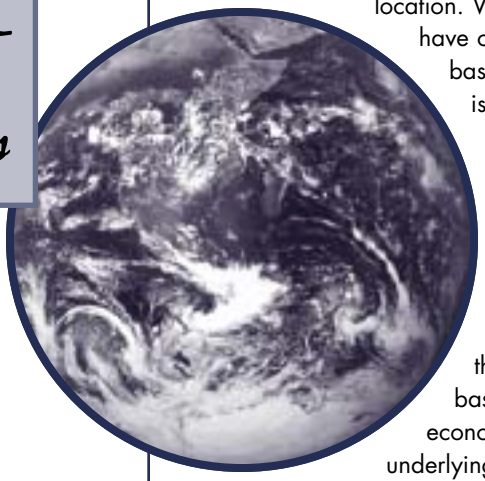
imagi NEWS

what's inside

In Search of an Assessing Tool to Quantify the Effects of Location on Value - GIS Response Surface Analysis

By Laurie A. Spencer and Jonathan Archer



One often hears that value in the real estate market is dependent on location, location, location. What effect does location have on value? One of the four basic duties of an assessor is to equitably evaluate all taxable value in their jurisdiction. There are three approaches to determining value – the market approach, the income approach and the cost approach. All three approaches are based on the same economic principles. The underlying issue in any appraisal is market value, or the price that an informed purchaser will pay for the property in an arms-length transaction.

Of the three approaches to determining value, the most mass appraisal friendly and the method used extensively by assessors in Michigan is the cost approach. This approach requires the assessor to use a cost-less-depreciation analysis and relate it to what properties are selling for through the use of an Economic Condition Factor (ECF). Using this approach, the assessor subdivides their unit into ECF areas which encompass neighborhoods of similar physical and/or economic characteristics. This approach assumes that location could best be represented as a group of contiguous (and generally similar) properties. One limitation of this method is that it cannot capture microvariations within a given neighborhood.

It was a tool that identified microvariations in neighborhoods that the Grand Traverse County Equalization Department was searching for. It is probable that the perfect assessing neighborhood never has and possibly never will exist. Nevertheless, in order to gauge value properly, it is imperative that the assessor inquire minutely into those factors, both social and physical, which influence neighborhoods and thus values.

History

East Bay Township had many new board members interested in a complete re-appraisal of the Township. A forensic audit by Plante & Moran of the assessing records indicated many building permits were not on the assessment roll. There had been criminal convictions against the clerk with nine counts of embezzlement, the supervisor with one count of willful neglect of duty by a public official, the recall of the Township treasurer, and the firing of the Township assessor (the clerk's daughter) who narrowly escaped criminal charges. The Grand Traverse County Equalization Department ventured into this environment when it was contracted by the Township to do the assessing – a first for the County. The desire to make this first venture into assessing a success pushed the County to refine many options already being tested including web-based GIS solutions, mobile assessing options including a Tablet PC, a Disto measuring device, MobileSketch Pro, Bluetooth technology, Mite-R-Gage, and GPS among other options. It was the search for an assessing tool to quantify the effects of location on value that prompted the Department to seek the help of Jessica Moy, Director of Remote Sensing & GIS Research and Outreach Services (RS&GIS), Department of Geography, Michigan State

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Who's Doing What in GIS and Spatial Technology

LITTLE TRAVERSE BAY BANDS OF ODAWA INDIANS

Population: Approximately 4000 citizens, most of whom are located within or near the Reservation boundary.

Geographic Coverage: The Reservation boundary is located within Emmet and Charlevoix counties, covering approximately 337 square miles (872 km^2).

Number of Staff: 1 GIS Director, 1 GIS Technician

PROGRAM SUMMARY

The basic function for the Little Traverse Bay Bands of Odawa Indians (LTBB) GIS department is defined by its Vision Statement:

"To fully utilize Geographic Information Systems for the betterment of the Little Traverse Bay Bands of Odawa Indians members and its sovereignty."

GIS has impacted the everyday lives of LTBB citizens in many ways. As a "new" technology in the late 1990s, LTBB leaders had the foresight to realize the multitude of potential benefits GIS could have for citizens and present day governmental operations first with C-MAP, now to the present day ESRI ArcInfo. Because of the ability to link information with geography, GIS has been, and continues to be, a powerful tool in support of tribal sovereignty.

Most recently, GIS has been used in support of citizen's inland hunting and fishing treaty rights. In a joint effort between LTBB, Bay Mills, Inter-Tribal Council of Michigan personnel and others, interpretations of inland treaty boundaries (within which citizens may exercise their sovereign right to hunt and fish) were overlaid and analyzed. From this analysis, an agreement on the exact location of treaty line coordinates could be reached before negotiations resumed, enabling these Michigan tribes to act with unified voice.

PROGRAM STATUS

Officially created as a departmental program in 2003, GIS now maintains approximately 150 GB of file-based spatial data on a centralized server for tribal operations. Multiple seats of ArcInfo are available to all governmental staff. GIS also supports GPS software and hardware and provides access to Trimble GeoXT, Garmin GPSMap, 60CSR and GPS V handheld GPS units. GIS also maintains information on the Reservation, Tax Agreement, Service Area and Ceded Territory – all of which represent important legal boundaries for citizens.

As most citizens live within or around the Reservation boundary and have direct access to governmental services, there exists an issue of providing access to these services to those who live on a statewide or even national basis. To help address this concern, the GIS Department has posted downloads on its departmental website: www.ltbbodawa-nsn.gov/gis/gis%20start.htm. From here, citizens with Internet access can download maps, read about current projects, or contact GIS Departmental staff for requests or assistance.

Several LTBB departments heavily use GIS/GPS as part of their day to day operation. The Natural Resources Department uses GIS/GPS in many areas such as conservation enforcement by mapping out fishing zones in the Great Lakes for commercial fishermen or tracking conservation officer patrol routes. Both wildlife and inland fisheries biologists use GIS/GPS to assist with species population surveys and conduct fish assessments on inland waters. Fisheries technicians use GIS/GPS to track species reproduction and conduct population health assessments within the Great Lakes system. Personnel within the Environmental Services Departments use GIS/GPS to help monitor inland lake water quality, inventory wetlands, and track air quality within the reservation.

GIS is also being used as a component for cultural preservation, giving LTBB the ability to securely collect, store, and geographically represent those areas of cultural significance to citizens while providing a means to communicate preservation concerns to outside entities. A "Culturally Significant Policy and Procedure" document has been drafted by the GIS department to help achieve this.

GIS also supports a multitude of other requests in areas such as graphic design, CAD, and is responsible for establishing and maintaining relationships with outside governmental entities that can further tribal GIS operations through data sharing agreements and project collaboration. Lastly, GIS has begun to initiate various training avenues using GIS/GPS applications for interested LTBB departmental employees, and is always available to assist the membership as a whole whenever possible.

NEW PROGRAMS AND ACTIVITIES

The range of overall services GIS can provide to LTBB and Michigan

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University about the possibility of assisting with location value response surface analysis (LVRSA) or (RSA) in East Bay Township. Richard Ward and others had published articles in the *Journal of Property Tax Assessment & Administration* highlighting the fact that RSA could capture the microvariations within neighborhoods that were missed by the traditional ECF neighborhood approach. RS&GIS agreed to take on the task through a student employee named Jonathan Archer with the assistance of Jessica Moy and David Lusch. The difference between this study and others is that previous studies focused on county-wide assessments or large metropolitan cities while this study focused on a single township within a county.

The East Bay Township RSA Study

East Bay Township is located in north-central Grand Traverse County. Covering 42.5 (110.1 km2) square miles, it is the 3rd largest unit in the County and one of the largest of the 1242 townships in Michigan. It has the highest residential parcel count of any unit in the County. The Township includes approximately 2.75 miles (4.43 km) of frontage along the East Arm of Grand Traverse Bay including an area known as the "Miracle Mile" for its beautiful sand beaches. Several lakes are located in the southeast region of the Township dominated by Spider Lake. The State of Michigan owns 5,780.3 acres (23.4 km2) within the Township, mostly in the east. The Boardman River passes through the very southern part of the Township. Cherry Capital Airport creates a salient into the Township along its western boundary.

Objectives

The objectives of the project were to 1) determine if RSA could improve property valuation models in East Bay Township and 2) to identify value influence centers (VICs) using that response surface. Inclusion of VICs within valuation models are intended to further refine the model. The data from recorded sales were utilized for modeling market values. Standardized sales data were then used to create a response surface while parcel and structure data were utilized to create regression models. A response surface is mathematically interpolated from point locations with an attribute value of sales price, sale price per unit, or a combination of the two. Location factors derived from the response surface and modeled VICs were then incorporated into multiple regression or nonlinear regression models.

Project Scope and Assumptions

For the 2007 assessment year, the required two-year sales analysis period was from April 1, 2004 through March 31, 2006. The study was based on single-family residential sales during this time period. Sales of mobile homes were included only if the homes were located on private parcels. Finally, only those sales listed as "Arms-Length" or "Good Split" were included in the study.

Both improved parcels and unimproved parcels were used to create the response surface based both on sale price and sale price per unit. The use of both improved and unimproved sales required the conversion of the sales terms to a standardized Z-score by subtracting the mean from an observation, then dividing the result by the standard deviation. The Z-score indicates the relative position of an observation in relation to the mean based upon the standard deviation. Standardization resulted in the data being rescaled to a mean value of zero and a standard deviation of one. For analysis, the data were further rescaled to have a mean value of one thus ensuring all values were positive.

The response surface can also be used to identify value influence centers. Several features were discussed as having an influence upon market value. The marketability of residential properties is thought to be affected by the presence or absence of utilities and conveniences. The comparative advantage or disadvantage in this connection at a certain location must be weighed against the facilities available at other competitive locations. Features examined to determine the influence each had on market values were availability of cable TV and natural gas, as well as proximity to Grand Traverse Bay, lakes, rivers, trails, parks/recreational areas, school districts, the regional airport, communication towers (private and commercial), and oil/gas wells.

Data Processing

The sales data from East Bay Township were exported from BS&A Software as a comma delimited file containing 303 attributes for over 22,221 records. During the extraction process from the BS&A database system; two blank columns were inserted between each attribute. Since Microsoft Excel 2003 only allows 256 columns to be extracted, a program was written in Python 2.4 which filtered out the extraneous columns. Another Python program was used to filter out those records dating to period of study (April 1, 2004 to March 31, 2006) and filter the records for parcels with more than one sale during the study period. The filter removed those records with the oldest sales date. During this pre-processing, all irrelevant attributes were also removed. The records were then imported into Microsoft Excel 2003 for further processing. After all invalid sales were removed 841 records remained which were joined to the parcel data in ArcMap 9.2. (See figure 1).

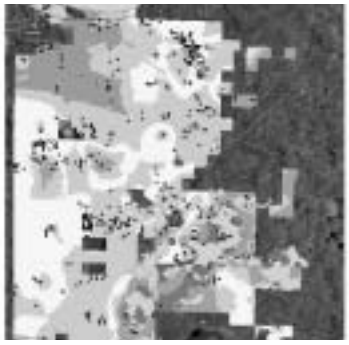

Figure 1: Sales Points in ArcMap 9.2

Methodology

Two-dimensional X-Y coordinates were derived from parcel centroids. The Z variable was derived from standardized sales scores. Four terms were utilized in the creation of the aggregate Z-score: improved properties sales price and sale price per total living space, along with the sale price and sale price per acre of unimproved properties. Separate Z-scores were calculated for each term. The aggregate score was then rescaled to a mean value of 1.0. The lowest combined score was -3.42, so 4 was added to the combined scores. The number added then divides the resulting sum.

Both inverse distance weighting (IDW) and Kriging were utilized to create multiple surfaces for analysis. Both methods interpolate the z-value at any given point from a set of nearest defined points. IDW tends to produce a "bulls-eyes" around input points, whereas Kriging

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An Organizational Biography of IMAGIN

By the 2007-2008 IMAGIN Board of Directors

What a great opportunity to spotlight the IMAGIN organization as it celebrates its 16th anniversary this year. IMAGIN has continued to provide a dynamic forum to promote the exchange of ideas and facilitate the continued professional development of the geographic applications professional. There are many opportunities and challenges on the horizon for professionals leveraging spatial data resources to transform the way we learn and make decisions that ultimately promote greater understanding. IMAGIN was chartered to promote data access and the sharing of spatial data among units of government, private sector, and academic institutions. The inaugural IMAGIN Forum held in the Library of Michigan during the spring of 1992 featured new discoveries as spatial data applications were being realized. Each succeeding year, professionals throughout Michigan and the region have gathered to share their experiences at an annual forum offering professional development, networking, and educational opportunities. This article discusses IMAGIN's mission and its membership who represent a broad discipline witnessing rapid changes to spatial technologies, applications, and resources. As a current or prospective member, the Board of Directors would like to share some of IMAGIN's important history along with current member benefits and opportunities for its members' involvement. IMAGIN's future rests on the participation of its membership to guide the direction of the organization and its resources. If you ever require assistance to learn more about IMAGIN or want to participate in its activities or events let us know by emailing info@imagin.org.

- **IMAGIN's Mission: Promote Awareness of Geographic Sciences/Applications, Offer Professional Development Opportunities & Sustain a Networking Forum**
- **IMAGIN's Leadership & Operations**
- **Benefits of Your Membership**
- **Your Involvement Drives the Organization's Success**

Our Roots & Mission

Envision a time when spatial data was neither available online nor very accessible because it was in the process of being converted from analog source maps/photos into a digital format. It was not that long ago and some of us may recall the cumbersome process to request, obtain, and exchange spatial information. The MIRIS (Michigan Resource Information System) digital, spatial datasets reflected the first, state mandated program to conduct an GIS feature inventory of land and water resources and current land use for application by local, regional, and state land use planners and resource managers (see the Michigan Resource Inventory Act – P.A. 204 of 1979). With the first seamless conversion of Michigan's resource base layers, several visionaries realized the impending need to promote awareness and coordinate access to a new treasure trove of spatial information to support the public decision making process at local, regional, and state levels. How would public officials leverage these resources? What organization would help promote efficient data exchange and management thereby making the data more available and accessible? Were there any standards available to facilitate spatial data exchange? IMAGIN was established in 1992 to address these challenges as a Michigan Legislative Council initiative which was funded by a three-year grant from the W.K. Kellogg Foundation to support a unique multi-agency effort in computer mapping and data development. The grant funded a consortium involving the Library of Michigan, Michigan State University, Michigan Department of Natural Resources, and Michigan Legislative Services Bureau in developing new methods and standards for geographic data exchange as well as promoting the application of this data in state and local decision making. After the expiration of the grant, the organization was sustained thanks to the support of its charter members including Jeffrey Johnson, Mike Beaulac, Joe VanderMeulen, and the late Bill Enslin.

Today, IMAGIN has grown and evolved to represent a rapidly growing community of public, non-profit, and private users committed to promoting geographic data and application awareness to a broad, professional community.

IMAGIN's Leadership & Operations

IMAGIN is a non-profit organization 501(c)(3) led by 15 Board Members who are elected by the membership at large to serve two-year, staggered terms (eight are elected during even years and seven during odd years). Any IMAGIN member in good standing is eligible to serve as a Board Member through an election at the Annual Meeting which is normally scheduled to convene at the annual conference in early May. Officers include the President, Vice-President, Treasurer, and Secretary, who are elected at each Annual Meeting by the 15 Board Members to serve for a one-year term. During the year, the Board of Directors meets on a bimonthly basis. Additionally, each IMAGIN Committee has a Board Member liaison who serves as an information resource to keep each Committee informed about activities occurring at the Board Meetings. If you are interested in learning more about serving on IMAGIN's Board of Directors email info@imagin.org so we can share more information about the election process and the rewards of serving in a leadership role.

IMAGIN members also benefit from the services of our Executive Management Team. Our Team offers the organization with marketing expertise, accounting/finance services, customer service, event/conference planning, and legal expertise to keep the organization operating in a professional, efficient, and responsive manner. When you send email to IMAGIN (info@imagin.org) or call our organization's main number at (888) 298-1002 you are speaking with an Executive Management Team which is pleased to receive your requests and answer all of your questions. We are excited about the depth of experience and resources IMAGIN has the ability to include through its service and event offerings.

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produces a smooth surface (see Ward et al 2002 and Ward et al 1999 for information on IDW and Kriging). Ward et al 2002 stated that both IDW and Kriging provided good modeling of location modifiers and only through trial and error can the best method be determined. In addition to the two methods of surface creation, several grid sizes were also examined. Grids ranged from 10 foot (3.048 m) cells to 500 foot (152.4 m) cells. Ultimately, a cell size of 50 feet (15.24 m) was chosen as the best size given the number of small parcels and the limited study area of a single township. 50 foot (15.24 m) cells allowed a minimum of two cells to represent each parcel, whereas, 100 foot (30.48 m) cells tended to overlap small parcel boundaries.

Consistent with the recommendation by Ward et al 2002, several surfaces were created utilizing both IDW and Kriging to determine the optimal one for analysis. Distance weighting power levels, number of points used, and the arrangement of neighbor selection were all manipulated to determine the optimal surface creation. Changing the power level in IDW changes the influence that neighboring points have on a given location. Higher power levels reduce the influence of distant points while greatly increasing the influence of nearer points. Lower power levels increase the influence of distant points while reducing the influence of nearby neighbors. Increasing the number of neighbors to be consulted resulted in a smoother surface. In the end, IDW was chosen as the preferred interpolator for the analysis. Eight nearest neighbors using a lower level of 1 (i.e. linear distance weighting) were chosen as the best representation of the data. Several response surfaces were created for analysis during this study. The primary surface included sale terms from both vacant and improved parcels. Other surfaces were based upon sale terms for vacant land or improved parcels individually. A surface based upon sale price only was also created.

The response surface served several purposes in this study. First, it provided a location modifier to be used in regression modeling. Secondly, it served to locate abnormalities in the data set. The parcel data and aerial photos were reviewed for all anomalous parcels revealing several instances of erroneous data that would have been overlooked otherwise. A similar process was used when inspecting the residential values from the regression models. Thirdly, the surface was used to determine the impact numerous geographic features had upon the market values.

A number of geographical features were examined to determine the impact the feature had on property values. The degree and significance of influence was determined from a three step process. A visual examination of the feature upon the response surface was the first step. Statistical examination of feature location and surrounding parcels proved a second level of analysis. Finally, those features determined to have some possible influence or of key concern were incorporated into general linear regression models.

Features of interest included Grand Traverse Bay, lakes, steams, oil/gas wells, communication towers, regional airport, school districts, distance to shopping districts, parks, trail networks, churches, school properties, public properties, and public utilities. Only features located outside the public lands were included in the analysis. (See Figure 2 and Figure 3)

Figure 2: Feature of interest Lakes Buffered

Figure 3: Feature of interest Airport

Results

Visual examination revealed that most features were found throughout the possible range of surface values. Z-scores were determined for all features and most had an average Z-score between 0.92 and 1.13. Three features, however, appeared to significantly influence surrounding values. Proximity to Grand Traverse Bay and lakes appeared to have a positive influence on values, while the regional airport and lower general elevation had a negative impact on values.

Utilizing Systat 12, a number of general linear models were run. Linear models were used due to their ease of use. A base model of improved properties, without location modifiers resulted in a squared-R value of 0.647 and a standard error of $66,604.60. A model based on Z-value only resulted in a squared-R of 0.702 and a standard error of $61,023.80. However, the addition of Z-scores values to the base model resulted in an improved squared-R value of 0.951 and reduced the standard error of the estimate to $24,655.86.

Several geographic features were included within a number of regression models. Two methods were utilized in running these models. First, features were treated as ordinal attributes. Parcels were issued a value dependent upon buffer distance from a feature. The second method utilized the distance between parcel centroids and nearest feature. Results for most features were negligible or counter intuitive.

Frontage on Grand Traverse Bay or the main lakes in the southeast section of the Township had the greatest impact on market values. The mean Z-score for parcels with lake frontage was 1.657. Buffer zone average Z-scores decreased with distance from the lakes. Inclusion of the amount of lake frontage and the lake associated with the parcel had a significant, positive impact in the regression models.

Average Z-scores for buffer zones surrounding the regional airport increase with distance out a distance of one mile (1.609 km) (i.e., in the first mile proximity has a negative influence on value). However, regression models employing distance to the airport produced negative coefficients. The airport did not seem to have any additional significant impact on market values beyond locational impacts incorporated in the z-values. An artifact of the response surface interpolation was the appearance of lower z-values extending due east from the airport. Oil/Gas Wells appeared to have a small negative effect upon

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tribes is constantly increasing, with at least four Michigan tribes now having full time GIS personnel. It is for this reason that LTBB GIS sought to annually bring together respective tribal GIS personnel to help further individual and overall tribal GIS initiatives on a statewide basis. The Michigan Tribal GIS Group (MTGG) had its first meeting in 2005 and was hosted by LTBB GIS. Based upon this meetings success, a second meeting was held in 2007, hosted by Michigan State University Extension at the Kellogg Center, East Lansing. This meeting was well received by the Michigan Tribal Community as a whole with representatives from 8 out of 12 federally recognized Michigan tribes in attendance. Future plans for this group are still underway.

LTBB GIS is also acting as chair to the CCE (Charlevoix, Cheboygan, Emmet) GIS Group, comprised of surrounding local governments and agencies. Currently, personnel from Emmet, Charlevoix, and Cheboygan counties, CCE 911, Little Traverse Conservancy, and Tipp of the Mitt Watershed Council are active members of this group, the purpose of which is to enhance relations between member entities and promote joint project partnerships. Currently, the group is exploring options for the formation of a regional GIS Authority (which would outline in-common GIS standards such as data projections, accuracy, and edge matching) and exploring options for a 2009 three county aerial orthoimagery flight.

As part of the ongoing effort to broaden services to LTBB, GIS contracted with InfoGeographics to develop an easy-to-use, browser-based application that enables LTBB staff to view, query, manipulate, and print customized maps with little or no training.

Based in ArcIMS, this application is available to governmental staff only and includes tribal specific data layers (commercial fishing zones, reservation boundary, land ownership) and customized functionality to assist with everyday tasks. An example of the customized functionality is a Latitude/Longitude key-in that enables the user to enter in GPS coordinates, zoom to their location, and print off a customized map or save in PDF format. This feature could greatly benefit tribal commercial fishermen in determining exact location relative to fishing zones. Also, Tribal Council now has the ability to locate land parcels on the fly as well as save and print customized maps directly from a Council meeting.

LESSONS LEARNED/RECOMMENDATIONS

One of the biggest assets to the LTBB GIS or any governmental GIS program is to establish and maintain good relations with surrounding governments and agencies. Collaboration can have many advantages from project formation to reductions in data collection cost and effort. LTBB GIS is fortunate to have excellent relations with our surrounding entities, without which the effort to establish a working GIS at LTBB would be much more difficult.

Little Traverse Bay Bands of Odawa Indians GIS Director Alan Proctor can be reached at (231) 242-1597 or aproctor@ltbbodawa-nsn.gov

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parcels located within 500 feet (152.4 m). However, the limited number of observation within the effected distance may have biased this conclusion.

Parks and recreational features within 500 feet (152.4 m) of parcels increased their z-values. However, none of the regression models supported the conclusion that parks and recreation features were value-adding features. The trail network, public lands, streams, school districts, places of worship, and public utilities within the Township did not have any appreciable effect upon Z-scores or market values.

Distance to both downtown Traverse City and the mall district south of Traverse City did positively influence Z-scores and the regression models. Euclidean distance to the mall district had greater significance than distance to downtown Traverse City.

Conclusion

Inclusion of location adjustments based upon RSA greatly improved the linear regression models for property assessment. The base model produced an R2 of 0.647 (SE = $66,604.60), while adding Z-scores to the model increased the R2 value to 0.951 and reduced the standard error to $24,655.86. These model improvements resulted from the ability of the response surface to capture spatial microvariations in value within neighborhoods. Additionally, the utilization of location adjustments based upon a response surface will increase the accuracy of Computer-Assisted Mass Appraisal versus the previous neighborhood delineated adjustments.

The system of RSA is an easy and replicable process. Further research into the use of RSA includes cluster analysis (Ward 2006) and land valuation for vacant and improved properties (Jones 2006). Both methods have been proven to improve assessment beyond basic response surface location modifiers.

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For more information, please contact Jessica Moy at (517) 432-0601 or moy@rsgis.msu.edu or Laurie Spencer at (231) 922-4774 or lspencer@co.grand-traverse.mi.us

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Joining IMAGIN Has Its Privileges

Anyone may join IMAGIN as an individual member, supporting organization member, or student member. These different categories allow options for professionals belonging to organizations of varying sizes and also support educational opportunities for students who will become future geographic applications professionals. Joining IMAGIN will allow you to know when opportunities to bolster your knowledge through educational seminars and technical training sessions are available for professional growth. Additionally, benefits include immediate access to the entire membership directory so you can establish networking connections with over 300 members engaged in similar geographic applications or interest areas. Members are also invited to learn and share perspectives in the *IMAGINews*, the organization's bi-monthly newsletter distributed to the entire membership. Past editions of the newsletter are available online for you to explore at www.imagin.org and current editions are reserved for our membership. On a monthly basis, IMAGIN also distributes an electronic newsletter called the *E-News* designed to concisely highlight the accomplishments of the membership, explore geographic applications, and promote advancements throughout the greater user community. Want to contribute an idea or article for the *E-News*? Simply email enews@imagin.org to share the ideas with those serving on the Services & Benefits Committee.

IMAGIN's capstone event is its Annual Conference held at different locations across Michigan in May of each year. The 2008 Conference event is scheduled at the Marriott Dearborn Inn on May 4th – 7th in Dearborn. The upcoming Conference theme will feature geographic applications in economic development. This exciting venue will provide an opportunity for participating in sessions led by members and professionals highlighting their latest developments and accomplishments. IMAGIN also places great value on recognizing those who have contributed as students, professionals, and lifelong achievers to our profession at the annual recognition and awards banquet.

IMAGIN's Work is Done By Committee

IMAGIN Committees promote membership involvement in activities supporting education/advocacy, networking, professional development, and member service delivery throughout the year. Each committee is led by one or two chairpersons along with a Board Member liaison who convene committee meetings on a regular basis throughout the year. A brief summary of each committee is provided for you along with contact information to join or learn more about current activities underway. They include:

Professional Recognition Committee: Members in this Committee identify, recognize, and celebrate successful individuals and programs in geographic applications and information systems. The Committee actively seeks out nominations for outstanding contributions to our discipline, college students to participate in poster/paper competitions, and lifelong achievers who have distinguished themselves and their profession. To learn more or join, send an email to ProfessionalRecognition@imagin.org.

Services & Benefits Committee: This Committee works to define, develop, and deliver appropriate services and benefits for members in the most effective way possible. This includes providing services such as the *IMAGINews* newsletter, *E-News*, and the IMAGIN web site. Activities members in this Committee pursue include the maintenance of the IMAGIN member database, identification of changing member needs, and improving the level and utility of communication and information sharing between and among members. To learn more or join, send an email to ServicesBenefits@imagin.org.

Annual Conference Committee: This Committee promotes members committed to supporting the highest quality annual conference for individual members, interested professionals, and to attract a diverse cross-section of public, private, and non-profit organizations. This Committee develops the conference marketing strategy for attendees, sponsors, exhibitors, and speakers. If you would like to learn more or join, send an e-mail to AnnualConference@imagin.org.

Partnerships & Outreach Committee: The Committee is charged with increasing IMAGIN's membership base through systematic recruitment and retention efforts and to establish partnership relationships with other appropriate entities and thereby strengthen the organization, increase its visibility, and improve the benefits for members. To learn more or join, send an email to PartnershipsOutreach@imagin.org.

New in 2007-2008: Emerging Technologies Seminar Series: This is a special initiative being introduced this year to expose IMAGIN members to newer technologies (LIDAR, Multispectral Image Analysis, Orthophoto Processing, etc.) they may be unfamiliar with which allow them to become more efficient or produce new products/analysis. Starting in the Fall of 2007, a two-hour seminar will be held on a monthly basis covering a specific aspect of a geospatial emerging technology. Those unable to attend in person will be able to participate through a web meeting environment. This series is well suited for both the student and the geographic applications professional. To learn more or suggest topics of interest to you send an email to EmergingTechnologies@imagin.org.

The Future – Membership Involvement Drives Success

The vast majority of work accomplished by IMAGIN originates from volunteer commitment and dedication. This happens because our members believe in the potential of geographic applications to transform the organizations we serve. IMAGIN is an inclusive organization with the purpose of promoting those who advance the geographic sciences discipline by embracing opportunities to educate, network, and professionally develop users applying geographic applications and tools which directly benefit their stakeholders. We all benefit from witnessing, understanding, and advocating the activities we pursue professionally. Our profession demands our continuing educational development so we are aware of the latest advancements and techniques of today's geographic technology and methods. IMAGIN provides the opportunity for you to receive the benefits and professional acknowledgment you deserve as a contributor to this exciting discipline.

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IMAGIN is a non-profit 501(c)3 organization comprised of individuals and organizations interested in the use and application of geographic information system (GIS) technology in Michigan. Our members are committed to improving the quality and availability of digital data necessary to make good use of GIS. We believe that cooperation and open communication are necessary to achieve these objectives.

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