The Problem of Community Engagement: Disentangling the Practices of Municipal Government

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ABSTRACT
In this paper, we work to inform the growing space of Digital Civics with a qualitative study of community engagement practices across the breadth of municipal departments and agencies in a large US city. We conducted 34 interviews across 15 different departments, including elected and professional city employees to understand how different domains within local government define and practice the work of engaging residents. Our interviews focused on how respondents conceptualized community engagement, how it fit into the other forms of work, and what kinds of outcomes they sought when they did 'engagement.' By reporting on this broad qualitative account of the many forms the work of community engagement takes in local government, we are contributing to an expansive view of digital civics that looks beyond the transactions of service delivery or the privileged moments of democratic ritual, to consider the wider terrain of mundane, daily challenges when trying to bridge between municipal government and city residents.

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Digital Civics; Community Engagement; Urban Informatics.

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H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
The field of human-computer interaction has a long history of examining the ways computing supports and mediates government work and democratic participation (*e.g.,* [36,39,49]). This work includes investigations into how bureaucratic organizations take up contemporary computing systems meant to ease the burden of routine coordination and support public and regulatory accountability [14,59], as well as work that focuses on how communities leverage computing to organize and act politically—working toward local solutions that require coalition building, establishing shared identities, and place-making [9,11,25].

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The trajectory of prior research within our field provides important historical context and accounts of professionalized governance; however, they typically focus on singular forms of community engagement: where engagement might mean rationalized decision making [38], service delivery [59], or requirements gathering [10]. But as Asad et al. pointed out, "community engagement is to cities what user experience is to computing: it signifies a large and multi-faceted category that simultaneously speaks to general qualities of interaction and to specific ways of doing that interaction"[3]. Being that *community engagement* represents such a broad collection of both methods as wells as goals, before we can endeavor to support or mediate engagement practices with computing, we first need to understand the breadth of professional practices that get placed under the umbrella of *community engagement*.

The challenge here is two-fold: first, understanding the breadth of practices that make up community engagement within a contemporary, large urban government; and second, turning that understanding toward guiding how we conceive of and design supporting technologies that mediate and enable these diverse goals, practices, and accountabilities. This project is made more urgent because the need for robust, accessible, and meaningful community engagement is crucial [34,50], particularly as cities continue to grow [35]; to be sites of struggle for social, racial, and economic justice [7,10]; and to be test beds for smart city technologies that trade surveillance and authoritarianism for promises of service efficiencies [29].

In order to better understand community engagement at city-scale, we conducted a qualitative investigation of engagement practices across 15 city departments and agencies, interviewing 34 individuals working in different roles and different levels of authority. We limit our focus to city employees rather than community groups, non-profits or individual citizens in order to understand engagement from the perspective of local government. Looking at engagement from this perspective complements recent work in our field—including our own—that has focused on the experiences of community groups and residents [3,9,11,31]. Further, our goal was not to produce a deep accounting of any one department, but rather to survey the breadth of practices that help charac-

terize the trajectories of *community engagement* as municipality-to-citizen, versus *civic engagement* as citizen-to-municipality.

The departments and agencies we interviewed included the breadth of functions present in our local municipal government—from service-providing units like public works, parks and recreation, and watershed management; to planning and governance functions like the department of planning and city council. The semi-structured interviews that make up our data set were conducted over a 3-month period, and allowed our respondents some latitude in interpreting and describing community engagement within the context of their department and their job within the city.

By looking across the entirety of municipal government, we are able to begin disentangling the plural and at times contradictory practices that make up community engagement. In particular, we fill in detail on how different engagement practices fundamentally shape public participation—its character and effect—and point toward opportunities for computing to provide effective support given the different goals, temporal requirements, and information needs when considering community engagement at city-scale.

COMPUTING & COMMUNITY ENGAGEMENT

There are two primary areas of interest when considering community engagement as an object or activity of study for human-computer interaction. The first are the ways in which community engagement, and civic participation more broadly, have been taken up by computing; the second concerns understanding the work of municipal entities and the practices that compose that work.

Democratic Participation and Community Engagement

Computing as a field has long had a particular perspective on what it means to support civic participation. At the base of much of this work is faith that matters of public engagement are best described through rational modes of deliberation (e.g., [34,38,54]). The assumption being that it is best for "those who must live with the consequences of a decision to make it together" [26:17]. Such forms of participation arguably lead to more just decisions because the rationale behind the decision is made accessible (and contestable). Deliberative modes of participation also avoid the presumption of consensus, instead trading in a shared capacity and context building that enables individuals to be more readily "reconciled to [unfavorable] outcomes because others have justified the bases of their positions in good faith" [26:17]. However, even within the practice of deliberative democracy, enabling space for contentious discourse requires persistent attention—in short, it is imperative to recognize that deliberation is also subject to power and institutional authority, and to take steps to reconcile those inequities [18].

This reconciliation is the work of community engagement. *Community engagement,* as we will use it throughout this paper, describes the work governments (at all levels) do to meet and invite the public into the process of governing. Within this work exist a multitude of practices, including: sharing information to constituencies via social media [44], enabling [3,9,11,31] action outside established institutions through deeply participatory deliberative initiatives [26], or creating processes that redistribute power to groups normally excluded [2]. Some of these practices complement each other, while others setup mismatched expectations and work at cross-purposes [20].

Collectively, community engagement enables the participation necessary for democratic governance. Furthermore, as different kinds of democratic principles—legalist, competitive, pluralist, participatory, libertarian, or plebiscitary—set the terms of governance [15,32], different kinds of community engagement sets the terms of participation: through attention, action, formal participation, or activism [20].

It is with this recognition that we return to computing's role in mediating community engagement. As a field, we have begun to a turn to digital civics as a frame to that seeks to foreground civic relations and confront the limitations of deliberative and rationalist modes of public discourse [4,47]. These relations—created and sustained by different programs of community engagement—exist within and across municipal and community boundaries as different departments, political bodies, agencies, and individuals respond to political, economic, and demographic realities [4,54].

Municipal Affordances, Practices, & Logics

Working within a mode of digital civics means attending to the many ways engagement occurs, and working to support that plurality across the breadth of mundane institutional moments when people need to actively and collectively enact governance [9,10]. The fact that *community engagement* labels a diverse set of goals, practices, and accountabilities points to similarities in what Law called the mess in the social sciences [40]. Law's notion of "hinterlands" is particularly apt: described as the collection of backgrounds, practices, and inscriptions that produce scientific realities, the hinterland, for Law, is the accumulation of these things that enable new scientific knowledge to be produced.

Likewise, within municipal government, there are diverse professional backgrounds, practices, and inscriptions that form the hinterland of community engagement [20]. Expectations become set in terms of accountabilities and obligations. The details of whether an engagement is information providing, or information seeking, and the way outcomes from such engagements feed back into the daily routines of a given municipal entity matter because of how they shape public participation in governance [19]. The differences between information seeking and sharing create mismatched expectations in communities being engaged by municipal actors; having input into a process is vastly different than simply being told about a result. These strains only become more apparent when new technologies or platforms are introduced and placed within political boundaries where the work of engagement runs up against power dynamics within municipal organizations [13,23,24].

Such an observation is not new to computing. In 1978, Kling pointed out in a study that compared rational, organizational, and political processes in policy making that "the political order of the social setting in which a computer-based system is utilized must be well understood, in addition to the technical features of the system, to predict its likely uses and impact" [36:671]. His o resonates 40 years on, where mismatches in the underlying expectations of community engagement within the municipal entities doing the work create challenges for officials and residents alike. As Voida et al. point out, it is not just "about *what* values… [but] about *how* those values are operationalized and embodied" (emphasis original) [59:3591]. Ultimately, it is not necessarily the political- and social-order of community engagement that are contested; it is how engagement is implemented that becomes a site for conflict and mismatched expectation.

Drawing these together, we recognize that there is an opportunity for computing research within the context of municipal organizations who are doing community engagement in all of its many forms. Computing technology clearly plays a role in such work, but even as computing research has long been interested in matters of governance (e.g., [36,42]), the social, technical, and political landscape continues to shift, thus inviting close empirical study of engagement practices and the opportunities for designing sound computing support.

METHOD AND ANALYSIS

To develop a broad understanding of community engagement practices, we conducted 34 semi-structured interviews that spanned 15 different departments and agencies within our home municipality—a large US city with a populous urban core and a much larger metropolitan region. We recruited participants through a collaboration with our mayor's office while working on a project to understand and improve relations between city agencies and residents [3]. In sum, our inventory of community engagement practices included interviews with elected officials, appointed officials, department directors, and professional civil servants.

We interviewed at least one person in each department. Our interview selections were made to ensure appropriate coverage given the breadth of public-facing agency work. For example, in the case of public works, while engaging with residents of the city was an important part of its job, the majority of its work was in the logistics and management of city services and infrastructure; on the flip side, across the planning organizations, work covered a range of public-facing engagements around the development and implementation of infrastructure and policy projects. We also interviewed officials at two agencies that represent development-focused public-private partnerships in the city. They straddle a common boundary in US cities where public accountability in the development of infrastructure and economic investment activities meet private interests in the implementation of those projects.

	Municipal Department	Respondent
1	Parks & Recreation	R1, R2, R3, R4
	Public Schools	R5, R6, R7
	Cultural Affairs	R8, R9
	Immigrant Affairs	R10, R11
	Workforce Development	R12
	Public Works	R13
	Watershed Management	R14
	Courts and Solicitor General	R15, R16, R17
	Public Housing Authority	R18
2	Zoning Review Board	R19
	Department of City Planning	R20, R21, R22, R23, R24
	Regional Planning	R25
3	Invest CITY	R26, R27, R28
	Beltline Partnership	R29, R30
4	City Council	R31, R32, R33, R34

Table 1: List of departments and respondent codes for each interview. Departments are clustered, 1–4: service-focused units to elected officials

Table 1 lists the departments and agencies interviewed and the number of individuals we spoke with in that department. We have clustered and ordered the list so that departments involved in service provision are at the top (1), followed by those involved in planning and policy making (2), then the public-private development agencies (3), and finally city council as a body comprised of elected officials who have a particular relationship to the public (4).

Each interview lasted 45 to 90 minutes and began with a brief overview of the purpose of our research collaboration followed by a series of questions asking the respondent to describe their background and role in their organization. Next, we asked them to define community engagement, followed by how it factors into their role as well as the work of their agency or department. The interview then proceeded to questions on how community engagement work is carried out, including: how goals or assessment measures were set, techniques and locations for reaching appropriate constituencies, understanding the challenges of engaging different parts of the larger urban community, and finally how different technologies were used—or needed—to effectively do the work of engagement and measuring its outcomes.

We recorded all of the interviews and transcribed each recording. To analyze the interview data, we followed Seidman's guidelines for qualitative analysis which focuses on the "connections among events, structures, roles, and social forces" present in a given context [53]. Seidman builds on the analytic foundation of grounded theory [58], however, is less focused on the articulation of a unifying theory, instead

attending to the process of describing the connective threads developed in analysis.

We initially coded the interview data attending to instances where respondents spoke to the goals of engagement work, the techniques and media employed in reaching those goals, as well as the motivations for doing engagement work with different constituencies. These areas of early focus enabled us to further articulate the structures and patterns of work across the range of agencies and actors practicing community engagement. Five common categories of community engagement emerged through our analysis and create a framework for understanding community engagement through a lifecycle of specific initiatives and a range of different goals with respect to interacting with the larger public of city residents.

FINDINGS

Our findings begin to characterize city-scale community engagement practices across the following prominent themes: *raising awareness, building relationships, setting the table, finding opportunities*, and a cross-cutting theme focused on *technology use*. These themes are not temporally ordered in practice—agencies might deploy these practices at different times as needs and opportunities arise. However, there is a logical progression useful for ordering how we discuss the different practices: from establishing awareness of municipal functions to organizing people and agencies, to managing resources, and finally to taking action to address city-scale issues in governance and planning.

Raising Awareness

The first theme in our synthetic ordering is *raising awareness.* The practices that compose this theme are bi-directional: sometimes they are done to become aware (in the case of an agency soliciting input into local needs), and at other times they are done to make aware (in the case of working to inform residents about a topic). At the most basic level, this work is about making municipal operations legible to city residents—making sure that residents are aware that a department exists as well as its function in the overall structure of the city government. For instance, R12, in the workforce development agency reflected on the importance of this basic awareness: "*my job is to let the community know that we exist, and how we exist. Many people don't know that we're here, or the ones that do know that we're here don't know what purpose we serve."* If residents of the city do not know existence or function of an agency, they are unable to interact with it. As R12 points out, this is especially true for organizations that are obscured in the increasingly complex leviathan of local government.

Making points of connection legible through access points with municipal entities is a crucial outcome of practices aimed at *raising awareness.* For instance, consider the access points of public works which handles waste management and infrastructure maintenance: "*Everybody sees their garbage man come by once a week to collect their can"* R13. This department also maintains a website and call center which, "*processes almost 10,000 calls a month, for potholes, for recording solid waste, illegal dumping, and so communication is two-way. And we gain a lot of valuable feedback from that communication as well*" R13. In this case, the day-to-day service work is highly visible and maintained through a robust multi-modal system of access points that improves service delivery as well as affording a high level of institutional awareness.

By contrast, consider another large and visible institution, public schools, which are typically accessed through contact with parents and children of the system. Outside of the contact that occurs through normal classroom and school interaction, R5 wondered how to engage with parts of the larger community who are not directly connected to their local schools but could and should engage in improving it: "*I think we get—for people who have kids in the system, there's one level of engagement. But with people who have no inroads to the system, I think they feel like, 'Okay, I want to make a difference somehow with our school system, I don't know a way in.'"* The challenge here is building an awareness of how to access parts of the larger municipal system for individuals not normally within the purview of how that system operates.

Whether delivering services or working to make it easy for concerned residents to contribute to governance operations, *raising awareness* relies on a number of different techniques. These range from simple surveys all the way onto forms of deep-hanging out. Communication can occur in the form of asynchronous communication (website, flyers, email), or be synchronous communication (town-hall, forum, community meeting). The choice of mode and medium depends on the content, time and resource constraints, as well as the preference of the department or agency.

Ultimately, no matter the choice of how communication happens, municipal officials "*have to measure what's tolerable for the community, because you don't want to harass them, but you do need them to know. So, it's a sweet science trying to figure that out"* R31. This means filtering information and determining frequency: "*you don't send something on a routine basis. You don't do a weekly update. You don't do any of that. I only send emails when I know when you see it, you're thinking, 'I am glad that they sent that to me. It may or may not pertain to me, but it was important enough that I was glad to get it'"* R32. The concern here was that routine messages would be more easily ignored, whereas infrequent messages would stand out and grab the attention of their constituents. While making these kinds of choices are part of the work, especially for elected representatives who need to build and sustain political will for initiatives they care about, they are also one way power is exercised by municipal authorities.

Exercising this power also comes through the way language is used when *raising awareness*. The language of governance and city operations often presents a barrier; because of its technical origins it is often not easily accessible by residents. This is especially important in communities of lower socio-

economic status as R26 observed: "*In more of our poorer communities, it is very difficult because there is a translation problem. We speak in our language, they speak in their language. Oftentimes, we're saying the same thing, but it's how we say it and how they say it that we could be missing each other.*"

For many of the individuals we interviewed, *raising awareness* is the definition and sole practice of community engagement. In fact, "communication" was often used interchangeably with "engagement"—where *"communication and buy-in matters, making sure people understand what they're doing, why they're doing, why it matters, and able to articulate that back in a way"* R16. But how this goal of communication unfolds differs across inscriptions, to use Law's phrasing, that change over time and across municipal agencies. These differences begin to shape out the hinterlands of *community engagement* where different, and at times conflicting logics governing the ends and means of engagement become the grounds for misaligned expectations. For instance, a city councilperson can switch between quick pulse-checking of her constituents on twitter to more intimate, time-consuming face-to-face interactions to develop relationships; meanwhile, public works officials view their call centers and internet service portals as a similar category of work. The first is much more closely tied to building forms of participation, while the other is very much about service transactions and responding to the public as one might to customers.

The consequence is that calls by residents for greater efforts in community engagement, calls which are often motivated by a desire to exert more local control and community agency over governance (e.g., [2,3,10]), require translation across different municipal functions and professional practices. There is a vast gulf between the transactional engagements of customer service and the relational engagements of deep hanging out and what amounts to forms of capacity building as officials work with communities to raise their awareness of legislative, policy, and development activities that will affect their neighborhoods.

Building Relationships

Responding to these differences, it became clear across our respondents that *building relationships* was an important practice within the wider landscape of community engagement. Similar to the notion of articulation work [52], *building relationships* describes the necessary supra-work of negotiating and connecting between actors, goals and tasks. According to R25, a regional planner: "*We as people who engage communities we can't afford to just do this one-off type thing. It's about building relationships, it's about building trust. People talk to and divulge meaningful information to people they have a relationship with.*" Here, R25 observes that *raising awareness* (as described above) is not sufficient for "meaningful engagement." Entangled in this desire for meaningful engagement are a nest of questions around meaningful for whom: is the quality of information sharing most critical for the planner who needs local knowledge? Or for the community member who needs to understand personal impact? Is it about cultivating informants, or creating cooperation?

Raising awareness can expose the access points of municipal government to residents. But simply knowing where and how different forms of information exchange take place does not resolve the external questions of motivation or desired outcome. This means building out relationships is crucial for municipal agencies to reach the public. For example, R29 describes his work on a city-wide project that is meant to transform many neighborhoods with access to green space, transportation options, and affordable housing: "*we believe we are a new neighbor. We move into a part of the Beltline that we haven't been before, we're now a neighbor because we're not going anywhere. We're there for the long haul. So, as a new neighbor, how can we get to know our neighbors*?" As their work of building this new infrastructure takes them from neighborhood to neighborhood, they recognize they lack relationships with residents who may be uneasy about the coming changes.

To address this gap, R25 talked about *building relationships* in a proactive manner: "*We host a Saturday, anybody-come-kind-of event and people come with their kids, their grand kids. They hang out with us... We tell them what we're working on and give them a chance to talk to us about what we're doing and how it affects them.*" Hanging out on the weekends becomes a tool for establishing a relationship. The goal of these sessions was not to advance the plan, but to *build relationships* and provide a human access point into the municipal operations responsible for the city-wide project [41].

Building relationships often requires empathizing to understand the nuance in feelings and emotions connected to an issue, rather than just recording the facts or collecting responses from a survey or opinion poll. Understanding local histories and knowledge is very important for some kinds of engagement work: "*a lot of stuff that happens down here is so nuanced that I don't think I'd ever get away from wanting to talk to somebody directly and get a sense of how they felt about something, not just the facts about it*" R31.

The nuance of felt experience points to how the affective qualities of community engagement are predicated on building relationships and connects to how people articulate attachments and begin to work collectively toward political outcomes [12]. As an example, R20 noted that when working with residents to get input on proposed plans, *"most of the time these conversations are very emotional conversations, because there are real systemic issues that have plagued most of these communities for a long time. And yet, there's consensus around what needs to be changed. However, there's also the fear that when things change, will I even be able to stay here?*" The emotions, fears, and concerns expressed about gentrification and displacement as a consequence of urban renewal play against a desire to see the area in question improved (as always in urban redevelopment, the question is, "improved for whom?" [28]). Legitimizing those

concerns by taking the time to listen to residents is an important part of establishing trust when *building relationships.*

The challenge comes when residents expect substantial policy shifts, shifts that are often beyond the purview of individual planners or officials sent out into effected communities. One of the strategies our respondents used was to redirect larger generalized concerns toward specific areas where decisions could still be impacted: "… *[we try] to take what they're saying that's important to them, and be able to translate that back to them in a way where you're acknowledging the importance of it, but you're also showing them how it ties into what you're actually trying to find out on that particular assignment"* R20.

The practice of *building relationships* emphasizes the importance of trust and direct, personal contact between municipal officials and the public to whom they are accountable. In contrast to *raising awareness*, which might have a more transactional for departments in cluster 1, the relational work of departments and agencies in clusters 2–4 placed a different emphasis on *relationship building*. However, across those clusters, different agencies' approach to building those relationships differed: from formal public meetings in the case of planners with clear lines of accountability, to informal weekend gathering in the case of public-private development partnerships trying to build good will. Taken together, these practices are part of establishing the kind of participation that McCarthy and Wright identify as "[having to] be negotiated and [which] has to be based on a being with that assumes equality from the outset" [43:110]. Basing their community engagement in dialog, the municipal officials were creating different opportunities—and sets of expectations—for how their constituents could engage in civics.

Setting the Table

Raising awareness and *building relationships* are expansive community engagement practices—they are carried out with the intent of connecting with as many residents as possible. Once we look toward the more specific work of developing or implementing policy or legislation, officials typically need a group of dedicated and reliable residents with whom to work. To that end, *setting the table* reflects the ways in which municipal authorities assemble stakeholders and distribute power amongst them in decision making processes. This requires balancing between institutional actors, operational needs, and the procedural, political, or economic constraints in a given project.

To achieve some balance, officials recognized the need to curate community participation. However, in doing so, they also recognized the uneven concentration of influence across different communities, describing it as: "*the voices of a few making decisions for many*" R6; or noting *"typically, you're getting the outliers. You're getting the people that are complaining and you're getting the people that are praising. You don't get the people that are in the middle*" R33. Such observation by municipal officials begins to show very bluntly how community engagement practices shape participation—a desire to get "the right" people involved can be political expedient as easily (or more easily) as it can be an intentionally inclusive practice.

In some of the city's low-income communities marked by a dearth of leadership or stability in counterpart community-based organizations, municipal officials had to piece together resident participation. "*There are some very, very poorly run organizations and business in some of these communities. And you got to know who those folks are, but if you don't know their track record, you could get down the road with someone like that, and it could cost you your reputation. It could cost you a lot of time, resources, and a failed project*" R26. Likewise, even in instances where stable community institutions existed—like churches—there was a concern that they too unnecessarily narrowed the frame of participation: "*I know people always say, 'Go to community organizations, go to churches.' A lot of people don't go to churches and we certainly don't want church to limit someone. Or certainly want the attendance to church to define whether or not that they can participate and get their voice heard*" R10.

What began to emerge was that *setting the table* was as much about the allotment of power as it was about cultivating participation. This was particularly clear from interviews with the public-private development agencies who had split accountabilities: "*[we need to] balance all the interest for all the parties that we deal with here. So, we're dealing with the community, but we're also dealing with the banks who have some deadlines that they have to meet. We're also dealing with investors who're buying a lot of the investments that go into our projects, and they all kind of have a different mindset"* R27. Similarly, a senior city planner defined success in a project as identifying, "*scenarios for redevelopment that reflect the opinions of the community, that reflect the market analysis, and that really make good planning sense in terms of redevelopment*" R24. In both of these instances, municipal officials were identifying how the political and economic realities weigh heavily against the desires of residents affected by a given project.

Even though *setting the table* was entangled with the politics of urban governance and development, our respondents worked from positions of good faith in wanting to represent the diversity of perspectives and needs within the city. This was particularly true around development projects that were aimed at addressing inequity and resilience. But they also recognized the limits of engagement practices that require time and voluntary labor. R33 in city council reflected: "*there's only so many people that have so much time to deal with community stuff. Most folks are just trying to go to work, pick up the kids, get the groceries, go to the gym, go to their normal routine.*"

To deal with the constraints of time, and with that the capacity among residents and community organizations to contribute to the work of governance, many of the departments and agencies would provide resources for resident participation. As a practice within *setting the table,* making resources

available was a way to ensure participation by residents who might not otherwise be able to—a goal for service-oriented departments like the public housing authority, as well as planning and development agencies. Often, this practice included simple things like providing public transportation vouchers, childcare, or food at evening meetings—efforts to extend basic services to working families that were sought for input in different service and development projects.

At the other end of the spectrum were grant-making practices that functioned as a means of gaining access and as a tool of capacity building. Here, *setting the table* takes the form of financial resources negotiated and arranged throughout various community organizations. Distributing resources this way, and supporting local initiatives was often described as "empowerment" because it aimed to amplify grass-roots efforts aligned with a given municipal entity, as opposed to introducing new work from outside the community that may lack support or longevity due to the perception of it being a top-down initiative.

Just as ensuring representative participation in public process was a challenge in *setting the table*, so too was achieving equity in the allocation of resources. R18, in the city's housing authority stated: "*because we have limited resources, do you scale up a few people by funding them, funding the same people to gain higher levels of capacity, or do you spread it thinner and do smaller projects?*" The question of spreading resources broadly versus concentrating those resources has real consequences to the kinds of civic engagement municipal agencies are supporting. On one hand, sustained financial support cultivates technical expertise and helps maintain neighborhood or issue-based groups who need to interface regularly with decision-making municipal agencies. Sustained support sets the table with residents able to contribute over a long period of time and with insight into both their community needs *and* into the constraints and realities of department or agency work. On the other hand, however, it is easier for agencies to work with groups with whom they have a history rather than starting with a new group—like R26's observation from above in wanting to avoid supporting a community group or business that ends up "*cost[ing] you a lot of time, resources, and a failed project.*" This can become a cyclic process where *setting the table* becomes a gateway for participation, entrenching power and influence among a small number of residents and community organizations, and making it difficult to include "everyday folks."

Ultimately, the concerns and practices that comprise *setting the table* have manifest implications for configuring civic participation, as well as mercenary implications for the exercise of power. Distinguishing which community groups effectively use money, or have the appropriate capacity, or whether or not to provide direct incentives for residents to attend meetings is tied to assumptions about how such civic entities might best serve their own communities, or how development might best take shape, or how to best include underserved residents. As a result, our respondents recognized the perception, and the need counter the perception, that work they did to invite and select participation—specifically in venues where decisions get made—was about money and access to money.

Finding Opportunity

Up to this point, the practices we have described are primarily concerned with how engagement work gets done—the components that make it possible and make it happen. *Finding opportunity* is about the practices that occur once those pieces are in place—when community engagement moves into the realm of active problem solving. A key aspect of this work is building from established relationships and ongoing projects because it allows for discovering opportunities for confronting issues of governance and development in a more fluid manner. R34 illustrated this: *"when we first launched [the revitalization] initiative, we weren't really talking about that playground near that elementary school. But as maybe the first year or two of the initiative was ongoing, the community, particularly neighborhood meetings, more and more, there will just be this insistence: the school needed to have this amenity. So, at a certain point, then we got really, really serious about—not worrying about whether [the school system] would be responsive but just getting the thing done. And we had a meeting with the Parks Department to talk about it, and they were like, 'Well, we do have this strip of land that isn't used. Can we use it?' And somehow or other magically, whenever, three years ago, the city agreed to fund like a $100,000 new amenity for the neighborhood.*"

The desire for a new playground was discovered with the community as a part of an ongoing dialog with the neighborhood. The way R34 described the development illustrates some important elements of the broader work of *community engagement.* In describing the route to the deciding upon and working toward a new playground, there is clearly *relationship building* underlying the interaction with the neighborhood group—an active dialog, listening to their needs and responding in a participatory manner [43]. What also comes clear is the temporal element to engagement work where *finding opportunity* took one-to-two years of interaction with the community. This is an important point to tease out, particularly in distinguishing the kinds of engagement practices that orbit service departments versus those that compose planning and policy-making. The first require engagement practices that are more immediate, providing effective feedback channels to residents as they interact with city services; the second occur over longer periods of time and needs support for establishing relations, including building trust, and setting up effective channels that enable residents to participate in policy creation and implementation.

In the same ongoing engagement that lead to the new playground, the issue of food access also arose from community dialog: "*when you're in that part of town, it's hard to imagine that you're in the middle of a food desert. Technically, you're not because of the way the census tract works and where local groceries are. But the fact is there isn't any grocery store*

right in the middle of the community that is affordable that provides healthy food at a decent price" R34. In this case, addressing the issue required the municipal entity—the office of a city councilperson—to coordinate with a nonprofit, brokering a new set of relationships that led to the establishment of a neighborhood food co-op. Here the engagement work went beyond in-house services or processes, and instead shifted to actively connecting a constituent base to an organization who could work with them directly to address their needs.

When the pieces are in place—awareness, relationships, and working coalitions—community engagement pivots from the one-way communication practices and service transactions, to collective efforts to address issues and co-create a civic imaginary [12,43]. The characteristic of these forms of *community engagement* on the part of municipal officials invite in and support sustained engagement on the part of city residents. The point to attend to is that the development of productive forms of community engagement is tied to forms of sharing power and empowering communities that arise out of a combination of engagement practices developed over time.

Using Technology

Finally, cutting across the different community engagement practices described above are the ways technology factored into the work. Whether as a tool to manage communication or enable service interactions, different purpose-built and commercial software platforms were critical to getting the work done. Often, the desire for technology was based in a need to make work more efficient. However, as pointed out above in *finding opportunity*, efficiency can be at odds with the needs of residents where awareness, relationships, and shared responsibility take time to develop [48].

Many of our respondents understood the challenge of turning to technology to mediate different kinds of engagement practices. Different interviewees raised a variety of concerns when it came to the reach and limitations of using technology to reach residents. Social media or other on-line outlets in particular led to conflicting concerns: "*The main challenge with having only online-based is that many of our residents are older, and we don't want to exclude their participation"* R1; versus, "*As a city, we're significantly limited in our ability to reach young people, because we don't have that many young people following us on Twitter… Maybe a lot of young people use social media, but they're not checking on the city Facebook every day."* R16.

Despite the generational differences in how people seek information [56], skepticism of the reach of technology to a plurality of constituents remained with fears that on-line channels would fail to reach both the young and aging populations of the city. As one city council person noted, "*Internet technology can help you get the information quicker, but being in front of someone, being able to see these emotions, get a hug, get a handshake, eat over some bread and some food… That's going to get you a little further*" R33. The observation here is rooted in the relational work that comes from being an elected official and highlights the way digital media are interpreted as transactional tools for information and service exchange, rather than tools for establishing connection within different constituencies.

On the other hand, for the service oriented departments in group 1 (see Table 1), using technology was viewed as a way to dramatically optimize their engagement work. For instance, R13 described the potential benefit of deploying sensor technologies to improve engagement with the department's recycling initiative, "*we've installed actually RFID readers on each [recycling bin], so that we can determine through data what areas of the city are participating more than others, so we can focus our education and outreach in those areas… to assist us in meeting [recycling] objectives*."

While the use of smart-city technology described by R13 can help the department of public works focus education and outreach, it is important to consider how technology can shift the larger fabric of city-scale civic relations. For instance, the same department also runs a website and mobile platform for fielding service requests: "*we get feedback from the system, which is the heaviest utilized tool for customers to relay their needs to us. And in terms of us turning those requests into deliverable services, we track our efficiency and our response and we do it on a daily, weekly, and monthly and annual basis, so that we can make sure our resources are aligned in the right places to meet our established minimum levels of service"* R13. In contrast R34 in city council reflected on that same system: *"when people touch their government that way, I think that's really super cool. The one challenge for us is… it deprives us of information about what people are caring about in the district… one of the things that is true about the council offices before the arrival of the app is that we were very basic constituent service… My water bill is wrong. Help me correct my water bill. There's a pothole. I need the police."*

In this case, using technology in order to improve the transactions of service delivery in one department comes into conflict with the relational work in another. Where the council person used to be the avenue for addressing service breakdowns, their job shifted such that *"over time, maybe the council offices get to focus a little bit more on public policy."* R34. It is not the ability to focus more on policy that poses the challenge, but the deprivation of an important way council interacted and built relationships with their constituents so that policy might better reflect their priorities. Being able to solve a problem with a water bill, or fix a pot hole helps build trust both through the personal interaction and through the more immediate feedback, this in turn renews commitment through the longer-running policy-focused processes that require community participation.

The above trade-off ties into the larger move toward e-government initiatives and their ability to overcome the limits of time and space [55]—freeing residents from the constraints

of evening meetings, or the crowded polling place. But those are infrequent civic encounters that are bookended by the longer, messier forms of interaction that both require and gain something from being face to face. Supporting Korn and Voida's call for "friction" as a tool to reach the "ideal of the 'more active citizen'" [37], the inefficiencies of inter-personal *community engagement* provide the relational and affective support necessary for broader participation in governance.

DISCUSSION

As our respondents filled in piece by piece, *community engagement* from government that invites participation from residents is not always the work to overcome distance but rather the work to embrace closeness—increasing time spent together rather than reducing it. But this work also creates tensions as different functional elements of local government conceptualize and implement community engagement very differently—or differently at different times.

Assembling Community Engagement

Community engagement is not a totalizing concept or form of work, but rather an assemblage of many different practices and goals, some of which are at odds with expectations residents have about being engaged. As we described in the opening of the paper, there is a useful parallel between what Law called the hinterlands of social science, where the accumulation of practices and inscriptions produce knowledge [40], and the collections of practices and inscriptions of municipal work that produce community engagement. The practices of *raising awareness*, *building relationships*, *setting the table*, and *finding opportunity* each have their own trajectories and ways of inscribing the work and outcome. From on-line tools and metrics to assess efficiency and target programs, as R13 in public works described, to dedicated programming to build informal ties to residents through listening campaigns like those hosted by R25 in regional planning, this varied work traces Nicolini's observation that practices are "durable and connect with each other across space and time" [46].

However, despite this durability, the divergence between how practices are carried and how goals are pursued reveals the "mess" in civic institutions. For instance, how one department will go about the practice *raising awareness* in a manner that is different from the other departments—focusing on one-way communication as many of the service-providing departments did, versus community input as did the planning-oriented departments. These variations exist between departments (or even within the same department) based on the preferences and skills of the organization and individual doing the work, as well the characteristics and demographics of the community and residents being engaged. This is perhaps one of the most distinguishing features of the hinterlands of engagement; the variety of inscriptions in the form of organizational accountabilities, and the fractured state of modalities for conducting the work, prevent a routinization in form which slows the proliferation of community engagement: it is individually and organizationally costly, produces uneven and dense results, and so is willingly confined to simple modes of one-way communication simply as a matter of task management.

But if community engagement is the vehicle by which residents are invited into participation the mundane, instrumental, and expeditious characteristics of task management within a large organization complicates the building of sustained resident participation in creating a civic imaginary [27,43]. While some practices work at cross purposes (*i.e.,* shifting points of contact from elected council people to web applications tied directly to service departments), it is more the case that municipal officials struggle with how to transition across different engagement practices and the concomitant shifts in expectations and accountabilities.

Particularly for departments in group 2 (policy and planning), moving between *relationship building* and *setting the table* and *finding opportunities* creates tensions as groups of constituents are included or excluded at different times and the immediate needs for gathering information rub against the long-game of building community capacity to more actively participate in the planning process. The lack of standardization within our field site also meant that as municipal officials negotiated the difference valences of community engagement, there was no stable boundary to traverse. As a result, the work to manage these shifts was less like managing boundary objects [57], and more akin to articulation work [52]—where additional, hidden labor was required to constantly negotiate the conditions and output of interfacing with the public. The frustration for our respondents was in part due to these hidden forms of work, but also because they understood the public's desire and motivation for wanting to be engaged (*e.g.,* [2,21,45]) but were frustrated by how that engagement unfolded because so much was the result of invisible labor.

Designing Community Engagement

The opportunity for design interventions with the larger context of community engagement is two-fold. First, the breadth of practices described here have nuanced linkages. The impact of on-line services for connecting to public works instead of going through elected council people illustrates the case. While the former might fall squarely under what might otherwise be called e-government (creating on-line government access points for service delivery and provision [33]), the latter has clear impact on the degree to which residents are connected to their representatives. Taken by themselves, it would be tempting to optimize systems according to the unique communication needs and affordances of each municipal department [15]. However, these departments do not exist in a vacuum and so the competing logics that might prevail between municipal entity and their public [59], also exist across municipal entities, creating organizational and technological interference in how they articulate and implement public-facing initiatives and accountabilities.

That city council *builds relationships* through the contact that arises from the mundane work of helping pass along reports of potholes or clogged gutters needs to be a consideration in the overall efficacy of municipal operation when instituting digital interfaces that displaces that moment of interaction. Designing systems that take care not to displace the relations of representation with the transactions of service delivery means shifting how we conceive of government, recognizing that "services are not merely 'delivered' by 'producers' to 'user' (or 'customers') ... [but] instead that service outcomes are the product of collaborative and creative relationships between professionals and members of the wider public" [27:168]. There are already some current HCI systems under the umbrella of digital civics to illustrate this point. For instance, Harding's system while technically sound failed to be adopted long term due to existing frayed relationships with the "civic authority fearing litigation and the public anticipating disinterest and inaction from the authorities [31]." The lesson here is that mediating services without supporting the work of *building relationships* can be dire. On the other hand, Hansen's et al system [30] can be read as mediating the work of *setting the table* between different actors in the civic space. The ways in which the system mediated relationships was a key focus and thus a major factor in its success.

The second opportunity comes through how we think about goals of systems that support community engagement—which we have in part argued is really the work of configuring civic engagement. This configuration occurs through entanglements and breakdowns of engagement practices across municipal departments. Examining these provides insight into the growing debate in what values digital civics might pursue in the public sector [5,6,8]. The dominant neoliberal philosophy has been to adopt private sector priorities to run government like a business, which focuses mainly on the value of technologies for their ability to drive down cost through improved service transactions and efficiencies. While efficiency is important, it is only one vector against which to optimize in the civic context.

What has been ignored is technology's potential change of the relationship between residents and government. As Korn and Voida point out, designing for friction may be the more appropriate mode, as friction slows processes so as to enable resident input [37]. Friction also plays into *building relationships* as it creates opportunities to understand other perspectives—without friction there is no reason to consider another's experience. Further, without friction, the civic engagement configured by engagement is simply political expedient. All of which is to say that the interventions that might improve the practices of community engagement reside in efforts to improve ongoing, two-way relationships based on reciprocity between municipal officials and the public [48]. Undoubtedly, empowerment, social justice and equity must be at the forefront of these relationships—all of which remain a difficult topic for HCI [1]. Moreover, recently Erete's work has dispelled the idea that access to computing alone is enough to overcome the larger, structural challenges underserved communities face in community engagement [22]. Working from the purview of public officials, as we did here, may obfuscate these issues but they remain open nonetheless—as a class of relationships requiring additional attention in configuring community engagement in HCI [16,17,51]. In the end, by focusing on relationships we open a design space around the complex relationship between a wide range of civic activity—from community building to political activism. Furthermore, municipal officials understand the importance of building and maintaining relationships with their constituents, but they are also at the mercy of the systems that get deployed within their work environments. If the tools that support municipal work are only concerned with efficient service delivery, the ability of these officials to interact with the public is constrained.

CONCLUSION

The empirical fieldwork we have reported here provides a characterization of the variety of practices that compose community engagement in a large municipality. Rather than a narrower focus on the practices of engagement in a single domain or a specific department, we took an expansive view in order to better understand and compare the breadth of work occurring across the range of functional elements of municipal government. Doing so contributes to a growing literature that takes an expansive view of civic interactions, looking beyond moments of rational deliberation, or service transaction.

As the characteristics of engagement practices change between departments and projects so too do the needs and affordances of technology. For instance, digital civic interventions to support the goal of increasing institutional accessibility of public works require different affordances that a similar goal being pursued in public schools—the access points are different as is the meaning of community engagement. As others have pointed out, these competing logics and practices create unique challenges when working with public civic entities. By better understanding the practices of community engagement, digital civic interventions can be situated to the responsibilities of civic authorities as well as afford more productive participation from residents. However, this begs the questions of whether digital civics should provide tools and support for the work of community engagement as is—responding to user need, such as it were? Or, do we design tools that reflect what we expect of civic authorities and residents alike in the work of governance? We pose these questions as a way to reflect what we, as an intellectual community, aspire to as we experiment with systems that have real consequences both for the people who use them and the people for whom they work.

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