



Geneva International Centre for Humanitarian Demining
Centre International de D minage Humanitaire - Gen ve

New Map Symbols for Humanitarian Demining

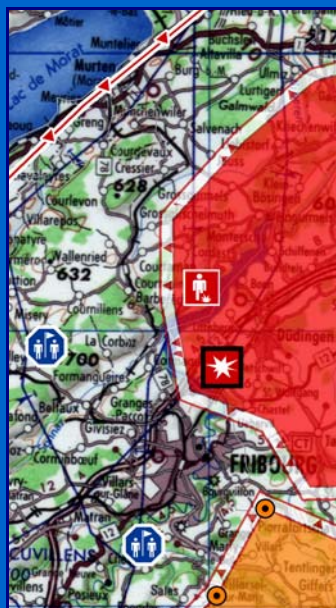
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GICHD Fact Sheet for Mine Action

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Map Symbols and Mine Action

Why are map symbols important in humanitarian demining? Numerous map symbols are necessary for displaying the many categories of landmines, minefields, and mine actions on maps that support safe and efficient humanitarian demining. For example, map symbols may show the location and type of ordnance in a minefield, the status of clearance operations, or the location of important features such as towns, government organisations, transportation facilities, and first aid stations.

Communicating mine action through maps. The main purpose of map symbols is communication from a mapmaker to a map user. It is very important that map symbols used in humanitarian demining be clear and easy to understand. Map symbols may be either pictorial or abstract. Pictorial symbols resemble the feature that they represent (e.g., an icon of an airplane to represent an airport) whereas abstract symbols do not (e.g., a circle to represent a city). Pictorial symbols are preferable for demining applications to ensure that symbols are easily understood, indicate danger or hazard when necessary, and cross cultural boundaries as much as possible.

New Map Symbols for IMSMA

A new set of map symbols has recently been developed for humanitarian demining. The symbol set has been implemented in the Information Management System for Mine Action (IMSMA) version 4.x and is being promulgated as a new standard. The humanitarian demining map symbol set was developed based on the following general principles:

- Symbols must clearly imply danger for hazards
- Intuitive, pictorial symbols were developed whenever possible
- Symbols display both general and specific information in a tiered or hierarchical structure
- Appropriate colours were selected for symbols
- Symbols display on topographic maps, satellite imagery, or aerial photographs/orthophotos, and other GIS layers
- Symbols print and photocopy in black and white
- Symbols accommodate various map scales
- Symbols adhere to existing standard symbols as feasible

Symbology FAQs

What types of symbols are included in the symbol set? The symbol set includes over 150 total symbols for point, line, and polygon features. General categories of symbols include: Accidents, Country Structure, Hazards, Hazard Reductions, Impact Surveys, Locations, Mine Risk Education (MRE), Ordnance, Organisations, Places, Population, QA/QC, Sample Points, and Victims. The symbol set is broad enough for general maps that may be used for alerting the public of hazards, yet specific enough for detailed maps necessary to support

References:

Kostelnick, J. 2005. "Cartographic Recommendations for Humanitarian Demining Map Symbols in the Information Management System for Mine Action (IMSMA)." Report prepared for the Geneva International Centre for Humanitarian Demining, 100 pp.

Kostelnick, J. C., J. E. Dobson, J. E., S. L. Egbert, M. D. Dunbar, and A. Arnold. 2006. "A Proposed New World Standard for Humanitarian Demining Map Symbols." In *Proceedings of the 26th ESRI International User Conference*, San Diego, CA.

Contact Us

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demining operations such as technical surveys and mine clearance.

Are standardised symbols from other organisations included in the symbology? Symbols for ordnance (e.g., types of landmines) were adopted from the North Atlantic Treaty Organisation (NATO) standard symbols as described in the document "Military Symbols for Land Based Systems" (APP-6A). Emergency management symbols (e.g., airport, first aid station, police station) were adopted from symbols developed by the Homeland Security Working Group of the Federal Geographic Data Committee in the U.S. (<http://www.fgdc.gov/HSWG/index.html>).

How were colours selected for the symbols? Colour selections were based on recommendations from safety colour codes for public signs issued by the International Organization for Standardization (ISO) (e.g., red = prohibited or danger; orange = warning; yellow = caution; blue or green = safety). Colour schemes that were tested for compatibility to those with colour vision impairments were also selected.

What map scales were the symbols designed for? Both point and polygon symbols are available for many features to allow for maps created at small, intermediate, and large scales.

What input or feedback was provided as the symbols were designed? An extensive evaluation of an initial draft of symbols was completed by demining professionals at the IMSMA Summer Workshop held in Geneva, Switzerland. Comments and feedback were incorporated into revisions of the symbols.

What are some benefits of a common or standardised symbol set for humanitarian demining? Although there currently is no standardised map symbol set for humanitarian demining, standardised symbols are beneficial for promoting consistency, efficiency, and safety in demining operations.

What has been done to promulgate the symbol set to the demining, GIS, and mapping communities? The GICHD and American Geographical Society (AGS) recently sponsored two workshops in New York, NY and Reston, VA to promulgate the new symbols with major mapping agencies, GIS vendors, and nongovernmental organizations (NGOs). The symbology has also been presented at the annual meeting of the Association of American Geographers, the ESRI International User Conference, the IMSMA Summer Workshop, and the International Cartographic Conference.

Are the symbols available to the public? The latest version of the symbology is freely available from the GICHD website. See the "Available Products" section below for the specific URL as well as other available products.

Available Products

- The complete humanitarian demining symbol set (2 True Type fonts and an ESRI style file) as well as the report that describes the development of the symbol set are available from the GICHD website at <http://www.imsma.ch/symbology/>.
- Example maps and sample data that incorporate the symbology are available for use in ESRI's ArcGIS 9.x at <http://web.ku.edu/~landmines/Projects/symbol.shtml>.