KSA

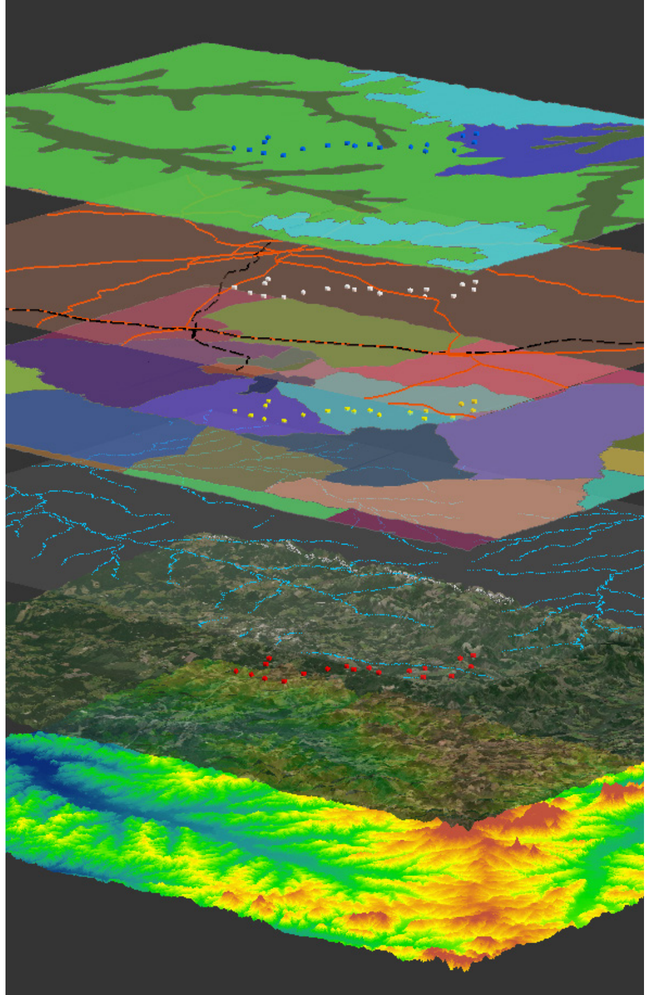
A·DYNAMIC·PERSPECTIVE

GIS SERVICES

Geographic Information Systems (GIS) are an advanced technological database used to capture, store, manipulate, analyze, manage and present information using various mediums. This technology enables the transparent management of properties like assets, spatial plans, property records, urban studies, utility networks and technical infrastructure, and displays the exact location and all related attributes of each asset on a map. It can find and manage natural resources, avoid utility conflicts and maintain or achieve environmental compliance on a user-friendly, interactive map. With this system, our clients can quickly and accurately identify site characteristics in a multi-layer format and easily determine the best development method for their project. GIS provides concrete data by creating the surface and subsurface mapping of infrastructure assets to facilitate accurate, real-time operational management.

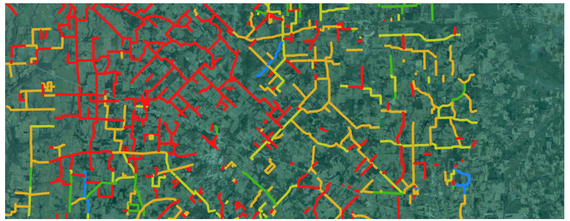
KSA GIS SERVICES

KSA has established field data collection portal, spatial analysis models, and cloud map platform which provides asset data visualization using digital maps that allow users to quickly understand asset health and prioritize their work based on real priorities. Combined with our mobile application, it provides an easy, but powerful solution for the management of field work. Whether you simply need to track geographically dispersed assets, or a more complex solution requiring field work management and integration with your existing data, KSA can adapt to your needs.



GIS MAPPING

Over the past two decades, we have seen paper maps being replaced by digital maps. People are able to communicate with the digital, interactive maps. Examples of data commonly used to communicate through GIS mapping includes detailed Excel data files, picture and videos, and written messaging or stories related to the map subject. KSA's GIS mapping services are versatile across industries such as all municipalities and other levels of government, retail, real estate, oil and gas industry, healthcare, and financial institutions.

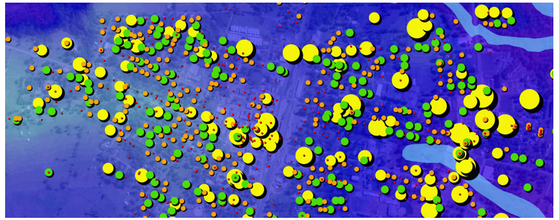


FIELD DATA COLLECTION

KSA's data collection database is a user friendly, online data survey system to help the field data collectors by simplifying the process of data input and enables non-GIS personnel to adapt quickly to the tool.

GIS SPATIAL DATA ANALYSIS

KSA utilizes state-of-art GIS tools to perform airport obstruction analysis, pipeline least cost analysis, water distribution network analysis, flood plain analysis, environmental evaluation analysis, and site location optimization analysis. Through spatial analysis, KSA is able to help the data managers and end users understand the relationship between spatial and attribute data.



SMART MAP HOST PLATFORM

KSA provides a cloud based platform and tools that help organizations, such as cities and regional airports, to manage their infrastructure. A smart map platform helps organizations to loop the assets, condition reports and track field work.

GIS MAPPING

KSA's GIS Mapping Service covers data conversation and geo-database design. Converting non-GIS data, such as old blue prints, PDFs, images and excel files, to GIS data is the first step to entering the intelligent map world. Many organizations maintain data in a format that does not have geo-references to current geo-coordinate systems. Placing old data in a geo-coordinate system is sometimes a challenge. A geo-database is like a file cabinet that has all of the IGS data saved in it. A geo-database houses all of the GIS data in one place. This makes the GIS data management much easier. The GIS data can be presented in Google Earth and other map platforms. A geo-database will have GIS data ready for a smart mapping system.

GEOCODE

Linking various components together in one map is a common use of GIS. For example, a water meter Excel file will contain the addresses linked to each meter account, but the meter's physical location is not recorded with latitude/longitude geo-coordinate information to show the meter position in map format. In this situation, a GIS processing tool call GeoCode is used code the addresses and locate all meters on a map design.

GEO-REFERENCING

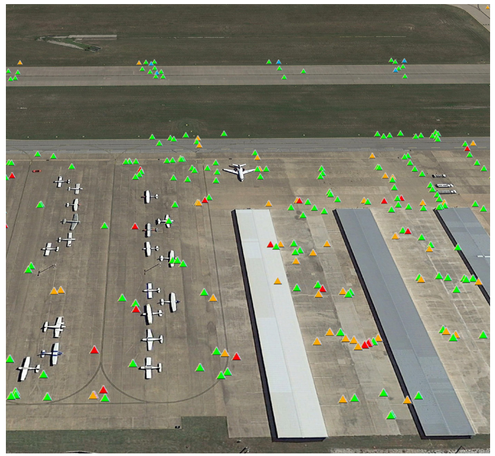
For files such as old blue prints and CAD drawings that do not have direct link to a current GIS mapping system, geo-referencing is performed to align the as-built records in to a GIS mapping frame.

GEOTAG

Images and videos taken in the field may not contain geo-coordinate information. GeoTag is the tool to link them to a GIS mapping system.

FIELD DATA COLLECTION

GIS is a system that facilitates the collection, management, analysis, and representation of all forms of geospatially referenced data. KSA utilizes several GIS data collection systems such as ESRI ArcGIS online collector and Trimble collector. ESRI constructed a data collection system that enables the user collect data in field using the mobile device such as smart phone or tablet. KSA designed a user friendly, job specific database to use for each data collection practice. It simplifies the progress of data input and enables non-GIS personnel to quickly adapt to the tools.



PAVEMENT CONDITION ASSESSMENT AND MANAGEMENT PLANS – ROADS AND AVIATION PAVING

Pavement conditions deteriorate with time as the result of vehicle loads and weather effects. One of the goals of a pavement management plan is to enhance the overall life cycle of the paving. A long-range plan will help extend the life of pavement and reduce the maintenance cost.

A goal for using GIS with such plans is not only the data aspect, but also the cost prediction. The GIS tools will be used to predict future conditions and allow owners to plan far into the future for pavement rehabilitation projects and maintenance programs. With this data, budgets can be more targeted and allow for better planning to help prevent widespread deterioration of pavement infrastructure. It enhances the ability to extend the pavement life which results in long-term savings to owners.

UTILITIES – WELLS, METERS AND MANHOLES

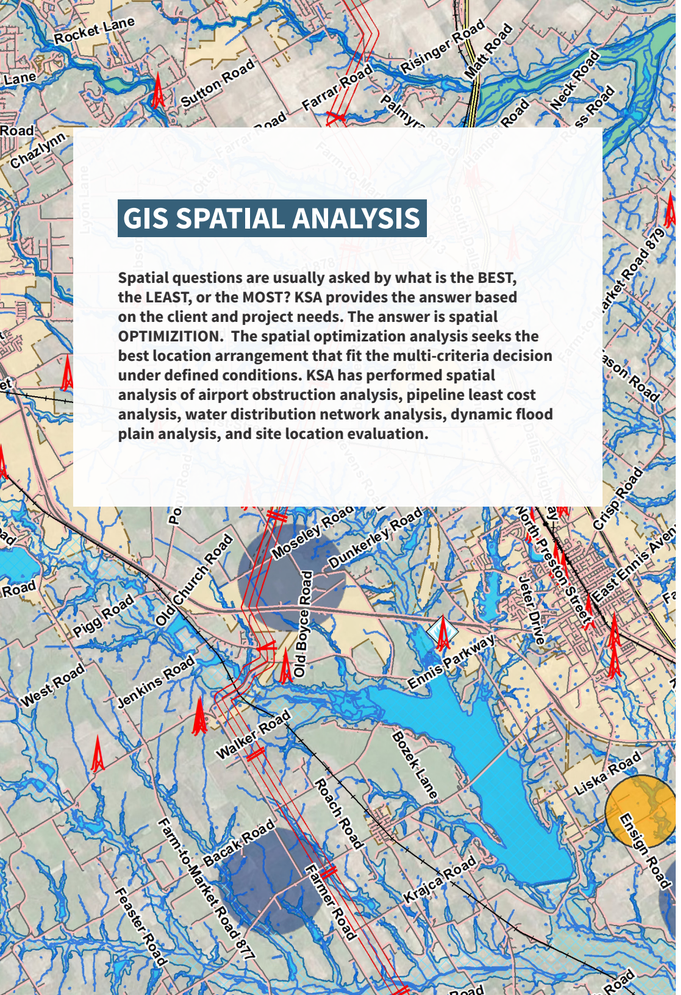
Keeping the GIS data of city utilities up to date is very important. A desired goal is to have data available in the field for use in emergencies as well as for regular maintenance. Water network and sewer network features data collection, calibration and updates for cities to assess a management routine. KSA's data collection frame is specially design for a city's asset management needs.

SIGNAGE AND WAYFINDING

Many public entities are now beginning to implement Maintenance Improvement Plans (MIP) with GIS. GIS works well for a variety to sign and wayfinding collections. This GIS application is not only for areas with thousands of miles of roadways, but also useful for non-traditional areas like public buildings and aviation terminals. The need for data collection and management is common for all communities.

NATURAL DISASTERS – HOMES, BRIDGES AND ROADS

KSA's GIS framework can help collect data for the in insurance business and government agencies. For example, this may involve natural disasters or incidents where there is damage to homes, roads, bridges, businesses, and public facilities.



GIS SPATIAL ANALYSIS

Spatial questions are usually asked by what is the BEST, the LEAST, or the MOST? KSA provides the answer based on the client and project needs. The answer is spatial OPTIMIZITION. The spatial optimization analysis seeks the best location arrangement that fit the multi-criteria decision under defined conditions. KSA has performed spatial analysis of airport obstruction analysis, pipeline least cost analysis, water distribution network analysis, dynamic flood plain analysis, and site location evaluation.

AIRPORT AIRSPACE ANALYSIS

Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) is a spatial analysis that helps to identify if a construction may affect air safety and the efficient use of the navigable airspace. FAA 14 CFR Part 77 has define the navigate airspace. KSA provides the airport owner, residents, and commercial businesses in the airspace a 3 dimension view of the relationship between the airspace in imagination and the structures on the ground.

SLOPE ANALYSIS

Slope analysis is widely applied to site selection process. For example, in the land development planning application, a slope analysis will show the feasible construction area for various infrastructure improvements such as buildings, parking, and roads. Slope analysis also helps in estimating construction costs.

LEAST COST ANALYSIS

Least cost analysis is a cost evaluation using GIS method. The most common use of cost evaluation is finding a shortest time spend or finding shortest distance from point A and point B. For example, finding a pipeline alignment in a remote area, finding short route for a fire truck in emergency, or finding best route for waste collection vehicles. Least cost is also utilized in network analysis, such as a network of water distribution, sewer collection, and subways. KSA has successfully helped oil/gas companies, cities, and counties with least cost analysis.

SITE SELECTION

Utilizing GIS for site selection is widely employed in recent years. Site location is an essential component in a project's eventual success or failure. Successful site selection optimizes a select set of consideration factors to analyze each site. It involves measuring the needs of a new project against the merits of potential locations. This commonly includes any EPA/environmental analysis required, site attributes, project needs, community needs, ingress and egress, and traffic flow.

SMART MAP HOST PLATFORM

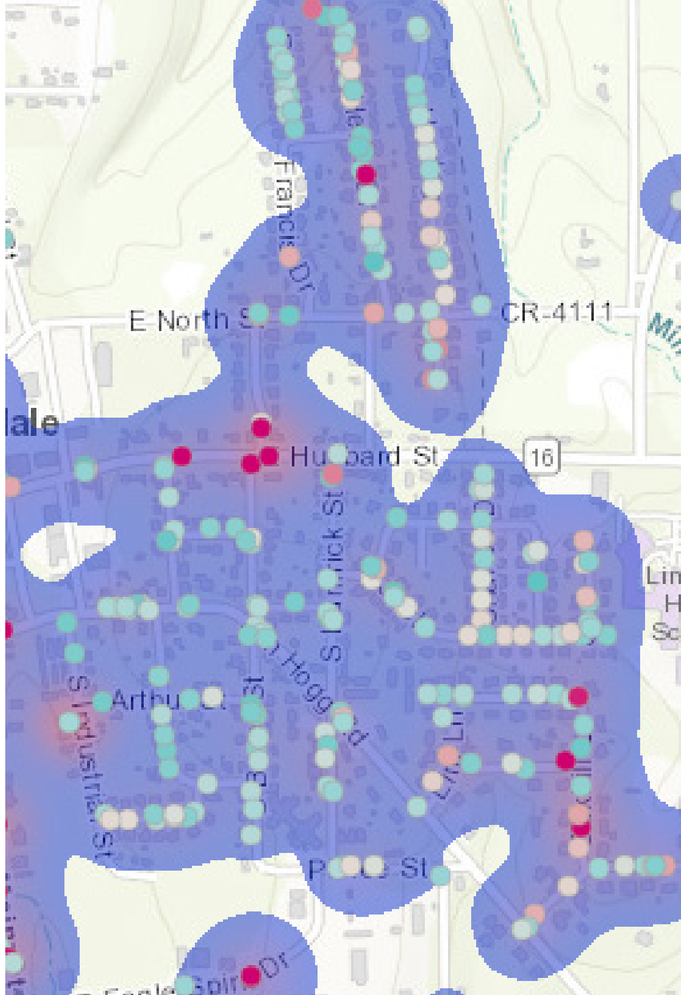
KSA's Smart Mapping services provides a cloud based map platform to small map users as a member of the KSA GIS enterprise. It provide GIS as a Service (GaaS) to small organizations, such as small cities and regional airports, that need GIS and map host services but not large enough to own a GIS map system. Within the KSA GIS enterprise, users are able to manage their owe GIS data. They can publish, modify, edit, and update the attribute data and geographic data. KSA's GIS map platform provides an interactive map host and smart map platform to help organizations loop the asset condition reports and track field work.

INTERACTIVE MAP

KSA Enterprise is Dynamic GIS system. It provides interactive interface between GIS and the end user. This enables a transparent management of properties (assets, spatial plans, property records, urban studies, utility networks, technical infrastructure, and more...) and displays the exact location and all related attributes of each asset on the map. It decreases the cost with an online GaaS model. There is no complicated installations needed and is available anytime and anywhere.

SMART MAP

Smart mapping with spatial data statistics, such as data charts and heat maps, along with many useful map tools including a hot spot detection tool and map query tool, gives the decision maker straight forward information. Smart mapping is very useful for public safety, drainage patterns, and environmental pollution prevention. Since it is capable to present a real-time data stream, it is widely used in traffic monitoring and public utility usage monitoring. Becoming a member of the KSA GIS enterprise, small organizations will have full GIS capability in their daily routine of planning, management, and decision making.



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