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R E S E A R C H   R E P O R T

Suggested Design and Management  
Techniques for Enhancing Public Engagement in  
Transportation Policymaking

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# **Suggested Design and Management Techniques for Enhancing Public Engagement in Transportation Policymaking**

## **Final Report**

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## **Executive Summary**

This report analyzes how the public can be effectively engaged in democratic decision-making and implementation of technically complex transportation policies. Its contribution is to compile and analyze strategies for enhancing public engagement specifically in transportation planning and policy via a review of the literature, identification of key design choices in organizing public engagement, a case study, and recommendations for further research. It incorporates the following sections:

- Highlights from existing knowledge about the benefits, purposes, and challenges of public engagement (Section 1).
- An assessment of the state of public engagement in transportation and an evaluation of participatory designs currently being used in the sector (Section 2).
- A framework that we suggest transportation policymakers utilize in deciding how to design public engagement processes (Section 3).
- Description and analysis of two cases of participatory transportation planning efforts in Grand Rapids, Michigan (Sections 4 and 5).
- Recommendations for further research and proposals for how to engage the public in several current transportation policy issues in Minnesota (Section 6).

## 1 Why Bother with Public Engagement?

Public engagement involves gathering public input to inform decision-making by government agencies, political leaders, or nonprofit organizations involved in administering public policies and programs. It has become a fundamental feature of the public-government relationship [1,2,3,4,5]. Public engagement is less common in transportation, however, than in some other domains of public policy, such as environmental management, community development, and urban planning.

The body of literature related to practices of public engagement in planning and other public issues is immense, appearing under the umbrellas of citizen participation, civic engagement, collaborative governance, and inclusion and representation in democracy. This report utilizes the broader umbrella term “public engagement” and calls out distinctions among the practices as needed. In addition, we utilize the terms “policy” and “policymaking” broadly to describe a variety of activities within transportation, including planning, formal public policymaking, program design, and evaluation. Within the broad view of public engagement in transportation policymaking, this review and analysis are selective, and oriented towards the recognition that *how* policymakers communicate with the public has significant effects on the quality of policy decisions and the ability to implement them.

Because public agencies are increasingly short of staff and consulting resources due to tightening resource constraints, it is important to consider what the literature indicates about the costs and benefits of public engagement efforts. Public engagement indisputably consumes agency budgets, staff and volunteer time, technical assistance, or information infrastructure [6], and may not yield obvious short-term benefits in exchange for this investment [7,8]. Public engagement generates numerous documented benefits, however, including the following:

- Participants contribute resources to decision-making, including new information, motivation to address problems, and new ways of knowing the issue [6,9].
- Public engagement is regarded as a fair way to decide how to utilize limited public resources, such as government budgets and services [10,11,12,13,14], and is considered to improve the equitability of resource distribution [15,16], though some remain concerned that it does not justly manage public amenities and hazards [17,18,19]. Decision-making elicits high levels of public interest and informed involvement when there are opportunities to identify priorities, shape decision-making parameters, or influence policy outcomes [20,21,22,23].
- Participatory decision-making has been found to generate better buy-in and limit delays, mistakes, and lawsuits during project and policy implementation [6,24,25]. It helps to create relationships, trust, and other infrastructure that facilitate collaboration or, at least, ongoing communication among the parties [6,10,26,27,28,24,29,30]. Stakeholders are more likely to accept a decision reached in a participatory manner, even when it is not their individually preferred outcome, because they believe it was produced in a fair manner [31,32,33].



## 2 Examples and Issues from Current Engagement in Transportation

This section turns to public engagement specifically in transportation policy. It sets the context for the recommendations we make in the next section about key questions and frameworks for transportation policymakers who are considering how to organize future engagement processes. We begin by characterizing the state of engagement in the sector and then describing and evaluating current models for public involvement in transportation finance, infrastructure, or service policymaking. These examples point to some particular challenges that must be addressed to engage the public meaningfully in transportation, which we describe in turn.

Transportation policymakers in the U.S. are far more versed in public engagement in policymaking than their peers in some other economically developed countries [34]. When the Intermodal Surface Transportation Efficiency Act (ISTEA) was introduced, it was heralded as one of a few new legislative frameworks providing “unparalleled opportunities to reverse national cynicism and powerlessness” by “engaging individuals and communities in critical decisions that impact their quality of life and future economic prospects,” the suggestion being that civic engagement in the transportation arena could lead the way for other sectors to follow suit [35]. Two resources from the Federal Highway Administration and Federal Transportation Agency (FHWA/FTA), its *Interim Policy on Public Involvement* and the associated *Questions and Answers of Public Involvement in Transportation Decision Making*, provide guidance on how to meet the public involvement performance standards set in ISTEA.<sup>1</sup>

### 2.1 Existing Public Engagement Approaches in Transportation

ISTEA’s introduction encouraged transportation agencies to experiment with involving the public through a variety of approaches. Table 1 summarizes the methods and applications of the most prominent or promising approaches to participatory transportation policymaking found in the peer-reviewed literature, loosely grouped by the authors into four categories: advisory roles for the public, consultations with small groups, collaborative design exercises, and other methods.

**Table 1. Existing public engagement methods and applications in transportation policy.**

Public Engagement Method	Applications in Transportation
<b>Advisory Roles for the Public</b>	
<p><b>Advisory Boards</b> are comprised of a group of stakeholders recruited to provide guidance on a policy area or project [36]. The participants may be intended to be representative of the public at large, to bring a particular perspective to decision-making (e.g., an advisory committee on disabled transit riders), or to incorporate a breadth of stakeholder groups. They do not generally have policymaking authority, and their influence on policy agenda and outcomes is mixed.</p>	<p>An ad hoc transportation advisory committee was constituted for 18 months through randomly issued invitations to citizens in Boulder, Colorado in the 1980s. The transportation authority incorporated most of their opinions into its final master plan, whereas opinions expressed during public hearings were less likely to be incorporated. The input gathered from the panel was judged to be higher quality, and the investment in the citizen board was considered cost</p>

<sup>1</sup> Both resources may be viewed in a single file at <http://ntl.bts.gov/DOCS/FHWA.html>.

Public Engagement Method	Applications in Transportation
Members are selected by elected officials, commissions, public administrators, and project managers. They may be standing committees that meet regularly or on call as needed, or be organized for a limited term to address a particular question.	effective when compared to the costs necessary to conduct enough public hearings to gather the same amount of input [37].
<b>Project Review Teams</b> help transportation professionals to evaluate possible transportation projects. They may rank projects from a pool of proposals, or simply share comments and raise questions for transportation professionals to incorporate into their reviews.	A GIS tool coupled with online message boards was used successfully in the Puget Sound region to help citizens visualize the impact and distribution of transportation investment benefits. Randomly selected, compensated groups of citizens reviewed project proposals. Agency staff used their feedback to score and weight projects in the 20-year regional transportation improvement program [38].
<b>Collaborative Performance Measurement</b> brings together service providers or project sponsors with stakeholders to evaluate service or project performance. It can be used not only to rectify performance problems, but also to identify and address situations where different parties' goals and expectations for a service diverge.	The Straphangers Campaign in New York City is a long-term collaboration between the city and a citizen group to develop and implement performance measurements for transit. Riders rate subway lines along six measures of service. Their evaluations and official evaluations are compared and discrepancies are identified and explored [39]. <sup>2</sup>
Small Group Consultations	
<b>Focus groups and workshops</b> help professional staff or political leaders formulating policies to gain additional perspectives on a problem. These consultations may be with stakeholders with a particular interest in the issue or with members of the general public. Participants may be given a set of questions or issues to discuss or be invited to comment on a policy. The consultations can be designed for a variety of purposes, for example to gain information about the issues or problems of greatest concern to constituents, to involve users of an existing program or policy in evaluating it, or to improve a project to be more responsive to client needs or politically feasible.	New Jersey DOT convened focus groups to address problems they perceived serving persons with limited English proficiency. While participants affirmed staff perceptions that new immigrants had difficulty understanding announcements and notices, they were more troubled by staff being unhelpful or rude when they sought help. Agency staff concluded that ensuring vehicle operators were courteous was a higher priority than improving signage [40]. The board of the Bay Area Rapid Transit system held several workshops to address patron desires for expanded park and ride facilities. Board members learned that urban and suburban residents had substantially different needs, prompting them to adopt a framework of flexible planning for each station rather than a "one size fits all" policy [41].
<b>Consultations with interest groups</b> generate input from groups recognized to have an interest in the issue. This may be the result of an intentional stakeholder analysis used to bring representatives of key constituencies into the discussion, or it may be a non-intentional result of outreach policies that fail to reach marginalized groups or emphasize organized constituencies.	Two case studies of implementation of national laws requiring public engagement in transportation across the UK found that local agencies were generally successful in reaching special interest groups, but less so in reaching the general public. In addition, decision-makers had difficulty explaining how public engagement changed the decision outcomes, leading researchers to conclude that involving the public was used to legitimate official discourse, justify or validate higher policy objectives, and mobilize civic support, rather than to influence decision-making [42,43].

<sup>2</sup> This campaign is ongoing. See <http://www.straphangers.org/>.

Public Engagement Method	Applications in Transportation
<p><b>Consensus conferences</b> aim to take advantage of a diversity of opinions. As the name implies, they are oriented not merely to gathering information but to working through differences to find common ground and forge agreements. Their common design feature is that they involve diverse stakeholders in interactive, iterative processes in which networks of people with divergent interests in an issue work together to define the problem, create a vision, identify appropriate pathways, and evaluate the impact. A consensus-oriented process requires consistent political and logistical commitment to share decision-making authority with the public over the duration of the project.</p>	<p>A road improvement effort in Oxford, UK incorporated conferences but only in its initial stages. Officials then made design choices that were contrary to objections expressed in the conferences. Community groups protested lack of sustained consultations and that representative government had prevailed over popular participation [44].</p> <p>Another study evaluated 5 consensus conferences on the environmental sustainability of transportation policies in Germany and the U.K. The differences between expert and non-expert perspectives turned out to be less clear or consequential than organizers had assumed, and structuring the conversation around difference may have interfered with learning and finding agreement [45].</p>
<p><b>Deliberative Polls</b> are a trademarked method for identifying the questions that the general public would have about a policy issue if they became better informed and discussed them in depth with people with differing viewpoints. Participants are randomly selected, prepared with a briefing packet, and attend a deliberative forum in which small, facilitated groups discuss the issue and decide together upon the questions about the policy that they would like to pose to experts and decision-makers. Organizers later relay their questions to the media, policymakers, or experts.<sup>3</sup> It can help organizations to develop better communication strategies about transportation policies.</p>	<p>Residents of the 7-county Twin Cities area were polled following the 35W bridge collapse. Over 1000 randomly selected individuals were surveyed by phone, all were offered a briefing packet on transportation policy issues, and 70 subsequently attended the forum. Pre- and post- surveys found individuals increased their knowledge of transportation issues (consistent with research on this method in other settings [46]) but did not change their beliefs about transportation policies (e.g., who should carry the burden of funding roads) or perceptions of the likely impacts of proposed policies [47].</p>
<p><b>Collaborative Design Exercises</b></p>	
<p><b>Planning Charrettes</b> involve stakeholders in directly experiencing and manipulating components of policy design, through games, simulations, maps, field trips, or other objects or experiences. They typically incorporate a variety of media, such as 3-D models, photography, and rendered landscape images with which the participants or the designers can play. The models can be shaped to communicate which parts of a project are fixed (e.g., lane width) and which are flexible [48,38].</p>	<p>A planning charrette for highway improvements in Kentucky found that using multiple communication media and models that facilitate manipulability seem to be particularly helpful in helping the public to understand transportation options and communicate their questions and suggestions to engineers and planners. Using mixed media seemed to be associated with greater public satisfaction with the outcomes [49,50].</p>
<p><b>Structured Public Involvement (SPI)</b> involves the public in every decision phase, from defining the nature of the transportation problem, to creating the scope for the policy, setting design goals, and refining the options together. Recommended as a best practice for involving the public in design decisions, it occurs through iterative, focused explorations and strategizing about disaggregated aspects of the policy. Piece by piece, participants suggest ideas and make modifications until there is general agreement about</p>	<p>A highway improvement planning effort in central Kentucky brought diverse participants together in focus groups 3 times. Researchers lauded the use of anonymous, electronic scoring of preferences as a way to facilitate free expression of opinions, speed feedback loops, and identify outliers. Visualization technologies for depicting designs were also helpful for participants' seeing interactions when they toyed with different pieces of the project [49,50].</p>

<sup>3</sup> For more detailed description of the method, see <http://cdd.stanford.edu/polls/>.

Public Engagement Method	Applications in Transportation
that piece, and then integrate it with other pieces of the policy. As conveners of participatory design processes, transportation professionals must be responsive to other perspectives, help lay participants understand the technical aspects of the policies, be competent facilitators and cede some of their decision-making power.	
<b>Interactive Optimization Tools</b> involve the public in manipulating a fixed set of resources to choose among a menu of policy options. <sup>4</sup> In some designs, users can iteratively move back and forth between setting performance criteria (e.g. persons moved per hour) or resource parameters (e.g., a total budget) and the menu of projects, so that they can see the interplay between them. Frequently they use an online platform.	This tool was used to develop a local transportation tax referendum in Washington. Members of the public chose a tax rate, saw a set of projects that could be funded with that revenue, worked back and forth between the tax options and projects, and submitted a proposed package. Half of users initially found the tool overwhelming because of the volume of information and choices; one third found it helpful for assessing the complex options available [51].
<b>Other Methods</b>	
<b>Participatory Action Research</b> involves researchers working with interested parties to perform research driven by their questions and concerns. Activities include gathering and analyzing data, identifying and characterizing problems the group wishes to address, or generating and evaluating policies. The level of technical support needed to develop community-led initiatives is a scarce resource. Some researchers volunteer on a pro bono basis, or sometimes transportation agencies provide consulting support.	Researchers taking this approach to transportation planning in a small city in New York found that there must be active buy-in to this approach from the institutional actors in order for the resident-driven contributions to be taken seriously [52].
<b>Geographic analysis of public comments</b> uses GIS to identify geographically based needs for additional outreach about transportation decisions and to identify geographically specific patterns of feedback about projects.	The 23-mile long Dulles Corridor Rapid Transit Project in Virginia used this technique. By tracking response rates by neighborhood, staff identified where they needed to do additional or different kinds of outreach. By clustering comments geographically, they could uncover and respond to location-based patterns in concerns, misunderstandings, or level of support with the proposed project [53].

## 2.2 Prominent Challenges for Public Engagement in Transportation

The examples reviewed in Table 1, as well as other literature from transportation policy studies, point to the several key aspects of public involvement in transportation policymaking that should be considered in designing and managing engagement. We discuss each in turn, namely: legitimacy of and trust in engagement processes, incorporating lay and expert perspectives in technically complex transportation decisions, and the value of engaging diversity.

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<sup>4</sup> Online budget simulators are the most commonplace example of this increasingly popular method. See an example for the Minnesota state budget at <http://www.mnbudget.com/>. For the federal level, see examples at <http://crfb.org/stabilizethedebt/> or at <http://www.nytimes.com/interactive/2010/11/13/weekinreview/deficits-graphic.html>.

### *2.2.1 Trust and Legitimacy Issues in Engagement*

It is not uncommon for the public to complain that an engagement process is not meaningful because their involvement does not seem to influence decisions. This occurs partly because conveners and participants frequently have mismatched expectations about the goals and expectations for engagement. If these misunderstandings are not ironed out, public processes can easily become mired in conflicts about their authenticity and legitimacy, sometimes leading to accusations that the participation process is perfunctory, tokenistic, or manipulative [54,55,22,56]. Sometimes, of course, transportation agencies are knowingly disingenuous in inviting stakeholders into a dialogue when the agencies have a “predetermined agenda” and are prepared to engage the public “only cursorily” [57].

The timing of consultations is an important part of accomplishing and communicating the goals for engagement. Consulting with stakeholders early in policy development allows policymakers to shape accordingly the scope, priorities, or performance measures of the work. Input from consultations at a later point is harder to respond to. Either approach may suit the needs and goals of the policymakers, but the process will benefit from clear messages about what people can expect by engaging. For example, a “one-way process” is appropriate for the construction stage of a project, when the focus should be on disseminating good information to the public about road closures, construction sequence, etc., while a “two-way process” between transportation agencies and the public is needed in the planning and design phases so that stakeholders can weigh in on the most suitable goals and design of a project [58].

It is also important to communicate what can and cannot be decided through the engagement process, because the context for transportation policies may confine the level of discretion that local policymakers have in making decisions. The context for transportation decision-making does not always provide much opportunity for public influence. For example, regulatory standards for various aspects of transportation system performance are not open to negotiation. Because so many transportation parameters are mandated by federal or state legislation, the power of local actors to influence the outcome of a transport project may be “superficial” and “tampering at the edges” [43]. In addition, the multi-jurisdictional environment makes it difficult for community members to understand which agencies are responsible for which actions, and the average person cannot usually engage with the many entities involved in transportation decisions with regional impacts [59]. However, the online methods described in Table 1, which are consistent with the rise of e-government and web 2.0 government across many policy sectors [60,61,62], are promising for addressing the regional-scale problems. They are a method for not only reaching, but also potentially for helping to make connections among geographically dispersed people who are affected by large-scale transportation policies but may be unable to gather together or visit an agency-hosted meeting due to distance.

### *2.2.2 Engaging Expert and Lay Perspectives*

The technical complexity inherent in transportation service planning, financing, and infrastructure development presents special challenges and benefits for public engagement. Scientific and engineering expertise continues to play a robust role in transportation policymaking [38], and there are several concerns about opening up domains traditionally reserved for expert discretion. Challenges include making issues and choices understandable to the public so that they can be informed participants in policymaking [63,64,65,66,67,68]; managing the resistance that well-organized groups may mount when they have more complete

information about projects [34]; and hiring people with specialized skills in engagement and communication because transportation professionals are not necessarily versed in these areas [69,38]. Administrators may worry that sharing power for decision-making by giving lay perspectives increased influence will produce choices that do not adequately consider safety, equity, efficiency, environmental protection, or political feasibility [12,38] or limit their managerial discretion to act decisively as needs arise [70,64].

Regardless of agencies' preferences, the public is becoming increasingly involved in transportation decision-making, and this offers several advantages. It addresses vigorous critiques of the dominance of science and engineering expertise in policymaking in general as a damaging and undemocratic privileging of certain kinds of knowledge [71]. When experts do not share the humanistic knowledge – imagery, lived experience, or empathetic understanding – of ordinary people, they may undervalue considerations that should enter into their decision-making [72]. For example, in two transportation arenas — public transit service quality for recent immigrants [40] and urban pedestrian safety [73] — researchers have found that gathering information and preferences from the lay public is not only a question of fairness, but frequently also produces important and otherwise unrecognized data and new understandings of problems. In addition, limiting information about expert decision parameters can fuel perceptions that a transportation agency is withholding information or changing the rules midstream, compromising the credibility of the agency or policy decisions [64,65,34].

The charrette and online optimization tools described in Table 1 point to the value of using a variety of visual, hands-on, and experiential tools that allow participants to touch and feel project design and other policy options. Another advantage is that they do not require people to be able to read engineering plans or technical documents in order to understand a policy and provide meaningful input. Such objects and experiences help bring varying perspectives to bear on evaluating different policy options [29,74]. For example, asking people to play together with moving around or adjusting components of a site plan helps people with expert and experiential knowledge to visualize and communicate about how a project will work.

### *2.2.3 Enhancing Diversity and Equity*

The challenges of including diverse constituencies in public policymaking are longstanding and well documented in the transportation arena [71,52]. Indeed, across all sectors, not just transportation policy, diversity and equity in access to public engagement are particularly persistent concerns of engagement practitioners and scholars alike [76,77,78]. In general, individuals of higher socioeconomic status are more likely to have the requisite time, money, and civic engagement skills [79,80] or Internet access [81] to participate, and those with greater individual and collective social capital are more engaged [82,83,84]. Thus “the public” who participate in engagement efforts may not be representative of the opinions and knowledge of the public at large, since people who come to such meetings are unusually interested and informed about the issues under discussion.

However, in transportation there is sometimes a reversal of the usual pattern of poor participation by low-income, non-white, less educated constituents. For example, low-income communities are not only disproportionately affected by transit services, but disproportionately interested in participating in transit policy and planning discussions [85]. Alternatives to the traditional public hearing form of public engagement may be necessary to gather their input, such as telephone surveys or gathering input at transit stations and other locations convenient to their everyday patterns of movement [85]. Purposeful efforts to provide outreach in multiple

languages and have translators for face-to-face interactions are important for reaching constituents who are not comfortable communicating in English [86]. Public and nonprofit organizations frequently think of churches as an effective venue for reaching non-white constituents about public issues, but this strategy is not always welcomed by the target community; groups of Spanish-speakers surveyed about transit decision-making in Washington, D.C., for example, were divided about whether they would welcome this or would very much prefer to have church reserved for religious messages [86].

Another challenge of engaging diversity in transportation planning is recognizing and enlisting a sufficient level of diversity without lumping constituents into stakeholder groups that do not capture their full range of interests. The concept of the “public” is complicated and multi-faceted in transportation; there are, for example, strong differences in the interests and preferred modes for public engagement of the “freight community” and “passenger community” in infrastructure planning [87]. Similarly, bicyclists are not a homogenous group, and misunderstandings and controversies may arise if recreational riders, “vehicular riders” who commute and occupy a lane like other vehicles, and long-distance riders are lumped together as a single interest group [88,56]. Nor should transportation professionals orient themselves too much to stakeholder groups, warn some researchers who are concerned that considerable efforts to engage organized special interest groups may exclude “ordinary people,” raising the danger that a vocal, and perhaps unrepresentative, minority of the public could have undue influence on policymaking [42].



### 3 A Suggested Framework for Designing Engagement in Transportation

As the preceding review of the state of the field in transportation suggests, forms of public engagement are varied. Some are non-interactive, information-collection formats such as surveys of individual preferences. Others are self-contained events in which participants come together once or a few times to discuss a particular public issue (with or without making a decision about it).<sup>5</sup> In other settings, stakeholders engage in ongoing collaborations to manage resources adaptively.

There is no one-size-fits-all, ideal approach but rather a myriad of techniques and frameworks. For public agencies trying to organize engagement, choosing among this variety of approaches to involving the public is not only challenging, it is also highly consequential. The forms of public engagement influence the quality of policy outcomes. They are also important for the kinds of capacities that the participants create, across issues and over time, as new policy challenges and implementation needs unfold [30].

In other words, regardless of what an agency aims to accomplish through engagement, it requires effort and intention. Productive public engagement is not easily implemented. To help sort through these choices, in this section we present a suggested framework for transportation policymakers to use in deciding how to design and manage public engagement processes. It combines:

- Deciding the purpose of public engagement (Section 3.1)
- Considering moving beyond participation in engagement (Section 3.2)
- Selecting techniques for managing engagement (Section 3.3)
- Evaluating the outcomes of public engagement (Section 3.4)

This suggested framework is not the only approach to designing engagement, of course. In fact we incorporate one existing, well-known framework into our suggestions. However, we suggest that the combination of concepts and questions that we lay out here comprises a simple but robust foundation for policymakers seeking to enhance public engagement in transportation. We suggest using these tools with special attention to how to address the particular challenges of public engagement in transportation that were identified from the examples and research above, namely: building trust and legitimacy in the process (Section 2.2.1), bringing lay and expert perspectives into productive conversation around technically complex transportation issues (Section 2.2.2), and engaging diverse constituents (Section 2.2.3).

#### ***3.1 Deciding the Purpose of the Public Engagement Effort***

We suggest that the key initial question for managers of a decision-making process to ask is: ***What is the purpose of the public engagement?*** Beginning with this first question, appropriate choices about the design for the public engagement process can be made, expectations can then be clearly communicated, and the engagement process can be evaluated according to relevant criteria. We draw attention to this step because so frequently participants in an engagement process have widely differing ideas of what is at stake in the process or what it is

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<sup>5</sup> In addition to the methods being used in transportation specifically, other public policy venues utilizing this approach include National Issue Forums [89], citizen panels [90], online polling [91], public agenda forums [92], and community meetings on urgent policy issues [93]0).

meant to accomplish [30]. Therefore, being very clear about the purpose of public engagement is a key element in addressing the concerns about trust and legitimacy raised in Section 2.2.1.

One question to ask about the purpose is what the desired immediate, specific policymaking outcome of the public engagement effort is. Outcomes could include being sure that the public is informed about a proposed policy action, formally reaching and adopting a policy decision, exploring the nature of an emerging policy problem, or generating project or program ideas for a new initiative. These are significantly different purposes which call for different ways of inviting the public to participate and of organizing the format for input.<sup>6</sup> For example, it is one thing to invite the public to brainstorm about ways to reformulate public transit when budget cuts are anticipated and quite another to have a public hearing on a new proposed rate structure that incorporates transit fare increases to help address the budget cut.

### ***3.2 Considering Moving Beyond Participation in Engagement***

In considering the purposes of the engagement process, we suggest that policymakers consider not only the scope of the immediate task that they are trying to accomplish through engagement but also whether there are other outcomes they would like to seek through the process of engagement itself. To approach the latter question, it is helpful to recognize that *participation*, defined as involving the public to provide input on a policy or project proposed by policymakers [30], is just one mode of engaging the public in policymaking.

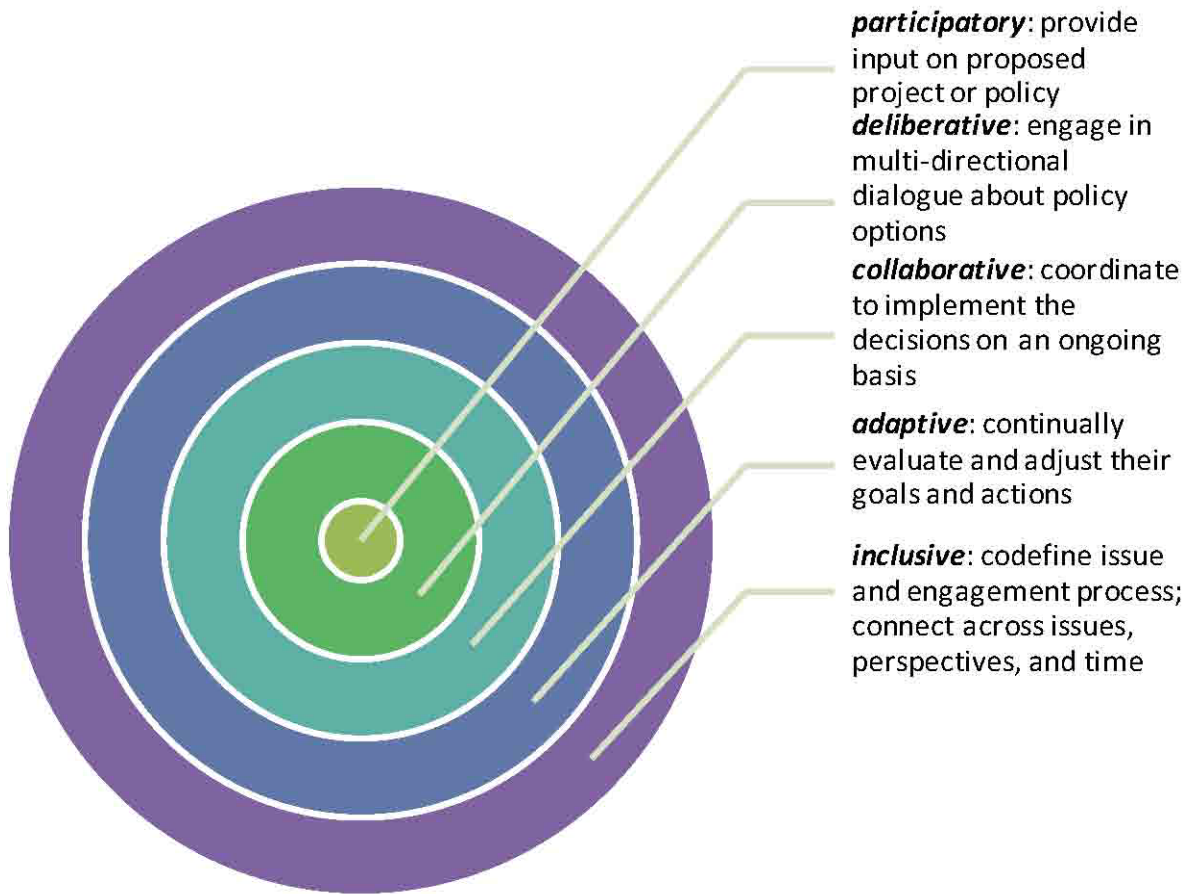
For this report, Kathryn Quick has developed a nested hierarchy of different approaches to public engagement to help visualize the differences among them (Figure 1). Each successive level increases the depth of involving stakeholders in defining and addressing the problem. ***We invite policymakers to consider moving beyond participation***, for several reasons.

The context for this provocative suggestion is that, across the transportation sector, most public engagement appears to be in the basic participation mode, and that it does not seem to be generating many benefits for transportation agencies or the public. That is, numerous transportation agencies seem dissatisfied with the commonplace methods of involvement. A survey of 107 state transportation agencies responsible for citizen engagement (conducted in 1996) found that public hearings (followed by advisory committees and citizen surveys) were both the most commonly used method for engaging the public (due to statutory requirements) *and* considered by respondents to be the least effective method [69].

Therefore, we provide this framework for considering other approaches. The benefits of public engagement described in the opening of this report result from the most basic level of engagement, participation to inform the public about policies and to gain their input. The other modes of engagement require different roles and commitments from policymakers, but they offer additional impacts that may be desirable in some settings. In brief, deliberative, collaborative, adaptive, and inclusive frameworks provide ways for communities – defined broadly to incorporate government agencies, businesses, interest groups, and the general public – to sustain and create resources and civic capacity that are valuable for community-based problem solving, including interpersonal relationships, community attention to issues, and knowledge [94,95,22].

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<sup>6</sup> International Association for Public Participation, IAP2 spectrum.



**Figure 1. Nested hierarchy of stakeholder roles in different types of public engagement.**

*Deliberative* participation involves diverse perspectives in a dialogue about public problems and policy options. Deliberation goes well beyond surveys of individual preference, or other participatory mechanisms that aggregate individual interests. It thus helps to facilitate the development of new or improved projects, policies, or resources [96,97,63,98,,99,27,100,101,102,103,104,22]. It may help the public to discover a broader sense of the public interest or public values, or at least help participants to develop a greater appreciation for others' perspectives [105,106,98,107,108,1,109,11,110,111,102,112,113, 114,115].

The outer three rings of this nested hierarchy alter the relationships within and between organizations, sectors, and the public so that more people, information, and other resources can be included in efforts to address public problems. They are deliberative in that they incorporate many perspectives and parties in decision-making and implementation regarding public problems. They involve participants not only in deliberating about the problem but also in implementing programs.

In the *collaborative* arrangements in which public, private, and nonprofit agencies are deeply and increasingly involved [1,2,3,4,5], the participating stakeholders address shared concerns or engage in coordinated implementation of transportation and other public policies or projects. They may also have been involved in deciding on the policy.

*Adaptive* management refers to particular arrangements in which the stakeholders engage not only in ongoing implementation of policies, but in shared learning, evaluation, and adjustment of policies and implementation actions [1,2,3,4,5]. In these arrangements, found most frequently in natural resource management, there is an ongoing relationship among the stakeholders in which they continue to deliberate about the means and ends of their work together, and retool their work accordingly.

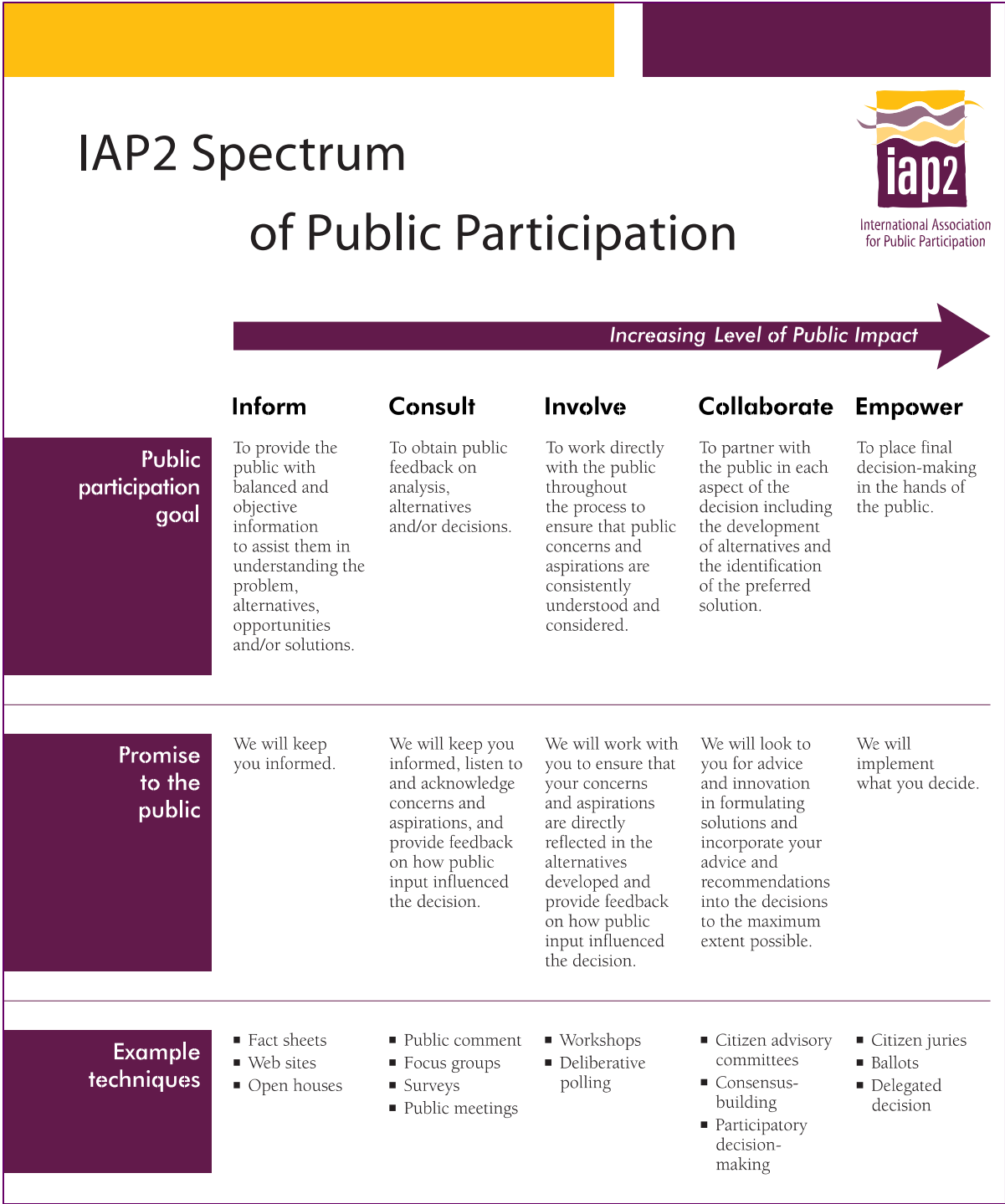
*Inclusive* public management goes a step further, involving the participants in coproducing the definition of the problem as well as the process for making decisions. It is an expansive framework for making connections across differences or potential boundaries among people and organizations, kinds of knowledge, across issues, and over time. Quick and Feldman have asserted elsewhere that inclusion is not “participation done particularly well,” but rather that participation and inclusion are independent dimensions of public engagement, in which participation emphasizes public input on the content of programs and policies and inclusion continually creates a community involved in defining and addressing public issues [1,2,3,4,5].

Figure 1 presents a somewhat different way of viewing the relationship of participatory and inclusive processes. It suggests that gaining input on policymaking through a “participatory” role for stakeholders is a minimum level of public engagement. It is not meant to valorize inclusive processes as the ultimate form of public engagement, but rather to help policymakers recognize distinctions among these different levels of public involvement, in order to make more informed choices about how to involve stakeholders and share authority.

### ***3.3 Selecting Techniques for Managing Engagement***

Concurrent with considering what kinds of outcomes they are seeking from an engagement effort (Section 3.1) and how to share decision-making and implementation roles with the public (Section 3.2), policymakers also need ask: ***What are appropriate ways of managing the engagement?*** Two related subsets of this question concern: a) what specific facilitation techniques to use to organize the engagement; and b) how to communicate with stakeholders about what to expect and how to take part.

Fortunately, there is an accessible and popular tool to help policymakers clarify what an engagement effort will involve and how to organize and communicate that with the public: the IAP2 Spectrum, which was created by the International Association for Public Participation (Figure 2). An important take-away from the Spectrum is that differing levels of public engagement *are* legitimate, depending upon the goals, resources, impact, and timeframe for the decision. However, different levels of public-agency interactions require different strategies for communicating with the public about the purpose of public engagement (e.g., “We will keep you informed” vs. “We will implement what you decide”) and different techniques for organizing public engagement (e.g., fact sheets vs. citizen advisory committees).



**Figure 2. IAP2 Spectrum of Public Participation (© IAP2, 2007).**

The IAP2 “levels of public impact” – informing, consulting, involving, collaboration, or empowering – are a different view from the nested levels of stakeholder involvement presented in Figure 1. At first view they seem to be different scales for the same thing, but in fact the IAP2 spectrum is oriented specifically to public influence on policy decision outcomes [115], whereas

Figure 1 also reflects the roles that stakeholders may have, at the collaborative, adaptive, and inclusive levels, in ongoing implementation, evaluation, and policy redesign.

The IAP2 spectrum is a useful starting point for asking good questions about how to communicate and select techniques for engagement. In fact, it is sufficiently well regarded that several scholars have invested effort in trying to improve it, for example to incorporate additional, interim levels of public engagement [116] or to reframe it as a spectrum of public-government sharing of decision-making as opposed to a strict measure of public influence on decision outcomes [115]. However, we caution strongly against relying upon it as a formula or recipe for making design choices about public engagement in isolation from the other aspects of the framework we propose here. This is for two reasons. First, it is sometimes not desirable for project managers or public administrators to decide the engagement process unilaterally and for the duration of the project. As explained in the discussion above about moving beyond participation, important choices need to be made about how to share authority for the engagement process as well as its outcomes and ongoing follow-up. Thus sometimes it is better for the choice of techniques to be made by the participants and be flexible to accommodate changes as the process unfolds.

Second, figuring out strategies for managing public engagement is not merely about selecting the facilitation techniques but about *how* the techniques are deployed. Engagement techniques and frameworks do not stack up in consistent patterns, as the same technique can be used in a variety of ways. For example, dot voting is a commonplace engagement technique through which participants designate their level of interest in different policy options or project features. It can be used to support collaborative problem-solving in a deliberative conversation in which participants generate the options for voting together or use the results to discern general patterns of support and interest, find common ground, and negotiate changes to options to gain more support. However, it can also be used in a non-deliberative, stuff-the-ballot box kind of way that supports oppositional, winner-takes-all dynamics. In fact, well-meaning people can approach the same technique with different expectations in the same setting, sometimes leading to heated conflict over the democratic legitimacy of the process because of the different interpretations people have about how to use it and for what purpose [56]. This is one of the reasons that we caution against using the IAP2 spectrum as a road map for identifying the right techniques for public engagement.

Therefore, it is not advisable to pick a particular engagement technique off the shelf, following the suggestions of the final row of the IAP2 spectrum, without giving considerable additional thought to how to use it in the particular policy context. We strongly suggest that policymakers work with seasoned engagement facilitators to sort through choices about facilitation techniques together.

### ***3.4 Evaluating Public Engagement***

The final key question for policymakers to ask in this design process is: ***How will or do we evaluate the public engagement efforts?*** This will allow policymakers to learn from the implementation so that they can enhance the remainder of the particular engagement effort they are working on and build long-term institutional capacity for engagement.

Unfortunately, methods for evaluating public engagement are not well established and are rarely implemented, either in transportation or in other public policy efforts. Therefore, a fruitful contribution of future research would be to develop measures to evaluate public engagement in transportation policymaking. The following are starting points for this work.

The standards introduced by ISTEA for public involvement provide a common reference point across the transportation sector in the U.S. In brief, the standards are that public involvement be early and proactive, timely information be provided to the public, proof be given that explicit consideration was given to public input, and the input of traditionally underserved communities have been sought out and included in decision-making [59].<sup>7</sup>

The best developed previous research on evaluating public engagement in transportation is by Bickerstaff, Tolley, and Walker [42], who evaluated the implementation of a new national law in the U.K. that required local units of government to involve the public in transportation planning. In a content analysis of a broad sample of local transport plan documents, they evaluated four principles of public engagement:

- Inclusivity, relating to the opportunities and level of effort made to include the general public, special interest representatives, and non-traditional or disadvantaged audiences
- Transparency, relating to evidence that public involvement shaped the policy or plan outcomes and that those impacts were communicated to the public
- Interactivity, relating to the use and frequency of deliberative, interactive methods to engage the public
- Continuity, relating to ongoing efforts to engage the public in finalization of the plans and evaluation of implementation

These two sets of criteria are important references for the development of performance measures for public engagement. We suggest also incorporating measures specific to the challenges of engaging lay and expert perspectives on transportation policies and projects with complex technical aspects, such as evaluations of the associated costs and benefits or risks, engineering design options, or their intersections with science, technology, and environmental policy [117,118,119], through measures such as the following:

- Learning achieved through the process, measured through pre- and post- surveys of individuals' positions and understanding of issues, as well as through surveys of the conveners of processes to determine whether any new or innovative policy options were generated through the process

In addition, we propose that measures of the following outcomes of public engagement in policymaking should be developed:

- Capital created for implementation of policies, assessed in terms of changes in the level of conflict / agreement among stakeholders, or the development of relationships and other infrastructure built for ongoing coordination
- The quality of the policy decisions made in terms of their economic efficiency, safety, environmental impact, and political viability. This would be an expert judgment made by transportation planning policy experts not involved directly in the process.

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<sup>7</sup> Regulations to implement the various provisions of ISTEA are codified in the Code of Federal Regulations at 23 CFR Part 450.



## 4 Transportation Planning in Grand Rapids, Michigan

In this section, we describe and analyze a series of efforts to involve the public in transportation issues in the city of Grand Rapids, Michigan. Since 2009, a group of staff from the city government, regional transit authority, state transportation agency, transportation advocacy organizations, political leaders, representatives of major institutions in town, and individual residents have been working together on transportation problems. The topics and engagement strategies related to these efforts are:

- Creating the transportation component of a citywide environmental master plan, Green Grand Rapids, between 2009 and 2010. This was conducted through multiple large-scale public meetings and focus groups through which hundreds of members of the public redefined the transportation issues and democratically made decisions regarding transportation, transit, and related land use components of the master plan.
- Bicycle-oriented organizing that has been ongoing since 2009. Cyclists, public managers, and others have engaged in advocacy, strengthened connections among multiple cycling stakeholders, founded the Greater Grand Rapids Bicycle Coalition, hosted two city summits to discuss policy changes to become a more bike-friendly city, and built new cycling infrastructure.
- The Michigan Street Corridor managing and financing traffic congestion mitigation around a rapidly expanding employment and service hub.

Several features of these efforts led to their selection for a detailed case study in this report:

- They encompass a breadth of transportation issues including bike lanes, service financing, congestion management, and long-term land use planning.
- They exemplify the many stakeholders who might potentially be involved in transportation policy issues. Collectively, the efforts involve staff from the city government, regional transit authority, state transportation agency, several advocacy organizations, and other large institutions in town, as well as political leaders and individual residents.
- Although the efforts are in many ways intertwined, they were organized in 3 streams, each with its own topic area, timing, players, and engagement techniques. Describing and comparing the three cases allows us to analyze the organization and outcomes of public engagement efforts over a breadth of transportation sector issues and across range of engagement techniques.
- Previous research in Grand Rapids suggested that these efforts would likely be positive examples of public engagement in policymaking. Long-term study of civic engagement and public management in Grand Rapids has found a pattern of strong commitment by a wide range of individuals and organizations to engaging diverse stakeholders in addressing community problems, coupled with ongoing experimentation with the formats for public engagement. On some occasions, all parties have been very satisfied with the opportunities and outcomes of engagement, and at other times, there has been indifference to or angry backlashes against efforts to involve the public [22,56,75,30].
- They provide a fresh, previously unpublished example, incorporating data on activities occurring as recently as June 2011.

The data were collected and analyzed by the first author of this report as part of a longitudinal, ethnographic research project in which she and Martha S. Feldman<sup>8</sup> have been analyzing public management practices, civic engagement, and collaborative governance in Grand Rapids. In 2009, Grand Rapids had an estimated population size of 193,700 in a metropolitan region with a population of over 1.2 million. Michigan's second largest city after Detroit, it has fared better than statewide patterns of economic and population decline over the past decade. Manufacturing dominated the local economy through the 1990s, but recently there has been large-scale private investment in medical services and research. Charitable foundations established by local families support human services, recreation, and cultural programs and facilities [120]. In the 2000 census, 67% of residents identified themselves as white, 20% as African American, and 13% as Latin. Approximately 10% were foreign-born, and over 50% had moved to their current residence within the previous five years. Less than 25% of adults had a bachelor's degree and 16% lived below the poverty level. The city electorate has repeatedly affirmed a council-manager form of government in which the city manager plays a central role in allocating and managing the city's budget and human resources [121]. There has been a high level of stability in the city manager's office, with a single individual holding the position from 1988 through 2008, when he was succeeded by a long-term member of his executive team following a competitive national search.

Quick gathered the transportation case data through dozens of interviews with people in a diverse range of roles, observation of eleven transportation-related meetings, and content analysis of materials produced by multiple sources about the transportation planning efforts. Data sources include the following:

- In the project as a whole, Quick and Feldman have to date conducted 266 interviews with 100 study participants, including many long-term participants with whom they have interacted repeatedly over many years and across numerous public policy issues. The study participants represent a wide variety of roles, and include dozens of city government employees, ten elected or appointed officials, and multiple representatives of neighborhood and business organizations, consultants, and nonprofit foundation staff as well as individual residents. The study uses a theoretical sampling strategy [122] through which they sought study participants with knowledge of and opinions, both positive and negative, about the engagement processes we were studying. Participants were identified through references from other study participants, observing community meetings, and reviewing meeting minutes and media coverage. They are invited to participate and then interviewed by one or both authors, usually in person and sometimes by phone, primarily individually but occasionally in groups.
- Between 2001 and 2010, Quick or Feldman made eleven visits to the city, toured with city staff and community organizers, and Quick observed seven community meetings or events related directly the transportation planning efforts described here.
- Secondary materials include records of community participation (e.g., committee meeting minutes, compilations of data from public input), government documents (e.g., plans, budgets, project proposals, staff reports), community organizations' websites, and media coverage of these events.

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<sup>8</sup> Martha S. Feldman is the Johnson Chair for Civic Governance and Public Management at the University of California, Irvine, where she has appointments in the departments of Planning, Policy & Design, Management, Sociology, Political Science, and Nursing Science.

Features of Quick and Feldman’s data collection methodology that strengthen the validity of the present analysis include: the longitudinal nature of the project, the depth and breadth of the interviews, and the multiple perspectives tapped through a diverse range of study participants as well as secondary sources. The following features of Quick and Feldman’s data collection methods allow them to generate thick description, which enhances the validity of interpretive analysis and inductive theory development [122,123,124,125,126,127].

- First, the data are longitudinal, allowing the researchers to contextualize the vignettes highlighted here in terms of the longer engagement processes of which they are a part, and take a process-based view of the unfolding events [128,129,130,131,132].
- Second, the researchers’ interview process and the extensiveness of their interviews provide us with an insider, or emic, perspective [133,123,134,135]. Quick and Feldman conduct confidential, unstructured, active interviews [136,137] in which they engage the study participants not only in accounts of what they observed or experienced, but in sharing their interpretation of those events.
- Third, the diversity of study participants and the other data sources provide the researchers with many different perspectives, allowing us to triangulate among various interpretations of the processes and events [138,139,140,141].

Quick and Feldman analyzed the data using standard coding, categorizing, and memoing techniques [122,142,143,144].

Gathering data on almost twenty public engagement efforts in a single city has permitted comparative analysis within a single case, strengthening conclusions about the interactions of different methods for engaging the public and public policy outcomes. The efforts are first described in chronological order and then analyzed together to identify key features and impacts of the public engagement strategies that were used.

#### ***4.1 Making Connections through Green Grand Rapids***

Green Grand Rapids (GGR) is a citywide master plan for environmental stewardship, created through an inclusive process involving key stakeholders and hundreds of members of the public over eighteen months in 2009-10 [56]. The conveners of the process – including several city departments, a consultant, and a community steering committee – identified six broad theme areas for organizing the community discussion and work (Rachel 12/04/07; Ira 6/26/08; Lana, appointed or elected official, 6/23/08; Teresa, appointed or elected official, 6/24/08; Louis, community member, 6/25/08). The part of the process we explore here relates to the theme identified as “connections.” The conveners and steering committee initially defined the scope for the connections theme to emphasize improving mobility, public transit, disabled persons’ access, and energy efficiency within the transportation sector (Steering committee minutes). However, frequent and insistent calls from bicycle commuters to the mayor, city commissioners, traffic safety department, and planning departments asking for more and safer bike lanes lead to a decision to invite cyclists to participate in the GGR process and to direct them towards the “connections” theme (Abby, consultant, 6/20/08, Rachel, 6/23/08; Teresa, 6/24/08).

At the first communitywide GGR meeting, held in June 2008, nearly half of the nearly 200 people attending were cyclists. They soon made it clear that there was more than one cycling community within the city. Indeed, three groups could be identified - mountain biking enthusiasts, long-distance recreational riders, and bicycle commuters – and there were limited connections and alignment on priorities among them. Together, the GGR conveners, steering

committee, and community activists took up the energy that cycling advocates were bringing to the discussion and moved it forward through two sets of key actions. The first was oriented to prioritizing cycling improvements in the GGR plan, and the second was towards building community capacity for ongoing work on cycling.

In the first, the organizers actively reoriented the GGR connections theme towards enhancing opportunities for cycling. For example, at the next community meeting, they prioritized a discussion of how to design streets to incorporate bike lanes. They had the GGR consultants prepare cross-sectional diagrams of streets depicting different arrangements, such as narrow bike lanes on both sides or a wider bike lane on one side with street parking only on the opposite side. A variety of stakeholders were able immediately to read the options in the diagrams and use them to express their opinions and explore alternatives. Cyclists, wary of being “doored” by people in the parking lane opening their car doors into their path, easily translated that experience into preferences for cycling lanes with no adjacent parking. Landlords and business owners used the diagrams to weigh in about their preferences for ample on-street parking. Committed cyclists who had looked into initiatives in other cities introduced the terms “complete streets” and “road diet,” both concepts for incorporating a variety of uses on city streets, into the conversation. When the group began to use those ideas to play with other street layout options, city staff used the diagrams to tweak the suggestions into designs that fit with street maintenance and state legal requirements for minimum car and bike lane widths. The adopted GGR plan incorporated an expanded network of bike routes, widened lanes, better signage, and removal of some on-street parking, and it also adopted the framework of “complete streets” and a “road diet” for the city’s ongoing planning and public works activities (meeting observation, 10/22/08). The planning director took the GGR plan as a “work plan” for her to put in place the supporting infrastructure for implementing the plan, such as getting buy-in from city staff and revising city ordinances to permit new car and bike lane widths (Rachel, 4/5/11).

Second, the organizers helped the cyclists to create ongoing community capacity for improving cycling by encouraging them to form a steering committee, allocating consultant support, and co-sponsoring their activities (environmental steering committee minutes or observation, 11/17/08, 2/23/09, 4/20/09). The 20-member steering committee included cyclists with diverse interests and elected and appointed officials from local governments and the public transit authority (bike committee observation, 4/20/09). Their first plans were to hold a citywide bike summit and submit an application for a bike-friendly city certification from the American League of Cyclists. Their stated objectives for these activities were to understand the different perspectives and priorities among cyclists, enhance their knowledge about cycling issues, explore areas of alignment, and build awareness and ongoing momentum behind their concerns (Matthew, elected or appointed official, 1/13/09; bike committee observation, 4/20/09; Bill, community member, 4/21/11; Teresa, 4/21/11, Roger, community member, 4/21/09). Almost 100 cyclists, elected leaders, and agency staff attended the bike summit, which received lots of positive media coverage (bike summit observation, 4/24/09). With support they had gathered through the event, the committee constituted itself as a regional cycling coalition, registered itself as a 501(c)(3) organization, and submitted the bike-friendly city application.

Certification was not a goal unto itself for the coalition members. They saw assembling the application as a way to build momentum for cycling. For example, they used opportunities for co-sponsoring the application as a way to generate ongoing political support for cycling issues, invite different cycling groups to recognize and advocate their shared interests, and strengthen relationships among agencies that would need to cooperate to implement meaningful

changes in cycling infrastructure. Though they hoped the application would be successful, they agreed that they would accept certification as an impetus for further improvements, not a message that enough work had been done (bike committee observation, 4/20/09). The news that the city had received a bronze-level designation was a focal point of celebrating the successful conclusion of the environmental master plan in October 2009 (meeting observation, 10/21/09). As promised, the coalition did not rest on its laurels, however, and turned to pushing for implementation of the master plan that included a second bike summit in May 2011. The planning director used the upcoming summit to mobilize completion of the final institutional changes the city needed to make to support the environmental master plan implementation. As of the summit, she could confidently assure the summit audience that the city was “fully ready” to move forward but needed community help to find funding for implementation (Rachel 4/5/11). The first effort, a pilot project to put a major city street on a “road diet,” went into effect in July 2011, and several key players in reformulating the cycling agenda have been recruited to a steering committee overseeing redesign of a major transportation corridor in the city.

#### **4.2 Michigan Corridor Traffic Management Study**

The current phase of public engagement in transportation in Grand Rapids is an ambitious effort to design congestion management and generate public-private financing options for a major corridor feeding a rapidly growing center of physical development and employment. The project aims to address unusually complex transportation service, infrastructure, and financing issues. The corridor has experienced unprecedented growth over the past decade, stemming from reconstruction of the adjacent interstate and nearly \$1 billion of recent investment in what the *New York Times* characterized as the largest single concentration of new medical research development in the United States at this time [56]. In addition to the long-established general hospital, the medical complex has recently been expanded to include two large specialty hospitals, a major new regional medical research and development institute, and the recently relocated medical school of Michigan State University. Altogether, more than 10,000 employees work on Michigan Street, 41,000 college and university students attend campuses in or adjacent to the corridor, and nearly 1.25 million visitors to these institutions and other city amenities travel the corridor annually. Historic and mixed-income neighborhoods, all with active neighborhood groups invested in protecting their integrity, surround these new uses.

Multiple transportation management challenges are associated with these changes. Various stakeholders are concerned about maintaining efficient access to two hospital emergency rooms, recent severe injuries to pedestrians at intersections in the medical area, the lack of connectivity to downtown businesses, spillover traffic congestion in adjacent neighborhoods, the environmental impacts of transportation through the hub, and sustaining a healthy balance between revitalizing local housing and retail areas without displacing current residents through gentrification. In addition, in spring 2011 the regional transit authority successfully passed a measure to fund a new Bus Rapid Transit (BRT) system, and stakeholders are committed to integrating that with other proposed circulators (e.g., employee shuttles) for this area. Physical infrastructure fixes are not possible because of existing land uses. Adding an additional road lane, for example, would reduce the sidewalks to just three feet, which conflicts with pedestrian-friendly policies that the city government, Planning Commission, and residents have been

collectively fortifying since 2001 [75,30]. As the city’s planning director puts it, “We cannot build ourselves out of the vehicular congestion projected for the corridor.”<sup>9</sup>

Prior to the corridor plan, transportation and land use planning to accommodate these changes had been piecemeal and reactive. The corridor planning project is therefore meant to develop approaches and political will for systematic congestion management, infrastructure upgrades, and public-private financing for transportation. The corridor planning process began in March 2011, with recruitment of steering committee members, an initial orientation meeting for them, and hiring consultants for the project. Because the effort has just begun, its process and outcomes cannot yet be evaluated. However, the engagement features of the process are already prominent. Notably, it is clear that all of the work will be done *through* stakeholder engagement. In other words, it is explicitly *not* designed as a process in which the public is consulted as a complement to the work of the staff and consultants, but in which the stakeholders are calling the shots and being asked to step up to make implementation commitments from the outset. Some design features for accomplishing this public oversight and collaboration include the following:

- Organizers have assembled a steering committee comprised of a diverse group of 30 stakeholders, including representatives of the major anchor institutions.
- The project schedule includes holding 52 consultations with the public over the next 18 months to create the corridor management plan.
- The organizers are heavily emphasizing the role of “anchor institutions” such as Spectrum Health, the Van Andel Institute and the Michigan State University College of Medicine.
- The steering committee intentionally involves a diverse group of stakeholders who will play the lead role in co-defining the problem and generating and weighing options.
- The broader public will be engaged in planning charrettes that will allow the planning process to combine perspectives shared by any interested member of the public with a more in-depth examination by the steering committee.
- The planning effort will include technical expertise of various kinds and sources (engineering, planning, lay experiential knowledge of biking patterns & safety concerns, emergency vehicle perspectives, etc.), and will support steering committee members to come to a high level of competence in understanding those different frameworks and parameters.
- The organizers are intentionally building political support, relationships, and financial resources to sustain the implementation through the relational work being done in the steering committee (e.g., building the commitment of hospitals to investing in traffic congestion through the group process).
- The design of the corridor planning effort explicitly makes connections and builds on resources outside of the scale of the planning project proper (e.g., by drawing in people previously involved in GGR & the Bike Summit to extend their work into planning in this particular geography, expanding the scale of the study to a 5-mile length of Michigan rather than just the zone of greatest congestion).

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<sup>9</sup> Suzanne Schulz, quoted in Harger 2011 [145].

## 5 Learning from Grand Rapids

Numerous lessons may be learned from these cases about the issues and frameworks presented earlier in this report. In this brief analysis of the cases, we evaluate them in terms of how the processes are addressing the three prominent challenges for public engagement in transportation identified in Section 2.2. We then point to how these cases have – or have not – addressed the elements of public engagement design, management, and evaluation laid out in Section 3. In this analysis, we selectively emphasize the features of the case in which the policymakers have made particularly extensive or otherwise notable efforts. We conclude this section with a brief discussion of how the overall inclusive framework for these efforts adds up to more meaningful public engagement than simply the sum of implementation of the steps recommended in the framework proposed in Section 3.

### *5.1 Addressing Prominent Challenges for Public Engagement in Transportation*

Section 2.2 identified three prominent challenges for public engagement in transportation. This analysis describes how these two cases responded to each of these challenges.

#### *5.1.1 Trust and Legitimacy Issues in Engagement*

Before discussing the other two challenges in more depth, we note that Grand Rapids policymakers do not seem to be suffering problems in terms of public trust and legitimacy (Section 2.2.1) in these transportation efforts. The delay between the setting of cycling policy goals in the GGR plan and bike summit and their implementation has tested stakeholders' trust in policymakers and the legitimacy of these efforts. The planner has proactively addressed and been able to maintain trust and relationships by communicating to cycling advocates about the work the city needed to do internally to permit implementation, providing regular updates, and following through on helping the city's departments to put the needed institutional infrastructure in place.

#### *5.1.2 Engaging Expert and Lay Perspectives*

A prominent challenge particular to transportation is how to engage expert and lay perspectives in technically complex decisions that have substantial impacts on the general public (Section 2.2.2). In these two cases, transportation specialists have *not* been checking their expertise at the door in these efforts. Instead, the engagement processes have been a context for public managers to use their expertise to support emergent opportunities. They brought their knowledge to respond to how participants steer the deliberations. In reformulating the cycle agenda, they provided technical assistance to organize the Bike Summit, prepared the bike-friendly city application, and revised city policies to reflect the new norms for bike lanes. However, the inclusion of “lay” as well as “expert” perspectives transformed the kinds of policy outcomes that became possible. For example, lay perspectives challenged expert preconceptions of the problem, leading to a transformation of the GGR “connections” theme from public transit to incorporate cycling and variegating “cycling” to include several kinds of cycling. The planning process validated and utilized knowledge gained through lived experience. For example, cyclists' fear of “getting doored” contributed to understanding the road design problem. Expert knowledge was articulated by parties in both traditionally “lay” and “expert” roles, e.g.,

cyclists pushed the shift from “roads are for cars” to the “road diet” and “complete street” paradigms that both city staff and cycling advocates now use for thinking about multiple uses of roadways. Adopting “complete streets” as a new common framework for city traffic safety engineers, bike advocates, pedestrian advocates, and planners removed some of the oppositional contests over whether busses, cars, pedestrians *or* cyclists would get the upper hand. This new framework allowed people to connect across their statuses as organizational insider or outsider, across their different kinds of knowledge and different orientations to the problem because it reframed the issue so these differences were inconsequential.

In the two completed projects, discussion tools were designed to bring lay and expert knowledge to bear and to remove barriers to understanding one another’s perspectives. For example, using cross-section diagrams to explore various road lay-out options helped to bring together perspectives on legal and street maintenance requirements for minimum lane widths, cyclists’ preferences for safety, and business owners’ concerns about on-street parking. In all three efforts, the transportation and planning agencies did transform their roles from the traditional roles of being project leads and implementers to being conveners and partners in transportation policymaking and implementation. New organizational arrangements were created within and across the city organization and others around biking issues, e.g. to organize and sponsor the Bike Summit, submit successful application to be a bike-friendly city, and create a new mountain biking park. These employ an array of organizational arrangements, including creating a new organization (the bike coalition); volunteers’ designing, building, and maintaining a bike park on city-owned land through a legal contract with the city; the city’s providing technical assistance to start the new nonprofit in which it is a partner; and using the corridor planning steering committee to intentionally de-center the authority of large institutions (the city, the hospitals, the R&D center, the universities) that could dominate the decision-making or opt out of coordinated action. The transportation plan generated through public engagement in GGR was a “work plan” for the city’s planning department to then lay the groundwork for implementation inside the city government (e.g., establishing the regulatory frameworks, securing buy-in from several city departments and commissions) to do the work. Once that was established, the planning department invited cycling interest groups, the public, and philanthropists to re-engage to find resources to implement the plan, through the city or other agencies.

### *5.1.3 Diversity and Equity in Public Engagement*

Another challenge, present in all policymaking domains, is enhancing diversity and equity through public engagement (Section 2.2.3). There was limited socioeconomic diversity among the participants, champions, and steering committee membership of the Green Grand Rapids cycling and Bike Summit efforts. Elected officials, public managers, and other participants consider this a shortcoming of their efforts and have expressed strong desires to diversify participation in upcoming policymaking. It remains to be seen how, and how well, these goals will be implemented in the Michigan Street corridor planning efforts.

However, Grand Rapids has actively and successfully sought a diversity of perspectives in the steering groups of each of these efforts. The people convening the groups have managed diversity in an effort to produce connections that allowed people to address problems and take advantage of opportunities in their community. For example, cyclists refuted being grouped into a single homogenous interest group, prompting recognition of different individuals, motivations, and needs related to mountain biking, bicycle commuters, and recreational long-distance

recreational riders. However, they cooperated to apply for the distinction of being a bike-friendly city, coming together in the bike summit committee and the Grand Rapids Bicycle Coalition, and ultimately adopting a joint mission statement of collectively supporting cycling in its many forms. Similarly, the Michigan Street corridor steering committee is internally diverse by design, though it remains to be seen whether the process will be managed to take advantage of different perspectives and generate new insights.

## ***5.2 The Design of Public Engagement in the Cases***

The two cases illustrate how these particular policymakers and other stakeholders have responded to the questions about designing public engagement that we raised in Section 3.

### ***5.2.1 Deciding the Purpose of the Public Engagement Effort***

In terms of deciding the purpose of their engagement efforts (Section 3.1), these policymakers have been ambitious. The scopes of Green Grand Rapids, the Bike Summit, and the Michigan Corridor studies are substantial, in terms of their geographic scale, the breadth of transportation issues they each have sought to incorporate, and the political, financial, and other resource commitments that will be required for implementation.

### ***5.2.2 Considering Moving beyond Participation in Public Engagement***

The Green Grand Rapids and Bike Summit efforts did move beyond participatory public engagement to inclusive public engagement (Section 3.2), and the Michigan Corridor project seems poised to do the same. The GGR transportation planning and bike summit went well beyond the minimum requirement defined in ISTEA of affording the public an opportunity to provide input and influence outcomes, and well beyond the “participatory” level of stakeholder involvement identified in Figure 1 or the “informing” point of the IAP2 spectrum for public impact identified in Figure 2. For example, the inclusive ways in which GGR was organized transformed the nature of the issue that people were working on over the course of these efforts. The GGR “connections” theme was transformed several times, from just public transit, to being a home for people complaining about street cycling, to being a platform for a broader agenda on complete streets and several different kinds of cycling. Cycling was redefined as not just on-street commuting, but as a multi-faceted issue also including mountain biking and recreational long-distance cycling. The issue of how to design and manage roads was redefined from “roads are for cars” to the complete street paradigm of designing and managing them for multiple uses. Simultaneously, the purpose of working together was redefined from enhancing connections for moving efficiently around the city to becoming a “bike friendly city.” The traffic safety engineering department shifted from being relatively unresponsive to cyclists’ priorities to not merely being responsive to cyclists but rather to being part of their cause. The unit became an active advocate for cycling, exemplified by its contributing to convincing MDOT to try out the road diet pilot program.

### ***5.2.3 Selecting Techniques for Managing Engagement***

The case studies demonstrate the incorporation of a wide variety of facilitation techniques and communication strategies for engagement (Section 3.3). One outstanding feature of the

Grand Rapids cases has been the close involvement of the steering committees for Green Grand Rapids, the Bike Summit, and the Michigan Corridor planning effort in deciding on the scope of the overall efforts, how much to engage the public in decision-making and implementation, *and* the specific facilitation techniques and communication strategies for the unfolding engagement efforts.

#### *5.2.4 Evaluating Public Engagement*

As noted, there has been limited development by researchers or practitioners, across all policy fields, of measures and techniques for evaluating public engagement (Section 3.4), and these Grand Rapids cases are no exception. These projects have thus far not developed extensive evaluation measures for public engagement. The policymakers overseeing the Green Grand Rapids process and Bike Summit did compile statistics on the number of participants. More important, they were internally accountable to the stakeholders, in that they consistently demonstrated, in follow-up meetings and in the unfolding development of the plans and policy documents, specific and extensive ways in which public involvement was shaping the policy outcomes. As noted above, policymakers expressed concern about socioeconomic diversity in these first two efforts, and wish to engage more diversity and equity concerns in the Michigan Corridor and other policymaking efforts. Thus this is a ripe opportunity for researchers to engage with Grand Rapids policymakers in a research project to develop and test public engagement evaluation measures and techniques.

### ***5.3 Public Engagement as a Framework Rather than a Set of Steps***

In addition to this point-by-point analysis of lessons to be learned regarding the challenges of public engagement in transportation and design choices, several broader observations may be made about the Grand Rapids examples. Notably, these phases of participatory transportation planning in Grand Rapids encompass variety in several forms: the issues worked upon, the ways in which the public and stakeholder were involved, the kinds of outcomes they produced, and the array of participants and lead actors. Thus a prominent take-away from these efforts is that the community has avoided a set formula for public engagement; public engagement is a framework through which the work is done, rather than a particular set of required steps to attain adequate democratic accountability.

One of the consequences of combining a firm commitment to engagement with flexibility around the mechanisms seems to be that rather than one institution consistently having the lead role in sponsoring engagement, diverse actors have been able to build a robust network for working on transportation issues together. While there has been a critical role for the City of Grand Rapids in convening these opportunities, once each phase has launched, other organizations can take on leadership roles, and roles change over time and issues. For example, cyclists presented themselves as individual activists in GGR, coalesced into an organized group sponsoring education and advocacy activities through the Bike Summit and Greater Grand Rapids Bicycle Coalition, and are now participating in the Michigan Street Corridor Plan as representatives of one of numerous stakeholders at the table. Public managers convened the GGR and Michigan Street corridor planning efforts, but have actively supported others to step up to leadership roles in decision-making and implementation: they deliberately called out individuals to champion the biking cause and brought them attention and support through GGR, and on

Michigan Street they are calling out the anchor institutions to be at the forefront of solving the congestion problems.

Building relationships over time has also been important for enhancing knowledge and attention to transportation issues. The connections subtheme of GGR, then the 1<sup>st</sup> bike summit, then the bike-friendly city application process, then the celebration, then the 2<sup>nd</sup> summit, and now the Michigan Street corridor planning are opportunities for rolling forward attention to transportation across multiple issues and for finding connections across multiple kinds of transportation interests. For example, many actors came together to apply for Grand Rapids to be designated as a bike friendly city. The application process provided opportunities for people to appreciate the strengths of the different orientations to the problem and incentives for people to combine these strengths. The application and bronze certification were envisioned as tools for building ongoing awareness and support, organizing ongoing coordination, and aiming for continuous improvement, not as a single moment to be reached. The planning director actively managed the time lapse between adopting the GGR plan and being ready to implement it. Recognizing frustration and the potential loss of trust from the delays, she communicated that the city was actively making progress to sustain cooperation and momentum. And now, some of the relationships, knowledge, and priorities developed through GGR and the bike coalition are rolling forward to be resources for the Michigan corridor project.

Relationship-building is receiving special attention in the corridor project, which is intended not only to design technical measures for addressing congestion but also to strengthen the resources for implementation. While it remains to be seen how the project will turn out, it is clear that the intention of the Steering Committee process is to build the interpersonal relationships, political capital, and material support to accomplish implementation. For example, the participants are trying to build the hospitals' commitment to invest in traffic congestion management in a coordinated system that enhances the overall benefits for the public, rather than running individual shuttle systems. The steering committee composition places the anchor institutions on equal footing with other stakeholders (e.g., neighborhood organizations); frames the issues in terms of shared concerns, collective well-being, and coordinated action rather than as individual institutional challenges and choices; and is intended to slowly build their commitment to supporting solutions with collective public benefit and to paying for their impacts.



## 6 Potential Applications in Minnesota: An Exemplary Case

The framework for public engagement and associated techniques may be widely applied to many transportation-related policy decisions in Minnesota. Below is an illustrative, non-exhaustive list of opportunities for such applications:

- Deliberating the possibility of reducing the level of surface for some road systems in rural areas of the state
- Demonstrating the feasibility of a Mileage-Based User Fee (MBUF) system as a way to replace the traditional fuel tax for transportation [146]
- Assessing the potential to use public-private partnerships in transportation development to save public funding, to expedite project development, or to improve efficiency or service quality [147]
- Gathering citizen input on a 50-year vision for transportation through the Minnesota GO initiative of the Minnesota Department of Transportation and the Citizens League
- Involving transit users in MetroTransit service planning to decide how to cope with budget cutbacks that may necessitate significant changes in pricing and service levels
- Engaging historically marginalized communities in planning for proposed transitways in the Met Council planning area through the Sustainable Communities Program
- Rebuilding trust around transportation infrastructure projects in Saint Paul through novel approaches to mobilizing artists, community organizers, and bicycle advocates

Such applications are especially helpful for making meaningful collective decisions to address our transportation issues in the face of a severe funding shortage. As discussed in previous sections, public engagement may provide new information, new motivations or new ways for issue understanding and problem solving; may lead to more inclusive, democratic, and equitable decisions about how to utilize limited public resources; and may generate better public buy-ins and reduce delays, mistakes, or lawsuits in policy decision and project delivery. In the rest of this section, we use the issue of reducing the level of surface for some road systems in rural areas of the state as an example to illustrate a possible design of a public engagement effort.

### ***6.1 Reducing Service Levels for Local Roads: The Issue Background***

In February 2011, the Minnesota Local Road Research Board (LRRB) sponsored a workshop on systems planning for local roads. The key issue identified and discussed in this workshop was the complex task of planning for investment of limited resources to build and maintain local roads, including the possibility of reducing levels of service for local roads, for example by converting some paved roads to gravel surfacing. Counties in states outside of Minnesota, such as South Dakota, North Dakota, and Michigan, have recently implemented strategies that include converting paved roads to gravel surfacing in order to save costs. In considering the implementation of these strategies in Minnesota, LRRB finds that local governments are in need of tools to assist with systems planning and decision-making. When prioritizing investment decisions, factors to consider may include life cycle cost, impact of traffic volume and type, existing pavement conditions, impact to land use, safety, density of service levels across a system, and environmental impacts.

Effective public education, engagement, and communications would be key to achieving successful outcomes when conducting systems planning in public roads investment. Thus the LRRB worked with the University of Minnesota's Center for Transportation Studies (CTS) to

host the February workshop to engage practitioners and researchers in shaping research to examine this complex issue. The intended outcome for this daylong workshop was to produce a prioritized summary of research questions, recommended research approaches, and a proposed timeframe. By the end of the workshop, participants working in both large and small groups agreed that more research should be conducted about three areas: (1) Engineering factors, (2) policy and communications, and (3) costs.

Among the research questions identified about policy and communications, some are particularly related to public engagement. For example:

1. How do we search for relevant policy options? How many public roads do we need? What other funding mechanisms may be considered? How can counties' shared lessons be communicated with each other?
2. How do we collect, organize, and present technical solutions? How do we educate and inform local policymakers about the solutions?
3. How do we involve/inform/communicate with the public the true cost of transportation with current levels of services?

## ***6.2 Reducing Service Levels for Local Roads: A Proposed Design for Public Engagement***

Following the suggested model in Sections 3, designing public engagement process about changing service levels for local public roads issue would include the following four steps:

### ***6.2.1 Deciding the Purpose of the Public Engagement Effort***

Public engagement may be used for several purposes, for example, (1) to solicit new information or knowledge for addressing problems, (2) to make collective decisions in an inclusive way, or (3) to generate better buy-in and reduce transaction costs in implementation.

In this case, the most important purpose may be the third one, to get public understanding and generate public support for the hard decision to downgrade service levels. Paving public roads is often considered one of the major and most visible items of local government services, especially in rural areas. In local government management literature, the percentage of public roads paved is often used as a measure of local service level. Therefore, converting paved roads to gravel surfacing is likely to face strong public opposition. To generate better buy-in, public engagement efforts may be geared to help the public understand the issue background, for example: What is the local budget situation? In the transportation sector, where do revenues come from and how are expenditures used? How big would the budget gap be if the current level of paved roads were to be maintained? How much can be saved by converting paved roads to gravel surfacing? What are options for raising additional revenues to address gaps?

The second purpose, about collective decision-making, is also applicable to this case. Given the budget situation, there are several policy options that involve tradeoffs to be determined by the public. For example, the public may decide it is willing to keep current service levels through increased taxes or fees. If a revenue increase is not feasible, the public may be willing to reduce expenditures on other local services, such as education or fire protection, to maintain the level of road pavement. If the public instead prefers to convert some paved roads to gravel, then priorities and road segments for gravel need to be decided.

Finally, the first purpose, generating new information and new knowledge, is also attainable in this policy area. Many of the decision parameters for transportation financing or road surfacing strategies require a certain level of expertise or experience, such as understanding of

budgeting scenarios, revenue options, expenditure types, engineering standards, and associated costs with pavement options. The public can still contribute to seeking solutions and making choices, however, for example by weighing different financing options, providing their experiential knowledge of the driving conditions on the roads, and inserting their values into deciding the criteria about prioritizing the road segments that should remain paved. For example, residents of the area may provide important input about the relative importance of maintaining year-round, basic emergency access to all residences versus sustaining high-quality access to workplaces or tourism centers that provide high economic benefits to the community.

### 6.2.2 *Considering Moving beyond Participation in Engagement*

As Figure 1 shows, there are multiple levels of public engagement in a nested hierarchy, in which each successive level increases the depth of shared authority between agencies and the public to define and address policy problems. The first level is participatory public engagement. Past experiences of public engagement efforts related to transportation issues tend to be in this basic mode, in which stakeholders provide input on proposed project or policy. In the case of de-paving public roads, a simple participatory process may involve surveying public opinions toward service levels and their willingness to pay, or assessing their preferences over different expenditure types.

Deliberative public engagement is at the second level, which tends to involve multi-directional dialogues regarding policies. Such effort may help the public to reveal a broader sense of public values that are commonly held, and to facilitate the development of new or improved projects, policies, or resources. In the dialogues, policy options may be framed as better informed choices that are derived through deliberative discussions. In the case of de-paving roads, the first-step choice is the tradeoff between cutting service levels and increasing local revenues. Increasing taxes or fees is always an unpopular option, but the public may be willing to do so. For example, in some other states, local governments have been authorized to levy an additional level of local option sales tax for capital improvements with voter approval [148]. If the deliberative decision is to reduce public services, then a second-step choice is discussed to determine which services will experience reduced expenditures. If the deliberative decision leads to reducing public road spending instead of cutting expenditure on other local services, the third-step deliberative choice is the selection of additional policy details, such as the choice of road segments or specific gravel surface types. Research about budgeting in Grand Rapids, Michigan has shown that deliberative public engagement is helpful in developing innovative ideas and as well as buy-in about service cutbacks due to budgeting shortfalls [22, 30]. Unlikely as it may seem, it is possible that through deliberative dialogue about values related to road surfacing options in Minnesota, stakeholders might discover some opportunities to gain *benefits* from road service downgrades. For example, they might be able to identify environmentally fragile areas that numerous stakeholders would like to protect by limiting road access.

The highest level of public engagement is inclusive/collaborative/adaptive engagement, in which related parties co-define the problems and processes for engaging and coordinating policy implementation on an ongoing basis and share the responsibility to evaluate and adjust implementation goals. In this context, it is important to remember that changing paving on public roads is only one option among many in systems planning of local service delivery, and that decisions about the local road system are not reached on a one-time, final basis, but rather on an ongoing basis. Ultimately, it is the public who decides the level of public services and how the

services will be delivered, as well as associated decision mechanisms. With appropriate designs of engagement approaches, as suggested below, county engineers and managers can act as facilitators for the public to make informed choices collectively and inclusively and to participate in implementing programs including monitoring, oversight, and making necessary adjustments with the change of circumstances.

### *6.2.3 Selecting Techniques for Managing Engagement*

Section 2 of this report reviews a wide range of designs for public engagement that may be categorized as “advisory roles,” “small group consultations,” “designed exercises,” and others. These approaches can be combined in public engagement regarding public roads investment systems planning.

First, the advisory-role type of engagement often involves selected members of the public recruited to provide guidance on policy issues, performance monitoring, or program evaluation. Participants may be selected jointly by elected officials, public managers, or project specialties, based on multiple criteria depending on the purpose of engagement. For the reducing levels of service for local roads case, if the purpose is to generate public buy-in and reduce transaction costs in decision-making and implementation, the ideal advisory groups should be representative of the whole population and inclusive of diverse perspectives.

Second, the small-group-consultation type of engagement may involve deliberative polls, interest-group consultations, consensus conference, or focus groups. Compared with advisory boards, small group consultations may allow for a deeper level of engagement to exchange different viewpoints, and to incorporate different perspectives in making consensus. Deliberative polls typically require a larger and representative sample of participants. Interest-group consultations are directed toward specific groups recognized to have an interest in the issue. Consensus conference or focus groups tend to be representative in terms of viewpoints, interests, or perspectives. The workshops already held by LRRB and CTS may be considered a type of small group consultation.

Third, the design-exercises-type of engagement may include planning charrettes, structured public involvement, or interactive optimization tools. Planning charrettes involve stakeholders to experience and manipulate components of policy design through games, simulations, or other activities. Structured public involvement settings involve the public in every decision phase through iterative, focused explorations and strategizing about disaggregated aspects of the policy issue. Interactive optimization tools involve the public in manipulating a fixed set of resources to choose among a menu of policy options. In this case, for example, participants may be asked to balance local budgets with different combination of revenue options and expenditure levels. For road service level discussions, the participants in the design exercises need not be representative of the whole population, but should have a certain level of dedication and diverse capacities to contribute to the in-depth exchanges and exercises.

### *6.2.4 Evaluating the Public Engagement Efforts*

Methods for evaluating public engagement are still in an early stage of development. The service levels for local roads case would provide an opportunity to develop a set of evaluation metrics based on two commonly used standards, with some modifications to address missing elements.

The ISTEA standards include four criteria: (1) where public involvement is early and proactive, (2) whether timely information is provided to the public, (3) whether explicit considerations were given to public input, and (4) whether the input of traditionally underserved communities have been sought out and included in the decision-making. Alternatively, the Bickerstaff, Toley, and Walker standards [42] evaluate four principles: (1) inclusivity, relating to the opportunities and level of effort to include the general public and different groups, (2) transparency, relating to evidence that public involvement shaped the policy or plan outcomes and that those impacts were communicated to the public, (3) interactivity, related to the use and frequency of deliberative, interactive methods to engage the public, and (4) continuity, relating to ongoing efforts to engage the public in finalizing the plans and evaluating the implementation. In an inclusive public engagement process, the set of criteria and specific measuring metrics to be used may be determined by the public themselves, either through advisory boards or small group consultations.

In addition, we also suggest that the process should develop and test measures of *learning* that would reflect the particular challenges of engaging the public in these technically complex issues. Given the fact that part of the road maintenance issue involves building public support for the difficult choices that need to be made in the face of budget cuts, we also recommend developing measures of the *social capital* created for implementation of policies. These measures could include assessments of the levels of conflict / agreement among stakeholders, network analysis of the strength of relationships created, or evaluations of other kinds of infrastructure built for ongoing coordination of policies. Finally, we suggest overlaying these evaluations of the outcomes of the public engagement process with measures of the *quality of the content of the policy outcomes* made in terms of their economic efficiency, safety, environmental impact, and political viability.



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