



# The Development of Traffic-Information Web-Site-Design Guidelines

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 Christopher Nowakowski, John Lenneman,  
 Mark Kojima, and Paul Green

University of Michigan  
 Ann Arbor, Michigan, USA

## 1 Issues

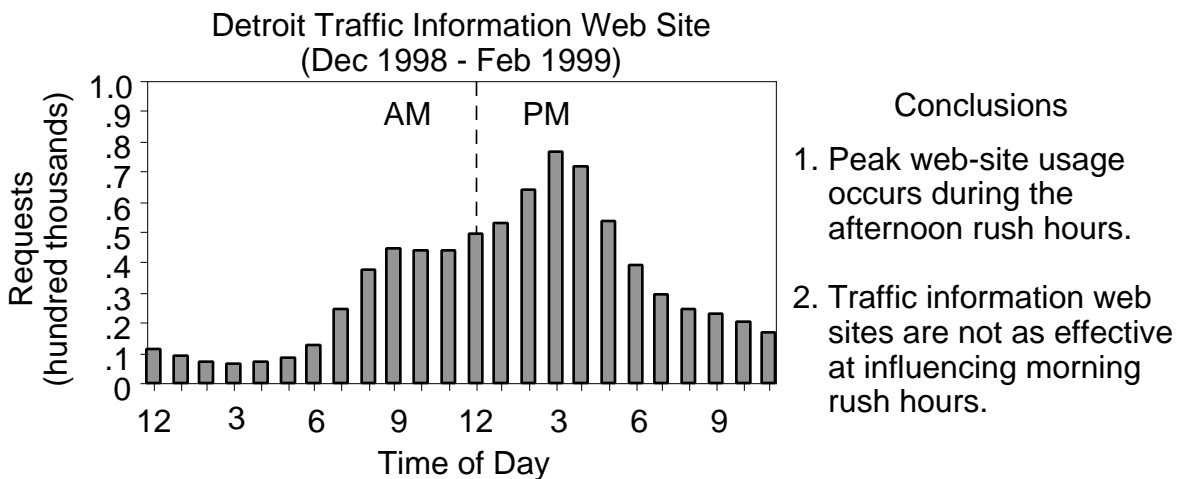
Approach	Questions
Current Users Analysis	Who are the current users of traffic-information web sites? When do users check traffic-information web sites? Which traffic-information web-site pages do they view?
Heuristic Evaluation	What kinds of problems were found in the heuristic evaluation? What were the advantages/disadvantages of this method?
Guidelines, Prototyping, and User Testing	What kinds of problems were found with user testing? What were the advantages/disadvantages of these methods?

## 2 Current Users Analysis

Who are the current users of traffic-information web sites?

1. Personal use through an ISP via dial-up, ISDN, or cable modem
2. Personal use by the employess of primarily white-collar companies in the city
3. Personal use by university faculty and students of "commuter" schools
4. Use by manufacturing companies to aid in routing trucks and parts
5. Use by companies providing on-site delivery or services
6. Use by third-party traffic-information providers

When do users check traffic information web sites?



Which traffic-information web-site pages do they view?		
Chicago	Detroit	Requested
<ul style="list-style-type: none"> <li>• Congestion overview map</li> <li>• Travel-time overview (text based)</li> <li>• Detailed loop-detector speed and congestion estimates for specific freeway segments (text based)</li> <li>• Construction information</li> <li>• Directory index and main menu</li> <li>• Various area specific maps and more detailed loop-detector info</li> </ul>	<ul style="list-style-type: none"> <li>• Congestion overview map</li> <li>• Directory index and main menu</li> <li>• Links page (AAA traffic reports, AAA construction information, and various weather pages)</li> <li>• Detailed congestion maps of specific interchanges</li> <li>• MDOT construction information</li> </ul>	<p>Most</p> <p>Least</p>

### 3 Heuristic Evaluation

What kinds of problems were found in the heuristic evaluation?
<ul style="list-style-type: none"> <li>• Visibility – Did the user know where he was and where he could go next?</li> <li>• Consistency – Did features look, feel, and function similarly?</li> <li>• Flexibility and efficiency – Were excessive steps needed to find the information?</li> </ul>

Advantages
<ul style="list-style-type: none"> <li>• A quick first-cut method to detect problems that may cause users to get "stuck"</li> </ul>

Disadvantages
<ul style="list-style-type: none"> <li>• Requires 3-5 human factors experts</li> <li>• Experts are not "users" and can miss problems that cause users difficulty</li> </ul>

### 4 The Use of Guidelines Alone vs. User Testing

What kinds of problems were found with user testing?
<ol style="list-style-type: none"> <li>1. Instructions or features that were not noticed, not used, or caused confusion e.g., the menu bar provided did not contain useful links and, thus, wasn't used.</li> <li>2. Confusing icons or legends e.g., grey colored roads were not defined in the legend and caused confusion.</li> <li>3. Features did not function as the user expected e.g., a pull down menu with a separate activation button caused problems even though the design was commonly found on the web.</li> <li>4. Features or formats caused frustration e.g., the travel times table caused problems for Detroit users.</li> </ol>

Advantages
<ul style="list-style-type: none"> <li>• Guidelines provided a good design start</li> <li>• The majority of problems were quickly found during user testing with 3-5 real users on a limited prototype without real-time data</li> </ul>

Disadvantages
<ul style="list-style-type: none"> <li>• The use of guidelines alone did not guarantee a usable web site</li> <li>• User testing required that real users, including novices, be recruited from outside the TMC.</li> <li>• Novice users got "stuck" easily</li> </ul>