TUESDAY, AUGUST 13, 10:30-12:00

SESSION TITLE: GIS: Application and Information to Climate and Weather

DESCRIPTION: The use of GIS in hurricane and severe storm planning and mitigation is explored, using case studies from Florida, New York State, and South Carolina

MODERATOR: Tom Marlowe, FEMA National Emergency Training Center, Emmitsburg, MD

Wilbur A. Steger, CONSAD Research Corporation, Pittsburgh, PA

Global Warming and Geographic Information: An Assessment

This paper is the third of a trilogy on environment issue problem-solving and the use of geographic information. The two predecessor papers (1989 and 1990 Proceedings) dealt with local air quality issues and air pollution (1989) and the Clean Air Act of 1990 and its regional/national geographic consequences (1990). This paper deals with the study, using geographic information systems, of local and regional consequences of global environmental issues, e.g., stratospheric ozone depletion and possible climate change (e.g., sea level rise). The current status of and uncertainties over the adequacy of scientific evidence will be evaluated for their public policy consequences. Ways to estimate the positive and negative effects of climate change at the local, regional and national level -- public health, income change, economic development, trade, food supply, and others -- will be discussed and assessed. Proposals for improved geographic information will be set forth.

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Sarah Osborne and Michael Stoogenke, GeoSource, East Syracuse, NY

Improved Management and Analysis of Industrial Emissions Using a Geographic Information System

As air quality regulations become more demanding and public awareness of health risks increases, maintaining environmental compliance and keeping the public informed is becoming an overwhelming task for industry. Since large amounts of data must be analyzed and reported on a continuous basis, a geographic information system (GIS) is one tool that can be used to improve the flow of data. Because much of the data used in monitoring emissions, such as the location of emission sources and downwind receptor sites, is already geographically referenced, the data can be easily incorporated into a GIS. Additional data helpful in analysis such as local infrastructure and census data may also be integrated into the GIS database.

A hands-on demonstration (beta version) is presented to demonstrate the benefits of using GIS to facilitate monitoring and analysis of emission impacts from a large industrial site, and how the output can be used to keep regulatory agencies and the public informed. The emphasis of the project was to incorporate several databases into one system and provide easy access, either through graphic displays or directly through the database files. With a menu-driven GIS interface, the system was specifically created for use by plant engineers with little or no GIS experience. The end user can take advantage of the power of GIS as a database manager and spatial analysis tool with minimal downtime for training.

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Robert Keim, Hillsborough County, Tampa, FL

Eye of the Storm: GIS/LIS and the Hurricane Business

From April through November of every year, the state of Florida keeps a close eye on the Atlantic and Caribbean Oceans, and the Gulf of Mexico - an eight month hurricane watch. The nature and extent of the threat posed by one of these storms varies, based on storm strength, population distribution, coastal topography, and a number of other issues. This paper looks at the hurricane event, and how it can impact a coastal locale. Using the Hillsborough County GIS as the frame of reference, it also considers how GIS/LIS technology might contribute to the planning and management of activities in response to the approach and passage of such a storm. Finally, this paper will attempt to detail how consideration of such issues may influence GIS/LIS design and development parameters.

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Anne Marie Hale, South Carolina Water Resources Commission, and James Scurry, State of South Carolina, Columbia, SC

An Emergency Preparedness and Mitigation Application Developed for South Carolina as a Response to Hurricane Hugo

At the request of the Governor of the State of South Carolina the South Carolina Water Resources Commission developed several applications to demonstrate the value of GIS as a tool for emergency planning, preparedness, and mitigation. This presentation will focus on one of those applications.

The SCWRC took the results of a National Oceanic and Atmospheric Administration Sea Lake and Overland Surge from Hurricanes (SLOSH) model and integrated it with the 1:24,000 Digital Line Graphs, contours, public facilities, and infrastructure information to create an evacuation and emergency planning application. This is a menu driven application.

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TUESDAY, AUGUST 13, 12:00-1:30

SESSION TITLE: Latin America/Caribbean Informal Get-Together

DESCRIPTION: This meeting will provide a networking opportunity for those with interests in Latin America and the Caribbean, regardless of SIG or application. An underlying question is how to approach the 300-400 GIS users in Latin America and the Caribbean who would be interested in URISA. Suggested discussion topics include:

Formation of Latin American URISA Chapters
URISA policy
possibility of financial support
experience of the Mexico Chapter

Participation in URISA 1992 Washington Conference
- policy on Conference and Proceedings languages
- travel funds for presenters
- special topics and SIG's of interest

Regional URISA or GIS conferences/workshops in Latin America

South/North collaboration on topics of mutual interest
- hazard and disaster reduction
- hemispheric or global environmental and developmental issues
- technology and information transfer

Participants may bring box lunches.

MODERATOR: Stephen O. Bender, Organization of American States, Washington, DC

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TUESDAY, AUGUST 13, 2:00-3:30

SESSION TITLE: GIS Technology in Emergency Dispatch, Evacuation, and Loss Estimation

DESCRIPTION: New and old methods of geocoding are used by GIS technology for a variety of applications. This session looks at how some of that technology can aid in emergency management, helping to mitigate disasters by providing better emergency service, response, and loss estimation.

MODERATOR: John Miglarese, South Carolina Wildlife and Marine Resources Department, Charleston, SC

Barbara Bridgehouse, Ontario Ministry of Health, Toronto, Ontario, Canada

Emergency Dispatching and the GIS Contribution

Traditional emergency dispatching depends largely on the call taker's ability to imagine a mental map of the area surrounding a particular call. Now the GIS solution breathes graphical life into an address allowing for faster more efficient georeferencing and thus decision making. The Ontario Ministry of Health is preparing for the implementation of a GIS tailored for this application, an Emergency Georeferencing System (EGS). The EGS is intended for use as a dispatch support system tool in the fifteen Central Ambulance Communication Centres (CACC's) across the province. Part and parcel with the development of the EGS is the use of GIS technology to build, house and maintain a dynamic common digital data base that the EGS will utilize. The beauty of a digital labelled road network is the ability to share it with the other members of the public safety community, fire and police. This common digital data base can be updated daily for road closures etc. by the emergency services agencies and updated bi-weekly, for expansions and edits to the road network, through the cooperation of the local government. Policies and strategies are being developed between various provincial ministries and regional municipalities to ensure the digital data base update process is effective, efficient, ongoing and inexpensive. It is anticipated that the GIS technology will make a very large contribution in the area of emergency dispatching, not only as a dispatch support system

but as a catalyst in prompting further communication between the public safety agencies via a common geographic data base.

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Gary Hunter, University of Melbourne, Parkville, Victoria, Australia

The Application of GIS for Rapid Emergency Mass Evacuation

In recent times, there have been numerous serious incidents in Australia involving emergency evacuations following gas tanker explosions and toxic chemical spills and fires. In the aftermath of many of these events, there has been strong criticism of the warning and evacuation procedures employed, which often took hours to perform as police laboured to warn residents of the potential danger by either door-knocking or using loudhailers.

While emergency service agencies have developed efficient methods for delivering public safety warnings in the case of many natural hazards, their task is assisted by the fact that residents are usually aware that a hazardous event has occurred. However, the case of highly-localised toxic material spills, affected communities often remain unaware of the threat. Consequently, in Australia, at least, there is a growing call for new solutions to the problems of warning and evacuating communities in these situations.

The purpose of this paper is to propose a method for integrating GIS with new telecommunications technology to improve delivery of public safety warnings and to assist emergency service agencies to monitor the response and effectiveness of their warnings.

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Charles R. Manuel, Phoenix Fire Department, Phoenix, AZ

Fire Loss Data Bases: Comparing What is Available With What Should be Available

Accurate information on losses from natural or technological hazards is needed for several uses including immediate and future emergency response, presidential or other official disaster declaration, and evaluation of programs such as INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION (I.D.N.D.R.). This paper will examine fire data provided to the national level by state and municipal jurisdictions with voluntary compliance. While mandatory compliance may not provide additional information, it would provide a broader arena from which to draw data. Data provided in a GIS format will be examined for issue resolution and mitigation.

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TUESDAY, AUGUST 13, 3:30-6:00

PROJECT SHOWCASE #1: Randall Johnson, City of Seattle DAS/DP, Seattle, WA

GIS and Public Safety

For more than a decade, the City of Seattle has been using geographic information processing technology to support its emergency dispatching capabilities. Recently, current

generation GIS technology has been used to support the implementation of a state-of-the-art Police dispatching system, replacing the existing computer-aided dispatching (CAD) system. Following that implementation, GIS was used to assist Police Department in redefining selected beat boundaries. The same technology is being applied in support of the Fire Department's new computer-aided dispatching (CAD) system. The City has applied its GIS technology in the area of a Crime Analysis system, and is extending its use into the area of Crime Prevention. The technology has also been used in the development and mapping of legislated drug-free zones around public and private schools, in the mapping of areas designated off-limits to convicted drug dealers, and a variety of other Police related mapping applications. This Project Showcase will display these kinds of applications of GIS technology to Public Safety, including its use in the production of an earthquake hazards map.

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PROJECT SHOWCASE #2: Donald Williams and M. Melanie Gray, Impact Research Group

Softrisk: An Effective Computerized Emergency Management Solution

Impact Research Group Ltd. has developed a computerized emergency management system called SoftRisk that helps reduce risks to people, property and the environment from the full range of natural and human-induced emergencies and disasters. Versatile in its application, SoftRisk is an effective emergency management solution because it increases efficiencies in planning, training, and response. The SoftRisk product integrates a user-friendly software program with state-of-the-art touchscreen technology and communication devices.

One of SoftRisk's many features is a powerful Maps program. SoftRisk's Maps program is totally unbiased towards any mapping system that may be used in a given location. The Maps can take advantage of scanning technology for incorporating two-dimensional base maps in virtually any format. SoftRisk's Maps can also accommodate the conversion of AutoCad drawings and Geographic Information System (GIS) maps. In fact, SoftRisk's Maps program acts as an intelligent front-end, greatly enhancing, among other things, the speed of access and practical application of scanned maps, AutoCad drawings, and GIS maps for emergency management purposes.

The SoftRisk product may be presented as an example of the use of computer and communications technology for emergency management. This was done in May for the British Colombia Chapter of URISA without reference to a product name.

SoftRisk is the most advanced example of a state-of-the-art computer system for emergency management. It represents and excellent selection for a presentation and/or project showcase in support of Public Safety as a "hot topic."

WEDNESDAY, AUGUST 14, 8:30-10:00

SESSION TITLE: Loma Prieta and Earthquake Hazards Reduction No. 1

DESCRIPTION: This is the first of a series of four sessions on the roles of information systems in earthquake hazards reduction. Issues of policy, hazards mapping, and public attitudes and response to the Loma Prieta Earthquake are discussed from federal, state, and local perspectives.

MODERATOR: Glenn O. Johnson, Glenn O. Johnson and Associates, Long Beach, CA

Drummond Kahn, U.S. General Accounting Office, Portland, OR

Natural Disaster Projections, Perceptions, and Policy: Connections Between Science, the Public, and Government

Natural disaster projections are frequently discussed in the popular media, affecting public perceptions of when and how government ought to act to prevent disasters or to mitigate their effects. The media connects science to the public, and public to government, but there is no comparable channel to bring scientific information to policy makers.

Through media access, scientific projections selectively inform the public, allowing popular rather than considered pressures to bear on government. As forecasted disasters draw nearer in time and distance, public pressures increase for action by government.

Prudent policies should be based on the consideration of scientific information rather than on the vagaries of immediate public responses to scientific projections. Disaster planning should be responsive to public needs, not merely to public opinion.

The presentation will focus on opening lines of communication between science and government and will be of interest to persons and organizations involved in risk assessment, public information, and disaster planning.

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Charles R. Real and Robert E. Yoha, California Department of Conservation, Sacramento, CA

California's New Seismic Hazards Mapping Act: Implications for Technology and Policy

The California Legislature enacted, and the Governor signed into law the Seismic Hazards Mapping Act (Chapter 1168 Statutes of 1990), requiring the delineation of seismic hazards studies zones (SHSZ's) by the Division of Mines and Geology.

The new law requires the State Mining and Geology Board to develop policy, guidelines and criteria for implementation of the Act. Affected cities and counties must require, prior to approval of a project located in a SHSZ, a geotechnical report detailing the level of hazard at the site and making appropriate recommendations for mitigation. Local government must also utilize information contained in the maps in preparing the safety element of general plans, and in adopting and revising land-use planning and permitting ordinances. Finally, real estate sellers must disclose to any prospective purchaser the fact that the property is located within a SHSZ.

The Act provides for a statewide seismic hazards mapping and technical advisory program to delineate zones, with revenues from building permit fees and annual premiums from California's new mandatory earthquake insurance program. The large geographic areas and scale at which the analyses must be performed will require the use of a full-featured geographic information system having spatial, image, and geological analysis capabilities.

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Michael E. Hodgson and Risa I. Palm, University of Colorado, Boulder, CO

Attitudes and Response to Earthquake Hazards: The Impacts of the Loma Prieta Earthquake in California

The October 17, 1989, Loma Prieta earthquake damaged homes in two of four counties where survey research on 3500 owner-occupiers had been just completed. The 1989 survey found that the most important predictor of the adoption of mitigation measures (specifically, the purchase of earthquake insurance) was perception of the earthquake hazard. A 1990 survey re-visited the 1989 respondents to assess the impacts of direct and indirect experience of a major earthquake on attitudes and the adoption of mitigation measures. The relationships between home location (e.g., proximity to major fault traces and proximity to damaged neighborhoods) and attitudes/adoption of insurance were also explored with the use of a GIS, TIGER data files, and survey data. Surveyed home locations were geocoded, spatial patterns mapped, and spatial relations between locations, hazard risks, and perceptions of hazards were analyzed.

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WEDNESDAY, AUGUST 14, 10:30-12:00

SESSION TITLE: Loma Prieta and Earthquake Hazards Reduction No. 2

DESCRIPTION: This second in the series of sessions on earthquake hazards reduction deals with forecasting earthquake casualties, and evaluating transportation systems and regional information systems performance following the Loma Prieta Earthquake.

MODERATOR: Sherry Oaks, University of Califonria, Los Angeles, CA

Robert Olson, VSP Associates, Sacramento, CA; and Terence Haney, The Terence Haney Co., Woodland Hills, CA

Modeling Earthquake Casualties for Planning and Response: Model Definition and User Output Requirements

Injuries and deaths in earthquakes are principally caused by structural and non-structural damage. The pre-event estimation of potential earthquake casualties for planning and mitigation purposes, and the providing of immediate post-event estimates of response needs for heavily impacted areas represent a serious need to both planners and responders. Computer assisted modeling techniques coupled with GIS and relational databases system capabilities now offer the opportunity to significantly advance our ability to project possible casualty estimates for both planning and actual response operations.

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Joel Markowitz, Metropolitan Transportation Commission, Oakland, CA; and George Gray, California Department of Transportation, San Francisco, CA

Effects of Loma Prieta Earthquake on Transportation and Efforts to Provide Mobility

Presentations will cover the recent Loma Prieta Earthquake, its impact on the San Francisco Bay Area transportation systems, actions to provide for alternative transportation, ridership changes resulting from use of alternative systems, lessons learned regarding disaster management of transportation systems and present condition of the restoration of the highway systems as well as effects on other systems resulting from the earthquake.

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Paul M. Wilson, WCS, Austin, TX; and Jeanne B. Perkins, Association of Bay Area Governments, Oakland, CA

Evaluation of the Bay Area Spatial Information System (BASIS) Following the Loma Prieta Earthquake

The October 1989 earthquake in the San Francisco Bay Area provided an excellent, if unwelcome, opportunity to test several applications of GIS technology.

A system called BASIS (Bay Area Spatial Information System) was created in 1975 by the Association of Bay Area Governments as a multipurpose regional data base for the nine counties around San Francisco Bay. BASIS has been used for many earthquake mitigation projects - reducing damage by not building, or building more intelligently, in areas that are most susceptible to ground shaking. The system is used to generate maps (data sets) of expected ground shaking intensity based on proximity to faults and underlying geology.

In the aftermath of the earthquake, it is possible to evaluate the system's usefulness. From a technical standpoint, BASIS performed well; the maps of expected ground shaking risk showed a very high correlation to actual damage. But how well were these maps utilized? Did the data provided by BASIS prevent further damage, or did it fail to reach the right organizations?

The limited utilization of these maps raises important organizational questions that apply to other GIS efforts as well as BASIS. For example, many systems begin with ample money for system development, but lack continued funding for maintenance and use. Does a multipurpose system, able to handle several applications, stand a better chance of survival? The proposed paper looks at these institutional issues and suggests ways of increasing GIS effectiveness.

WEDNESDAY, AUGUST 14, 12:00 - 1:30

SESSION TITLE: Public Safety SIG Meeting

DESCRIPTION: Members and prospective members of the Public Safety Special Interest Group will meet for lunch to get acquainted and conduct SIG business. Participants will critique 1991 SIG Program and recommend activities for the coming year, including extent of URISA involvement in the International Decade for Natural Disaster Reduction. Preparations for the SIG Town Meetings Wednesday p.m. and Thursday a.m. will be discussed.

MODERATORS: Robert H. Alexander, U.S. Geological Survey; Glenn O. Johnson, Glenn O. Johnson and Associates; and Nora Sherwood Bryan, Ernst and Young

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WEDNESDAY, AUGUST 14, 2:00-3:30

SESSION TITLE: Loma Prieta and Earthquake Hazards Reduction No. 3

DESCRIPTION: This third earthquake hazards reduction session presents a knowledge-based approach to pre-earthquake risk assessment integrating several data bases, and post-earthquake information handling using portable GIS in an emergency operations center.

MODERATOR: Charles R. Manuel, Phoenix Fire Department, Phoenix, AZ

Steven P. French, California Polytechnic State University, San Luis Obispo, CA

A Knowledge-Based Approach to Using Existing Data for Seismic Risk Assessment

Techniques for seismic risk assessment have improved rapidly in the past decade. Much more is known about how different types of structures respond to an earthquake. To make assessments of seismic risk, this earthquake hazard information must be combined with an inventory of buildings by structure type. The cost of obtaining such inventory information presents a key stumbling block to implementing risk assessment techniques for large urban areas. Structure inventories based on field surveys are too expensive and become outdated as soon as they are completed. No single secondary data source contains the detailed structural information required by today's risk assessment techniques. This paper describes a knowledge-based system that makes inferences about structure types based on secondary data. Existing land use, structure age, size, number of stories and improvement are used to classify buildings by structure type. The knolwedge-based system described here uses a set of rules to make inferences about structure type based on these characteristics. In this way the knowledge-based system creates new data not available from secondary sources.

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Richard L. McIntire, GeoBased Systems, Porterville, CA

Loma Prieta Earthquake Case Study - GIS Under Fire

This paper provides a description of how GIS was applied to assessment and information management during the Loma Prieta earthquake in Oakland, California. During the response phase of the earthquake, a PC-based computer system was used to place, move and update vital information on a scaled map, allowing emergency officials to plan and coordinate their activities.

The paper highlights the methodology used during the crisis and the advantages to using GIS in a command post at the scene of a disaster. By feeding scraps of paper containing damage information into the computer, the software produced an electronic map that displayed multicolored symbols representing damage events and other important information on neighborhoods bordered by streets and freeways. With this information rescue officials could quickly dispatch help to wherever it was needed and monitor progress of these efforts.

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WEDNESDAY, AUGUST 14, 4:00-5:30

SESSION TITLE: Loma Prieta and Earthquake Hazards Reduction No. 4

DESCRIPTION: This final of four earthquake sessions begins with a report on building damage information from Loma Prieta and concludes with an open discussion and Town Meeting summarizing recommendations regarding information systems, hazard reduction, and possible directions for URISA throughout the balance of the International Decade for Natural Disaster Reduction.

MODERATOR: Wilbur A. Steger, CONSAD Research Corporation, Pittsburgh, PA

Sherry Oaks, UCLA, Los Angeles, CA, and Yousif Ali Hussin, Colorado State University, Ft. Collins, CO

A Microzonation of Pre-Earthquake Vulnerability and Post-Earthquake Resilience in the Marina District of San Francisco, CA

GIS technology is applied in a microzonation study of the Marina District of San Francisco, California, an area that sustained great damage from the October 17, 1989, Loma Prieta earthquake. Data were gathered from post-earthquake observations, structural and geotechnical engineering analyses, extensive field investigations including verification of each structure, and in-depth analysis of documentary building histories from the individual building attribute files. Information on degree of earthquake damage (e.g. light, moderate, severe, total), building age, height, framing system, and building footprint is analyzed. Other factors affecting building resilience such as environmental degradation or building upgrades are included. In addition, related geotechnical parameters (e.g., soil types, types of artificial fill) are included in the GIS analysis. The area of study has at least four types of artificial fill and several other unstable soil types including dune sands and bay mud. The GIS technology is used in the multiparameter analysis of earthquake

damage, structural characteristics, and geotechnical properties to form a microzonation map for the district.

GIS Technology is also used to track reconstruction in the district and to assess post-earthquake vulnerability based on the voluntary and regulatory actions taken during the rebuilding and redevelopment of the area.

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Glenn O. Johnson, Glenn O. Johnson & Associates, Long Beach, CA

Town Meeting and Discussion on URISA's Actions for Disaster Reduction, Part I

In 1990 URISA declared its participation in the International Decade for Natural Disaster Reduction (IDNDR). The 1991 URISA Conference backed up that declaration with 45 presentations that deal with applications of urban and regional information systems to the reduction of human and property losses from natural or technological disasters. Four sessions focused attention on information systems implications and lessons learned from the 1989 Loma Prieta Earthquake in California. Two other sessions, bilingual in English and Spanish were devoted to hazard-related issues in Latin America.

Expertise represented in the 1991 presentations spans a range including earth science input to the management of earthquake and landslide hazards; engineering and social science analysis of risk and human response to hazards; evaluation of information systems performance during earthquake and severe storms; applying GIS during an earthquake and the emergency response period; analysis of street network data bases and understanding how they can be improved for public safety applications; reducing infrastructure vulnerability to disaster loss; understanding benefits of data sharing and improved estimates of disaster loss; anticipating future disasters by applying lessons learned from recent earthquakes and hurricanes; and improving the integration of science and technology into public policy.

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THURSDAY, AUGUST 15, 8:30-10:00

SESSION TITLE: TIGER/Street Network Files: Public Safety Applications

DESCRIPTION: TIGER and other street network files are increasingly being used in public safety applications to help provide and allocate services. This session examines some of the ways these files are used, built and maintained.

MODERATOR: Kenneth J. Dueker, Portland State University, Portland, OR

G. Larry Mason, Intergraph Corporation, Huntsville, AL

Transportation Network Files: A Valuable Tool for Disaster Management and Recovery

In many disaster situations emergency dispatch centers are as vulnerable to damage as the area for which they are responsible. To meet the need for moving portable dispatch centers and outside personnel into service, it is essential that geo files be available, which any CAD software can readily load and begin dispatching relief "knowing" the street

network. To accomplish this goal a national standard and street link coding system should be adopted. Having geo-base data structures defined will enable CAD vendors and users to spend less development resources on costly "map" conversions and focus on spatial analytic tools for disaster management. The U.S. Bureau of Census and the U.S. Geological Survey have engineered an ambitious project. Integrating DIME files with USGS's largest scale total coverage maps, a seamless topologically structured national transportation network file has been produced. The TIGER system is an information infrastructure for public safety. While the Bureau of Census or USGS can and maybe should be the lead agency in maintaining this national infrastructure, local emergency service providers have the most stake in maintaining currency and accuracy in local networks. This paper looks at the process of updating TIGER line files at the local level and the "Initial Proposal for the exchange of TIGER Digital Geographic Data" prepared by the Geography Department of the US Bureau of the Census.

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Dale Friedley, County of Manatee, Bradenton, FL

Street Networks: The Initial Challenge to Multiparticipant GIS Programs

Large numbers of organizations have been developing software to use the automated mapping data that is available from the 1990 Census TIGER file. This has resulted in a proliferation of commercial packages that require street network data bases and substantial marketing of these software systems. Many local governments considering GIS development are now looking at application landscapes that already have one or more of these commercial packages that must be supported. A strategy that supports centralized maintenance of a street data base and the distribution of custom forms of this data base to foreign application appears preferable to independent maintenance of several street network data bases. This paper discusses the primary considerations for a system independent street network data base. Distinctions are made between generic street network concepts and those needed for specific application areas. The application areas discussed include transportation impact assessment modeling, bus route planning, districting, address-based geocoding, coordinate-based geocoding, and public safety incidence analysis requirements. Initial review of the specific requirements for street networks in several commercial systems identified some major differences that will make full implementation of package-independent digitized street maps difficult if not impossible. It is evident that software developers using automated street networks must establish a consistent set of concepts and term definitions along with a vendor-independent data structure before true compatibility can be achieved.

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Stephen Foltz, Geographic Data Technology, Inc., Lyme, NH

Enhancing TIGER for E9-1-1 Applications

The TIGER database can be used in constructing address reference and graphic databases for E9-1-1 systems. While TIGER represents a tremendous breakthrough in generating an infrastructure of streets and non-street features for every county in the U.S., it does however have several limitations. These include incomplete address range coverage, lack of updates, and various inaccuracies. With TIGER, the E9-1-1 user will not have to start

from scratch in building a geographic database for their application. However, the E9-1-1 user will need to spend some time enhancing the TIGER database for their area before incorporating it into their system. TIGER was built to facilitate the taking, analyzing and reporting of the census. It was not constructed for emergency dispatch operations. In enhancing the TIGER file, attention must be given to the E9-1-1 operation and the geographic context under which the geofile will be applied. In other words, the type of enhancements of the TIGER database will vary with the E9-1-1 application. Conventions used for denoting locations will vary from region to region and the intelligence built into E9-1-1 systems vary. Some operations require an address scheme to be applied throughout the region regardless of the postal addressing scheme. Completely new address systems may have to be designed and encoded into TIGER. For example, in TIGER you would not expect a freeway to be encoded with address ranges. But emergencies occur along these highways and a way must be found to locate them. Some emergency districts superimpose an address scheme on freeways to accommodate these situations. TIGER in its current form cannot be expected to account for all these operational and regional variations. When using TIGER for E9-1-1 applications it is vitally important to understand its limitations and how to build upon its strengths. We shall explore some specific examples.

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THURSDAY, AUGUST 15, 10:30-12:00

SESSION TITLE: International Decade for Natural Disaster Reduction (IDNDR)

DESCRIPTION: Countries throughout the world are participating in the IDNDR. This session begins with presentations on multi-hazard applications being conducted in Italy and Canada. The session continues with an update on the IDNRD, and concludes with Part II of the Town Meeting of the previous day. Recommendations from the Public Safety Special Interest Group Conference activities will be discussed prior to being forwarded to the URISA Board of Directors for appropriate action.

MODERATOR: Robert H. Alexander, U.S. Geological Survey, Denver, CO

Francesco Brunori and Sandro Moretti, University of Florence, Florence, Italy

Public Safety in Italy: A Study Methodology on Settled Areas

Inside the four research categories of the National Group of Hydrogeological Hazards (GNDCI), a study on slope instability of Italian settled areas has been developed. The paper covers the methodological basis of monitoring natural hazards.

The studies are not sufficiently generalized to be applicable to the environmentally different situations in Italy. The study therefore has been carried out within representative sample areas with regard to different geological and physical aspects linked to human activities.

Finally, a descriptive picture of instability phenomena is depicted in a series of detailed notes for planning and restoring measures. The study will be supported by a GIS and will have a 'real-time' capability which depicts the evolution of the phenomena.

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Alastair Small, Wilfrid Laurier University, Waterloo, Ontario, Canada

Multiple Hazard Research in Kananaskis County, Alberta, Canada: A GIS Approach

A multiple hazards research approach will be applied to Kananaskis County Recreation Area, Alberta, Canada. A PC-based geographical information system will be used to aid in the hazard mapping, prediction and risk assessment process.

The system is capable of handling both raster and vector data structures, providing good flexibility for data input, storage and output. Data will be collected from a wide variety of sources and will be stored in digital format, thus recognizing the importance of data availability in hazard research. The applied aspects of the research will be discussed, namely improving land use management in the study area and therefore hazard reduction. The use of such a system will be evaluated in terms of public safety and decision making. The technical aspects of using GIS in hazard research will also be discussed, with the advantages and disadvantages of using such a system effectively. The research is being carried out as thesis work for a Masters Degree in Geography at Wilfrid University, Waterloo, Ontario.

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Speaker to be announced

Update on the International Decade for Natural Disaster Reduction

An up-to-the-minute status report on the International Decade for Natural Disaster Reduction (IDNDR) will include international activities, official participation at the national level, and participation by other groups such as regional and local governments, private industry, and professional societies. Items of special interest to URISA professionals will include a report on the new Scientific and Technical Committee (STC) for the IDNDR and its plans for information systems demonstration projects, quantification of disaster losses, quantification of disaster reduction benefit programs, and the STC's three key supporting activities: (1) education, training, and public information; (2) transfer of technology; and (3) technology and policy.

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Robert H. Alexander, U.S. Geological Survey, Denver, CO; and Glenn O. Johnson, Glenn O. Johnson & Associates, Long Beach, CA

Town Meeting and Discussion on URISA's Actions for Disaster Reduction, Part II

A continuation of the discussion from Part I culminating in final recommendations for consideration of the Public Safety Special Interest Group which will be forwarded to the URISA Board of Directors for action, as appropriate.

# AUTHOR INDEX



* = Authors with papers in Proceedings, URISA 1991, Volume I

# MODERATOR INDEX

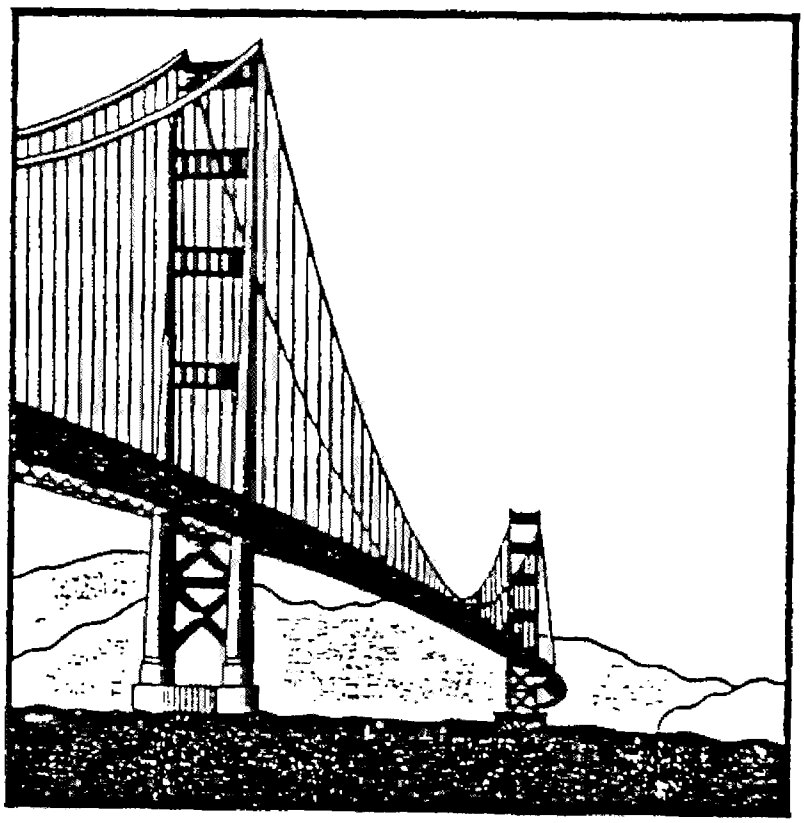
# SECTION II

# PROCEEDINGS PAPERS

# Urban & Regional Information Systems Association

## 1991 Annual Conference Proceedings

**San Francisco**



URISA 91

**INFORMATION & TECHNOLOGY: Gateway to Solutions**

Volume I

- *Transportation*
- *Infrastructure Management*
- *Environment & Natural Resources*
- *Land Records Modernization*
- *Public Safety*

EXCERPT: PUBLIC SAFETY PAPERS

# U R I S A  P R O C E E D I N G S

Papers from the annual conference

of the

URBAN AND REGIONAL INFORMATION SYSTEMS ASSOCIATION

August 11 - August 15, 1991

San Francisco, California

Volume I

Infrastructure Management o Transportation
Public Safety o Land Records Modernization
Natural Resource Management

Edited by

Anne M. Hale

South Carolina Water Resources Commission
Columbia, South Carolina

Excerpt from INTRODUCTION by Anne M. Hale

The fourth section of this volume, concerning Public Safety, includes eleven papers, indicating a strong and growing interest in this topic. This high level of interest and dedication can be attributed to the United Nations General Assembly passage of a resolution dedicating the 1990s as the "International Decade for Natural Disaster Reduction." This action has spawned international cooperation between and within nations to increase activities for disaster preparedness and response. Particularly, the UN aims to reduce vulnerability to natural disaster through mitigation and prevention methods. Clearly, based on the papers published here, members of the Public Safety SIG are contributing to the information dissemination goal of the UN resolution.

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