



# City of Alexandria, VA

## **DRAFT** Report

**Project Name:** New Interactive Maps - Community Participation  
**Department:** Information Technology Services, Applications Division  
**Focus Area:** GIS Applications  
**Product/Process:** Usability Testing

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### Project Closure Report Version Control

Version	Date	Author	Change Description
1.0	6/16/2014	J. Kanzler	Original First DRAFT
2.0	7/7/2014	J. Kanzler	First DRAFT for publication, internal editorial comments addressed.

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# 1 Project Background

## 1.1 Project Background Overview

### Project Goal

Update the City's online system of interactive maps to be more meaningful, usable, interactive, and better integrated in the City's web site.

### Project Approach

The City of Alexandria ITS Applications Division is redesigning its approach to interactive mapping on the web. Instead of a disparate set of maps that pop out from various links, the new design is a single mapping application (working title: Map-Based Search Tools) with these key features:

- Configurable to display an infinite number of maps in a variety of themes, from waste management to urban planning.
- Embeddable in City web pages.
- Highly usable on mobile as well as desktop devices.

Instead of programming such an application from scratch, which would be very costly, the City of Alexandria purchased Geocortex – a development framework with out-of-the-box interactive map design support for desktop as well as mobile devices. Geocortex enables us to quickly build mapping sites for testing by users, and focus our energies on capabilities and design. It is flexible and extensible, enabling us to program and configure alternative options for desktop and mobile devices. City of Alexandria ITS Applications staff will modify and add tools and modules to resolve usability issues encountered during testing, where most impactful and feasible. Once the core interface and tool set are designed, many more maps can be generated from the core. This level of civic engagement early on can greatly improve the utility and longevity of a resource such as these interactive maps.

## 1.2 Usability Testing Methods

### Testing Methods

- (1) City of Alexandria ITS Applications staff create an array of four interactive map prototypes that replace existing online viewers: Parcel Viewer, Planning and Development Viewer, Document Imaging Viewer, and Sewer Viewer.
- (2) The public is notified of testing times by the City web site (City Calendar and GIS page), and via eNews and paper flyers.
- (3) A member of the City staff visits public locations throughout the City, such as libraries and recreation centers, setting up a table with a laptop, iPad, and iPhone.
- (4) When a volunteer approaches the table, the City staff member explains the Interactive Maps usability testing project, emphasizing that:
  - the maps are in the early phase of development,
  - the applications are being tested and not the volunteer, and
  - all information is anonymous (all names and email addresses left are purely voluntary).

- (5) If the tester decides to volunteer as a tester, he/she then selects a device and map to test.
  - Volunteers may test on their own device.
- (6) The City staff member guides the user through the interface, being directed to think aloud and answering questions about the interface as they proceed through it.
- (7) The City staff member then takes notes on all of the questions, processes, steps taken, search terms, methods, devices, and order of control exploration.
- (8) The tester is then referred to a survey to complete, which allows her/him to anonymously offer feedback on the map, application, and experience.
- (9) Points of confusion and preferences that are observed in multiple testers become opportunities for redesign.

## Frequently Asked Questions (FAQ)

### **What is usability testing?**

Usability testing is a technique used to evaluate a product by testing it on people representative of those who are going to use it – we call these people "users." This is a valuable practice for developers like us because we get direct input on how real users will use what we've designed.

### **Why are we conducting usability testing?**

By asking a range of users to test our new Interactive Mapping Tools, we will be able to identify and address sources of confusion and errors in its design that we might otherwise miss. By avoiding costly fixes, usability testing reduces the overall cost of a custom application like this, especially when performed early in the development process (as is the case here). In addition, by increasing user satisfaction, we hope to extend the life of the Interactive Mapping Tools, and thereby lower the replacements costs.

### **What does the process entail and how much time will it take?**

The process consists of a short usability test on the computer (approximately 20 minutes per user). While the user is navigating through the prototype of our Interactive Mapping Tool, the person conducting the testing will take notes on all of the questions, processes, steps taken, search terms, methods, devices, and order of control exploration. The goal is to understand how the design of these interactive maps can best serve the needs of those who will use it. The experience is very relaxed because usability testing is focused on testing the application, and not the user.

### **What is a Prototype?**

For these purposes, a prototype is an early model of a website, built in hours using rapid application development tools (in this case, Latitude Geographics' Geocortex) instead of months of expensive programming tools and techniques. Geocortex is flexible and extensible and the City of Alexandria ITS Applications staff will modify and add tools and modules to resolve usability issues encountered during testing, where most impactful and feasible.

### **When and where will testing be held?**

Opportunities for community participation will be available at various times and locations throughout the city (e.g., libraries, rec/community centers). Please visit the website ([www.alexandriava.gov/gis](http://www.alexandriava.gov/gis)) for details.

### **What kind of tester are we looking for?**

To ensure that we address all possible issues that may come up with the design and content, we hope to get participation from a wide spectrum of testers. Some key characteristics of users we want to test include people who are non-technical, technical, curious, creative, map lovers, those with a GIS background, and those who might not find maps particularly useful. We also want to ensure that the usability testers are people of various genders, ages, education levels, and skill sets.

### **Will the testing be anonymous and how will the results be calculated?**

The testing will be anonymous. Initially, we will collect qualitative data derived from our observations, but ultimately we hope to quantify our results. The detailed data we collect will be stored and anonymized in an internal data file.

### 1.3 Project Schedule

In-person usability testing	April 19 <sup>th</sup> – August 1 <sup>st</sup> , 2014
Online usability testing	April 18 <sup>th</sup> – August 1 <sup>st</sup> , 2014
Ongoing design revisions	April 28 <sup>th</sup> – May 27 <sup>th</sup> , 2014
<i>Draft</i> Usability testing results summary and design recommendations	June 16 <sup>th</sup> , 2014
Evaluate costs and apply recommendations	July 1 <sup>st</sup> – August 8 <sup>th</sup>
Publish the list of recommendations and a response for each explaining why/how it was, will be, or was not incorporated. Publish <i>Map-Based Search Tool</i> with three maps for online testing and public feedback.	August 8 <sup>th</sup>
Incorporate testing results and feedback to revise the <i>Map-Based Search Tool</i> .	August 15 <sup>th</sup> – 29 <sup>th</sup>
Publication of the <i>Map-Based Search Tool</i> . Ongoing feedback welcome, and will be addressed through future development cycles.	September 1

### 1.4 Testing Schedule

James M. Duncan Library	April 19th - 24th
Charles E. Beatley Library	April 28th - May 4th
Kate Waller Barrett Library	May 5th - May 9th
Ellen Coolidge Burke Library	May 13th - May 16th
First Baptist Church - community event	June 4th
Charles Barrett Rec Center	June 9th
Charles Houston Rec Center	June 10th
Chinquapin Rec Center	June 14th

## 2 Usability Testing Results - Summary

### 2.1 Overview

#### General Summary

As of June 14th, 23 individuals have volunteered to test the Interactive Mapping tools in person at 8 different testing sites. An additional 15 individuals have tested the application online on their own and offered feedback. We would like to thank these individuals for taking the time to participate in our testing, and performing this critical role in our design process. The overall response was positive, and feedback has been constructive. Many users felt that the maps were of greatest use to individuals looking to move to Alexandria. The volunteer testers understood that the maps are in the early stages of development, but asked for more focus on providing detailed information and useful tools for residents. A number of users were stuck mid-process and/or expressed a desire for more wizard-like interaction to guide them step-by-step through the process of accessing the information they were after.

Below is an annotated screenshot of one of the test maps, displaying the key components of the user interface.

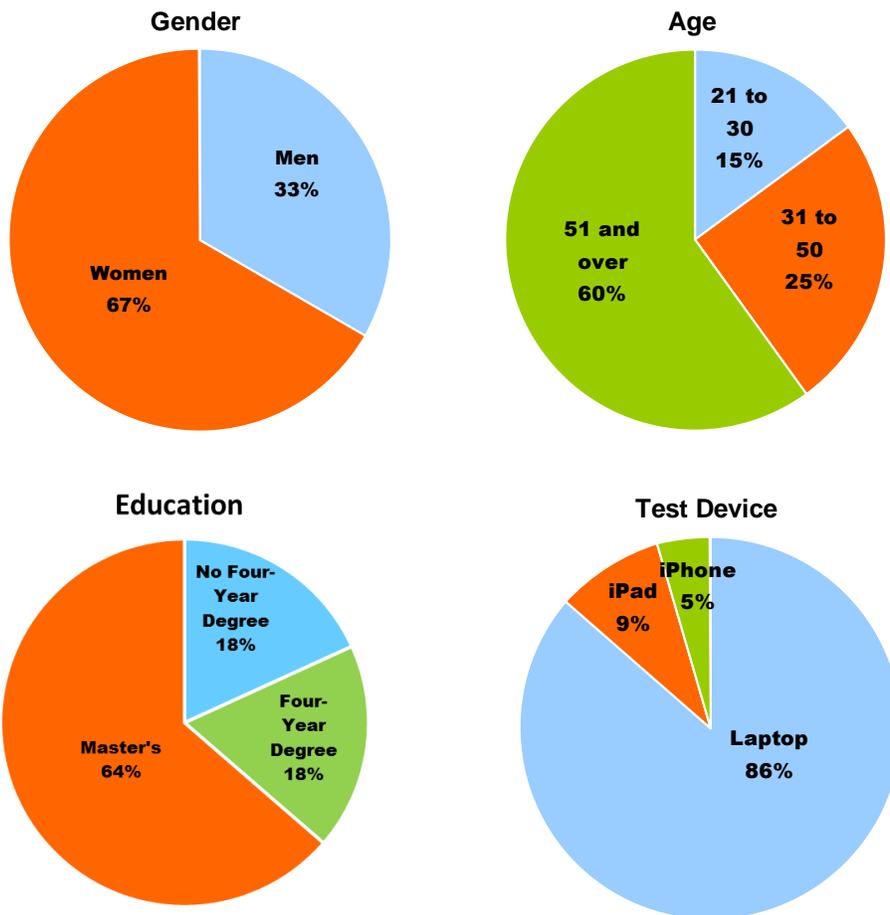
The screenshot displays the GIS Parcel Viewer interface for the City of Alexandria, Virginia. The interface includes a header bar with the City of Alexandria logo and 'GIS Parcel Viewer' text, a search box, and a toolbar with icons for 'How to use?', 'Identify', 'Clear map', 'Initial View', 'View entire city', 'Printable map', and 'Feedback'. The main area shows a map of a city block with labels like 'CAMERON ST', 'RAMSAY AL', and 'TORPEDO FACTORY CONDO'. An information panel on the left displays details for parcel #075.01-04-06, including tax map, map block, parcel number, address (5 CAMERON ST), owner (ALEXANDRIA WATERFRONT RESTORATION GROUP), and 2014 land and building values. A tip bar at the bottom reads 'Click or tap a location on the map to learn what's there.' Annotations with arrows point to various UI elements: 'I want to...' points to the search box, 'I want to button' points to the 'Identify' button, 'Information Panel' points to the left sidebar, 'Map' points to the map area, 'Tip Bar' points to the bottom tip bar, and 'Toolbar Toggle' points to the wrench icon in the top right corner.

The key results of the usability tests (to date) are summarized below in logical sections relating aspects of application design. While the overall feedback from testers on the design was positive, the focus of this document is on areas for improvement. Key results include issues that were observed in multiple testers. Observations in a single test are included where they uncover features and behavior (in the design) that are inconsistent with common approaches and best practices. Each section has two parts: (1) **Observations**, which summarize key observations that revealed these issues, and (2) **City Actions**, which summarizes how the City will use the

observations to improve the interactive map design. Of course, the City will test the results of the proposed actions and adjust the design further as necessary.

### Tester Demographics

As shown in the figures below, our in-person volunteer testing group may not be especially representative of the user base because two thirds of them are women and nearly two thirds are 51 and over. Of those who completed the post-survey (approximately half), nearly two thirds had an advanced degree. The profile we seem to be testing is older, well-educated female. Also, there appears to be an overwhelming preference for testing on a laptop, as opposed to mobile device. It's possible that the device bias is driven by one or multiple of the demographic biases. Only 2 of the 15 feedback entries used a mobile device for testing.



\* Education data collected from survey responses

### City Actions

- Target locations where individuals 50 and under might tend to congregate, e.g., NVCC campus. Explicitly encourage individuals under 50 to participate.
- For both the in-person and online tests, encourage testers to take the post-survey, letting them know how we use the information.
- Make use of social media in promoting testing opportunities.
- Encourage testers to use a mobile device, or run mobile-only usability tests.

## Other Relevant Survey Findings

### Observations

- 27% of those who completed the post-survey were not aware that the City provides interactive maps on the web site, although such tools have been available since 2001.
- Respondents are, on average, very familiar with maps. All were comfortable using maps for directions. 90% were comfortable using them for general reference, viewing statistical information, and getting weather forecasts. Only 60% were comfortable using them for terrain information.
- 90% of respondents prefer screen over paper for information.
- 77% of respondents find new technology *exciting*, as opposed to *distressing*.

### City Actions

- Consider testing an interactive map that features numerical information, such as accident hotspots or demographic data.
- If a need is found to display topography / terrain maps, take care to design it for maximum understanding. Provide clear and explicit directions and plenty of opportunities for learning how to use elevation contours. Use cartographic techniques like elevation tints and hill-shading to make contours less quantitative and more visual.
- Promote a higher profile for maps on the City's web site, ensure that user access is through more than one link, and the maps are discoverable through search engines.

## 2.2 Issues Resolved

Issue	Resolution
Participants ignored the "I want to" menu and the toolbar toggle (open/close) button until prompted	<ul style="list-style-type: none"> <li>• Set the Toolbar open by default</li> <li>• Colored the toolbar toggle button and the "I want to..." menu button dark red to match the application header bar.</li> </ul>
Participants didn't know to click on the Identify Tool to get information on map items.	<ul style="list-style-type: none"> <li>• Made identify active by default, to remain active throughout. So that whenever the user clicks on the map, they get the identify information.</li> </ul>
Participants thought they were accessing the legend when they got the layers list (for turning layers on and off)	<ul style="list-style-type: none"> <li>• Display legend when clicking on the layer icon, making the layer list accessible by clicking another button that is only shown when the legend is open.</li> </ul>
Participants did not see the tip bar at the bottom.	<ul style="list-style-type: none"> <li>• Colored the tip bar highlight yellow – bright enough to draw attention, but not especially distracting.</li> </ul>
Some map symbols were unclear or conflicted with those used on the base.	<ul style="list-style-type: none"> <li>• Made various cartographic improvements</li> </ul>
Some information was missing from the details that is currently available in the database	<ul style="list-style-type: none"> <li>• Added fields from the database, where available and needed.</li> </ul>
A number of bugs were identified	<ul style="list-style-type: none"> <li>• Bugs fixed as quickly as possible.</li> </ul>
A number of usability issues with the global search box were found	<ul style="list-style-type: none"> <li>• Over time, the behavior of the global search has evolved and is considerably more usable than when testing began.</li> </ul>
A few apparent data inconsistencies were noted.	<ul style="list-style-type: none"> <li>• A list of data questions is being maintained and researched.</li> </ul>

## 2.3 Participant Observations (in-person and online)

General
<p><b>Observations</b></p> <ul style="list-style-type: none"><li>• Testers generally found the test maps helpful and easy to use. Users liked the responsiveness and speed of the map interaction. One user noted that the map seemed "poky" on iPad.</li><li>• Testers were most interested in information about their homes and property. Others were interested in specific large City projects, such as the Waterfront, or educational facilities. A few users were interested in information relating to Planning regulations such as Zoning and Historic details. One user found the sewer map "fascinating."</li><li>• A number of testers asked for more text on the interface and the map – more descriptions of tools, more labels, more directions, more explanations.</li><li>• Testers wanted a more clear sense of what information could be retrieved from the map - they often discovered certain pieces of information were available by accident.</li><li>• Some testers asked for a more wizard-like set of questions that would walk the user through common operations, such as retrieving a tax map.</li><li>• A portion of testers had difficulty differentiating interactive elements from static elements (items on the screen that don't respond to clicks or hovers) and documents (such as Adobe PDFs).</li><li>• Some testers confused about which viewer would have the information they were looking for.</li></ul>
<p><b>City Actions (General)</b></p> <ul style="list-style-type: none"><li>• Provide more descriptive information on the interactive mapping page to enable a user to better understand what he/she can accomplish with each map.</li><li>• Provide more detailed and descriptive help in the "Tips" panel</li><li>• Use more descriptive language for search prompts and button text.</li><li>• Create more wizard-like operations that guide the user through steps, and consider linking these wizards from a common panel that displays on load.</li><li>• Better separate and identify links to PDF documents and use text and graphics to alert the user that loading the document will open a new, separate window.</li><li>• Investigate performance / speed issues in mobile environments</li></ul>

### **Map Requests**

- Master street map for Alexandria that has all of the roads (for plowing/leaf pickup)
- Locations and nature of all crimes in the city
- Watershed IDs for the City of Alexandria; serial numbers
- Bike Paths/Pedestrian Paths/One-way streets
- School Divisions
- Hospitals
- Parks & Recreation / Dog parks
- Schools / School System
- Links to historical documents such as titles
- Proposals before City Council highlighted on a map

### **City Actions**

- A targeted interactive map to help residents understand their plowing, leaf-pickup, and trash collection zones by street is under development, to be released in Fall 2014.
- A targeted interactive map with Bike / Pedestrian facilities and routes is planned, and will likely be informed by the Bike / Pedestrian Master Planning process.
- The potential for interactive maps of School Divisions, Crimes, and watershed IDs will be discussed with the relevant departments - additional information will be provided in the Final report.
- An interactive map that displays parks and recreation facilities is planned for this Fall, and will be available for testing later this Summer.
- An interactive map that integrates historical property details is planned for this Winter.
- We will investigate the potential for a community engagement map (or similar) that highlights opportunities for participation, especially those that are going before council.

## Searching

### Observations

- First Search
  - Approximately 30% first searched for their homes by address
  - Approximately 15% first searched for a major development project
  - Some searched for a specific business or school
  - A number of users immediately started to interact and zoom with the map, but their interest in zooming quickly waned, as they didn't tend to zoom to the lowest level of the map, where the greatest detail is revealed.
- Global Search Box
  - Users entered Google-like searches into the global search box that did not yield results, e.g., "Sewers near W. Mt. Ida," "SUPs on Mt. Vernon" and "Fairfax and King." The search is currently more like a key word search, and doesn't have as much semantic handling as Google or Bing.
  - The global search box is too sensitive to misspellings, e.g., "Common Wealth ave" returned zero results.
  - Some addresses that work in the global search box don't work in the Find By Address search (e.g., "200 North Pickett")
  - Quite a few users typed a street name into the search box (e.g., "Dove street") and were expecting to just zoom to that street.

### City Actions

- A type-ahead feature will be added to the global search box so that users can get immediate feedback about whether what they're entering is in the database. This approach will be usability tested and compared with the current "free type" approach.
- We will consider some additional options for adding "fuzzy" rules to make the search more tolerant to misspellings.
- Ensure that street name searches return the street as the first response
- Resolve all address-related search bugs.

## Interacting with the map

### Observations

- Zoom tools are not readily apparent, and to at least one user seemed missing from the toolbar.
- When you do use it on mobile, the map drifts.
- Many users navigated to their area of interest using pan and zoom tools. Users varied in their navigation approaches. Some needed to see the city boundary as a whole to begin navigating, while others just needed to follow the street patterns.
- The legend is hidden.
- The address search dot is not prominent – testers lose the location.
- Most testers understood how to pan and zoom around the map, but one user did request that the map provide directions for how to do that.
- The measurement tool failed to report a result for some testers.
- One tester expected that clicking on the permit location point would bring him/her to the actual document, rather than the summary information with a link, requiring an additional click.
- Identifying on a point or line (e.g., SUPs in the Planning viewer and sewers in Sewer Viewer) is difficult – if the user misses a point by too much, the details won't appear.
- Bookmarks
  - Many testers did not understand the bookmarks concept or icon. The bookmarks are named areas (with no explicit boundaries) around the City that the user can zoom to.
  - One tester who understood the bookmarks requested that we add small area plans to the bookmarks.
  - One tester found it odd that the bookmarks didn't highlight the boundaries.
  - One tester found some inaccuracies in the bookmark extents
  - One tester liked the bookmarks, but requested that the boundaries for the areas be displayed.

### **City Actions (Interacting with the Map)**

- The legend will be displayed by default, but the user will still be able to close to recover map real estate. Consider adding a message that tells the user where to find the legend, in case he/she would like to reopen it. The legend, as the key to the map interpretation, should be displayed or readily accessible at all times.
- Show the full City boundary when the map loads, as this is likely the best compromise between those who navigate by streets and those who navigate by broader areas.
- Replace the address search dot with a more attention-drawing symbol, such as a large pin or Google-like balloon.
- Investigate and resolve all measurement bugs / errors.
- Take steps to increase testing on mobile devices, and will investigate the "map drift" issue on various devices, in an effort to recreate and resolve it.
- User expectations with regard to zoom tools are somewhat in flux as we move from older style interactive map approaches to newer ones (similar to Google and Bing maps). Continue to test zoom and pan tools to determine whether pan and zoom buttons are needed in the toolbar, or elsewhere besides the map itself.
- The bookmarks are generalized areas with fuzzy boundaries, however the potential for adding neighborhood boundaries (which are also overlapping an fuzzy at places) is currently being investigated).
- Resolve bookmark errors and redesign the icon, then retest the bookmarks feature to assess its usefulness.
- Monitor future tests for user expectations with regard to document access to determine whether the users are using the summary information for document links.
- Increase the "click tolerance" of the Identify tool – making it more forgiving of 'fat thumbs'.

## Map Behavior

### Observations

- Testers were at times frustrated by the lack of *Clear* and *Refresh* tools.
- Testers often cannot figure out what some buttons do. Sometimes the “tooltip,” the hint that describes what the button does, will not pop up when the user hovers over a button.
- Back arrow takes user out of the application to the previous site – at least one user expected it to take him/her to the previous search.
- Identify interferes with pan on the phone.
- A few users expected the legend to be interactive, so that when they clicked on the symbol swatches, everything in the map of that type would be highlighted.
- When a search of any kind returns zero results, one user expressed that he/she expected to be taken back to the search input, not to an empty results panel.
- On the phone, there should be more directions for how to navigate to and from the map.
- The point highlight returned by address searches in the global search box is not well highlighted and disappears into the background.
- One user expressed concern that the maps available for testing might be separating the information into information silos, and requested that the user be able to choose from an array of information types to layer into the map.
- Return to the initial map view confusing – location / extent seems arbitrary – participants requested that the map start with the full City extent, then offer zoom.
- A majority of users did not understand the button tabs in the information panel; i.e., they could not discern the meaning of the layers icon, search icon, home icon.
- Generating a PDF of a map did not work on Chrome, but did work on Internet Explorer.

### **City Actions (Map Behavior)**

- The map does have a “Clear Map” tool, but it also needs something to refresh the Information Panel.
- Take a more intentional approach to controlling how the application responds to the user clicking the back arrow.
- Redesign search behavior to return the user to the input when there are no results. This approach is the better practice.
- The standard interactive map legend is just a static image explaining symbols. However, creating an interactive legend has been added to the enhancements list – and could certainly be a very unique and effective tool for adding the interactivity of the map.
- All icons will display a description of what it does when the user hovers over it (in the desktop/laptop environment)
- Evaluate alternatives for the map button icon on the phone map tab. It currently uses a global map, which may be confusing to some in a local government context.
- Investigate the feasibility of ranking search results by interest level.
- Change the icons on the button tabs in the information panel and retest to determine if further usability changes are needed.
- Include custom map building (or the ability to display multiple maps together on the same base) as a potential enhancement. It is important to note that many more maps will be available than what is currently be tested, and some information will be available in multiple maps. E.g., Dog Parks may be displayed in a simple map embedded on the Dog Parks page, and also as part of a Parks & Recreation Viewer.
- Add browser-targeted help to make sure that the user can disable pop-up blockers so that the PDF / print function can work.

## Map Design / Cartography

### Observations

- A few testers noticed that the map changed as they zoomed in, and were surprised by the new information that appeared as they zoomed in. One tester remarked that it would be helpful for the user to have some indication of what is available to see in the map.
- Testers became disoriented and tried to pan away from the start extent of the maps to find something familiar. The start extents seem arbitrary to some testers who stated a preference for the full City view.
- Labels seem missing in places and don't differentiate types of items in the map. E.g., metro stations need labels.
- Street names on the aerial photos
- On the Sewer map, the legend needs to distinguish better between combined and sanitary sewers.
- One tester thought that because we used grey for buildings that signaled that they were not clickable (i.e., no information would be displayed if he/she clicked on it).
- One tester requested that we move the Zoning information from the Parcel Viewer to the Planning & Development Viewer. Another tester felt that the Zoning was actually more like base data than an overlay.
- One tester said that the Zoning Overlay was too opaque – he/she was not able to read street names.
- The sewer map is difficult to understand - one user questioned where/how it enters the house. There's not enough difference in color between 'combined' and 'sanitary.'
- SUP (Special Use Permit) dots look like “one big blob” at certain scales, and it isn't clear what the “S” in a circle means.
- One tester found it confusing that parcels were colored differently in the “Land Information” map versus in the basemap.
- One tester requested topography/terrain details on the sewer map.
- A few users requested a compass rose on the map, to display the direction of North.
- One tester felt that the parcels were not well outlined on the parcel map.
- One tester said that he/she felt like all layers like satellite view, zoning, etc, should be on by default so the user can deselect what he/she doesn't need/want.
- Multiple users were looking for the satellite view and needed to be pointed in the right direction – in the “I want to” menu. One user found this approach “way too cumbersome.”

**City Actions (Map Design)**

- Add some additional text in the Info Panel (or elsewhere) that answers the question, “What can I see in this map?”
- Load each map at a scale that shows enough of the City boundary to orient those who need it for orientation.
- Consider a different treatment of the optional layers. Turning them all on would add too much visual complexity to the map. But a greater array of basemap alternatives could be enabled – e.g., street map, “satellite”, and zoning. Users are familiar with selecting basemaps from their experiences with Google and Bing Maps.
- Terrain and topography information will be added to the sewer map. The need for a potential terrain topography map is also being investigated.
- Consider changing the color of the buildings in the basemap to a color other than grey, because grey is a cue to users that the object is not clickable.
- A compass rose / north arrow will be added to the design, to display the direction of north (especially helpful on mobile, where maps aren’t always oriented north – e.g., when in GPS mode maps will sometimes follow the user orientation).
- We will be reviewing all cartography, including these specific issues, and making considerable changes to improve the map legibility and utility. Making the maps clear and easy to read is very important to the success of these applications.

## Getting information from the map

### Observations

- The maps show the users where things are, but don't actually provide the information details that most users are after (e.g., Special Use Permits – no conditions are listed, no business names, etc.)
- When the identify tool is not turned on by default, the majority of users have a difficult time retrieving information about specific items on the map. Only a few found the identify tool and could figure out what it did. Most expected the map to be clickable without selecting a tool.
- Testers were wanted information about what the zoning codes mean.
- For the Planning & Development Viewer map, testers requested links to the actual project sites. Testers wanted more detailed information on the projects including the actual plans and activities.
- Searches by Id's are not useful, e.g., Plat ID's, because these are database terms that the public will probably not have.
- Testers want to get information on business – e.g., SUP conditions – by business name, but there are no business name searches.
- The "score" values returned from address and intersection searches are confusing. One tester even wondered whether it might be a value judgment on his/her property.
- Fire station search and Identify results are missing the address.
- Some of the terms used, such as "Plat," are not readily understood.
- Only a small percentage of testers used the searches in the "I want to..." menu and those who did so only used the address searches.
- One tester suggested including information for renters on the parcel map, wanting to see links to apartment websites from the map.
- One tester requested that the Planning and Development viewer somehow highlight the projects going before council, so that the public can see which are more active than others, presumably looking for opportunities for input and participation.
- One tester used the Tax Map numbers to pull up information.
- One tester requested a "side elevation" of the property
- One tester requested historic information on properties.
- When a user searches for an address on a parcel that has multiple addresses, it's not clear that the address found is one of multiple. E.g., 211 Yoakum – there are 5 buildings, each with its own address.
- One user requested that the distance measure tool be standard on all maps.
- One tester noticed that we were missing links at the top back to the City home page.

### **City Actions (Getting Information)**

- Create a roadmap for adding more details (or links to details) from each map, so that users can answer their key questions without further searching (either on our site, or on a search engine).
- Ensure that maps are clickable by default, i.e., users can click items and get details.
- Investigate potential ways to bring business searches into the maps.
- Remove scores from address searches – they only indicate the quality of the search result.
- Add the address to the Fire Station results.
- Use the long name “Subdivision Plat” instead of “Plat” where possible, and look for alternative wordings that are clearer.
- Look for ways to highlight the “I want to...” menu, and reduce the list of items to draw focus on a few key tasks.
- Link to, or perhaps integrate, Google Street View, so that testers can see properties from the side (the street side).
- Add links at the top back to the City home page, and other relevant links in the website.
- Add the distance measure tool to all maps.
- Investigate ways to help users visualize the complex relationship that may exist between parcel boundaries, buildings, and addresses.
- We will look into some display options that will highlight more active data and enable older projects and activities to recede into the background, both in the maps and in the lists and tables.

### **Problems with External Systems**

#### **Observations**

- Document Imaging
  - Did look at plats for another property but could not get correct plat.
  - The documents load sideways sometimes. Other times, the first page that appears is something that appears random (e.g., a folder tab scan)
  - The page numbers that appear at the bottom take while to locate, so it's not immediately clear that the page that loads is just one of multiple.
  - Laserfische load times are too long
  - Finding the print function was difficult

#### **City Actions**

- The City will be upgrading its document imaging system (LaserFische) in the coming months. As we configure it we'll consider the above input and try to resolve the existing usability options, where possible. We expect the upgrade to address the majority of usability issues; however, we will forward any remaining usability concerns to LaserFische for possible resolution as part of a future release.

## Concerns expressed

### Observations

- The detail on the aerial photographs that the City are more detailed than those available on the Google and Bing satellite maps (but less detailed than information available on Google Street View). Also, the identify information provides owner name and property details. A few users raised privacy concerns.
- A few testers were concerned about the geolocation feature – the application asks for your current location when in mobile. They were concerned about the City's interest in their location.
- The role of Google and / or Bing maps
  - One tester said that he/she would not use the City's interactive maps because he/she would just use Google maps.
  - One tester said that he/she liked that Google maps provide the business names, but went on to acknowledge that the City maps provide information not available on Google Maps

### City Actions

- Consider providing an explanatory page / popup before displaying the map that covers the following:
  - Why the application is asking for location information on mobile devices
  - Clarify that location information is not accessed or stored by the City of Alexandria, only the browser on the mobile device
- All information displayed on the test maps is already public information. The tests provide no greater level of detail than the information provided in the existing tools, which have been available for a little over 10 years. Nonetheless, ensure that the map agrees with City electronic privacy policies and more directly gauge the public concern for specific types of information access.
- City of Alexandria maps do not overlap very much with Google Maps, because the types of information available from the City databases would not be shared with Google for reasons of privacy, efficiency, and timeliness. However, opportunities for Google and Bing maps integration should be researched and tested.