Integrating Stakeholder Values in Collaborative Land-Use Planning for Metropolitan-Area Edge Communities

by Carissa Schively Slotterback, David G. Pitt, and Julie Quinn

Planning at the urban fringe or “edge” of metropolitan areas presents unique and interesting challenges. As rural small towns and agricultural areas transition from exurban to suburban landscapes, they face important decisions about the character and location of future development. Working often within a fragmented decision-making structure, they seek to balance numerous competing values, including preserving a rural lifestyle, providing opportunities for recreation, conserving sensitive natural areas, and providing economic opportunity through development. Creating enduring policies to guide orderly and sustainable development requires the engagement of multiple stakeholders holding legitimate interests in the future of edge communities. This article presents an innovative collaborative approach to land-use planning that is both resource based and stakeholder driven. In this article, we highlight a recent application of this new approach in an area that encompasses Lake-town Township in Carver County, a community in the exurban fringe of the southwestern portion of the Twin Cities metropolitan region.

The research upon which this article is based was supported by a grant from CURA’s Community Growth Options (U-CGO) program (subsequently renamed the Community Growth...
Planning Assistance Center, or CGPAC), with funding from the McKnight Foundation.

### Fragmented Governance Means Diverse Stakeholders at the Exurban Fringe

Poised to experience significant growth in the next several decades, communities at the edge of large urban regions are often challenged by the fragmented decision-making structures that guide land-use and environmental decision making in their jurisdictions. Laketown Township exemplifies the fragmented decision-making structure that characterizes communities at the edge of large metropolitan areas. Although the township has a town board with some responsibility for local decision making, as an unincorporated entity it does not have planning and zoning authority, a situation common in most Minnesota townships. Consequently, Carver County exercises this authority in the township, in consultation with the town board.

Organization of the 23,566-acre Laketown Township occurred in the late 1860s. The City of Victoria was incorporated in the northeast corner of the township in 1915. In addition to Victoria, the township is surrounded by the southwestern corner of Hennepin County and the cities of Chaska and Waconia, as well as Waconia Township and Dahlgren Township in Carver County. Of the 23,566 acres included in the original township, 4,803 (or approximately 20%) are now part of Victoria (Table 1 and Figure 1). Approximately 11% of the township’s original acreage is contained within the Carver Park Reserve. Land-use planning in this portion of the township is under the jurisdiction of the Three Rivers Park District.

In 1976, Laketown Township entered into an agreement of orderly annexation with the adjacent cities of Waconia, Victoria, and Chaska. Under terms of this agreement, the township will cease to exist by 2030. Victoria is planning to annex an additional 4,221 acres of the township, and Waconia and Chaska will annex an additional 3,406 and 982 acres, respectively. The 2030 comprehensive plan updates for each of these municipalities include plans relating to land use and natural-resource conservation for the areas of the township that will be annexed. After these annexations occur, the remaining 10,154 acres of the original township (approximately 32%) will revert to Carver County. This acreage—known as the “rural transition area”—became the focus of an intense land-use planning effort as part of the Laketown Township project that we led and describe here.

In addition to the planning and zoning authority exercised by Three Rivers Park District, Carver County, Victoria, Waconia, and Chaska, the Minnesota Department of Natural Resources (DNR), the Minnesota Pollution Control Agency (MPCA), and two watershed districts exercise jurisdiction over water-resource and water-quality issues. The Minnehaha Creek Watershed District’s jurisdiction extends over 43% of the land area in the northeastern portion of the original township. The Lower Minnesota River Watershed District exercises this authority in the remainder (Table 1). The Metropolitan Council also coordinates land-use planning and zoning among the 189 local units of government in the seven-county Twin Cities metropolitan area. Additional significant public or quasi-public lands in or adjacent to Laketown Township include the Minnesota Valley National Wildlife Refuge, the Marsh Lake Hunting Club, the University of Minnesota Landscape Arboretum, and Crown College.

### A Collaborative Process for Integrating Diverse Stakeholder Interests, Nature, and Community Values in Land-Use Planning

Fragmentation among these federal, state, local, and nongovernmental organizations with land-use planning and zoning authority within the township necessitated inclusion of a broad base of stakeholders beyond the Laketown Township Board (see sidebar, p. 5). We developed and evaluated a new collaborative planning approach that actively engages these diverse stakeholders to define priorities and uses environmental and natural-resource information to guide decisions about future land use. The approach is explicitly intended to foster planning as if both nature and community values matter, and to create a venue wherein connections across this range of values and among multiple stakeholders might be identified.

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### Table 1. Fragmentation of Political Jurisdiction for Land-Use Planning in Laketown Township, Minnesota

<table>
<thead>
<tr>
<th>Ownership Status</th>
<th>Total Acres</th>
<th>Pct. of Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Transition Area: Private</td>
<td>7,283</td>
<td>31%</td>
</tr>
<tr>
<td>Rural Transition Area: Crown College</td>
<td>212</td>
<td>1%</td>
</tr>
<tr>
<td>Rural Transition Area: Carver Park Reserve</td>
<td>2,659</td>
<td>11%</td>
</tr>
<tr>
<td>City of Chaska 2030 Annexation Area</td>
<td>982</td>
<td>4%</td>
</tr>
<tr>
<td>City of Waconia 2030 Annexation Area</td>
<td>3,406</td>
<td>14%</td>
</tr>
<tr>
<td>City of Victoria 2030 Annexation Area</td>
<td>4,221</td>
<td>18%</td>
</tr>
<tr>
<td>City of Victoria (existing)</td>
<td>4,803</td>
<td>20%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>23,566</strong></td>
<td><strong>99%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Watershed District</th>
<th>Total Acres</th>
<th>Pct. of Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minnehaha Creek</td>
<td>13,369</td>
<td>43%</td>
</tr>
<tr>
<td>Lower Minnesota River</td>
<td>10,197</td>
<td>57%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>23,566</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Note: Total acres of original township. Columns may not add to 100% due to rounding.
In our application of this approach in Carver County, we engaged stakeholders in a 10-month collaborative planning process, during which participants gathered approximately monthly and used environmental and natural-resource information to construct future protection and development scenarios for the rural transition area. The project focused on identifying collaborative methods that engage stakeholders in using a comprehensive range of landscape factors for constructing land-use planning policies in developing areas on the edge of the Twin Cities metropolitan area. Recruitment of stakeholder groups used a “snowball” technique in which we asked participants to identify other potential groups that might have an interest in participating in the process, and informed participants of the conceptual and experimental nature of the planning effort.

As part of the process, our research team presented to stakeholders a series of natural and cultural resource maps of the Laketown Township area. The research team used various types of maps, digital simulations and aerial photographs of the landscape, graphs, PowerPoint presentations, and survey instruments to engage stakeholders in conversation about the derivation and relevance of the mapped information to land-use planning (Table 2).
### Table 2. Landscape Values Considered in the Stakeholder Process

<table>
<thead>
<tr>
<th>Planning Framework</th>
<th>Ecosystem Service</th>
<th>Landscape Components</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Protection</td>
<td>Sustaining</td>
<td>Forest and wetland habitat quality and diversity as defined by:</td>
<td>Minnesota Land Cover Classification System (MLCCS), Minnesota Dept. of Natural Resources (MnDNR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Patch interior core area (measured as 100 meters from the outside edge of the patch in an inward direction)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Habitat patch shape (wherein regularly shaped—e.g., circular and square—patches offer more interior core area than irregularly shaped patches)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Proximity of patch to urban and agricultural disturbance factors</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Percentage of patch containing altered or nonnative plant species as opposed to native species</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Proximity to other forest- or wetland-habitat patches</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Mix of bottomland and upland areas within patch (measured only for forest patches)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Percentage of patch containing regionally significant ecological areas as defined by MnDNR for the central portion of the state</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Surface water and groundwater contamination susceptibility from surface land uses as defined by:</td>
<td>MLCCS Division of Waters (MnDNR) USDA Natural Resources Conservation Service Minnesota Geological Survey County Well Index Database</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Existing land cover</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Surface drainage network</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Drainage subbasins within study area</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Soil characteristics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Surficial geologic formations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bedrock geologic formations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Depth to bedrock</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Location of wells providing public drinking-water supply</td>
<td></td>
</tr>
<tr>
<td>Environmental-Use Management</td>
<td>Provisioning</td>
<td>Significant agricultural landscapes as defined by soils and land cover</td>
<td>USDA Natural Resources Conservation Service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steep slope hazards as defined by slope and land cover</td>
<td>MLCCS Digital elevation data, MnDNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil suitability for septic-tank drain fields and dwellings with basements</td>
<td>USDA Natural Resources Conservation Service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solar access suitability as defined by slope steepness and aspect as well as land cover</td>
<td>MLCCS Digital elevation data, MnDNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Access to transportation and other civic infrastructure</td>
<td>MLCCS Minnesota Dept. of Transportation Metropolitan Urban Services Area</td>
</tr>
<tr>
<td>Cultural</td>
<td></td>
<td>Historically and archaeologically significant landscapes</td>
<td>Minnesota Historical Society</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant recreational landscapes</td>
<td>Carver County Parks Department Three Rivers Park District Carver County parcel data MnDNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant scenic values as defined by land cover and slope</td>
<td>MLCCS Digital elevation data, MnDNR</td>
</tr>
</tbody>
</table>
With facilitation from our research team, multiple stakeholder groups used this information to identify and map areas with resource values that needed some form of protection in future land-use planning for the rural transition area. Our research team assisted the groups in negotiating a “consensus protection priority” map (Figure 2). Using this map as a basis for guiding growth in the rural transition area, stakeholder groups also participated in a planning simulation exercise in which they constructed four alternative development scenarios for the rural transition area. Using graphic information about potential impacts (for example, taxes, number of school-aged children) associated with the scenarios (Figure 3), and digital simulations of the scenarios’ appearance in the rural transition area (Figure 4), our research team facilitated a comparative evaluation of alternative planning scenarios for the setting.

**Understanding Natural Resource Information.** Stakeholders need to have a comprehensive understanding of the functioning of and multiple values associated with the biophysical systems in the landscape that they are planning. In this process, ecosystems in the landscape are examined in terms of the material and immaterial “goods” and “services” they offer to satisfy multiple societal needs.1 Some of these goods and services, termed *sustaining services*, are related to supporting critical landscape ecosystems (e.g., protecting and enhancing biodiversity, as well as water quantity and quality). The continued existence of these sustaining services makes it possible for *provisioning services* in the environment to equip humans with essential material resources (e.g., productive agricultural soil and various forms of energy resources). Other *regulating ecosystem services* moderate conditions in the environment such as air and water quality and extremes of temperature and humidity, making it possible for humans to survive. Finally, *cultural services* enhance human health, satisfaction, enjoyment, and development by affording humans the enjoyment of scenic vistas and offering opportunities for outdoor recreation, learning, and scientific advancement.

The study focused primarily on information pertaining to sustaining, provisioning, and cultural ecosystem services. Our research team’s presentation of environmental and natural-resource information focused initially on identifying an

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environmental-protection framework geared toward sustaining ecosystem services, in order to protect and enhance critical environmental systems in the landscape related to wildlife-habitat quality, and surface water and groundwater contamination susceptibility. Subsequently, the team identified natural systems important to defining an environmental-use management framework consisting of provisioning and cultural ecosystem services related to how humans use the landscape directly. This framework considered areas containing high natural-resource values (e.g., prime agricultural land, as well as landscapes containing historical, archeological, recreational, and scenic value). Other factors that were considered included potentially hazardous conditions (e.g., steep slopes) and areas well suited for urban development (e.g., suitable soil characteristics, access to existing infrastructure, and appropriate solar orientation) (Table 2).

We conducted our study at two geographic scales relative to Laketown Township. First, we inventoried and evaluated an array of environmental and natural resources in an approximately 78,000-acre area. The extended study area included hydrologic subbasins that reached north of the township into southwestern Hennepin County, east into the adjacent communities of Chanhassen and Chaska, west into the City of Waconia and Waconia Township, and south to the Minnesota River. Working at this scale allowed us to understand the biological, physical, and cultural relationship of the township to its surrounding context. In thinking about future land-use planning strategies, we also zeroed in on the 10,154-acre rural transition area (Figure 1). This cross-scalar approach to information gathering allowed stakeholders to understand how future land-use decisions in the rural transition area affected and were affected by regional landscape systems in the larger study area.

Rather than a typical approach of simply presenting the information to stakeholders as given, the team spent considerable time explaining the underlying methodologies used to create the maps, as well as the sources from which the data were drawn. For example, with respect to habitat quality, we worked together with the stakeholders to build an understanding of seven technical components of forest and wetland...
habitat quality, including extent of core habitat area, shape, proximity to urban and agricultural disturbance factors, mix of native versus altered or non-native vegetation, proximity to other habitat patches, mix of upland and bottomland conditions (calculated only for forest patches), and habitat score calculated by the Minnesota DNR in its survey of regionally significant ecological areas (Table 2). In addition to viewing multiple maps containing relevant information, stakeholders had the opportunity to weight the importance of each component of forest/wetland quality based on their own priorities by allocating 100 points across the seven categories. Those ratings were then aggregated across stakeholders and presented at the next meeting as part of an overall forest- and wetland-habitat assessment. This active engagement of stakeholders with the resource information facilitated the integration of their values into the resulting assessment of habitat value (Figure 5).

The interactive process of vetting the environmental and natural-resource information with stakeholders provided valuable insights on the accuracy and utility of the information. For example, participating stakeholders identified errors in our population projections and inaccuracies in the base data used in calculating forest-habitat quality and recreational-resource values. Correction of the base data enabled production of more accurate habitat-quality and recreational-resource value assessments. The vetting process also enabled stakeholders to better understand the nuances of the data and use this information in a meaningful way in the process of developing land-use planning policies.

Communication of Information. To be useful in land-use planning, information about ecosystem services must be communicated in a way that is relevant to the needs of stakeholder decision makers, understandable, and credible.
In communicating the information about ecosystem services in the rural transition area, we used maps as the primary means of presenting data. These maps were presented at multiple geographic scales, always identified features (e.g., roads, lakes) to orient participants, and contained simple color schemes and legends. We used PowerPoint presentations, in addition to large-scale paper and clear-acetate overlays, frequently at meetings to facilitate participant involvement in interactive exercises. As evident in identifying consensus priority-protection areas, these exercises included overlay-mapping techniques wherein participants worked in small groups to identify areas for protection. Groups worked with 10 table-size (36-inch by 48-inch) clear overlay maps representing the various resource factors highlighted in Table 2. The clear maps contained different colors to display resource information so that each resource value could be clearly seen when laid on top of one another. Groups could use any or all of the maps to inform recommendations for defining areas that should be afforded some level of policy protection as development occurred in the rural transition area. Stakeholders worked with these maps in groups across multiple meetings in a process involving interaction within groups, across groups, and between stakeholders and our research team.

After each meeting, our research team converted the maps produced by each group to digital form and examined them in terms of patterns emerging across groups. The digitized maps and their analysis served as the first order of business in subsequent meetings, allowing stakeholders to engage in iterative and reflective conversation about their own work and its relationship to that of their peers. Over the course of three meetings, the entire stakeholder group constructed a Consensus Resource-Protection Framework (Figure 2). Using a similar overlay technique that involved iterative, reflective, and communicative interaction from their perspectives. Presenting this information through multiple modes (e.g., two-dimensional maps, charts, and tables as well as three-dimensional visualizations depicting actual experience of the landscape resulting from implementation of planning policies) often enhances stakeholders' understanding of complex sets of data, increases their use in decision making, facilitates interaction among stakeholders, and promotes the development of shared understandings among decision makers. Information about environmental impacts and risks is most effectively integrated into decision making when recipients can interact with and manipulate the information being presented and deliberate and talk with colleagues about its content.

among participants, the stakeholders constructed four alternative development scenarios framed around the areas with high resource value as depicted in the Consensus Resource-Protection Framework.

Using CommunityViz™ software, our research team calculated and presented to the stakeholders an evaluation of the multiple scenarios using 10 sets of development impact indicators, such as taxes, water consumption, vehicle miles traveled, auto emissions, etc. (Table 3 and Figure 3). Combining CommunityViz™ and GoogleEarth™, our research team presented static and dynamic fly-through three-dimensional computer simulations of the experiential

<table>
<thead>
<tr>
<th>Criterion Category</th>
<th>Criterion Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Number of new residents</td>
</tr>
<tr>
<td></td>
<td>Number of school-aged children</td>
</tr>
<tr>
<td>Land use</td>
<td>Number of residential dwelling units</td>
</tr>
<tr>
<td></td>
<td>Proportion of dwelling units at net density exceeding eight dwelling units per acre</td>
</tr>
<tr>
<td></td>
<td>Total commercial floor area</td>
</tr>
<tr>
<td>Employment</td>
<td>Number of jobs created</td>
</tr>
<tr>
<td></td>
<td>Ratio of jobs created to dwelling units</td>
</tr>
<tr>
<td>Open space</td>
<td>Percent total land area in open space</td>
</tr>
<tr>
<td></td>
<td>Acres of open space per new resident</td>
</tr>
<tr>
<td></td>
<td>Mean distance from residential development to open space</td>
</tr>
<tr>
<td></td>
<td>Mean distance from commercial development to open space</td>
</tr>
<tr>
<td>Tax base</td>
<td>Annual property tax generated per dwelling unit</td>
</tr>
<tr>
<td></td>
<td>Total annual residential property tax generated</td>
</tr>
<tr>
<td></td>
<td>Annual commercial tax generated per 1000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total annual commercial property tax generated</td>
</tr>
<tr>
<td></td>
<td>Total annual taxes generated</td>
</tr>
<tr>
<td>Water consumption</td>
<td>Annual water consumption per household</td>
</tr>
<tr>
<td></td>
<td>Total annual water consumption by residential land uses</td>
</tr>
<tr>
<td></td>
<td>Annual water consumption per 1,000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total annual water consumption by commercial land uses</td>
</tr>
<tr>
<td>Wastewater usage</td>
<td>Annual wastewater consumption per household</td>
</tr>
<tr>
<td></td>
<td>Total annual wastewater consumption by residential land uses</td>
</tr>
<tr>
<td></td>
<td>Annual wastewater consumption per 1,000 square feet of commercial floor area</td>
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<tr>
<td></td>
<td>Total annual wastewater consumption by commercial land uses</td>
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<tr>
<td>Energy consumption</td>
<td>Annual energy consumption per household</td>
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<tr>
<td></td>
<td>Total annual energy consumption by residential land uses</td>
</tr>
<tr>
<td></td>
<td>Annual mean commercial energy consumption per employee</td>
</tr>
<tr>
<td></td>
<td>Total annual energy consumption by commercial land uses</td>
</tr>
<tr>
<td>Transportation</td>
<td>Total vehicle trips per day (VTD) generated by residential land uses</td>
</tr>
<tr>
<td></td>
<td>Total VTD generated by employees in commercial land uses</td>
</tr>
<tr>
<td></td>
<td>Total daily vehicle miles traveled (VMT) per household</td>
</tr>
<tr>
<td></td>
<td>Total daily VMT per 1000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total daily VMT generated by residential and commercial land uses</td>
</tr>
<tr>
<td></td>
<td>Total daily VMT generated per capita by residents and employees</td>
</tr>
<tr>
<td>Daily auto emissions</td>
<td>Total daily carbon monoxide (CO) auto emissions per household</td>
</tr>
<tr>
<td></td>
<td>Total daily CO auto emissions per 1000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total daily CO auto emissions by residential and commercial land uses</td>
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<tr>
<td></td>
<td>Total daily carbon dioxide (CO₂) auto emissions per household</td>
</tr>
<tr>
<td></td>
<td>Total daily CO₂ auto emissions per 1000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total daily CO₂ auto emissions by residential and commercial land uses</td>
</tr>
<tr>
<td></td>
<td>Total daily hydrocarbon (HC) auto emissions per household</td>
</tr>
<tr>
<td></td>
<td>Total daily HC auto emissions per 1000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total daily HC auto emissions by residential and commercial land uses</td>
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<tr>
<td></td>
<td>Total daily nitrogen oxide (NOx) auto emissions per household</td>
</tr>
<tr>
<td></td>
<td>Total daily NOx auto emissions per 1000 square feet of commercial floor area</td>
</tr>
<tr>
<td></td>
<td>Total daily NOx auto emissions by residential and commercial land uses</td>
</tr>
</tbody>
</table>
qualities of the landscape patterns
created in the alternative development
scenarios (Figure 4). The simulations
showed existing and proposed landscape
features and identified potential develop-
ment configurations consistent with the
scenarios produced by the stake-
holder groups. Workshop participants
were intrigued with the prospect of
being able to see life-like images of their
various development scenarios. As noted
earlier, the multimodal presentation of
development impact information in
two- and three-dimensional media facili-
tates stakeholder understanding of develop-
ment impacts, enhances engagement
and interaction of participants, and
devotes the development of shared
understandings among decision makers.
When the development impact param-
ters illustrated in Figure 3 were presented
to workshop participants, stakeholder
groups began “rooting” for their indi-
vidual scenarios to receive highest evalu-
ations, suggesting enhanced engagement
and bonding among participants.

Integration of Information in
Stakeholder Decision Making. The
quality and sustainability of land-use
decisions depends upon the nature of the
process used in constructing this policy.
Decision-making processes that are
more collaborative and inclusive
(both among stakeholders and academic
disciplines, and between experts and lay
people) facilitate convergence of stake-
holder perspectives on land-use issues.
The ability of decision makers to engage
one another also facilitates sustained
communicative learning that promotes
convergence of stakeholder perspec-
tive and construction of more enduring
planning policies that are more repre-
sentative of diverse values.

Central to the stakeholder process,
as it intersects with the information
and communication elements discussed
above, was a focus on collaboration and
deliberation. Each stakeholder meeting
included an interactive element, allowing
participants to share information with
our research team and with each other.
They shared personal experiences and
knowledge, agency and organizational
perspectives, and insights relative to the
data being presented by our research
team. This sharing of information
promoted a phenomenon commonly
known as social learning, wherein partic-
ips’ perspectives change and converge
over time as a result of their interaction.
This convergence of thinking facilitates
the construction of consensus-based
land-use planning policies. In addition
to the consensus protection-area overlay
mapping exercise and prioritization of
forest-habitat components described
above, participants learned from each
other through collaborative exercises.
These included identifying key visual
and environmental resources, prioritizing
resource factors to be used in informing
conservation and development, devel-
opment and conservation and develop-
ment scenarios, and evaluating the effective-
ness of implementation tools (e.g.,
conservation development ordinances,
transfer of development rights).

Facilitation was also central to the
stakeholder process. As facilitators, our
research team emphasized the collabora-
tive nature of the stakeholder process,
eliciting feedback on all aspects of the
information, communication, and
planning decision making. We also
emphasized engaging all participants in
large- or small-group settings, as well
as through targeted outreach to partici-
pants who were unable to attend some
meetings. Participants received full sets
of meeting materials at the conclu-
sion of each session. Each stakeholder
meeting commenced with a summary
of outcomes from the previous meeting,
summarizing additional analyses
performed by our research team in the
interim, and stakeholder reaction to
newly presented information, as well as
stakeholder reflection on the progress of
the overall collaborative process.

Outcomes
We conducted follow-up interviews with
stakeholder participants immediately
preceding the last stakeholder meeting.
The interview protocol was based on
a series of 16 questions, each of which
contained multiple parts. Interviewers
asked all 16 of the questions as scripted,
but adapted the order in which they
asked the questions to follow the diverse
narratives presented by interviewees.
Results of the interviews suggested
that various outcomes resulted from
the 10-month process. They included
development of the consensus resource-
protection framework, expansion of
stakeholder perspectives on land-use
planning in edge communities, and
development of social capacity to
continue similar planning activities
across political jurisdictional bound-
aries and agency mandates. Subsequent
to completion of the project, the data
generated by the process have been
used for other purposes, and products
emanating from the project have been
used in the education of professional
environmental and landscape planners
at the University of Minnesota.

Developing a Consensus Resource-
Protection Framework. Stakeholders
participating in the process prepared
three products: the consensus resource-
protection framework described earlier,
four alternative scenarios for develop-
ment in the rural transition area, and a
series of implementation strategies that
might be used to implement both the
protection framework and the develop-
ment scenarios. Nearly all participants
in the projects volunteered that they
felt the legacy of the project was the
development of the consensus resource-
protection framework. Participants
felt this work brought the multiple
jurisdictions and agencies responsible
for managing growth of the Laketown
Township area into a common arena,
provided them with information and
tools for identifying and evaluating
landscape resources from various
perspectives, and walked them through a
process for defining areas needing some
measure of future protection. They also
saw the framework as being compatible
with the comprehensive plans of
surrounding jurisdictions. Participants
felt as though they fully understood the
purpose of the protection framework
and that it would be a useful and lasting
structure for guiding growth in the area.

Expanding Stakeholder Capacity for
Land-Use Planning in Edge Commu-
nities. Stakeholders engaged in the
process came from many walks of life.
Some were city, county, or environ-
mental planners. Other public-agency
representatives included recreation
resource planners and managers, water-
shed managers, and wildlife biologists.
Private-sector representatives included
a facilities manager for a local college,
a developer, and multiple land owners.
Thus, familiarity with planning
concepts and methods varied. Nearly
all participants, however, felt they had
been exposed to new ideas about plan-
ing in developing areas, were able to
think about planning implementation
in unique ways, and appreciated having
the capacity to use cutting-edge tech-
nology in landscape evaluation and
visualization. Most also believed the
exercise of formulating a plan through
interaction and conversation with other
stakeholders was a valuable experience.

Expanding Social Capacity for
Land-Use Planning in Edge Commu-
nities. One of the other lasting outcomes
of the 10-month process was a product
of regular interaction among 18
individuals engaged in various phases of landscape planning and management. The opportunity for local, county, and regional planners to work collaboratively with state and federal land management agency personnel as well as with the private sector and nongovernmental organizations on land-use planning was unique. All involved felt they had, indeed, engaged in social learning and that the collective understandings gained through the process permitted construction of viable strategies for developing and implementing land-use plans in edge communities as if both nature and community values mattered. If nothing else, they at least now know who to contact on specific issues, and this newly created professional network will allow them to pursue their individual planning interests from a more knowledgeable and socially connected perspective.

**Using Compiled Data to Facilitate Local Planning.** The geographic information database compiled to complete this project now has a life of its own. One of the municipalities involved in the 10-month process is using the database to support area-wide planning for a portion of its jurisdiction that is experiencing pressure for land-use change. The Marsh Lake Hunt Club owns more than 350 acres of land in the southeastern portion of Laketown Township that will be annexed into the City of Victoria. This land is currently managed exclusively to enhance the bird-hunting experiences of club members. Victoria’s 2030 Comprehensive Plan update suggests that much of the annexed area surrounding the club will be developed in the next 20 years. The club views future development of land surrounding its current holding as a potential liability for its continued existence in its present location. It is reportedly exploring possible relocation alternatives.

Recognizing the prospect of this potential land transfer, the City of Victoria is exploring a development planning and zoning strategy for the current Marsh Lake Hunt Club that envisions the land being developed as a conservation subdivision in an effort to retain many of the natural assets of the site while also realizing the land’s development potential. Data generated from this collaborative planning process were transferred to the city’s planning consultant for land-use planning for club property.

**Expanding Opportunities for Professional Education of Environmental and Landscape Planners as well as Faculty Research.** The first two authors are involved in the professional education of environmental and landscape planners at the graduate and undergraduate level. To date, approximately 115 students in the University of Minnesota Hubert H. Humphrey School of Public Affairs and the Department of Landscape Architecture have received hands-on instruction in the landscape assessment and collaborative planning processes advanced by pursuit of this project. Students have used the database developed for this project and mimicked the environmental planning process presented in this article to develop land-use plans for the rural transition area. Many of these students have graduated and are pursuing professional careers informed, in part, by their experiences in these classes.

Finally, the first two authors are engaged in similar collaborative planning research with faculty from multiple disciplines at the University of Minnesota. They are part of interdisciplinary teams that have received grants to develop a protocol for collaborative stakeholder design of rural landscapes that produce biofuel resources, food commodities, and other ecosystem services in the Minnesota River valley.

**Conclusion**

Faculty at the University of Minnesota have a tripartite mission that involves generating new knowledge and understanding through research and scholarship, teaching these newly gained insights to both undergraduate and graduate students in a variety of disciplines, and applying that knowledge to the pressing problems of the state of Minnesota to improve social well-being, economic prosperity, and environmental quality. The authors are grateful for the opportunity to participate in the project described in this article, which represents a relatively unique opportunity wherein all three of the University’s missions can be furthered in the same effort.

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The evidence for the long-term benefits of high-quality early childhood education is unequivocal. However, little research has examined how institutional racism—the combination of policies and practices inherent in social structures that create, perpetuate, and amplify race-based inequalities—operates in the context of early childhood education. In collaboration with the YWCA of Minneapolis, Moin Syed (Psychology) and colleagues will collect data from parents and staff of early childhood education facilities using a narrative approach. By analyzing participants’ stories, the investigators will have an opportunity to understand the cultural, contextual, and psychological aspects of individuals’ experiences with the educational system. The results of the research will be used to support advocacy efforts to increase and reprioritize funding for early childhood education programs that serve communities of color in Minnesota.

**Program:** Faculty Interactive Research Program

### The Impact of Alternative Teacher Licensure in Minnesota

Governor Mark Dayton recently signed into law an amendment to the Minnesota statute governing teacher licensure that authorizes the State Board of Teaching to approve alternative teacher-licensure programs and the State Department of Education to approve temporary, two-year teaching licenses for individuals who are college graduates and admitted to one of these programs. Steven R. Yussen (Institute of Child Development) and colleagues will study the impact of this alternative teacher-licensure provision during the first 18 months it is implemented in relation to several key intended outcomes: whether new alternative licensure programs are developed, whether prospective teachers with diverse backgrounds are attracted through the initiative, whether the teacher shortage is addressed, and whether highly qualified teachers are produced.

**Program:** Faculty Interactive Research Program

### Ready? Set. Go! Building Capacity to Assess and Promote Executive-Function Skills

For the last several decades, Ann Masten (Distinguished McKnight University Professor at the Institute of Child Development) has focused her research on risk and resilience among homeless and highly mobile children, particularly as they relate to educational achievement and developmental outcomes important for long-term health and well-being. With her appointment as the 2011–2012 Fesler-Lampert Chair in Urban Regional Affairs, Masten and her colleagues will initiate a new phase of community-based collaborative work focused on promoting school readiness and success among homeless and highly mobile children through interventions to build executive-function skills—such as planning, organizing, strategizing, remembering details, and exercising emotional control—which are increasingly recognized as critical to educational success. The overall goal of this work is to build capacity and strategies for addressing the striking achievement and development disparities that Masten and her colleagues have documented in the Minneapolis Public Schools related to poverty, homelessness, and highly mobile status.

**Program:** Faculty Interactive Research Program