. 2000. Evaluating public participation methods: a framework for evaluation, *Science, Technology & Human Value* 25(1): 3-29; Rowe, G., R. Marsh, and L. Frewer. 2004. Evaluation of a deliberative conference. *Science, Technology, & Human Values* 29(1): 88-121; Powell, M. and M. Colin. 2008. Meaningful citizen engagement in science and technology: what would it really take? *Science Communication* 30 (1): 126-136.
- ⁷ See for example: National Research Council. 1996. *Understanding Risk: Informing Decisions in a Democratic Society*. National Academy Press: Washington, DC; National Research Council. 2008. *Public Participation in Environmental Assessment and Decision Making*. National Academy Press: Washington, DC.
- ⁸ As reviewed in R. Lundgren and A. McMakin . 2009. *Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risk*. Institute of Electrical and Electronics Engineers, Inc., and John Wiley & Sons, Inc.: Hoboken, New Jersey
- ⁹ See for example: Jasanoff, S. 1990. *The Fifth Branch: Science Advisers as Policymakers*. Cambridge, MA: Harvard University Press; Fischer, F. 2000. *Citizens, Experts and the Environment: The Politics of Local Knowledge*. Durham, NC: Duke University Press; and Feldman, M.S., A.M. Khademian, H. Ingram, and A.S. Schneider. 2006. Ways of knowing and inclusive management practices. *Public Administration Review* 66 (s1): 89-99.
- ¹⁰ See for example Feldman, M.S., A.M. Khademian, and K.S. Quick. 2009. Ways of knowing, inclusive management, and promoting democratic engagement: An introduction to the special issue. *International Public Management Journal* 12 (2): 123-36; Feldman, D.L. and H.M. Ingram, 2009: Making science useful to decision makers: climate forecasts, water management, and knowledge networks. *Weather, Climate, and Society* 1, 9–21; and Butler, W.H. and B.E. Goldstein. 2010. The US fire learning network: springing a rigidity trap through multi-scalar collaborative networks. *Ecology and Society* 15(3): 21.
- ¹¹ See for example: Brown, J.S. and P. Duguid. 1991. Working, learning, and innovation. *Organization Science* 2 (1): 40-57; Abbott, A. 1995. Things of boundaries. *Social Research* 62 (4): 857-882; Suchman, L. 1995. Making work visible. *Communications of the ACM* 38 (9): 56-64.; Orr, J.E. 1996. *Talking about Machines: An Ethnography of a Modern Job*. Ithaca, NY: Cornell University Press; Gieryn, T.F. 1999. *Cultural Boundaries of Science: Credibility on the Line*. Chicago: University of Chicago Press; Lamont, M. and V. Molnár. 2002. The study of boundaries in the social sciences. *Annual Review of Sociology* 28: 167-195; Bechky, B. 2003. Object lessons: workplace artifacts as representations of occupational jurisdiction. *American Journal of Sociology* 109(3): 720-52; Carlile, P.R. 2004. Transferring, translating, and transforming: an integrative framework for managing knowledge across boundaries. *Organization Science* 15 (5): 555-568; Tilly, C. 2004. Social boundary mechanisms. *Philosophy of the Social Sciences* 34 (2): 211-236.; and Yanow, D. 2004. Translating local knowledge at organizational peripheries. *British Journal of Management* 15 (1): S9-S25.
- ¹² Potentially *Society and Natural Resources*, *Science Communication*, *Public Understanding of Science*, or *Science Technology & Human Values*.



Kathryn Quick <ksquick@umn.edu>

CSTPP Grant Proposal Developed by Jennifer Kuzma and Kathryn Quick

Steve Kelley <kelle644@umn.edu>

Mon, Feb 7, 2011 at 1:43 PM

To: "Susan M. Wolf" <swolf@umn.edu>

Cc: Kathy Quick <ksquick@umn.edu>, "Kuzma, Jennifer" <kuzma007@umn.edu>, Audrey Boyle <boyle032@umn.edu>

Dear Susan,

I am writing to support the grant proposal which is being submitted by my colleagues Jennifer Kuzma, Ph.D. and Kathryn Quick, Ph.D. Their proposal to explore the intersection of a current environmental challenge and democratic decision-making falls in one of the core interest areas of the Center for Science, Technology and Public Policy. They are well-prepared to carry out this project. Dr. Kuzma, as you know, has long been involved in research into democratic oversight processes for new technology. Dr. Quick, who has recently joined the Humphrey School faculty, has studied community decision-making and leadership in a variety of settings.

Their proposed research has the potential to yield useful new knowledge as well as generate practical lessons that can be implemented in communities. The project advances the University's interest in both outreach and public engagement.

Thank you for the Consortium's consideration of this proposal.

Sincerely yours,

Steve Kelley

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Steve Kelley
Senior Fellow and Director
Center for Science, Technology and Public Policy
Humphrey School of Public Affairs
301 19th Ave. S., Minneapolis MN 55455
612-626-6629
