

Open Government Strategy for the City of Boston

Robert Goodspeed
2010 Rappaport Public Police Fellow
Mayor's Office of New Urban Mechanics
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Executive Summary

Adopting an open government strategy can significantly benefit the City by enhancing civic engagement, improving policy, and improving the City's ability to manage its operations.

- Publishing data online could result in new websites and smartphone applications that would create value for citizens, connecting them to City services and their communities.
- Providing data can support cutting-edge research on the best ways to tackle urban problems.
- Online participation opportunities can augment the “usual suspects” reached through public meetings, providing the opportunity for meaningful communication between citizens and government through a consistent, easy-to-use process.
- Competitions can be used to tackle tough problems and find new solutions to persistent problems at minimal cost to the city.

Adopting this open government strategy would place the City of Boston at the forefront of municipal innovation nationwide, and build on its long-term investments in IT infrastructure and expertise. Most importantly, it will help the City deliver excellent services and remain responsive to rapidly changing environment.

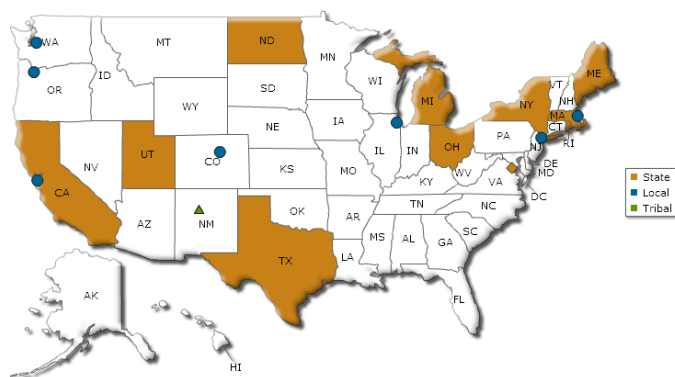
Introduction

Open Government is about enhancing citizen engagement, improving policies, and improving the ability to manage government. Central to achieving these goals is the savvy use of new technologies which enable new forms of communication between citizens and government.

The City of Boston has developed and launched a number of projects related to open government, including the GIS Data Hub, Solar Boston, Data Dashboard, Citizens Connect app, and Data Warehouse demonstration project. This document describes how the City can improve and expand these initiatives as part of a coordinated Open Government strategy.

Many of Boston's peer cities have already completed innovations in this area. Washington, D.C. has opened hundreds of datasets; New York City has hosted an apps competition; and Portland, Oregon has developed an innovation website. The City is in the position to learn from these initiatives while also demonstrating leadership by forging a unique approach.

Data Websites, Mapped by Data.gov



City	URL
Arvada (CO)	http://arvada.org/opendata
Boston	http://gis.cityofboston.gov/SolarBoston/
Chicago	http://data.cityofchicago.org
New York City	http://www.nyc.gov/data
Portland (OR)	http://civicapps.org/datasets
San Francisco	http://www.datasf.org
Seattle	http://data.seattle.gov

On his first day in office in January 2009, President Barack Obama signed the Memorandum on Transparency and Open Government, which called for greater transparency, participation, and collaboration in government.¹ This document also established the policy objectives these initiatives would serve. (See Table 1) On December 8, 2009, the White House issued the Open Government Directive, which requires federal agencies to take specific steps including expanding data and creating open government plans.²

¹ Available at http://www.whitehouse.gov/the_press_office/transparencyandopengovernment/

² Available at http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf

Fig. 1

Federal agencies are turning to the internet as a primary means of accomplishing the administration's goals. Referred to as "Web 2.0," websites such as social networking, wikis, and blogging allow for

Initiative	Policy Objective	Example
Transparency	Accountability	Data.gov; Disclosure of high-demand reports and data
Participation	Ideas and expertise	HUD Ideas In Action
Collaboration	Effectiveness through partnerships	Peer-to-Patent (Expert patent review program)

greater interaction among users. In addition, new services are making it easier than ever to share, visualize, and map data. The movement of applying these technologies in government is sometimes called "Government 2.0," however I recommend the City refer to it as "Open Government." This term emphasizes the democratic values achieved through technology, not any specific set of tools or technologies. It also follows the precedent set by the federal government.

This document is organized into several sections. First, the expected public benefits of open government are described, organized into three areas: enhanced citizen engagement, improved policies, and improved ability to manage government. Second, an open government strategy is described for transparency, participation, and collaboration. Third, open government is put in the perspective of theories of transparency and democracy. Finally, the concluding sections include an implementation plan, timeline, project governance, and appendices.

1. Expected Public Benefits

Adopting the open government strategy described in this document will entail adopting new perspectives and practices within government. As a result, it will involve cultural shifts within government, and also entails some amount of risk. However, it can also result in substantial positive gains for government. These are organized within three categories: enhanced citizen engagement, improved policies, and improved ability to manage government.

1.1 Citizen Engagement

New technology is dramatically improving government's ability to engage with citizens.

First, new technology provides the opportunity to provide **improved City services**. No longer must citizens visit city hall to obtain services; on our website citizens can find information and complete transactions. The investment in the city's constituent relationship management (CRM) system allows citizens to submit cases through new channels and in new ways: through a 24-hour call center, customized online forms, and through mobile phones. The City's smartphone app, Citizens Connect 2.0, will enhance the individual service delivery experience of citizens with a social dimension, allowing them to share their reports (and results) with friends, resulting in greater sense of personal efficacy and enhanced transparency for service delivery. By making our system available to other services through an Application Programming Interface (API), we can empower citizens to be the eyes and ears of the city, resulting in the delivery of excellent city services.

Second, technologies **provide improved communication** with citizens. In particular, the city's use of social networking websites are reaching target populations "where they are" online. These technologies aren't just one-way, but enable City officials to listen and respond to individual citizens. As of July 2010, over 55,000 people follow City Facebook, Twitter, and YouTube accounts (See Appendix A).

Third, open government's **improved access to information** improves the ability of citizens to find services and learn about the city. The city of Washington, D.C.'s Apps for Democracy contest leveraged a \$50,000 investment to produce 47 web, smartphone, and Facebook Apps. Many provided enhanced access to city facilities, leveraging existing data about the locations of bars and crime in new ways. In Massachusetts, the MassDOT Developers Initiative has put scheduling data in the hands of more riders by taking a data-first approach. By publishing raw data about the location of city services and facilities will enable private developers to create tools to help citizens locate these resources.³ Through a combination of data and planning, the City of Boston could spark the creation of dozens of customized apps that create value for citizens. For example, these apps might help citizens locate youth centers, schools, and access public services.

³ For more information, see the MassDOT Developers Page at <http://www.eot.state.ma.us/developers/>.

Finally, open government can support **enhanced civic engagement** through websites such as Neighbors for Neighbors and other online civic spaces. Neighbors for Neighbors platform, which already counts over 5% of Jamaica Plain residents as subscribers, connects residents to each other and city officials.⁴

1.2 Improving Policy

For years, the City of Boston has benefitted from the region's brains: world-class researchers, scholars, and social and business entrepreneurs. Open government provides new models and techniques to deepen and expand these collaborations, with the goals of evaluating existing policies and programs, and helping to craft innovative, effective new initiatives to achieve policy goals. These are done through two primary means.

Technology can create opportunities allow citizens to **participate** in government by providing feedback to proposals and generating new ideas, which serves to harness the collective intelligence of city residents. This approach augments more traditional approaches at public engagement, such as public meetings or the regulatory process. Many governments have opened up "ideas" websites which allow either the general public or only pre-approved groups (such as government employees) to submit ideas. The HUD Ideas in Action website has a number of features that make it a particularly good example of this type of website.⁵ The website has engaged moderators, who respond to off-topic or misplaced contributions. Forums are created for specific purposes – targeting a particular problem (such as cross-silo communication) or plan (such as a strategic plan). At the local level, the city of Santa Cruz, California has used a website successfully to specifically focus on finding ways to balance the city's budget.⁶

Second, following a trend developed by the private sector, public sector agencies are increasingly using a **competition format** to focus attention on a particular problem. The City of Boston held one in partnership with Changents and the D2E Exposition in spring 2010 called "Pitch the City." The City received over 100 entries, and 10 finalists posted their ideas to a website. Two particular areas are especially fruitful for these challenges: First, problems that reward design thinking and/or new software, and second, analytic problems attractive to statisticians and data analysis experts. Both should be cases where experimentation and unconventional thinking could be helpful, two things the public procurement process is not well suited for. In addition to city-managed competitions, websites such as the Massachusetts-based Innocentive are increasingly issuing challenges to communities of experts.⁷ The City of Boston could tap this expertise for particularly tough analysis challenges, such as analyzing large datasets from mobile phones or taxicabs' GPS units to improve mobility in the City.

⁴ See <http://www.neighborsforneighbors.org/>

⁵ Available at <http://hudideasinaction.uservoice.com>

⁶ Available at <http://santacruz.uservoice.com>

⁷ For more information see <http://www.innocentive.com/>

1.3 Improved Management

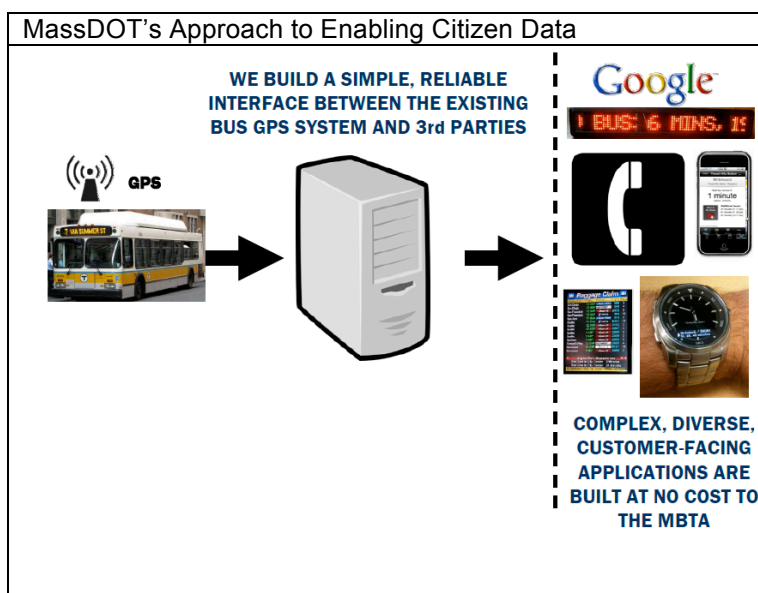
Transparency of government information can help achieve three important goals. First, it can encourage accountability of government by allowing researchers, journalists, and activists new resources. Second, it can enhance internal transparency and collaboration. Lastly, opening up data allows for independent research and policy analysis. For these reasons, the City has already made initiatives in this area, including the Boston About Results program, GIS Data Hub, and Data Dashboard.

1.4 Note on Digital Access

The open government initiatives recommended in this report utilize a variety of internet technologies and mobile phones. For customer-facing applications, such as a participation portal, it will be critical to understand the barriers that exist from all citizens to access these resources equally. Therefore, this section reviews current data about the prevalence of Internet use and mobile phones.

Fig. 2

However, other initiatives in this report, such as making raw technical data available to analysts and developers, need not be easily accessible to all citizens. In these cases, community-based organizations will be empowered with greater information to develop materials in the languages, formats, and places most appropriate to their members. Private application developers can also transform data into useful applications for any type of computer or mobile phone they believe there will be an audience. MassDOT has used this approach to produce dozens of sources of real-time bus arrival information for users, including a telephone system, smartphone apps, and even digital signs. Finally, increasingly raw data is used by journalists to investigate issues and create information useful to citizens. This report argues government should focus on identifying the data types and technical distribution mechanisms to maximize the ability of these data intermediaries to reach the city's increasingly diverse and fragmented citizens.



Internet Access

Three factors can contribute to unequal utilization of the Internet: computer hardware and internet connections, motivation, and user skill. Boston has made great strides in making hardware and connections available to all citizens, including free wifi services,

computing centers, and wired schools and libraries. In recent years, the cost of computers has continued to decline. A new, powerful desktop with LCD monitor can be purchased for around \$400 from major retailers. The latter two obstacles, motivation and user skills, are more challenging to tackle. However, a variety of training programs, classes, and other initiatives exist to overcome these barriers.

The Pew Internet & American life project reports as of December 2009, 74% of adults use the Internet. The “digital divide” between racial groups has closed significantly since the 1990s, with 76% of Whites, 70% of Blacks, and 64% of Hispanics using the internet. Notably, 93% of all people 18-29 reported using it at least occasionally, and 60% of households with incomes under \$30,000 a year use the internet.⁸

Mobile Phones

Mobile phones are widely used by city residents, and technically sophisticated smartphones are rapidly becoming more popular. According to the Pew Internet & American Life Project, African American users are more likely to visit the internet on a mobile phone than Whites.⁹ As a consequence, publishing raw data for mobile application developers may counterintuitively help bridge the digital divide.

As of December 2009:

- The U.S. has a mobile penetration rate of 91% and 22.7% of U.S. households were wireless-only¹⁰
- 21% of American wireless subscribers use smartphones. Nielsen projects smartphones will be a majority of phones by the end of 2011.¹¹

Internet Use for Local Issues

Increasingly, citizens are turning to digital tools to connect with local government and their communities. According to the Pew Internet and American Life Project, 22% of adults report subscribing to alerts about local issues, and 20% use digital tools to talk to their neighbors and keep informed about community issues. Ten percent of urban residents participate in a neighborhood email list, listserv, or online discussion forum.

The survey found that online groups and blogs can be an important way to reach those who are not involved. In fact 15% of internet users who don't know their neighbors read community blogs, the same proportion of users who know all of their neighbors who use blogs. Relatively large number of young adults and minority Americans use tools such as community blogs, social networking sites and text messaging to keep up with neighborhood events.¹²

⁸ Pew Internet and American Life Survey, Who's Online? December 2009, available at <http://www.pewinternet.org/Static-Pages/Trend-Data/Whos-Online.aspx>

⁹ Pew Internet and American Life Project, Mobile Access, 7 July 2010, available at <http://www.pewinternet.org/Press-Releases/2010/Mobile-Access-2010.aspx>

¹⁰ http://www.ctia.org/consumer_info/service/index.cfm/AID/10323

¹¹ <http://blog.nielsen.com/nielsenwire/consumer/smartphones-to-overtake-feature-phones-in-u-s-by-2011/>

¹² Aaron Smith, Neighbors Online. Available at <http://pewresearch.org/pubs/1620/neighbors-online-using-digital-tools-to-communicate-monitor-community-developments>

2. Transparency

The Obama Administration has adopted an open government framework emphasizing transparency, participation, and collaboration in government. Advocates for civic participation have identified that informing is often the first step to higher levels of civic engagement.¹³ The City currently engages in a range of practices related to transparency, publishing extensive information about City activities on the City website, through the City Record, and by responding to constituent requests.

The open government strategy calls for transforming these efforts by making existing information available in more accessible ways. Textual information should be available in plain text, and where appropriate, in standard feeds in RSS (or XML) formats. Other types of data, including quantitative information and geographic and statistical data should be made available in “raw” formats that maximize the ability of citizens to access and re-use.

By strategically releasing data related to access to City services and about specific topics (such as transportation), the City can use transparency to encourage the re-use of existing data that can release value for citizens around priority policy areas.

2.1 Categories of Data

GIS/Spatial Data: Generally this data is not personally identified or restricted for re-publishing. Our strategy should focus on datasets that complement the City’s public policy goals and are not available from other sources. These include data about public facilities and programs, information about city amenities and services, and property information. Appendix D contains a list of existing datasets suitable for release by the City.

Tabular Data: Generally stored in spreadsheets or databases, this includes wide range data types. Although including some of the most interesting data, it is also the most heterogeneous in terms of quality, sensitivity, and relevance to citizens. It should be made available with as complete metadata as possible. These datasets may include personally identified or otherwise sensitive information, so datasets should be addressed on a case-by-case basis. Some datasets, which include personally identifiable information, can be aggregated or anonymized for public use. For example, individual BPS student records are protected and inappropriate for public release, data about school and grade-level attendance and achievement could be calculated. Other types of tabular data, such as street sweeping schedules or lists of public facilities, can be released to improve the public’s knowledge of public services.

Live Feeds: Some data is available as a live feed. These include RSS or XML feeds of news events, crime, service requests, and other frequently updated data. Live feeds

¹³ The International Association of Public Participation’s Spectrum of Participation contains the following categories: inform, consult, involve, collaborate, empower.

provide developers the ability to develop applications that feature continuously updated data.

Legislative Information: A large amount of information is produced by the City Council through public documents, minutes, transcripts, and supporting documents. The City is currently exploring an electronic system to manage these documents. Appendix C contains a description of criteria for these systems that would leverage this investment to make information available to the public. It should feature advanced search capability, RSS feeds, plain text information, and the ability to track legislation.

Budget, Financial, and Performance Data: This information includes budget data, as well as item-level financial data such as purchase orders. Austin, Texas and Washington, D.C. make all purchase orders public.¹⁴ Releasing these types of data are dependent on the underlying accounting systems that track the City's finances, as well as ensuring the information is understood and interpreted properly. Financial and performance data is already released quarterly through the Boston About Results program, and the existing PDF reports can be translated into more readily manipulated formats.

Notifications: Finally, short messages can be distributed through social media applications. These can feature important messages from the City or of general interest, such as the recent boil water order. In order to be effective, notifications must be timely, delivered across multiple channels, and not dependent on individual staff, computer systems, or facilities which may not be available during an emergency.

2.2 Access

In order to ensure ease of access by the public, the City should make as much data as possible available through a central data portal. Data available elsewhere, such as from a legislative system, for example, should be clearly explained for users. A review of technical options for powering such a data portal is included as Appendix B.

2.3 Implementation

Once the infrastructure for a data clearinghouse is created, it should be pre-populated with "low hanging fruit" – easily available data already in publishable formats. Appendix D contains a list of 7 datasets already published to the Data Boston website, over 30 GIS layers available for publishing, and 19 datasets available in various formats on the City website. The City could also issue a directive to all City departments to contribute datasets to the portal. Although the system should be centrally maintained by the Department of Innovation and Technology, a staff member in the agency should be assigned the task with coordinating with departments to obtain data and metadata for the portal. To incentivize participation, the data portal could track department

¹⁴ See <http://data.octo.dc.gov/Metadata.aspx?id=20> for 2010 DC purchase orders, or <http://www.cityofaustin.org/finance/catalog/>

participation by number of datasets contributed similar to what is done on the Federal government's Data.gov.¹⁵

Successful implementation depends on three distinct staff roles. Technical staff will provide database design and maintenance and manage links with enterprise systems. Data management staff will identify datasets, conduct data quality control and assurance, and oversee metadata creation. Finally, user management staff will oversee the social functions of a data portal, provide limited answers to questions, organize events, and integrate with policy realm.

2.4 Data User Engagement

The participation and collaboration strategies following this section include strategies (such as an apps competition) which rely on the availability of raw data. The data portal should solicit input from users on data quality, metadata, formats, and desired datasets. In addition, the city could partner with data intermediaries, such as The Boston Foundation or the Metropolitan Area Planning Council on conferences or other events where data users can engage with city officials and one another.

2.5 Data Prioritization

Many conflicting rationales exist for the transparency of government data. This typology, adapted from a May 2010 blog post, provides a useful description of where government data should be released for compelling public purposes.¹⁶

- Data “About the World” to Inform Research and Policy Debate – Including geographic data, demographics, employment and economic data.
- Data Released to Improve Service Delivery – Where the data is the service, location and details about public facilities and services.
- Data to Encourage Accountability – Performance data such as BAR reports.
- Data to Effect Private Decisions to Achieve Policy Goals – “Targeted transparency” including disclosures of tax delinquents and restaurant reviews.¹⁷
- Data Posted to Improve Access within Government – Both between City departments and also across agencies in the city and commonwealth.
- Data to Keep Citizens Informed – Local information about building permits, crime, and others that can be processed and provided to citizens to perform a journalistic function.

¹⁵ See <http://www.data.gov/metric>

¹⁶ Available at <http://www.goodspeedupdate.com/2010/2976>

¹⁷ The city's Inspectional Services Division provides a list of the top 20 code enforcement violators, by amount owed: <http://www.cityofboston.gov/isd/cep/viols.asp>. Although restaurant reviews are commonly made available to encourage compliance, there is an alternative viewpoint that they should not since violations are often quickly fixed.

The first priority for what data to make available should be the 46 datasets identified above, which are largely already available to the public or readily available for publication. However, going forward the city will need to prioritize which datasets to identify for public release. This section suggests one approach to prioritization, identifying key data around Mayor Thomas Menino's 4th and 5th term priorities.

- Achievement Gap
 - School locations
 - School enrichment facilities, programs, and resources
 - Data about educational outcomes
- Jobs Creation
 - Property data
 - Regulatory/incentives information for new businesses
 - Stimulus investments
 - Location of available retail spaces
- Basic City Services
 - CRM data
 - Information about service schedules
- Violent Crime reduction
 - Crime data
 - Summer job and enrichment opportunities
- Workforce Housing
 - Affordable housing opportunities
- Narrowing Health Disparities
 - Public health data
 - Health facility information
 - Environmental quality data (air quality, drinking water, toxic releases)
- Improve Diversity in Government
 - BAR Reports including demographics of government employees
- Growing City Revenue
 - City budget data

3. Participation

City departments engage in a wide range of opportunities for participation, including holding public hearings and meetings, and receiving public comments. This strategy proposes additional, technology-enabled ways to augment these existing channels. Using technology can improve the quality of the interaction in several ways. It can make participation more accessible by reducing the time, travel, and childcare barriers involved in attending public meetings. It can also enable greater fine-grain communication between citizens and government difficult to accomplish in a traditional public meeting format. Most of all, it can be more convenient for all involved when used appropriately.

Online participation can take a variety of forms. Some have adopted using wikis, where any participant can edit a document (but all changes are recorded). This technology was used in Melbourne, Australia as part of creating a city plan.¹⁸ This may be appropriate for specific projects, however not always well suited for ongoing engagement. Despite improvements, wikis present usability problems for many Internet users, and do not track the authors of specific statements well.

The private sector has adopted the use of social feedback tools. These enable users to leave questions and comments on a publically available website. The companies can then provide detailed responses, even marking the suggestions they have chosen to adopt.¹⁹ Although limiting the length of contributions, these websites combine usability, flexibility, and have been used successfully by several government agencies.

Therefore, I recommend the City of Boston create a **central portal** for online feedback. It would be made available not for general comments (although one area could be reserved for this), but instead on specific topics, plans, or areas of interest. The success of this depends on authentic engagement on the part of the departments responsible for the policy area. To make the feedback authentic, it must be treated as equivalent as letters, calls, in-person visits, and public meetings. To implement an ideas portal, the City could adopt a local version of a moderation policy, as well as guidance for interested departments about how to manage this new tool.

In addition, this section discusses two additional opportunities to foster citizen participation: fraud reporting and emergency volunteers.

3.1 Participation Opportunities for Online Portal

In the near term, there are several areas where an ideas or feedback website could be useful.

¹⁸ For more information on the Future Melbourne project, see <http://www.futuremelbourne.com.au/wiki/view/FMPlan>.

¹⁹ As an example, Nike, Tide, Microsoft, and Zappos.com have created websites using the Get Satisfaction platform. See http://getsatisfaction.com/case_studies.

- **Basic Service Suggestions/Feedback:** The site could be used to solicit feedback to the delivery of basic city services, including street maintenance, garbage collection, and code enforcement. Since these agencies have been involved in the CRM system development and Citizens Connect app, this could be an area of opportunity.
- **Neighborhood Planning:** Projects such as the Innovation District or Chinatown Master Plan could use the ideas website as a venue for official feedback and discussion.
- **Emerging Policy Areas:** Policy areas where the city is actively exploring its options, such as food policy or climate change mitigation, or emerging policy areas where the city does not have an existing policies or programs.

3.2 Emergency Response

The city already supports citizen participation in emergency response through the Citizen Emergency Response Team (CERT) program. Technology could be used to enhance or expand this program through improved notification or coordination through SMS, web, and email. In addition, the use of tools like Ushahidi could facilitate the sharing of data during a crisis event.

3.3 Fraud Reporting

The State of California has established a website where citizens can report problems or share solutions to save taxpayers money. The website has already resulted in a one-time savings of over \$25 million for state government, and a yearly savings of over \$1.3. Given the unique requirements for anonymity, this type of website could be designed separate from the ideas portal.²⁰

²⁰ See <http://www.wastewatchers.ca.gov/>, or for more information “California Website for Reporting Waste Nets More than 5,000 Tips,” 13 July 2010, Government Technology, available at <http://www.govtech.com/gt/articles/766272>.

4. Collaboration

Many new models of governance start from the recognition that finding and implementing solutions to public problems requires reaching beyond the walls of city hall. This is especially true in Boston, where private organizations work to improve the city through a variety of programs, initiatives, and projects. However, government often plays a central role in encouraging, facilitating, and guiding these activities. The city also has the “bully pulpit” to establish priorities, and the threat of regulation and enforcement to back it up.

In many areas, the city engages in collaboration through councils and advisory boards that draw upon the expertise and time of external problems. Several forms of engagement can continue these forms of outside collaboration.

4.1 Application Competitions

Other cities have successfully pioneered the use of the competition format to encourage the private development of web-based or mobile applications that utilize public datasets. These have proven successful at creating value by making these rich datasets available to citizens in new ways, since City data often features the location of public amenities and facilities. Several topical themes are possible:

- **Green Transportation Apps:** Building on the success of MassDOT, the City would release data relating to walking and bicycling, encouraging developers to create apps to make these modes accessible, or to combine neighborhood information with transit data.
- **Neighborhood Life Apps:** Boston is a city of neighborhoods. This competition would seek to create apps to help residents connect with local business, services, and facilities.
- **Apps for Education:** An apps competition with an education theme, oriented towards helping connect students of all ages with public and charter schools, higher education, job training, language, and learning opportunities of all types in the city.

4.2 Innovation, Analysis, and Visualization Challenges

Another approach is to create specialized or reoccurring challenges around research, design, analysis, and visualization questions. The company Innocentive supports four types of challenges: ideation, theoretical, reduction to practice (RTP), and e-request for proposals (eRFP).²¹ These challenges are designed to take advantage of the creativity and technical skills of a large group of “solvers,” who are motivated by attention and the cash awards offered. These could be used for several opportunities:

1. When the city seeks a design solution to a large, complex system such as the trash collection system.

²¹ www.innocentive.com

2. When the city wants to encourage the exploration of a large, complex dataset which could result in important findings. In particular, mobility datasets which can shed light on automobile, bicycle, and pedestrian traffic speeds, routing, and other movement through the city.

4.3 Research Collaboration

Finally, researchers are interested in partnering with the city, from a range of academic disciplines including public administration, urban planning, economics, architecture, sociology, and others. These collaborations can produce world-class research reports, policy analysis, urban designs and plans, and other work products at minimal cost to the city. However, the usefulness of these products depends on the costs of providing data and collaborating with academic partners, and the willingness of the academic community to research topics that align with government goals.

The arrangements to support academic collaborations can vary. First, making non-sensitive data broadly available will support research in a wide range of fields. This approach also reduces the staff time required to compile and respond to data requests. In order to facilitate cooperation, a portal could be created to connect City departments with research needs with academic partners.

Other research projects that require longer-term relationships or special access to sensitive data may require more specialized arrangements. For example, researchers seeking to investigate sensitive personal issues such as health and educational outcomes may require negotiating data use agreements and ongoing in-person collaboration on research design and results.

4.4 Ingredients to Successful Crowdsourcing and Apps Competitions

Several MIT Sloan researchers have proposed the “collective intelligence genome” to analyze crowdsourcing projects such as Innocentive, Threadless, and Wikipedia.²² They organize the building blocks around four questions. Each goal (either “create” or “decide”) can be combined with various approaches for how the goal is accomplished, how the actors are rewarded, and how decisions are made.

²² Thomas W. Malone, Robert Laubacher and Chrysanthos Dellarocas, “The Collective Intelligence Genome,” MIT Sloan Management Review, Spring 2010, Vol. 51 No. 3.

• Goal (What?)				
○ Create				
○ Decide				
• Staffing (Who?)				
○ Crowd				
○ Hierarchy or Management				
• Incentives (Why?)				
○ Money				
○ Love				
○ Glory				
• Structure/process (How?)				
○ Group Decision				
▪ Voting				
▪ Averaging				
▪ Consensus				
▪ Prediction market				
○ Individual				
▪ Market				
▪ Social Network				

What?	Who?	Why?	How?
Linux			
Create software	Crowd	Money/Love/Glory	Collaboration
Decide which modules to include	Management	Love/Glory	Hierarchy
Wikipedia			
Create Wikipedia article	Crowd	Love/Glory	Collaboration
InnoCentive			
Create scientific solutions	Crowd	Money	Contest
Decide winners	Management	Money	Hierarchy

The “Apps for Democracy” competition in Washington, D.C. had 60 awards, adding up to a total of \$20,000 of cash prizes. The contest organizers hypothesized that since most people don’t think they’ll win an award, creating more awards can encourage greater participation. Two “people’s choice awards” encouraged developers to promote their entries, drawing new people into the contest process. A detailed description of the details about the Washington, D.C. apps competition is available.²³ This guide covers contest framework, website creation, marketing to developers, judge recruitment, initial screening, apps posted publicly, public voting for “people’s choice,” awards ceremony and final judging, results of contest marketing.

²³ Peter Corbett, How to Run Your Own Apps for Democracy Innovation Contest, available at <http://www.appsfordemocracy.org/guide-to-creating-your-own-apps-for-democracy/>

5 Theoretical Context

5.1 Targeted Transparency

The scholars Mary Graham, David Weil, and Archon Fung have proposed a variety of policies that should be understood as a deliberate policy instrument called *targeted transparency*. These policies are where governments mandate the collection and release of certain types of information to achieve policy goals. Examples they cite include the federal government's toxic release inventory, auto fuel economy and roll-over ratings, nutrition labeling, restaurant ratings, and more. Among data collected by the city, several types of data fit the criteria, including a list of top code enforcement violators who owe the city fines.²⁴

The theory is for areas where new regulations are undesirable, information can achieve the policy goal by changing the actions of both consumers and firms. These categories of data should be prioritized for release in raw data formats.

5.2 Democratic Theory

This section briefly describes democratic theory, as well as theories of government data transparency. The intention is to provide a brief description of ideal types, not a detailed scholarly examination of these topics.

Scholars of democratic theory engage in a long and lively debates about the size and character of democratic government. For the purposes of this report, I will describe in somewhat exaggerated terms several contrasting visions of local democracy.

- Under the view of **representative democracy**, the primary mechanism for a democracy is voting. Citizens express their policy preferences through occasional elections for legislators and executives. These elected officials, in turn, pass laws and develop and implement policy. In this perspective, the election is a source of legitimacy, and citizens are not expected to be active in their government aside from voting. In this model, the role of a bureaucracy is to implement laws and policies as directed by elected officials. Some theorists expousing this view of government emphasize it means there is no such thing as a clearly defined public good. It should be noted that the underlying theory of President Obama's open government initiative follows this logic, deferring the role of setting priorities and policies to government officials working under legislative guidelines. In this model, the purpose of open government is to receive valuable input to assist the government to achieve the goals set by Congress and the President.
- Under the theory of **direct democracy**, the people themselves directly control the government through meetings, discussion, and voting. The clearest example

²⁴ Available at <http://www.cityofboston.gov/isd/cep/viols.asp>

of this form of government is the town meeting, where individual issues are discussed and addressed by the assembled residents.

- Under a theory of **participatory democracy**, some theorists have argued citizens should be engaged in government on a regular basis. These theorists argue, and there is some evidence of, the following individual effects on participants: social learning, a broadening of perspective, and enhanced sense of citizenship. Advocates for participatory democracy describe the range of possibilities for power given to citizens, the nature of their involvement, and the number involved.

Through American history, various conflicting theories have been held by citizens. Often, citizens expect the local government to be the most direct or participatory, expecting to be heard on issues that impact their lives directly. At the federal level, participation is rare and until recently almost exclusively through the rulemaking process.

The strategy in this document adopts a hybrid approach. It both recognizes and preserves the role of elected officials in establishing policy priorities for city services and regulations, and also encourages direct citizen participation in service delivery and policy development. Because of this, the open government initiative may introduce tensions between these contrasting forms of democracy.

6. Online Implementation Plan

Implementing the open government plan will involve the initial launch of three sections to the city website: an open government page, and data and ideas websites. The “data” and “ideas” websites will be operated as platforms for City departments; neither will be intended to be comprehensive at the time of launching. The “open government” page will explain city policies in this area, as well as contain information about City apps and crowdsourcing. If required, these features may develop into their own separate websites. In addition to the websites, a Google Group will support collaboration among developers and power users.

cityofboston.gov/open

- Open government portal
- Letter of introduction from mayor
- Gateway to open government activities across City government
 - Data
 - Directory of data tools
 - Directory of apps
 - Ideas
 - Legislative information
 - Crowdsourcing

data.cityofboston.gov

- City’s data and tool portal
- Providing GIS and tabular in raw data formats
- Contain a directory of data tools
- Offer some social functionality, such as ratings and commenting on datasets

ideas.cityofboston.gov

- Ideas and feedback website
- Contain a small number of initial forums
 - Feedback about City services
 - Request a dataset
- Future sub-forums can be topically based, or based around time-sensitive issues such as input for planning documents. The key for success will be to engage the municipal employees engaged in the work, establishing the expectation for a robust, sophisticated, high-level conversation on both sides.
- Potential sub-forums:
 - Innovation District or other neighborhood planning
 - Open government plan
 - Transforming basic city services
 - Transforming education

Open Boston Google Group

- Target audience: advanced data users and developers

- Available for public sign-up from open government portal
- A designated City of Boston manager to post regular messages and organize occasional meetings.

7. Launch and Implementation Timeline

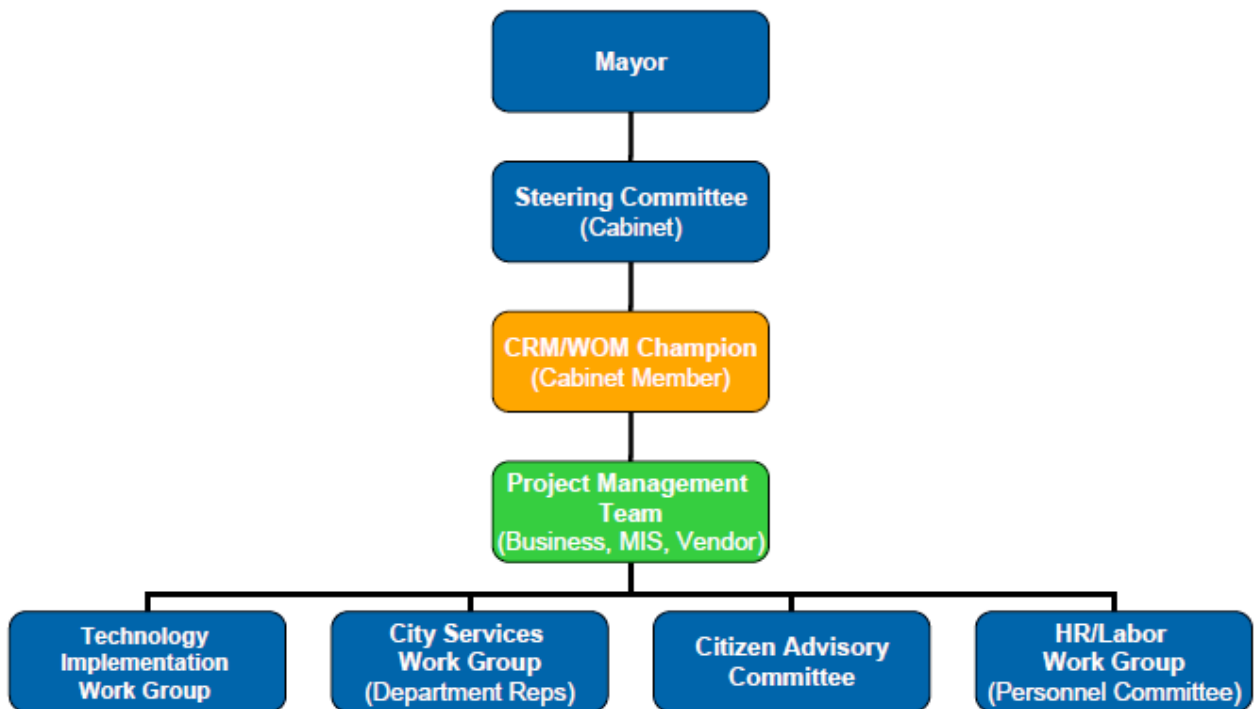
	FY2011 Q1 (July-Sept.)	FY2011 Q2 (Oct.-Dec.)	FY2011 Q3 (Jan.-Mar.)	FY2011 Q4 (April – June)
IT Systems	Finalize data dashboard	Implement data website	Develop links from Hansen	Expand datasets available
Community engagement	Launch event for CC2.0 Recruit beta testers	First bimonthly developer meeting Transportation apps competition	Large-scale event; second apps or visualization competition	Continue previous efforts
Strategy	Development of strategy document	Build partnerships with pioneer departments	Create citywide participation and data policies	

8. Project Governance

Successful implementation of this open government plan requires collaboration between DOIT and other city departments. The project should not be viewed as exclusively a technology initiative, but instead a broader initiative to integrate online practices with existing governance practices.

Therefore, the project should be governed by a steering committee made up of cabinet members, chaired by the city's CIO. The governance structure may resemble that proposed by Gartner in their 2007 CRM report, reproduced below.

Figure 9. Proposed CRM/WOM Implementation Governance Structure



Appendix A – City of Boston Social Media

The City of Boston maintains a “Social Media Center” webpage at www.cityofboston.gov/news/socialmedia.asp

Page Name (Key: TW = Twitter, FB = Facebook)	URL	On Social Media Center?	Followers/Fans 7/2/2010
Stolen Bikes Boston (FB)	http://www.facebook.com/StolenBikesBoston?ref=ts	NO	444
Mayor's Youth Boston (FB)	http://www.facebook.com/#!/Mayorsyouthboston?ref=search&sid=JxBWqalFjVTIZL-1o04JeQ.4152416442..1	NO	1,010
B1Example (FB)	http://www.facebook.com/B1Example	NO	1,280
Stolen Bikes Boston (TW)	http://twitter.com/stolenbikesbos	NO	423
ONEin3 Boston (TW)	http://twitter.com/onein3	NO	1,795
Boston Centers for Youth and Families (FB)	http://www.facebook.com/pages/Boston-Centers-for-Youth-Families-BCYF/183318360399?ref=ts	Yes	263
Green Boston (FB)	http://www.facebook.com/pages/Boston-MA/Green-Boston/50738254402	Yes	497
Boston Parks and Recreation (FB)	http://www.facebook.com/pages/Boston-MA/Boston-Parks-and-Recreation-Department/316879927175?ref=search&sid=1410165477.1095299323..1	Yes	643
Boston Public Health Commission (FB)	http://www.facebook.com/HealthyBoston	Yes	1,234
Boston Bikes (FB)	http://www.facebook.com/bostonbikes	Yes	1,268
ONEin3 Boston (FB)	http://www.facebook.com/ONEin3Boston	Yes	1,468
Boston Public Library (FB)	http://www.facebook.com/bostonpubliclibrary?ref=nf	Yes	2,649
City of Boston (FB)	http://www.facebook.com/cityofboston	Yes	3,360
Boston Fire Department (FB)	http://www.facebook.com/pages/Boston/Boston-Fire-Department/121079233168	Yes	14,923
BCYF Centers (TW)	http://twitter.com/BCYFcenters	Yes	80
Boston Neighbor (TW)	http://twitter.com/BostonNeighbor	Yes	240
Notify Boston (TW)	http://twitter.com/NotifyBoston	Yes	474
Boston Public Library (TW)	http://twitter.com/BPLBoston	Yes	1,671
Boston Fire Department (TW)	http://twitter.com/BostonFire	Yes	2,980
Healthy Boston (TW)	http://twitter.com/HealthyBoston	Yes	3,093
Boston Police Department (TW)	http://twitter.com/Boston_Police	Yes	14,106
BRA (TW)	http://twitter.com/BostonRedevelop	NO	830
Bring Google to Boston (FB)	http://www.facebook.com/#!/pages/Boston/Bring-Google-to-Boston/393503997175?ref=search	NO	456
Total:			55,187

Appendix B - Comparison of Data Portal Software

	Boston	Washington, D.C.	Mass.gov/Data	Socrata	Microsoft Open Data Initiative	CivicApps	Civic OpenMedia	Actuatr
Description		Data warehouse model Emphasis on raw data delivery	Modifying Drupal for social functionality; SQL programming	Turnkey solution, cloud hosted	Open source, based in M'Soft products	Social portal linking to static files	Open source portal software	Lightweight platform for creating API
Startup Cost	-	High	-	Low	?	Low	?	Low
Ongoing Cost	Low	-	Low	At least \$12k per year	Azure Hosting Costs	Low	Low	?
Formats								
Tabular	Y (Data Cat.)	Y	Y	Y	Y	Y	Y	Y
Spatial	GIS Hub	Y	N	Y – With ArcGIS Server	Y (KML only)	Y	Unknown	Y
Feeds	CMS	Y	No	No	Unknown	N	Unknown	Unknown
Raw	Y	Y	Y	Y	Y	Y	Y	Y
Access								
Visual.	N	N	N	Y	Y	N	Unknown	N
API	Y (GIS)	N	N	Y	Y	N	Unknown	Y
Social functions	N	N	Y	Y	Y	Y (Ideas & Apps)	Y	Y (Links to Apps)
Data in database?	Y	Y	Y	Y	Y	N	Y	
Technical Details	ArcGIS Server; SQL	Data warehouse	Drupal; SQL	Proprietary, cloud-based	C# and .NET, Azure Data Loading Client	Drupal and Pressflow	Ruby on Rails/CouchDB	Proprietary

Appendix C – Evaluation of Legislation Software

TO: Raj Pareek
CC: Nigel Jacob, Chris Osgood, Bill Oates
RE: Evaluation of Legislation Software for the COB
DATE: 6/29/10

This memorandum responds to your request to review, from an Open Government perspective, the three legislation software packages being considered for the city. These packages included IQM2, Legistar and Sire. I looked at 3-5 implementations of each of these platforms; in addition, I reviewed the OpenNY Senate system. Below is my summary with more detailed comparisons and comments beneath and attached.

Summary

- To advance the City's open government agenda, our selected system must include:
 - advanced search for meeting agendas, minutes, and supporting documents;
 - documents available in text and PDF formats;
 - RSS and email tracking of meetings and legislation.

In addition, it would be desirable for the system to expose public data through an API for 3rd party applications and services, as well as have constituent commenting and/or testimony management

- None of the packages evaluated fully met these criteria. Among the three evaluated, Legistar provided the best user experience. However, some usability problems were evident on existing client websites, and some cities had an older versions of Legistar systems offered fewer features. We should identify desired public features early on with the selected vendor. If Legistar is selected, we should inquire about why some clients have not upgraded.
- The scope of application of these tools ranges between the very narrow (Pinellas County School system meetings) to the very broad (Irvine, California uses Sire for a digital municipal records system). We should be clear on the scope from the start so that the resulting legislation portal is as clear for citizens and City users as possible.

Comparison

I compared the three platforms from the perspective of three communities (and their interests):

1. *Constituents* (easy search and navigation capability; opportunity to comment)
2. *Watchdog Groups* (bill tracking and notification)
3. *Developers* (file formats, APIs, and other structured data)

Constituents

- Search
All products provided this feature, however IQM2's search is keyword based, and does not offer "advanced" features. Legistar's provided the most search options.
- Navigation
IQM2 and Legistar's systems have an important difference. Legistar links information about

legislation with the meeting pages, allowing users to navigate between the two. For example, when reviewing a city council meeting agenda, any item can be clicked on to view previous hearings or history of the document. IQM2 provides legislation pages and meeting pages, but does not link between the two. Sire provided the most limited navigation options.

- Constituent Comments

The only system evaluated that provided support for constituent comments or testimony was the Open New York Senate website, which allows user comments on legislation pages. IQM2 says this feature is planned for future version of their software. This feature should be discussed with the selected vendor at an early stage. This functionality is available from other vendors, including Peak Democracy (www.peakdemocracy.com) and VideoMinutes (www.videominutes.net).

Watchdog Groups

- Bill Tracking

Constituents should be able to track the progress of bills between hearings and votes. The only vendor providing this feature is Legistar, however it was unevenly implemented between cities. Sire's technology provided RSS feeds for agendas and minutes, but not for specific bills. IQM2 sites tested did not provide RSS, but said that this feature and also email notification was planned for the future.

Developers

- File formats

Documents should be available in text format for reading, and also for Section 508 accessibility compliance. Two vendors provided documents in text format: Legistar offers a file extract feature in XLS, DOC, and PDF. IQM2 supports PDF and RTF (real text format). Sire websites only offered PDF files, which are considered inferior from a web usability perspective to text formats.

- APIs or other structured data

None of the vendors evaluated provided support for a developer API. One package, the open source New York Senate website, provides this functionality. Although it may not be feasible at this time, it should be in the city's long-term IT vision to provide APIs using open standards for all high-value datasets, including legislative information. There are emerging XML standards for legislative data that should be used by the city.

Appendix D – Existing Datasets

City servers currently host a variety of applications that provide access to data. Providing the underlying data in a raw format can accelerate the public use of this data. For example, the DND's Private Distressed Property Viewer could benefit from an improved interface. Providing the raw list of properties could allow private applications to re-use the data.

Datasets on DataBoston

	Name	Format	Existing Access	User Communities (P=Public, D=Developers, R=Researchers)
1	Children's Feeding Program Locations	CSV	DataBoston	P
2	City Day Care	CSV	DataBoston	P
3	City Recreational and Day Camps	CSV	DataBoston	P
4	CRM Data	Feed	DataBoston	P, R, D
5	Restaurants	CSV	DataBoston	P
6	Bakeries	CSV	DataBoston	P
7	Swimming Pools	CSV	DataBoston	P

Datasets Based on Existing Online Resources

	Name	Department	Future Format	Existing Access	User Communities (P=Public, D=Developers, R=Researchers)
1	Boston Cultural Council Grant Recipients	ATSE	CSV	Web App http://www.cityofboston.gov/arts/bcc/	P
2	Parcels	Assessing	CSV and/or Shapefile	Web App http://www.cityofboston.gov/assessing/search/ CD Purchase (\$35 LITE/\$138 FULL) http://www.cityofboston.gov/assessing/assessing_data.asp	P, D, R
3	Except Property Directory	Assessing	CSV	In report (see appendix) http://www.cityofboston.gov/Images/Documents/ExemptRPT_09_WEB_tcm1-3932%5B1%5D.pdf	P, R
4	Crime Statistics	BPD	Feed	Vendor Web App http://www.cityofboston.gov/police/stats/	P, D, R
5	Customized School Search	BPS	CSV	Web App http://www.bostonpublicschools.org/node/1694	P, D
6	Article 80 Projects	BRA	CSV and/or Shapefile	Website http://www.bostonredevelopmentauthority.org/DevelopmentProjects/DevProjects.asp?action=ViewStatus&StatusID=8	P, D, R

				Map http://gis.cityofboston.gov/article80_d ev/	
7	BRA Owned Parcels	BRA	CSV and/or Shapefile	Web App http://www.bostonredevelopmentauthority.org/rebold/ParcelsRO.asp	D, R
8	Commercial Space for Lease Finder	DND	CSV/ Feed	Web App: http://www.cityofboston.gov/dnd/U_C commercial Space for Lease.asp	P, D
9	Distressed Buildings	DND	CSV	PDF: http://www.cityofboston.gov/dnd/U4 Distressed Buildings Information.asp Map: http://dndapps.cityofboston.gov/maps erv/abandmapsurfer/	P, D, R
10	My Neighborhood	DOIT	CSV	Web App http://www.cityofboston.gov/myNeighborhood/	P, D
11	Capital Projects	DOIT	CSV and/or Shapefile	Web app http://gis.cityofboston.gov/EGISearch/Budget/CapitalProjectsSearch.aspx	P, D
12	Street Occupancy Permit Lookup and Alert Registration	DPW	Feed	Web App http://www.cityofboston.gov/streetoccupancy/	P, D
13	Street Book	DPW	CSV	Web App Street Book Public Works Format: App http://www.cityofboston.gov/publicworks/streetbook/	-
14	Street Occupancy Permit Database	BTD	Feed	Web App http://www.cityofboston.gov/streetoccupancy/	P, D
15	Election Results	Elections	CSV	Web PDF http://www.cityofboston.gov/elections/results/	P, D, R
16	Building Permits	Inspectional Services	CSV/Feed	Web App http://www.cityofboston.gov/isd/permitsearch/search/permitsearch.aspx	P, D, R
17	Restaurant Inspections	Inspectional Services	CSV/Feed	Web App http://www.cityofboston.gov/isd/health/mfc/search.asp	P, D
18	BOSTONavigator	Mayor's Youth Council	CSV	Web App http://www.bostonnavigator.org/	P, D, R
19	SLBE/MWBE Directory	Small & Local Business Enterprise	CSV	Web App http://www.cityofboston.gov/slbe/search/default.asp	P, D

GIS Data Layers

The GIS team has a wide variety of GIS data, ranging in accuracy, freshness, and completeness. The list below was prepared as a basic inventory of data for public dissemination.

	Basefiles and Infrastructure	Available Elsewhere?
1	Centerlines	N
2	Parcels	N
3	Footprints	N
4	Curblines	N
5	Surrounding town boundaries	MassGIS
6	Major Roads	MassGIS
7	Zipcodes	MassGIS
	Census	
8	Census Blocks	MassGIS, Census
9	Census Block Groups	MassGIS, Census
10	Census Tracts	MassGIS, Census
	Imagery	
11	2008 Orthophotography	N
12	GeoSpan viewer	N
	Parks and Recreation	
13	Hydrography	
14	Open Space	MassGIS
15	Freedom Trail	N
	Political	
16	Ward	N
17	Precinct	N
18	Election districts	N
19	City Blocks	N
20	Governing boundaries - councilor, congress, senate etc	Mixture
	City services	
21	Sanitation Districts	N
22	School Districts	N
23	Police Districts	N
24	Fire Districts	N
25	Zoning Districts and Subdistricts,	N
26	Libraries	N
27	Schools	MassGIS
28	Health Centers	N
29	Emergency Shelters	N
30	Community Centers	N

Online Dialogue Roles & Responsibilities Management Team

The management team for an online dialogue should be made up of the following roles. Individuals may hold one or more roles depending on capacity and responsibilities.

Role	Responsibility
Open Government Leader	Responsible for decisions and policies with regard to agency Open Government Plan. Plays critical role in making decisions about how data from open government dialogue will be integrated into open government plans, as well as tone and positioning of the dialogue.
Producer of Dialogue	Responsible for clearly articulating the purpose, content and substance of the dialogue, writing materials, establishing moderation policies, modifying terms of participation.
Project Manager	Responsible for tracking timelines, personnel, deliverables to produce and deliver the dialogue.
Outreach, Public Affairs and Social Marketing	Responsible for developing outreach, marketing and social marketing plans for recruiting participants. Responsible for media outreach and preparing agency publications.
Legal	Responsible for setting policies around agency's public positions and publications with regard to the dialogue.
Technical	Responsible for the technical integration of the dialogue platform with the agency web site and providing technical support as needed.
Lead Moderator and Shift Moderators	Responsible for moderating the dialogue, trouble shooting problems, etc.
Data Analysis	Responsible for developing plan for how data will be analyzed and used.
Reporting	Responsible for writing and publishing internal and external reports from the dialogue.
External Experts and Stakeholders	Responsible for recruiting networks to participate and seeding the discussion with questions and comments.