


GEOMETRIC DESIGN LABORATORY FACT SHEET

Research that is Essential, Indispensable, and Connected to our Customers.

PURPOSE

The mission of the Geometric Design Laboratory (GDL) is to provide technical support to the Office of Safety Research and Development to develop the Interactive Highway Safety Design Model (IHSDM), a suite of software tools for the safety evaluation of highway geometric design alternatives. Interested users can download, free-of-charge, the current public release of IHSDM at www.ihsdm.org.

DESCRIPTION

GDL helps establish the standards and procedures for IHSDM software development, prepares the software system and functional specifications, performs verification and validation of the models that are core IHSDM components, performs Alpha testing of IHSDM software, coordinates the Beta testing of IHSDM software by potential end-users, and provides technical support to users of the IHSDM software.

GDL also helps coordinate the interaction of key players in IHSDM software development, including research contractors, software developers, end-users, and commercial CAD/roadway design software vendors. GDL markets IHSDM to decisionmakers and potential end-users, and supports staff research related to roadway design and safety.

SPECIAL CAPABILITIES

GDL staff includes professionals with expertise in transportation and software engineering. This multidisciplinary staff allows GDL to support IHSDM development in various ways and to assume a unique coordination role.

GDL's transportation engineering expertise supports the laboratory's function of reviewing and assisting in the development of the engineering models included in IHSDM for evaluating the safety of roadway designs.

By combining transportation and software engineering expertise, the GDL has the unique ability to evaluate software from both the software developer and end-user perspective.

Communications and engineering skills help the GDL staff to understand the needs of the audience (e.g., design engineers), thereby supporting effective technical assistance to end-users.

IHSDM development is a long-term effort, involving many research contractors, software developers, and Federal Highway Administration (FHWA) staff. In addition, FHWA seeks input from end-users and user organizations to help ensure that IHSDM is responsive to user needs. GDL helps coordinate the interaction of all those involved with IHSDM development.

PRODUCTS AND SERVICES

IHSDM currently includes five analysis components: (1) a Crash Prediction Module, (2) a Design Consistency Module, (3) an Intersection Diagnostic Review Module, (4) a Policy Review Module, and (5) a Traffic Analysis Module.

To develop and promote the IHSDM software, GDL staff is providing or has provided the following services:

- For all IHSDM safety evaluation modules: coordinated end-user Beta testing; conducted software testing to verify, validate, and evaluate the IHSDM software system; and developed and/or finalized the software's functional specifications.
- Participated in development of and currently delivers training and technical assistance to IHSDM users.
- Supports coordination and integration of IHSDM with civil design software packages, including the development of software to extract roadway geometric data from GEOPAK® roadway design software.
- Develops, reviews, maintains, and enhances documentation for IHSDM users.
- Conducts technical reviews and prepares review comments on contract research deliverables.
- Provides technical support in the development, production, and dissemination of IHSDM-related marketing materials, including an IHSDM preview CD-ROM.
- Developed architecture and provided technical content for the IHSDM Web site.

EQUIPMENT & FACILITIES

GDL is equipped with computer hardware and software typically employed by potential users of IHSDM, including commercial CAD/roadway design software.

The Turner-Fairbank Highway Research Center (TFHRC) has more than 24 laboratories for research in the following areas: safety; operations, including intelligent transportation systems; materials technology; pavements; structures; and human centered systems. The expertise of TFHRC scientists and engineers covers more than 20 transportation-related disciplines. These laboratories are a vital resource for advancing the body of knowledge created and nurtured by our researchers. The Federal Highway Administration's Office of Research, Development, and Technology operates and manages TFHRC to conduct innovative research to provide solutions to transportation problems both nationwide and internationally. TFHRC is located in McLean, VA. Information on TFHRC is available at ***www.tfhrc.gov****.*

FHWA-HRT-06-101 • HRDS-05/08-06/(1M)E

This RD&T fact sheet provides concise information about a TFHRC facility.