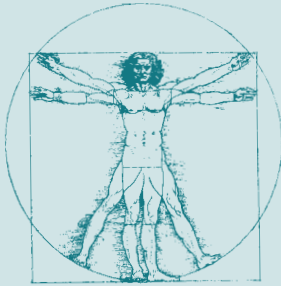


Research Update



HUMAN CENTERED S Y S T E M S

The Human Centered Systems Research Program addresses human performance-related issues that affect highway system design. Current human centered research focuses on Highway Safety and Intelligent Transportation Systems (ITS).

Human centered research products include driver performance models, highway system design guidelines, and handbooks based upon empirical human performance data collected in the laboratory and in controlled, on-the-road tests.



U.S. Department of Transportation
Federal Highway Administration

Research, Development, and Technology
Turner-Fairbank Highway
Research Center
6300 Georgetown Pike
McLean, Virginia 22101-2296

ERGO TMC, A NEW TOOL FOR HUMAN-CENTERED TMC DESIGN

Announcement

Transportation Management Center (TMC) operators play a key role in the efficient operation of modern freeway and arterial systems. Thus, effective traffic management has come to rely on the performance of these operators. In recognition of the importance of TMC operator performance, FHWA has recently made available a new tool to assist TMC managers and designers in incorporating human-centered design principles into their TMCs.

ErgoTMC, a web site tailored to support human-centered TMC design, is now online at <http://ergotmc.gtri.gatech.edu>. Developed for FHWA by the Georgia Tech Research Institute (GTRI), ErgoTMC is a repository of human factors guidance tailored to the design of TMCs. The ErgoTMC home page is shown in **Figure 1**.

Human factors issues can be identified in almost all aspects of TMC design and include considerations such as control room layout, operator job descriptions, and character size on computer displays. ErgoTMC guidelines cover the full spectrum of TMC human factors. Many of the ErgoTMC guidelines were adapted from long-established principles found in human factors textbooks, military standards, and nuclear power plant regulations. Others were developed from laboratory and field studies specifically aimed at TMC design issues.

Why ErgoTMC?

The TMC operator is often crucial to effective traffic management. For example, an operator's prompt and accurate report of a traffic incident will get the correct services on-site sooner, and ultimately will result in less delay for hundreds of motorists because the incident is cleared quickly. Similarly, operators often play a crucial role in rapidly reporting incidents to potentially affected motorists, giving them an opportunity to avoid the incident or to prepare for a delay. ErgoTMC provides guidance on operator workstation design, operator computer interface design and evaluation, job design, automation, task allocation, training, environmental considerations, and many other factors that can affect operator performance. **Figure 2** provides an example of a TMC specific guideline.



Figure 1. The ErgoTMC home page.

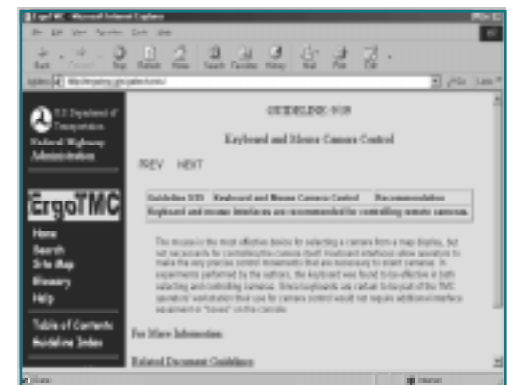


Figure 2. An example of a design guideline.

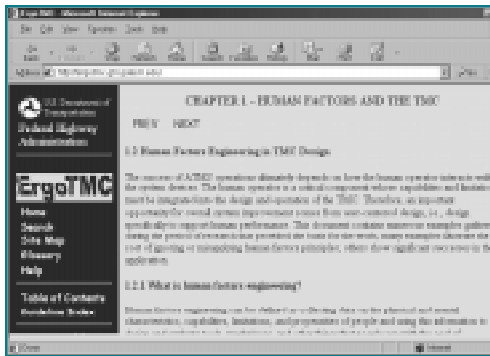


Figure 3. Excerpt from Design Guidelines document.

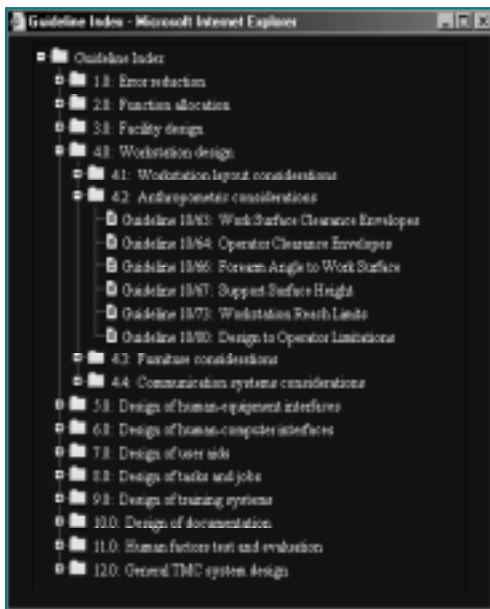


Figure 4. An example of the Guideline Index.

ErgoTMC Development Process

The ErgoTMC design is based on a systems analysis of the TMC design process and of the types of information that would be useful to designers. Each part of ErgoTMC began as a prototype. The design evolved as users evaluated the site's content and functions. The result of this design process is a site that provides quick and effective access to human factors information needed by those who design, build, or operate TMCs.

What's In ErgoTMC?

In its current form, ErgoTMC contains a collection of Design Guidelines, the full text of *Preliminary Human Factors Guidelines for Traffic Management Centers (FHWA-JPO-99-042)*, a powerful yet intuitive search engine, a Glossary of terms, and Help. An excerpt from the Guidelines document is shown in **Figure 3**. The Design Guidelines can

be navigated using a Guideline Index that is organized by design functions and is presented as a collapsible tree outline. The Guideline Index is shown in **Figure 4**.

In addition to the Design Guideline section, ErgoTMC will also include tours of several TMCs from a human-centered design perspective ("Featured TMCs") and an interactive Design Assistant that will integrate explanation of issues, design examples, assessment methods, human factors pitfalls, and tutorials. Templates of human engineering documents and reports will be available for download. Information in the Design Guidelines section is complete and available now. Contents of the Featured TMCs, Design Assistant, and Template sections are under construction and will be available sometime in the third quarter of 2000.

When the full site becomes available the web address will change, but users will be able to find it by searching for "ErgoTMC" from most of the major Internet search engines.

Developer—ErgoTMC was developed by the Georgia Tech Research Institute, Georgia Institute of Technology, 400 Tenth Street, NW, Atlanta, GA 30332-0840. The principal investigator was Dr. Dennis Folds (404) 894-7262. Contract No. DTFH61-96-C-00066.

Distribution—The current ErgoTMC address is <http://ergotmc.gtri.gatech.edu/>. In September 2000, the site will move; however, it will still be known as ErgoTMC and its new address will be registered with all major search engines.

Availability—The Design Guidelines portion of the site is available now. The entire site is scheduled to go on line in the third quarter of 2000.

Key Words—TMC, Transportation Management Center, Traffic Management Center, Freeway Management, Traffic Signal System, Human Factors, Human-Centered Design, Ergonomics, Transportation.

For More Information—For more information, contact Joseph Moyer, Engineering Research Psychologist, HRDS, (202) 493-3370 or Vaughan Inman, Senior Psychologist, SAIC, (202) 493-3380.

Notice—This Announcement is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The Announcement provides a synopsis of the ErgoTMC web site. The Announcement does not establish policies or regulations, nor does it imply FHWA endorsement of the conclusions or recommendations. The U.S. Government assumes no liability for the contents or their use.