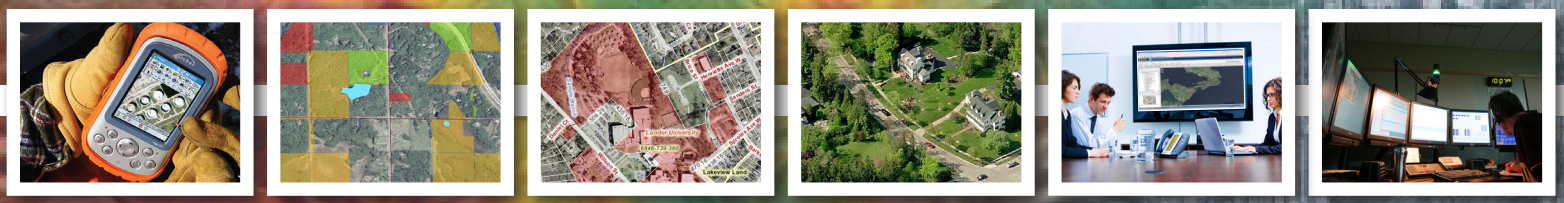
Enterprise Geographic Information System

GIS COUNTY UTILIZATION

St. Louis County, Minnesota



INTEGRATING & ALIGNING BUSINESS OPERATIONS

Setting the Foundation for Long-Term Success

DRAFT: NOVEMBER, 2010

Planning and Community Development

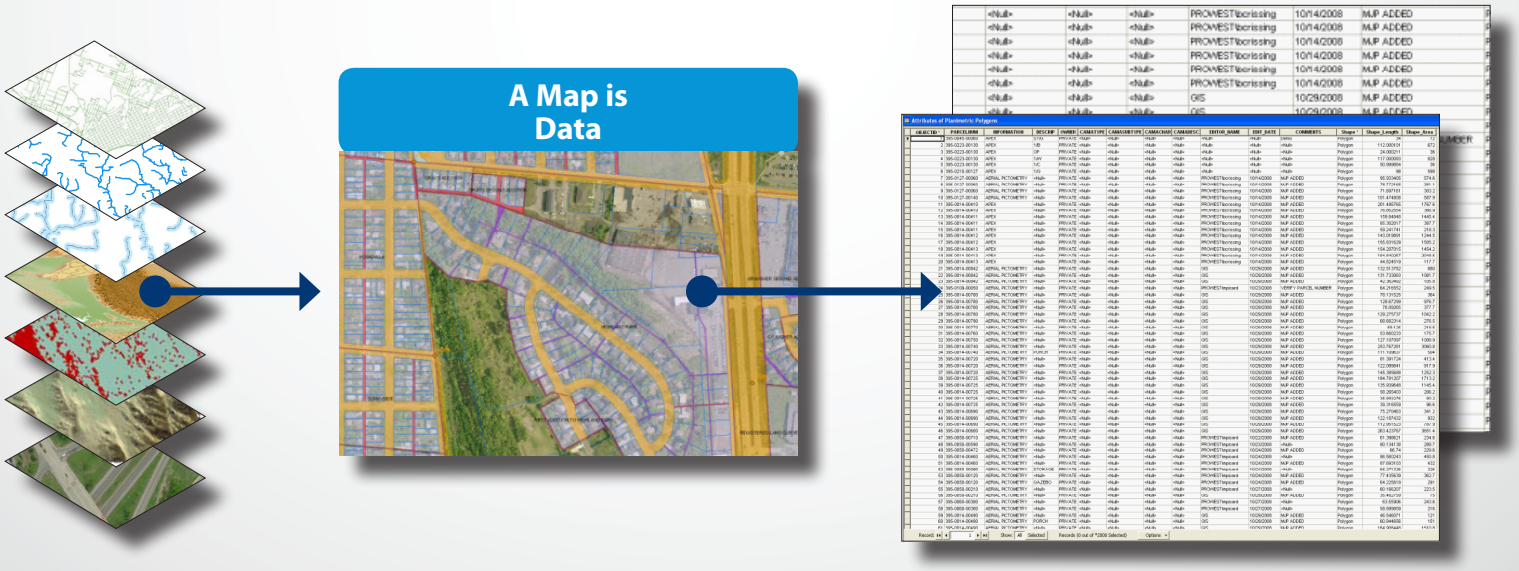
WHAT IS GIS: A geographic information system (GIS) allows St. Louis County to view, understand, question, interpret, integrate, model, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts through print, web, and mobile mediums.

ABOUT GIS: Many people have heard of Geographic Information System (GIS) but may not be aware of the broad impact and the critical function it plays in the daily lives and operations of many residents, businesses, and government. GIS was first developed in 1963 and is a sophisticated geospatial enabled desktop, web, and mobile technology. It can be used to manage assets and resources to assist business operations by providing the ability to query, analyze, model, capture, update, store, and map large quantities of geospatial and non-geospatial data.

Most of the information and discussions about our world contain references to a location or area. This location-based reference is enhanced by GIS technology, which enables businesses and government to connect and utilize geospatial and non-geospatial data together to create powerful tools for users, or in our case, St. Louis County. At the county government level, it is estimated that a majority of government data is location-based such as: land ownership, buildings, survey corners, roads, emergencies, accidents, fires, sales, and a host of other data. This location-based information, or geospatial data, has become essential infrastructure and core function of government operations to improve enterprise productivity and efficiency.

Furthermore, GIS technology allows users to layer geospatial information and connect to non-geospatial information to create an enhanced geo-enabled system. These can be added on top of each other or organized in a way that best suits the user's interests. The end-user controls the amount of information by stacking information in layers for further analysis of resources and assets or to mobilize resources for a given task. This can all be done from all from a desktop, web, and/or mobile application.

GIS can be simple, complex or anything in-between. Users can make a simple map or perform in-depth analysis, modeling, transportation routing, reporting, charting, image analysis, GPS tracking, and so on. Its application is limited only by the user's imagination.



LOCATION (GIS) BASED COUNTY ISSUES

- Land Ownership
- Buildings
- Survey Corners
- Roads, Bridges
- 911 Dispatch
- Lakes
- Addressing
- Parks, Trails
- Accidents & Incidences
- Hazards
- Rivers/Streams
- Zoning
- Schools
- Construction
- Hospitals
- Emergency Shelters
- Sales
- Building Ownership
- Utilities
- Physical Road Inventories
- Permits
- Waste Treatment
- Health Incidences
- Crime, Fires

GIS GENERAL BENEFITS
ENTERPRISE

Better Decisions- Informed
GIS is a tool to query, analyze, locate, spot conditions, portray trends, identify patterns, and model scenarios to support the decision making process through increased quality and depth of information.

Improved Productivity and Efficiency
GIS has streamlined many common tasks of government and business operations. Ultimately, GIS and a parcel layer will increase efficiency and productivity. GIS has improved management of government and resources by creating a shared database. One department can benefit from the work of another. Essentially, data can be collected once and used many times by many departments.

Improved Data Managementl
A common by-product of GIS is that information is better managed and formatted to be user-friendly. It also provides the ability to link databases for a clearer understanding of a particular issue or project.

Improved Access to Information
The greatest number of requests for information on St. Louis County's web site was for parcel information from real estate businesses (e.g. appraisers, realtors, title search companies, developers) and residents. GIS parcel layer provides opportunities to quickly and efficiently get information to various end-users.

Improved Data Quality and Standards
As GIS grows across the enterprise, increasingly GIS data quality and standards are enforced and many times required to be able to interface with spatial technology.

Shared and Leveraged Technology Platform
GIS ensures that a common set of technologies and tools is used and that duplication is minimized by leveraging a common technology platform.

Common Operating Picture
GIS provides a common way for County personnel to view and use GIS software and data, thus reducing duplicate efforts and increasing and improving the way people see information through a common window.

Locational Awareness
GIS provides location based awareness that is critical in many aspects of County business operations.

ST. LOUIS COUNTY CONTEXT

COMPARISON (for Context Purposes Only)

RHODE ISLAND
Square Miles: 1,545
(Land Area 1,045 and Water Area 500)

DELAWARE
Square Miles: 2,489
(Land Area 1,954 and Water Area 536)

CONNECTICUT
Square Miles: 5,543
(Land Area 4,845 and Water Area 699)

ST. LOUIS COUNTY , MINNESOTA
Square Miles: 6,860
(Land Area 6,225 and Water Area 635)

NEW JERSEY
Square Miles: 8,721
(Land Area 7,417 and Water Area 1,304)

VERMONT
Square Miles: 9,250
(Land Area 8,885 and Water Area 365)

NEW HAMPSHIRE
Square Miles: 9,350
(Land Area 8,868 and Water Area 382)

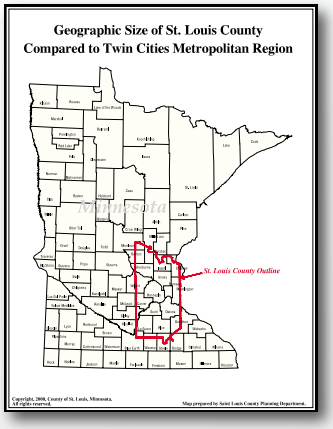
MASSACHUSETTS
Square Miles: 10,555
(Land Area 7,838 and Water Area 2,717)

ST. LOUIS COUNTY vs. STATES

COMPARISON (for Context Purposes Only)

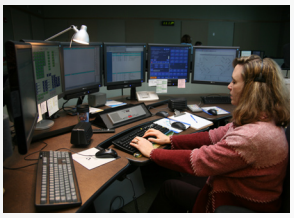
To put St. Louis County's size in perspective, it is relatively the same size as various states. This comparison only compares states to show our challenges which may require different approaches to our governance, data, transactional and processing, infrastructure and network, and applications and software direction. The sheer size of the county requires the county to deliver services in a different manner. The following are topics the county must keep in mind as it develops the county enterprise GIS program:

- **Perspective**: Requires a state type view of our GIS program and operations. Any project and/or initiative is an enourmous undertaking and all-due-diligents must be incorporated into procedures.
- **Data**: Any data development is a large undertaking and can be costly. Plan early and get it right the first time.
- **Infrastructure & Network**: Any deployment needs to take into account the intense network demands, cost, and maintenance across county.
- **Applications & Software**: Any applications deployment needs to take into account access and server application demands per infrastruture and network capacity.



GIS County Use

County Use of GIS



E911 & Public Safety: GIS technology and geospatial data is used in St. Louis County's E911 Computer Aided Dispatch (CAD) and 911 addressing by providing key data for 911 dispatchers to dispatch appropriate fire, police, ambulance, and first responders of nearly 180 emergency response agencies in St. Louis County.

Natural Resource Management: GIS helps departments manage, track, and monitor forest health and growth, fire and disease assessment, sensitive wildlife identification, administation of tax forfeit lands, wetlands, floodplains, watersheds, and surveying, assessing, locating and appraising of tax forfeit property.

Community & Economic Development: The county is increasingly turning to GIS to promote community and economic development to strengthen the economic base of county communities by retaining and growing existing businesses and attracting new investment, and addressing community needs.

Public Health: The county is increasingly using GIS technology in its Sub-Surface Treatment System (SSTS) management to enhance permitting, monitoring, and enforcement actions.

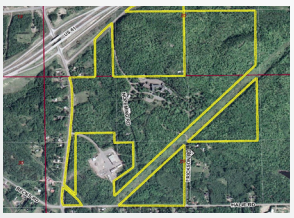
Land Records Management: A critical function of county government has been to track, record, and provide detailed information on land records at the parcel level. It provides tools to more efficiently conduct assessment, taxpayer services, and management of land records.

Transportation: GIS has been used in planning and implementing infrastructure projects from roads and bridges to managing assets and planning for capital improvements. It is increasingly used to support surveying and field work.

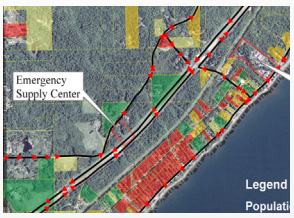
Planning: GIS assists departments conduct long-range planning by providing the ability to research, analyze, project, and map data. It also assists in parcel identication, permitting, zoning and land use administration, transportation networks, housing stock, residential, and more.

Waste Management: Expanded usage of GIS involved with the overall high level management of waste management, canister sites, recycling, and hazardours waste.

Emerging- County Use of GIS

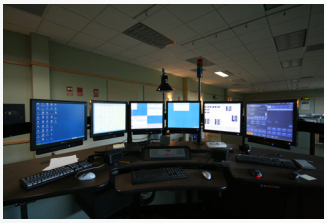


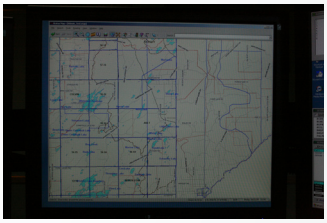
Facility Management: GIS is beginning to be used as a tool to help plan and manage the delivery of health and human service programs and to make the most efficient use of available resources.



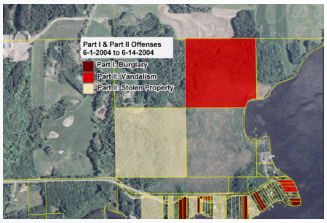
Human Services: GIS is beginning to be used as a tool to help manage emerging plans, and general planning support for human service programs.

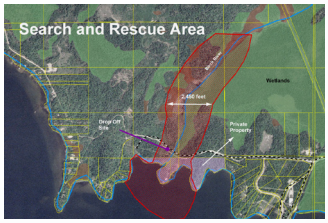
911 COMMUNICATIONS DISPATCH





- **Assists in Determining Appropriate Response: Provides Dispatchers Enhanced Details about Situation and Landscape**
  There are 180 different emergency response agencies, thus determining the situation can improve response and save potential resources. With GIS, dispatchers have the ability to further assess the situation (e.g. aerial photography, water, elevation/terrain, access, nearby trails, wetlands, and nearby property owners for assistance) so that emergency response can be better prepared and responded too.
- **Improves Emergency Response, Dispatching, & Tracking- AVL**
  Real-time mapping information on police/ambulance locations (Automatic Vehicle Location- AVL), its destination, possible routes of travel for the shortest time interval to site, and can identify the distance the emergency response is from the callers location and update the caller as the emergency vehicle approaches.
- **Identifies Location of Calls or Property Owners**
  Identifies Exact Location of Cellular Phone Callers
  There is an ability for the parcel layer and GIS to combine technology that will pinpoint the location of cell phone callers (lost/injured) in relationship to the overall landscape and situation (GIS/parcel layer). Through this call, a dispatcher can direct emergency response based upon landscape.
  Assists Dispatcher Determine Location of Calls with Little Information
  There are calls that have no information attached, so dispatchers must determine location of calls or locate property. Callers may not know the exact locations, but do know the property owner of the land they are on. This can quickly help identify or pinpoint the perverbial "hunting shack" to assist in locating the "lost, missing, or late" hunter.
  Improves Identifying Owners at Site of Incident
  The GIS and Land Information Portal would be particularly useful for burglary & break-in situations by helping locate information.
- **Limits Mobilizing Search and Rescue Situations & Potential Tragedy**
  A dispatcher can locate a lost hunter/hiker/camper, watch progress through GPS, and direct them out to safety (around lakes, wetlands, through trails) or to nearby property owners for further assistance. This could limit mobilizing search and rescue operations and potential tragedy.
- **Limits Mobilizing Search and Rescue Situations & Potential Tragedy**
  Provides a method of notifications in situations requiring evacuations (e.g. clearing a particular area due to a gas line break, etc.) by identifying (flagged) vulnerable adults within area for further assistance.
- **Improves Process to Assign Rural Addresses**
  Assists in the process of assigning rural addresses to new structures both commercial and residential. Currently, addresses are stamped on a paper map and inserted into the 911 dispatch system.

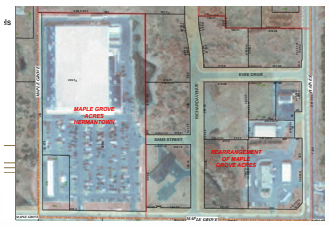




- **Improves Emergency Management**
  1. Planning: Analyze and document potential emergencies or disasters, consequences or impacts upon life, property, environment, and assessing the hazards and risks.
  2. Mitigation: Activities that eliminate or reduce the probability of a disaster.
  3. Preparedness: Develop plans to save lives, minimize disaster damage, enhance disaster response operations, stockpiling vital supplies, preparing routes and response teams.
  4. Response: Emergency assistance for victims (e.g. search and rescue, shelter, medical care, food), stabilization of situation, reduce secondary damage (e.g. shutting off contaminated water supply sources, securing and patrolling looting-prone areas).
  5. Recovery: Security, cleanup, recovery, temporary housing, and access to food/water.
- **Improves Crime Analysis**
  Crime statistics portrayed geographically have the power to solve crimes or assist in patrolling to enhance public safety. By using GIS, mapping crime by category, the Sheriff's Office can determine crime intensity, solve potential crimes, determine "hot spots," create strategies to be proactive, and spot trends. In some cases, GIS was used to solve drug cases by linking sales data of cough medicine or cold tablets and found that a "bench chemist" was producing drugs with certain ingredients in the area.
- **Enhances Planning Efforts for Raids, Seizures, and Monitoring**
  GIS provides background data and layout for law enforcement raids, seizures, and monitoring. It can provide quicker research and identification by showing property boundary and ownership information, improved access to legal descriptions for search warrant applications, and identify property owners for burglarized cabins and property.
- **Improves Court Room Evidence**
  Mapping capabilities can show a jury the spatial location of evidence and victims which provide a more comprehensive assessment of the situation.
- **Improves Public Safety Policy**
  GIS makes it possible to track the effectiveness of law enforcement programs such as: comparing accident data to determine the effectiveness of programs, comparing service calls before and after setting up a neighborhood patrol program, balancing workloads by drawing up more equitable patrol areas, and evaluating the results of selective enforcement plans.
- **Helpful in Search and Rescue Situations**
  Search and rescue situations require background information to set up search parameters, area details, property ownership, elevation, terrain, and many other factors that can be useful in finding the missing person.
- **Improves Property Owner Notification**
  Assists in identifying and notifying property owners who have been burglarized, vandalized, or other forms of property destruction.








- **Improves Service and Efficiency**

  Improves Response Time to Data Requests

  Every year, thousands of requests are received from residents, appraisers, lawyers, real estate professionals, title companies, and others for parcel data on ownership, parcel location, acreage, last sale date, abstract/ torrens, last date document recorded, original plats, maps, land delineation, and lot dimensions (hundreds per month). Difficulties arise when this data is stored in various departments, data platforms (Excel, Access, MCIS, etc), and maps (plat books, range book, Carson maps, half-section maps, U.S.G.S., Certificate of Survey, Township maps, etc.), and cannot be easily accessed. The end result is slower service to customers due to inefficient and outdated technology systems.

  Enhances Tracking and Updating Information

  GIS can easily track and modify information as new and additional information is recorded and provided by the residents. This information could be easily and immediately accessed by all.

  Eliminates Antiquated Process for Public Notification (Generating Owner Labels):

  The Auditor's Office assists cities in developing mailing labels for public notification for variances and other development activities in order to notify adjoining property owners within a certain buffer. This antiquated process takes up hours to days for each query request. GIS significantly reduces the time for this process or can be completed by requesting city.

  Web Portal: Enhances Access 24/7

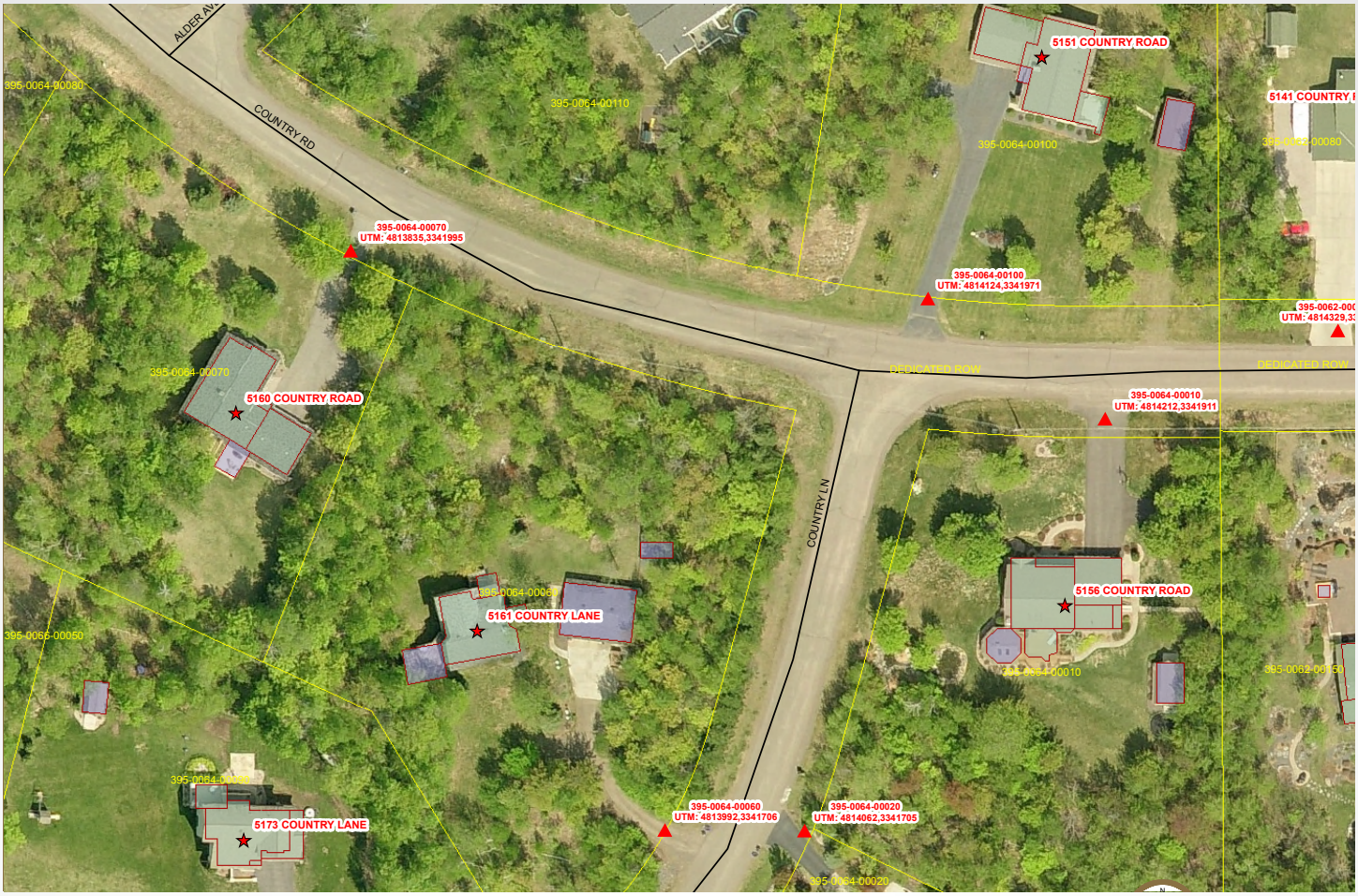
  To some degree, access is available through the current parcel information web site. However, many of the data requests are geographically based and are not easily accessible by the current setup. Through a geographically based parcel layer coverage, a business or resident can use the web site any time of the day to conduct research that otherwise would be handled by county staff on the phone or at the front counter. This will greatly enhance services for commerce and residents who request data.

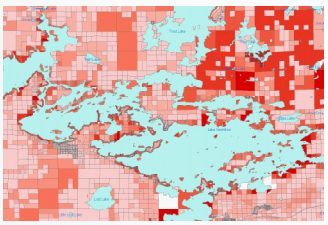
- **Assists in Election Process**

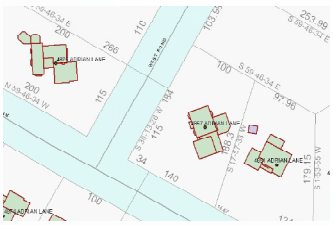
  The parcel layer and GIS assists the planning efforts in redistricting, reprecincting, projected growth for each precinct, voter analysis, voter education, voter counts, voter turnout, precinct election support, determine optimal polling sites, improving voter registration process, election day support of volunteers, and others.

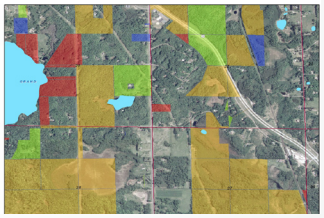
- **Converts Cadastral (Parcel) Recording from Paper to Digital**

  Converting parcel recording from drawing on paper to digital GIS form will improve all areas of the Auditor's Office and the County from eliminating book deteriortation and replacement, improves drawing accuracy, and eliminates multiple documents - one edit used many times.









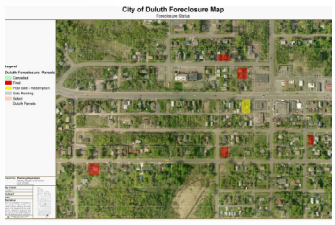
- **Fair and Equitable Assessment**
  A parcel map would help both county and local assessors to locate parcels from various points of view that affect value and classification. Such points of view include location with regard to access (roads, water, trails); location with regard to man-made features both good (parks, malls, hospitals, schools) and unpleasant (active gravel pits, junkyards); location with regard to natural features both good (lakes, rivers, panoramic views) and bad (erosion areas, low lands subject to seasonal flooding); location with regard to market trends (changes in demographics, investment opportunities); and location with regard to legal use (zoning laws, habitat restrictions).

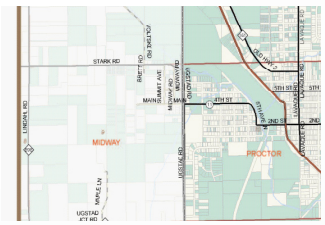
- **Improves Real Estate Record Analysis**
  The Assessor's Office receives innumerable amounts of data requests from real estate professionals researching information on comparable sales, acreage, bath and bedroom counts, assessments, taxes, land values, price per acres, and a host of other facts. Such data requests have made the Assessor's staff de facto research assistants. GIS will substantially reduce the number of these requests.

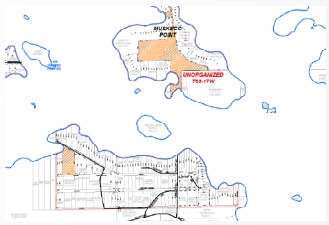
- **Improves Assessment Tracking and Analysis**
  Improves Sales Trend Trackings: GIS is being used more and more to display such sales trends as price paid per acre or front footage, depreciation of existing buildings as markets heat up or cool off, effects of recent changes in legal use on a market, influx of out-of-county buyers, conversion of parcels from one use to another. Such displays can be used by assessors to write valuation schedules and by taxpayers to judge the reasonableness of their market values and the reasons behind increases/decreases.
  Provides Ability to Match Undocumented New Construction & Structures to a Parcel: An appraiser who comes across undocumented structures, or first-time new construction, can use the GIS parcel layer to identify the parcel and its owner.

- **Improves Auditing Assessment**
  Enhances Administration Functions: GIS can be used to display such sales trends as price paid per acre or front footage, depreciation of existing sales.
  Provides Equalization Support: Parcel maps can display assessed values of parcels side-by-side throughout a neighborhood, township, or region. Assessors can compare, for instance, the consistency of their estimated market values on contiguous 40-acre parcels, or platted lots.
  Assists Board of Appeal and Equalization: GIS helps the Appeal Board members to "get their bearings" as taxpayers come in one at a time and appeal the value/class on a particular parcel. GIS maps would help the board make judgements with regard to locale, neighboring influences.

- **Improves Service and Efficiency**
  Improves Response Time to Data Requests: GIS data is linked through a web portal to reduce information requests by phone calls, walk-in, and e-mail questions regarding basic assessment data. A web site using a parcel map allows the internet user to drill down to the parcel level to find such information and compare properties. This would significantly reduce employee time devoted to data gathering.







- **Improves Review Processes**
  Currently, when examining documents, the Recorder's Office in many instances must access maps and data in other departments to complete a review and determination of a document. This method slows down the process and ties up staff in several departments. For example: the Examiner of Titles and the Recorder's staff must review maps from scattered sources when examining and reviewing documents. Often they must physically go to the Auditor's Tax Department or call the County Surveyor's office, causing additional staff workload in all departments. With GIS, Recorder's staff can internally review documents, saving time for both departments.

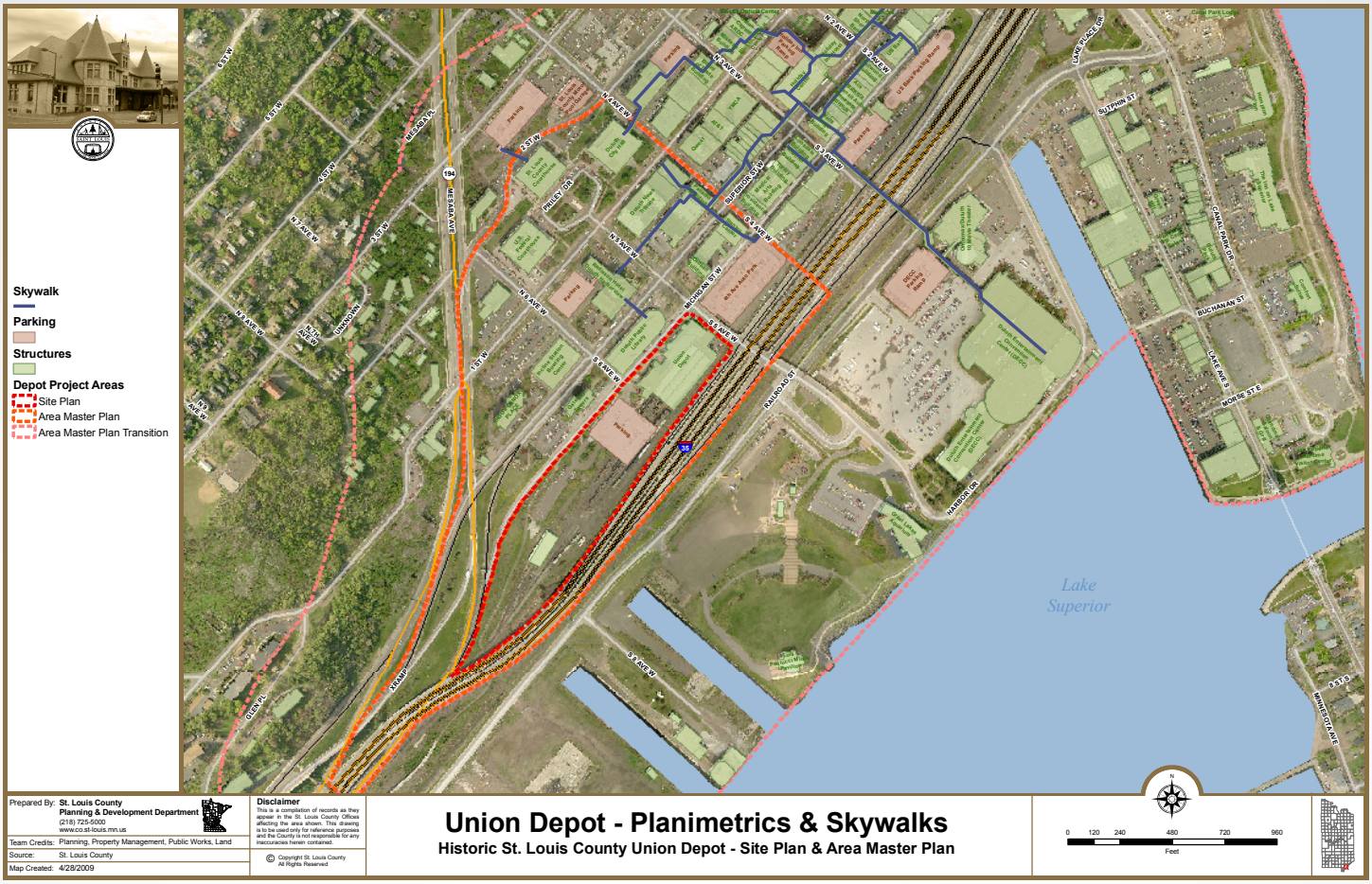
- **Assists in Certificate of Title Determination**
  A review of GIS will assist Recorder's staff in assessing the need for a residue certificate of title as part of a transaction.

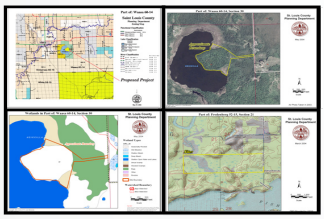
- **Enhances Business Interaction**
  Identifies Exact Location of Cellular Phone Callers
  The Recorder's Office records documents and creates certificates that many businesses seek for its normal business transactions. These businesses are title companies or attorneys doing title searches, abstracts, owners and encumbrance reports, title insurance, and much more. With GIS, a business can quickly query and locate a person or property (by address, legal description or clicking on property– the latter of which currently does not exist), and begin the review process. This improves the efficiency of the businesses and reduces the amount of time county staff spends helping businesses locate a site.

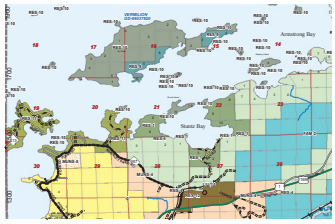
- **Assists Cleaning-Up Parcels with Clouded Property Titles**
  Many developments are well down the road of securing private and public dollars, permits, and bids only to hit an obstacle of a clouded property title. Title problems can be expensive, cause delays, or kill a project. There are key parcels in Duluth and other communities that remain undeveloped in part because clearing the title can be cumbersome, and the city or developer is unwilling to take on the responsibility of clearing title.

- **Improves Service and Efficiency**
  Quick Drill Down- Improves Ability to Review Documents Quickly/Easily: GIS will dramatically improve the ability of Recorder's staff, businesses, and residents to quickly search, locate, and review a wide range of legal documents. Currently, there is no ability for searches by address, which causes problems (additional research) of locating the correct documents filed on a particular property.
  Improves Response Time to Data Requests: The Recorder's Office receives innumerable phone calls, e-mails and written requests from people looking for objective data such as lot size, recording data of documents, whether Torrens or Abstract, and the existence of liens or encumbrances. With GIS, recorded documents and data can be quickly searched and located, thus reducing the amount of time for each request.

- **Web Portal: Enhances Access 24/7**
  A web site using a parcel map that allows the internet user to drill down to the parcel level to find such information would significantly reduce employee time devoted to such mundane data gathering.







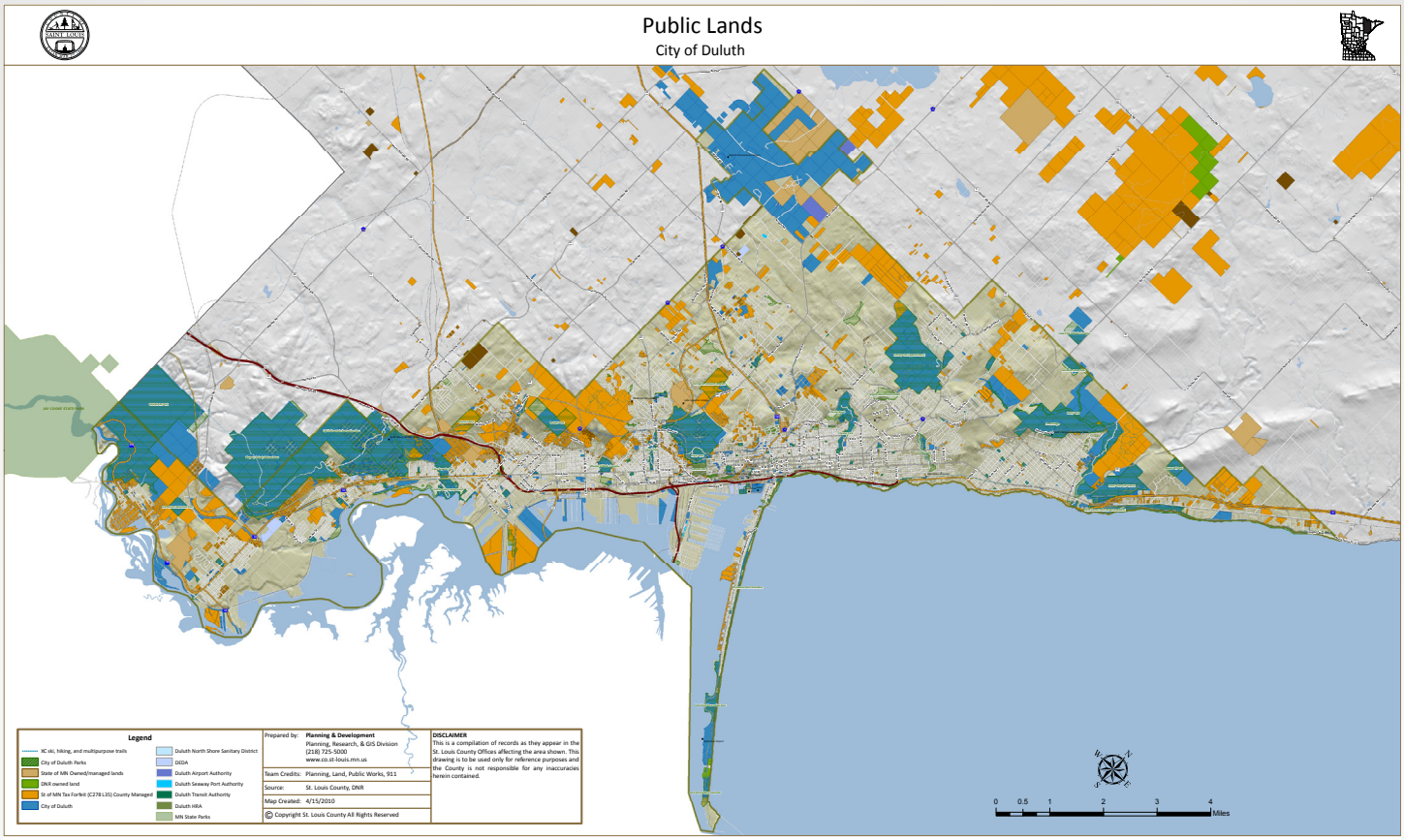
- **Streamlines the Land-Use Permitting Process**
  Currently, land-use permitting requires residents to provide a lot description when applying for a permit, and to determine setback requirements for each proposal. Problems arise when residents have lengthy legal descriptions with various dimensions and angles, making it difficult to determine lot dimensions over the phone or e-mail. By developing a digital parcel layer, staff can quickly identify parcels and their geographical representation in relation to lakes, rivers, roads, and other features.

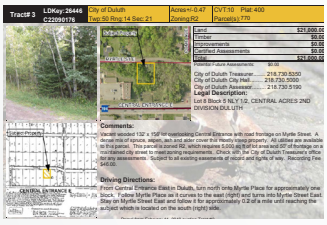
- **Enhances Economic Development**
  St. Louis County has expanded its role in economic development over the past several years through the adoption of economic development strategies. However, its capacity to conduct pre-planning and research to bring development into reality is limited without a parcel layer map. A digital parcel layer will assist business research and assess potential sites for business and commerce. All entities are limited in assessing sites because of the research needed to determine ownership, routes of infrastructure to minimize impacts and cost, and many others.

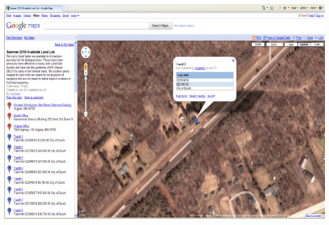
- **Improves Long-Range Planning**
  Every community in St. Louis County has a comprehensive plan that is administered by the county or local jurisdiction. These plans are based upon an array of information, trends, and input. GIS assists residents and government in making informed decisions based upon sound data, such as an existing land-use map, proposed zoning map, etc.

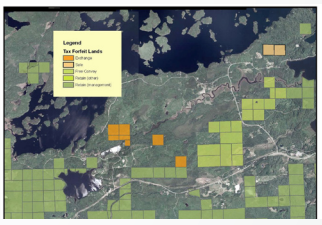
- **Planning Commission & BOA Decision Support**
  The Planning and Community Development Department prepares a general set of maps for the Board of Adjustment (BOA) and Planning Commission (PC). These maps identify the site with various backgrounds such as: zoning, wetlands, aerial photography, elevation, etc. Currently, staff must draw in the legal representation of the parcel and then create the maps. A digital parcel layer will reduce the amount of time it takes to generate the maps since all parcels are stored electronically. This process is done over a hundred times a year.

- **Improves Public Notification**
  Public notification methods for conditional-use and variance requests are antiquated. Currently, when the Planning and Community Development Department receives a request for a conditional-use permit (e.g. commercial, sales, service) or variance, the department must notify adjoining landowners and landowners within a specified vicinity. For example, to do a plat notification (1/2 mile radius from project), staff must: 1) highlight the area on paper copy from the plat book and identify 1/2 mile radius; 2) identify plats through the plat index book; 3) list plats, sections, etc., of area specified on paper; 4) identify homeowners from Minnesota Counties Information System (MCIS) and copy them to a document to generate labels. This process takes an enormous amount of staff time and is a process conducted several hundred times a year. A digital parcel layer and GIS technology will greatly reduce the amount of staff time it takes to determine and notify adjoining property owners.









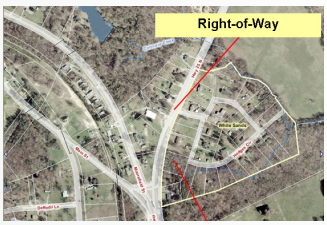
- **Improves Forest Resource Management**
  Currently, the Land Department maintains its own tax forfeit trust lands parcel layer which serves as a base for the forest cover type layer. The cover type layer is the principal layer the department uses for managing 900,000 acres of tax forfeit trust lands. GIS has eliminated the need for the department to maintain its own parcel layer, and would help the department in its landscape level planning efforts in identifying adjacent owners whom the department can take into consideration in developing its long and short term plans.

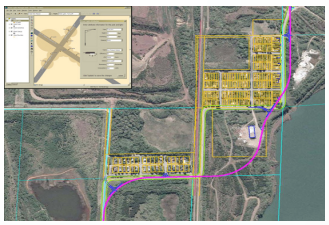
- **Assists in Suitability of Sale and Exchange**
  One of the responsibilities of the Land Department is to classify the tax forfeit lands as to their suitability for management, sale, exchange or conveyance. Knowing the public and private ownership patterns adjacent to tax forfeit lands greatly assists in this classification.

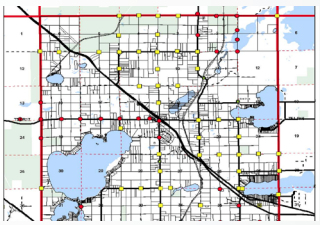
- **Improves Management of Urban Tax Forfeit Parcels**
  Currently, urban tax forfeit parcels are indicated on paper maps or not at all. GIS assists in identifying areas where trash and trespass on tax forfeit parcels is a problem. Having a readily available map of the parcel locations would improve the efficiency of inventory and periodic inspection of these parcels. Overlaying the parcels with topographic features, water features and aerial photos would assist with the classification of these parcels as to future disposition.

- **Enhances the Tax Forfeit Land Sales Process**
  GIS helps in the land appraisal process by enabling the appraiser to use the County Assessor's data and other location data more efficiently. Adjacent and similar parcels could be easily brought up for display and analysis. Sale maps would be easier to prepare and automated processes could be set up to display these maps on the internet. Many of the processes the Land Department now has to manage its tax forfeit parcel database would be eliminated or simplified as these processes would become part of the county wide parcel layer database. Duplication of databases would be eliminated as a parcel layer would provide a link to the other parcel related databases in the Auditor's and Recorder's offices.

- **Improves General Administration**
  Locating Tax Forfeit Parcels: Locating tax-forfeit parcels can be challenging at times. Many residents and businesses want information regarding public lands. GIS will allow county staff, residents, and businesses to quickly identify parcels and details about the land.
  Improved Notification of Adjoining Land Owners: Public notification systems for land sale requests are antiquated. GIS would provide the ability to quickly and easily identify adjoining property owners for public notification.

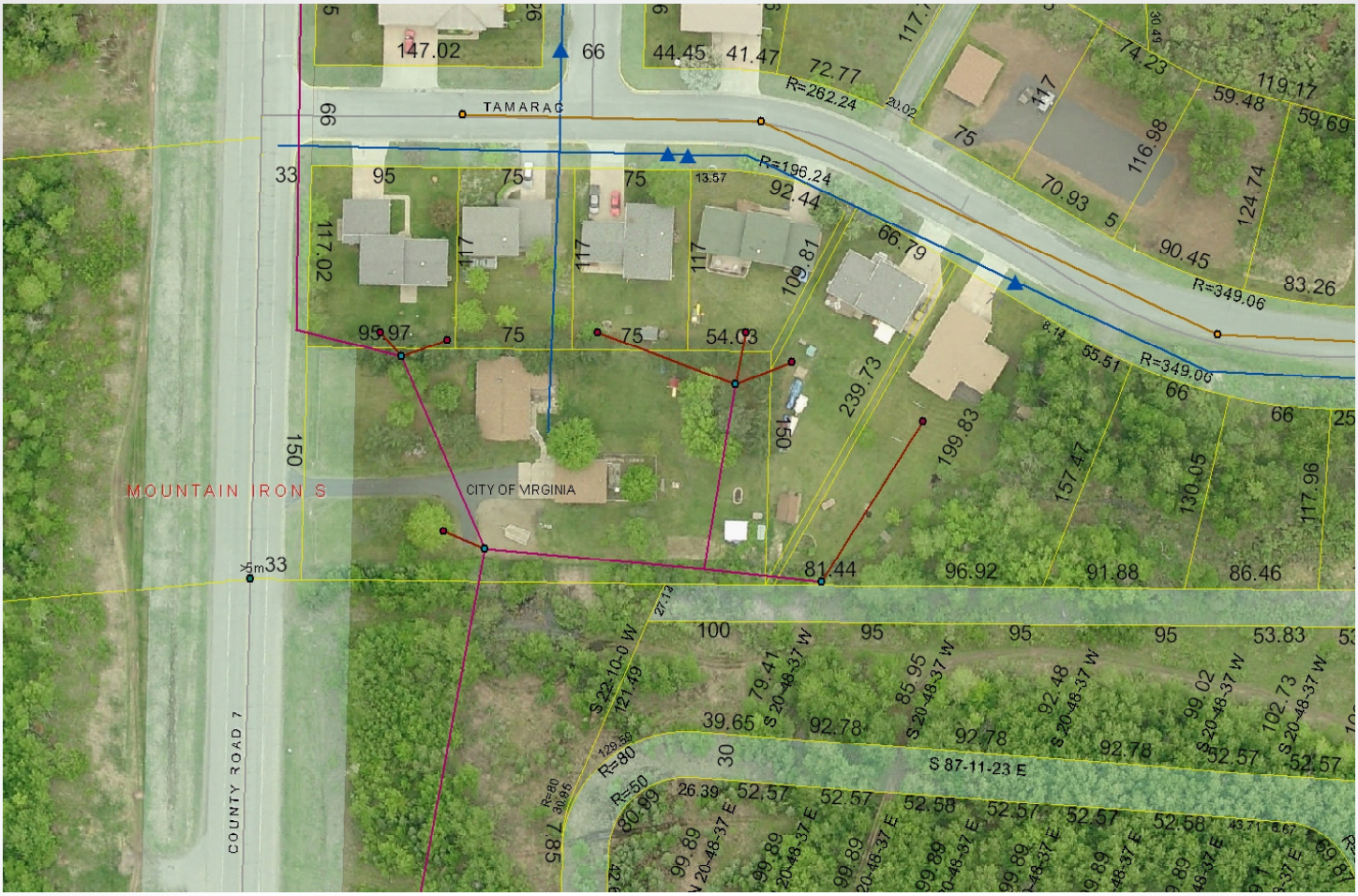


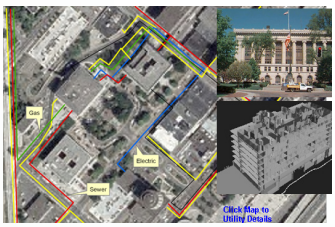


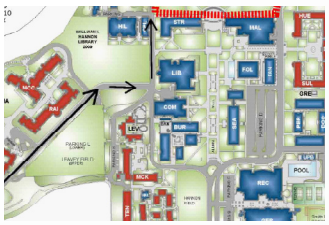


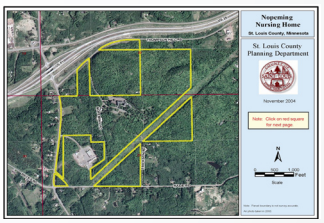
- **Improves Parcel Research and Right-of-Way Acquisition**
  Assists in Parcel Research: GIS is useful in gathering data and details on a parcel quickly and easily through a future web portal. Currently, Public Works accesses various forms of information from various county departments, which takes considerable time and effort. This information includes: Assessor's-parcel sale information, value, classifications; Auditor's- ownership, legal description, size, plats, board resolutions; Communications- addressing and road names for notification; Health-septic information; Land-tax forfeit land information for borrow pits, etc; Planning- zoning, set backs, lot requirements, etc.; Recorder's- recorded documents (deeds, etc.).
  Preliminary Determination of Right-of-Away Acquisitions: In county road projects, right-of-way needs are assessed and researched. GIS provides the ability to quickly determine preliminary impacts.
  Minimizing Property Impact: The GIS and Land Information Portal would be particularly useful for burglary & break-in situations by helping locate information.
- **Improves Identifying Right-of-Way Encroachment**
  GIS has the ability to highlight areas where property owners who are encroaching (building structures, or impacting) on public right-of-ways.
- **Survey Monuments**
  GIS is useful in identifying locations of survey monuments in relationship to township, section, quarter-quarter, and parcel lines. Survey monuments will be used to draw the parcel layer and updated as new survey monuments are obtained.
- **Improves Entrance and Utility Permit Process**
  Provides expanded ability to improve the overall process for businesses and residents to determine road classification and contact numbers to obtain a road entrance permit. It also assists staff in determining culvert sizes of adjacent property, history of area culverts and upgrades, development activity (new plats, structures) for assessing potential additional run-off, and determining culvert sizes for a particular project.
- **Improves Public Access to Information**
  The public seeks a host of information regarding existence of right-of-way, width, scope, impacts, and other general questions relating to right-of-ways, projects, etc.
- **Improves Public Notification**
  Public notification would be improved for a variety of road and bridge projects. Currently, Public Works expends hundreds of hours a year sending public notifications to adjoining or impacted property owners. GIS and the parcel layer would dramatically reduce the number of hours staff allocate to this notification process.

PROPERTY MANAGEMENT

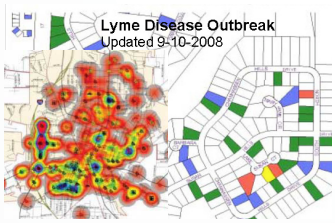


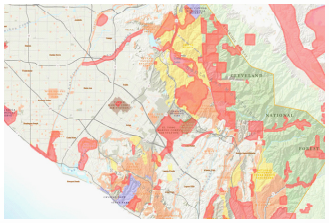




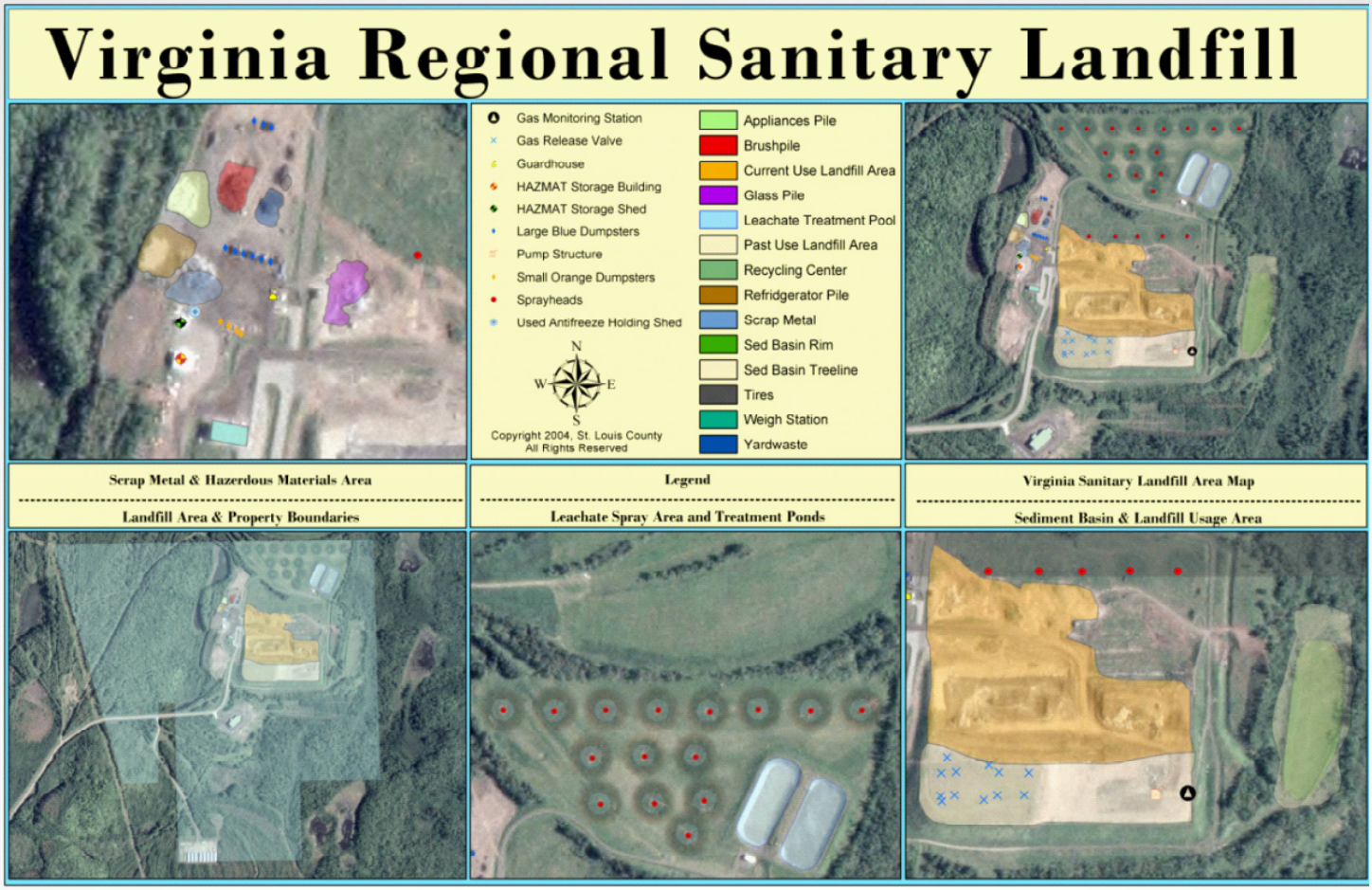


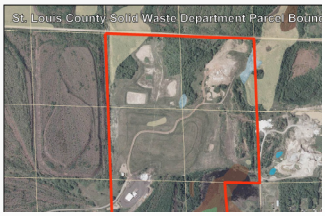
- **Improves Management of County Facilities and Fee Lands**
  St. Louis County owns an estimated 200 buildings, including the Courthouses in Duluth, Virginia, and Hibbing. Property Management is increasingly starting slowly to use GIS to manage County facilities, such as square footage, year built, HVAC data, parcel size, address, and photos. Furthermore, the County has approximately 1,200 parcels of fee land. Property Management has created a database with information such as parcel size, address, legal description, and miscellaneous notes. GIS will provide an effective and beneficial tool to manage these buildings and fee lands.
- **Assists in Assessing New or Expansion of Public Facilities**
  In many instances, Property Management must research and review many variables in a new site or expansion of a site. GIS will enhance the ability to review sites quickly and more thoroughly, and provide the department with the ability to overlay other GIS layers (gas, water, sewer, cable, telecommunication, electric, zoning, elevation, wetlands), with new layers based upon distances to day care, medical facilities, amenities, etc. The parcel layer will also assist in determining needed property acquisition, facility impact and analysis, right-of-way needs, utility costs based upon distances, and much more.
- **Improves Review and Sale of County Facilities or Fee Lands**
  By developing department GIS capacity, staff can quickly identify county facilities and fee lands, and geographical representation in relation to lakes, rivers, roads, gravel pits, utilities, State forest lands, tax forfeited lands, and municipal lands. Staff will be able to access zoning restrictions, covenants, and easements. This information will help determine if a parcel must be retained by the County, or can be sold.
- **Improves Notification of Adjoining Land Owners**
  GIS will assist in identifying and notifying adjoining and nearby land owners who may want to bid on County fee land, or facilities that are for sale.

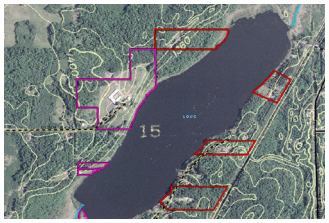


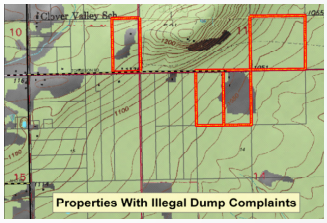


- **Improves Medical Prevention & Intervention**
  GIS provides the ability to map large amounts of data to track, monitor, and improve health conditions by alerting medical facilities early to prevent or minimize sickness or disease through intervention. Examples include: early detection and analysis of disease and alerting the community; ability to track sick cases caused by unsanitary conditions by address; map asthma information to target problems and address solutions; tracking of dead animals (an indicator of underlying problems), and a host of others.
- **Improves Emergency Medical Response**
  GIS provides capabilities to further emergency medical response time by locating supply and emergency response centers near the population concentrations, providing evacuation routes, identify vulnerable adults, critical areas, and others.
- **Improves Permitting, Tracking, and Monitoring**
  Permitting: Assists permitting Human service providers and other databases that support operations.
  Tracking: Tracking permits (where they are, when they expire, permit requirement compliance).
  Monitoring: Monitoring radon test results, well water tests (areas that have naturally occurring high nitrate or flouride levels), commercial establishments, and others.
- **Monitors Vulnerable Adults**
  Monitoring people in isolation (ill people) and quarantine (well but exposed people) is critical to on-going operation (checking how they are doing) and emergency situations. Public Health must ensure they have food, water, communications, etc.
- **Improves Long-Range Planning**
  Demographics are constantly changing, thus long-range planning for public health and human services is an ongoing endeavor. GIS identifies and assesses gaps in service, programs, sites, distances, outlining problems for grant resources, locating mass clinics, and much more.
- **Improves Resource Allocation**
  One aspect of GIS is the ability to allocate resources based upon spatial data to determine service area assignments, workloads, resource distribution, caseloads, etc.
- **Improves Public Notification**
  Public notification would be enhanced for a variety of projects, programs, and alerts. The current system of notification can make it difficult to conduct thorough planning and intervention.

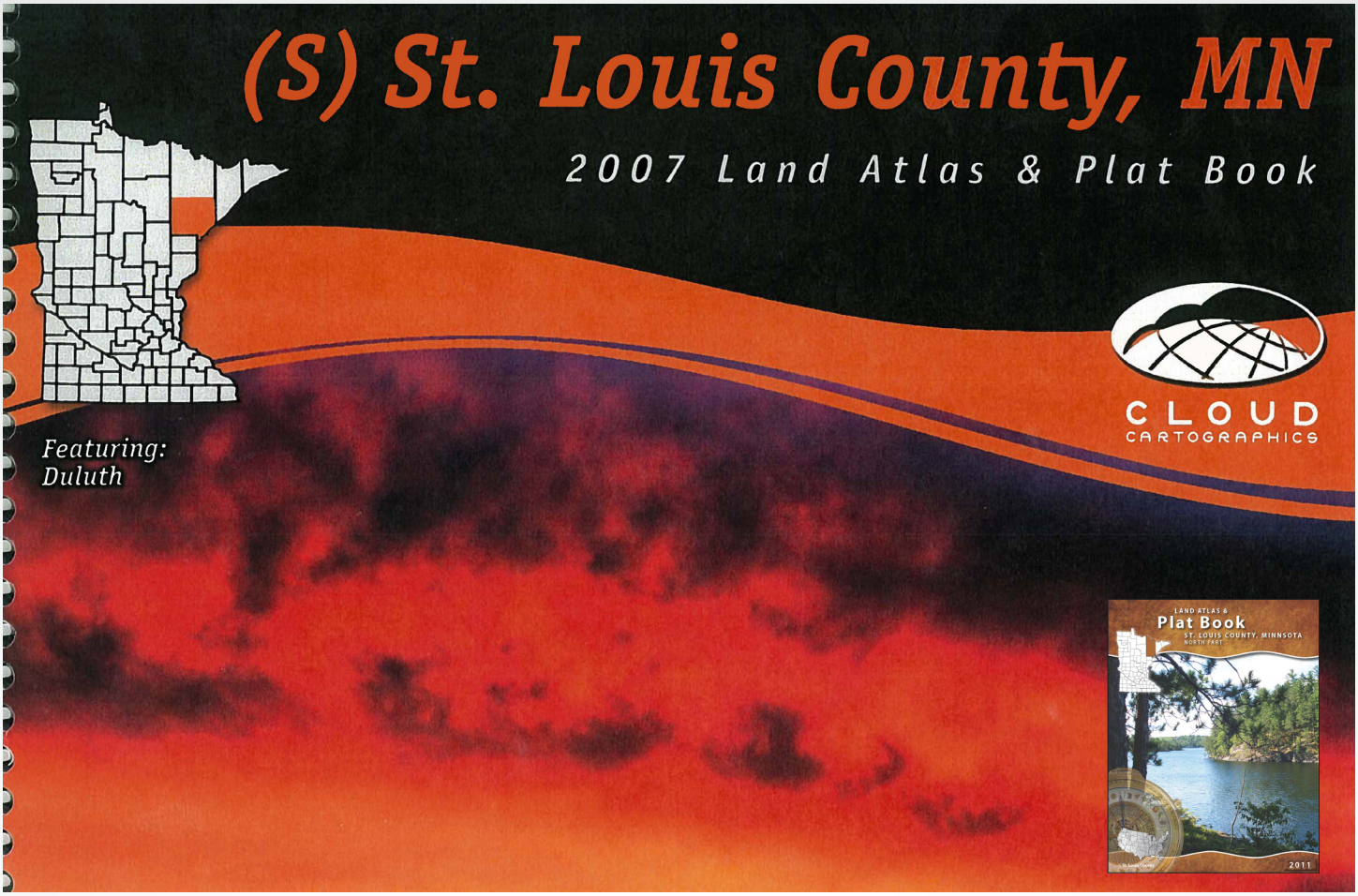


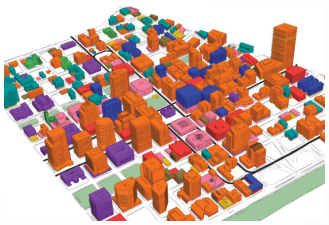






- **Improves Landfill Planning**
  Landfill planning would be improved with GIS through enhanced research and analysis of regional landfill property.
  Improves New Site Development: Any new site requires extensive review of all site characteristics such as: distance to population centers, proximity to private property, zoning, proximity to roadways, topographical features (wetlands, streams and rivers, and elevation), location for fill placement, environmental monitoring concerns, and future expansion options, including buffer areas to sensitive areas.
  Enhances Planning Efforts to Expand and/or Modify Sites: Any expanded or modified site requires review of all operations and impacts. GIS provides this expanded analysis of all environmental and topography features.
  Track Closed Dump Sites: GIS assists in determining proximity to waterways, population centers, general information on age of landfill, cover type, volumes, and legal boundaries.
  Provides Planning Support: Assists ES in producing administrative maps of sites such as: general outline of site, directions, relation to other property, and site setup.
- **Enhances Illegal Dump Tracking**
  There are many complaints regarding illegal dumping sites across the county, from small dump sites to extensive (chemical) dump sites. Sites have varying impacts on lakes, rivers, wetlands, adjoining property owners, and others. The overlay of a parcel layer allows staff to better track details of the site, prioritize, and notify adjoining property owners who could realize negative impacts on property.
- **Improves Permitting, Tracking, and Monitoring**
  Permitting: Assists in identifying property boundaries, land issues, and property specifications to improve permitting response time for commercial businesses, residential property, and public recreation areas.
  Tracking: Tracking SSTS permits (where they are, when they expire, permit requirement compliance) and point-of-sale inspections (where they are, when they were done, repair/upgrade compliance, inspection results: failing systems, definitional failures, non-conforming systems, compliant systems), well locations, and food/water for commercial businesses.
  Monitoring: Monitoring radon test results, well water tests (areas that have naturally occurring high nitrate or flouride levels), commercial establishments, and others.
- **Improves Public Notification & Service Fee Updates**
  The public notification process would be enhanced for a variety of activities such as: illegal dump sites, site impacts, program information, service fee updates, and a host of other information. Querying data in various formats, distances, and areas with GIS has many advantages over existing formats.





- **Plat Book**
  GIS and the cadastral (parcel layer) database will allow the county to develop the county plat book internally rather than hiring a contractor to research and develop the plat book. The county could further modify the plat book to suit county needs. Currently, the plat book has limited information. With the county producing the plat book, it is possible to incorporate cities, additional GIS layers, and data into the new book, making it more useful.
- **Participate in Statewide Projects**
  There are many complaints regarding illegal dumping sites across the county, from small dump sites to extensive (chemical) dump sites. Sites have varying impacts on lakes, rivers, wetlands, adjoining property owners, and others. The overlay of a parcel layer allows staff to better track details of the site, prioritize, and notify adjoining property owners who could realize negative impacts on property.
- **Regional Planning**
  St. Louis County provide regional GIS planning support for various regional initiatives to support community and economic development, housing, public infrastructure projects, and much more.
- **Local Planning Support**
  St. Louis County provide local communities with GIS support in local planning projects through its GIS resources.
- **3D Visualization**
  St. Louis County is developiong many datasets that will support 3D mapping capabilities for use in new developments, line of site location, etc.