Democracy in Action, Every Day

An examination of how to reinvigorate communication
between people and their government.

A thesis submitted to the School of Design,
Carnegie Mellon University, for the degree of Master of Design
in Communication Planning and Information Design.

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Abstract

This thesis presents an exploration of the communication channel between local government and residents in Pittsburgh, PA. Taking the view that communication is essential for a healthy democracy, I argue that despite existing communication tools there is a perceived disconnect between government and residents that is detrimental to our society. In order to address this disconnect, I researched the current situation in Pittsburgh using the human-centered design approach to problem solving. Through this process I found that while people within government spend a significant amount of time communicating with a subset of residents, most typical residents have no awareness of this activity.

Based on insights from my research, I designed a new comprehensive communication system focused on telling stories and connecting individuals. The system integrates resident input and government output within an interactive interface called the PGH Hub. In order to test the ideas behind my design, I built an interactive prototype of the PGH Hub and conducted experience prototyping sessions with eight residents. Participants exhibited a positive attitude shift around the prospect of interacting and communicating with government while using my prototype. This initial success is an indication that shifting the basic framework of government-resident communication away from a customer service model toward a shared investment model results in more effective and satisfying tools for the job.

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*"Democracy is a tired word,
but it still stands for
a revolutionary idea."*

Jerome Nathanson
John Dewey: The Reconstruction of the Democratic Life

What is this project about? (And why does it matter?)

This is about the ordinary experience of living in a democracy.

How is living in a democracy different than living under some other form of government? Democratic governments, by definition, are created to meet the needs of their people and derive their power from the consent of those people. Ideally, in a democracy decisions are made by majority, by the people themselves; the most apparent manifestation of this power comes on election days. Understandably then, voting is usually the first activity that comes to mind when we thinking about living in a democracy. Meanwhile the everyday actions of government (maintaining infrastructure, enforcing laws, providing services) and how it responds to and impacts our individual actions, tend to go unnoticed unless broken. Yet these functions of government have an arguably far larger impact on the daily life of residents than any single election day.

In the U.S. we take great pride in the ideal of democracy while often simultaneously feeling dehumanized, disconnected, or ignored by our individual interactions with local, state, or federal government.[1] "Government" is a nebulous, annoying entity to most Americans, far removed from their daily concerns. Compounding this impression, when elected officials or government employees try to reach out to us, the attempt is often perceived as manipulative, mistimed, or clumsy, dismissed as "the usual politics."

This perceived distance between typical residents in the U.S. and their government is not benign. The quality of our democracy impacts the quality of our society and our public services; services that you benefit from every day. Did you see a local cop on patrol today? Maybe you took your child to a public school, or to play in a local park? Paid a parking ticket, renewed your drivers license, or rode public transit? Watched a game at a publically-subsidized sports arena? Helped an elderly parent fill a prescription? The list goes on.
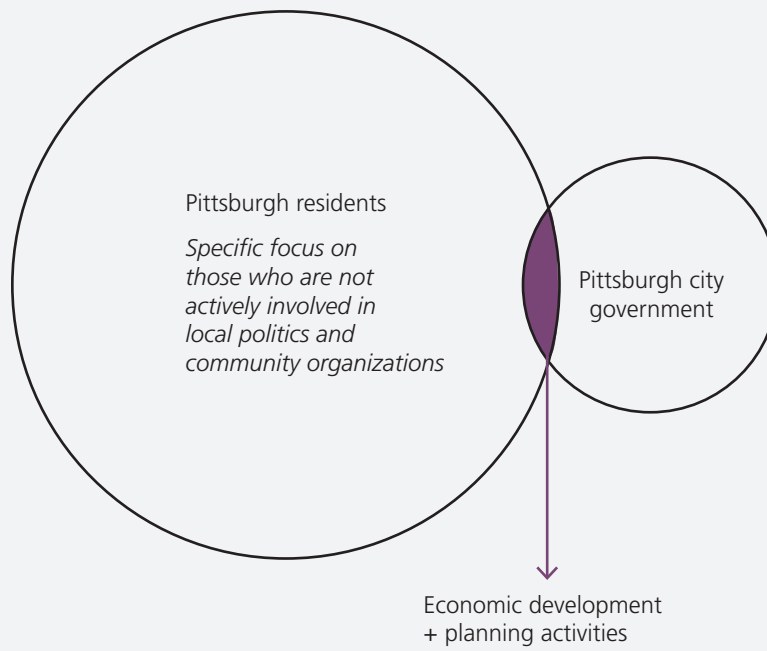
1. One example of scholarly discussion on this point can be found in Morris P. Fiorina and Samuel J. Abrams, *Disconnect: The Breakdown of Representation in American Politics* (University of Oklahoma Press, 2009), 162-183.

Government plays many roles in a complex society like ours and we naturally interact with some manifestation of government nearly every day. And yet we almost never communicate with it. How can government respond to the people if it has nothing to respond to? How can we give usable, valuable input to the government if we don't know what it's doing? Instead, government has been reduced to an organization that responds to a specific vocal, well-connected subset of the population and the rest of us are left in the dark, using what services we have and feeling helpless to change the situation.

As a former federal government employee, I am familiar with some of the more mundane aspects of American democracy and have mulled over the experience of ordinary, everyday democracy for several years. I understand that not everyone shares my passion for the public sector—my goal in undertaking this project was not to convince every resident of the goodness of every government entity or to make them best pals with their local elected officials. Rather, my goal was to find a way to open up a pathway toward a change in attitude and rhetoric. Residents can already communicate with their government quite easily with a small effort. But they don't think they can, and government doesn't really expect them to. That's what needs to change.

As a starting point, I chose to explore this topic by framing it as a communication question. In my view, communication is the essence of participation and interaction, and this frame helped bring to light fundamental issues about the ordinary experience of democracy. I further scoped my topic by choosing to focus on local government and residents of the city of Pittsburgh, PA and their interactions around economic development and city planning topics. I purposefully excluded overtly political activities and resident relationships with political parties, and examined on a relatively apolitical area of government. In addition, I specifically focused my attention on Pittsburgh residents who were not already engaged with local government on a regular basis through a community organization or business activities.

Project scope

Pittsburgh residents

*Specific focus on
those who are not
actively involved in
local politics and
community organizations*

Pittsburgh city
government

Economic development
+ planning activities

Other people's work and my approach

As I prepared to dive into the details of democratic life in Pittsburgh, I reviewed similar projects and related literature from a broad number of fields in order to cultivate my approach.

Related work

During the early phase of my project I turned to several European sources[2] for examples of designers tackling public sector systems and services. For example, the firm thinkpublic used film and ethnographic research tools such as visual mapping to help the London Borough of Barnet understand and develop a strategy to reduce crime in the borough.[3] More recently, the British government Cabinet Office has hired digital designers to transform the experience of government information online.[4] At the risk of generalizing too much, Europeans have a higher basic tolerance for the overt presence of government in their daily lives than Americans and as a result, European residents have a more conscious expectation of comprehensive services from their government entities.[5] While European examples proved to be inspiring, I was wary of this marked difference in native attitude toward the role of government which fundamentally impacted the range and success of these projects.

Meanwhile, in the U.S., design projects focused on public sector problems have been more limited in scope and approach. For example, recently designers have partnered with government entities to make public data more easily accessible[6] while leaving the development of applications or services based on this data to the private sector. One notable example of an innovative integration of design and the public sector is the new Consumer Financial Protection Bureau which has engaged the public in document prototyping activities as it looks to design new financial forms for consumers.[7]

Overall, however, the examples I found in the U.S. were instances of designers and others building a layer of non-governmental products between residents

2. Including: Christian Bason, *Leading Public Sector Innovation* (Bristol, UK: The Policy Press, 2010); Sophia Parker and Joe Heapy, *The Journey to the Interface* (London: Demos, 2006); The Design Council, http://www.designcouncil.org.uk/Case-studies/.

3. "Case Studies: Fear of Crime," thinkpublic, last accessed May 13, 2012, http://thinkpublic.com/case-studies/case-study-fear-of-crime/.

4. "About the Government Digital Service," http://digital.cabinetoffice.gov.uk/about/, "Tour of GOV.UK," https://www.gov.uk/tour. Both last accessed May 13, 2012.

5. To wit, from Parker and Heapy, *Journey to the Interface*, 14: "Even if [New Labour] have not succeeded in transforming public services, they have succeeded in turning the tide of public opinion away from low taxation. A significant majority of the population now positively expects investment in public services."

and government. For example, SeeClickFix.com and CitySourced.com provide elegant online interfaces for reporting problems about your neighborhood (road repairs, graffiti, etc) to your city and tracking the progress of a solution. No matter if you live in Boston or San Francisco, your interaction with your local government happens in the same SeeClickFix or CitySourced interface. In another example, the design firm Local Projects has built a platform called Change By Us that has been implemented in a handful of cities to promote sharing ideas about improving these cities. Unlike SeeClickFix or CitySourced which were initiated outside of government, Change By Us NYC is a partnership between Local Projects, New York City and CEOs for Cities. However interactions still happen in a Change By Us interface, not a .gov interface, and the main Change By Us web pages bear no obvious sign of government involvement.

This is a crucial point. A study by the Pew Research Center found that people expressed a strong preference for "a central location for civic information that is maintained by the government."[8] The study also found that people who think their local government does a good job of sharing information with them are more likely to be satisfied with their overall civic life and engaged in civic activities.[9] But what happens when so-called 'interactions with government' occur in a third-party setting? Does it still feel like an interaction with your local government, or does it (at least subliminally) feel like your government could not handle these types of interactions and someone else had to step in and do it for them? Subtle though this distinction may be, I argue that it has the worrying potential to increase rather than decrease the disconnect and distrust between residents and government.

Big ideas: value, narratives, and the creation of publics

I came into this project having thought about and worked in government for many years. In Gerald Smith and Carole Huntsman's article, *Reframing the*

6. For example: Data.gov, "http://www.data.gov/"; NYC OpenData, "https://nycopendata.socrata.com/"; San Francisco Data, https://data.sfgov.org/. All last accessed May 13, 2012.

7. Patricia McCoy, "Mortgage disclosures are getting better, thanks to you," CFPB Blog, July 28, 2011, http://www.consumerfinance.gov/blog/2011/07/.

8. Lee Rainie and Kristen Purcell, How the Public Perceives Community Information Systems, (Pew Research Center's Internet & American Life Project: Mar 1, 2011), 11.
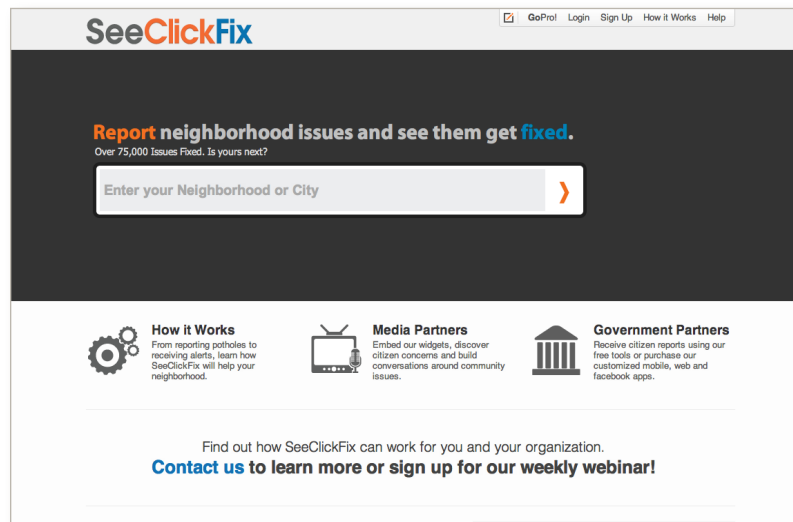
9. Rainie and Purcell, How the Public Perceives, 4.

Is this your government?
Two examples of privately-run websites that serve as a go-between for residents and government.

citysourced.com

seeclickfix.com

Metaphor of the Citizen-Government Relationship, I found an articulate and useful perspective on the government-citizen relationship that resonated with my own experience. The authors argue for a value-centered model of the government-citizen relationship instead of the recently popular citizen-customer model where public employees are told to treat citizens as businesses treat customers.

Alternatively, in the value-centered perspective people on both sides of the relationship are "stakeholders who have common interests in increasing the worth of the community."[10] From this perspective, the question changes from 'what is the cost of government?' to 'what is the worth of government to the citizen?' As idealistic as this may seem at first, Smith and Huntsman found that residents already *behave* in a manner consistent with a value-centric model, though they may not *think* in terms of value and worth.[11]

Walter R. Fisher's *Narration as a Human Communication Paradigm* started me thinking about the broad assumptions that underlie our communication habits and styles. Fisher argues that the elevation of technical reason and rationality within our traditional communication paradigm, what he calls the rational world paradigm, essentially disqualifies the public from participation in many public moral arguments because it favors specific subject matter knowledge and expert argumentative abilities. Within this framework, "The presence of 'experts' in public moral arguments makes it difficult, if not impossible, for the public of 'untrained thinkers' to win an argument or even judge them well."[12]

As an alternative, Fisher proposes a narrative paradigm where rationality flows from an understanding of the motivations and values of the 'characters' involved in the narrative. We are all experienced storytellers and therefore we are all qualified make rational choices within an ongoing narrative by considering the coherence and validity of the behavior of characters and information, even if we do not have expert knowledge.[13] The narrative paradigm

10. Gerald E. Smith and Carole A. Huntsman. "Reframing the Metaphor of the Citizen-Government Relationship: A Value-Centered Perspective." Public Administration Review 57, no. 4 (Jul/Aug 1997): 317.

11. Smith and Huntsman, "Reframing the Metaphor," 310, 316.

12. W. R. Fisher, "Narration as a human communication paradigm: The case of public moral argument," Communication Monographs, 52 (1984), 12.

13. Fisher, "Narration," 8.

breaks down the walls of expertise when it comes to communication and enables a more inclusive conversation. Applying this paradigm to government-resident communication is particularly apt since this is a communication channel where asymmetric power and knowledge often has the potential to undercut a person's perceived qualifications (or rational standing) to participate.

I also turned to Carl diSalvo's discussion of John Dewey's *The public and its problems* for insight into how to spur public engagement. DiSalvo, in describing Dewey's argument, states that there is no universal entity, the public, but rather "the public is an entity brought into being through issues for the purpose of contending with these issues in their current state and in anticipation of the future consequences of these issues."[14] This idea moves the focus away from grappling with the enormity of the general public toward identifying and articulating issues around which to create specific publics. Articulation is required because people often experience problems or issues without fully understanding them: "At present, many consequences are felt rather than perceived; they are suffered, but they cannot be said to be known, for they are not, by those who experience them, referred to their origins."[15] By helping connect experiences with specific issues and uncovering trends, designers can spur the creation of publics that will then engage with the issue and take actions toward a resolution.

These ideas around value, narrative, and the creation of publics form the theoretical foundation of my approach. In addition, I reviewed work such as Suguru Ishizaki's framework for analyzing the experience evoked by the visual patterns in designed artifacts, B.J. Fogg's trigger-ability-motivation behavior change model, Christian Gronroos' discussion of services and service quality, and Kimberly Elsbach's analysis of managing images of trustworthiness in organizations.[16]

14. Carl DiSalvo, "Design and the Construction of Publics," *Design Issues* 25:1, (2009) 49.

15. Dewey, as quoted in DiSalvo, "Construction of Publics," 51.

16. Suguru Ishizaki, "Toward a unified theory of Visual-Verbal Communication" (paper presented at the 2009 IEEE International Professional Communication Conference, Honolulu, Hawaii); "Fogg's Behavior Model," last accessed May 13, 2012, http://behaviormodel.org/; Christian Gronroos, *Service Management and Marketing*, (New Jersey, US: Wiley, 2007); Kimberly Elsbach, "Managing Images of Trustworthiness in Organizations," in *Trust and Distrust in Organizations: Dilemmas and Approaches*, eds. Roderick Kramer and Karen Cook, (New York : Russell Sage Foundation, 2004), 275-292.

Finally, I relied on Richard Buchanan's analysis of design as "an instrument of cultural life" to articulate the usefulness of design in engaging the public sector and civic rhetoric: "Design is not merely an adornment of cultural life but one of the practical disciplines of responsible action for bringing the high values of a country or a culture into concrete reality, allowing us to transform abstract ideas into specific, manageable form."[17]

Buchanan does not just talk about design concerned with the public sector—his work with the Australian Taxation Office, as detailed by John Body, is a powerful example of how design activities can be integrated into a government organization. Buchanan introduced the Taxation Office to what he calls fourth order design, design concerned with systems and environments and which recognizes that individual people cannot experience a whole system, but instead experience their own pathway through the system. The Taxation Office implemented this type of design in their efforts to increase compliance with tax law by examining each stage of a taxpayer's journey through their system. Body states that, "Designing with all these stages in mind produces a very different result than designing the individual components."[18] By using human-centered design methods, the Taxation Office is strengthening its own internal capabilities and maintaining a focus on the needs of taxpayers.[19]

My approach:

Influenced by the authors and practitioners mentioned above, my approach to this project was to focus on supporting direct interactions between residents and their government. I believe this closeness, without an intermediary, is essential for democratic activity and necessary if we're going to start thinking about the worth of government in our lives. We are not *customers* of government, we are *co-producers* of our society, along with government. Democratic participation should feel different than a commercial service.

17. Richard Buchanan, "Human Dignity and Human Rights: Thoughts on the Principles of Human-Centered Design," in *Design Studies: Theory and Research in Graphic Design*, ed. Audrey Bennett, (New York : Princeton Architectural Press, 2006), 304.

18. John Body, "Design in the Australian Taxation Office," *Design Issues*, 24:1, (Winter 2008), 58.

19. Body, "Australian Taxation Office," 67.

Further, by bringing design to bear on this question, I hoped to move past solutions that are simply good enough. The Pittsburgh city website is fine; it gets the basic job done, but interacting with it is far from satisfying. Very few public sector solutions push the question of human experience and coherence in the way design can. Building on this point, I approached my project with the goal of looking at the entire system of communication between residents and government. I had a strong desire to avoid creating yet another stand-alone communication channel—after all, there are many existing communica-tion channels—and instead, drawing o n Dewey and Buchanan, I wanted to think about creating a coherent experience, both in physical and virtual space.

A note on language:

I have made a conscious deci-sion to talk about *residents* of a democracy rather than *citi-zens* throughout this project. The term citizen has a specific legal definition and tends to be used in government theory and formal oration. The term resident also has a legal defini-tion, but I have chosen to use it here as an inclusive term to more accurately refer to all of the people, from tempo-rary residents to natural born citizens, living within a local government's jurisdiction.

The existing situation and my guiding design principles

Through a process of interviews, observation, guided storytelling, and synthesis activities I developed a portrait of the current government-resident communication situation in Pittsburgh.[20] On the government side, I found that people spend significant time and resources communicating with (or trying to communicate with) residents. In fact, government employees are almost overwhelmed by the current level of communication activity. I spoke with city government employees who have email inboxes bursting with queries but are well aware that they're still falling short of communicating with a broad swath of residents. These people are left feeling helpless and hamstrung by the system; they work hard to spread information using the resources they have, and are left feeling like no one hears them and the same fifteen people show up to every public meeting.

In part this is an issue of resources and internal government structure. City government offices and departments each have different budgets and different attitudes toward communication, creating an uneven communication output across city government. For example, the city's general telephone and email information service, 3-1-1, is as much hampered by a limited budget as it is by the struggle required to coordinate with other city offices and receive timely responses. Departments and officials may use different software, have different lists of contact information for residents, or simply disagree over whose responsibility it is to respond to a given request. Add to that, natural rivalries around which office or individual will take the credit or blame for a given action.

Meanwhile, I found that typical Pittsburgh residents without a business need to interact with government regularly or an active membership in a local community or political organization, largely felt disconnected from city government. Describing a problem in her neighborhood, one resident said she felt "helpless" and didn't know how she would even *start* finding the right person to talk to about the issue. When they did think about city government, inter-

Uneven communication experience across city government:

The main Pittsburgh city website is somewhat outdated while the pages pertaining to the mayor's office have a much more current look and feel.

pittsburghpa.gov

pittsburghpa.gov/mayor

viewees thought about it in terms of fines or taxes (usually parking tickets and property assessments), not to mention inefficiency. One resident told me that her impression of city government was as "a thick, entangled web of bureaucratic nightmare." Another interviewee commented, "You ask why I haven't done something; if I were to do something, I think I would have to find out what the process is. I really have no idea."

I also found a difference in perception of neighborhood public services and the city government on the whole. During interviews, residents described positive interactions with their child's public school or local police officers, but did not necessarily view these interactions as instances of communicating with the local government. Some residents also have a negative association with the idea of proactive communication with city government. When asked why he hadn't brought up several issues that bother him about his neighborhood with local officials, one resident answered, "I think I would start to feel like the cranky old man who has too much time." Another told a story of speaking to an official who seemed to dismiss her with little regard for her input: "I just want to be treated like a person!"

While people within government are busy communicating with businesses and individuals engaged in established processes such as getting a building permit or zoning approval, most residents only directly interact with government at a very basic level, when they pay taxes or get a mass-mailed newsletter. These typical residents are simply not aware of the amount of communication between government and other residents because it's happening at a level that doesn't touch their daily lives and is not easily transparent. An active, communicative government is simply not part of their ethos.

In addition, I found that when direct communication does take place between someone in government and a resident, it is often part of a longer process that goes unseen. You may call 3-1-1 report a broken sidewalk and never

The current situation

The communication channel between residents and government is divided into different levels of interaction. The majority of people in government are busy communicating with a subset of resident while most residents only interact on the most basic level, such as paying taxes, where there is very little individual human contact.
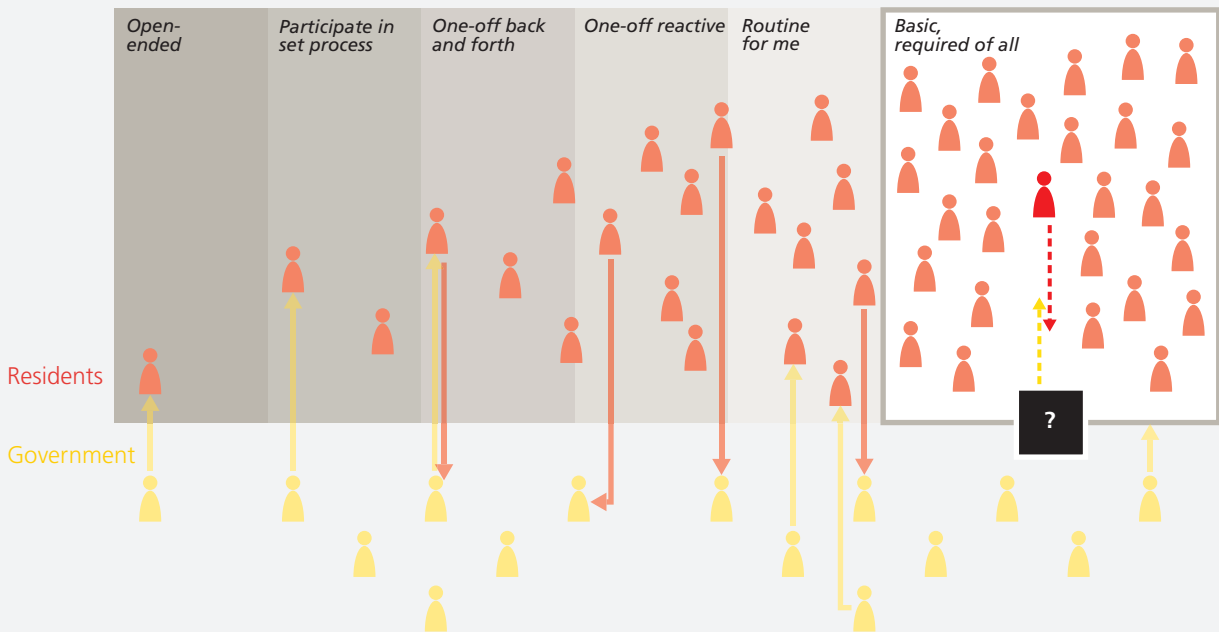
learn about the plan in the works to upgrade all sidewalks in your neighborhood, or attend a meeting about a local development project and never hear again about future decisions. This lack of ongoing context deprives residents of any connection with the broader narratives in their community. Further, these piecemeal interactions with unknown city employees don't easily build on each other to create a sense of an ongoing relationship between resident and local government.

Moving toward a proposal

Overall, my research described a situation where a subset of users are very active and the remaining users have little to no awareness of these activities. Based on my insights, combined with inspiration from literature and related projects, I decided to focus on making communication activity more appar-

**Insights from the
current situation**

Communication happens, most people just don't see or heard about it.

Missing pieces: Interactions are divorced from the broader narrative.

Us vs. them: Difference in perception of neighborhood public services and "government"

No relationship building: Interactions don't add up over time.

It doesn't matter: Residents think their input will be ignored.

ent and coherent. In order to help direct my design activities I devised a set of guiding design principles as I moved toward a proposed solution:

1. Residents need proof of their input.

People want to see a splash when they throw a rock in a pond; they want to make an impression. But because government, even local government, is an unknown black box to most residents, they tend to feel like their input is easily lost and rarely accounted for.

2. Governments are people too.

It's much easier to communicate when you're talking to another person, not an anonymous department or impersonal interface. Enabling an understanding of "government" as an active body of specific people with which residents can engage opens up broader communication possibilities.

3. Get out into the real world.

Government is not something that happens far away; it's on your street. Adding traces of government activity to the physical space of the neighborhood helps ground conversations in a specific place.[21] A physical component in the community space also provides a new trigger for engagement, especially for disconnected residents who are unlikely to visit a government website.

4. Enable residents and government to build relationships over time.

More satisfying interactions between residents and government, even when the resident doesn't get his or her way, are important for continued engagement. Good enough isn't enough; striving to make communication between government and resident more meaningful and humanizing will help establish an ongoing relationship between parties.

21. Inspired in part by the work of Candy Chang, specifically "I Wish This Was" and "Neighborhood Land" from http://candychang.com.

My proposal: show and tell

In order to address the full experience of government-resident communication, I started by designing a comprehensive system for communication built around telling stories and connecting individuals. My proposal is in essence a government communication strategy that places evidence of communications in the physical space of action, and displays both the inputs and outputs related to a specific topic together, so anyone can see the narrative of an issue or decision play out. Basic activity within this framework flows from a moment of triggering action and engagement, to the collection and display of comments, to government intake and response, and finally reflection.

Broadly my design has three components; a resident response and contribution mechanism, a centralized display of activity, and a government response and contribution mechanism. (*See diagram on next page.*)

On the resident side of the system, opinions, comments, needs, and goals are collected through a variety of channels and displayed according to topic or project on an online public interface. I propose adding a network of on-site indicators to the physical environment of the city that will show traces of government activity in situ. This could be a system of lights, interactive signs, or other objects that would have a slightly different physical apperance depending on the state of the related project. For example, if a zoning hearing about an empty lot in your neighborhood happens, the indicator on that lot could alert passersbyers via a change in color or display to check out the discussion. I see this as a way of bridging the gap between the few people who might receive a notice about the zoning hearing and all the residents who walk by that empty lot while parking cars or walking dogs and who will be directly impacted by the zoning decision. This aspect of my concept is a step toward activating the public concerned with that empty lot, to put it in Deweyan terms.

The centralized display of activity, which I'm calling the PGH Hub in Pittsburgh, resides primarily online but is also linked to the physical indicators across the

Proposed system for communication

Collect resident opinions and comments

Public display of conversations and activity

physical trigger

on-site indicator

public meetings

email

social media

online comments from related local sites

PGH HUB

PGH HUB

Focus: Stories about people

sorting + sharing

responses

status updates

issue information

RHETORIC, STRATEGY, SYSTEM MANAGEMENT

Government intakes, responds, and shares new information

city. This is the place where individual project storylines are displayed and the individuals involved are highlighted. The PGH Hub serves as both the public display of all inputs and outputs (questions and answers, discussions, official letters and reports, hearing transcripts) and a point of collection and synthesis of all communications via text analysis.

I integrated the idea of text analysis into the system at this point in order to address the need for both automation and a high-level generalization of content trends across individual communications. Few people, in government or among the general public, have the time to read every communication related to a given project. A text analysis system provides the possibility of displaying generalized information about sentiment, topic, and position as part of the narratives created within the PGH Hub interface.[22]

On the government side of the system, an internal structure manages the intake, sorting, and response to community input, as well providing information updates and additions. All of this output would also be shown within the PGH Hub and reflected on the physical indicators around the city. This government-side structure is intended to provide coherence and consistency to activities government employees already perform every day, as well bridge the gap between those activities and the PGH Hub interface where a casual observer can then gain an understanding of the level of activity or timing of critical decision points.

Underlying this system is a rhetorical shift in how we talk about civic activities, away from legal or policy jargon, toward a narrative form. I'm also placing an emphasis on showing who is working on a project and who is communicating in order to encourage both familiarity and accountability. Throughout the system I wanted to push the idea of pairing inputs and outputs; this means information from the government (an output, from the point of view of the government) is paired with a prompt for comment from residents (an input).

22. Text analysis systems are a type of software technology that are designed to analyze various aspects of textual data, such as sentiment, themes etc. It is a reasonably mature technology at this point, hence I have decided to include it as part of my proposed system.

Prototyping focus

Information architecture of PGH Hub
- Filter options
- User preferences
- Initial interface idea: interactive city map, city activities sorted by type
- Activities primarily grouped by project rather than by government office/department

Individual project page with narrative visualization

people involved   chatter   official documents   summary blurbs   images + media

Use debate around demolition of Pittsburgh Civic Arena from 2010 as prototype data source

In essence this system makes communication a much more overt goal of any interaction with government information.

Building a prototype

My proposed system is purposefully broad, so as I moved into prototyping I focused my activities on testing some of the foundational ideas on which a system like this would be built. Specifically, I looked to address questions of rhetoric, motivation, the scale of communication, and visualization:

- What kind of language or rhetoric will make this system accessible and approachable for a wide audience?
- How might the system encourage casual users to stay engaged?
- What kind of interactions will help build the feeling of communication on an individual scale?
- How might this system visualize an ongoing conversation in a coherent and transparent manner?

I explored these questions through designing and building a basic prototype of the PGH Hub, the key point of interaction between residents and government within my proposed system.

From the start I envisioned the organizational structure of the PGH Hub based around projects or stories within the city. This approach has the advantage of organizing information according to the point of view of residents, not the internal structure of city government. Information about a given development project is found on one project page rather than in pieces across the transit authority website, the planning department website, the mayor's website, and so on. By arranging information and talking about city activities in a manner that is intuitive to residents, PGH Hub is more welcoming to a broader range of residents than a traditional government website.

Therefore I set about prototyping one of these individual project pages. To provide context for my prototyping activities, I picked an actual Pittsburgh city project to use as a data source: discussion around the fate of the old hockey arena, the Civic Arena (formerly known as the Mellon Arena), in downtown Pittsburgh. I recreated the narrative around this project stretching back more than a decade and tracked down official documents and resident comments as much as possible. By looking at the questions residents raised, and the information various key players in the project discussed in small meetings and large public forums, I was able to build a structure for the information that could and should be provided by a PGH Hub project page about the arena. It was also useful to have a real-life situation to use for testing my prototype with Pittsburgh residents down the line.

The focus of my prototype project page is an interactive timeline, the Talk Tracker, where all activities related to the arena are displayed in one location. By zooming in and out along the timeline, a resident can gain an instant sense of the activity around this topic and the ups and downs of the narrative over time. Information is layered on the timeline: initially users get a quick overview of the situation, then they can click through to read individual comments or event summaries, and finally they can access original documents.

The timeline interface provides access to information while also prompting residents to add their own opinion or question in the same space. When a resident does add a question, they see it appear immediately in the Talk Tracker. Their comment is now a permanent part of this project's story. Similarly, when the question is answered, that answer is in the Talk Tracker and visibly linked to the question, giving visual feedback to residents about how conversations develop between individuals around the project.

Another key feature of the prototype is the Who's Involved section, where residents can see pictures of the key individuals involved in a project. This is

Final PGH Hub Prototype Page
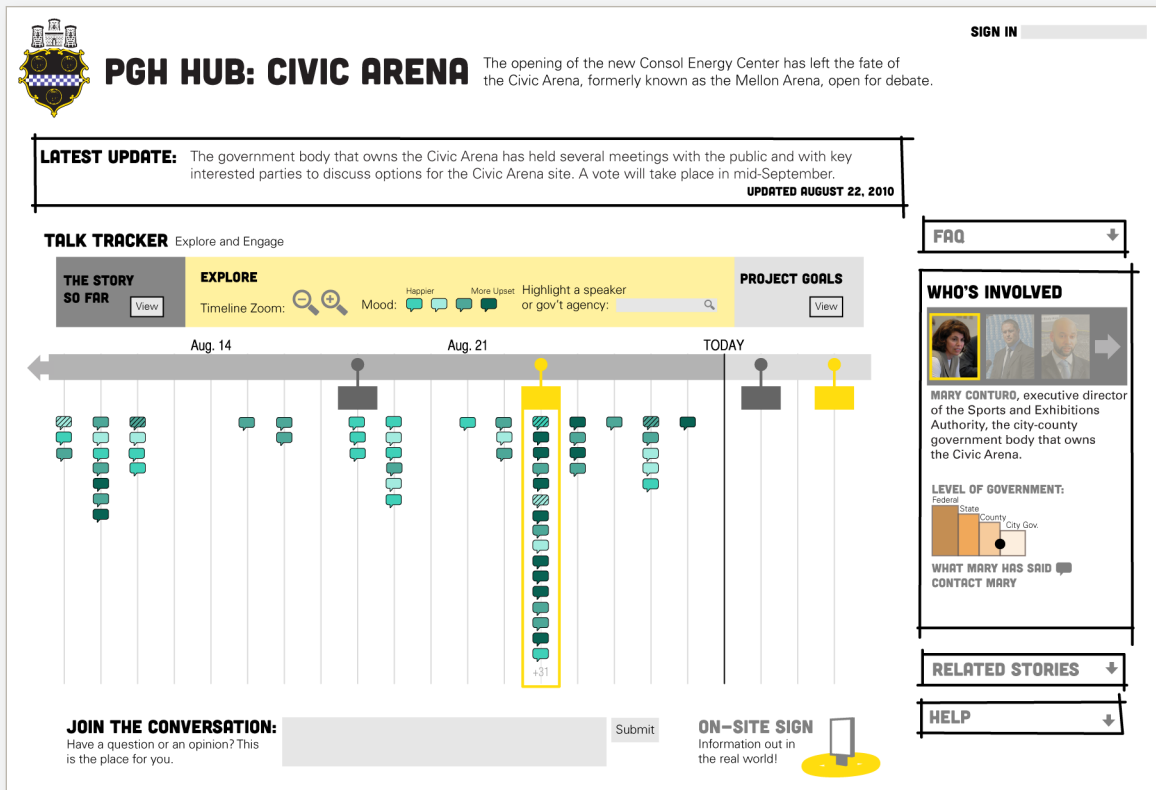
The way I see it: Project information is grouped according to the view point of residents, not internal government offices.

Talk Tracker: Putting all inputs and outputs, from government letters to resident responses, in one place breaks barriers between expert users and casual observers.

Story arc: Using narrative language in text and visuals, is more inviting.

A friendly face: Users get to see who they're talking to and about.

Proof positive: Users see their contribution appear in the Talk Tracker right away.

You and Me: Visible connections show relationships and the growth of conversations over time.

PGH Hub prototype in action
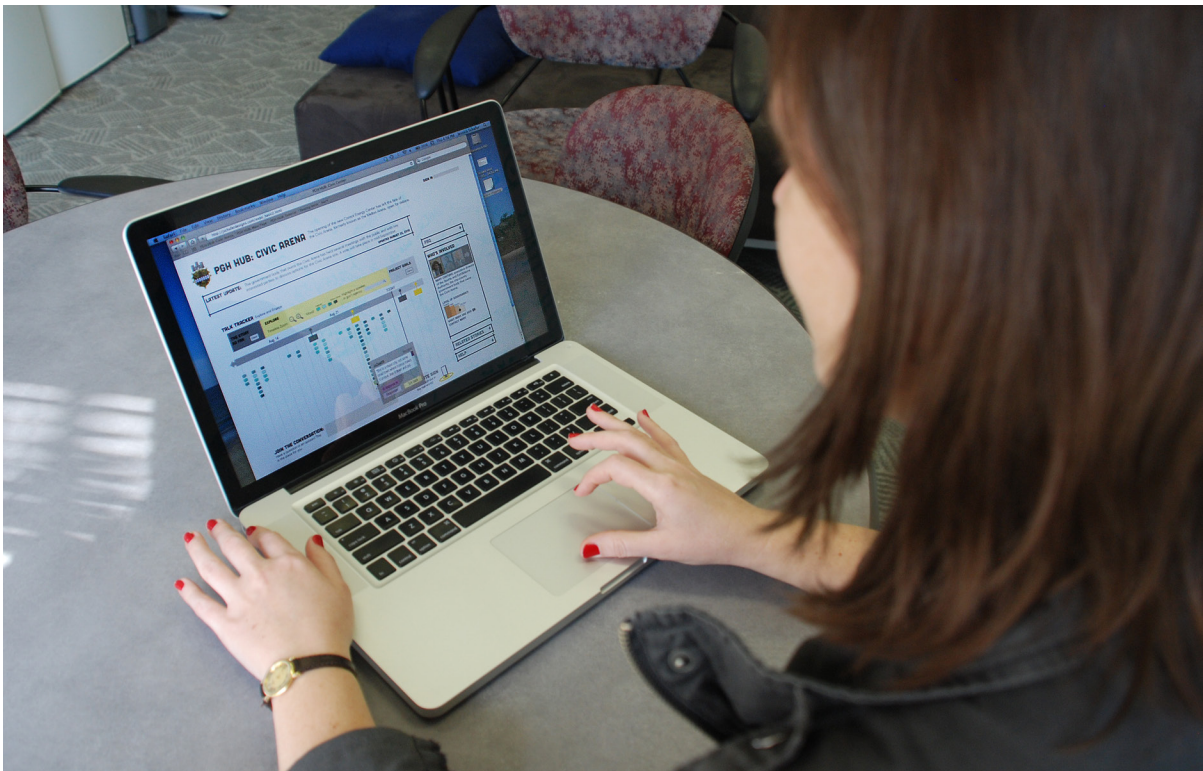
a manifestation of my goal to help residents understand that government is a group of specific people. The individuals shown here are not just elected officials, but also key government employees such as the zoning official who is overseeing a specific project. By presenting pictures of these people, the interface helps residents connect with them as individual people rather than the unknown person on the other end of a "contact us" link.

Evaluation

As part of my prototyping activities, I conducted experience prototyping sessions with eight Pittsburgh residents to evaluate their ability to understand and use the PGH Hub. Participants were prompted with three scenarios of use and then asked to navigate around the PGH Hub page, talking through their actions and impressions. It was a humbling experience but also very rewarding. Overall these typical residents responded positively to the interface and the possibility of learning and communicating in this context. As one participant said, "The fact that the government would have a site like this makes me feel like they care what I think." Another commented that she was "used to visiting government websites and not feeling like there are any humans behind them, but here you can connect to a real human being."

The fact that the PGH Hub prototype was very different from traditional government websites was both a negative and positive for participants. One participant felt like he was being presented with too much communication content ("Am I supposed to read all these comments?") and a few expressed a preference for the more traditional format of comments on blog sites. However, those who were frustrated were able to grasp how to use take advantage of the Talk Tracker's interactivity with just a few prompts. Based on this feedback, in my final prototype I built a simple tutorial in the manner often used by Google or Flickr to highlight interface features for new users. I also

made adjustments to the information hierarchy and color scheme of the final prototype based on participant feedback.

Overall, participants exhibited a definite attitude shift around the prospect of interacting and communicating with government while using my prototype. The PGH Hub setup was more intuitive and informative that their previous online government experiences and opened up the possibility that they would actually engage in this format. This reaction is a good indication that the underlying approach I used in developing the PGH Hub is a valid way to move forward in combating the current communication disconnect between government and residents.

We can't all attend town hall meetings, nor do we want to. We can't all file petitions with the zoning commission or develop informed positions on plans for future development. But with an interface like PGH Hub, we can all be informed members of our community. My design allows residents to engage on many different levels and in different locations, while at the same time including everyone's participation on one centralized display so knowledge about activity is no longer limited to a select "in the know" group.

Similarly, this design helps government employees track and respond to resident requests and needs effectively and efficiently. Increased engagement by residents provides the government with significantly better information for making decisions and planning policies. In addition, this design would require significant communication and transparency within government which I believe would increase the organization's ability to effectively implement policies and projects.

New questions and reflection

The PGH Hub prototype was successful in that it allowed me to test how actual residents respond when confronted with an information and communication platform based on my broader government communication model. It was very encouraging to find that when the government shows evidence of care and interest in how information and communication opportunities are presented, residents are willing to respond in kind. The participants who interacted with my prototype were already able to ask more informed questions about the Civic Arena debate after just a few minutes, and more specific questions are critical for engaging in a meaningful communication. Further, every participant expressed an interest in using an interface like the PGH Hub prototype to stay in touch with civic activities, either by sharing their thoughts or simply observing the dialog.

It's perhaps obvious that how information and options for communication are presented is fundamental to establishing a connection between parties, but it's not always acted upon. The PGH Hub prototype successfully showed how to start acting on the broader rhetorical strategy I proposed through my full communication system. The prototype was also successful in highlighting the next phase I would want to tackle in continuing this project: envisioning the details around the necessary government structure for responding and interacting via the PGH Hub.

One of the main concerns of participants in my experience prototyping sessions was whether or not city government employees would pay attention to and maintain comments and information on the Hub pages. From my experience and my research, I believe the desire for better communication is very strong within government. While much of the work required (producing reports, summaries, updates, and responses) already happens within government, it is not usually coordinated or coherent in the manner necessary for a PGH Hub-like interface.

Further, for an interface like the PGH Hub to suceed as more than just a formality, people in government would have to change their general rhetorical tone away from an impersonal, oblique one toward a more authentic conversational one. Government will always need to speak with authority, but for the goals of my system to be realized, they would also have to speak with authenticity, even during a building permit hearing.

If this project were continued, additional questions to consider include:

- How can internal government communication be improved?
- How much of the PGH Hub narratives about city activities are created by automation/text-analysis vs. manual input?
- Should political affiliations be part of this communication system?
- Can residents be assured that unpopular opinions won't be quelled while filler or spam comments are weeded out?
- How does the system verify Pittsburgh residency? Is this necessary?

In addition, further work should address how non-governmental and private community organizations might contribute within this system. While I feel strongly about creating a meaningful direct communication channel between residents and government, community organizations have always played an important role in our society and are also critical to the welfare of our communities. Often community organizations or private entities are direct partners with government in civic projects, such as the role played by Pittsburgh's hockey team, the Penguins, in my prototype example. Given their impact, these organizations should be represented in the PGH HUB conversation.

Reflection and conclusion

This project demonstrates that when we shift the basic framework of government-resident communication toward a more accurate reflection of the situation, we can build more effective and satisfying tools for the job. By starting

with an understanding of the government-resident relationship as a form of partnership or shared investment, it becomes clear that our current disconnect between government and residents is not simply a question of outdated interfaces and rude interactions. Democracy is about building something together. As I see it, the essence of that idea should be present in even the most mundane pieces of democratic infrastructure, the pieces of democracy we encounter every day.

Which hard, and made even harder by the fact that democracy is a messy business. Over the course of working on this project I have come to appreciate more and more that democracy is not the easiest system of government—but that's okay. It's *hard* to create a system that has the potential to serve everyone. It's *hard* to provide information and communication to everyone. People argue, pontificate, go off on tangents, and support ridiculous ideas. In fact, in many ways, the process of democracy is a lot like the design process. It can go in circles, expanding and contracting in focus and methods, but the journey is almost as essential as the final design. We cannot, and should not, cleave the means and ends. For both democracy and design Dewey's belief that the goal is in the methods, the end is in the means holds true.[23]

Governments, whatever their faults and imperfections, are our primary method for ensuring security, sharing burdens, and addressing large-scale needs within our society. Government "of the people, by the people, for the people" requires the people to work. Participation is not a right of democracy—it *is* democracy, and without it the ideal suffers and the system atrophies. The best government can only respond to the goals and concerns it knows about. Similarly, the most active resident can only be helped by a government willing and able to listen and respond coherently. By moving towards a communication model that supports partnership and talks about government activities as human activities, we move closer to a healthier government-resident relationship and as a result, healthier communities and a healthier democracy.

23. Jerome Nathanson, *John Dewey: The Reconstruction of the Democratic Life*, (New York: Frederick Ungar Publishing, 1967), 95.

Appendix I: Process

Phase I: Exploration and synthesis

In the fall I focused on gathering information and examining that information from as many angles (and with as many post-its) as possible. I conducted sixteen interviews with city government employees, local experts, and typical residents. During these interviews I asked city officials and employees to walk me through their most recent experience communicating with a city resident, as well as asking more general questions about their communication resources, problems, successes, and goals. When speaking with local experts and typical residents I asked for stories about interacting with government and how they chose to act or not act during those interactions. I also asked typical residents about current issues in their neighborhood and why they had or had not chosen to contact city government about those issues.

Following up on these interviews, I observed a local public meeting about a development project, visited government offices, and extensively reviewed the online presence of Pittsburgh government entities. While my work is clearly influenced by my own experience as a government employee, I felt it was important to find out more about the Pittsburgh-specific experience and the point of view of residents unlike myself.

Breakdown of phase I interviews and observation

Stories, problems, successes, behaviors

Development professionals (2)

City government officials + staff (4)

Typical Pittsburgh area residents (10)

Observation at neighborhood public meeting

Stakeholder diagram
Pittsburghers within my project scope, categorized based on their standard interactions with city government.

Typical residents

Curious community folks *(not necessarily proactive, but pay attention to local goings-on)*

Civil servants

Activists

Elected officials

Semi-public *(i.e. local redevelopment agency)*

Vested interests *(business, investors, major players in local economy and community)*

Early communication channel diagram
One of my early synthesis diagrams based on the stories
and communication examples I collected from my inter-
views and observations.

implementation
maintain/specific

proposal
change/general

my county and beyond

Collective opinions against
allowing Marcellus Shale
developement

Manual to explain
and educate re:
building code

my city

Opinion against tearing
down Civic Arena

Idea for pet leash law

my neighborhood

Flooding in neighborhood
from overflowing drain

Presenation of specific
development plan to
community

Comment on
city plan document

my block

Notice about new development
planned near your property

Discussion
of future
development
guidelines

Report broken street
fixture/infrasturcture

Information about
child's school

Speak against
proposed development

Complaint about
missed garbage
pick-up

me + my family

Parking violation

Question about how
to respond to natural
gas lease offer

Vehicle
registration
renewal

Building permit
application

Types of communication within the government-resident communication channel:

routine, non-emergency activities

(unusual)

specific information about public services

input into process

feedback about state of public service

future state discussion

During synthesis I sorted through the data I gathered from interviews and observations using a quick online card-sort activity with seven participants (fellow design students), affinity diagramming and stakeholder charts in order to uncover patterns and groupings. Out of this analysis I developed four personas of typical uninvolved residents to help guide my design work and focus my activities on my target audience: the disconnected (from government) public. I wrote stories about how I wanted the lives of these personas to change and sketched possible interactions they could have. Drawing on ideas from service blueprinting helped me solidify my analysis of the current situation using different levels of activity.

Personas
In order to focus my work, I developed four representative personas within my target audience

Mike:
• Disengaged
• Getting involved is not worth his time
• Government = a faceless entity

Bob:
• Doesn't know who he would talk too
• Wants to reach the "right person" so that his involvement isn't wasted.
• Government = inefficient, waste of time

Nancy:
• Wants to be "good" community member
• Calls about simple structural fixes needed
• Government = bureaucrats who are probably working on difficult problems, but she doesn't know how/where/who they are and feels like her input wouldn't really matter

Susan:
• Willing to engage on issues of interest
• Knows who her City Council member is
• Government = a specific group of people, she can talk to if she wants (but she doesn't usually)
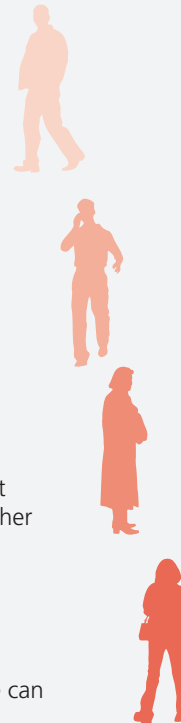
Phase II: Idea generation and prototyping

Paper and pen sketching was critical throughout this project, but especially during the generative phase when I moved between paper and computer sketching frequently. During this phase I also worked a lot with my data set, the story of the Civic Arena. I collected original documents, statements, and resident comments, charting and categorizing everything in order to get a handle on the overall narrative as well as the people involved, reoccurring activities, and the language used by different groups. This work was critical to thinking about the rhetoric I used in my final prototype.

Creating a data set
Sorting through the story of the Civic Arena demolition debate
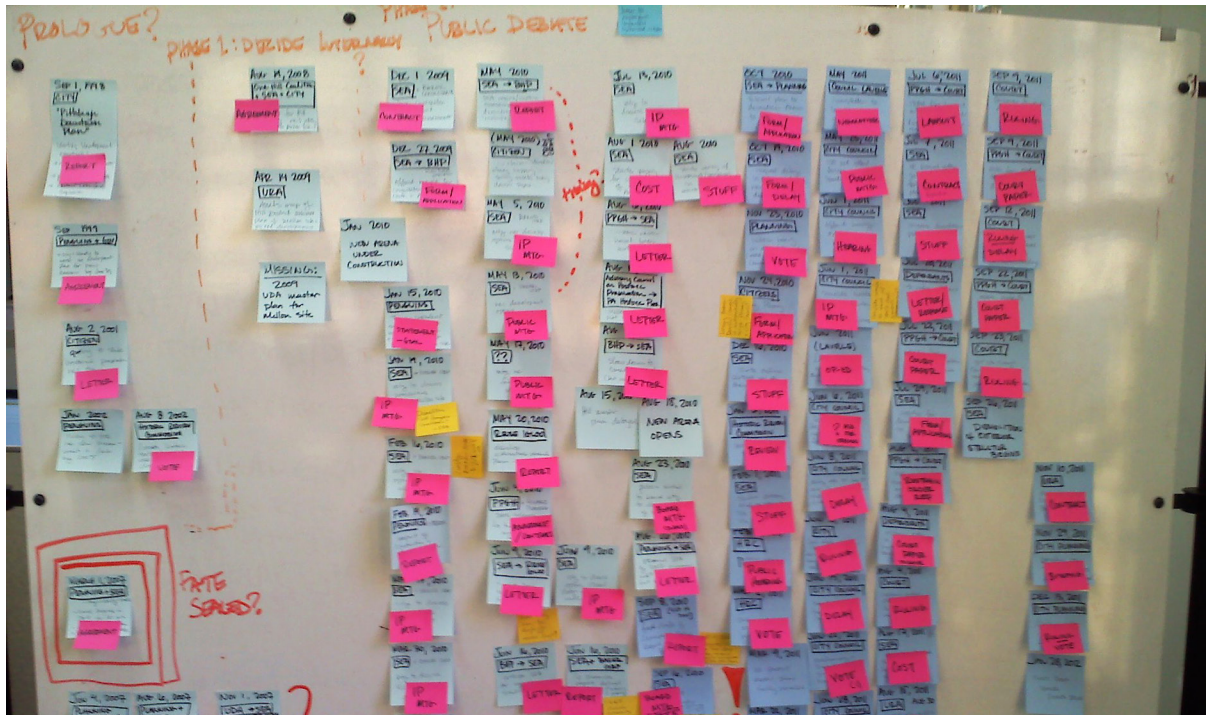
Generating ideas
Sketches of possible ways to visualize the conversation
and story around the Civic Arena
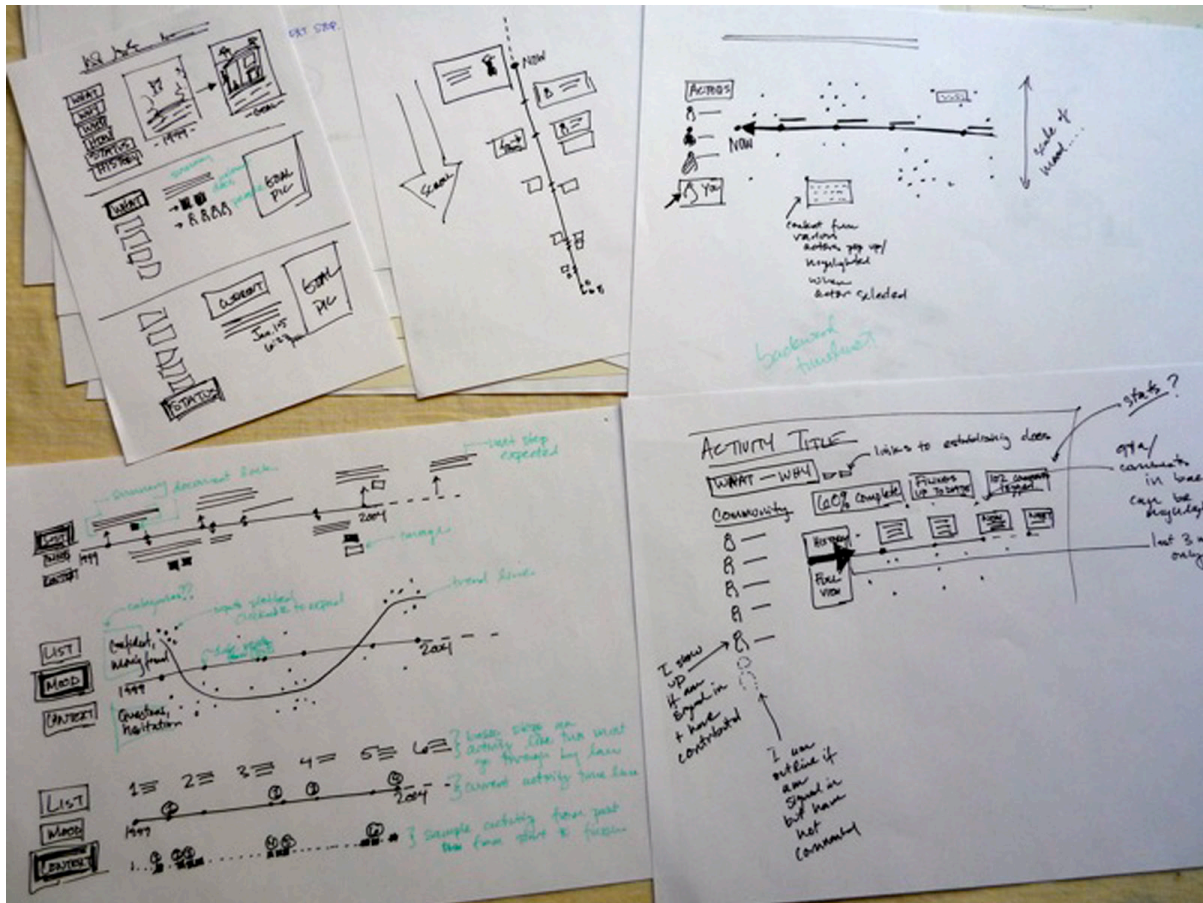
In constructing the PGH Hub prototype I worked almost exclusively in Process-ing, a java-based programming language and development environment.[24] Working in Processing allowed me to explore the visual and interactive form of my ideas simultaneously. Sketching interface components on paper and in Illustrator was critical, but I tried to move into Processing very quickly in order to get a feel for how individual interactions might work on the screen.

Through several iterations of the interactive timeline which became a central feature of my final prototype, I played with featuring different types of data, using various methods of visualization, and the flow of interactions. I failed often! Because I was working in an interactive environment the whole time I received realistic feedback throughout the process which I found to be more helpful than sketching out a series of interactions on paper and imagining how they would flow together. Using Processing also forced me to confront the limitations of the online format and how much information I could rea-sonably include on one screen.

Finally, I created wireframes of the key PGH Hub pages I planned to use during user testing and placed my Processing sketches within these wireframes on a live website. By placing my complete prototype in the online environment, I was able to simulate a close-to-authentic experience for the evaluation phase.

24. Processing Overview, last accessed May 13, 2012, http://www.processing.org/about/.

Evaluation-version of Civic Arena PGH Hub page

Evaluation-version of Civic Arena PGH Hub page
Showing expanded event information box

Evaluation-version of main PGH Hub page
Low-fidelity concept for the home page of the PGH Hub to use in testing
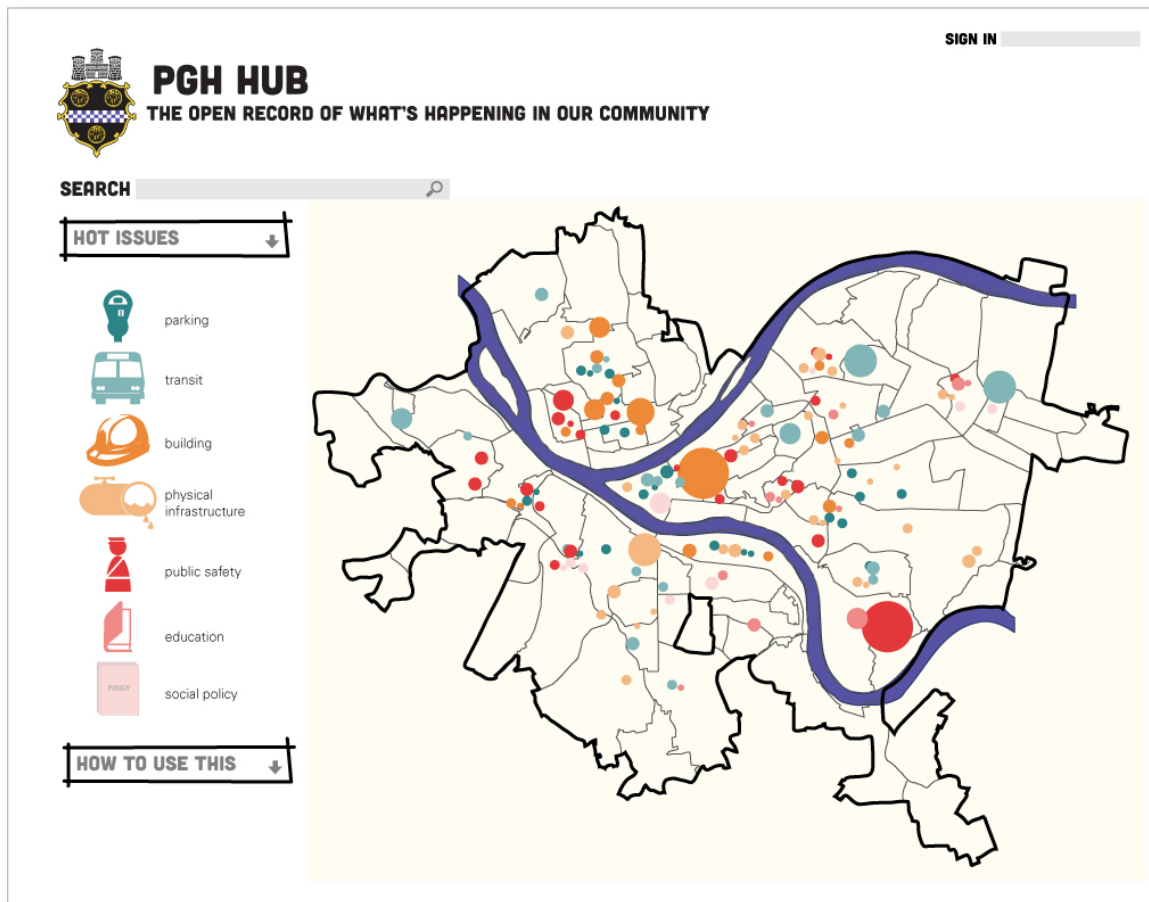
Phase III: Evaluation and final iteration

For my primary evaluation of my PGH Hub prototype I chose to use the experience prototyping method.[25] This method allowed me to give participants a chance to explore my prototype unaided in order to get more realistic feedback from them. I developed three basic scenarios of use and led participants through each scenario using a series of questions and tasks. For example, I gave them a simple task such as finding the most recent event related to the Civic Arena once they were on the Civic Arena page, and observed how they tried to complete that task. (See storyboards on the following pages for details of the three scenarios I used during testing.)

By simulating a real-world experience of visiting the PGH Hub website, I was able to evaluate both user reactions and the performance of specific interactions within my prototype without specifically asking users about every single feature on the prototype. I ended each session by asking users for more general feedback on the concept and usefulness of the PGH Hub prototype.

After conducting eight expereince prototyping sessions, I developed a final iteration of my PGH Hub prototype. (See detailed screenshots of this final iteration in Appendix II.) In response to several participant concerns, I added a "tutorial moment" or out of box experience that could serve to orient new users to the PGH Hub project page layout. Additionally I modified the color scheme and fleshed out the interactive Talk Tracker timeline to better represent my discussion visualization goals.

25. Bella Martin and Bruce Hanington, *Universal Methods of Design,* (Beverly, MA:Rockport Publishers, 2012), 78.

Testing scenario 1: Nancy

I wonder if anything's going on in my neighborhood? Who's active and what are the doing?

Nancy decides to check out the PGH Hub

Using the map interface on the main page, she zooms in on her neighborhood and selects the biggest project.
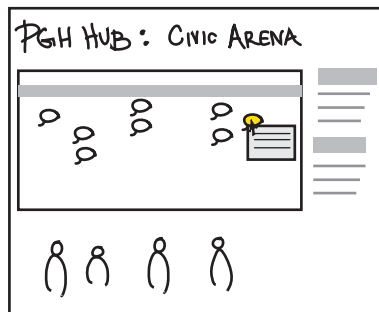
In just a few minutes, Nancy learns about what's going on in the Civic Arena debate by checking out the most recent event and reading the status and next steps summaries.

She feels better informed and makes a mental note to check out the next event listed on the Hub page.

Testing scenario 2: Bob
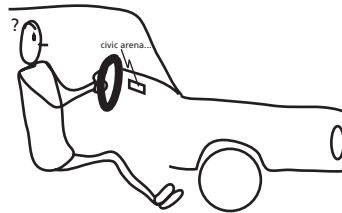
Bob hears something about the Civic Arena on the radio.
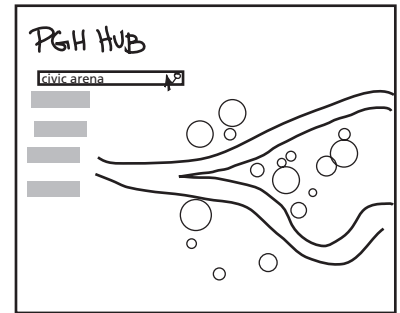
He decides to check it out by searching PGH Hub
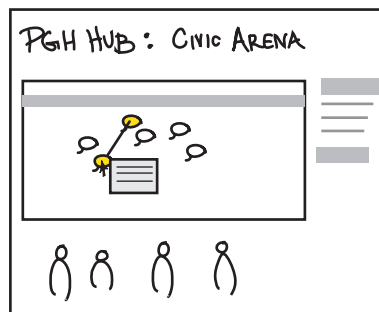
He's directed to the Civic Arena project page where he clicks through comments and notes the responses and key players.
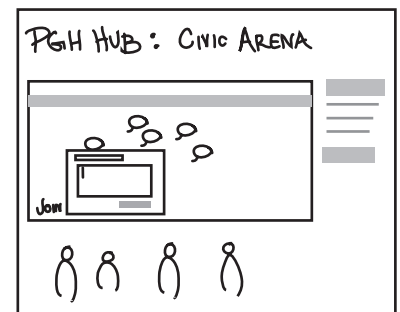
Bob decides to add a comment, targeting his city council member.

A week later he's notified of a response on the Talk Tracker.
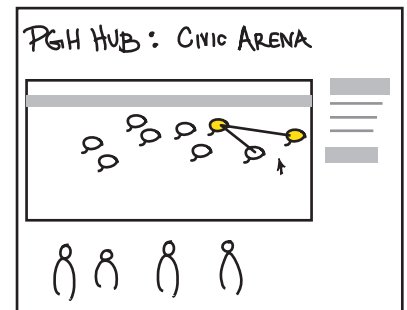
When he clicks through, he sees the response highlighted and linked to his original comment. Bob's happy to be involved without a headache.

Testing scenario 3: Mike
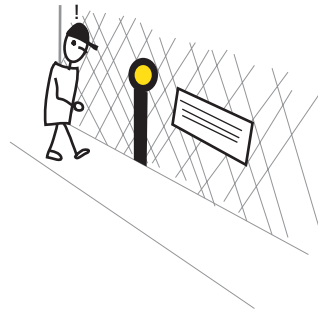
As a Penguins fan, Mike has passed the old Civic Arena site a few times. Finally he decides to stop and check out the indicator. He scans the QR code and saves the URL to check out later.
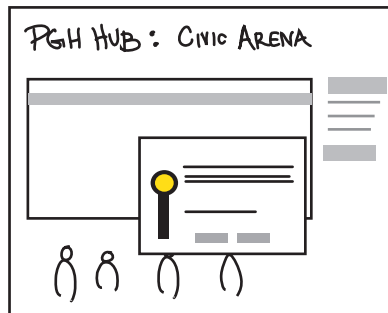
Later, Mike visits the saved URL and is directed to the Civic Arena page with a message about what the PGH Hub is.
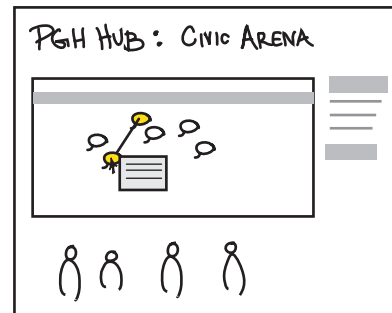
Mike explores a bit, noticing the comments from other people who walked by the indicator.
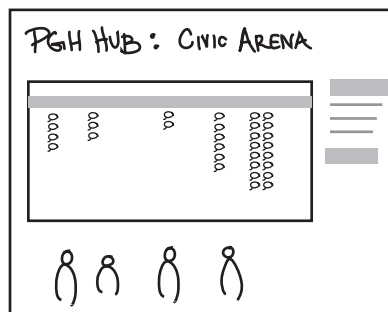
Mike also zooms back to quickly see trends in comments over time.

While still skeptical about city government, Mike now has a better idea of what's going on at the Civic Arena site. Maybe he'll check back later to see what happens.

Appendix II:
Final prototype details

Out of box experience
Simple tutorial moment that loads for first time visitors.
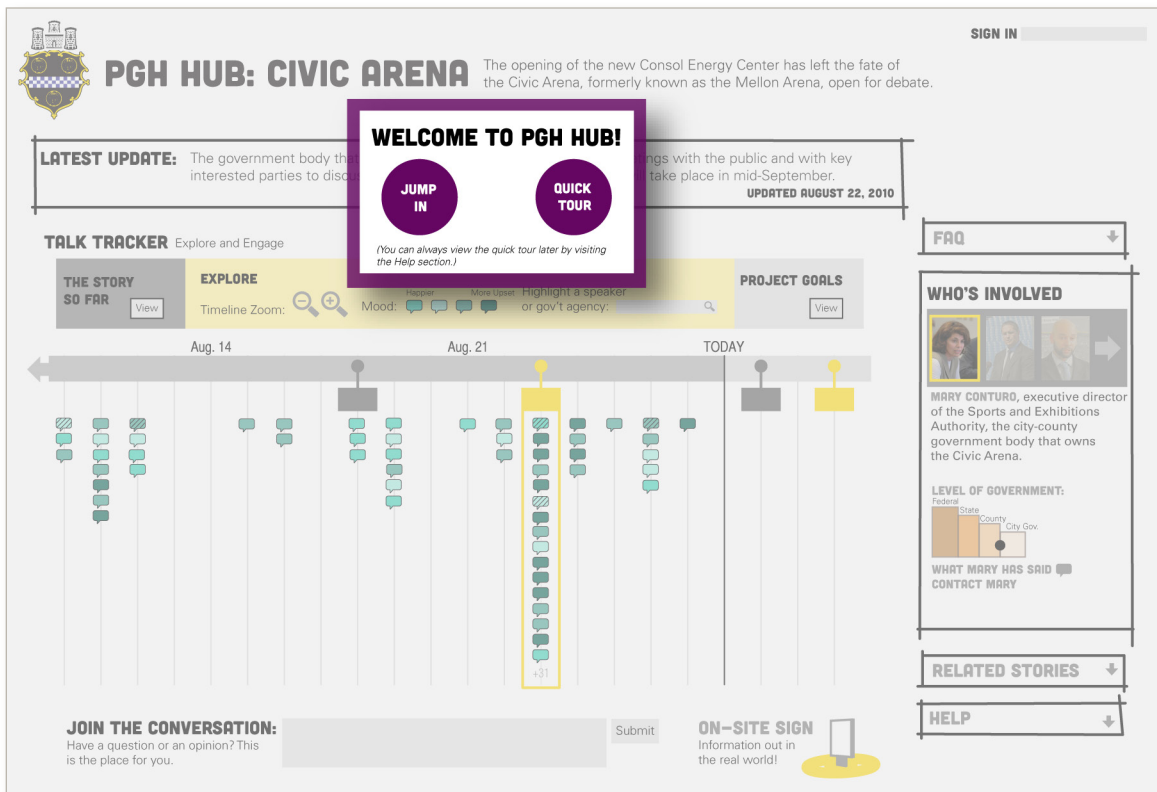
Out of box experience
Screen 1

Within the screenshot:

SIGN IN

PGH HUB: CIVIC ARENA The opening of the new Consol Energy Center has left the fate of the Civic Arena, formerly known as the Mellon Arena, open for debate.
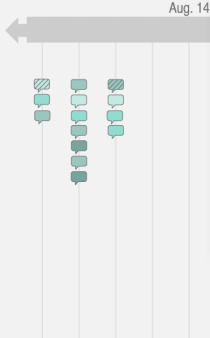
You're viewing tips about using PGH Hub's project pages. Want to jump right in? You can always view this information later in the help section below. ✕
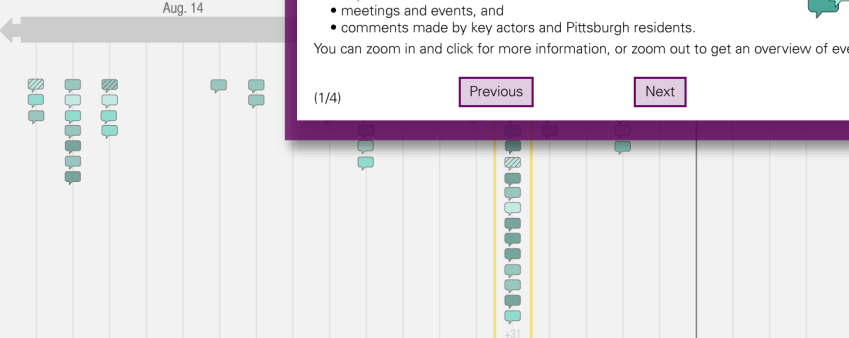
LATEST UPDATE: The government body that owns the Civic Arena has held several meetings with the public and with key interested parties to discuss options for the Civic Arena site. A vote will take place in mid-September.
UPDATED AUGUST 22, 2010

TALK TRACKER

THE STORY SO FAR [View]   EXPLORE   Timeline Zoom:

Aug. 14

THE TALK TRACKER: EVERYTHING IN ONE PLACE
All activities around this project are displayed on the TALK TRACKER timeline, including:
- letters between government agencies,
- important deadlines,
- meetings and events, and
- comments made by key actors and Pittsburgh residents.
You can zoom in and click for more information, or zoom out to get an overview of events.
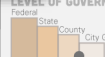
(1/4)   [Previous]   [Next]
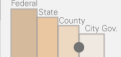
'S INVOLVED

CONTURO, executive director e Sports and Exhibitions rity, the city-county rnment body that owns ivic Arena.

LEVEL OF GOVERNMENT:
Federal
State
County
City Gov.

WHAT MARY HAS SAID
CONTACT MARY

+31

RELATED STORIES

HELP

JOIN THE CONVERSATION: Have a question or an opinion? This is the place for you.   [Submit]

ON-SITE SIGN Information out in the real world!

Out of box experience
Screen 2

PGH HUB: CIVIC ARENA

The opening of the new Consol Energy Center has left the fate of the Civic Arena, formerly known as the Mellon Arena, open for debate.

You're viewing tips about using PGH Hub's project pages. Want to jump right in? You can always view this information later in the help section below.

LATEST UPDATE: The government body that owns the Civic Arena has held several meetings with the public and with key interested parties to discuss options for the Civic Arena site. A vote will take place in mid-September.

UPDATED AUGUST 22, 2010

TALK TRACKER Explore and Engage
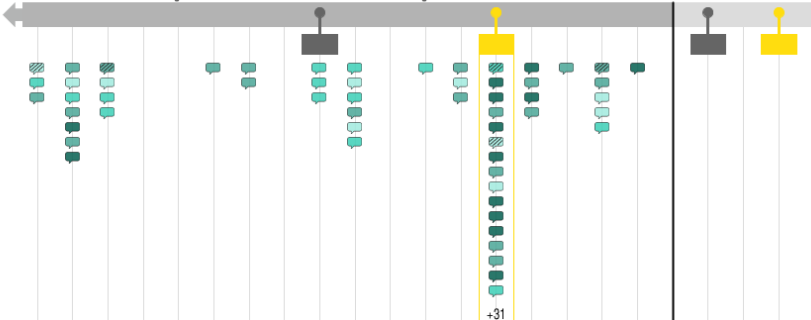
THE STORY SO FAR View

EXPLORE Timeline Zoom:

Aug. 14

HAVE A QUESTION? GET A RESPONSE

1 Check the **FREQUENTLY ASKED QUESTIONS**.

2 If your question isn't in the FAQ, submit it through the **TALK TRACKER**. Your question will be directed to the appropriate public official and an answer will be posted within a week.

3 Or browse **WHO'S INVOLVED** and click the contact link in the profile of the person you'd like to reach. Depending on your preferences, your conversation will show up in the **TALK TRACKER** so others can benefit from your discussion.

(2/4)

Previous   Next

PROJECT GOALS View

FAQ

WHO'S INVOLVED

MARY CONTURO, executive director of the Sports and Exhibitions Authority, the city-county government body that owns the Civic Arena.

LEVEL OF GOVERNMENT:
Federal
State
County
City Gov.

WHAT MARY HAS SAID
CONTACT MARY

RELATED STORIES

HELP

+31

JOIN THE CONVERSATION:
Have a question or an opinion? This is the place for you.

Submit

ON–SITE SIGN
Information out in the real world!

Out of box experience
Screen 3

SIGN IN

PGH HUB: CIVIC ARENA

The opening of the new Consol Energy Center has left the fate of the Civic Arena, formerly known as the Mellon Arena, open for debate.

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LATEST UPDATE: The government body that owns the Civic Arena has held several meetings with the public and with key interested parties to discuss options for the Civic Arena site. A vote will take place in mid-September.

UPDATED AUGUST 22, 2010

FAQ

TALK TRACKER Explore and Engage

THE STORY SO FAR   View

EXPLORE
Timeline Zoom: Mood: Happier   More Upset   Highlight a speaker or gov't agency:

PROJECT GOALS   View

WHO'S INVOLVED

Aug. 14   Aug. 21   TODAY

FIND OUT WHAT'S HAPPENING NEXT

Upcoming events and deadlines, along with future goals, are in the **TALK TRACKER** timeline according to the most recent available schedule.

(3/4)   Previous   Next

MARY CONTURO, executive director of the Sports and Exhibitions Authority, the city-county government body that owns the Civic Arena.

LEVEL OF GOVERNMENT:
Federal
State
County   City Gov.

WHAT MARY HAS SAID
CONTACT MARY

+31

RELATED STORIES

HELP

JOIN THE CONVERSATION:
Have a question or an opinion? This is the place for you.

Submit

ON−SITE SIGN
Information out in the real world!

Out of box experience
Screen 4

Screen content:

SIGN IN

PGH HUB: CIVIC ARENA The opening of the new Consol Energy Center has left the fate of the Civic Arena, formerly known as the Mellon Arena, open for debate.

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LATEST UPDATE: The government body that owns the Civic Arena has held several meetings with the public and with key interested parties to discuss options for the Civic Arena site. A vote will take place in mid-September.
UPDATED AUGUST 22, 2010

TALK TRACKER Explore an

THE STORY SO FAR View

EXPLO Timeli

Aug. 14

LET'S RECAP:

✓ Everything related to this project, from official letters to public comments, can be found in the **TALK TRACKER**.

✓ Send us your questions or comments through the **TALK TRACKER** and see a response within a week.

✓ Upcoming meetings and related activities are also placed along the **TALK TRACKER** timeline.

PGH Hub was designed for you: This is a place for you to get the whole story about public projects, large and small, in your neighborhood and around Pittsburgh. We'll keep everything as up to date as possible and we hope you check in again soon!

(4/4)   Previous   Exit

+31

FAQ

WHO'S INVOLVED

MARY CONTURO, executive director of the Sports and Exhibitions Authority, the city-county government body that owns the Civic Arena.

LEVEL OF GOVERNMENT:
Federal
State
County
City Gov.

WHAT MARY HAS SAID
CONTACT MARY

RELATED STORIES

HELP

JOIN THE CONVERSATION: Have a question or an opinion? This is the place for you.   Submit

ON—SITE SIGN Information out in the real world!

Final PGH Hub: Civic Arena project page
Main screen as it appears on first loading.

Final PGH Hub: Civic Arena project page
Basic timeline (Talk Tracker) interaction.

Comments pop up as the user mouses over speech bubbles on the timeline

Final PGH Hub: Civic Arena project page
Basic timeline (Talk Tracker) interaction.

Clicking on a specific event in the timeline opens a panel with more information, including all the comments made by people at that event.

Final PGH Hub: Civic Arena project page
Basic timeline (Talk Tracker) interaction.
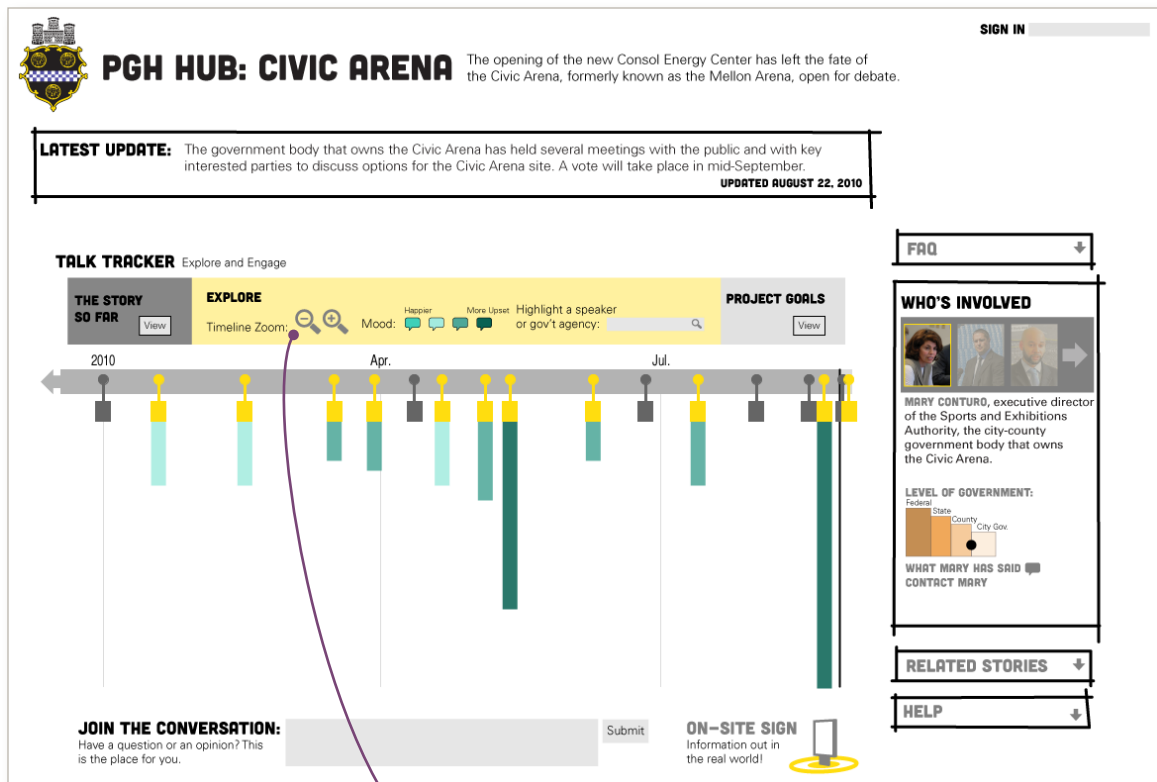
Zooming in or out on the timeline changes the visualization to show more or less detail.

Here, the timeline is zoomed out to show the past eight months, giving the user a basic visualization of the pace and tone of conversation.

Final PGH Hub: Civic Arena project page
Basic timeline (Talk Tracker) interaction.
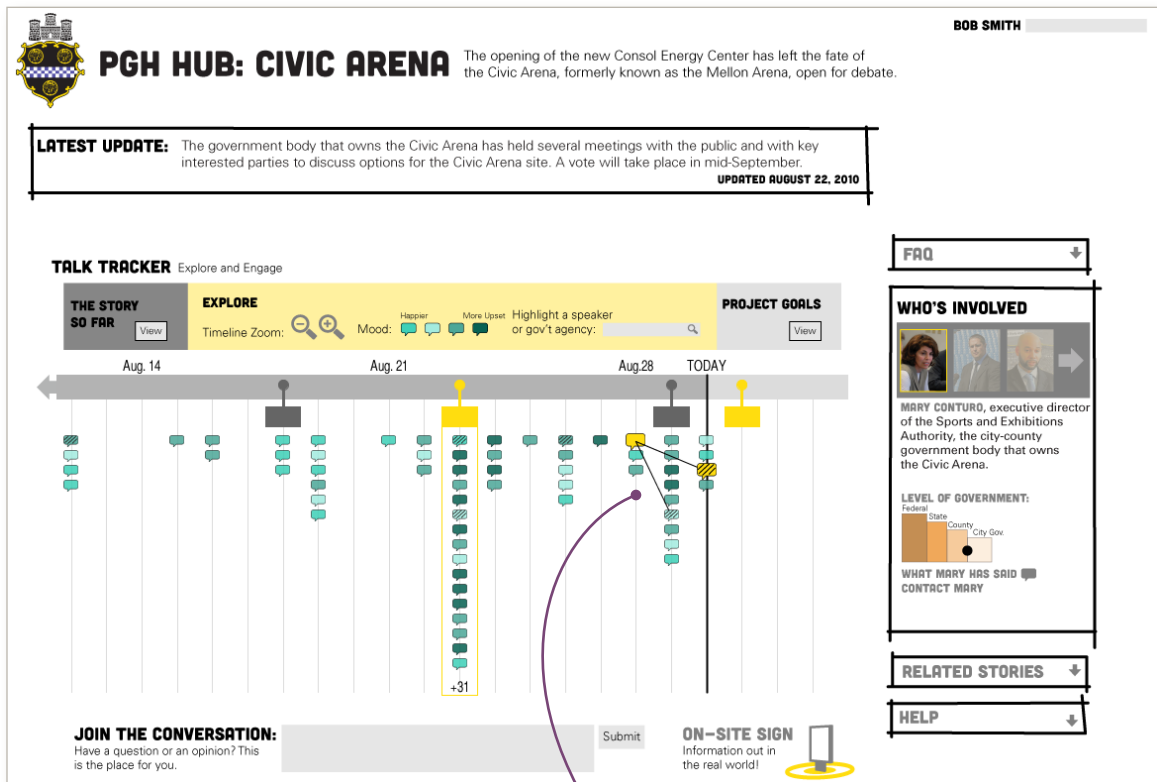

Once a comment is sub-
mitted, a new animated
speech bubble appears in
the timeline immediately.

Final PGH Hub: Civic Arena project page
Basic timeline (Talk Tracker) interaction.

Connecting lines provide
a visual link between
questions and answers, or
related comments.

Appendix III: References

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