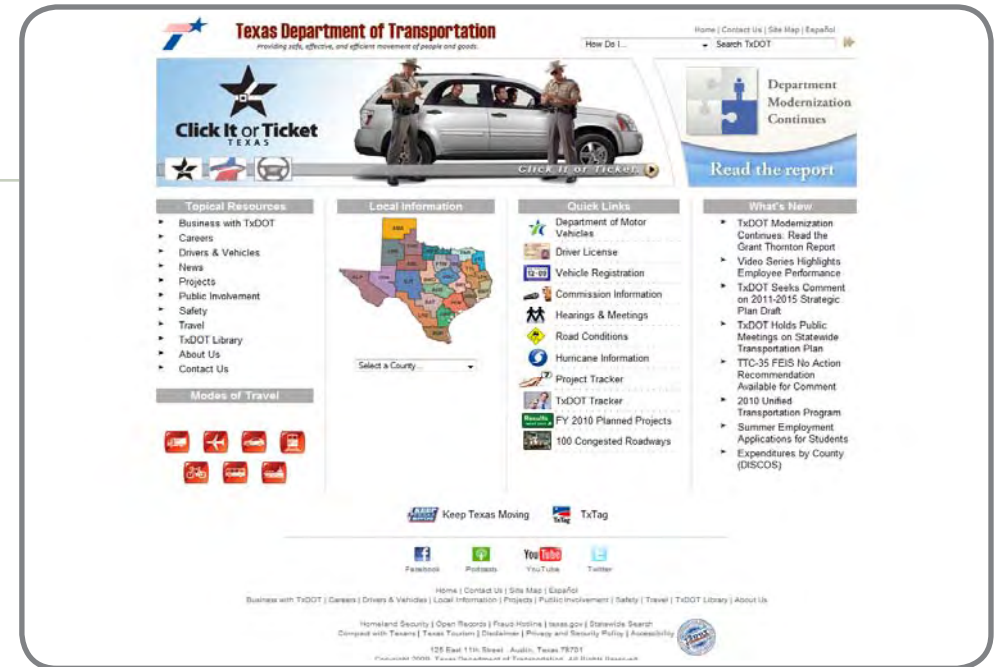July 2010

TxDOT Website Analysis and Evaluation Project

Part 4: Website Audit

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Executive Summary

A site audit, or heuristic evaluation, is a key step towards assessing the effectiveness of the Texas Department of Transportation's (TxDOT) website. After a successful understanding of the stakeholder vision, definition of personas (user profiles), identification of common user tasks, and an analysis of web usage logs, this exercise underscores those insights by offering an in-depth analysis of the existing website.

Using the guidelines developed by Jakob Nielsen, two industry experts assumed the role of the identified profiles to conduct a detailed walk-through of the key pages of www.txdot.gov (according to the web logs), along with a brief comparison with the websites of California and New York City Department of Transportation. The organizational vision was also kept in mind while doing this walkthrough, which included: creating an information resource with great user experience, significantly increasing online usage, and reducing support costs.

This evaluation is intended to identify strengths and weaknesses of the site from a designer's perspective. These findings coupled with actual usability testing results should give a fair idea of the efficacy of the website.

Key findings were documented with a description and severity rating to prioritize the needs of the site, and where possible, recommendations were proposed to address prominent issues.

Overall, the TxDOT website contains an extraordinary amount of information. The site is organized in a very information-centric manner, instead of being task focused. Therefore, the site is largely usable but not entirely efficient in completing common of tasks.

While a user familiar with the site may be able to navigate to the appropriate page easily, new users may require more effort in navigating the site. The categorization on the site needs to be put in an actionable format rather than the directory-like format of listing links and information. Refreshing the visual design of the site will also better communicate the TXDOT brand, along with giving it a contemporary look.

Priority Ratings

Each problem or issue that was identified has been given a rating by the evaluators in order to help prioritize further changes and updates to the websites. The ratings are given on a scale of one to four as follows:

[!] A problem that should be addressed immediately

[1] A major problem that should be fixed

[2] A problem that could cause some user confusion or dissatisfaction

[3] A minor or aesthetic problem

[#] Items in gray text indicate issues that were found on multiple pages

[R] A strategic recommendation that will considerably enhance user satisfaction

[-] An observation that may require further investigation

[+] Positive observation

Top Findings

Website Strengths

[+] The Search Engine Optimization (SEO) keyword strategy seems to be sound.

[+] Time has clearly been taken to categorize and compartmentalize the information on the site.

[+] The navigation menus and link names generally align with page titles.

Information Architecture

[1] The site serves partly as a portal to other state agencies and partly as a resource for users with TxDOT-specific questions. The homepage (and additional content pages) should be organized by common tasks rather than subject or content-types.

[1] There is no clear call to action (completing common tasks or answering FAQs) on most pages, and instead a list of links is displayed in the main content area, which duplicates the links already present on the local navigation menu.

[1] The left navigation menu is overloaded and holds as many as 1,000 links. The number of links found on the left menu should not exceed 100.

[1] Links to third-party sites should be marked consistently with icons, as they will take users away from the site.

Visual Design

[1] The excessive use of drop-downs in the local navigation menu is somewhat confusing and hard to maneuver. When selecting a page that can be seen under more than one section, the previous navigation labels are lost.   (From the "Public Involvement" page, if a user selects "Texas Transportation Commission," they are taken to the "About Us" page and the "Public Involvement" navigation menu disappears).

[1] "TxDOT Expressway" is an outdated page, and it does not have the same visual design as the other TxDOT pages.

[1] With the exception of the homepage, the look and feel of the site — graphical elements, page layout, and colors — should be made more contemporary.

[1] Using graphical elements and including sub-headings within text, would enable users to scan the content more easily.

Functionality

[!] The website should be designed for a default resolution of 1024x768 pixels, and should degrade gracefully at lower resolutions. As a user expands their screen, the content should fill more of the screen (an example and further explanation of this can be found at: http://www.w3.org/TR/WCAG-TECHS/G146.html)

[1] Important tasks require 2-4 clicks to find appropriate forms. There is often an "information" page before a user is presented with the form or action they need, which can be added to the form page. (For example, Project Tracker has an unnecessary information page)

[1] Many of the forms and informational pages contained within TxDOT are PDFs, which are hard to access, update, and search for. Migrating these to html pages would improve the accessibility of these pages.

Help and Documentation

[!] Investing in a good content management system (CMS) will considerably ease maintenance of the site.

[1] There is no online "help" section to speak of other than an FAQ section and contact form. Considering the breadth and depth of this site, there should be online help support in place, especially to guide filling complex forms.

[1] A comprehensive social networking strategy for Facebook, Twitter and other outlets should be continued. Twitter accounts exist for local districts, but they should be made more prominent.

Sitemap (Isometric)

Website Statistics*

*Statistics according to SortSite software, June 30, 2010

- Total number of pages tracked (as a sample of the larger site): 3937

- Total number of links to other sites: 1047

- Number of PDFs: 499

- Broken links: 233

- Pages with 501 accessibility issues, (which would be hard to access for users with vision, mobility, and hearing impairments): 242

- Pages not compliant with W3C standards (missing alt text and header tags, among other things, make it difficult for screen readers to properly parse and render content): 581.

- Pages with cross-browser compatibility issues (page renders itself differently depending on the browser: Internet Explorer, Firefox, Safari, etc): 84
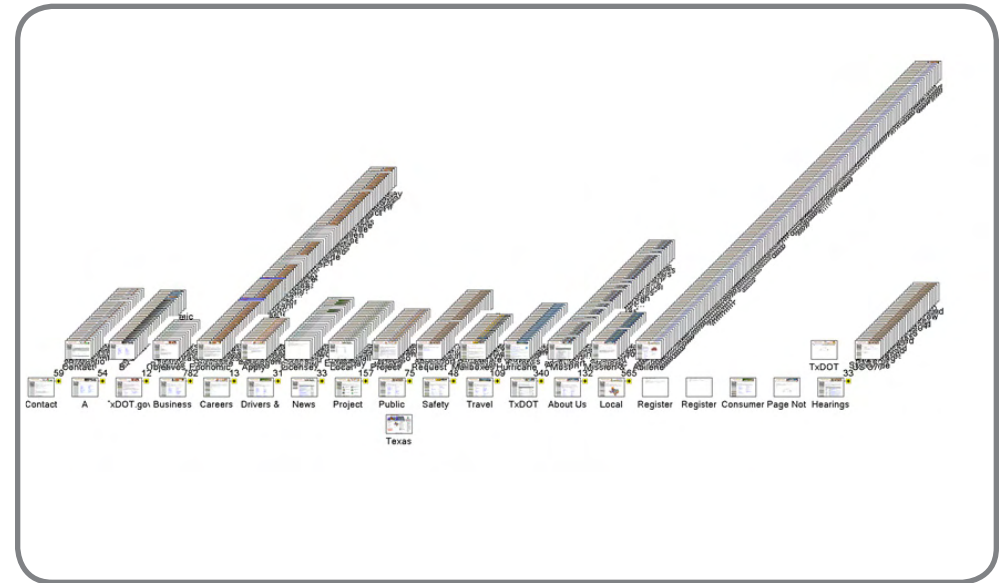
Sitemap (Skyscraper)

Observations

- The site is extensively broad and deep. The categorization schema should be validated with a card sort exercise, which may help reclassify outlying information narrow the breadth of the site.

- Conducting a content inventory is another useful exercise that could combine pages and discard less useful ones.

- There are many broken links leading to 404s on the site. They should be identified and fixed immediately.

- Browsing the site alone cannot reveal all the information, especially if it is rarely accessed. The search function within the TxDOT site needs to be made more robust by using filtering mechanisms and optimizing indexing.
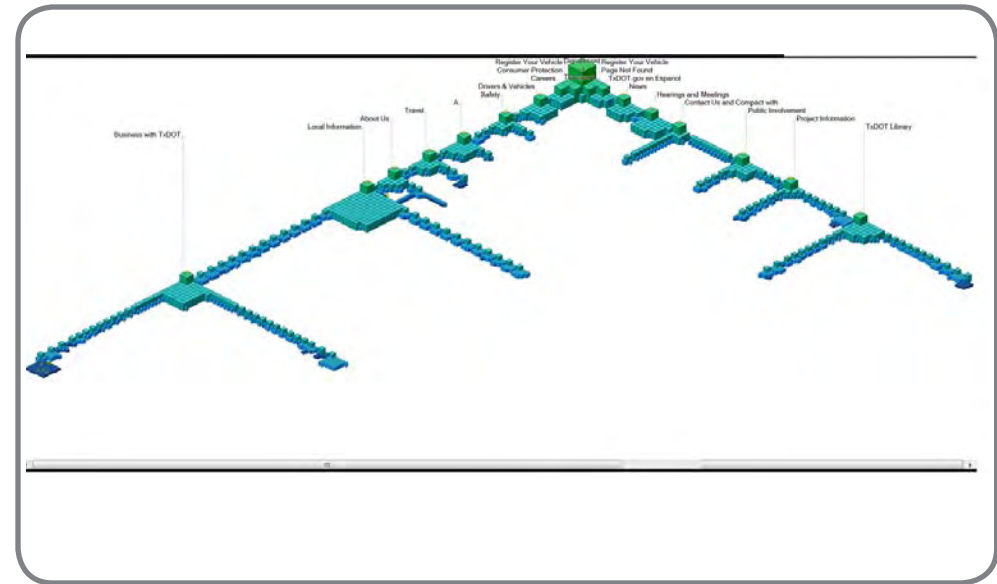
Global-level Findings

Information Architecture

[!] No tasks are currently available from the homepage; only by clicking thru to subsequent pages do tasks appear. For example, the user must navigate through "Home > Business > Doing Business > Selling to TxDOT" before a task or form is available.

[!] Most category pages look like a directory of links, duplicated from the local navigation menu. The main content area should be used for more contextual information, such as common tasks, FAQs, or popular forms.

[1] Third-party sites are inconsistent in execution. Only when exiting to Texas DMV, DPS, or Twitter feeds is the user asked to confirm the action, which may be unnecessarily obtrusive.

[2] The global navigation changes from the home page to other pages. "Contact Us" is replaced with "Local Information." Globally persistent links should remain constant throughout the site.

[2] The site is exceedingly broad and deep, covering a large amount of information. As a result, many content pages contain an excessive number of links, which is overwhelming for the user.

[2] Most of the local navigation menus on content pages do not seem to be organized in any specific order.

[3] When selecting a 3rd level page from the local navigation menu, only the menu heading becomes highlighted, and not the actual link within it. For example, when selecting "Travel > Travel by Land > Rest Areas" only "Travel by Land" is highlighted, rather than "Rest Areas."

[4] Some of the local navigation menus contain only one content page (Rail, Aviation) and their drop-down lists have only a single item. There should be a way to balance the display.

[+] Time has clearly been taken to compartmentalize and categorize this site.

Global-level Findings, Cont'd

Visual Design

[1] The homepage is visually distinct (more aesthetically pleasing) than the rest of the site. For instance, the menu options on the content pages follow a pattern of burgundy, beige, and gray background colors, but the homepage follows a more neutral color scheme with gray and white.

[2] The icons and graphics used throughout the site should have a similar look and feel.

[3] Clicking on the main headings in the local navigation menu only reveals its sub-headings, rather than changing the information in the main content area.

[+] The logo and pictures that appear at the top of each page are consistent with the branding, and the images usually align with the content-matter of each page.

Language and Content

[2] Most TxDOT projects are internally named, and users may not be familiar with these labels. ("Vision 21" under Motor Vehicle Dealers, "Prop12" on the home page).

[3] Dialogues are text-heavy and would benefit from supporting images where applicable.

[+] Navigation labels and page titles are consistent.

Functionality

[!] The website should be designed for a default resolution of 1024x768 pixels, and should degrade gracefully at lower resolutions. As a user expands their screen, the content should fill more of the screen (an example and further explanation of this can be found at: http://www.w3.org/TR/WCAG-TECHS/G146.html)

[!] Maintaining such an extensive site requires a sophisticated content management system (CMS). It will help distribute maintenance of the site more efficiently, remove broken links and expired pages and switch to new templates easily.

[1] Online forms and reports are accessible only in PDF. The site would be more accessible and easy to update if PDFs were used only for multi-page reports.

[1] The mechanism for exiting to third-party sites is inconsistently followed. Sometimes the user is asked to confirm their exit from TxDOT, and sometimes no confirmation is necessary.

[2] The search box should be consistently placed at top right corner of the site.

[2] When exiting to a third-party site, a new window opens, which is cumbersome for the user because it disables the "back" button of the browser.

[R] A comprehensive social networking strategy for Facebook, Twitter and other outlets should be continued. Twitter accounts exist for local districts, but they should be made more prominent.

Help and Documentation

[!] There is no "help" section to speak of other than an FAQ section and contact form. Considering the breadth and depth of this site, there should be an online help strategy in place, especially to guide filling complex forms.

[1] The "How do I…" box in the top right of the homepage provides helpful action-oriented tasks, but may get obscured by the content-heavy home page.

Error Recovery

[+] Error messages generally appear in clear and user-friendly language.

[+] The error message references the problem with the same language used on the form or webpage that delivered the error so it can be recovered.

Accessibility (not in scope)

[2] Based on website statistics run by Sort Site, not all pages meet Section 508 standards for accessibility.

[2] Sort Site also found that not all of the pages are WC3 compliant.

[3] Resizing the text should be a global option on all pages.

Search Engine Optimization

[+] When using common search terms such as "Texas transportation, Texas road, Texas road safety, Texas drivers" the TxDOT site was within the first 5 search results.

[+] Metadata on most pages is exhaustive and aligns with the information covered on that page, as well as the larger TxDOT mission.

Page-level Findings

Home

[!] The homepage should be organized by tasks or actions, rather than a directory of links. Making the options under the "How do I…" drop down menu a more integral part of this page could offer concrete starting points for users. (A)

[!] The user goal appears to be "find information on _____ topic." Action-oriented wordings of tasks like "How do I register my Vehicle" or "Find Traffic Alerts" would be more helpful.

[1] Third-party sites under "Quick Links" should be marked explicitly, as they will take users away from the site. (C)

[2] The hyperlinks should be treated differently than plain text, and a hover effect for links would reinforce clickability. For example, the linked and static text under "Quick Links" looks identical. (B)

[3] The icons under "Modes of Travel" are obvious, but their purpose is not always clear. The user needs more context about what is contained behind these links. (D)

[3] The graphical elements next to the "Quick Links" add an aesthetic element to the page, but do little to clarify the information found behind each of those links. (E)

[3] The map of Texas appears to be static and not interactive. Making it larger with a hover effect on each district is recommended. (F)

[3] The "What's New" section occupies real estate disproportionate to its usefulness. It can be made smaller with a link to more updates. (G)
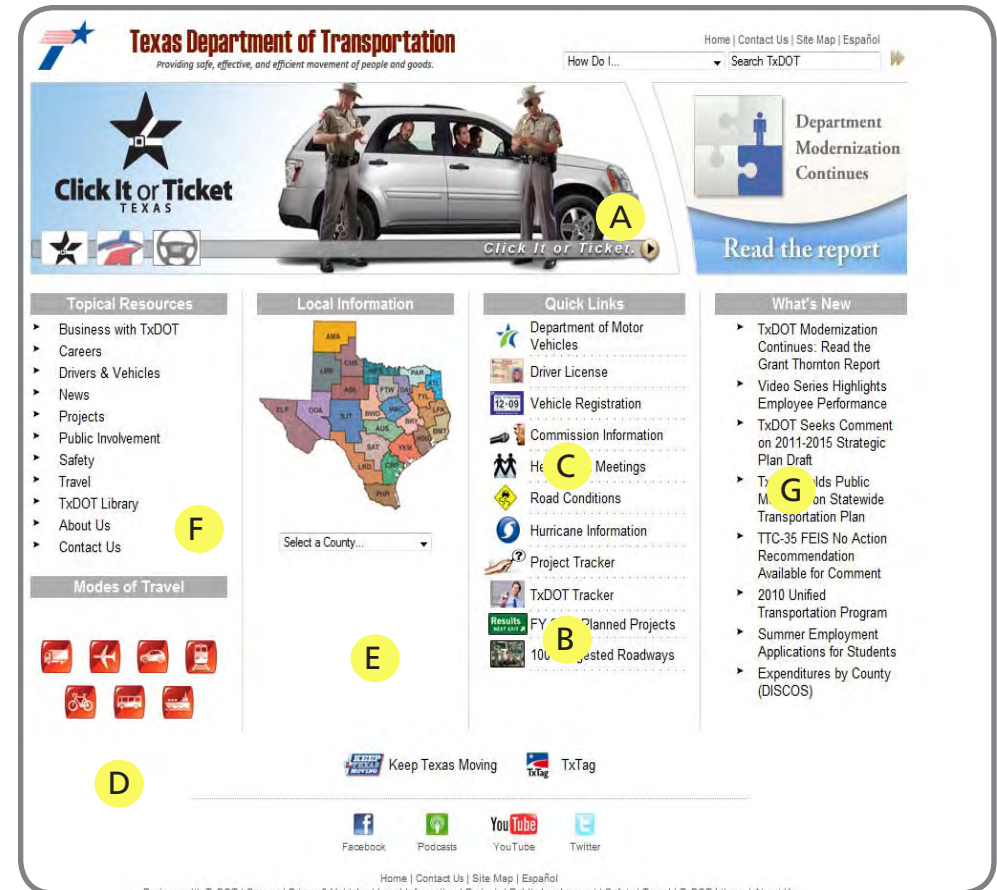
Home, Continued

[3] There is a dependence on acronyms under the "What's New" section (TTC-35 FEIS, DISCOS). Explanations for these terms should be provided. (H)

[3] The search box should be more prominent on the homepage, considering the extensiveness of this site and the users' dependence on search. (I)

[4] There is no clear time stamp for when the last update was applied to the page. However, the dates on each News topic are from 2010, which is a good start.

[4] The four-column page layout is not an efficient use of space, nor does it lend itself well to separating more important content from less important information. The map and "What's New" section could be pushed to the right hand side of the page, while the main content area could be made wider to focus on important user tasks. (J)

[+] The homepage is structured in an up-to-date and aesthetically pleasing way.

Business with TxDOT

[!] The main content page duplicates links already available in the local navigation. The main content area should highlight common tasks, FAQs, or popular forms. (A)

[1] Some links take the user to out-dated pages within the TxDOT domain that do not follow the page conventions, layout, or branding of the rest of the site. (Business with TxDOT> Contractors/Consultants > Specifications leads to the TxDOT Expressway).

[2] Many links appear as html pages, but a PDF is loaded instead. This is often a lengthy process, with no warning that a PDF is being loaded. A PDF icon next to the link should be displayed.

[2] The user is referred to the sitemap or asked to contact TxDOT if the information they need is not found on the "Business with TxDOT" section. Additional online support may be more appropriate. (B)

[3] The menu labels and language is overly formal and TxDOT-oriented. For example, under "Business with TxDOT > Doing Business > Auctions and Sales," the opening text reads: "The TFC has the statutory responsibility for the disposition of surplus personal property items from state agencies."

[3] The local navigation menu does not seem to be organized in any specific order.

Business with TxDOT, Continued

[3] Some local navigation menu items have only one page option. The user is required to click first on the menu label, and then again when the drop-down is provided, which is unnecessary when there is only a single option.

[3] Only the menu heading is highlighted and not the option within it when clicked. (C)

[3] The menu item highlighted in the navigation side bar does not always correlate to the content displayed in the main page area. (Contractors > Environmental Information, Contractors > Materials).

[3] Third-party sites are not distinguished from TxDOT sites. The intermediary page confirming the user wishes to leave TxDOT does not always appear; this confirmation should be consistent. (Doing Business > Business with State of Texas.)

[4] Clicking on a local navigation choice only reveals its sub-headings, rather than changing the information in the main content area. The expected feedback is for the main content area to change relative to the menu selected. (D)

[4] The structure and visual design is consistent with the rest of the content pages, but it differs from the homepage in color scheme and layout. At minimum the global elements like "How do I…" and "Search" should be consistently located.

[+] Most of the information in content pages is organized with bullets and subheadings, which improves the readability of the dialogues. (E)
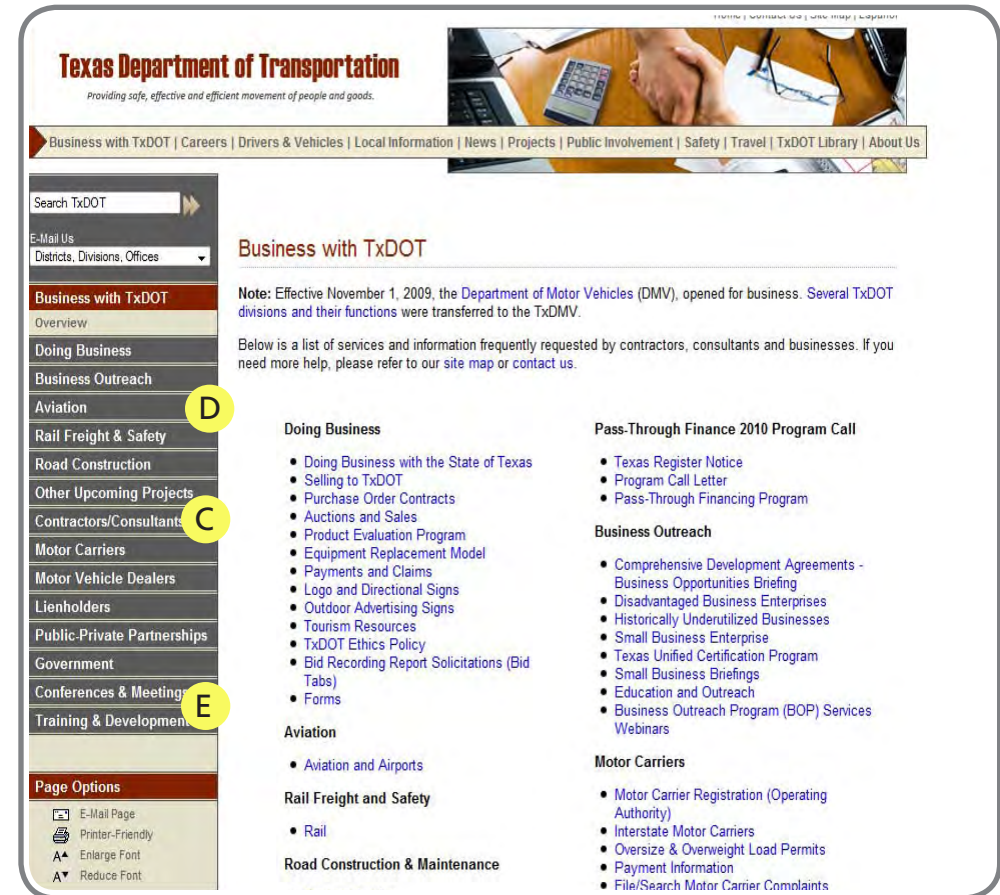
Careers

[1] The user is taken to the TxDOT HR page to apply for a job, which follows a different visual design and page layout than the main page. It is hard to tell whether the user is still within the TxDOT domain.

[2] The "Employee Benefits" page has no clear information hierarchy. This page is of exceeding importance among prospective hires and should be restructured.

[3] "Employee Self Service" is an ambiguous menu label and does not align with the tasks associated with it (looking for jobs within the TxDOT system). (A)

[3] The "Related Links" page provides a list of four links that are somehow related to careers with TxDOT, but no textual explanation is provided about what information is found behind those links. (B)

[3] When clicking on "Job Offices" and "Job Cities" within the job listing, the user is sometimes returned to the same job listing. "Job Offices" and "Job Cities" should only be listed as links when necessary.

[4] The instructions for applying via a "Paper Application" are not clear. (C)

[4] The language used in the application instructions: "Please note that any resumes, references, letters of recommendation, training certificates, or other attachments are removed from the application and destroyed" is somewhat awkward.

[4] Some links take the user to out-dated pages within the TxDOT domain that do not follow the page conventions, layout, or branding present in the rest of the site. (Careers >Job Listings > Job Title).
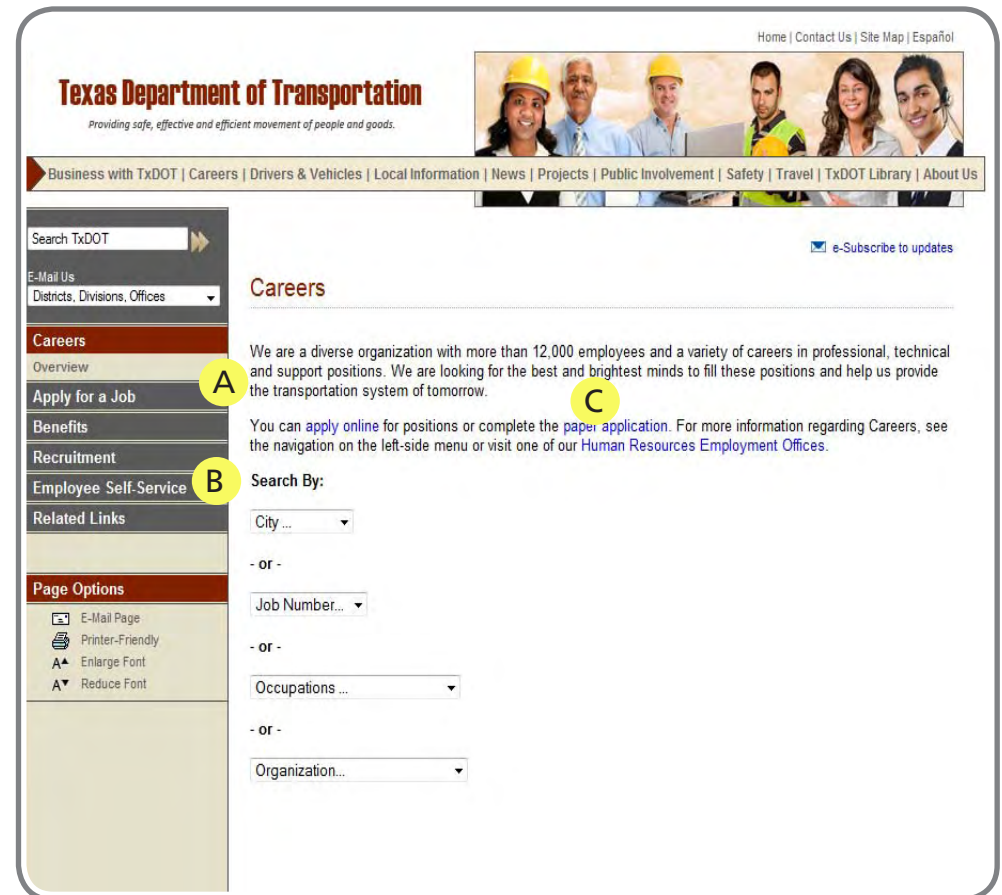
Drivers and Vehicles

[1] The "Find a Ride" page has an inactive form. Upon selecting a county or category of transportation, the page does not change or provide feedback.

[3] On the "Crash Report" page, the main call to action (Request a Report) is buried below the fold. The link to request a report should be moved towards the top of the page.

[!] Like other pages, the main content area looks like a directory of links. The main content area should be used for more contextual information, such as common tasks, FAQs, or popular forms. (A)

[1] Almost every link under "Drivers and Vehicles" directs the user to a third-party site, specifically the Texas Department of Motor Vehicles. Third-party sites should be identified consistently throughout the site. (B)

News

[1] Clicking on "Statewide Media Contacts" from the News section takes the user to a page titled "Government and Public Affairs Contacts" which does not align with the menu label. (A)

[2] Only the latest news and press releases should be displayed (perhaps those from the last 12 months). Older news items should be displayed by year or topic and can be made available from this page.

[3] "Podcasts" are listed by date with no ability to sort by subject, which would be helpful. (B)

[3] TxDOT News and Press Releases need to be further distinguished. Their labels are currently too similar.

[4] "News and Media" may be a more appropriate label for this section, as there are media links on the page. (C)

Business with TxDOT | Careers | Drivers & Vehicles | Local Information | News | Projects | Public Involvement | Safety | Travel | TxDOT Library | About Us

Search TxDOT

-Mail Us
Districts, Divisions, Offices

News
Statewide
Local
Podcasts
Twitter Feeds
Media Contacts

Page Options
E-Mail Page
Printer-Friendly
Enlarge Font
Reduce Font

✉ e-Subscribe to updates

News

News releases about statewide transportation issues are listed below. For local information, read our local news ... es. Podcasts and Twitter Feeds are also available.

Title	Date
TxDOT Announces $54 Million in Local Safe Routes to School Awards	May 27, 2010
TxDOT Seeks Comment on 2011-2015 Strategic Plan Draft	April 29, 2010
Town Hall Meeting Scheduled for Seguin	April 29, 2010
TxDOT Holds Public Meetings on Statewide Transportation Plan	April 29, 2010
Earth Day is Every Day for TxDOT Employees and Contractors	April 21, 2010
Texas In Bloom	April 13, 2010
TxDOT Observes National Work Zone Awareness Week	April 8, 2010
Town Hall Meeting Scheduled for San Angelo	April 6, 2010
TxDOT Provides Look into Performance Measures	March 26, 2010
Town Hall Meeting Scheduled for Lubbock	March 23, 2010
TxDOT Comprehensive Development Agreement Project Honored as 2009 Global Transport Deal of the Year	March 19, 2010
TxDOT Seeks Public Comment to Improve Transportation Planning and Project Development Processes	March 16, 2010
Texas Completes Obligation of ARRA Transportation Funds	February 25, 2010
TxDOT Marks One-Year Anniversary of ARRA	February 17, 2010
TxDOT Launches Toll Road Safety Campaign	February 16, 2010
TxDOT Offers Last Chance to Late Toll-Payers	February 12, 2010
Regional Leaders Meet to Discuss I-35 Corridor Improvements	January 08, 2010
State Issues Call for Transportation Enhancement Projects	October 15, 2009
Preparation Begins Early Before Season Arrives	August 18, 2009
New 2030 Committee to Examine Future Transportation Needs	August 19, 2008
Drunk Driving on the Rise	August 19, 2008
Cullen R. Looney Joins 2030 Committee	August 8, 2008
TxDOT Urges Motorists To Be on the Lookout for Motorcyclists	July 11, 2008
Committee Named to Examine Transportation Needs Through 2030	July 10, 2008

Projects

[1] Without institutional knowledge, the user has no way to differentiating between Propositions 12 and 14 or Riders 19, 55, and 56. Dividing projects by geographic area rather than project title or funding source would also be helpful. (A)

[2] Specific tasks relating to tracking projects require too many clicks.

[2] The "Project Tracker" and "TxDOT Tracker" require several clicks before a form is provided for the user.   The intermediary pages can be removed to reduce the number of clicks.

[3] Rather than having a second page In the "Studies" section that lists each study by type, a drop down list could be provided on the "Projects" homepage to reduce clicks.

[3] The "TxDOT Tracker," "2010 Planned Projects," "Proposition 14" and "Stimulus" projects open in a new window for no apparent reason, and should stay in the parent window.

[4] A TxDOT-created "Back" button on the "Studies" listing is unnecessary because of the browser's back button.

[4] The menu and navigation cues provide a label for "Rider 55," but the user is taken to a page titled "FY 2010 Planned Projects." The page titles and link titles should match. (B)

[!] The repetition of local navigation categories in the main content area is not as helpful as providing more practical information, such as searching for projects, project updates, FAQs, or popular forms. (C)

[1] Some links take the user to out-dated pages within the TxDOT domain that do not follow the page conventions, layout, or branding present in the rest of the site (Project > Project Websites).

[1] The menu item highlighted in the navigation side bar does not always correlate to the content displayed in the main page area, (i.e. on "Project Websites," the navigation menu highlights "Proposition 12" (or Stimulus Funding > Recovery and Reinvestment).
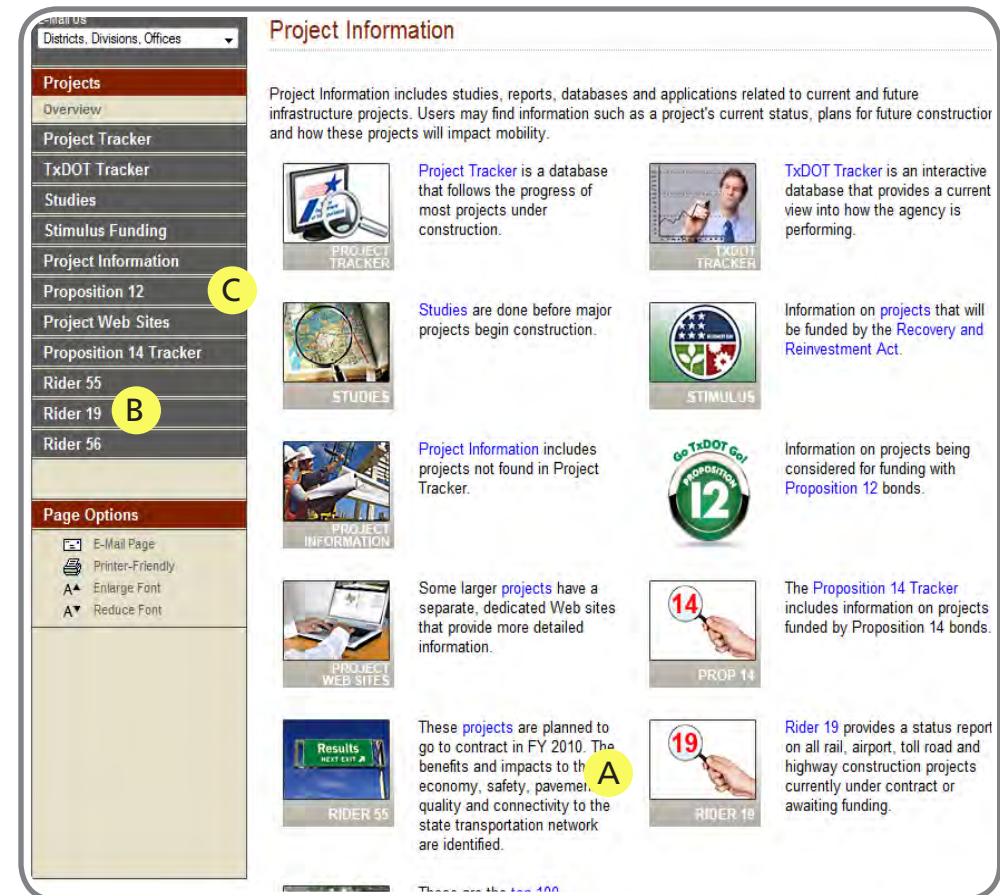
Public Involvement

[2] The labels "Community Programs" and "Public Outreach" sound similar. There should be a way to combine these pages or further differentiate their labels. (A)

[3] Some of the sub headings of menu items can be combined to shorten the menu list ("Social Media" and "e-Subscribe" under "Get Engaged").

[3] Accessing a Public Records request requires three clicks, which could be reduced if the forms were available on the same page as Public Records information.

[!] Instead of duplicating links from the local navigation, important and frequently used information like upcoming town hall meetings, current plans, committee reports, and FAQs should be displayed in the main content area. (B)

[1] Third-party sites are not appropriately marked ("SmartWay Transportation" is an EPA site).

[1] The menu item highlighted in the navigation side bar does not always correlate to the content displayed in the main page area. (Public Involvement > Maps and Routes > County Grid Routes). (C)

Safety

[2] The "Drivers" local navigation label is similar to the "Drivers and Vehicles" label on the global navigation list, which is confusing. A different label should be used in the "Safety" section. (A)

[3] PDFs are used as a primary way of providing safety reports, however, PDFs are often hard to update and access, and they do not lend themselves to easy searchability. They should be replaced with html pages.

[4] The "Traffic Safety Tips" menu item shows a sideways drop-down navigation list, which is different from the drop-down convention followed throughout the rest of the site. (B)

[4] The "Back" button on the "Crash Statistics" listing page is unnecessary, as the browser's navigation is sufficient.

[!] Instead of duplicating links from the local navigation, the main content area should be used to display important information like upcoming safety tips, statistics, or FAQs.

Travel

[!] Information like current weather advisory, renew TxTag, pay a fine, and road conditions would be very useful to have on the main content page, rather than a directory of links. (A)

[1] Third-party sites are not distinguished from TxDOT sites (Weather Channel). (B)

[1] Links that appear to be html pages load as PDFs instead (Texas Official Travel Map). PDFs should be identified so the user is aware of their action before clicking.

TxDOT Library

[2] The tabular format displayed here is helpful, but the links should be prioritized based on importance and usage. (A)

[2] The "Forms," "Reports" and "Other" categorizations do not lend themselves well to this organization structure. The information can be divided by format, and then organized by most relevant links. (B)

[3] Third-party sites are not distinguished from TxDOT sites ("Auto Theft," "Lemon Law" under "Audio Visual"). (C)

[3] "More Information" could have a more specific label, possibly "Resources" or "External Links." (D)

[3] There is no search option available within the Library page. Although the entire site has a search option, it would be helpful to have a special search tool for the Library, especially considering the Library's reliance on PDFs.

About Us

[2] The "Get Engaged" section is the same label as in the "Public Involvement" menu, but the "About Us" menu doesn't offer social networking, which is inconsistent. (A)

[3] It should be possible to reveal a preview of the content behind important headers such as "Mission," "About TxDOT," "Contact Us," and "FAQs."

Contact Us

[2] The page title: "Contact Us and Compact with Texans" should be clearer. (A)

[3] The form for providing contact information is cumbersome. Providing drop-downs for the state would be helpful. (B)

[3] The list of "Districts" and "Divisions" could be condensed into a selectable drop-down list, rather than a static list of each area. (C)

California DOT (Caltrans)

Overview

Caltrans manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans carries out its mission of improving mobility across California with six primary programs: Aeronautics, Highway Transportation, Mass Transportation, Transportation Planning, Administration, and the Equipment Service Center.

Highlights

- Fewer global categories make it easier to find relevant information.

- A frequently used feature of many public transportation sites, information about highway conditions, is prominently placed on home page.

- Pages follow "liquid layout" to accommodate most screen resolutions gracefully.

- Multiple navigation options (below the global navigation bar, left side bar and categories on page) seem unrelated and confusing.

- The visual design appears dated and amateurish.

- All categories are combined under "Highlights" on the home page, making it difficult to parse less from more important ones
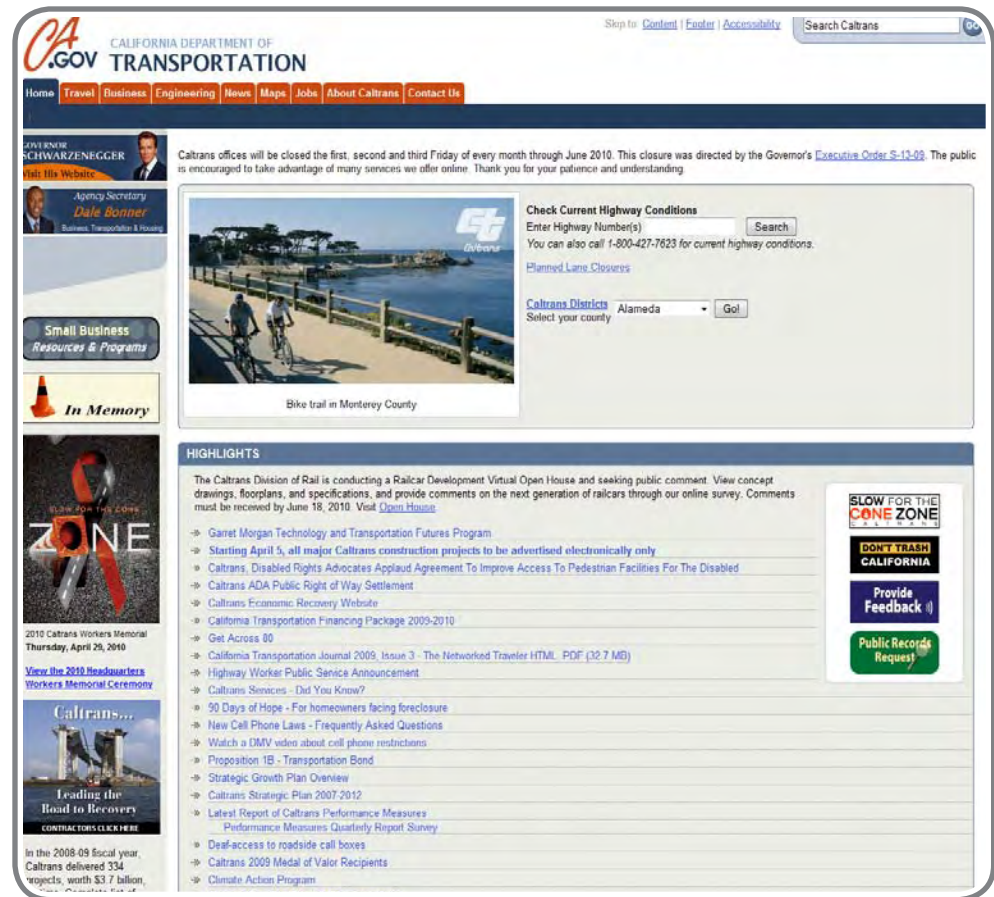
New York City DOT (NYC DOT)

Overview

The NYC DOT has a staff of over 4,000 that oversees one of the most complex urban transportation networks in the world. Its staff manages approximately 5,800 miles of streets, sidewalks, and highways and 789 bridge structures, including six tunnels. DOT staff installs and maintains over 1.3 million street signs, traffic signals at more than 11,900 intersections, over 300,000 streetlights, 69 million linear feet of markings, and approximately 63,000 parking meters. DOT promotes the use of sustainable modes of transportation.

Highlights

- This site is shallower than those of California and Texas, as it focuses only on one city.

- Home page is nicely segregated between news, updates, current projects and quick links.

- Quick links are action oriented rather than informational only.

- News and updates are present but occupy a small amount of screen real estate.

- Visual design is muted and aligns with the DOT brand by conveying attributes of being safe, eco-friendly and professional.

- Although the navigation does not appear to be arranged in any order, the labels are very user-centric to aid findability.

- Content pages are categorized under header links with a short preview of the information behind each.

- Ability to view pages in a print-friendly format and resize text make the site more accessible.

- Fixed width of the pages will hinder ability to make better use of higher resolution monitors.

Appendix

Method

A heuristic evaluation is a systematic inspection of a user interface for usability. Usability specialists and subject matter experts evaluate an interface against recognized design principles ("heuristics").

This method is a quick and inexpensive technique to identify major problems in order to make more efficient use of the thorough usability test. Ideally, the heuristic evaluation should be done multiple times in the development cycle, but especially before the start of usability testing to catch glaring issues.

A major drawback of the heuristic evaluation is that specialists, regardless of their skill and experience, are not necessarily representative of typical users of the product. Therefore, a heuristic evaluation should always be a part of a more thorough and larger user-centered design process, including multiple usability tests.

Objectives

Heuristic objectives and principles are the criteria used to evaluate an existing website and make recommendations about how the site can be improved. The objectives of the TxDOT website are to:

- Understand the business objectives, technical constraints, and user goals and tasks.
- Evaluate the site against a set of design principles and the contextual research using personas, user journeys and web logs.
- Analyze the competition for strengths and weaknesses.
- Collate the findings and recommendations

Principles

Information Architecture:

- Is there a strong call to action on each page?
- Does information appear in logical order and task sequence?
- Are third-party sites appropriately integrated?
- For a more complex task, how well does the interface step the user through sub tasks?

Visual Design

- Is the brand of the company supported through logo, pictures, and visual design?
- Do visual cues and color help the user interface?
- How clear are the meanings of graphical elements such as icons and toolbar buttons?

Language and Content

- Is the users' language used, with words, phrases and concepts familiar to the user, rather than system-oriented terms?
- Do dialog boxes contain only information that is relevant and needed (content and instructions are not verbose)?
- Is content updated regularly?

Functionality

- Is appropriate feedback of users' actions provided within reasonable time?
- Is there a clearly marked "out" to leave an unwanted state without having to go through extended dialog boxes?
- Are online forms easily accessible and usable?
- Does the site offer a search function?

Help and Documentation

- Is Help Information easily searchable?
- Does help information focus on the user's task, list concrete steps to be carried out, and take up minimal screen space?

Error Messaging and Recovery

- Are error messages presented in clear language?
- Rather than just identifying the problem, does the error message offer a helpful solution?

Search Engine Optimization

- Does the site appear in the top 5 results of search engines across multiple search term combinations?
- Is metadata structured to increase the visibility of the website?

Goals of Evaluation

The overall goal of this audit is to evaluate the user experience of the TxDOT website. The findings from this evaluation will help frame some user experience issues that can be explored in detail during subsequent usability tests.

Some of the main objectives for this evaluation are:

User-centric

- Efficiency of site and content architecture to enable easy navigation and searching
- Easy to accomplish tasks and seek information
- Potential roadblocks and errors in completing various task flows
- Emotional satisfaction while using the site
- Personalization and customization to target each specific user profile

Business-centric

- Increase online usage
- Decrease support cost
- Consistency of brand messaging across the site
- Quality of information
- Search engine optimization
- Flexibility and scalability of the site design

Scope

The pages examined in the heuristic evaluation were selected to assess the task flows of the website's primary users. Due to practical constraints, 12 pages were detailed in the screen-level findings found in this document. The selected pages were either identified in web logs as areas of greater usage or were part of the task flow of the primary personas.

Additionally, websites for the following two agencies were reviewed to ascertain some of the best practices for public departments of transportation.

- California DOT (Caltrans)
- New York City DOT

Personas

In addition to validating design principles, this evaluation was conducted while keeping in mind the tasks of the following primary personas. For more details on these personas, please refer to the "TxDOT Personas" document.

1. Melanie – Travel (Personal)

- Find alerts on weather and road conditions
- Read updates on traffic and road construction
- Check availability of rest area
- Keep her children calm and safe throughout the drive
- Confirm compliance with safety regulations

2. Javier – Natural Disaster

- Familiarize himself on evacuation routes and shelters
- Learn about how the government intends to address contraflow in the future
- Find tips about how to stay safe at his home in the event of a hurricane
- Create a list of supplies to take with the family in the event of an evacuation
- Share information with his community and clients

3. Russell – Travel (Commercial)

- Identify restricted bridges en route to his destination
- Check traffic and road conditions
- Plan alternate routes to visit his family
- Locate rest areas that meet his needs
- Register for Weight Tolerance Permits

4. Doug – Doing Business with TxDOT

- Check the status of his company's pre-certification and insurance
- Learn about using recycled materials in construction
- Search for and download project plans online
- Find out about the TxDOT payment schedule
- Access information about sub-contracting standards and requirements
- Stay abreast of public involvement and mobility issues

5. Evelyn – Public Involvement

- Locate project information about Interstate 69
- Learn about TxDOT's plans for expanding the interstate
- Find out when the next local meeting will be
- Share information with her community

6. Jill – Lawmaker

- Find information on projects under construction in her district
- View Commission agendas and watch Commission meetings online
- Guide her constituents to TxDOT program webpages
- Stay updated about TxDOT public involvement activities so she can notify her constituents