



THE CITY OF SIMI VALLEY, CALIFORNIA

GIS ASSESSMENT AND REVITALIZATION PLAN

Phase I: Background and Needs Assessment

JANUARY 2018



GEOGRAPHIC TECHNOLOGIES GROUP®

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UNDERSTANDING LOCAL GOVERNMENT



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EXECUTIVE SUMMARY

GIS ASSESSMENT AND REVITALIZATION PLAN



CITY OF SIMI VALLEY

CALIFORNIA

PROJECT OVERVIEW

Geographic Technologies Group (GTG) has created a Geographic Information Systems (GIS) Assessment and Revitalization Plan for the City of Simi Valley. GIS allows the City to visualize, question, analyze, and interpret data to understand relationships, patterns, and trends. GIS has become a primary information management tool for staff at the City. The City of Simi Valley has been using GIS technology since the 1990s. Over time the GIS has matured from sporadic project-based efforts to a pervasive tool used by a majority of staff at the City. The City investment in GIS has been substantial over the past few decades and as such the GIS should be viewed as an enterprise-wide asset. Hundreds of very accurate and comprehensive data layers have been developed representing the needs of the organization. GIS is used for diverse needs such as dispatching emergency calls, community development, and tracking infrastructure assets.

The revitalization plan was a nine-month long project that used a variety of data gathering mechanisms and resulted in a detailed final report with a number of specific action items for the City. The project consisted of a number of evaluation and communication methods to include an online survey of City staff, on-site interviews of all departments, and various workshops and presentations sharing results and soliciting feedback. The result was a set of detailed documents that included two phases and chapters as follows:

- Phase 1 – Background and Needs Assessment
 - Chapter 1 Voice of the Customer – summary of the findings from an initial online survey taken by staff at the City;
 - Chapter 2 Needs Assessments – GIS uses and needs for each department at the City.
- Phase 2 – Revitalization and Action Plan
 - Chapter 3 Governance – details staffing, roles, and responsibilities for managing and sustaining the GIS;
 - Chapter 4 Data and Databases – review of existing data and recommendations for data organization and improvements;
 - Chapter 5 GIS Software – GIS software recommendations for all internal users and the public;

- Chapter 6 Systems Architecture and Design – review of existing hardware and networking to support GIS;
- Chapter 7 Training and Education – recommendations for an ongoing training, education, and knowledge transfer program;
- Chapter 8 Five Year Tactical Plan of Action – recommended budget, implementation priorities, and timeline.

RECOMMENDATIONS OVERVIEW

City staff understand that GIS will continue to be a primary tool and that its use continues to grow. Additionally, they understand that GIS adds value to the various Information Technology enterprise system investments (i.e. Tyler Energov/Munis permitting and finance, Infor Hansen utility assets, and Public Safety's Versaterm/Versadex). Additionally, GIS has become a primary tool of sharing information with the public. The study found in excess of 200 GIS needs for the various City departments. As a result of the study, 79 key recommendations were developed. In some cases, these recommendations may represent a number of specific needs. For example, over 50 new GIS layers were identified and are grouped together under a recommendation for the development of data layers. The recommendations were grouped into categories that closely align with the chapters of the revitalization plan, with eleven (11) relating to governance/management of the GIS, seven (7) relating to infrastructure (hardware, software, networking), two (2) for software maintenance contracts, thirty (30) implementation (software, database) related, nine (9) software provisioning related, and twenty (20) education, training, and knowledge transfer related.

The eleven (11) governance/management recommendations focus on how the GIS should be managed and staffed to maximize the return-on-investment for the organization. This is the most important component for a successful enterprise-wide GIS. GTG has worked with over 500 cities across the United States and based the governance recommendations on successful comparator organizations. This comparison and the volume of needs has identified that the GIS program is short-staffed and needs a renewed focus on serving all departments and the public.

The seven (7) infrastructure recommendations focus on the IT infrastructure that is needed to sustain the GIS and to ensure its usability. GTG utilized various hardware sizing algorithms based on the number of current users and projected users (to include the public) to ensure that the City's infrastructure delivers a speedy end-user experience.

The two (2) maintenance line items identify the ongoing cost to maintain the core GIS software products that are in use at the City.

The thirty (30) implementation recommendations focus on a systematic implementation of various tools to meet the needs of the users. This includes software and integration of data from existing IT systems. A variety of public facing applications have been identified that relay complex information to the public via easy-to-use and graphically pleasing tools.

The nine (9) software recommendations include recommendations for the acquisition of software upgrades, new software, and implementation of existing software that is part of the GIS suite that the City currently owns.

The twenty (20) education, training, and knowledge transfer recommendations include software training classes for key GIS staff, internal training conducted by GIS staff for GIS users, and a number of communication methods for educating staff, elected officials, and the public about the power and use of GIS.

LIST OF RECOMMENDATIONS

The following is a list of key recommendations. The recommendations follow the categories outlined above. Some of the recommendations have been grouped for succinctness and readability. Each of the line items can be reviewed in detail in Chapter 8 – Five Year Tactical Plan of the overall study. The most crucial recommendation is the addition of GIS staff in order to carry out many of the other items. These recommendations have been spread out through the five years of this revitalization project based on criticality and a priority matrix.

Governance

- **GIS Steering Committee Establishment and Guidance** – A GIS Steering Committee should be officially established to guide the decision making of priorities for the enterprise-wide GIS. Quarterly high-level meetings to ensure adoption and prioritization based on overall City priorities. This serves to align the GIS with the priorities of Council and the City.
- **Official Adoption of Governance Strategy and Implementation Plan** – Adoption of the governance strategy and key recommendations by the GIS Steering Committee to include Year One priorities.

- **Adopt and Formalize a Centralized/Hybrid Model** – Formalize how the organization operates regarding GIS. Define, adopt, and education the City about roles and responsibilities of the GIS Team and the various divisions/departments.
- **Change the GIS Coordinator Title and Job Duties to that of a GIS Manager** –This better aligns the position and duties commensurate with the recommendations in this plan and a review of comparable organizations throughout the United States.
- **Hire GIS Analysts** – Demands for GIS service continues to increase with location-based information part of most every decision and service provided by the City. Over 200 needs have been identified in this plan and emergencies like the recent southern California fires revealed a staffing shortfall as only one GIS professional was available to staff the Emergency Operations Center (EOC). To achieve those needs a GIS Analyst should be hired immediately in Year One and then another in Year Three. In lieu of new hires, consultants should be used to augment staffing.
- **Annual User Survey** - Annual user satisfaction and input survey. Online survey to gauge progress and user-satisfaction. This survey should be used to track key performance indicators (KPIs).
- **GIS User’s Group** – A GIS User’s group should be formed and meet quarterly. This is a forum to engage key users throughout the City and to ensure that the GIS team is receiving feedback and meeting the needs of users.
- **Annual Return on Investment Analysis** - Annual analysis of work conducted and impact on organization. The results of this should be a part of an annual alignment report that details how the GIS aligns with City Council goals and how the GIS is impacting the organization.
- **Annual Update to the GIS Strategic Plan** – The Revitalization Plan is a five-year document that should be revisited annually and refined based on accomplishments and changing priorities of the City.

Infrastructure

- **GIS Application Virtual Server** – Primary server for the GIS applications. Specifications ensure that the hardware is robust enough to meet the needs of the growing user based and the public.
- **GIS Web Application, Database, and Staging Servers** – Various hardware needed to house various components of the GIS and to ensure fast user response times.
- **Desktop Workstations** – Specifications detailing the hardware configuration of the Power GIS Users in the organization.

- **Mobile Hardware** – Hardware recommendations for using GIS in the field. GIS is readily accessible via smart devices (tablets and phones). A number of departments identified the need to access GIS data in the field.

Maintenance

- **Esri Software** – Core GIS software for the enterprise. A majority of the software has been acquired by the City and is currently under a maintenance plan.
- **Data Mining Middleware** – Annual maintenance on middleware product. This software allows for the integration of GIS with other IT systems.

Implementation

- **GIS Consulting Services** – Annual fund to utilize outside expertise on an as needed basis. GIS technology is inherently complex and requires experts from time to time to augment staff expertise and to implement all of the recommendations of this report.
- **Setup of New Server, New Database Software, and Migrate all Data to New Server** – After the recommended new server is installed the City will need to move all GIS software and data to the new server to include an upgrade of the core GIS (ArcGIS for Server Enterprise Standard) and database software (Microsoft SQL). The current GIS and database software is not at an enterprise level and limits growth.
- **Database Design, Development, and Cleanup** – Implementation of a standard database model (Esri Local Government Information Model). This will help ensure the sustainability of the GIS. The model standardizes the data so that new hires can quickly understand the GIS data.
- **Data Mining** – Using a data mining software package, systematically begin data mining from each of the existing IT systems used by the departments. This allows pertinent data in these systems to be available as GIS layers so that they can be visualized in their geographic context and analyzed (service delivery, holes in service delivery or use, history of events (work orders, crimes, business licenses, etc.) Each department identified numerous reasons they needed to visualize data from their IT systems. This includes the following systems:
 - Polaris (Community Services/Library)
 - Tyler Munis (Administrative Services and most other departments)
 - Chameleon Data (Community Services/Animal Control)
 - Customer Services Data (Business Licenses, Energov, and Munis)
 - Tyler Energov (Environmental Services and most other departments)

- Hansen/Infor (Public Works, Waterworks, and Sanitation)
- Others
- **Setup of Departmental Portals for Various Departments** – Primary viewing and analysis portal. The application would be set up to meet the specific needs of every department at the City with specific data and queries. This application can be used in the office or field (platform independent).
- **Setup of Esri Suite for Community Services** – Setup of a variety of software applications for Transit, Library, Customer Services, and Animal Control, Operations Dashboard (Code Enforcement and Nuisance Abatement), and the Esri Swipe Map (Yard Paving).
- **Setup of Esri Suite for Police Department** – Setup and configuration of the Esri GIS Suite (Crimes App, Intranet, Mobile Browser, and Executive Dashboard) – includes fixing the issues with data mining that occurred once the reporting method was changed.
- **Setup of Esri Suite for Emergency Management** - Setup and configuration of the Esri GIS Suite (Common Operational Picture, Post and Pre Disaster Collector, and Disaster Management Dashboard). Allows the City to plan and respond to disasters in a systematic and systematic fashion. Includes tools to view data real-time and share pertinent data with the public.
- **Setup and Configuration of Esri Collector Application for Various Department** – Primary application for collecting and editing data in the field.
- **Bi-Annual Aerial Photography** – Acquire new aerial photography data every two years as is currently done. New software allows staff to quickly conduct change detection analysis and to view this data in the internal and field applications.
- **Data Creation and Augmentation** – Each department identified a number of GIS data layers that they need that do not currently exist or augmentation that is needed for current GIS data layers. A few of these data layers are listed below:
 - Economic Indicator Data – business data, household consumer data, real estate data, transportation data, business licensing
 - Sustainability data – energy efficiency, solar adoption, water conservation efforts
 - Vacant and Available Spaces
 - Film Related Data – Permit and filming locations
 - Completion of the storm water and wastewater systems

- Finalization of the address point layer – primary layer for 911 and other departments. One address located on top of their exact location in the City. Most of these currently exist but the layer needs to be finalized.
- **CMMS Study Public Works** – A primary need for Public Works is a Computerized Maintenance Management System (CMMS). A study should be conducted identifying the detailed needs, which would serve as the specifications for an RFP.
- **Annual Digital Data Assessment** – Use software (ArcGIS Data Reviewer) annually on key data sets to ensure completeness and veracity.
- **Open Data Portal** – Implement software to share pertinent data with the public. The software (Esri’s Open Data software) presents the data in a geographic context so users can access and download key data sets based on the geography of interest.
- **Metadata** – Critical for the sustainability of the GIS. Metadata documents the accuracy, collection methodology, last time updated, and other key metrics about the City’s GIS data. Very important as the data is used for a variety of projects and shared internally and with the public.
- **Public Facing Applications** – Implementation of a number of targeted applications for the public over a five-year period. The City’s GIS vendor (Esri) has spent millions of dollars on upgrading the user experience to ensure that applications are easy-to-use and graphically appealing. Applications include the following:
 - **Economic Development (CMO)** – Story Map telling the story of economic development, key economic indicators, and reasons to do business in Simi Valley
 - **Simi Valley Promotional Story Map (CMO)** – Story Map that highlights all of the unique qualities and attractions of Simi Valley.
 - **Simi Valley Events Story Map (CMO)** – application highlighting all of the events throughout the City throughout the year.
 - **311 Application (All Departments)** – GIS based 311 application
 - **Transit Application (Community Services)** – Stop locations, what is around the stops, places in the city of interest (could be pulled from business licenses)
 - **Library and Senior Services Story Map (Community Services)** – story map highlighting the services delivered
 - **Transportation Plan Story Map (Community Services)** - Story Map showcasing key elements of the City’s Transportation Plan

- **Recycling Story Map (Community Services)** - when and where are services offered (household batteries, shredding services, etc.)
- **Story map of non-profits in Simi Valley (Community Services)** - who get grants and services provided, what was done each year, links to the NFPs
- **My Government Services application (Community Services)** – when and where are services provided (Street Sweeping, Trash Pickups, others)
- **Neighborhood Council Story Map (Community Services)** – Boundaries, executive board members, contact info
- **General Plan Story Map (Environmental Services)** – Story Map showcasing key elements of the City’s Comprehensive Plan
- **Projects Story Map (all)** – Story Map highlighting various projects around the City
- **Hazard Mitigation Plan Story Map (EOC)** – highlighting key elements of the hazard mitigation plan to include critical facilities and emergency game plan
- **Meet the Officer Story Map (Police)** – highlights police zones and officers patrolling
- **Neighborhood Watch Districts Story Map (Police)** – districts and key contacts

Software

- **Upgrade to ArcGIS for Enterprise and SQL Server** – Core software that will allow the City to implement a true enterprise-wide GIS. Current software is limited to 10 users and other technical limitations.
- **Implementation of Existing Public Access Internet, Mobile Viewing and Collection, Off-the-Shelf Applications** – Identification of when each of the above should be implemented. Each of these are applications that are included in the City’s GIS software suite from Esri.
- **Acquisition of New Software** – Key software products needed to accomplish the goals of the end-user departments to include:
 - **ArcGIS Data Reviewer** – Single use license for reviewing data sets for completeness and data integrity.
 - **Data Mining Middleware** – Software tool to do automated extracts from existing IT systems
 - **Business Analyst Online (CMO and Environmental Services)** – Software and data needed for demographics and business data analysis

Training and Education

- **Software Classes for the Core GIS Team** – Includes thirteen (13) courses that are critical for the core GIS team that is supporting the enterprise GIS.
- **End-User Classes** – Conducted internally by the GIS Team. Ongoing classes throughout the five-year period on the use of the intranet, dashboard, field collector, and other tools.
- **Specialized End User Training** – Targeted training for end-users that will be using specialized tools such as Business Analyst Online, 3D Analyst, and Spatial Analyst.
- **ESRI Regional Conferences/Workshops** – The education and training chapter stressed the importance of attending the annual Esri user’s conference and regional workshops.
- **Communication Strategy** – As important as formal training is communicating the uses and possibilities of GIS in a more informal manner. To that end, the Education and Training chapter of the Revitalization plan identified a number of methods to educate the organization to include:
 - **GIS Day** – November of every year. Cities throughout the United States use this official day as a day to share the successful uses of GIS in a public forum.
 - **Monthly Personal Meetings** – GIS staff meeting with key decision makers and department heads to inform them of how the GIS is being used for their departments and other ways that it should be used in the future.
 - **Marketing Efforts** – Various ways of sharing the purpose and successes of GIS to include newspaper, television, brochures, and newsletters.
 - **Seminars** – Various educational seminars throughout the year such as GIS for Public Safety and GIS for Public Works.
 - **Implementation of Blogs, Email and Social Media** – Various ways for the GIS team to communicate with users and prospective users.

CONCLUSION

It is clear that staff throughout the City need to and desire to continue to utilize GIS technology to conduct their daily tasks. GIS use in local government is going to become more pervasive. GIS will become the de-facto portal for managing and analyzing all data at the City (spatial and non-spatial). The spread of GIS tools has been significant over the past few years. Also, citizens are equipped with an ever increasing array of GIS based tools. They have location aware phones and an assortment of mobile devices. Over the next decade, this will become more prevalent. Users will expect local governments to automatically

provide location based service (LBS) information on road closures, the location of the nearest city facility with desired amenities, the location of special events, utility services, availability of a book at a local library, and the location of projects throughout the City. This can only be accomplished through the use of GIS and adequate personnel resources. The City has invested in GIS and will continue to do so. The importance of GIS at the City will continue to increase. Therefore, it is critical to the success of the organization as a whole that the recommendations made in this report are adopted. This will ensure that the City's GIS investment will be viable and will be able to meet the ever increasing demand.

QUESTIONNAIRE

VOICE OF THE CUSTOMER (VOC)
SURVEY



CITY OF SIMI VALLEY

CALIFORNIA

GIS ASSESSMENT AND REVITALIZATION PLAN

QUESTIONNAIRE

VOICE OF THE CUSTOMER (VOC) SURVEY

Simi Valley has realized various successes in the process of developing a Geographic Information System (GIS) program. A solid foundation and tremendous opportunity exists for Simi Valley to expand GIS further throughout the organization and to external customers.

A variety of departments use the technology for a diverse set of needs. It is important that the customers have a venue and a mechanism to share their needs, concerns, and opinions about the technology. Many GIS implementations do not reach full adoption and some even fail altogether because the customer's voice is not heard.



Therefore, it is important that the City of Simi Valley's GIS customers (internal and external) feel they have various mechanisms for being heard.

Voice of the Customer is used in business and information technology fields to describe the in-depth process of capturing a customer's expectations, preferences, and aversions. It is a market research tool to help identify needs and satisfaction so that priorities can be set to satisfy those needs. In this case, the market being researched is the market of current and prospective users

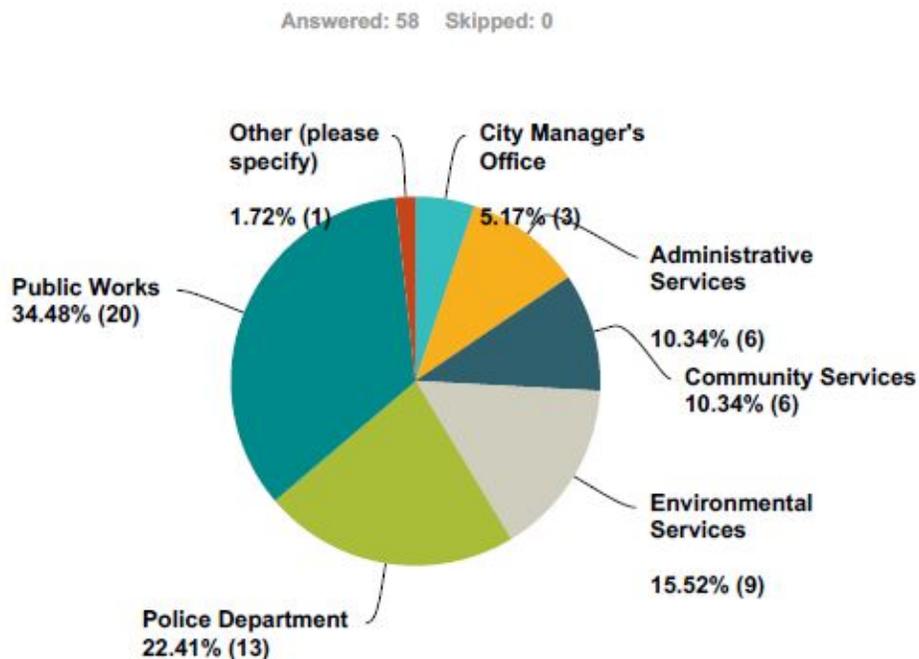
and beneficiaries of the City's GIS. The Voice of the Customer is optimally heard through various ongoing feedback mechanisms to include:

- Face-to-face interviews and discussions with users and prospective users
- Focus groups such as a GIS Steering Committee and GIS User's Group
- Customer feedback forms

As part of the GIS Strategic Planning initiative, a voice of the customer survey was administered as an on-line survey. The link was sent to a diverse group of users at the City and they were given a number of days in which to fill out the survey. The results and the on-site interviews serve as two very informative mechanisms to understand the customers. The following are the questions and the results of the online voice of the customer survey. Each of following include the question itself, a synopsis of the reason for the question (intended purpose), a short-analysis of the answers, charts summarizing the answers (if contextually appropriate), and the descriptive responses of the respondents (if applicable).

Question #1 - In which department do you work?

- **Intended purpose** – to determine the total number of respondents by department
- **Analysis of the answers** – a diverse number of departments responded, which gives a good cross-section of opinions. As would be expected, the heavier using departments and the larger departments had more respondents (Public Works and Police Department). Therefore, it is important to understand that the results are skewed towards the departments with the most respondents and have not been statistically normalized.



Question #2 – In which division of your department do you work?

1. Planning
2. Sanitation
3. Patrol Division
4. Capital Projects
5. Multiple
6. IS
7. Patrol
8. Environmental Compliance Division
9. Detectives
10. Transit
11. Development Services
12. Support Services

- | | |
|--|---|
| 13. Dial - A - Ride | 34. Transit |
| 14. Sanitation | 35. Water Works |
| 15. Auxiliary Services Bureau | 36. Environmental Compliance |
| 16. HR | 37. Critical Support and Logistics |
| 17. Sanitation | 38. Fiscal Services |
| 18. Planning Division | 39. Auxiliary Services Bureau |
| 19. Investigative Services
Division/Auxiliary Services Bureau | 40. Planning |
| 20. Detectives-CSI | 41. EC |
| 21. Current Planning | 42. communications |
| 22. Information Services | 43. Transit/Citizen Services |
| 23. Traffic Engineering | 44. City IT stationed at the Police
Department |
| 24. CSI | 45. Citizen Services Division |
| 25. City Manager's office | 46. Building and Safety |
| 26. Economic Development & City
Administration | 47. Planning |
| 27. Environmental Compliance | 48. Administration |
| 28. Environmental Compliance | 49. Administration |
| 29. Traffic Bureau | 50. Maintenance |
| 30. Senior Services & Library | 51. Sanitation Engineering |
| 31. Field Division - Traffic Bureau -
Parking Enforcement | 52. Admin |
| 32. Utilities | 53. Building & Safety |
| 33. Maintenance Division | 54. Planning |
| | 55. Planning |
| | 56. Capital Projects |

Question #3 - What are the main functions of your department/division?

- **Intended purpose** – to determine the specific background, division, and/or skill set of the respondent
- **Analysis of the answers** – there was a diverse background of respondents. This provides a set of answers that reflect many concerns, uses, and opinions. The responses below are best reviewed in context with their specific questionnaire/answers but are still illustrative apart from the survey instrument.
- **Specific responses from the respondents:**
 - Planning and Development services, public assistance, providing information to staff and the public.
 - City Wastewater Collection System Maintenance Water Quality Control Plant Operation and Maintenance Internal Laboratory for WQCP performance analysis and reporting
 - provide first responder safety resources to the community
 - Design and construction management of improvement projects for the city's street and storm drain systems.
 - Information Services, Fiscal (we got together to answer this)
 - Supervise HelpDesk
 - Law Enforcement
 - Education, outreach and enforcement of water conservation, including response to water waste reports; this waste is frequently the result of excessive landscape irrigation by residential and commercial City/Waterworks customers, including in City public right-of-way locations, maintained by City LMD, or HOAs or property management companies. It is often difficult and time-consuming to determine the responsible parties, due to a lack of GIS data.
 - Investigation Compliance Court Case Management
 - Our division provides fixed route and ADA/DAR transportation to the community
 - Review, approval and issuance of encroachment, transportation, grading and flood area development permits. Review of private development applications to ensure

- compliance with City grading and drainage regulations during design, construction and post-construction stages.
- Telecommunications City-wide Two-way radio (LMR) system for the City.
 - Customer Service, Dispatching, Counting fare Box Money, Scheduling Provide public transportation, Monitor Manifests, create monthly reports
 - Engineer: Prepare sewerage rehabilitation construction plans and review new sewer construction plans. Work on projects at the Water Quality Control Plant (WQCP).
 - Property and Evidence
 - Support to others
 - Inspect the integrity of the City's sewer lines and manhole structures. Any anomaly found is then forwarded to the Collection System Supervisor.
 - Processing/overseeing land development, commercial and industrial tenant improvements, wireless telecommunication facilities, environmental assessments, affordable housing programs, signage, temporary events, annexations, long range planning, and support to the City Council, Planning Commission, and various City committees.
 - Training, Recruitment, Hiring, Volunteers, Property & Evidence, and Temporary Holding Facility
 - Process major crime scenes, prepare reports, prepare diagrams, perform fingerprint development and identification.
 - Customer service at the Planning counter. Processing current planning cases.
 - We take care of all the servers, network, desktops, remote access, network security, applications, ERP, Police System, Water systems, etc....
 - Respond to citizen concerns regarding traffic signs, striping, speed humps. Maintain citywide sign inventory and striping maintenance contract. Enforce citywide, public right-of-way newsrack ordinance.
 - Document and process evidence booked by officers • Respond to major crime scenes to document and process in the following ways to include photography, sketches and diagrams, identify, analyze, collect and preserve evidence, process

involved subjects, assist in crime scene reconstruction • Latent lift evaluation and comparisons • Attend autopsies for documentation and evidence collection purposes • Court testimony • Detailed reports for evidence processing, latent print identification and major crime scene response • Purchase supplies and equipment for CSI unit • Research and maintain up to date training and trends within the field of CSI • Prepare ERFAs to have DNA analysis, advanced evidence processing and AFIS searches conducted by the VCSO Lab Maintain open communication and working relationships with VCSO Lab, M.E.'s office, outside agencies and all the units of this department

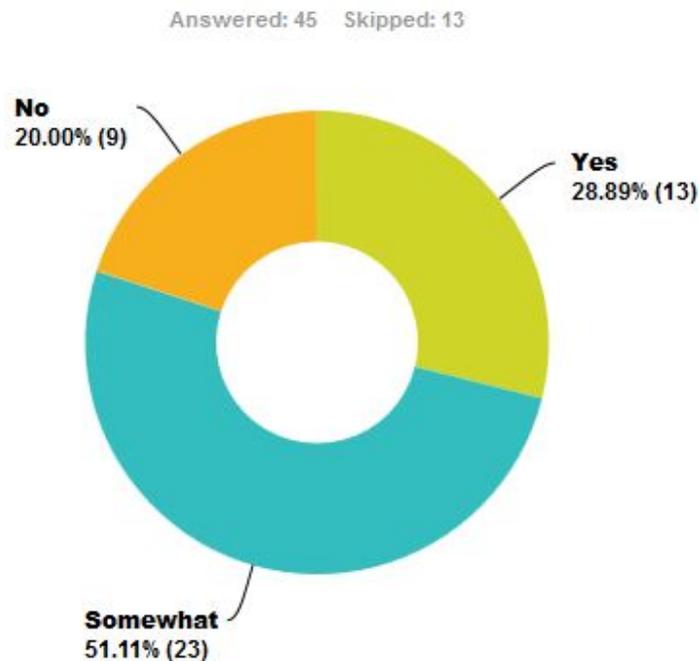
- City Manager
- Provide support and assistance to businesses in Simi Valley and attract new businesses to the community.
- Stormwater, industrial pretreatment, hazardous materials, water conservation.
- 4 Programs: Pretreatment, Stormwater, Water Conservation and Hazardous Materials. Protection of the Public, City Employees, Water Quality and Supply, and Wastewater Collection and Treatment systems.
- Traffic enforcement; collision investigation and first responder duties.
- Running the Senior Center and managing the contract with Library System and Services for the Library.
- California Vehicle Code and Simi Valley Municipal Code Enforcement
- Provide water and sanitation services to the community, and support the internal functioning of these Divisions.
- Maintenance of streets, trees.
- Transportation
- To provide a safe and potable water to the City of Simi Valley. This Division is responsible for all aspects of the maintenance and repair of the waterworks system. Large GIS network
- Educate/Explain/Enforce environmental regulations. Sewer Use Ordinance, Stormwater Ordinance, Water Conservation Ordinance, and Hazmat.

- Law enforcement/Communications
- General ledger, payroll, accounts payable, cash receipts, fixed assets.
- Background Investigations, Jail Management, Property and Evidence, Volunteer Coordination, Training for PD.
- analysis of land use, permits for new or changes in land use, analysis of environmental effects of changes in land use
- Inspector for wastewater pretreatment, stormwater NPDES enforcement, hazardous material emergency response, water conservation complaint response, and odor complaint response. Plan-check at city hall.
- 911 emergency communications with field units and the public
- Transportation services, code enforcement, solid waste, cable franchise, Neighborhood Councils, homelessness, animal services, PEG, community grant programs.
- To assist the SVPD in technology related projects.
- Code Enforcement
- Building Permit General Building Permit questions, Plan Intake and Issuance.
- Review developments, propose and review land development regulations, prepare Citywide and subarea general plans, provide over-the-counter ministerial permits and information on Development Code requirements.
- Budget
- Management of the City's infrastructure: streets, water, sewer, storm drains, building maintenance, traffic, environmental compliance and capital projects.
- Oversee Landscape, Streets, Building And Fleet Maintenance Activities
- Sanitation Engineering manages capital projects to maintain or improve the sanitation collection and treatment systems, and provides customer service to property owners to meet design standards for sewer connections. Additionally, track and analyze the yearly sewer line conditions and the inspection processes.
- Personnel, Budget, Purchasing
- Issue building permits, assign addresses, look up addresses

- Implementing the General Plan. This entails reviewing development project for compliance with the adopted plans and ordinances; ensuring compliance with the California Environmental Quality Act (CEQA); planning for future growth in the City; and planning for future housing needs for all income levels.
- Development Projects Use GIS maps for staff reports (Vicinity, Aerial), Homeowner's Associations Maps, Zoning Maps, General Plan Map
- Maintenance of roads, including storm drain, widening, and relocation of utilities.

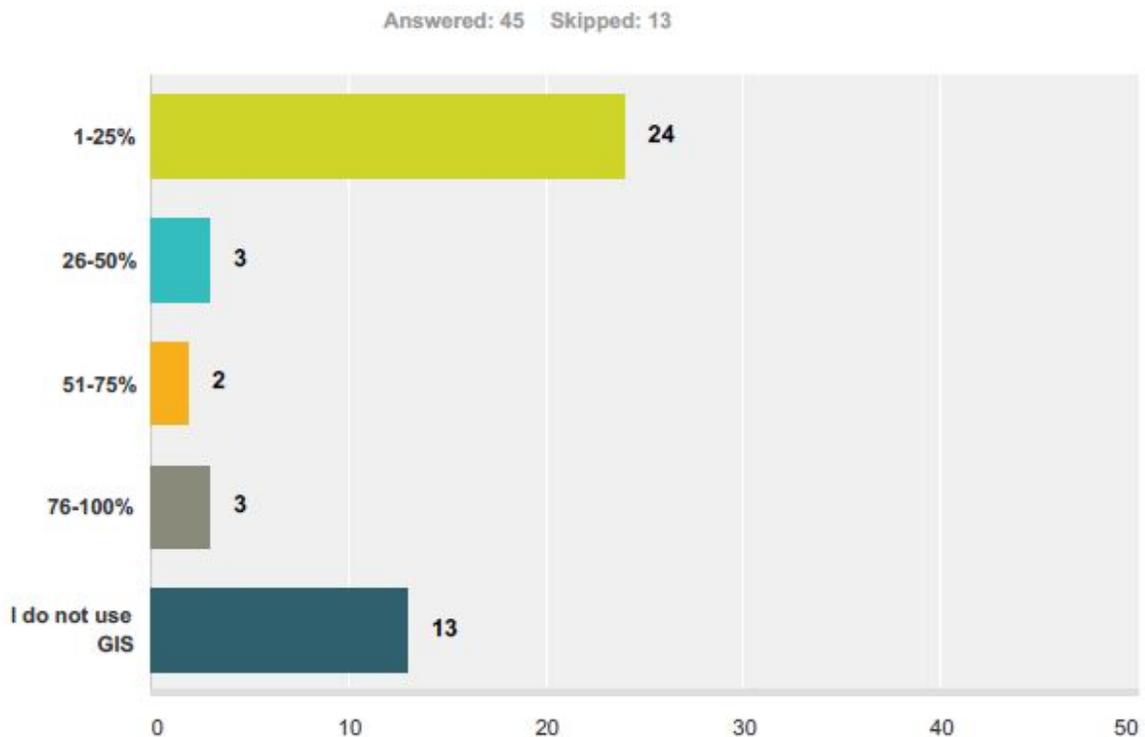
Question #4 – Do you have a thorough knowledge of what GIS is and what it can do to help improve your ability to carry out your job?

- **Intended purpose** – To determine the perspective of users as it relates to their understanding of GIS and how it can improve job performance.
- **Analysis of the answers** – The majority of the users who participated in the survey answered that they believe they have a moderate understanding of GIS and its capabilities. The remaining users were nearly split between yes and no, verifying that an opportunity to expand the knowledgebase of GIS within the organization exists. This is in line with other survey responses related to training and usage of GIS.



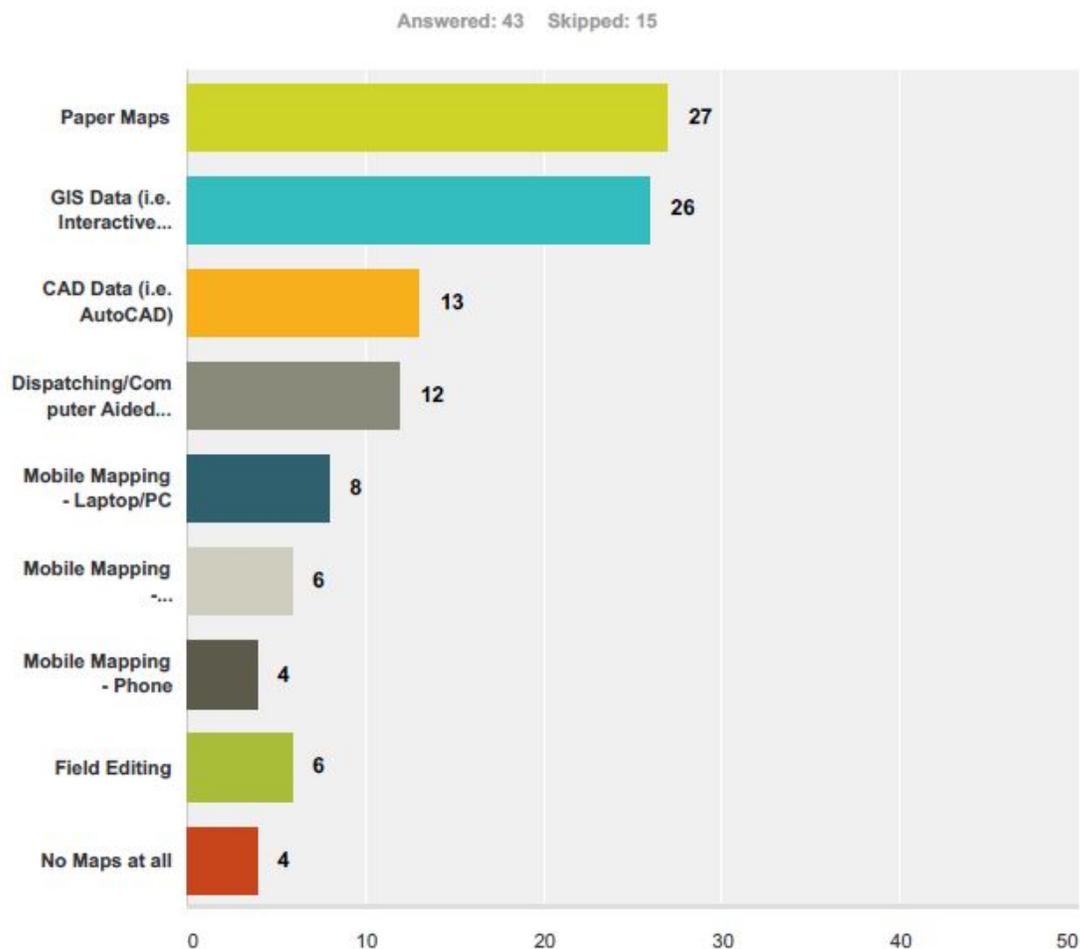
Question #5 - Do you use GIS? If so, what percentage of time do you spend using GIS?

- **Intended purpose** – To get an understanding of the intensity of use of GIS.
- **Analysis of the answers** – The City has a core group that are frequent GIS users. The remaining users either don't use GIS or do so infrequently. In comparison to other organizations, the intensity of use could be higher and more diverse. There is an opportunity to expand the user base at the City of Simi Valley. This plan should increase the overall understanding of GIS and as a result an uptick of users should be expected.



Question #6 - What are the primary kinds of GIS/mapping activities your department/division is involved with? Please choose all that apply.

- **Intended purpose** – To understand how people are using GIS and mapping.
- **Analysis of the answers** – Many staff still use paper maps over digital maps. Simi Valley should anticipate an uptick in web users and a downtick in the need for some of those users to use paper maps moving forward. Departments are also using GIS portals such as Google Earth, but an internal portal might be better suited for carrying out tasks.



Comments from the respondents in regards to other ways they use GIS:

- We would use much more of it if more data was available and it would provide a huge reduction in customer contact if this data were provided to the public on a viewable portal.

- Need for APN data, ownership information on parcel. Info systems is involved with some of these items from a support standpoint.
- Detectives primarily use above, both on their iPhones, desktop and when in the field MDT/CAD
- Google earth
- unknown
- GIS is only involved in these activities from an application management perspective.
- We want to use Mobile Mapping Tablet in the near future.
- Map books (City Sewer and Storm drain systems), Google Earth for required lat/long coordinates, photomapper for address/homeowner info/business locations.
- Need GIS to: - Identify zone -Show slope contours -Show areas in "High Fire Zones" -Show areas within the "Floodzones" -Show Clear Property Lines -Show Street Names Better - Show Easments -Clearer Owner information -Lot square footage -Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. -Building Coverage Square footage -Attach
- Existing Permits (if possible). -Attach Any Existing Entitlements -
- Would like to access the GIS system while in the field to do all the items above.
- Online Crime-mapping and the integration of GIS mapping into our CAD/RMS and Mobile Data Terminal (MDT) applications
- want to implement mobile mapping for ADA/DAR and fixed route services

Question #7 - Please list the GIS software applications used in your department/division:

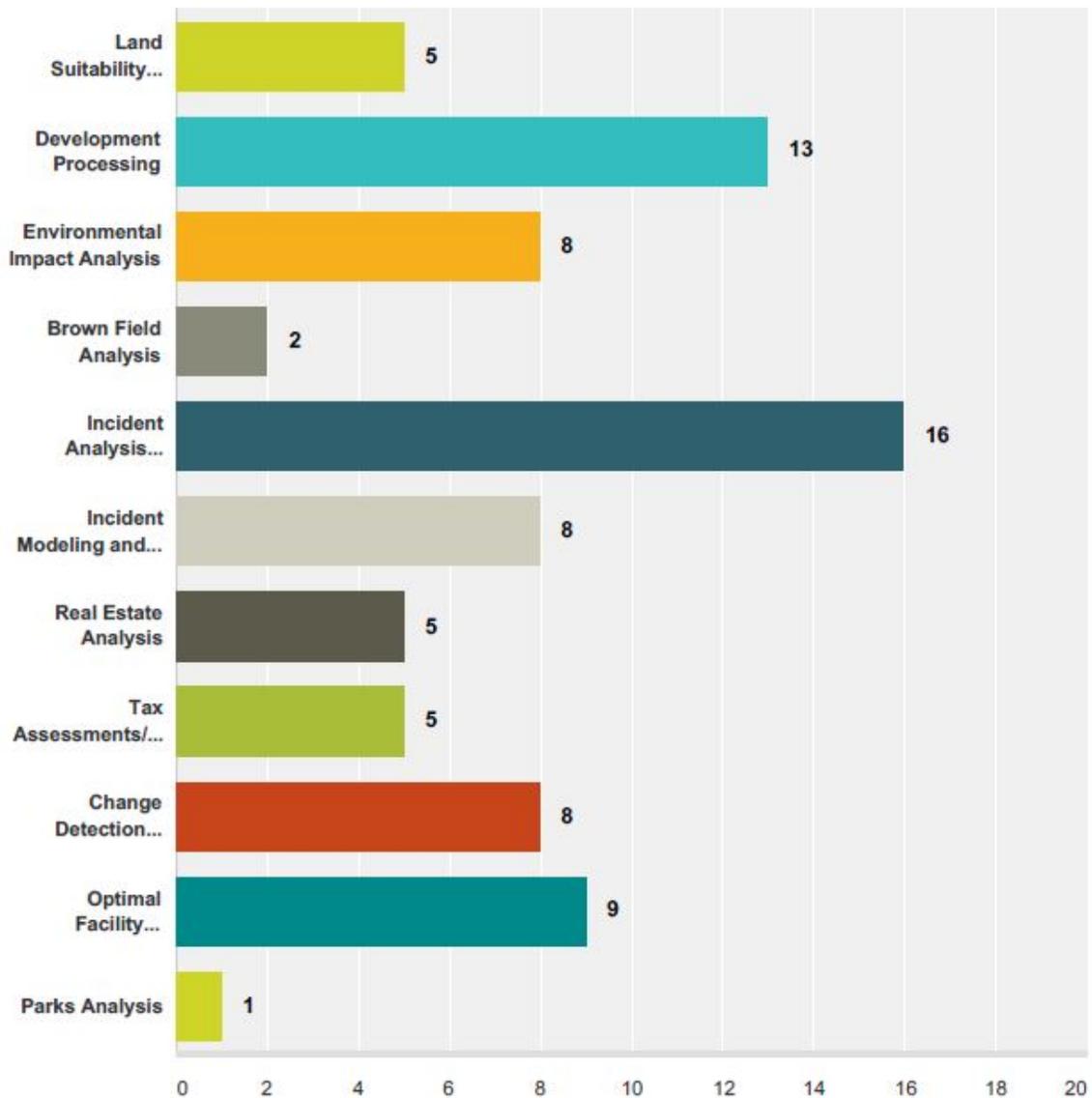
- **Intended purpose** – to identify GIS tools in use.
- **Analysis of the answers** – more education is needed so that people understand the types of tools they are using. However, it isn't a bad thing that they don't know. What it shows is that they are using GIS to get their job done but not forced to understand the intricacies of GIS (i.e. some people browse the web but have no idea which browser they are using). In that regard, this can be seen as a measure of the mainstreaming of GIS technology.
- **Specific responses from the respondents:**
- Arc GIS viewer, photomapper, GIS
- Infor Hansen Esri ArcGIS Cues GraniteXP/Granite.Net
- ArcGIS Explorer Desktop, Spatial Wave, Photomapper.
- none as a user
- Unknown
- unknown
- Unsure
- PhotoMapper Web based/delivered
- None.
- The interactive map is run through essery and programmed to work with GraniteXP/GraniteNET from Cues.
- unknown
- ArcMap 10.2
- I currently us Google Maps and Google Earth
- Photomapper
- storm drain maps
- ARC Storm drain section.
- none
- I don't know.
- Photomapper
- Spatial Wave, and Infor/Hansen Asset system

- Photomapper, Google Earth
- Versatarm CAD
- PHOTO MAPPER GOOGLE EARTH GOOGLE MAPS
- None that I'm aware of
- ArcView
- arc view
- ESRI maps
- NextBus, Trapeze, Google Maps, PhotoMapper
- None - we rely on central GIS (Public Works) to provide what we need.
- Arc Catalog, Arcmap
- The Department uses ArcView. I Photomapper and Google Maps for 95% of my site-specific reviews. I sometimes use GIS analysis for area planning and Development Code amendments.
- ESRI ArcGIS - ArcMap, 3D Analyst, Spatial Analyst, ArcGIS Server Spatial Wave Field Maplet GraniteXP ArcGIS integration Hansen MapDrawer GIS integration
- ArcMap10.2 ArcCatalog 10.2
- ArcGIS
- I don't have the list.

Question #8 - What analytical tasks does your department perform through the use of maps (e.g., land suitability analysis, tax assessments, etc.)?

- **Intended purpose** – To identify how people are using GIS from casual to analytical.
- **Analysis of the answers** – Again there is a diversity of use. A majority use GIS for development processing and incident analysis but several users also are using analysis for development processing and incident analysis purposes.

Answered: 29 Skipped: 29

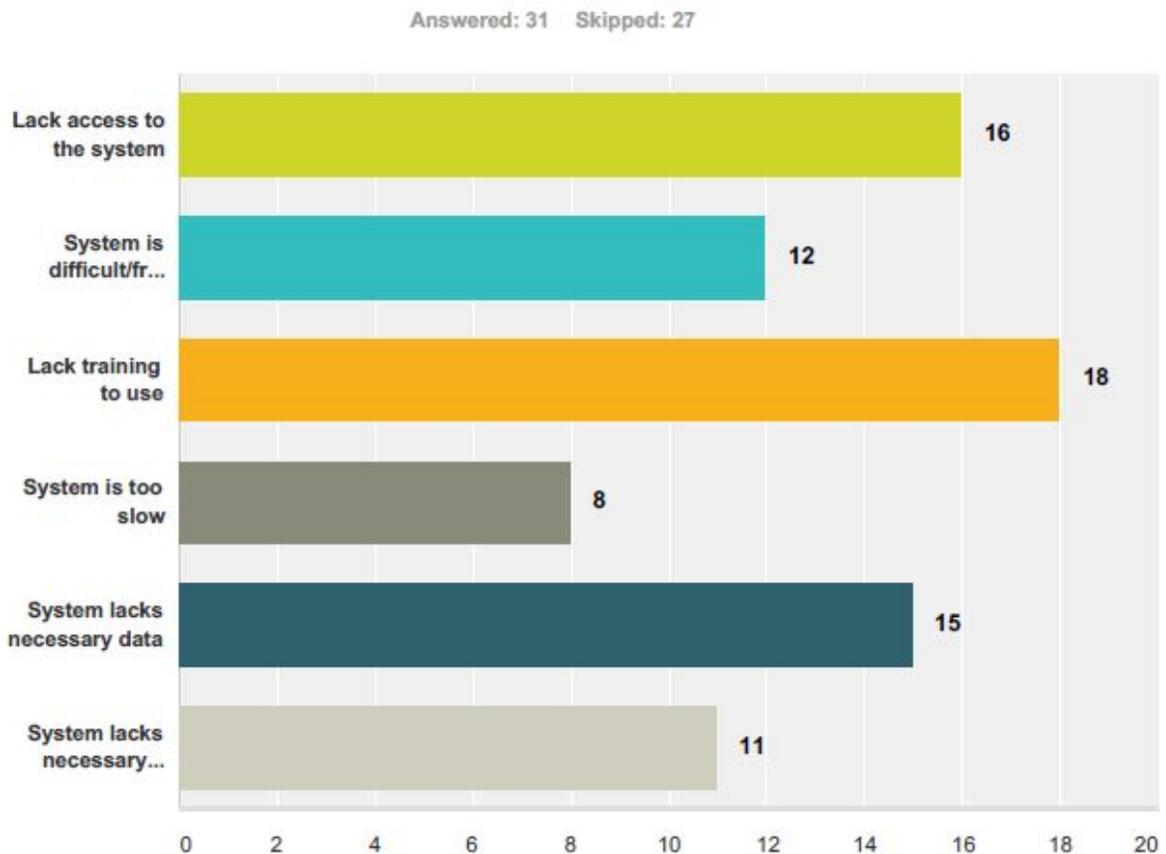


Comments:

- Mostly Zoning and reviewing layers such as flood zones, permits, etc. General Plan, Zoning, project aerials for project review and hearings. Would use it more if the ability to search and report were available more dynamically.
- Regulatory applicability Property ownership
- Locate underground conduit that contain telecommunication cables/fibers.
- Dial A Ride
- Each sewer line and manholes structure has an asset ID. Each inspection is assigned to the Asset ID for that sewer line or manhole structure.
- We sometimes use maps when creating our crime scene diagrams. Our diagramming program also has an option to import directly from Google Maps/Earth.
- Traffic sign inventory
- I would use it to add to my diagraming software as part of the presentation for court of the locations of crime incidents.
- Protection of City systems (IE Storm drain and Sanitary Sewer Systems)
- Pipe line locations, and all Water field Assets
- Asset management, Asset maintenance and structural conditions, cost analysis, survey data
- Streets, Storm Drain, Landscape Inventory Monitoring,
- Our use is mainly to locate existing infrastructure and information to use for proposed road work.

Question #9 - Specifically, what are the shortcomings of your existing mapping system?

- **Intended purpose** – to get an idea of what the customers believe are ways that the experience can be improved.
- **Analysis of the answers** – Education and training is the glaring need as well as better accessibility to data. This is being addressed in the strategic plan Training chapter and the Data Assessment chapter. Additionally, some staff are requesting better access and the necessary data needed to carry out their job be added to the system.



Comments

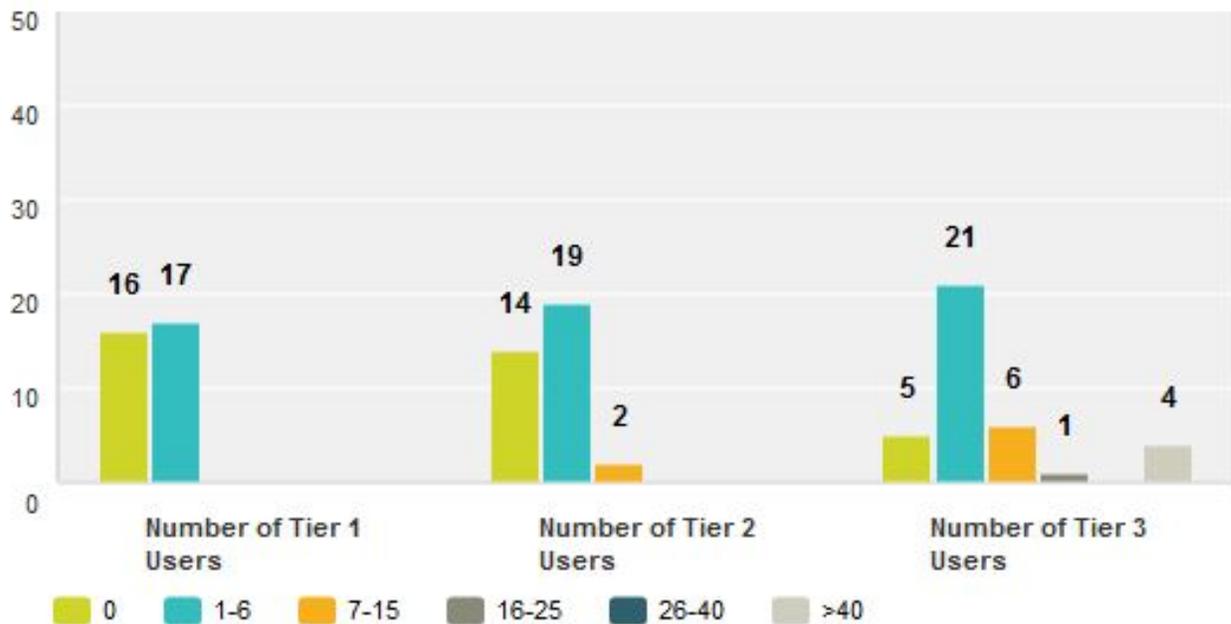
- Not all data is in the system and the most basic information such as zoning is not available for public self serve. Would also use it more if the ability to search and report were available more dynamically such as maps with radii, label printing, etc.
- Analytical investigation Feature inventory
- Don't currently use a mapping system.
- Dispatching sign and striping maintenance work orders, mobile mapping, field editing.

- Google doesn't drop in to my diagraming software very well.
- Manual requirement to update data source. e.g. parcel ownership. Unknown when available or not.
- Need GIS to: - Identify zone -Show slope contours -Show areas in "High Fire Zones" - Show areas within the "Flood zones" -Show Clear Property Lines -Show Street Names Better -Show Easments -Clearer Owner information -Lot square footage -Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. -Building Coverage Square footage -Attach Existing Permits (if possible). - Attach Any Existing Entitlements
- I only use GIS built into CAD and RMS. It functions as expected.
- None that I can think of.
- We just need maps of CIP projects on an annual basis.
- Being able to share data internally and to provide information and maps to residence of the City

Question #10 – GTG will identify three levels of GIS use within your department/division. Tier1 users are Flagship users who coordinate use for an entire department, edit GIS layers, and use GIS on a daily basis, Tier 2 users are users who routinely use GIS to analyze spatial data, and Tier 3 users are map browsers. How many users do you have in your department/division in each tier?

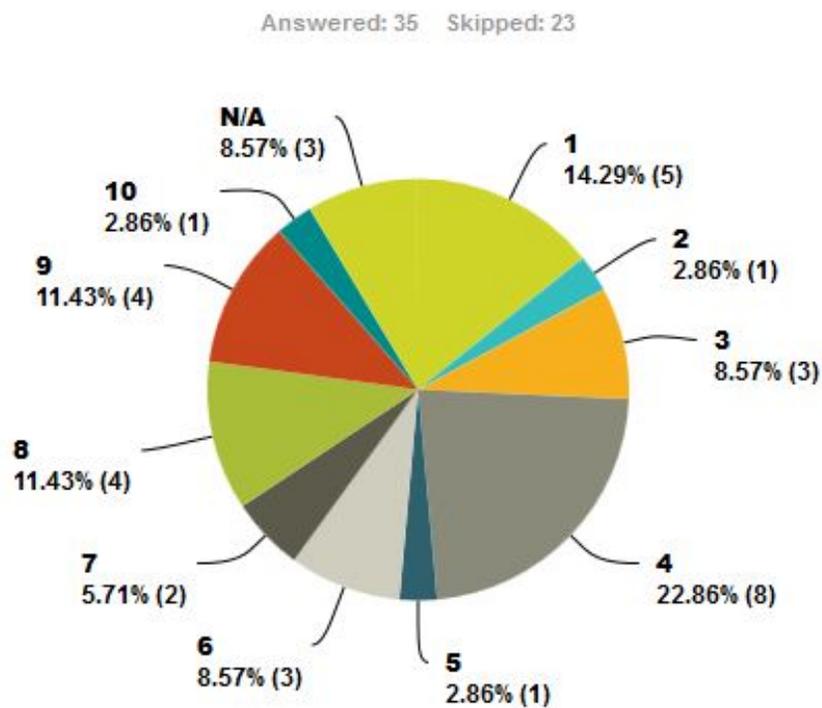
- **Intended purpose** – to help determine the types of users within the organization.
- **Analysis of the answers** – as is typical, there are a few more tier 3 users within the organization. However, there are also a fair number of tier 1 and 2 users that can assist in expanding GIS.

Answered: 38 Skipped: 20



Question #11 - On a scale from 1 to 10, how effective is the existing GIS at meeting the needs of your department/division? (1 = not effective; 10 = very effective)?

- **Intended purpose** – to gauge the user’s perception of the effectiveness of GIS in meeting the needs of their departments.
- **Analysis of the answers** – Overall, the user base feels that GIS could be better utilized to meet their needs. Some respondents are currently getting the necessary information from GIS, but opportunity to improve the overall feeling of GIS effectiveness is very present.



Respondent’s Comments:

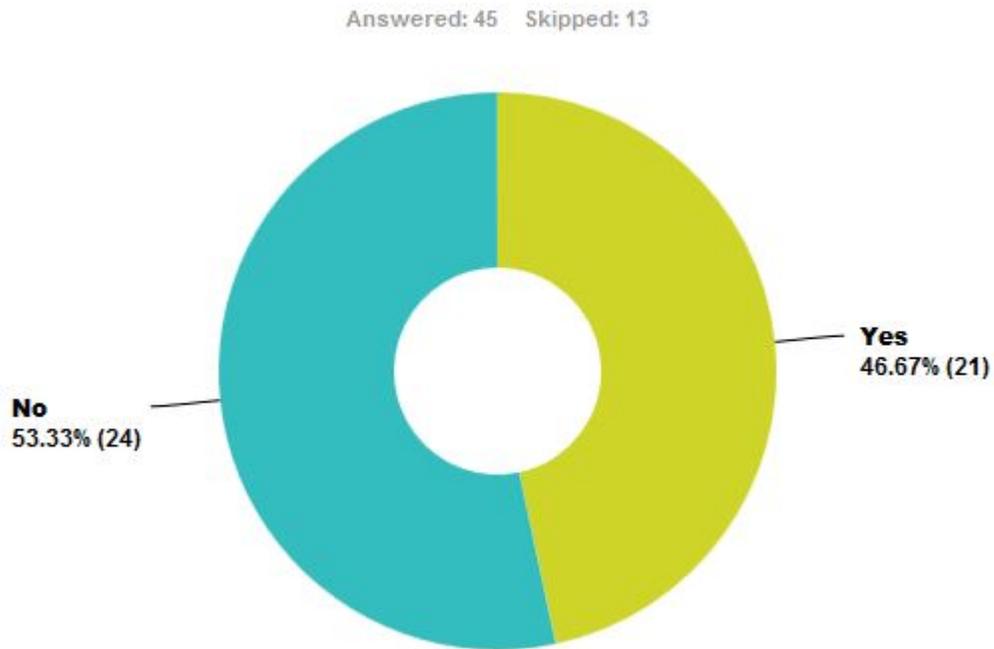
- Need much more global access to the information in a real-time basis and public self serve basic viewable information. Ability to dynamically map and report would be very helpful.
- Need to implement CMMS workorder system with integrated ArcGIS information.

- Facility maps for underground facilities (Water, Sewer, Storm Drain) are separate and fragmented, but still useable through Spatial Wave or the atlases. References to record drawings for street improvement plans would be very helpful.
- GIS is not currently in use by the City/Waterworks to identify and measure the irrigable landscape areas of residential, commercial, industrial and institutional water customers. The State Water Resources Control Board is expected to impose landscape water budgets with permanent conservation targets for each retail water agency. GIS will be critical in developing water budgets for each water customer, and in developing equitable water rates for our City/Waterworks customers; these are essential components to permanent compliance mandates.
- Unknown
- An approximate viewer, but ineffective for analytic use. No support is provided to maintain current data, therefore the value is eroding annually.
- The GIS system for the City's sewer collection system has a lot of wrong data, such as; wrong pipe material type, length of segment, missing sections of sewer line, some of the streets are unclear if it is still a street or private property, missing data for manholes, etc.
- unknown
- See #6 above.
- AS stated above the lack of access and training and mobile equipment for field staff.
- I have no idea how to answer this question, I am not a significant user.
- Our GIS is meeting our primary needs but it would seem that it could be more developed. Also, it seems arduous to make changes or add layers. Perhaps that could be made easier.
- Lack of information that was called out above in the "Shortcomings"
- The GIS function the PD uses is built into the MDT. The data we retrieve is adequate for what we need.
- Access

- Don't know; haven't been educated on what we can or cannot do. Don't know the system.
- I have difficulty conveying accurate information of the city's sewer line systems conditions for several reasons. Many "As Built" drawings lack specific and necessary data to input into GIS. Our Division lacks awareness of just what GIS is all about and how it can be a benefit to them. Also our Division needs more qualified people to support the needs for GIS, for editing and data entry of GIS data and creating a more robust and usable system for the needs of our Engineering Division.
- I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.
- Presently no interaction or functionality
- Lack of staffing, training, data, and budget have limited the ultimate benefit of the GIS system.
- Use of GIS makes research easier and more productive for existing information.

Question #12 – Do you currently utilize the GIS?

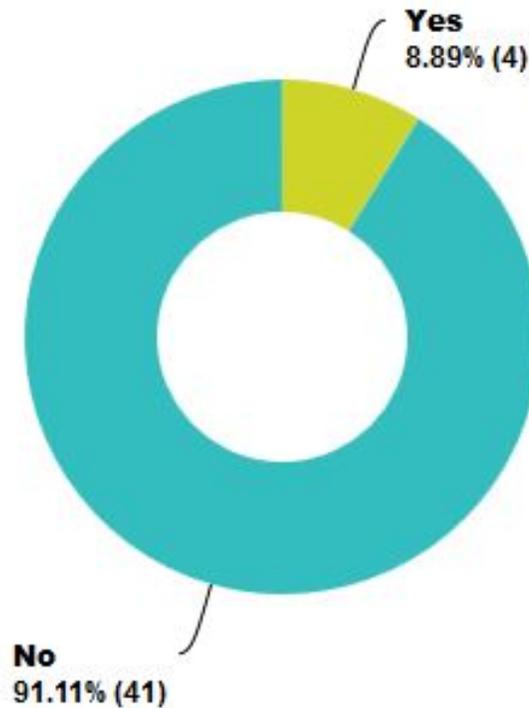
- **Intended purpose** – to gauge the level of GIS usage occurring within the organization.
- **Analysis of the answers** – usage of GIS is nearly split between respondents. As GIS training and deployment of accessible data happen, the number of GIS users will increase within the organization.



Question #13 – Do you perform data maintenance with GIS?

- **Intended purpose** – to gauge the level of GIS data maintenance occurring within the organization.
- **Analysis of the answers** – maintenance of GIS data is currently handled by a small group of staff. This indicates that either there is strong centralization of GIS maintenance tasks or that data maintenance is limited in scope. It could show both are in fact true; that a small number of users are updating and maintaining a small amount of data.

Answered: 45 Skipped: 13



Question #14 – What kinds of information would you like to see mapped and available via the GIS?

- **Intended purpose** – to directly hear from the end users as to what they believe would most impact the usefulness of GIS.
- **Analysis of the answers** – the results indicate there are a number of items to implement. In particular, data availability of numerous sources is key along with data layer availability.
- **Respondent Answers:**
 - All aspects of development from general plan designations, to zoning, to all permits. And, overlays for all maps of the general plan from bikeways to hazard zones. a better list of available layers. More reliability when searching.
 - Collection System laterals Better representation of asset elevations City water basins (Water run-off Sectors) with Stormwater System Access points WQCP Assets WQCP Drawings located in three-dimensional space.
 - Information on all City underground facilities, including Sanitary Sewer, Storm Drain and Water, as well as Street and Tract Improvement plans.
 - Customer service gets requests from the public for information that could be made publicly examples include: Parks, schools, zoning information, etc.
 - Name of property owners
 - Landscape Information, such as City landscape medians and parkways, locations and sizes? Who is the property manager, City LMD?, HOA, Commercial Property Management Co.?.; Who is the landscape contractor?; What is the irrigable landscape budget?
 - current and historic aerials land use all county data 1' contours all structures FEMA NFIP FIRMs, BFEs, floodways, cross sections, stations, etc. Monitored storm drainage basins and water quality devices, reports and status HOAs
 - Underground conduits for telecommunication use.
 - Record drawings tracking rehabilitation projects Construction projects

- I would like to see the proper data listed for the sewer lines and manhole structures.
- History of project approvals. History of information given to customers. Previous determinations made on the parcel.
- As a Citizen, there are many layers that should be exposed to the outside. Bike Paths, Parks, flood zone districts, water districts, housing tracts, street improvement plans, etc.
- Better property data. Property line delineation Better scaling
- Our manifest for Dial - a - ride
- Storm drain system, sewer system, Flood Control system, HOA boundary, and Water system.
- storm drain catch basin information (CPS units, cleaning, size), placement of trash cans, incidents of illicit discharges and hazardous material/waste incidents
- Current information is sufficient.
- Water works has worked hard to keep its information current, but is still well behind. I would like to see that is accurate, detailed and current.
- Storm drain locations and direction of flow, Sewer line locations and direction of flow. Swimming pool/spa owners and locations with Saltwater or Chlorine distinction.
- Different occurrences come up that would be nice to create layers on the fly. Often when we're discussing a series of events or crimes it would seem beneficial to be able to map information to create a visual representation.
- Some of what is listed in the shortcomings that should be incorporated into the new system. : - Identify zone (residential, commercial, industrial, open space, etc.)
-Show property Use type -Show slope contours -Show areas in "High Fire Zones" - Show areas within the "Flood zones" -Show Clear Property Lines -Show Street Names Better -Show Easements -Clearer Owner information -Lot square footage - Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then

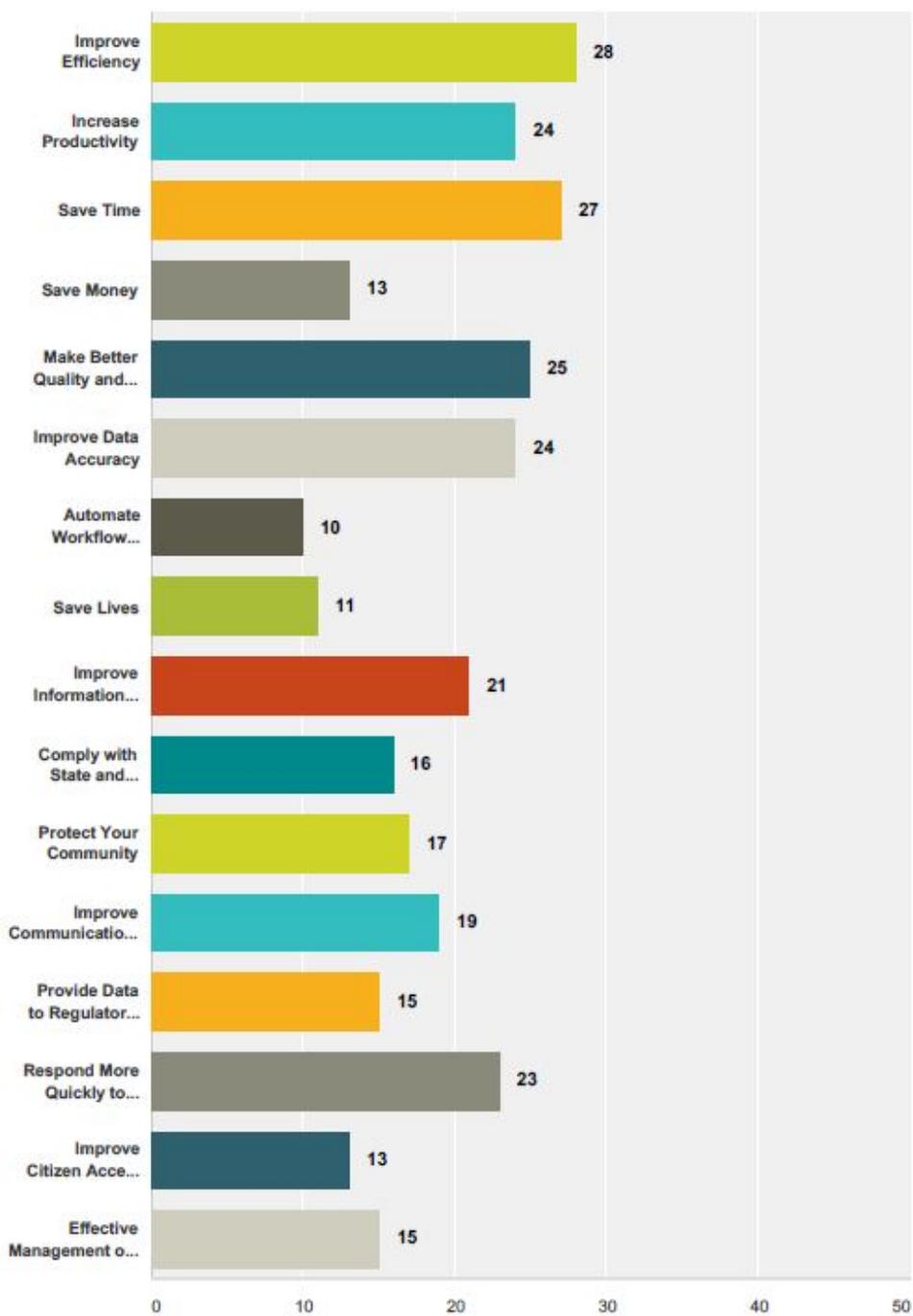
the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. -Building Coverage Square footage -Attach Existing Permits (if possible). -Attach Any Existing Entitlements -

- Although we do not currently use GIS, perhaps it would be beneficial for fixed assets, such as land, water & sewer lines, water tanks, etc.
- Unknown at this point without knowing what is available. GIS for PD is providing us with what we need.
- bus stop locations, animal service licensing data, trash collection service areas, ADA service area based on bus stop locations, census data overlays, code enforcement case activity overlays
- Building floor layouts
- Correct manhole and stormdrain catch basin locations with underground mapping for each.
- all of it, like ZIMAS, plus excellent aerial imagery, zoomable to degree that photomapper currently has
- Location of City's capital projects on map (used for budget document)
- Our entire sewer system updated with the correct data. I would like to perform accurate hydraulic flow models.
- I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.
- More 3D visualization
- Streets, Storm Drain, Building & Landscape Information/Inventories.
- Project data and history, property characteristics (e.g. zoning, permits), natural hazards and features;
- Existing infrastructure, plans and information to use.

Question #15 – What do you expect from GIS and can you give any specific Return on Investment (ROI) Examples?

- **Intended purpose** – to determine user’s perception of how GIS can benefit them.
- **Analysis of the answers** – Users have identified a diversity of ROI with improving efficiency and data accuracy and quality being the front runners.

Answered: 37 Skipped: 21



Comments:

- Improving citizen access to and ability to respond would greatly reduce customer contact time.

- Being able to locate WQCP assets and the information concerning them will reduce the wasted time spent finding and researching support documentation, allowing for faster response times, lower system outage times, and reduced maintenance costs. Using the GIS selection capabilities to locate all drawings that relate to a specific asset location will significantly shorten the time spent looking for drawings and related support material.
- The current system for retrieving record drawings is very time consuming, using hand-written index cards containing limited information to help find drawing numbers. Having an integrated GIS solution for researching record drawings could expedite this process and save time and lost productivity.
- We don't know what type of functions GIS can provide Customer Service and other divisions.
- Make better judgment's on directions /better mapping would save time /
- Any system should aim to increase productivity and accuracy in order to better serve and protect our citizens.
- I believe the information would be more up-to-date.
- I don't know anything about GIS, but I would be interested in hearing more about it to determine whether it could be useful for CSI.
- Do to the lack of training, and current information the system accuracy is in need of improvement. It is unable to keep up with the need for information. The Water Division has had to wait sometimes years for the information to flow. Do to staffing levels. I believe there is a need for contract services to keep the system current. With general maintenance and information queries handled by staff
- GIS helps enforce local, state and federal regulations and educate the citizens improving response time.
- The above are also listed in the shortcomings: Some of what is listed in the shortcomings that should be incorporated into the new system. : - Identify zone (residential, commercial, industrial, open space, etc.) -Show property Use type -Show slope contours -Show areas in "High Fire Zones" -Show areas within the "Flood zones" - Show Clear Property Lines -Show Street Names Better -Show Easments -Clearer Owner

information -Lot square footage -Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. -Building Coverage Square footage -Attach Existing Permits (if possible). -Attach Any Existing Entitlements

- As I provide services to our staff I find myself utilizing GIS as a main tool for gathering data and conveying that data via analyzing and mapping it in a way it is easier to understand for everyone.
- I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.
- Efficiency is managing streets and utilities. Increase productivity of staff. Save time from finding information or going into field. Save money by finding efficiencies and increasing productivity. Aid staff in making informed decisions. Better data makes for more accurate decisions. Automation will aid staff to provide better information within and between departments. Many mandates require reporting of locations for specific items. Better management of streets will protect citizens.
- Anything would be an improvement in all of these areas.
- The use of GIS will enable staff to check on the existing road information and utilize for proposed road project.

Question #16 - What kinds of information would you like to see mapped and available via the GIS?

- **Intended purpose** – to directly hear from the end users as to what they believe would most impact the usefulness of GIS.

- **Analysis of the answers** – the results indicate there are a number of items to implement. In particular, data availability of numerous sources is key.
- **Respondent Answers:**
 - This system MUST be integral with the Energov system and be publically viewable.
 - The ability to locate WQCP assets to within an inch in three-dimensional space at a single address or location. Add several layers that deal with the different areas within the WQCP and several that represent the functional usage of the asset being mapped. (Conduits, Electrical distribution, 3-Water, Fiber Equipment, Parts Inventory Storage Locations.)
 - I would like to see a GIS system in which an area can be selected and all of the record drawings for sewer, storm drain, water and street improvements for that area can be found quickly and easily, with hyperlinks to scanned drawings. Also the ability to access up-to-date and accurate right-of-way and property line data which can be exported to AutoCAD would be very helpful.
 - Would be interested in having GTG tell us how other public entities use GIS to better serve the community. We don't know what we don't know.....
 - See #1 on this page
 - see #1
 - The ability to provide sub systems with current mapping information.
 - Storm drain locations and direction of flow, Sewer line locations and direction of flow. Swimming pool/spa owners and locations with Saltwater or Chlorine distinction.
 - Some of what is listed in the shortcomings that should be incorporated into the new system. : - Identify zone (residential, commercial, industrial, open space, etc.) -Show property Use type -Show slope contours -Show areas in "High Fire Zones" -Show areas within the "Flood zones" -Show Clear Property Lines -Show Street Names Better -Show Easments -Clearer Owner information -Lot square footage -Better zooming in (When a property is located and you zoom in, the

property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. - Building Coverage Square footage -Attach Existing Permits (if possible). -Attach Any Existing Entitlements

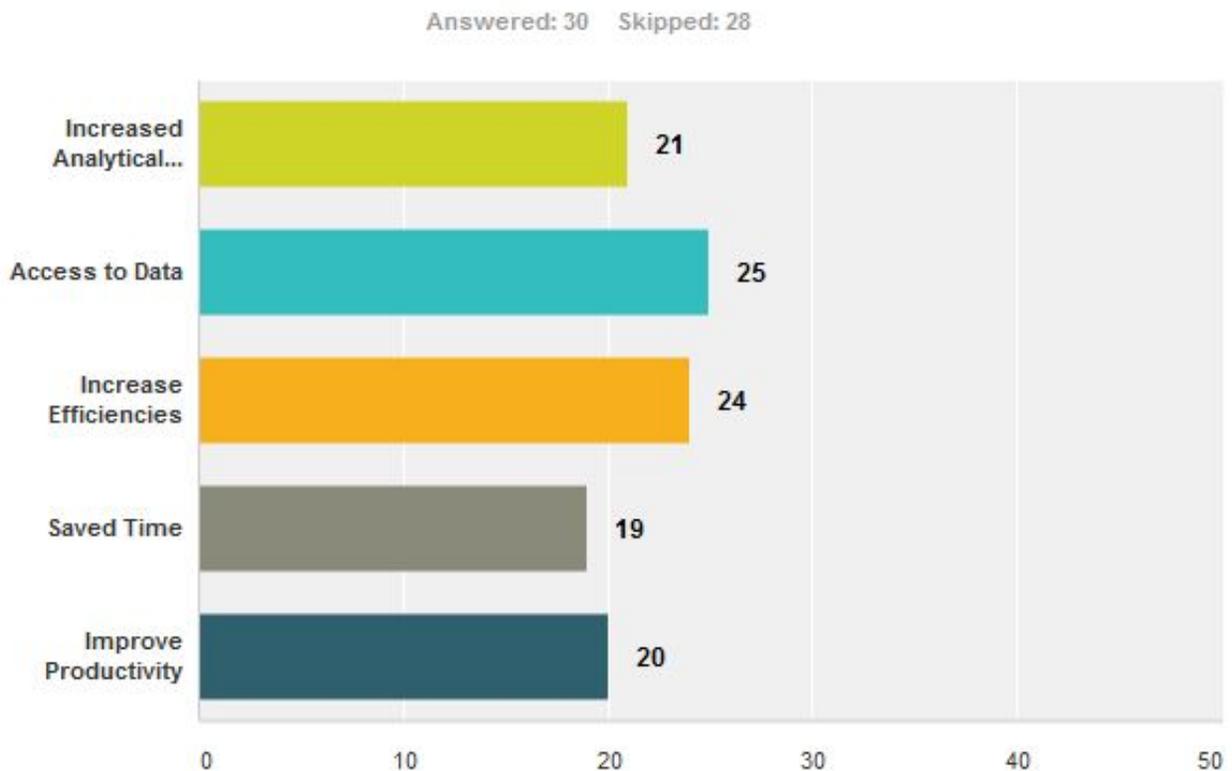
- See above.
- Making it easier to plot crime type data and the analysis of that data on a single mapping application An issue at the SVPD is that users utilize ESRI maps, Google maps, Microsoft maps, etc to plot and analyze data. The problem with this is that not all maps have the same street data. Some of the maps have newer streets and some don't. For instance, the ESRI map may have a new neighborhood street on it that was added 2 months ago and a Google map may not have been updated with the new street info yet. This can cause a problem when mapping crime data using these 2 different applications. There may be a crime which occurred on the new neighborhood street and one application will have the location displayed correctly and the 2nd application will appear to have occurred in an open field because the application map has not been updated with the new street.
- Access in the field.
- Citywide user access of simple mapping uses. We don't use it now... don't have access, don't know how, etc.
- I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.
- More data via Web browsers.
- Tracking infrastructure inventories for cost, age, maintenance already performed and future maintenance/replacement timing.

- Public access.
- More training and use of the GIS on every desk top.

Question #17 – What advantages would these capabilities offer from your perspective?

- **Intended purpose** – to identify specific ROI categories that would benefit the respondents.
- **Analysis of answers** – the responses indicate that the respondents see a diversity of ways that GIS will provide a return-on-investment. It is recommended that the GIS Team and GIS users track ROI and try to quantify ROI examples to be illustrative of the value of GIS.

Comments:



- Support CMMS Integration
- Special images with info will provide for quicker and clearer information at a level that can be better understood by staff and the general public
- I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most

useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.

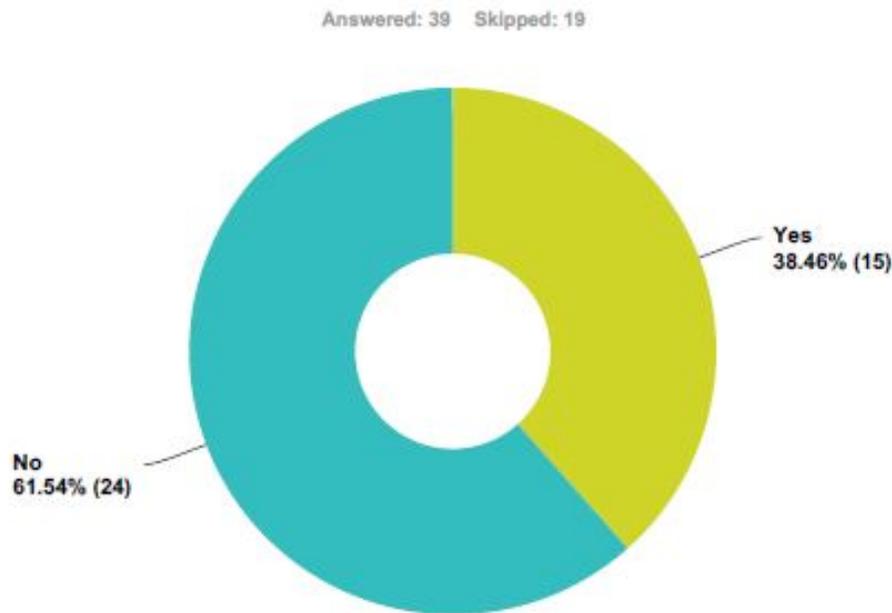
Question #17 – Who funds the GIS activities within your department?

- **Intended purpose** – to identify perceived funding sources
- **Analysis of answers** – some staff are unsure where GIS is funded within their department. Many see GIS as being funded from within a general tax fund.
- none
- Public Works
- I don't know.
- There is a central GIS fund.
- City of Simi Valley
- N/A
- General Fund
- General Fund
- General Fund (taxes)
- Each Division funds this section
- ?
- City/State
- ? - Department Head?
- Don't know
- Transit and General Funds
- The GIS Department at City Hall
- city general fund
- I don't know
- Nobody - none
- Water and sewer enterprise funds
- general fund
- Don't know.
- Director of Public Works and Budget Administration

Question #19 – Have you received any GIS training?

- **Intended purpose** – to understand the respondent's background in GIS training and to gauge the overall training needs of the organization.
- **Analysis of the answers** – Some respondents indicate that they have received some level of GIS training, while most respondent reported that they have not. This clearly provides

an opportunity in the organization to increase GIS knowledge and usage. Additional training opportunities will need to be made available to the organization.



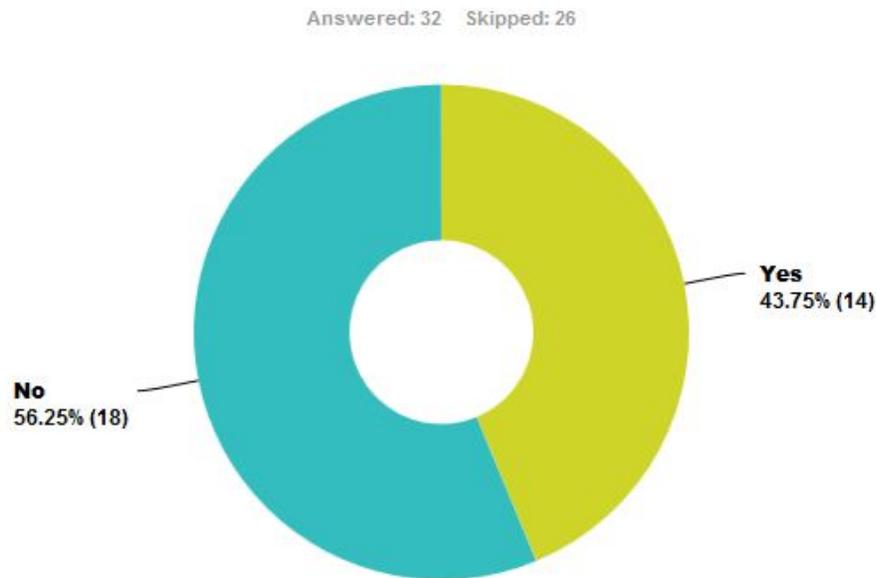
Respondent's Comments:

- Junior college level classes
- Basic usage from a GraniteXP perspective
- Self taught
- Webinar from Cues.
- Many years ago.
- Certificate in GIS, basic knowledge of system functions, mapping, obtaining information, use for design, checking for consistency with general plan, urban design, social, economic and transportation spatial analysis, quantitative and qualitative studies, etc.
- ArcView years ago. After training, it took 18 months before I got a computer that could run ArcView.
- Intro Class
- 10 years ago on how to use the ArcMap units.
- esri class

- Basic beginning 2 day courses at a college. Also some online class training. Mostly I learned it on the job by trying to figure it out on my own.
- Many ESRI certified classes. Last one was Intro to ArcGIS Pro.
- Introduction to ArcGIS; prior training and college courses on GIS.

Question #20 – Do you feel that there are clear lines of responsibility regarding the GIS (Data Creation, Data Maintenance, etc.)?

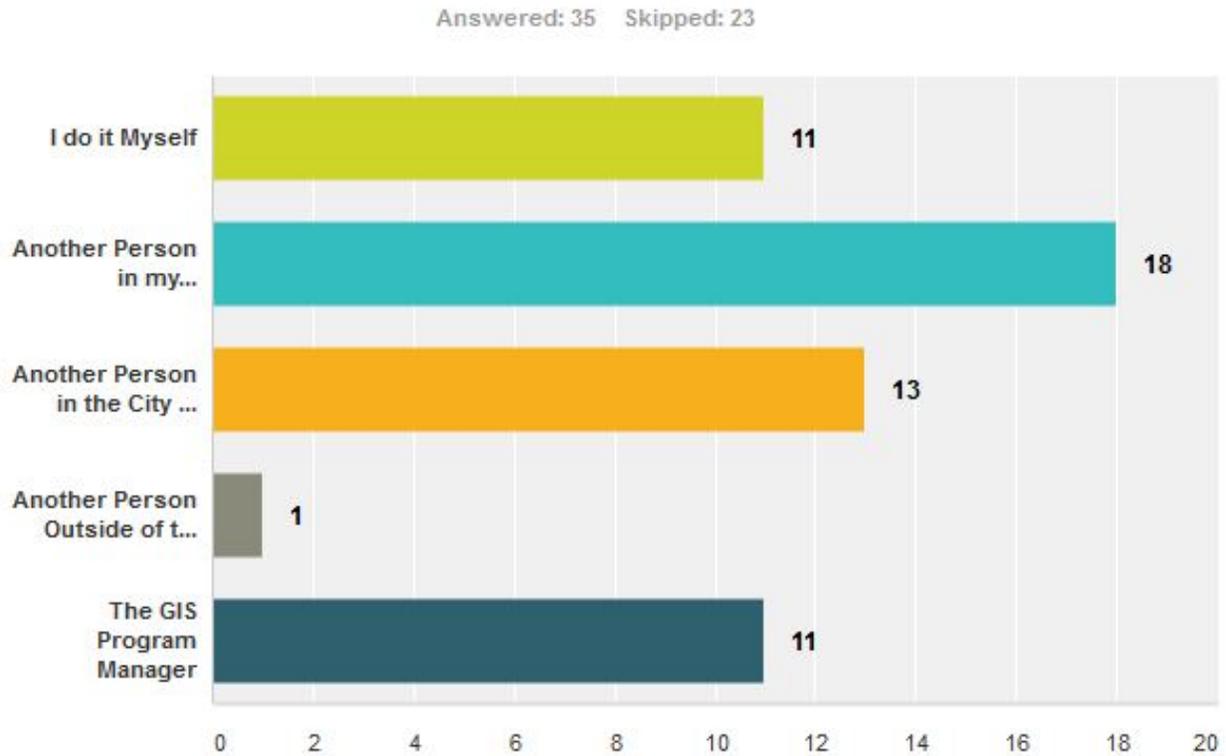
- **Intended purpose** – to understand the respondent’s perception related to the current GIS governance specifically related to data management.
- **Analysis of the answers** – Most respondents believe that there are not clear lines of responsibility in regards to data management. Recommendations will be made for improving governance and will clearly establish departmental responsibility for data creation and maintenance.



Question #21 – Who do you go to for your GIS/Mapping needs? Please choose all that apply.

- **Intended purpose** – used to determine how users get the GIS and Mapping products they need.

- **Analysis of the answers** – A large number of the respondents get the GIS/Mapping products from another person in their department. This indicates that the City needs to disseminate tools for self-help. This should change as more user friendly tools are implemented.



Respondent's Comments:

- GIS Coordinator - Public Works
- GIS Coordinator, Public Works - Administration
- not sure/never really used it
- Engineering
- Aaron Russell
- Aaron Russell, GIS Coordinator, Public Works
- Aaron Russel
- IS staff and GIS Manager
- anyone in planning and public works divisions, often time I reach out to SEAN GIBSON

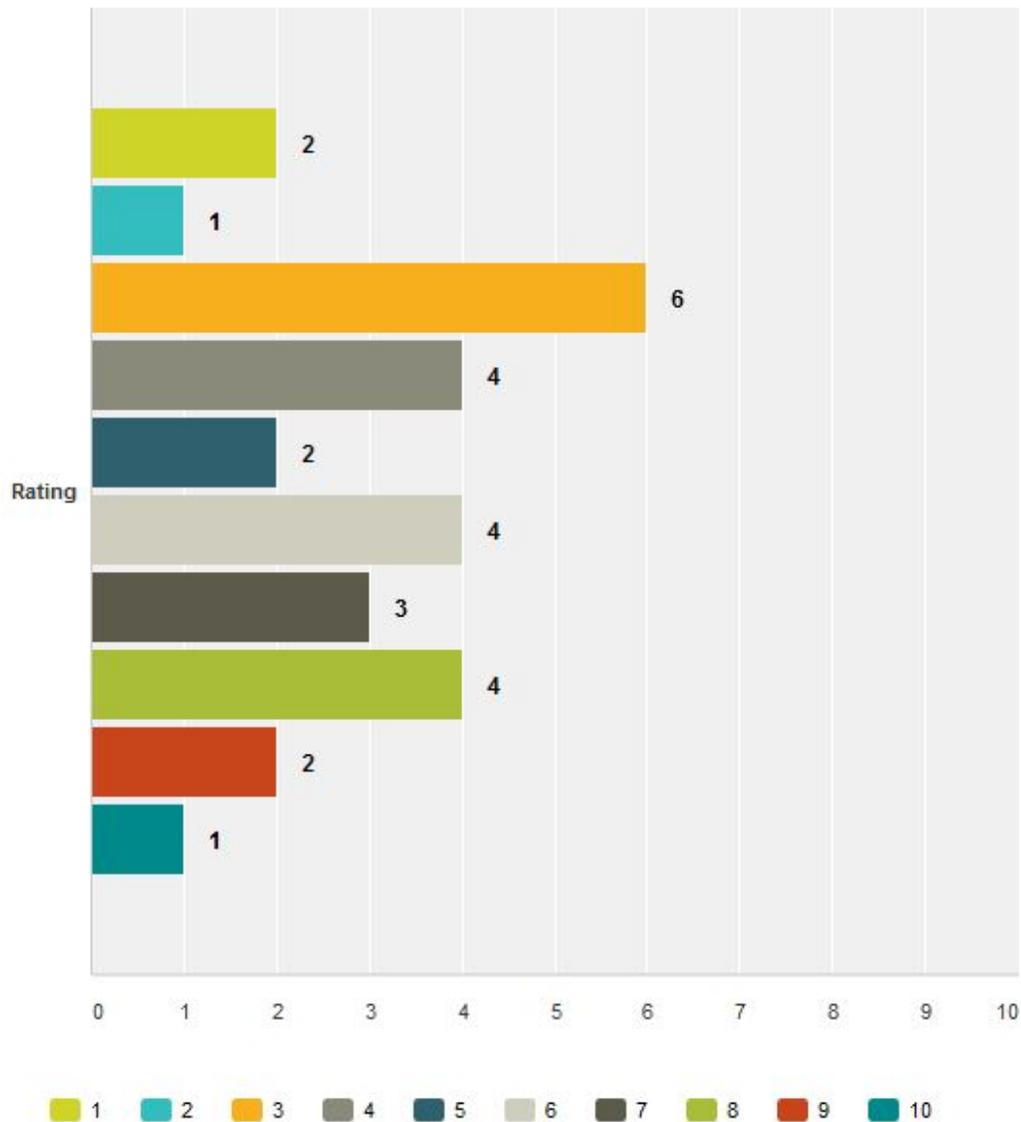
- Sean Gibson, Associate Planner/Donna Rosser, Assistant Planner
- I use mapping incorporated within the RMS MDT
- Aaron Russell
- 2 Managers the contact the GIS dept.
- Aaron Russel, GIS Coordinator
- Charette - Public Works
- Aaron Russel
- I create the maps for Planning Division -Assistant Planner - Planning

Question #22 – Is your organization’s current GIS Governance effective? 1 = Not Effective; 10 = very Effective.

- **Intended purpose** – to understand the respondent’s perception related to the current GIS governance overall.

- Analysis of the answers** – The overall ‘feeling’ of the respondents is that GIS Governance is average or below average; meaning that it for the most part the GIS is not meeting the needs of the organization. Opportunity exists to modify the GIS Governance in order to more effectively serve a broader user group.

Answered: 29 Skipped: 29



Question #23 – What changes in GIS Governance do you recommend?

- Intended purpose** – to provide the respondents an opportunity to share their ideas regarding Governance.

- **Analysis of the answers** – Governance and lack of training top this list of responses to this question. In general, there seems to be a lack of GIS departmental training available to assist. Additionally, some departments would like access to a more user friendly GIS and more data layers.
- **Respondant's Comments:**
 - More clear channels for updating layers and more responsive real-time data.
 - Currently, there is only one GIS Coordinator who is responsible for the vast majority of GIS management for the entire city. Three Engineering Technicians help with data maintenance for their respective divisions (Traffic, Sanitation, and Water). It may be more effective to split the workload, with one GIS Coordinator for each of the departments who use GIS (Public Works, Community Services, Police Department, etc.).
 - Education on how GIS can benefit the AS department. Server capacity planning.
 - N/A
 - More communication and setting up the layers of the GIS map that works for the crews in the field and not the Governance person.
 - unknown
 - Help with more funding for training and equipment.
 - I believe that the GIS system should be current with reliable information. Many believe it should be more, including asset information system (CMMS). Do to current trends in staffing, or lack of, I believe it should be and information container but not a asset and information maintenance system. And using outside vendors for the heavy work.
 - It would seem beneficial if more people are trained on the different systems. The people currently responsible for the GIS systems seem overwhelmed with work.
 - Some of what is listed in the shortcomings that should be incorporated into the new system. : - Identify zone (residential, commercial, industrial, open space, etc.) -Show property Use type -Show slope contours -Show areas in "High Fire Zones" -Show areas within the "Flood zones" -Show Clear Property Lines -Show

Street Names Better -Show Easements -Clearer Owner information -Lot square footage -Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. - Building Coverage Square footage -Attach Existing Permits (if possible). -Attach Any Existing Entitlements

- Improve capabilities to do following: I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.
- Spreading awareness to what GIS is and what benefits can come from using GIS to each employee working for the City and providing more training opportunities for staff to utilize GIS at different levels.
- Limit data maintenance to trained staff.
- More funding/personell
- More staff/time is needed to carry out the full benefits of GIS. The current governance is effective with the resources available,
- Create more layers for road information and more training.

Question #24 – Are there any sources of mapping or database information from other department's/divisions that you do not have access to, but would like to? Please list:

- **Intended purpose** – to gather information regarding data sharing needs.

- **Analysis of the answers** – In general, there seems to be a lack of GIS knowledge. Additionally, some departments would like access to additional GIS data layers.
- **Respondant's Comments:**
 - Yes all development activities.
 - Not that I'm aware of
 - No.
 - Customer Service would like access to Water Works data. Would like to have network maps included as an available GIS layer, including fiber and inside building maps.
 - Unknown what others have. For my needs I feel the mapping through CAD is sufficient. I look to track what is going on in the field, where our Detectives are in relation to active scenes, etc. I also use it to look up/map addresses of sex-registrants so I have a better idea of where they are located throughout the City.
 - I'm sure there are, but I am not aware of what others outside the Dept. are doing.
 - Sanitation, Storm Water, Meter Data, Parcel info.
 - No
 - Some of what is listed in the shortcomings that should be incorporated into the new system. : - Identify zone (residential, commercial, industrial, open space, etc.) -Show property Use type -Show slope contours -Show areas in "High Fire Zones" - Show areas within the "Flood zones" -Show Clear Property Lines -Show Street Names Better -Show Easements -Clearer Owner information -Lot square footage -Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. -Building Coverage Square footage -Attach Existing Permits (if possible). -Attach Any Existing Entitlements
 - Don't know.
 - I would like our Sanitation Engineering be more connected with Development and Environment Divisions in the future.

- Location of planned projects in the City (useful for budget document production, budget deliberations, staff reports).
- None.
- Yes, Planning, Capital Projects and Development Divisions.
- Water and sewer information.

Question #25 – Are there any GIS data layers that you need, but do not currently have? Please list:

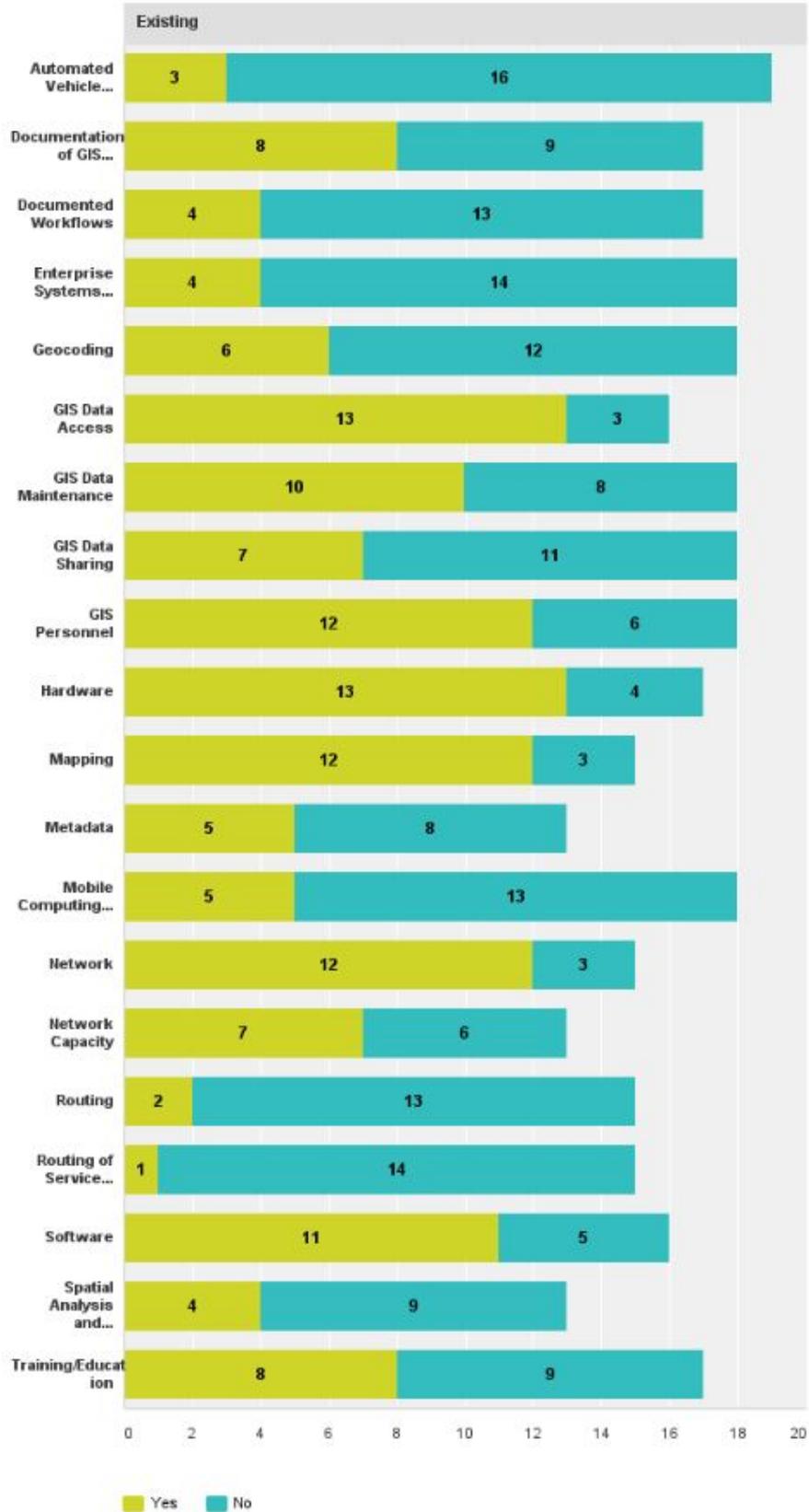
- **Intended purpose** – to gather information regarding data needs.
- **Analysis of the answers** – From the limited response to this question, it is difficult to provide an accurate analysis, but it seems that users feel they should have access to more GIS data than what they currently have, particularly public works data. Perhaps, the issue is that users don't know where to go to access the data.
- **Respondant's Comments:**
 - general plan and permit information business names
 - None that exist today. I want to add layers for WQCP Assets, Resources, Parts Inventory Locations, WQCP Drawings, Collection System Laterals, Water Run-off Basins, WQCP Maintenance Areas, Operations support zones, Electrical distribution networks, 3-water distribution networks.
 - Data layers for street improvements.
 - See above.
 - No
 - See prior comments
 - Traffic light network, streets and underground utilities
 - Location of Public Trash receptacles.
 - As all work is done thru mobile mapping, and Asset maintenance software it is the same information as GIS. If it is not available or has not been configured for viewing it is the same outcome.
 - Dispatch may have requests for additional layers.

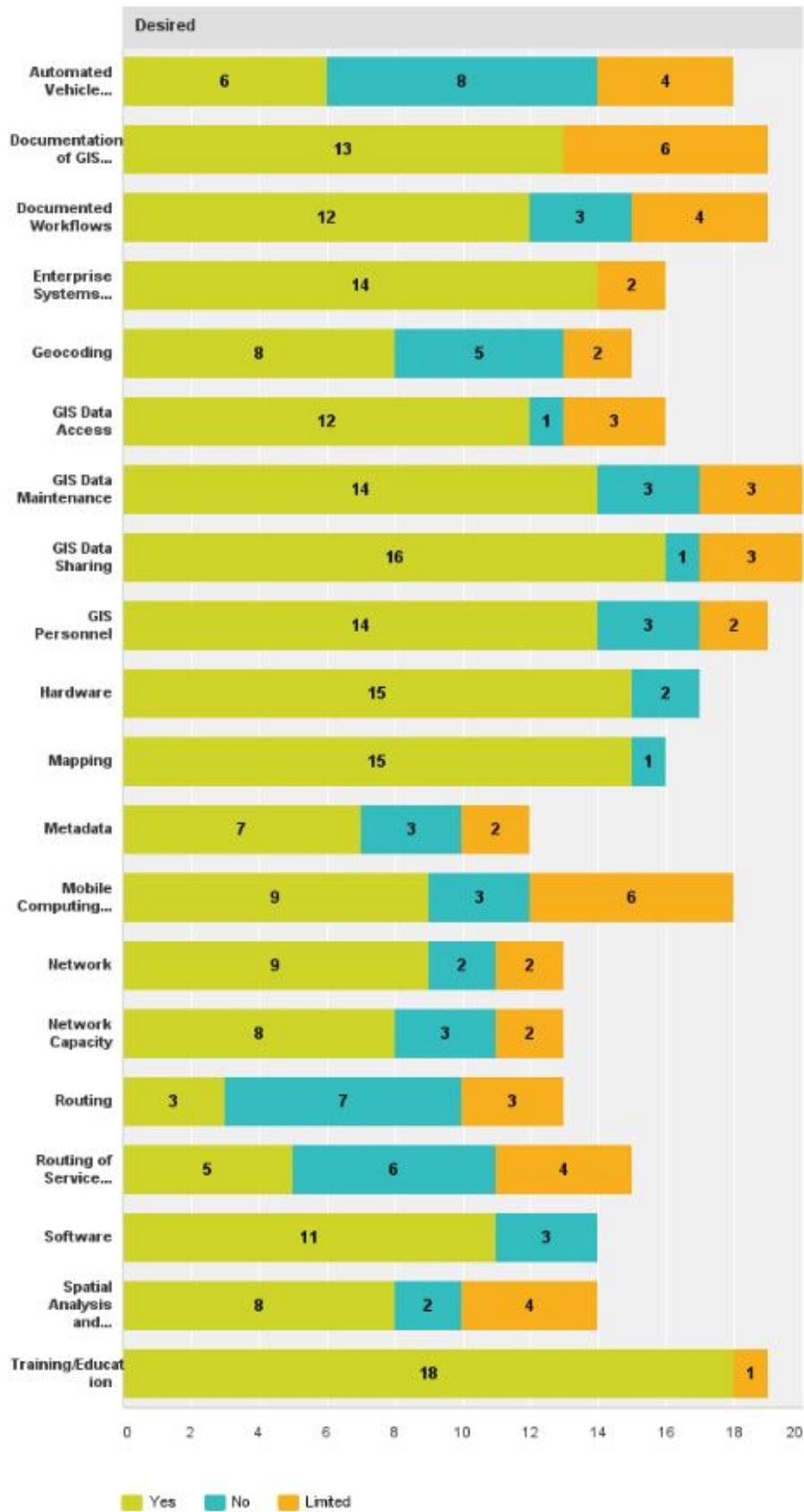
- Some of what is listed in the shortcomings that should be incorporated into the new system. : - Identify zone (residential, commercial, industrial, open space, etc.) -Show property Use type -Show slope contours -Show areas in "High Fire Zones" -Show areas within the "Flood zones" -Show Clear Property Lines -Show Street Names Better -Show Easments -Clearer Owner information -Lot square footage -Better zooming in (When a property is located and you zoom in, the property highlighted is lost and you need to click around to find the right property. Then the property owner information and address do not show up first. There are too many acronyms and are unclear to the untrained eye. - Building Coverage Square footage -Attach Existing Permits (if possible). -Attach Any Existing Entitlements
- Don't know.
- Building Floor plans
- Please see prior answers.
- Can't think of any at this time.
- Location of planned projects in the City (useful for budget document production, budget deliberations, staff reports).
- Up to date Current Land use
- Yes, All Divisions and Departments.
- There are a variety of data layers but they are out of date. Parcel and activity data is needed in a central location to inquire and display development information in the City.
- I'm not sure.

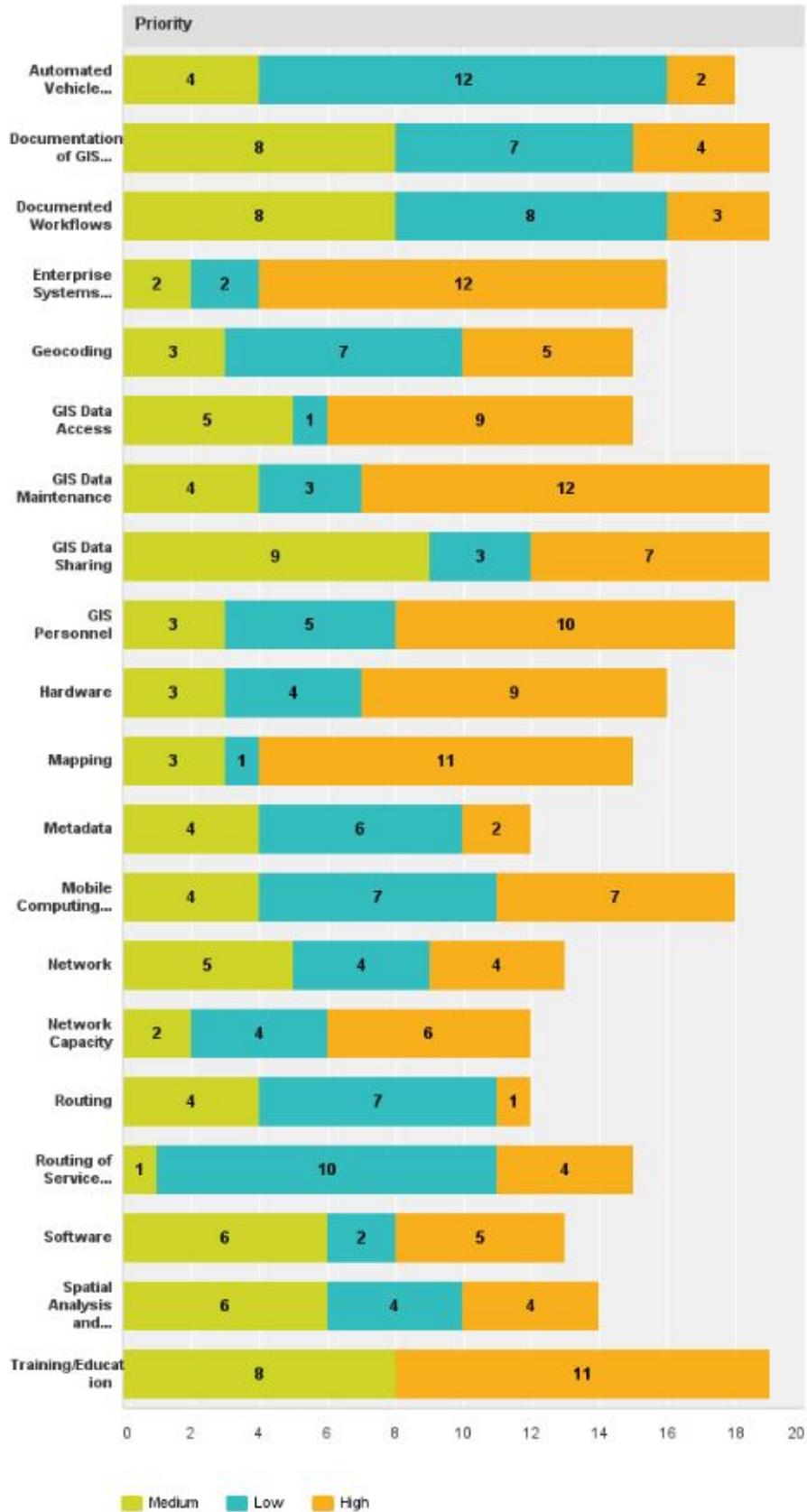
Question #26 – Please complete the matrix below to the best of your abilities and knowledge about GIS within your department/division. This matrix details those relevant components that will be analyzed and assessed as part of the Gap Analysis. Each item below needs to be evaluated as Existing (or not), Desired (Yes, No, Limited), and a Priority (Low, Medium, High)

- **Intended purpose** – to gather information regarding varying GIS components and if those items currently exist within the organization and the priority of those components to the organization.
- **Analysis of the answers** – Most of the components listed do exist in some form in the organization. This is great news and provides a foundation to expanding GIS. Additionally, almost everyone agrees that they would like to see and be able to utilize these components, but with vary levels of priority.

Answered: 23 Skipped: 35





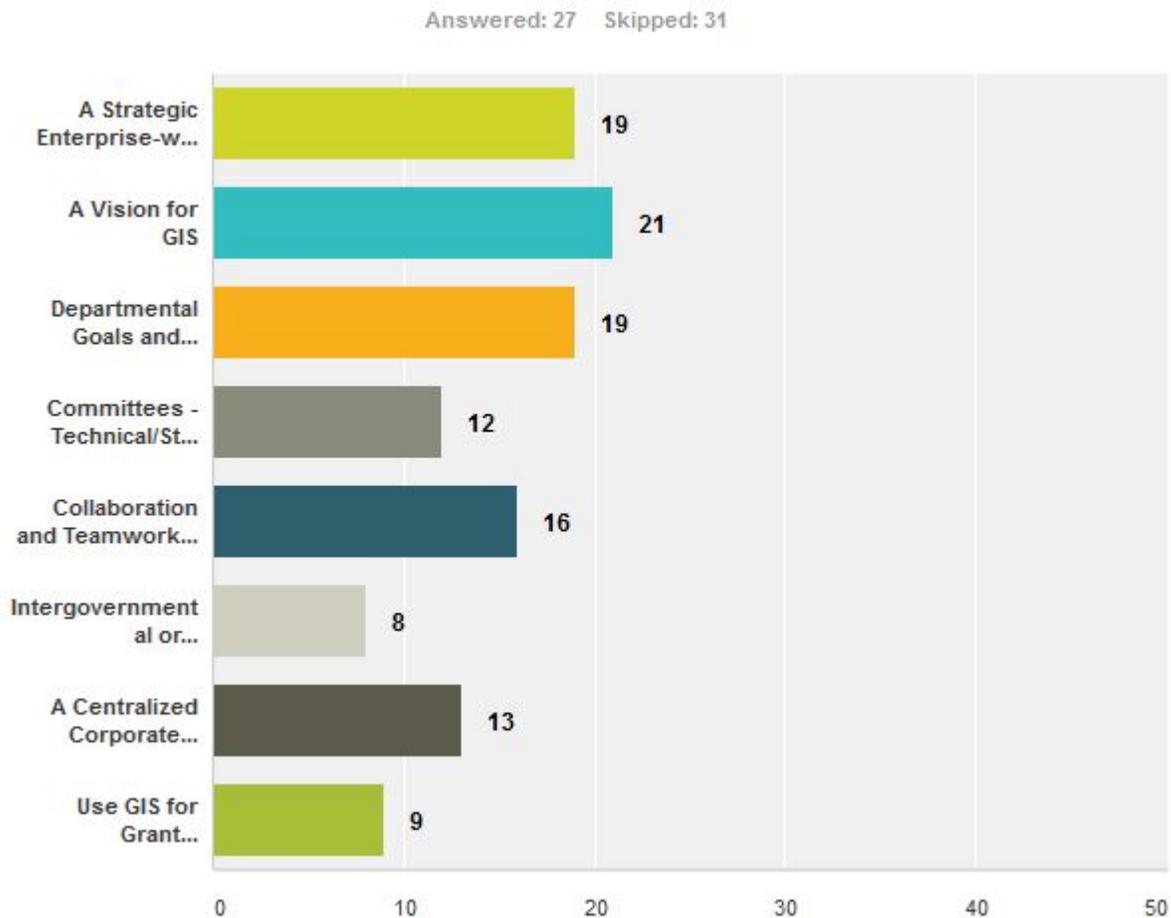


Comments:

- I would like to use the GIS system functions to locate all assets, drawings, and other resources within a selected geographic area. To make this work the functions will need to locate items to 8 decimal places of resolution. (Within less than 1 inch of absolute position.) This accuracy does not need to be measured directly by GPS but only needs to be recorded from known reference points. Since many assets may be stacked vertically the altitude component of each location needs the same level of resolution.
- Really don't know enough about this to comment.
- We are in the center of implementing a new ERP for financials, land use, permitting, planning. I just want to make sure that any recommendations for new systems do not overlap what is planned and in the works. An example may be: we have a new planning system (Tyler EnerGov) that includes land use, we don't need a stand-alone land use module.
- As most system improvements have been done by the Water Works Division for its systems. The outside contractor has worked well. But we need a GIS system that can keep up. System changes such as problem identified in the field are not keep up with and become lost. There need to be a project manager. Or the system work load need to be broke up to maintain sections of the system.
- Staff should have general training on navigating GIS for analysis of property details. Clearer information that should be available is listed but not limited to the listed shortcomings of our existing system
- I don't know what half this stuff is

Question #27 - The following is a list of strategic needs as related to GIS. Please select any needs that you feel apply to your department/division and your organization:

- **Intended purpose** – to understand the respondent’s perception of strategic gaps in regards to the GIS program.
- **Analysis of the answers** – The needs identified most frequently were for a vision for GIS, and a strategic enterprise-wide plan. This strategic planning effort will help bridge these gaps by providing a foundation for collaboration through shared a shared vision and documented goals.



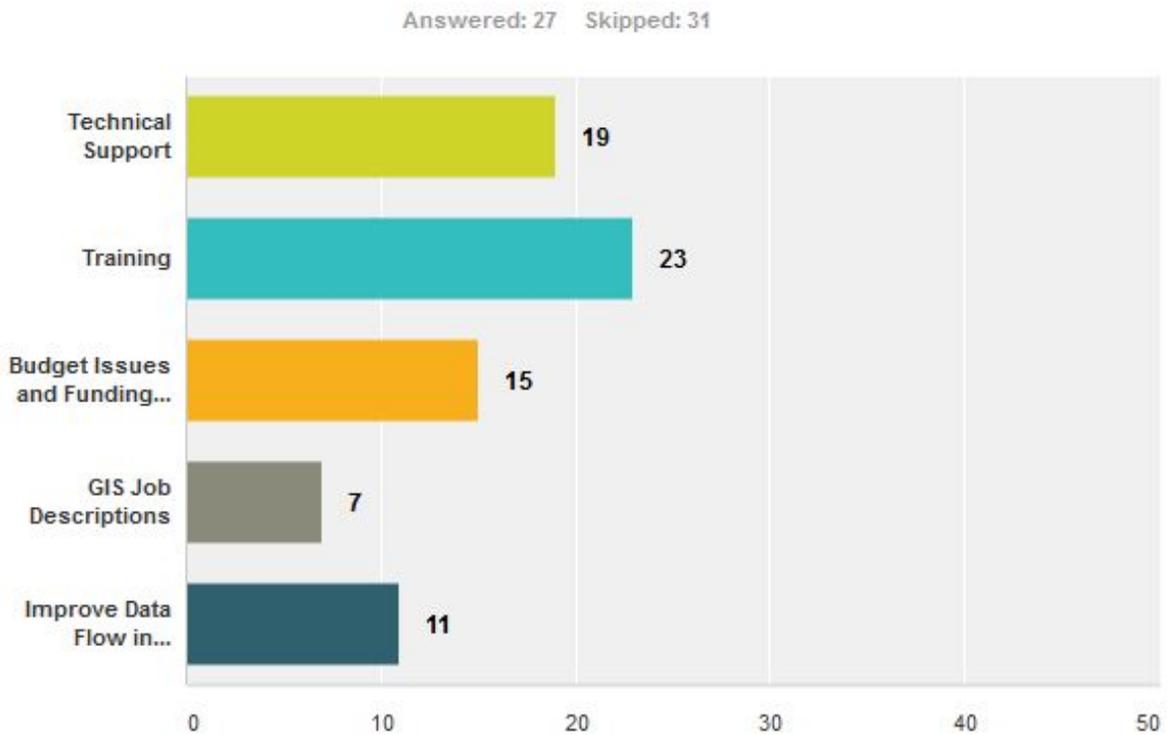
Comments:

- Periodic GIS analytical results are necessary to prove FEMA NFIP CRS floodplain management and resulting community-wide policy discounts.
- unknown

- available information to show consistency with accessor info and general plan would be useful in obtaining the existing uses of such structures, the zones, building lot identification and links to existing APM's
- Improve capabilities to do following: I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful. Also, a users group resource for initially working with users to discuss opportunities.

Question #28 - The following is a list of logistical needs as related to GIS. Please select any needs that you feel apply to your department/division and your organization:

- **Intended purpose** – to understand the respondent’s perception of logistical gaps in regards to the GIS program.
- **Analysis of the answers** – Training and improving technical support are the two most pressing GIS needs.

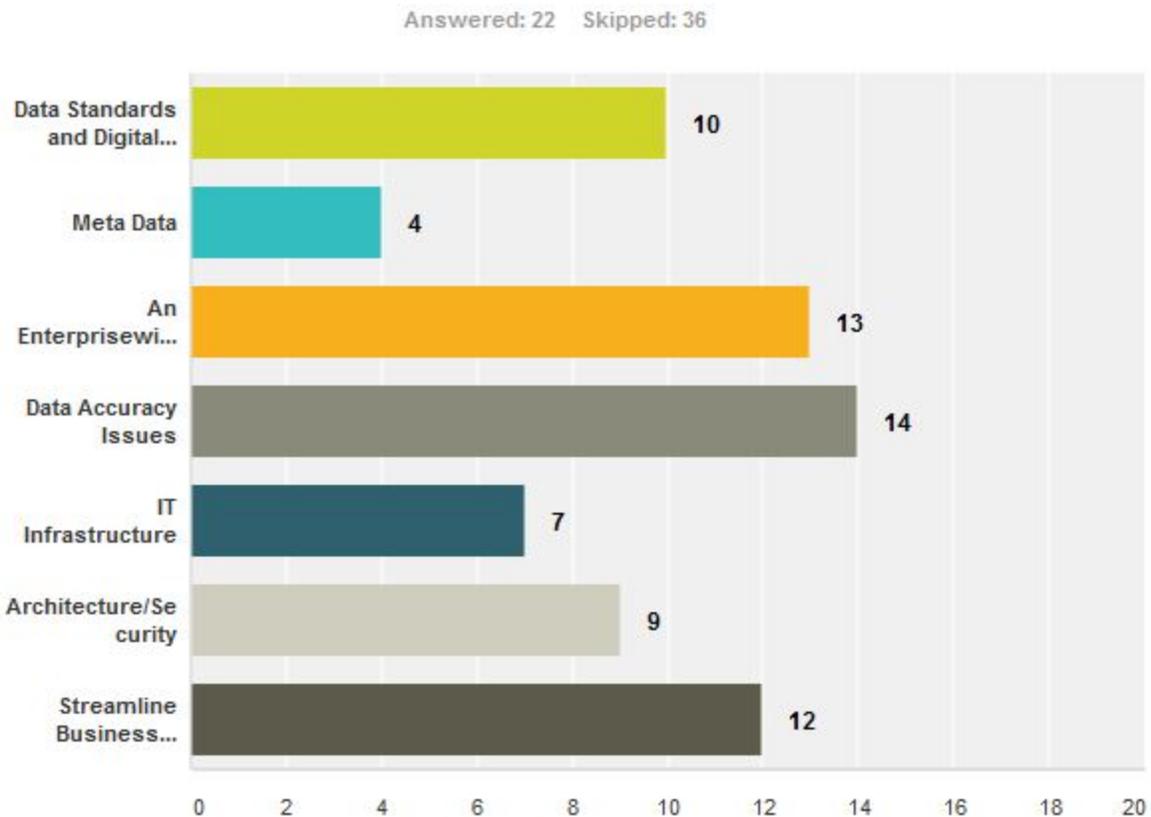


Comments:

- Integration with the Hansen CMMS workorder system.
- We have several Detectives on the technical team for VC, who have more experience.
- unknown

Question #29 - The following is a list of technical needs as related to GIS. Please select any needs that you feel apply to your department/division and your organization:

- **Intended purpose** – to understand the respondent’s perception of technical gaps in regards to the GIS program.
- **Analysis of the answers** – leading technical gaps highlight the need for better data accuracy, an enterprisewide geodatabase design, and streamlining business processes.

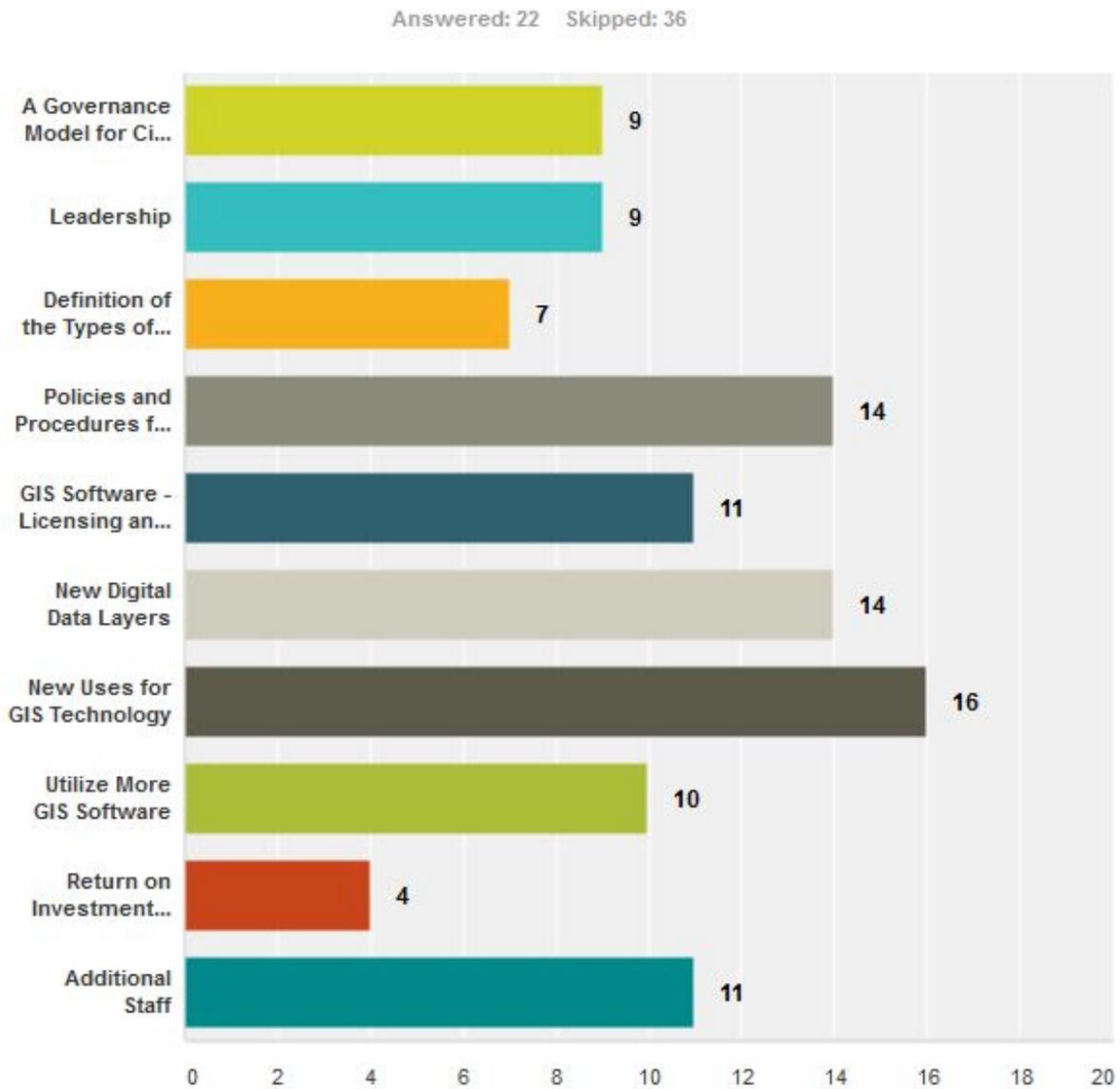


Comments:

- A formal process and control structure needs to be defined to incorporate updated data from the technicians in the field.
- We are on track to require electronic improvement plan submittal for private development that will be integrated into the GIS upon construction.
- unknown
- NA
- I'm not sure.

Question #29 - The following is a list of tactical needs as related to GIS. Please select any needs that you feel apply to your department/division and your organization:

- **Intended purpose** – to understand the respondent’s perception of tactical gaps in regards to the GIS program.
- **Analysis of the answers** – responses indicate a broad range of desires. Opportunities exist for better use of technology and for improved policies and procedures and a need for more data layers.



Comments:

- unknown
- Probably all of the above to some degree.
- Improve capabilities to do following: I use Photomapper and Google Maps (3D) extremely useful in development project review. Getting a high resolution and low-angle axiomatic view option is the most useful. Site info from the Assessor's Office is very useful at the public information counter. Being able to linking sites with conditions of approval and recorded property encumbrances would be very useful.
- I'm not sure

Question #30 - Please give us any other feedback you deem important in regards to the use of GIS at your organization.

- **Intended purpose** – to provide one last opportunity to provide any more information or comments.

Respondent's Comments:

- Once the locations WQCP assets are recorded in the GIS database I can see a possible link being needed by the SCADA system. Depending on system design and capabilities, this link may need to be by way of the CMMS system or it could be made available directly.
- I have no experience using GIS. So unfortunately I cannot give you any valuable feedback.
- Most of the information that would be useful to see is listed in the shortcoming of our existing system
- A lot of us are somewhat ignorant of all the advances and capabilities of GIS products. Part of the process should be just to educate us on the capabilities to make informed decisions of how these products can assist us in ways we never dreamed of. We also should focus on increasing the staff responsible for the GIS systems in the City. Our subject matter experts are taxed with work and often there is a wait for new projects.

We all can't be GIS experts. We need the City to provide ample support in this area of expertise.

- Only one GIS professional is funded to support multiple enterprise applications needs, as well as support various operations from Police Dispatch to water and sewer systems management.

Conclusion

Hearing from the users is critical to the ongoing success of GIS at any agency. Using Voice of the Customer surveys is a great mechanism to gather feedback. It is recommended that an annual online survey is used to gauge user satisfaction and ideas. This coupled with an ongoing VOC feedback program to include; one-on-one meetings, users groups, and technical and steering committees will ensure that user's needs and wishes are being identified and met where feasible. Additionally, it is critical that the GIS team receive this feedback constructively and use it as a means for identifying program priorities.

NEEDS ASSESSMENT

CITY MANAGER'S OFFICE



CITY OF SIMI VALLEY
CALIFORNIA
GIS ASSESSMENT AND REVITALIZATION PLAN

SECTION OUTLINE

1. EXISTING CONDITIONS

 Department Overview

 Governance of GIS

 Hardware and Software

2. GIS NEEDS ASSESSMENT

 GIS Needs

3. GIS GAP ANALYSIS

 GIS Data Layer Inventory

4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1

EXISTING CONDITIONS



DEPARTMENT OVERVIEW

The City of Simi Valley City Manager's Office (CMO) manages the delivery of services through the Economic Development Office (EDO), the Human Resource Division, and the City Clerk's Office. The CMO provides high-level management of all fiscal activities, governmental affairs, public information, economic development activities, and other special projects.

The EDO is led by the Assistant City Manager. The EDO focuses on seeking and encouraging new private investment and business opportunities while promoting expansion and growth of the existing businesses in Simi Valley.

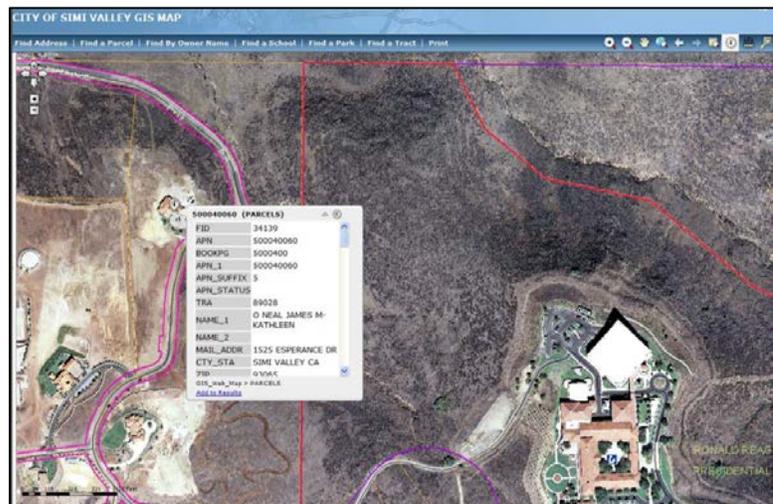
The Human Resources Division’s role is to assist and guide the City in the areas of employee relations, benefits, compensation, recruitment, equal opportunity and employment programs, health and safety efforts, training and development, labor relations, risk management procedures, and workers' compensation benefits.

The City Clerk’s Office is responsible for providing assistance and support to the City Council, City Departments, and the public. In addition to these duties, the Clerk’s Office is also responsible for codifying the Simi Valley Municipal Code, operating the City’s Passport Services Office, administering the City’s Records Retention/Destruction Schedule, certifying official documents, updating the Local Appointments Listing, and receiving claims, petitions, summons and subpoenas.

The CMO works closely with City Council. City Council’s Mission Statement is, “To deliver excellent service to our community by providing a safe and healthy living environment, sound fiscal management, responsive customer service, and an atmosphere that encourages community involvement and volunteerism through a local government that is accessible, efficient, and accountable to its citizens.” Geographic Information Systems (GIS) lends itself to fostering and promoting each of the elements identified in the Council’s Mission Statement. This strategic plan will identify a host of ways that GIS will assist in meeting goals and mission.

GOVERNANCE OF GIS

There are generally three tiers of GIS users. A Tier 1 - Flagship GIS user typically conducts GIS administration and coordination at the enterprise level, has access to a fully functioning GIS toolset to create and maintain enterprise data, and manages the enterprise database. A Tier 2 - Analytical GIS user focuses on data analysis, complex querying and data modeling, along with department



PhotoMapper used for Visualization

level data maintenance. A Tier 3 - Browser GIS user requires only general browsing GIS data functions to create reports, query standard data sets, create tasks like mailing labels, and produce maps.

Minimal GIS is currently used within the CMO. There is some GIS use within the CMO through PhotoMapper, which is utilized for notifications, special events, film permits and property data, while



CoStar is a real estate mapping tool. An Economic Development GIS centric software package, ZoomProspector from GISPlan, was in use for a few years

but was discontinued because getting participation from the real estate community was not consistent and pervasive. If more sophisticated mapping or analysis is needed the GIS Manager in Public Works is asked for assistance.

The table below summarizes the current GIS staff usage within the department. Type represents the current level of GIS experience based on job requirements, GIS usage can be categorized as Limited, Moderate, or High (i.e. frequency of use), and Primary Tools describes what tools, or how GIS is used, to carry out GIS functions.

Current GIS Staffing				
Type	Number of Users	GIS Usage	Primary Tools	
	GIS Flagship (Tier 1)	0	N/A	None
	GIS Analytical (Tier 2)	0	N/A	None
	GIS Browser (Tier 3)	2	Limited	Use mapping from Photomapper and CoStar. County GIS portals



HARDWARE AND SOFTWARE

All staff in the office have access to computers No GPS units are utilized by the CMO. Printers are available for office use.

Hardware Issues Summary	
Type	Notes
Personal Computers	Yes
Laptops	A few for select staff

Printers	Ample printers available for use
Plotters	None
GPS	None
MDTs	None
Scanners	None

Microsoft Office is used to conduct office productivity tasks. The CMO utilizes the following software applications:

- Photomapper - generating notifications, highlighting special events, tracking film permits, and observing property data
- Co-Star - real estate analysis and mapping. Site selection.
- CALOPPS- Human Resources for recruitment purposes. The City will soon be moving to Tyler MUNIS software.
- EnerGov – viewing permitting data

2

GIS NEEDS ASSESSMENT



GIS NEEDS

The enhanced ability to query, analyze, map, and share geographic information will improve operations within the CMO. Currently there is minimal GIS activity within the CMO. Much of what is done by the staff has a geographic component and can benefit from GIS within the department. Comprehensive GIS implementation will provide the CMO with a toolset to be able to lead Simi Valley.

Recent interviews with City Administration personnel identified some important themes with regard to GIS implementation. Representatives from the City Manager's Office including the City Manager, Assistant City Manager, and representatives from the City Clerk's Office, Human Resources, and Risk Management were interviewed as part of the Needs Assessment. There is a good understanding of the power afforded by a well implemented GIS and support to continue enterprise-wide adoption of the technology. It was determined that GIS should be applied in a simple yet effective way. It should be integrated as fully as possible into the workflow of each department.

As discussed with members of the City Manager's Office, GIS currently assists and will continue to assist the City of Simi Valley in achieving its mission. By following the recommendations in this implementation plan, the City of Simi Valley will utilize GIS in innovative ways, enabling the City to be part of the top tier of City GIS implementations in the state of California. Citizens will have Internet access to GIS data and the ability to initiate and track complaints through web-based applications as well as improved infrastructure and services based on more effective City-wide use of GIS. An expanded centralized data management and distribution model will continue to provide staff with real-time access to detailed data that will enable them to do their jobs more efficiently and improve decision-making at various levels and across departments. In addition, GIS will continue to add value to existing systems, by allowing staff to view data in a user-friendly geographic context.

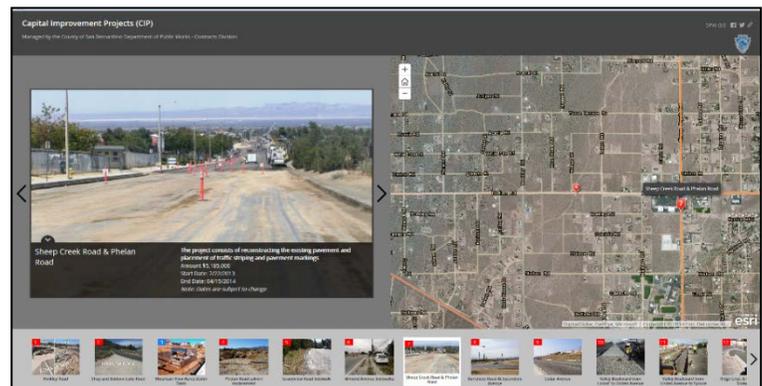
The City of Simi Valley has been utilizing GIS for a couple of decades, and has developed has the core competencies and interdisciplinary skills to use robust geo-spatial tools. An enterprise-wide implementation of GIS technology facilitates support, offering an opportunity to organize and distribute existing and future digital data created during this initiative. Organizing and centralizing data/databases from each department have reduced data redundancy, thereby improving data integration and data quality. Improved data management also assists with automation of analytical processes by providing rapid access to reliable, consistent, and valid data.

Each department must actively pursue new and exciting developments in the geo-spatial sciences. Emerging technologies and methodologies will assist in continuing to reduce liability, reduce operating costs, improve efficiency, and improve productivity.

The following needs are identified as essential to this GIS initiative, including:

- The need for support from the City Administration and City Council Members
- The need to use GIS to identify the optimal and responsible way to manage utilities (Water, Sanitary, and StormWater)
- The need to use GIS to promote customer service
- The need to use GIS to promote economic development
- The need for automated mapping and analysis applications
- The need to integrate and centralize existing data/databases for easy access and distribution of City-wide information
- The need to show cost/benefit for implementing GIS among the City departments
- The need to design and develop user-friendly intranet-based GIS applications and tools
- The need to provide formal GIS training for staff
- The need to educate elected officials as to the benefits of GIS

The real and demonstrated application of GIS technology will guarantee success. Each year the City (GIS Staff) should demonstrate quantifiable and visible successes with GIS. Department heads as well as the CMO identified that the following items were important to the project:



GIS Used for Tracking Projects

- GIS should be used to track and manage city projects
- Easy-to-use GIS tools
- Access to accurate and complete data
- Accurate base mapping (including street centerlines, address points, tax parcels, and aerial photography)
- Identification of problem areas/complaint tracking
- Access to infrastructure data for strategic planning
- Improved utilities management to assist with managing water, stormwater and sanitary systems and rates
- Access to crime statistics
- Ability to track and monitor important citywide issues (marijuana, massage establishments)

- Access to census information and other community profile data
- Asset mapping
- Organizational structure assessment and recommendations
- Intergovernmental agreements with the County, other local governments, and regional organizations
- Improved budgetary capacity
- Formal GIS training for existing staff
- Access to accurate computerized maps of infrastructure
- Field access to GIS data
- Integration of existing IT investments
- Ability to track water conservation efforts
- Manage and track transportation issues
- Manage and track water conservation issues

It is expected that City Administration and City Council Members will continue to support enterprise-wide GIS and its evolution as the primary information portal at the City. The City of Simi Valley is poised to leverage existing investments in technology and personnel to improve Citywide decision-making, services, and products through the use of GIS. Continued leadership and strategic guidance will be necessary to ensure that the City’s GIS implementation is fulfilled in the long term.

Based on this Need Assessment, the CMO has several GIS needs. Where applicable each need will be followed by an application to meet that need, some applications will meet several needs:

GIS Need	Method/Application to Meet Need
Data Development and Access	<ul style="list-style-type: none"> • Obtain data from internal and external sources as well as create data from existing databases • Web App Builder • Intranet Portal
Public Facing Applications	<ul style="list-style-type: none"> • Story Maps
Mobile GIS ArcGIS Online	<ul style="list-style-type: none"> • ArcGIS Online • Tablet/Laptop Based Applications
Site Selection and Business Analysis for Economic Development	<ul style="list-style-type: none"> • Esri Business Analyst Online
Formal GIS Training for CMO Staff	<ul style="list-style-type: none"> • CMO Specific Training



GIS NEED

Data Development and Access

The CMO will require additional data creation and development to achieve goals in various offices. The office will rely on various data sources and base map layers to develop maps and conduct analysis. Successful economic development strategies will depend upon access to a broad range of demographic and geographic information.

Within Economic Development, GIS allows personnel, developers, residents, and other interested parties to access information about available properties, project areas, parking, demographic data, and business lists within Simi Valley. The consolidation of disparate datasets requires careful database design and development to ensure that the data layers developed from these data sources are accurate. For the EDO to conduct spatial analysis, develop site specific maps, and support an economic development research website, data and data management will be critical. The type of data that is currently maintained or will need to be acquired from internal sources and external vendors includes:

- Business Data—used to identify customers or market size including data by industry, sales volume, and employees.
- Household Consumer Data — household attributes including age, gender, income
- Real Estate Data – that is updated daily of available properties that can be easily geocoded (e.g. address point)
- Transportation Data – Bus Routes, Parking, Roads
- Aerial and other types of spatial photography
- Census Data –track and block group level
- Business Licensing
- Property Data
- Zoning
- Topography
- Available Services – Water, Sewer, Storm Water, Electric, Gas, Telecommunications, Fiber Optics

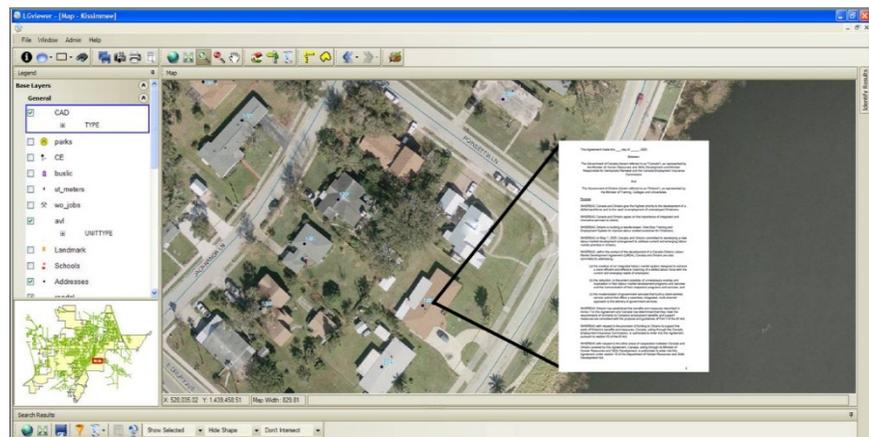
- Sustainability Information (Energy Efficiency, Solar Adoption. Water Conservation Efforts and Adoption)
- Vacant spaces and spaces available
- Film related information – film permit locations, locations of filming
- Citizen Complaints

A full list of desired layers can be found in the Gap Analysis section further below. Once these data sets become available, it is important that users have a quick and easy way to access and analyze the data. City Manager staff, particularly within EDO, should access all of their needed data through an intranet GIS portal. This portal will have queries, reports, and data that allow EDO staff to quickly gather needed data. Staff needs access to a master data list from the City so they can be aware of available data and choose what data they can utilize.

CMO staff should be provided with an intuitive intranet portal to view and analyze key datasets. Additionally, EDO staff should have access to an economic development focused dashboard that tracks pertinent metrics and data. This dashboard should contain business license data, lease data, and other local datasets for analysis.

Simi Valley should seek to deploy a next generation web-based data browser or an intranet application such as ArcGIS Online Web AppBuilder. This application will serve as the primary GIS application for almost all City staff and will enable general staff to accomplish about 90% of their GIS tasks. One of the applications now available as part of the Esri GIS software suite owned by the City is the Web AppBuilder. Web AppBuilder is a suite of powerful and user-friendly end-user applications that allows for ease of customization, widget development, and is platform

neutral (working on desktops, tablets, and smartphones). This solution would allow Simi Valley to leverage



Viewing Development Agreements via a GIS Browser

neutral (working on desktops, tablets, and smartphones). This solution would allow Simi Valley to leverage

software that they are already paying for and not have to acquire a third party solution that will require support and maintenance. It also allows for the development of specific portals for individual departments, so staff only has access to the layers and data they need.

An intranet browser could be used within the CMO to visualize all projects, activities, and pertinent data for decision-making purposes. Additionally, data specific to the CMO can be mapped for visualization and analysis. For example, a portal can be used to visualize and track claims related to Risk Management. CMO staff noted an average of 70-80 claims a year. A claims layer can be developed and utilized along with infrastructure layers highlighting areas where trees or other infrastructure such as sidewalks could be causing trip and fall claims. This data should be geo-enabled as it currently resides in MS Access. Once geo-enabled it can be readily viewed in the GIS portal. An automated mapping component should be implemented that allows for this data to be mapped as the data is updated or altered.



GIS NEED

Public Facing Applications

One of the core components of the City Council mission is, “an atmosphere that encourages community involvement and volunteerism through a local government that is accessible, efficient, and accountable to its citizens.”

GIS is the perfect way to

achieve this is the use of Esri Story Maps. Historically, public-facing local government and economic development GIS applications have been cumbersome and not as intuitive as other applications on the market, like Google Maps. Recently, the GIS industry has had a major push to overcome this dearth of user-friendly applications. Esri has introduced Story Maps, which is designed to allow users to find

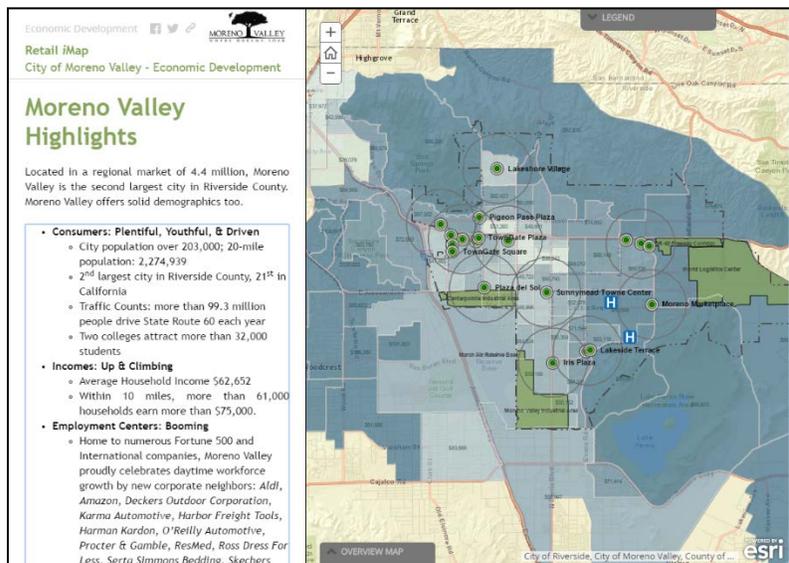


**Example Story Map for the Promotion of the Community
Palm Springs, CA Story Map**

information in a very intuitive and user friendly fashion. Story Maps are targeted and are designed to be easy-to-use. The goal with Story Maps is to present key data sets to the public without the need for training and to be able to get to pertinent data within a few clicks. The City would benefit from offering Story Maps on their web-site. Story maps could be used for a variety of topics to include:

- Promotion of businesses
- Promotion of events
- Promotion of the filming industry – areas used for filming as well as specifics about what was filmed there
- Location of recreational opportunities
- Explaining key elements of the city utilities
 - Services provided
 - Rates
 - Story of the systems
 - Story of the city’s efforts
 - Expansion and upgrades
 - Water conservation efforts
- Economic Development opportunities
- Shopping district promotion

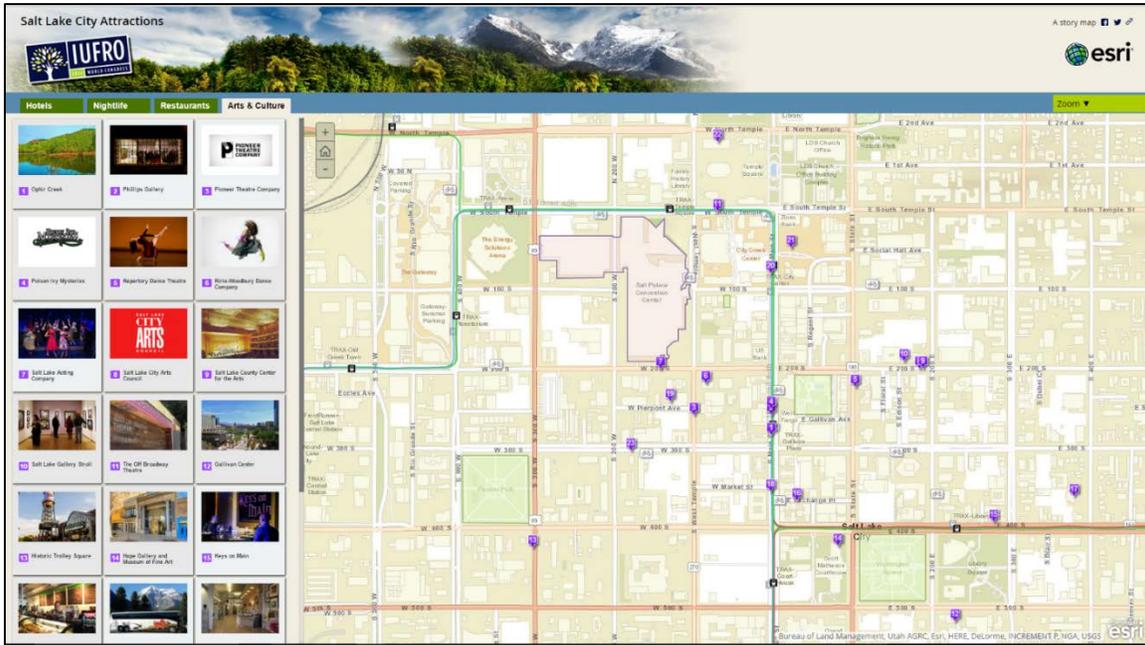
Within the EDO, many of Economic Development’s processes are inherently geographic. Economic development zones, potential sites, and other elements are selected based on their location and proximity to other locations or distributions of people. Maps can provide the EDO, developers, and businesses with information from which economic, demographic, and market patterns can be visualized in



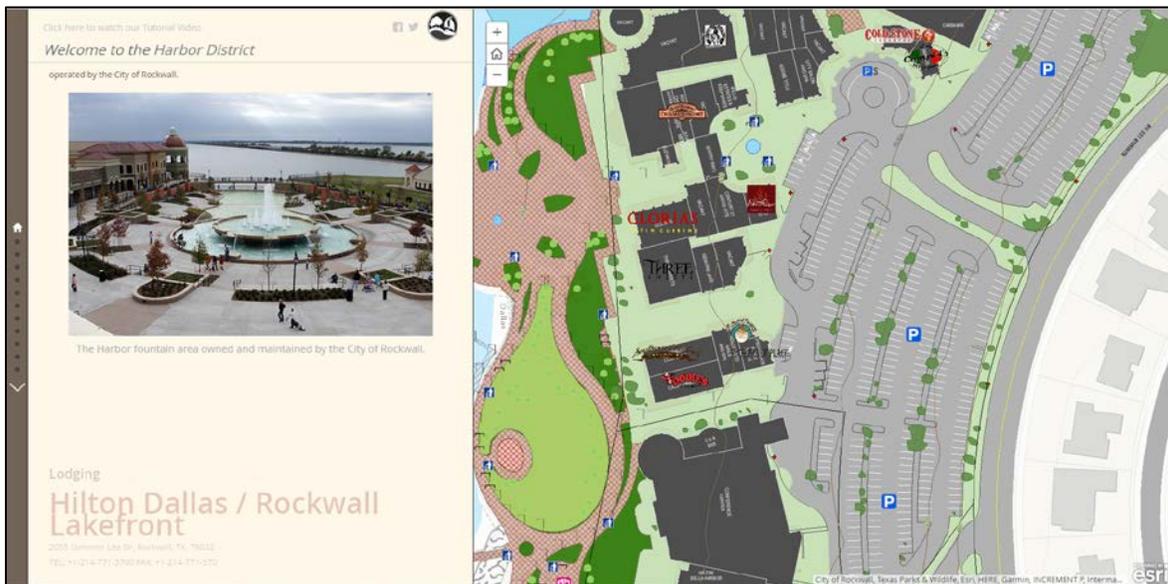
Economic Development Story Map

a way that written reports and statistical tables cannot. The key for EDO is that the story being told does

not require a continuous update to the Story Map. The EDO has limited hours to maintain a site and relying on the real-estate community is not a valid option.



Story Maps to Promote City Sites and Events



Story Maps to Promote a Shopping District



GIS NEED

Mobile GIS

GIS access in the field would be a beneficial tool for the EDO. Staff frequently meets with prospective businesses and the public. Having a mobile GIS application on a tablet that would allow staff the flexibility to collaborate while in the field or to show data at public meetings would be helpful in achieving organizational goals. As discussed in the previous needs, GIS companies have focused on ease-of-use and portability. Esri has introduced ArcGIS Online in an effort to enable users with access to GIS data via user-friendly applications. ArcGIS Online applications work on various hardware devices to include mobile devices such as smartphones or tablets. An ArcGIS Online portal should be established for CMO staff and their customers. Not only would data be accessible for viewing but if there was a need, attributions could be updated, photos uploaded, and other information captured while in the field.

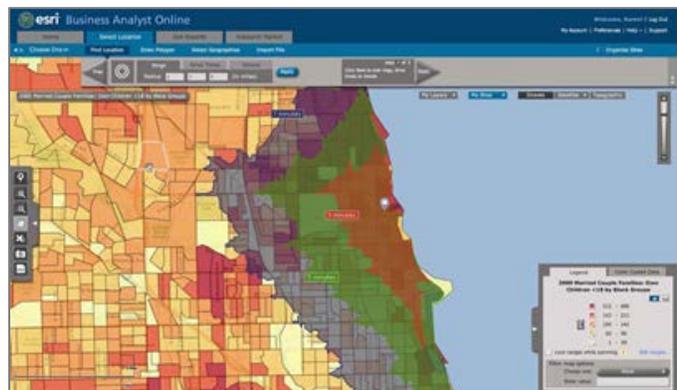


GIS NEED

Site Selection and Business Analysis

Currently, EDO uses CoStar for site analytics. Esri Business Analyst Online is another method of analyzing businesses and conducting site analysis. Esri Business Analyst Online provides users the following key functionality:

- Site Selection
- Smart Search – enter custom criteria for pinpointing locations



- Smart Mapping – thousands of variables allow users to create custom maps
- Report Generation – custom reports of key factors
- Geographic analytics – define distances, drive-time, and bands to limit selections Esri uses a number of national data sources to compile data for Business Analyst Online to include:
 - Demographics – includes current year estimates and US demographic data including population, households, income, age, housing, race, and ethnicity.
 - Census and American Community Survey - data on poverty status, education, labor force, journey to work, marital status, languages spoken, age, home value, and more.
 - Tapestry Segmentation – Esri compiled data analytics with a detailed description of US residential neighborhoods divided into 67 distinctive segments based on socioeconomic and demographic characteristics.
 - Consumer Spending – Consumer expenditure surveys and Bureau of Labor statistics
 - Market Potential - Data on products and services consumers use, need, and want to have. Expected number of consumers and Market Potential Index (MPI) data for goods, services, attitudes, and activities. Data from Esri and GfK MRI
 - Retail marketplace – measures gap between supply and demand through Esri and Dun and Bradstreet data.
 - Dun and Bradstreet business data
 - Other key data – shopping centers, crime indexes, and traffic counts

Business Analyst Online requires an ArcGIS Online subscription (which the City has) and a Business Analyst Online license.



GIS NEED

Formal GIS Training for CMO Staff

CMO staff that will benefit from formal training in the software. An education strategy is being developed for Simi Valley that will include training on various software tools. It is anticipated that CMO, particularly EDO staff will be included on Business Analyst Online and Story Map training opportunities. All staff will be given training on the recommended intranet application (Web AppBuilder).

3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

CMO staff does not currently maintain nor will be expected to maintain any GIS data layers. They will be a consumer of data produced by and for other departments and as such, they will benefit from access to several departmental GIS data layers. It is expected that once all departmental data is integrated, consolidated, and centrally stored, that CMO staff will have access to all non-classified GIS data layers from city departments. The following is a list of data layers of interest to the CMO.

LEGEND

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was or is anticipated being created.
Recommended Update Division or Individual	This field outlines the division or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City’s GIS.
Recommended/Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the City. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

The following are key data layers for CMO staff:

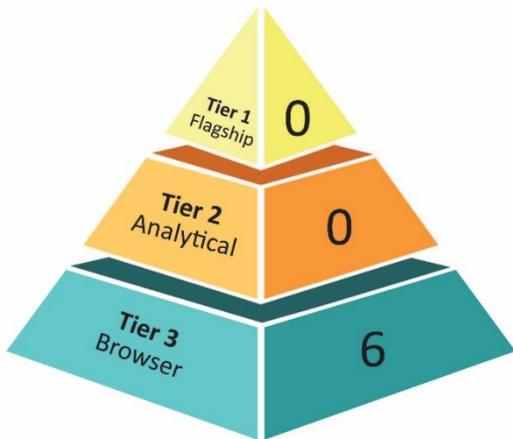
Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
City Manager's Office			
Permits and Certificates of Occupancy	Extract, cleanse and geocode from database/spreadsheets.	Environmental Services - Automated	Recommended
Business Locations	Some data is in-house rest will be provided by Dun and Bradstreet	Mined from existing databases	Recommended
Available Properties	Economic Development Records	Economic Development	Recommended
Available Spaces	Economic Development Records – should be tracked in a database and then geo-enabled	Automated	Recommended
Claims against the City	Risk Manager Records MS Access	Automated Geo-Enabled	Recommended
Capital Improvement Projects	On-Screen Digitization	Various	Recommended
City Trees	Existing in current Arbor Pro Layer	Public Works	Existing, needs updating
Employee Location	Existing data in HR database		Recommended
Film Areas	Review film permits, access database will be in EnerGov software	Various	Recommended
Flood Plains	Updated from FEMA	GIS Team	Existing
Traffic Analysis Zones	Digitized	Public Works	Partial
Sidewalks	GPS and digitizing from aerials	Public Works	Partial
Transportation Data – Bus Routes, Parking, Roads	GPS and digitizing from aerials	Public Works and Transit	Existing
Water and Sewer Infrastructure	Existing in Public Works	Public Works	Existing
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS initiative. Have aerials from 2001, 03, 05, 07, 10, and 13	Regional CIRGIS Initiative	Existing
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Staff.	GIS Team	Existing

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The graphic below graphically depicts the recommended GIS application use by CMO staff. The pyramid and table outlines the “Tiers of GIS Use” within the organization. All are color coded by the anticipated GIS application use. As defined in the Tiers of GIS Users table, a Tier 1 user is a Flagship GIS user who has access to a fully functioning GIS toolset. A Tier 2 Analytical user focuses on data analysis, in addition to general browsing capabilities. A Tier 3 Browser user requires only general browsing GIS data functions.



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for CMO staff:

RETURN ON INVESTMENT OPPORTUNITY CMO	
OPPORTUNITY	EXPLANATION
Save <u>Time</u> and <u>Respond</u> More Quickly to Citizen Requests	Public access to accurate data: The public should have Internet access to GIS data. GIS will allow users to find information much more quickly and in many cases on their own. Access to accurate/updated data CMO staff should have access to current GIS data to better serve and provide information to the public and decision makers.
Save <u>Time</u>	Easy access to GIS data: An Intranet GIS Data Browser should be used to generate high-quality maps depicting trends, citizen service information and project impacts.

<p><u>Improved Communication, Coordination and Collaboration and Responding More Quickly to Citizen Requests</u></p>	<p>Visualizing issues or complaints will allow CMO staff to understand issues within the City so action can be taken.</p>
<p><u>Improve Data Accuracy – Will Govern from Certainty in Responding to Inquiries</u></p>	<p>Better GIS Data and Spatial Analysis: With the creation of Economic Development GIS data layers, the office staff will have much more accurate geographic information pertaining to their business functions. In return, this will allow them to do much of their work more efficiently and with better data providing more accurate mapping and spatial analysis.</p>
<p><u>Improve the Economy</u></p>	<p>Attract and Retain Business: GIS would be utilized to attract and retain business and industry in the area.</p>

NEEDS ASSESSMENT

COMMUNITY SERVICES



CITY OF SIMI VALLEY
CALIFORNIA

GIS ASSESSMENT AND REVITALIZATION PLAN

SECTION OUTLINE

1. EXISTING CONDITIONS

 Department Overview

 Governance of GIS

 Hardware and Software

2. GIS NEEDS ASSESSMENT

 GIS Needs

3. GIS GAP ANALYSIS

 GIS Data Layer Inventory

4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1 EXISTING CONDITIONS

DEPARTMENT OVERVIEW

The Department of Community Services employs approximately 80 staff and is comprised of four divisions: Administrative Support, Citizen Services, Community Programs and Facilities and the Simi Valley Transit Division. The department provides a wide variety of programs and services designed to address the needs of the community and promote a spirit of cooperation and partnership between citizens and the City.

The Administrative Support Division oversees and provides personnel, budget, and finance support to the other divisions and public facilities, administers grant reporting and compliance management, solid waste and recycling programs, monitors the customer service requirements of the State's cable television franchises in

Simi Valley, manages the City's PEG channel, SVTV, and administratively supports the Community Projects Grant Program.

The Citizen Services Division enforces municipal ordinances, conditions, and permits, provides opportunities for citizen involvement in the City's government structure, and provides citizens with information and referral to local government and non-profit resources.

The Community Programs and Facilities Division is responsible for the provision of programs that enhance the quality of life for seniors, developmental and supportive services for youth, and quality cultural arts programs. The Division manages two public facilities, the Simi Valley Senior Center and the Simi Valley Cultural Arts Center.

Simi Valley Transit provides public transportation services to the community's general population through its fixed-route bus service and Americans with Disabilities Act Dial-A-Ride (ADA/DAR) services to the senior and disabled population.

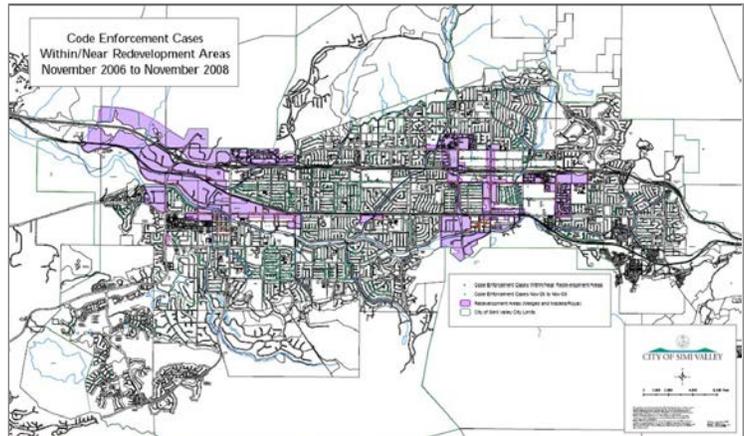
There are several operations within these divisions including but not limited to:

- Code Enforcement
- Solid Waste and Recycling Contract Management
- Animal Services
- Senior Centers
- Libraries
- Cultural Arts
- Trash Abatement Program
- Public Nuisance Abatement Program
- Homeless Services



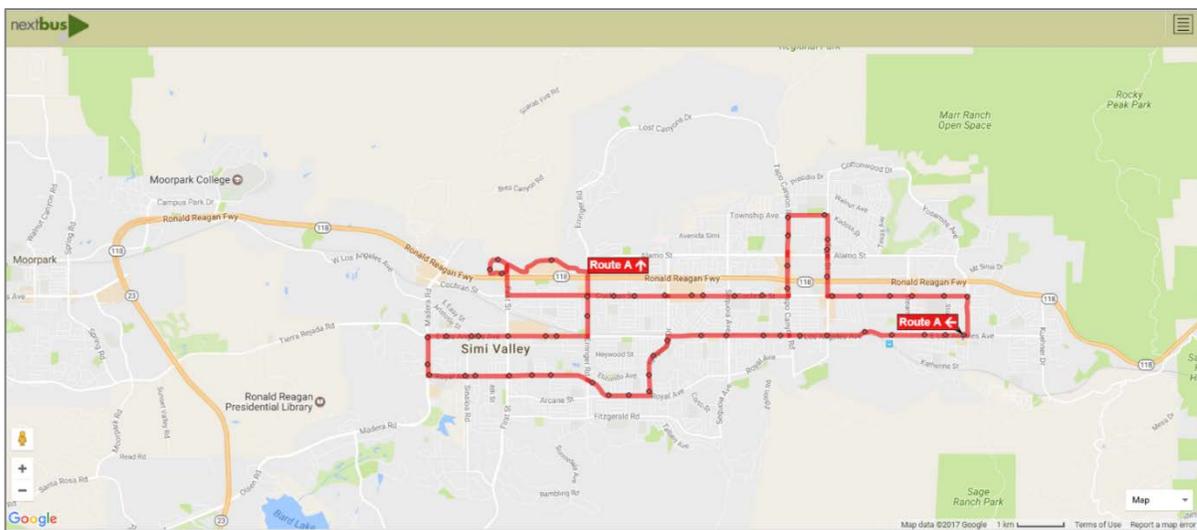
GOVERNANCE OF GIS

The Department of Community Services (DCS) utilizes GIS for many mission critical functions. Code Enforcement, housed within the Citizen Services Division has seven staff members including a Manager, a Senior Code Enforcement Officer, four Code Enforcement Officers, and one Counter Technician. Code Enforcement handles approximately 1800 cases a year related to property issues, illegal signs, and other violations. The staff relies on recent aerial photography in Photomapper to gather background information on possible code violations, and ties those cases to APNs accessed through Photomapper. They have the capability to utilize their iPads for photography and GPS locational information. Other staff in the Department rely on hardcopy maps to track neighborhoods and other information.



Map of Code Enforcement Cases

In the Transportation Division, Simi Valley currently uses Nextbus Application, which allows the public to see where buses are and estimate arrival times. There is a Management Analyst within Transit that utilizes ArcMap for GIS purposes.



Nextbus Tracking in Simi Valley

On the City’s website, there are static maps showing bus route information. That information is in GIS, but is not reflective of current routes and stops.

DCS cannot carry out its functions efficiently without GIS technology and GIS capable staff. It is important that staff within DCS continue to expand their GIS capabilities. Staff should be able to utilize GIS tools to create a majority of their mapping needs.

The table below summarizes the current GIS capable staffing within the Department of Community Services. Type represents the current level of GIS experience based on job requirements, GIS usage can be categorized as Limited, Medium, or High (or frequency of use), and Primary Tools describes what tools, or how GIS is used, to carry out GIS functions.

Current GIS Teaming				
Type	Number of Users	GIS Usage	Primary Tools	
 GIS Flagship (Tier 1)	0	Medium	n/a	
 GIS Analytical (Tier 2)	1	Medium	ArcGIS for Desktop and Intranet Data Browser	
 GIS Browser (Tier 3)	10	Medium	Intranet Data Browser	

HARDWARE AND SOFTWARE

Any hardware issues that were discussed during this Needs Assessment are summarized in the table below. Enterprise wide issues will be discussed in greater detail throughout later chapters of this Needs Assessment and GIS Strategic Implementation Plan.

Hardware Issues Summary	
Type	Notes
Personal Computers	Personal computers are available for all staff
Laptops/Tablets	iPads for Code Enforcement field work
Printers	Available to office staff
Plotters	None
GPS	None

The Department of Community Services utilizes the following software applications:

1. Microsoft Office– Used for office productivity
2. Nextbus – web based application used for monitoring and tracking buses and bus routes
3. Accela (Permits Plus) – process code violations
4. ArcMap – used by both Transit and Community Services
5. Photomapper – for visualization
6. Google Maps – for visualization
7. Trapeze – for transit dispatch
8. Polaris – library patrons
9. Chameleon – animal control
10. Web based complaint system for code enforcement
11. Government Outreach – mobile application that allows personnel to report code violations in the field

2

GIS NEEDS ASSESSMENT



GIS NEEDS

The Department of Community Services (DCS) would like to further implement and embrace GIS and its complementary technologies. Similar agencies across the country have implemented GIS in varying capacities, and DCS is well positioned to further implement GIS technology. Keys to a comprehensive GIS effort will be the implementation of mapping and spatial analysis applications throughout the various divisions of the department, an increase in educational opportunities, enhancement of the public resources databases, and creation of other layers that may be needed. Access to information should be

available to both staff and the public provided by several user-friendly applications which will be discussed in detail following each need, if appropriate.

During the interview process, key areas of concern for DCS staff members were:

- The ability to access and collect GIS data in the field
- Integration with existing software- Accela and Government Outreach App
- Utilize GIS to track and manage Code Enforcement cases
- Enable the public to see what City services are available to them
- Visualize library membership data (Polaris)
- Visualize Animal Control data (Chameleon)
- Highlight key events and services through the use of a tool such as Story Maps

Based on this Needs Assessment, DCS has several identified GIS needs. Where applicable, each need will be followed by an application or method to meet that need, some applications/methods will meet several needs. A method or application is only described under one need, if it applies to multiple needs refer to the previous need for a description. The table below summarizes these needs and how they are to be met:

GIS Need	Method/Application to Meet Need
Geo-Enabling Existing Databases including Accela	<ul style="list-style-type: none"> • Data Mining Application • Intranet GIS Data Browser
Mapping and Spatial Analysis of Department Data	<ul style="list-style-type: none"> • ArcGIS for Desktop • Intranet GIS Data Browser • ArcGIS Online
Department-Wide Access to Geospatial Data	<ul style="list-style-type: none"> • Internet and Intranet GIS Data Browser
Public Access to Geospatial Data	<ul style="list-style-type: none"> • Internet GIS Data Browser • ArcGIS Online • Esri Story Maps
Field Access to Geospatial Data	<ul style="list-style-type: none"> • Mobile GIS Data Browser • Tablet Computers
Formal GIS Training for Department Staff	<ul style="list-style-type: none"> • Training for Community Services Staff



GIS NEED

Enabling Existing Databases

Divisions within DCS use various software packages (Accela, Chameleon, Polaris) to track and manage cases and users within their division. A majority of the data tracked within these systems ties to a property's Assessor's Parcel Number (APN) or address geographic location base. Any database with associated APNs or addresses can be address-matched to a street centerline layer, tax parcel centroids, or address point layer. Address-matched features can be visualized within the GIS, and their attributes can be queried. It is recommended that information stored in paper or other types of hardcopy recording be entered into a database such as MS Access or MS SQL Server. Once the above information is maintained as digital data, it can be spatially enabled for use in the city's GIS and used like any other GIS layer.

Applications to Meet Need

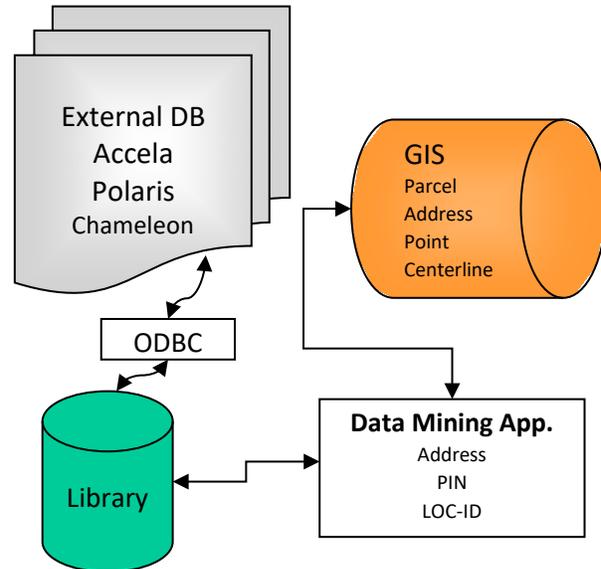
Data Mining Application

In order for the department databases to be automated and spatially enabled, these external databases need to be linked to a GIS data browser for maximum use of both systems. The data mining application is an automated geo-coding service that creates GIS data layers from non-spatial relational databases. The results of a successful geo-coding effort will be stored in an industry standard relational database management system (SQL Server). The automated process is based completely on standard SQL statements and is customized to utilize a variety of stored location-based data (Parcel PIN, Address, Location-ID, etc.). A second function of the automated service is to generate GIS layers in an industry standard portable format (shapefiles or SDE layers) that could be utilized by a variety of applications. These GIS layers will be created to user specifications. X, Y coordinates will be utilized to display features in a GIS layer. The graphic below shows the process of using a data mining application to extract data.

Practical Example

All database records related to a specific location can be mapped by linking each record to a spatial feature such as an address point. A data mining application can generate and export the resulting GIS layer on a regularly scheduled basis.

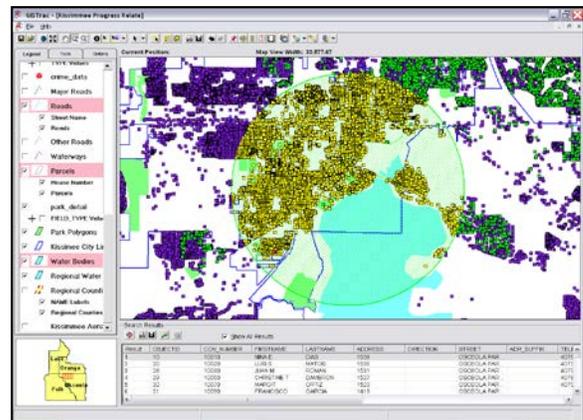
Optimally, as each record is assigned an X,Y coordinate, the coordinate pair is stored in a field within the primary application. That way each record has a validated X,Y coordinate and can be mapped at any time. Additionally, those that do not have a valid X,Y coordinate can be researched and assigned the appropriate geographic reference.



GIS NEED

Mapping and Spatial Analysis of Department Data

Once the various databases have been geo-enabled (see previous need) then they can be visualized and analyzed using GIS. One of the significant benefits that DCS will realize from the continued implementation of GIS and complementary technologies is increased and improved access to information. DCS will be able to further understand relationships between different types of data in a spatial context, thereby improving decision-making; maps will be used to provide the public with valuable transit, service related, and neighborhood information in a geographic context. Dynamic maps and applications will allow citizens and other stakeholders to access information, data, and provide feedback using current data in real time.

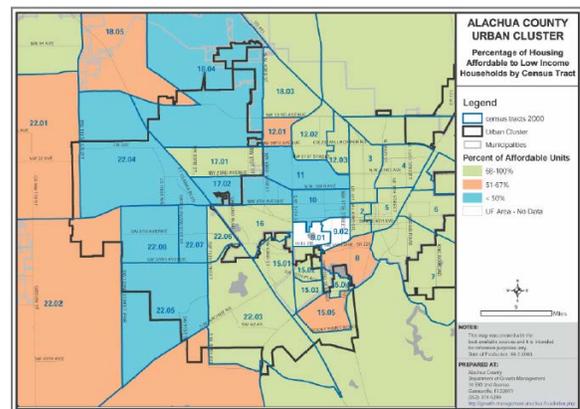


Select all park or library users within a mile of a facility

Staff of the DCS will be better able to derive valuable spatially-driven information on key issues and in less time than currently possible. Among these analyses, GIS can provide support for project impact analyses, such as mapping estimated noise or traffic impacts for concerned neighbors of a development proposal, and allow better analysis of current demographics, current transit, schools, parks, services and jobs, and tracking of available or underutilized land for various DCS studies or plans. Additionally, all cases and customers will be mapped so that staff can visualize and analyze the data in a spatial context.

Some of the information that DCS would be better able to visualize and analyze via an enhanced GIS includes:

- Map locations of code enforcement complaints or cases to identify spatial patterns.
- Map, visualize, and analyze Animal Control cases
- Map, visualize, and analyze library patrons
- Map, visualize, and analyze the meals on wheels participants
- Use information along with Census socio-economic data to target areas for rehabilitation or other neighborhood improvement or safety programs.
- Mapping organized neighborhood groups for internal and public use.
- Parcel by Parcel Analysis: Track owners, use and configuration of parcel, identify under-utilized parcels.
- More easily develop a “case history” at each address/parcel with all available city information: permitting, code enforcement, businesses, links to county assessor and tax collector records, etc.
- Develop a public online GIS portal to make available information about facilities, services, and programs searchable by address or dynamic map selection.
- Track progress and participation in Trash Abatement Program



The Library can use GIS to view, modify, and generate maps and data that display focus areas, project areas, and potential “customers.” Some enterprise databases, such as Polaris, can be spatially enabled by using patron addresses to create data layers as mentioned previously. This data can be viewed in a spatial context to assess patterns in library membership, delinquency, and facility usage. In conjunction

with census data, these patterns can then be used to increase marketing efforts to citizens that do not use library services, as well as to ascertain whether library locations and offerings fulfill the needs of patrons and potential patrons. As an example of this analysis, the Library could determine that some patrons are consistently delinquent due to their distance from library locations.

Non-sensitive data from Polaris can be used to create a GIS data layer of patrons. The city-wide Intranet data browser could then be used to view members, non-members, delinquency, and other pertinent data views. Geographic questions such as, what is being read in a particular neighborhood and where should we locate a new library could be queried.

Once data from Community Services has been geoenabled, this data could be overlaid with each other to find commonalities. This will allow staff to see relations between the two divisions that may not be known at this time because it is store in text based databases and not visible on a map. Additionally, census data can be used to create informed marketing campaigns based on criteria determined by staff. Attributes tied to each of these database records can also be used to create informed decisions.

CASE STUDY –

Finding the Underserved: Close examination using market segmentation can reveal useful surprises about the people your library is leaving behind

By Marc Futterman -- Library Journal

The heart of the public library mission is to provide service to the entire community and serve the underserved. But how do you identify the people you are not reaching, where they live, and what they need? And what does it mean for your services if in your community the underserved are not also underprivileged?

Contrary to popular belief, in a surprising number of communities the upwardly mobile middle and upper-middle classes are underserved. This creates a marginalized library with eroding support. It can threaten the library's ability to serve the underprivileged and may well isolate it from the majority of community residents. Although a recent OCLC report found that library support isn't necessarily tied to library usage, in tough economic times libraries cannot count on well-meaning citizens who have sustained it in the past to pay for "the greater good." In

a climate of shrinking paychecks and rising prices, a tax increase for library services they don't use can be a nonstarter.

To compete in today's 24/7 information marketplace requires reaching all potential users. That means adopting service models that operate under a market or demand-based approach to needs assessment, services, and service delivery; adopting decision-making methods that are market-based and data-driven; and using tools that clearly demonstrate who is underserved, not just who is underprivileged. Few librarians today can imagine running a library without an OPAC. Just as inconceivable is the idea of not having “community information systems” for making informed decisions in which library use data is integrated with data about community needs, enabling administrators to test innovative and fitting solutions to local problems.

Urban planning morphs into library service

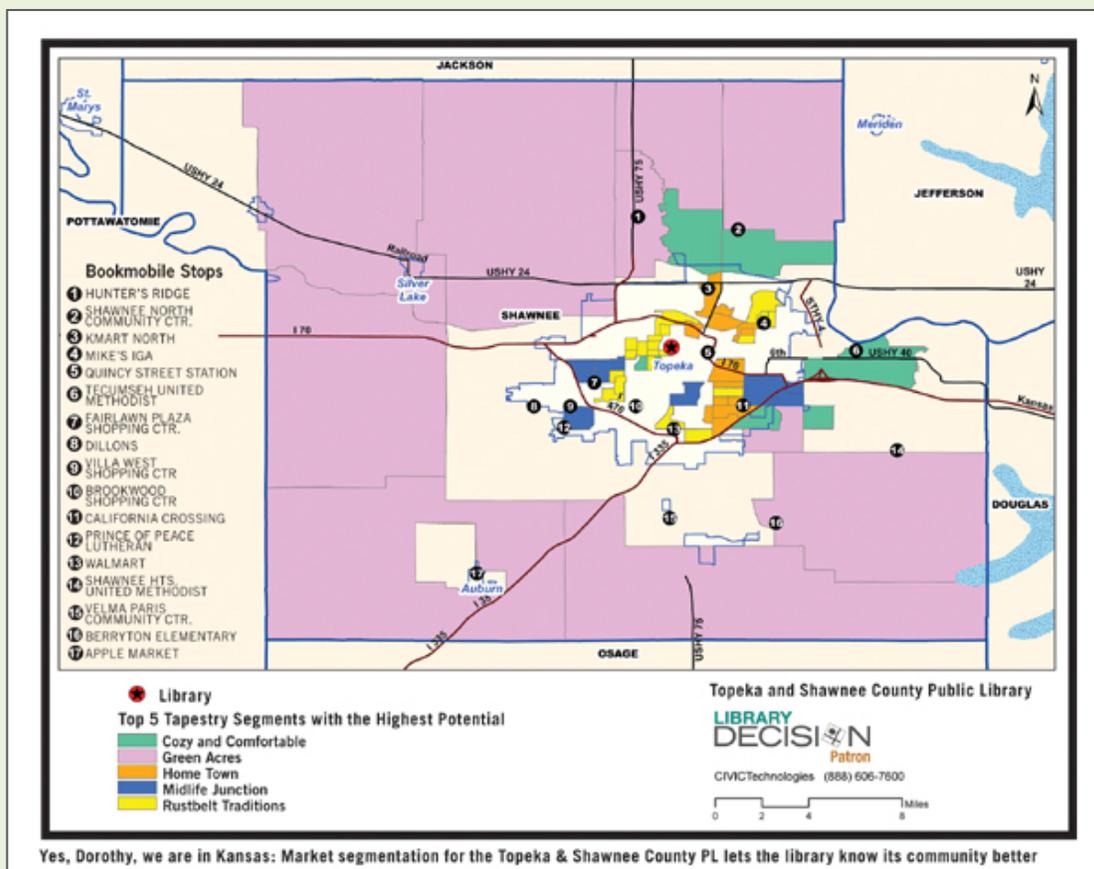
In 2001, CIVICTechnologies (see box, p. 45) began working with Southern California's County of Los Angeles Public Library, Smiley Library in the City of Redlands, and Glendale Public Library. These projects heightened CIVICTechnologies' interest in the challenges faced by libraries to be more relevant and to respond to a broad spectrum of community needs by becoming more market savvy. The libraries were receptive to using geographic information systems (GIS) technology to strengthen their strategic and service-area planning and outreach efforts.

Embracing market segmentation was the next step. Librarians may know about market segmentation, a tool for understanding their community, but few have taken to heart the need (and discipline) to apply segmentation principles to planning their services. According to www.bplans.com, a free resource to help entrepreneurs plan better businesses, market segmentation is “the categorization of potential buyers into groups based on common characteristics such as age, gender, income, and geography or other attributes relating to purchase or consumption behavior.”

Market segmentation combined with GIS technology reaches beyond census numbers, survey data, and subjective observations to help businesses and organizations visualize the psychodemographics of a community. Market segmentation accurately predicts consumer

behavior. It is trusted by a large number of Fortune 5000 companies that use it to inform multimillion-dollar investments in marketing, sales, and customer service.

Understanding psychodemographic delineations in a local community will help library directors allocate scarce resources to the right projects, avoiding misperceptions and misconceptions. Because segments can be mapped down to a local neighborhood, market segmentation is a powerful analytical tool. Ultimately, it is a rich method for understanding demand for library services, matching collection development with community needs, and developing marketing and fundraising campaigns that resonate with the people the library is targeting.



Market segmentation at work

The Henderson District PL (HDPL), NV, believed that its service area comprised mostly retired seniors and young families. But that was not completely true. Market analysis showed that there were more people in segments approaching retirement, but still working at the top levels of the

professional world, i.e., “young” seniors who have distinctly different needs from the retired. Even more surprising to the library management team were the many young professionals in its service area without children. In fact, only 35% of the households included children, as revealed through the creation of thematic maps that overlaid household size with branch locations. The high concentration of families with children in a few neighborhoods near certain branches had contributed to the misperception.

Now, the library is using innovative methods to deliver services to all segments of the community, including those underserved “young” professionals and “young” seniors, whose support is key to winning the next funding levy. The library has developed a three-pronged approach to revitalizing its community role: 1) the addition of on-demand database services, including those on business, consumer health, and school support; 2) a broad-based advertising and PR campaign to raise awareness; and 3) high-quality brochures and other printed materials that succinctly tell the library’s story through benefit statements targeted to key segments. The library has seen increased usage across a range of measures such as number of patrons (cardholders), checkouts, and gate count. To keep pace with changes in its rapidly urbanizing community, HDPL is planning to undertake a second market segmentation report this year.

The Topeka & Shawnee County PL (TSCPL), KS, began a strategic planning process in late 2007. TSCPL serves approximately 175,000 people with one facility. TSCPL sought to identify underserved segments, assess their needs, develop appropriate resources to meet those needs and deliver those services, and implement a marketing campaign targeted at selected segments. TSCPL began the process by mapping the relationships between patrons and nonpatrons and among such elements as patrons, checkouts, material types, and market segments.

The library found that the top six market segments—Green Acres, Rustbelt Traditions, Home Town, Exurbanites, Midlife Junction, and Cozy and Comfortable (see “What’s in a name?” for a description of selected segments)—account for 53% of the population, with the remaining 47% fragmented across some 24 other segments. Each segment was ranked for its potential to add patrons and increase checkouts. This gives TSCPL a tool for identifying needs and for developing and managing its service delivery and marketing.

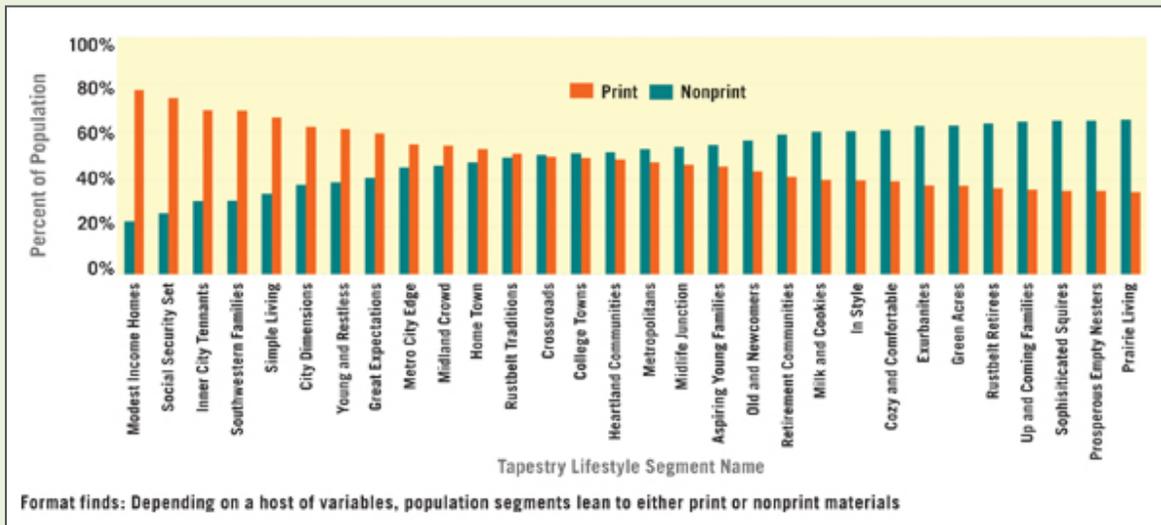
In contrast to the top six segments, Inner City Tenants (a segment typically considered “underprivileged”) accounts for only 1.1% of the population, or 1,916 people. For TSCPL, this segment represents the highest patron penetration rate among all 30 segments—77% of Inner City Tenants are patrons—and the fifth highest average checkouts per patron (1.78 items). In this case, the library is providing exceptional service to a market that is often considered underserved.

Service to juveniles and young adults is important to the TSCPL program. We ranked the potential to increase youth patronage and checkouts in each of the 30 segments. The Home Town segment, for example, has a high potential for increasing youth patronage and checkouts, as evidenced by its dominant share of youth checkouts. The behavior of youth in census block groups with high checkouts can serve as a model for increasing checkouts in the census block groups with the lowest checkouts.

The analysis also indicated that the library has a problem: the top population segment, “Green Acres”—which is family-oriented, well educated, middle class, and not ethnically diverse—is one of the most underserved. While Green Acres makes up 13.7% of the population, or 23,999 people, it has one of the lowest patron penetration rates (only 39%) and one of the lowest average checkouts per person (1.32 items). Without improving services to Green Acres, the library will not meet the needs of its largest segment and will underperform in meeting the needs of the overall community.

One challenge in delivering services to this area is that Green Acres households are spread throughout the rural areas of Shawnee County. With low bandwidth in these locales, reaching them through the library's Digital Branch is not a reliable option. TSCPL is investigating other means, such as increased bookmobile or books-by-mail services, services through local schools, or opening local storefront facilities.

Another important result of the analysis came from comparing print and nonprint materials by segment. Nonprint materials were highly favored by segments whose characteristics include close proximity to the library, modest incomes, and a diverse range of household types, ages, and life stages. TSCPL is developing targeted marketing programs to increase use of both print and nonprint materials in these segments and to identify other segments with similar characteristics that are likely to use these resources.



Seeing the underserved

Market segmentation allows us to move beyond definitions of the underprivileged in terms of simple racial, ethnic, or class distinctions. One California county library believed that its Hispanic community was both underprivileged and underserved. An analysis found that there was only a moderate Hispanic population and a low to moderate Spanish-speaking population compared with the state and the nation. In fact, in this county, there is a noticeable absence of any market segment usually associated with Spanish-language or Hispanic culture. Instead, there is a strong presence of two segments—“International Marketplace” and “Up and Coming Families”—that are composed of broad ethnic and racial populations.

The findings also indicate that the Hispanic population in this community is not underprivileged, but well integrated into the culture at large. From a service point of view, this has two implications: 1) providing Spanish-language materials may (or may not) support the recreational needs of the Hispanic population but is not needed for English as a Second Language (ESL); and 2) providing Spanish-language or Hispanic cultural materials needs to be considered as a trade-off against materials in other languages that are in equal demand.

Studying how the market breaks down also reveals some clear patterns. For instance, in smaller library service areas with populations under 50,000 (either city or county libraries or outlet service areas in larger districts), one or two dominant segments often account for roughly half the

population, with the remaining population split among eight to 12 segments. The Bossard Memorial Library in Gallipolis, OH, serves about 31,250 people throughout Gallia County. Bossard has two segments that account for almost half of its households—Rooted Rural (24.4%) and Southern Satellites (21.9%)—with the rest of the population divided into seven segments averaging 7.7% each. In this model, libraries cannot help, but provide services to the dominant segments, but must also search carefully to uncover both the underprivileged and underserved—and distinguish between the two—among the remaining smaller segments.

Libraries with populations around 150,000 usually have just a few dominant segments. In many cases, one-half to two-thirds of the population fall into the top five segments. The rest of the population is divided among a wide variety of segments, often 15 or more. The underprivileged—the segments we generally think of as underserved—usually reside in these smaller segments. Reaching them is an important part of the library's mission, but it can be difficult and consume significant resources. Librarians can pinpoint these segments without breaking the bank by using GIS tools. This cost-effective approach also means that libraries won't miss the opportunity to serve the majority of households in their dominant segments—thereby protecting them from creating an underserved majority.

A Blank Slate

To implement a demand-driven approach, librarians should begin by reassessing their knowledge of their community. Librarians become their own worst enemy by claiming to know their area, when in fact they know some regular patrons and miss thousands of other people who use the library infrequently or not at all. Furthermore, librarians should be wary of traditional methods of assessing local needs such as surveys and general workshops because while they reflect the needs of people who participate in the process, they don't identify the needs of those who don't. By connecting with only a handful of people, the library risks alienating constituents who may perceive it as tilted to one group or another.

Libraries are stuck in an outdated service model based largely on delivering services to the segments of their community that they know. They lack the tools to analyze the community effectively and instead rely on simplistic definitions based on racial, ethnic, and class distinctions. In a down economy with funding cutbacks and competitive pressures, librarians need to look

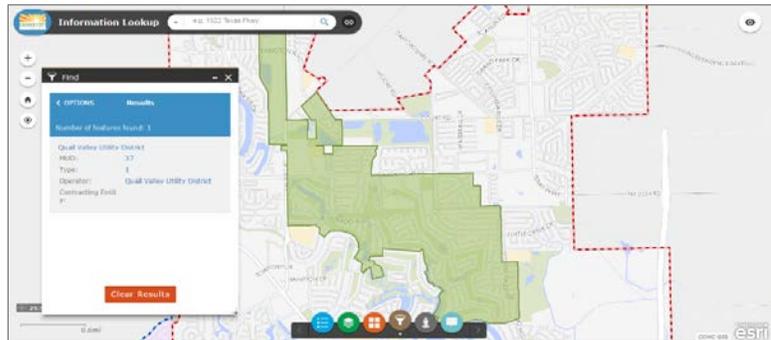
beyond old models to visualize, analyze, relate, and act based upon market segmentation data and a demand or market-based approach. Making immediate and far-reaching changes to adjust to this new reality will enable libraries to deliver the right mix of services that help ensure their viability, relevance, and, ultimately, their competitive advantage. This is the future of the American public library.



GIS NEED

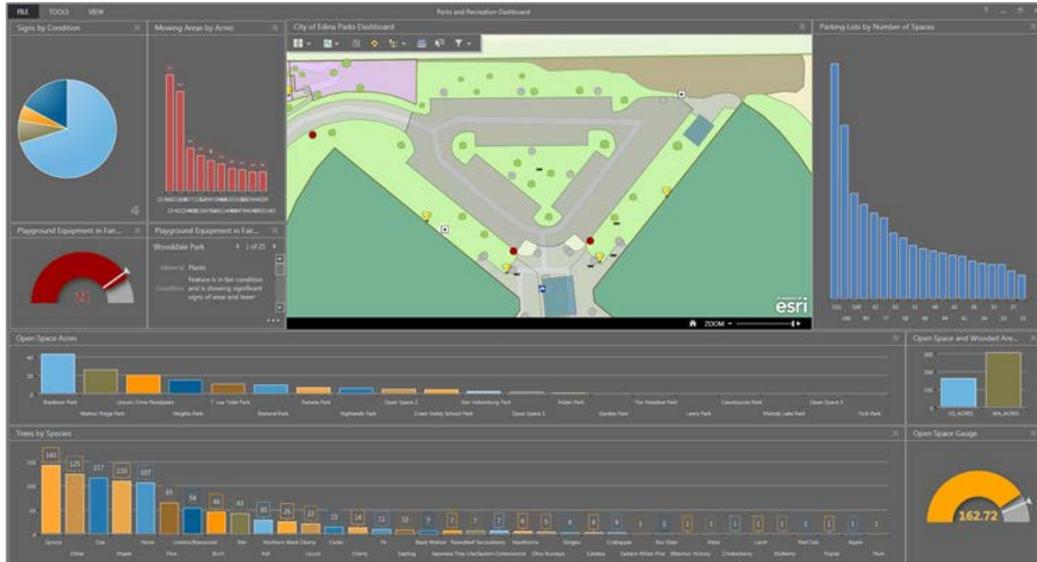
Department-Wide Access to Geospatial Data

It is recommended that the enterprise-wide ArcGIS Server (AGS) based Intranet GIS Data Browser tool or another solution be utilized to access pertinent spatial data, imaging, and spatial analysis functionality. This application should not only allow users to view GIS data but data entered into other database systems as well. It is recommended that the City utilize the Esri Web AppBuilder for various departments to visualize their data sets. It is recommended that DCS has a configuration/s specific to their needs. For example, Code Enforcement needs access to demographic case history, applications, businesses, property ownership, and a variety of other data that divisions and departments may not necessarily need.



Example of an Intranet GIS browser

Additionally, it is recommended a dashboard is developed for pertinent spatial data, imaging, and spatial analysis functionality. This application will not only allow users to view GIS data, but data entered into other database systems as well. For example, the Operations Dashboard could be developed for Code Enforcement leaders to fully track all cases occurring within the division's jurisdiction. This would be beneficial in managing the Public Nuisance Abatement Program.

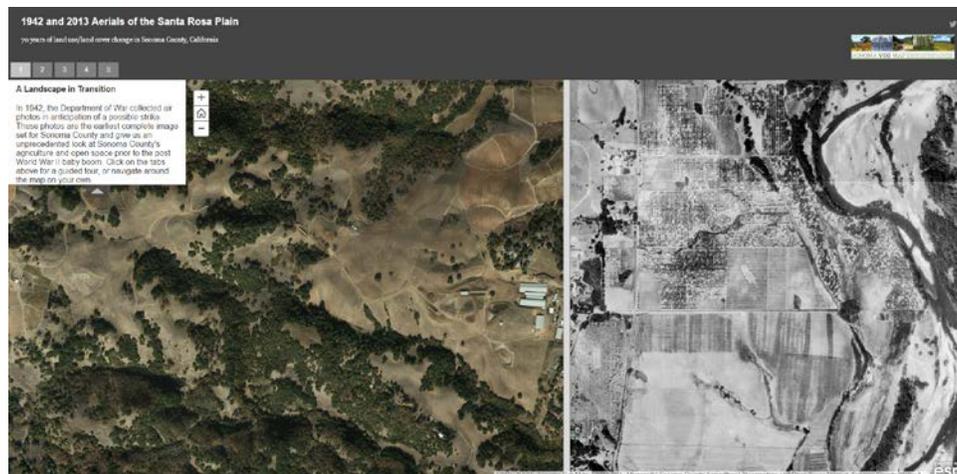


An example of a GIS Dashboard

A large amount of valuable data for DCS resides in existing databases and could be mapped out with the assistance of an Intranet GIS Data Browser. In order for this process to be automated and spatially enabled, these databases need to be linked to a GIS Data Browser for maximum use of both systems.

This application will serve as the primary GIS application for DCS and will enable general staff to accomplish about 90% of their GIS tasks. These tasks will include the quick query and search of data; as well as, more intricate uses such as basic GIS analysis, and map production.

Additionally, staff expressed the desire to view old aerials in tandem with new areas to determine changes over time. For example, staff would be able to visualize front yard paving which is regulated.



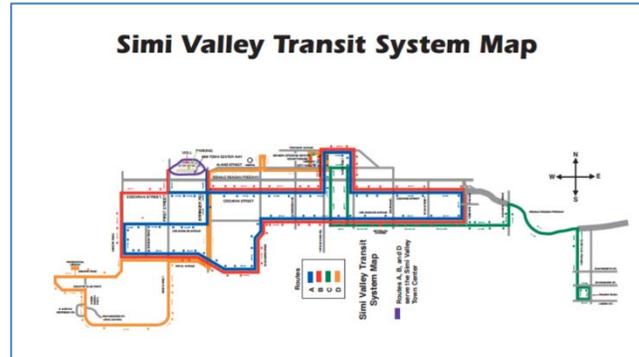
Swipe Map for Change Detection



GIS NEED

Public Access to Geospatial Information

Providing public access to GIS maps through the Internet provides 24/7 access to valuable information for City customers. Through an Internet GIS Data Browser, the data specific to DCS can be provided to the public through an intuitive and easy to use interface. Simi Valley currently provides static maps on their website, and bus tracking information through Nextbus. Focusing on expanding the interactive maps should be a priority.



Static Map available on the Simi Valley Website

In addition to providing public access to standard address and parcel data, and other data used by the department, as appropriate, a public GIS portal could allow residents, the ability to better understand what services are available to them, see public assistance opportunities such as meals, shelters and churches, see trends in code enforcement issues, and other valuable information anytime they need. In addition, a public feedback application would further expand communication efforts between government and residents as the citizens could markup a map online for providing comments or recording code complaints. Additional DCS data layers that could be made available to citizens for lookup and querying purposes include:

- Code Compliance Cases
- Recycling Drop-off Sites
- Bus Stops and Routes
- Library locations
- Church sites that provide services

As the City continues implementing GIS solutions to provide the public with access to Simi Valley geospatial data, they should persist with deploying ArcGIS Online for Organizations. The deployment should include extremely focused applications specific to the various department needs and allow for different configurations and different looks. Targeted applications can also be paired with the generic

public query portal that would provide various functionality. With a number of departments interested in providing high-quality geospatial data and maps to the public, an internet GIS data Browser is a City initiative, including DCS as a stakeholder in its provisioning.

Providing maps and other visuals of projects with information important to residents and other stakeholders can enhance citizen relations. Esri has introduced Story Maps (see section below for more details), which is designed to allow users

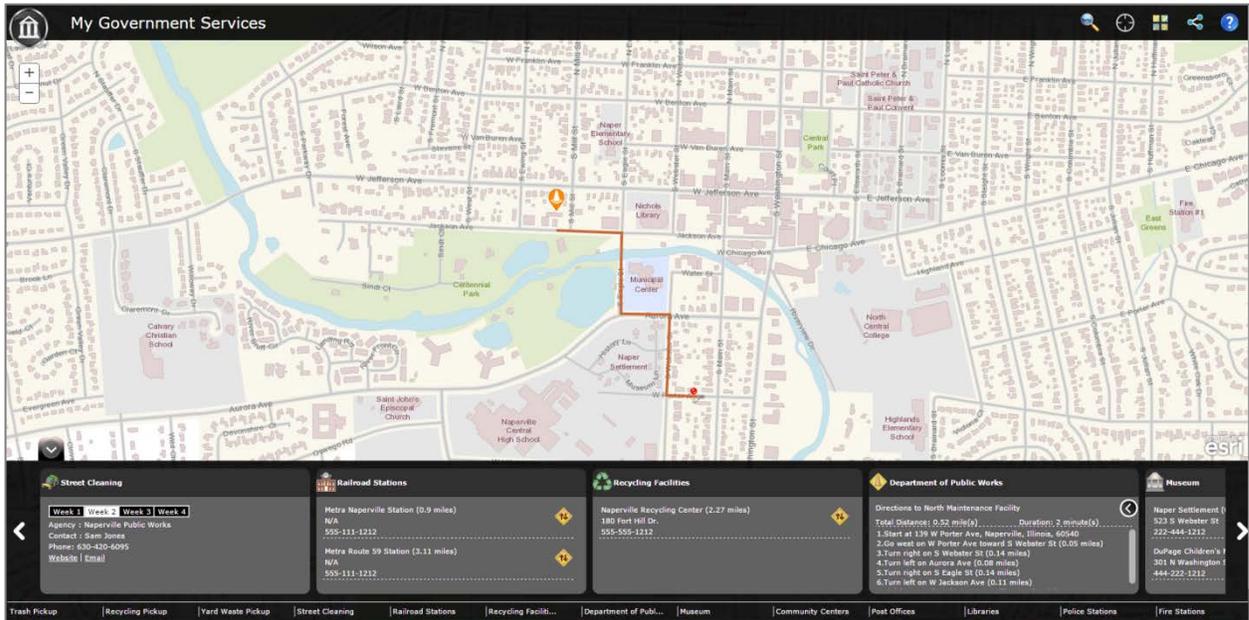


City of Lancaster, PA Public Art Story Map

to find information in a very intuitive and user friendly fashion. Story Maps are targeted and are designed to be easy-to-use. The goal with Story Maps is to present key data sets to the public without the need for training and to be able to get to pertinent data within a few clicks. DCS would benefit from offering Story Maps on the web-site and could easily enhance many of their static maps and initiatives by providing the information through a Story Map.

The following are the public facing applications that were suggested during the interview process:

- Story Map for Transit – Stop locations, what is around the stops, places in the city of interest (could be pulled from business licenses)
- Library and Senior Services story map – highlighting locations and telling the story of the agencies
- Final transportation plan as a Story Map
- Story map for recycling – when and where are services offered (household batteries, shredding services, etc.)
- Story map of non-profits in Simi Valley - who get grants and services provided, what was done each year, links to the NFPs
- My Government Services application (Below) – when and where are services provided (Street Sweeping, Trash Pickups)
- Neighborhood Council Story Map – Boundaries, executive board members, contact info



My Government Services Application Allows Sharing of Information about Pertinent Services Available to Residents



GIS NEED

Field Access to Geospatial Data Solutions

Code Enforcement stated the desire to utilize GIS in the field. Some staff may need access to geographic data while conducting their duties in the field (Also, when working from home or telecommuting). Accordingly, providing personnel with remote access to maps and GIS data while working in the field is an important part of maintaining an enterprise GIS. Through the use of hardware, software and data that are designed to be accessed and manipulated away from the office, DCS staff can realize benefits of GIS while in the field. Integrating with mobile computers, tablets, software and GIS data into the GIS enterprise will give DCS tools to perform field data collection, site visits, routing capabilities, and interactive geographic data query and analysis.

Code Enforcement or Trash Abatement Officers performing visits to sites may need immediate access to the various department/division database systems to retrieve records and documents, history, or any

other pertinent data related to the department’s activities. Access to geospatial data from the field will enable field personnel to look up relevant project related documents, take photographic evidence, map a project site’s location, and make necessary project notes which will prove to be helpful in monitoring a cases status or tracking progress in a program. Free data viewing applications exist from Esri as



well as applications that allow staff to augment data in the field. This application, Collector for ArcGIS, provides robust and intuitive tools for viewing maps, collecting and updating data, getting driving directions, and tracking and reporting areas visited. Collector operates through ArcGIS Online and allows the ability for working offline. Collector is designed to work with iPhone and Android smartphones, but can also be used on tablets running iOS or Android. Collector is a simple way to expedite a mobile GIS solution that allows users from across the organization to have the power of GIS in their hands.



GIS NEED

Formal GIS Training for Department Staff

Staff that will be performing more advanced GIS analysis and mapping should participate in foundational GIS skills training. The Department of Community Services should participate in any enterprise-wide Esri ArcGIS training that is made available.

As Tier 3 – Browser GIS client applications become available (e.g. Intranet and Internet GIS Data Browsers), the Department of Community Services will require specific training tailored to the GIS interface that may support their workflows. Training is typically arranged by the user level and based on applications that will be deployed throughout the enterprise.

3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

The Department of Community Services will benefit from access to almost all data layers created and obtained for the City. It is expected that once all departmental data is integrated, consolidated, and centrally stored, that staff will have access to all non-classified GIS data layers from other City departments and other public agencies or data providers. The following legend describes the data layer table below:

LEGEND

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was, or is anticipated being created.
Recommended Update Division or Individual	This field outlines the division or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City’s GIS.
Recommended/Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the City. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

The following is a list of desired layers by the Department of Community Services:

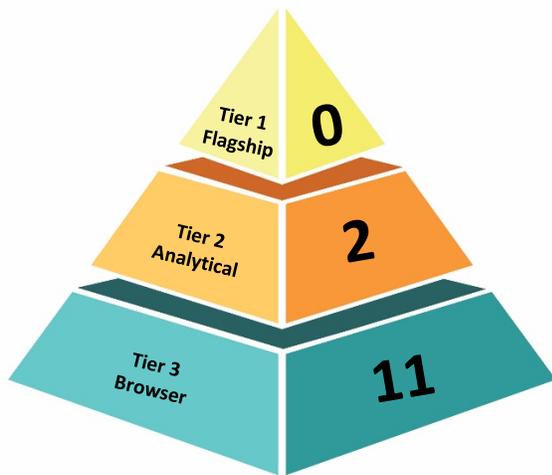
Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Community Services Data			
Bus Routes	Digitized	Community Services	Partial
Bus Stop Locations	Digitized	Community Services	Partial
Businesses	Digitized	Economic Development/CMO	Partial
Census Data	Download from Census Bureau	Community Services/GIS	Existing
Churches	Digitized	Community Services	Desired
City Owned Property	Extracted from Parcel Layer	GIS Team	Recommended
Code Enforcement	Extract from Code Enforcement database in Accela, cleanse and geocode from database	Community Services-Automated	Desired
Dinner Night Locations	Digitized	Community Services	Desired
Flood Zones	Acquire from FEMA	Public Works	Existing
Historical Aerial Photography	Aerial Flyovers	GIS Team	Partial
Homeless Encampments	Digitized	Police	Desired
Library Card Holders	Extract from database, cleanse and geocode from database	Community Services	Desired
Library Locations	Digitized	Community Services	Existing
Meals on Wheels Locations	Digitized	Community Services	Desired
Neighborhoods	Digitized	Environmental Services	Existing
Parks	Extract, cleanse and geocode from database	GIS Team	Existing
Permits and Certificates of Occupancy	Extract, cleanse and geocode from database/spreadsheets.	Environmental/Community Services	Recommended
Pet License Holders	Extract, cleanse and geocode from database	County Information	Desired
Public Assistance Locations	Extract, cleanse and geocode from database/spreadsheets	Community Services	Desired
Recycle Bin Locations	Extract, cleanse and geocode from database	Community Services/Public Works	Desired
School Crossing Guard Locations	Digitized	GIS Team	Desired

Schools	Digitize from base map data; GPS field work	Schools	Existing
Undeveloped Parcels	Extract, cleanse and geocode from database/spreadsheets	Community Services	Recommended
Zoning	Digitized on screen	Environmental Services	Existing
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS initiative. Have aerials from 2001, 03, 05, 07, 10, and 13	Regional CIRGIS Initiative	Existing
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Team.	GIS Team	Existing
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The pyramid and table below outlines the recommended “Tiers of GIS Use” within the department. All are color coded by the level of desired GIS application use. As defined in the Tiers of GIS Users table, a Tier 1 user is a Flagship GIS user who has access to a fully functioning GIS toolset. A Tier 2 Analytical user focuses on data analysis, in addition to general browsing capabilities. A Tier 3 Browser user requires only general browsing GIS data functions. The Department of Community Services will consist of Tier 2 and Tier 3 Users.



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for the Department of Community Services. These specific examples show the true return on investment of the technology.

RETURN ON INVESTMENT OPPORTUNITY Department of Community Services	
OPPORTUNITY	EXPLANATION
<u>Save Time and Respond More Quickly to Citizen Requests</u>	<p>The public should have Internet access to GIS data. GIS will allow users to find what services are available to them and the locations of where they can get those services.</p> <p>Staff should have access to current GIS data to better serve and provide information to the public and decision makers. This should save multiple staff hours a week in Community Services.</p>
<u>Improve Data Accuracy</u>	<p>Working with other departments and City agencies to update data with higher accuracy can improve the results when analyses are performed. By sending errors found in data to the data owners, errors can be corrected quickly.</p>
<u>Protect your Community</u>	<p>Code enforcement will be able work more efficiently, giving them greater capacity to tackle cases that would affect the community.</p>

RETURN ON INVESTMENT OPPORTUNITY Department of Community Services	
OPPORTUNITY	EXPLANATION
Improve <u>Public Access to Government</u>	Community Services wants to share critical information with the public. This will allow the public to be more informed and make better decisions. This could also save the public trips to the department, saving time, pollution, energy, frustration, and would empower the public with the ability to get the information they need.
<u>Address Equity Considerations</u>	Provide better public access to information about available community resources

NEEDS ASSESSMENT

CUSTOMER SERVICES DIVISION



CITY OF SIMI VALLEY
CALIFORNIA
GIS ASSESSMENT AND REVITALIZATION PLAN

SECTION OUTLINE

1. EXISTING CONDITIONS

 Department Overview

 Governance of GIS

 Hardware and Software

2. GIS NEEDS ASSESSMENT

 GIS Needs

3. GIS GAP ANALYSIS

 GIS Data Layer Inventory

4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1 EXISTING CONDITIONS



DEPARTMENT OVERVIEW

The Customer Services Division within Administrative Services Department is responsible for processing water bills, sanitation billing, parking citations, business tax receipts, and accounts receivable. They also issue accept payment for Ventura County animal licensing, register massage parlors, and sell bus tickets. In addition, the Division coordinates the activities of special event and location filming permits, business tax compliance programs, and cashiering activities at City Hall.



GOVERNANCE OF GIS

The Customer Service Division is not currently a consumer of GIS, but has identified several potential opportunities for the use of the City’s GIS. Currently, the Division regularly utilizes Google Earth to determine whether or not a parcel is located in the City or in Ventura County. GIS Staff within the City have worked with Customer Services to identify parcels that were not integrated in the billing software, resulting in the identification of \$150,000 in uncollected revenue.

There are generally three tiers of GIS users. A Tier 1 - Flagship GIS user typically conducts GIS administration and coordination at the enterprise level, has access to a fully functioning GIS toolset to create and maintain enterprise data, and manages the enterprise database. A Tier 2 - Analytical GIS user focuses on data analysis, complex querying and data modeling, along with department level data maintenance. A Tier 3 - Browser GIS user requires only general browsing GIS data functions to create reports, query standard data sets, create tasks like mailing labels, and produce maps.

The table below summarizes the current GIS staffing and or GIS usage in the Customer Service Division. Type represents the current level of GIS experience based on job requirements and GIS usage can be categorized as Limited, Moderate, or High (i.e. frequency of use), and Primary Tools describes what tools, or how GIS is used, to carry out GIS functions.

Current GIS Staffing				
	Type	Number of Users	GIS Usage	Primary Tools
	GIS Flagship (Tier 1)	0	N/A	None
	GIS Analytical (Tier 2)	0	N/A	None
	GIS Browser (Tier 3)	7	N/A	Google Earth



HARDWARE AND SOFTWARE

The Customer Service Division has personal computers for each of its employees. The table below summarizes the hardware in use for the Customer Service Division:

Hardware Issues Summary	
Type	Notes
Personal Computers	One for each staff person
Laptops	None
Printers	Ample printers available for use
Plotters	None
GPS	None
MDTs	None
Scanners	Available for use

The Customer Service Division utilizes the following software applications that are pertinent to this study:

1. Microsoft Office– Office productivity
2. SAP – Water billing
3. MUNIS – parking citation tracker
4. Google Earth – property locating

2

GIS NEEDS ASSESSMENT



GIS NEEDS

The Customer Service Division should have expanded access to GIS and its complementary technologies. The department recognizes the potential benefits of using GIS including integration with other databases, mapping

information for visualization (meter locations, usage, licensing), and various other analytical needs. The table below summarizes the potential needs identified by Customer Service Division staff and how they are to be met:

GIS Need	Method/Application to Meet Need
Mapping and Spatial Analysis of Customer Service Data	<ul style="list-style-type: none"> • Intranet GIS Data Browser
Enabling Existing Databases – Data Integration	<ul style="list-style-type: none"> • Data Mining Application
GIS as an Auditing Tool	<ul style="list-style-type: none"> • Intranet GIS Data Browser
Finding Missing Revenue	<ul style="list-style-type: none"> • Intranet GIS Data Browser
GIS Education for Department Staff	<ul style="list-style-type: none"> • Intranet GIS Data Browser Training



GIS NEED

Mapping and Spatial Analysis of Customer Service Data

A key need identified by Custom Service Division staff is increased and improved access to shared GIS data within the City. This includes the most recent parcel, address, and street centerline data as well as high-resolution orthophotography. Using the most recent, accurate GIS layers provides staff members with an invaluable tool for everyday tasks.

Collaboration with several departments/divisions will be instrumental in establishing GIS as a complementary technology used to meet the Customer Service Division’s objectives. Initial efforts should be aimed at increasing GIS awareness within the Customer Service Division, allowing staff to become familiar with the efficiencies that can be gained through the use of GIS for mapping, analyzing, and tracking information.



Quick View of Fixed Assets

The Customer Service Division should work with the GIS Staff and train division personnel in the use of GIS to gain quick successes based on mapping and analysis of growth trends, development forecasting, utility customers, utility billing, and usage. Most Customer Service Division staff should utilize an ArcGIS Online Intranet GIS data browser to conduct basic spatial analysis and to produce maps and to assist in day-to-day activities.

It is recommended that an intranet browser have a specific link for the Customer Service Division focused primarily Billing, Infrastructure, and Business Licenses. This application will integrate data from the previously-described data development initiatives, like utility customers, usage, assessment districts, and layers displaying sales tax and property tax information. Other key uses include:

- Fixed assets
- Transportation information
- Identify key businesses (massage parlors)
- Finding missing tax payments
- Matching business licenses to businesses to identify outliers
- Sanitary utility queries and calculations
- Track cost and depreciation
- Audit assets
- Identify home occupancy
- Ability to identify spikes in usage
- Monitor and identify special events and filming
- Use Buffer feature to generate notifications/mailing lists
- Quick identification of meter locations
- Quick identification of what is inside or outside of the City limits
- Viewing parking citations
- Mapping licensing



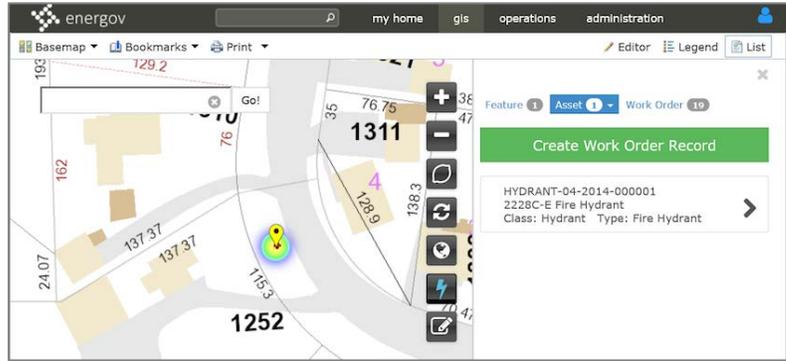
GIS NEED

Enabling Existing Databases – Data Integration

The City stores various data that are of interest to Customer Service in various business applications (business licenses), SAP (billing, receipts, accounting, land management, etc.) and MUNIS (parking permits and citations) enterprise databases. The Customer Services Division will soon be moving to EnerGov for managing business taxes and licenses. It would be beneficial if this data could be geo-enabled and displayed in GIS for mapping and analysis purposes. EnerGov already has this capacity, and has Esri-enabled mapping capacity. For

applications that do not have internal GIS capacity, geo-enabling data can be accomplished with a data mining application.

A data mining application is an automated geocoding service that creates GIS data layers from non-spatial



EnerGov's Mapping Capabilities

relational databases. The results of a successful geocoding effort will be stored in an industry standard relational database management system (SQL Server). The automated process is based completely on standard database statements and is customized to utilize a variety of stored location-based data (Parcel PIN, Address, Location-ID, etc.). A second function of the automated service is to generate GIS layers in an industry standard portable format (SDE layers) that could be utilized by a variety of applications. These GIS layers will be created to user specifications. X, Y coordinates will be utilized to display features in a GIS layer. The data would then be consumable within an intranet browser, web applications, mobile apps or more analytical tools such as ArcGIS.

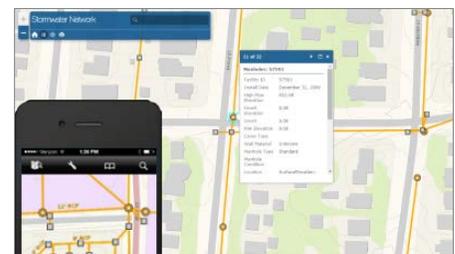


GIS NEED

GIS as an Auditing Tool

For many Financial Services Departments, auditing is a key issue for GIS-based analyses. Using the parcel data, GIS can be utilized to determine parcel-specific information. Examples include determining which parcels are tax-exempt, businesses with licensures, and performing audits on unimproved properties.

In order to make these audits viable, several new data layers (including fixed assets) will need to be created by extracting information from several databases, including the permitting database. The GIS Team can assist in data creation and complex spatial analyses; mapping and identification of utility service within



parcels can be conducted by Customer Service personnel through use of an Intranet GIS application. Additionally, staff want to view water usage, spikes in water usage, and to use GIS to generate a skip list.



GIS NEED

Finding Missing Revenue

Finding missing sources of revenue is a common way for local governments to show a return on investment using GIS. Business licenses, permits, and various taxes are sources of revenue that could be analyzed to identify organizations or individuals that are not current on their financial obligations to Simi Valley. GIS can be used to pull revenue data from various sources (e.g. SAP, MUNIS, Excel spreadsheets, etc.) and map this data against parcel data, land use data, and other GIS layers to analyze and determine the data outliers similarly to how GIS staff previously identified approximately \$150,000 in uncollected revenue. This information can then be used by the City to focus revenue collection efforts on the identified non-paying entities. This typically leads to a tangible return on investment that can be measured in real dollars as the City's revenue collections are increased. An intranet GIS data browser can be developed that will contain all relevant data for this process and provide various query tools for identifying the non-paying entities and for developing reports and maps of queried data.



GIS NEED

GIS Training for Department Staff

It is important that Customer Service staff understand the basic uses of GIS and can use the intranet browser for various needs. Therefore, staff should attend educational seminars to help them gain a basic understanding of GIS concepts. In addition, training on the use of the intranet browser and/or any Customer Service Division specific intranet browser that is developed, is also recommended.



3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

Customer Service staff are not responsible for the maintenance of GIS data layers but do require access to existing GIS data. It is expected that once all departmental data is integrated, consolidated, and centrally stored, that staff will have access to all non-classified GIS data layers from other departments.

LEGEND

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was or is anticipated being created.
Recommended Update Division or Individual	This field outlines the division or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City’s GIS.
Recommended/Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the city. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

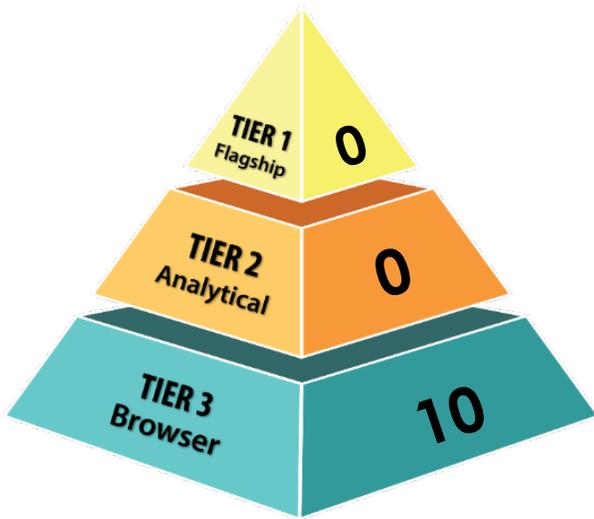
The following table lists those data layers that are important to Customer Service.

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended ?
Customer Service GIS Data			
Building Licenses	EnerGov Integration	Automated	Desired
Meter Location	Digitize/GPS Identification	Public Works	Desired
Home Occupancy	Extracted from Environmental Services/Customer Services database	Automated	Recommended
Massage Licenses	Extracted from database	Automated	Desired
Parking Permits & Citations	Integration with MUNIS database	Automated	Recommended
Dog Licenses	Integration with database selection	Automated	Desired
Short Term Dwelling Units	Extracted from database	Automated	Recommended
Special Events and Film Locations	Geo-coded from a database	Automated	Recommended
Tax Payment Data	SAP Integration	Automated	Recommended
Transient Occupancies	SAP Integration	Automated	Desired
Utility Service Providers and Infrastructure	Digitization	Public Works	Desired
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS initiative. Have aerials from 2001, 03, 05, 07, 10, and 13	Regional CIRGIS Initiative	Existing
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Staff.	GIS Team	Existing
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The pyramid and table below outlines the anticipated “Tiers of GIS Use” within the Customer Service Division. All are color coded by the level of desired GIS application use. As defined in the Tiers of GIS Users table, a Tier 3 Browser user requires only general browsing GIS data functions. Customer Services should not have any Tier 1 or 2 Users.



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for the Customer Service Division. These specific examples show the true return on investment of the technology.

Return on Investment Opportunity Customer Service Division	
OPPORTUNITY	EXPLANATION
Save <u>Time</u> and Respond More Quickly to Internal Data Requests	Staff should have access to current GIS data to better serve and provide information to the public and decision makers. This should save multiple staff hours a week in the Customer Service Division. Quickly determine if a customer is inside or outside of the City limits Quickly determine the location of meters
<u>Improve Data Accuracy</u>	Working with other departments and City agencies to update data with higher accuracy can improve the results when analyses are performed. By sending errors found in data to the data owners, errors can be corrected quickly.
Increase <u>Revenue</u>	Mapping building permits and other financial obligations of residents may yield information on revenue not being collected.

NEEDS ASSESSMENT

ENVIRONMENTAL SERVICES



CITY OF SIMI VALLEY
CALIFORNIA

GIS ASSESSMENT AND REVITALIZATION PLAN

SECTION OUTLINE

1. EXISTING CONDITIONS

 Department Overview

 Governance of GIS

 Hardware and Software

2. GIS NEEDS ASSESSMENT

 GIS Needs

3. GIS GAP ANALYSIS

 GIS Data Layer Inventory

4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1

EXISTING CONDITIONS



DEPARTMENT OVERVIEW

The Environmental Services is responsible for all of the City's community development efforts. The Department consists of three Divisions: Administration, Planning, and Building and Safety, and oversees the creation of high-quality residential, commercial, and industrial development in accord with the community's desire for managed growth, safe living and working environments, varied housing choices, high quality building and site design, enhanced but drought-tolerant landscaping, economic vitality, and

sustainability. While Administration generally oversees the department, the other divisions are tasked with the following operations:

Planning

- Oversees the development process with other City divisions and public agencies and implements the City's General Plan, Zoning Ordinance, and Design Guidelines
- The Planning Division is also responsible for evaluating: proposed land development, commercial and industrial tenant improvements, signage, wireless telecommunication facilities, affordable housing programs, annexations, long range plans, and impacts to the environment.
- The Planning Division also has a robust Housing section that provides several services including a home rehab program, first time home buyers assistance, and manages the CDBG and affordable apartment monitoring programs.
-

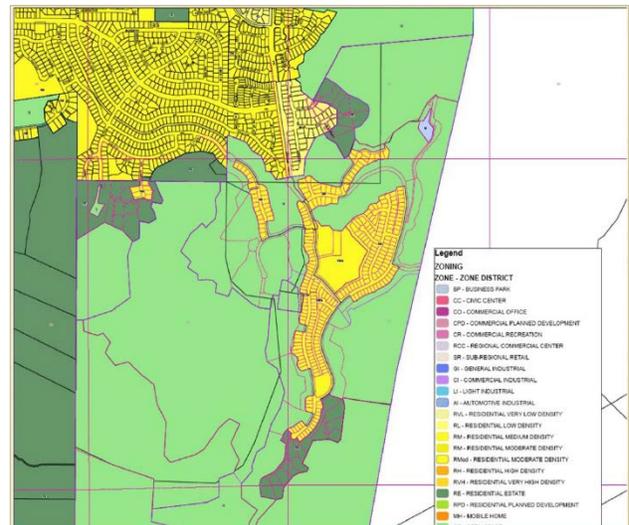
Building and Safety

- Assures the City's built environment complies with state and local health and safety laws including, construction standards for earthquake and wind resistance, fire-safety and egress, energy conservation, building habitability and sanitation.
- The Department reviews building plans, conducts construction inspections, and respond to citizen calls regarding potentially unsafe building conditions and conduct inspections to assure compliance.



GOVERNANCE OF GIS

Environmental Services utilizes GIS for many mission critical functions. The Department currently has a pair of staff utilizes a variety of GIS tools including ArcGIS for Desktop, primarily ArcMap, to develop and maintain GIS data, provide GIS analysis, and produce maps. Their primary tasks are general planning and zoning work, handle Conditional Use Permits, and prepare maps for staff and homeowners' associations work. However,



Existing Zoning Map for Simi Valley

they are updating data on a personal geodatabase since the more advanced level of ArcGIS is not owned by the City. Housing has used GIS for; mapping and managing CDBG grants and the housing element update in the general plan (consultant). Although staff in Environmental Services use GIS, the department works closely with the GIS Manager in Public Works for GIS support and various projects. Building and Safety staff rely heavily on PhotoMapper, especially at the front counter. Staff issue addresses and use PhotoMapper to visualize current addresses and assist in new addressing. Once complete, the new addresses are entered into EnerGov and disseminated to other departments for inclusion in their databases. The Department utilizes EnerGov for their permitting, which has a mapping component integrated through Esri.

Environmental Services would benefit from further enterprise GIS implementation. The Building and Safety Division could work closely with Code Enforcement across departmental boundaries to tackle unsafe buildings. The Planning Division could work with the Economic Development Office in the City Manager’s Office to develop a comprehensive plan for potential commercial growth opportunities. Thorough integration of the City’s existing files and permits into a document management system would allow staff to have a comprehensive history on a parcel when making planning and zoning decisions.

The table below summarizes the current GIS capable staffing within Environmental Services. Type represents the current level of GIS experience based on job requirements, GIS usage can be categorized as Limited, Medium, or High (or frequency of use), and Primary Tools describes what tools, or how GIS is used, to carry out GIS functions.

Current GIS Staffing				
	Type	Number of Users	GIS Usage	Primary Tools
	GIS Flagship (Tier 1)	0	NA	NA
	GIS Analytical (Tier 2)	2	Medium	ArcGIS for Desktop Basic and Intranet Data Browser
	GIS Browser (Tier 3)	25	Medium	Photo Mapper / EnerGov Mapping



HARDWARE AND SOFTWARE

Any hardware issues that were discussed during this Needs Assessment are summarized in the table below. Enterprise wide issues will be discussed in greater detail throughout later chapters of this Needs Assessment and GIS Strategic Implementation Plan.

Hardware Issues Summary	
Type	Notes
Personal Computers	Personal computers are available for all staff
Laptops	One laptop available for field use
Printers	Available to office staff
Tablets/Smartphones	Building and Safety has tablets
GPS	None
Scanners	Available for use

The Environmental Services Department utilizes the following software applications:

1. Microsoft Office– Used for office productivity
2. EnerGov – planning permits and mapping
3. PhotoMapper – answer questions regarding addressing, permits and inspections
4. ArcMap – GIS mapping, data updates, and visualization
5. ESLOGSs – access database for planning projects
6. Google Maps - visualization

2

GIS NEEDS ASSESSMENT



Environmental Services would like to further implement and embrace GIS and its complementary technologies. From planning project information to permitting within EnerGov to in-house GIS analysis, the Department could leverage and further integrate existing investments in its technology infrastructure to develop an effective solution for its particular mapping and spatial analysis needs.

Similar agencies across the country have implemented GIS in varying capacities, and Environmental Services is well positioned to further implement GIS technology. Keys to a comprehensive GIS effort will be the implementation of mapping and spatial analysis applications throughout the various divisions of the department, an increase in educational opportunities, and access to information should be provided by several user-friendly applications which will be discussed in detail following each need, if appropriate.

During the interview process, key areas of concern for the Environmental Services staff members were:

- Public Access to planning and property information
- Enhanced analytical capabilities
- Training on GIS for all staff
- Systems integration and more agile approach to GIS services
- Integration of existing documents and permits into system
- Defining addressing process
- Access to enterprise wide GIS data
- Expansion of departmental GIS capabilities
- AVL for Building and Safety staff to optimize routes

Based on this Needs Assessment, Environmental Services has several identified GIS needs. Where applicable, each need will be followed by an application or method to meet that need, some applications/methods will meet several needs. A method or application is only described under one need, if it applies to multiple needs refer to the previous need for a description. The table below summarizes these needs and how they are to be met:

GIS Need	Method/Application to Meet Need
Data Layer Design, Creation, and Enhancement	<ul style="list-style-type: none"> • ArcGIS for Desktop (Standard) • ArcGIS Online • Centralized Database (SDE) • Geodatabase Model • Data Mining/Geocoding Application
Mapping and Spatial Analysis of Department Data	<ul style="list-style-type: none"> • ArcGIS for Desktop • Intranet GIS Data Browser • ArcGIS Online
Department-Wide Access to Geospatial Data	<ul style="list-style-type: none"> • Internet and Intranet GIS Data Browser
Demographic Analysis	<ul style="list-style-type: none"> • ArcGIS Online • Intranet Web Browser
Public Access to Geospatial Data	<ul style="list-style-type: none"> • Internet GIS Data Browser • Esri Story Maps • ArcGIS Online
Field Access to Geospatial Data	<ul style="list-style-type: none"> • Mobile GIS Data Browser • ArcGIS Online
Advanced Analysis Tools	<ul style="list-style-type: none"> • ArcGIS for Desktop • Spatial Analyst • 3D Analyst
Formal GIS Training for Department Staff	<ul style="list-style-type: none"> • Vendor Application Training • Third Party Application Training



GIS NEED

Data Layer Design, Creation, and Enhancement

The most expensive, yet important aspect of the Environmental Service GIS initiative is the creation and management of complete and accurate GIS data sets (spatial and non-spatial). Environmental Services has already created a large volume of GIS data and related data residing in business systems (e.g. EnerGov) or in physical form. Continuing to create and maintain this data is a critical component for success. Environmental Services has a need to convert physical records which contain zoning amendments, variances, subdivisions, and other land use approvals to a digital form that is accessible via GIS. The City has a vast amount of hard-copy files stored in various locations. These files should eventually be converted to a document management system (i.e. Laserfiche). Once done, these files can be



Environmental Services Documents

linked to their records with EnerGov and linked to the GIS. It is important that if a document management system is considered that the GIS team is heavily consulted as each document should be linked to the GIS.

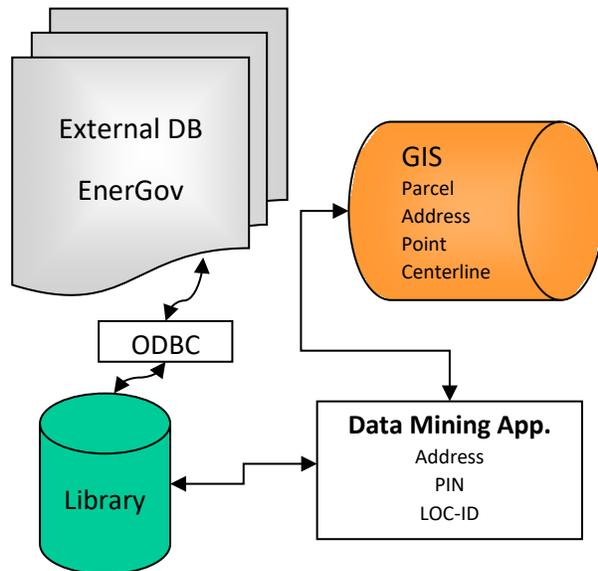
Environmental Services needs to participate in the development of an enterprise-wide geodatabase design that allows all stakeholders to understand the models, comment on the need for specific data elements, and/or the alteration of others. A well-designed database will ensure that data integrity is maintained. One of the city-wide recommendations is to move to an enterprise geodatabase and to store all data centrally in a Microsoft SQL database. This is also an excellent time to enhance the data to serve more purposes or to streamline analysis/reporting. For example, creating a direct linkage between addresses and parcels using the APN can make relating other data (e.g. permits, code enforcement cases, inspections, and planning projects) much easier. Much of this will be managed within EnerGov. EnerGov data will have a continuous link to GIS and the EnerGov GIS portal will be the primary GIS viewing platform for Environmental Services. In addition, as Departmental staff indicated, there is a need to develop Parcel Lineage so that users can click on a parcel and view related entitlements, permits, and project history.

Often, these records contain either an address or an APN. Again, this data should be stored in EnerGov and viewed via GIS.

Where possible, it is recommended that Environmental Services discontinue tracking data in Microsoft Excel spreadsheets for data that could be better managed in GIS. These files should be geo-enabled and converted into GIS layers. Moving forward, staff should be given the training to update this data via the GIS instead of in Excel or Access. Any needed reports should be generated through canned reports via the GIS.

Environmental Services needs to view the location of permits and other information such as code enforcement cases from Accela. Customer records related to an address can be mapped by linking each record to a spatial feature such as an address point. The geocoding service can generate and export the resulting GIS layer on a regularly scheduled basis.

Some of the aforementioned data stored in external databases (e.g. EnerGov, other planning records) will require more than just linking, but creation of feature classes (e.g. permits). These databases contain an address field making them a candidate for spatial enablement. Any database with associated addresses



can be address-matched to a street centerline layer, tax parcel centroids, or address point layer. This data can be geo-enabled through an automated geocoding service that creates GIS data layers from non-spatial relational databases. The results of a successful geo-coding effort will be stored in an industry standard relational database management system (SQL Server, Oracle, etc.). The automated process is based completely on standard SQL statements and is customized to utilize a variety of stored location-based data (Parcel PIN, Address, Location-ID, etc.). A second function of the

automated service is to generate GIS layers in an industry standard portable format (SDE layers) that could be utilized by a variety of applications. These GIS layers will be created to user specifications. X, Y coordinates will be utilized to display features in a GIS layer. The graphic below shows the process of using a geocoding service to extract data.

Once the above information is maintained as digital data, it can be spatially enabled for use in the City's GIS and used like any other GIS layer for viewing, reporting, analyzing, etc. As stated earlier, most of the EnerGov data will be viewed in the EnerGov GIS viewer. However, the data should be geo-enabled and made into GIS layers for viewing outside of EnerGov (ArcGIS) and for other departments who don't use EnerGov as their primary platform.

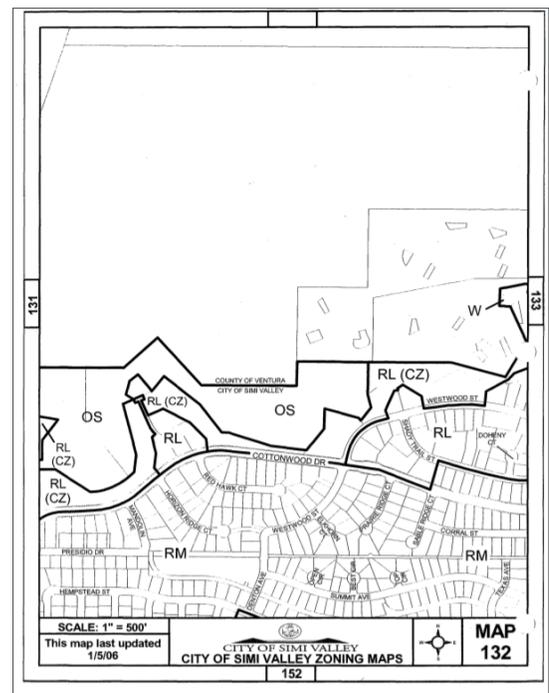


GIS NEED

Mapping and Spatial Analysis of Department Data

One of the significant benefits that Environmental Services will realize from the continued implementation of GIS and complementary technologies is increased and improved access to information. The Department will be able to further understand relationships between different types of data in a spatial context, thereby improving decision-making; maps will be used to provide the public with valuable housing and neighborhood information in a geographic context. Dynamic maps and applications will allow citizens and other stakeholders to access information, data, and provide feedback using current data in real time, as opposed to the paper maps and their digital representations currently provided on the City's website. Additional training and software tools will be needed to accomplish all of the identified analytical needs of the department.

Environmental Services already uses GIS for many tasks, however an improved, more user-friendly and integrated system could enable staff, particularly those not currently taking full advantage of widely-available GIS capabilities, to complete many tasks in a fraction of the time some of them currently take, such as:



Maps currently offered through Simi Valley's website

- Viewing and analyzing City demographic information for federal and state reporting and funding applications and/or for local policy studies and plans
- Identifying vacant and underutilized land for City projects
- Environmental Assessment (EA) for federal grant-funded projects
- Cost Benefit Analysis (CBA) for projects
- Focus area (specific plans or CDBG-eligible census tracts identification and evaluation)
- General land use, current development, and infrastructure mapping and analysis
- Citizen education and outreach
- Statistical analysis for various departmental tasks and efforts
- Using maps to train personnel
- Review land use and subdivision permitting
- Reviewing active construction sites
- See active and previously-issued permits
- Review of projects approved years ago not yet developed

The EnerGov GIS portal will be used for quick visualization and analysis. However, ArcGIS will still be needed for the more in-depth analysis. With these tools, more staff of the Environmental Services Department will be better able to derive valuable spatially-driven information on key issues and in less time than currently possible. Among these analyses, GIS allow better analysis of current demographics in relation to important resources such as transit, schools, parks, services and jobs, and tracking of available or underutilized land for various studies or plans.

Some of the information that Environmental Services would be better able to visualize and analyze via an improved GIS interface includes:

- Long Range Planning: noise zones, housing analysis, growth scenarios, change detection, biological inventory, land use analysis, growth scenarios analysis, etc.
- Tracking vacant and underutilized land, possible project sites, easily showing zoning, HOA, and other map layers on housing-related maps.
- Overlay zoning maps with other geographic information in order to identify ideal sites for various City projects, evaluate new development proposals, etc.

- Housing Affordability - (see figure at right): analyze affordability of local housing stock (rents and home prices) by zone (zip code area, census tract, zoning district, etc.).
- Environmental Assessment: conduct cost/benefit analysis in review of mitigation monitoring,
- Code Enforcement: Map locations of enforcement complaints or cases to identify spatial patterns, in order to better partner across departmental divisions.
- Mapping homeowners' associations to monitor and assist these organizations.
- Parcel by Parcel Analysis: Track owners, use and configuration of parcel, identify under-utilized parcels.
- Tracking federal data associated with federal or state grant expenditures (CDBG).
- Map projects such as the Affordable Apartment Monitoring Program
- Citizen complaint system and responses
- Map zoning amendments, variances, subdivisions, and other land use approvals
- More easily develop a "case history" at each address/parcel with all available property information: permitting, code enforcement, housing assistance, links to county assessor and tax collector records, etc.
- Use GIS to link to important documentation such as staff reports, site plans, City approvals or denials, general plan and zoning, specific plans, and ordinances
- Determine list of affected property owners for public noticing
- Develop a public online GIS portal to make available zoning, land use, and development project information, searchable by address or dynamic map selection



GIS NEED

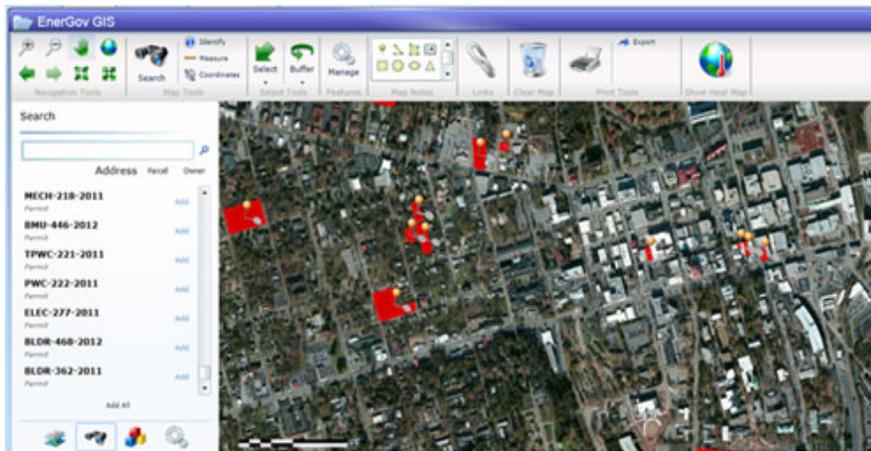
Department-Wide Access to Geospatial Data

Providing users with the ability to view spatial data in a quick and intuitive manner is important for local government utilities and is critical within the enterprise. Web-based data browsers allow quick viewing and printing of map data and can be configured either for use solely within Environmental Services, or as a website available to all internal City departments.

Departmental Intranet GIS Data Browser solutions are GIS applications that provide data dissemination services by departmental function through web-based technology. Intranet browsers represent a step forward in enterprise-wide GIS technology as it offers a “right-sized” set of spatial analysis tools, geographical viewing and map production tools, as well as external database links.



Intranet GIS Data Browser



Example of Mapping in EnerGov

EnerGov comes with its own Esri GIS viewer. Integration between Simi Valley’s data and EnerGov’s GIS viewer should provide staff with a highly functional GIS viewer to complete planning tasks. Staff also utilizes PhotoMapper to obtain aerial imagery and some

property information. However, PhotoMapper does not provide access to all necessary information and should be considered for upgrade/replacement. It is recommended that Environmental Services have a configuration through EnerGov or through an enterprise Intranet specific to their needs. For example, the Planning Division needs access to demographic data, permits and applications, CDBG and Affordable Apartment projects, property tax, property ownership, and a variety of other data, while Building and Safety needs access to their records as well as Code Enforcement information. Integrating data from various business systems is instrumental in making GIS more effective for Environmental Services and other City departments. The EnerGov GIS viewer should work for most Environmental Services staff. However, if staff find it constricting then the Esri WebApp Builder should be configured for the department.

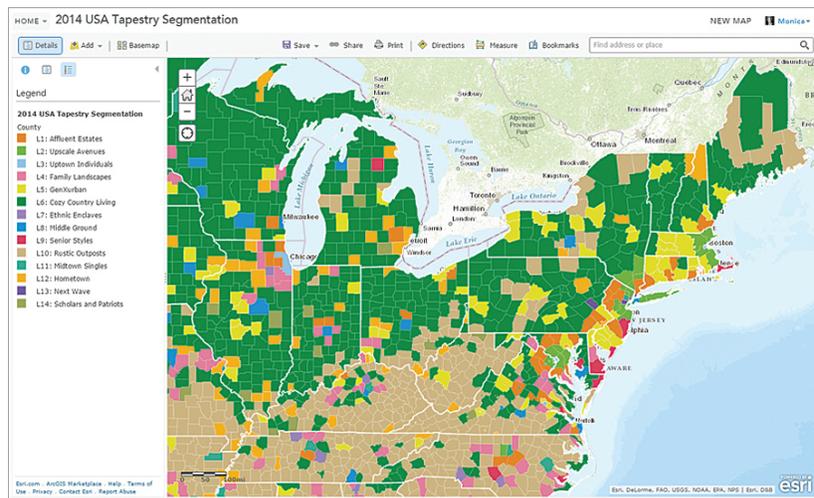


GIS NEED

Demographic Analysis

Esri provides Census and demographic data through Esri Demographics. This data is accessible for free with an ArcGIS Online subscription. Information included with Esri Demographics includes:

- Demographics – includes current year estimates and US demographic data including population, households, income, age, housing, race, and ethnicity.
- Census and American Community Survey - data on poverty status, education, labor force, journey to work, marital status, languages spoken, age, home value, and more.
- Tapestry Segmentation – Esri compiled data analytics with a detailed description of US residential neighborhoods divided into 67 distinctive segments based on socioeconomic and demographic characteristics.



Esri Demographics Information available on ArcMap

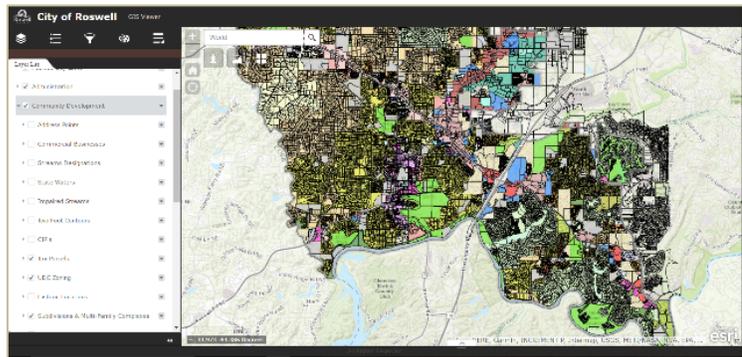
If the Department would prefer more advanced demographics analysis, it could purchase a subscription to Esri Business Analyst. It requires an ArcGIS Online subscription (which the City would have through an Enterprise Subscription) and a Business Analyst Online license (city does not own). The CMO had a common need in regards to their Economic Development needs.



GIS NEED

Public Access to Geospatial Information

Providing public access to GIS maps through the Internet provides information to Environmental Services customers. Through an Internet GIS Data Browser and focused web maps and apps, the data specific to Environmental Services can be provided to the public through intuitive and easy to use interfaces. Currently, there are



Public Facing Map Using the Esri Javascript Application

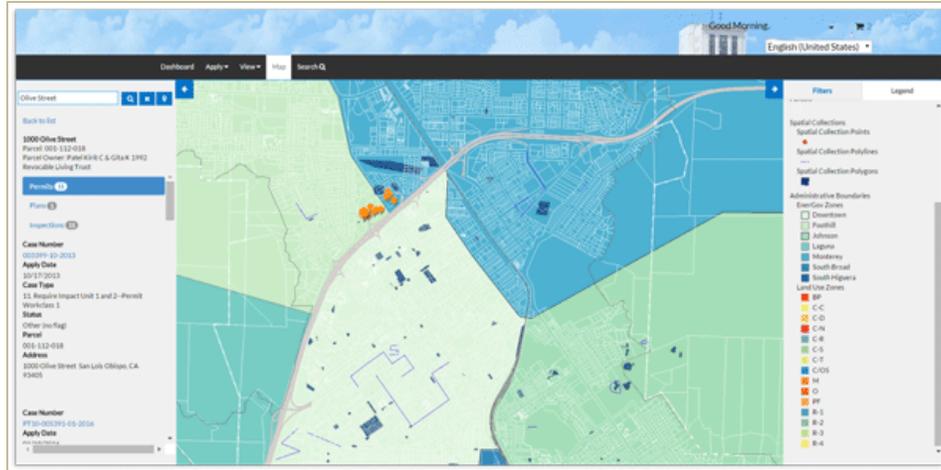
only some static maps and long range plan documents available to citizens online. Environmental Services should consider provisioning one of the public Esri applications such as the HTML5/Javascript application or StoryMaps to satisfy the need to share data with the public.

In addition to providing public access to existing parcel and land use data, and other data used by the department, as appropriate, a public GIS portal could allow residents, businesses, City officials, and developers the ability to better understand what zoning and land use policies apply to properties of interest to them, without the need to call staff necessarily. Lastly, the public could see where development and/or major projects have been proposed or approved, or are under construction, to facilitate greater community awareness and participation in the development review and/or long-range planning process.

The City should further implement an ArcGIS Server (AGS)-based Internet GIS data browser to provide the public with access to Simi Valley's geospatial data. One possible solution is to deploy ArcGIS Online for Organizations. The deployment would include extremely focused applications specific to the various department needs and allow for different configurations and different looks. With a number of departments interested in providing high-quality geospatial data and maps to the public, an internet GIS data Browser will be a City initiative, including Environmental Services as a stakeholder in its provisioning.

Another solution would be to provide EnerGov's Citizen Self Service, which allows citizens the power to:

- Search both Esri GIS and EnerGov data
- Start and save permit or plan applications for submittal at a later date
- Request multiple inspections from numerous job sites in a single screen
- Use shopping cart features to add multiple itemized invoices at various times and across multiple devices while paying at their convenience.



EnerGov Public Facing Application

This would provide citizens with many of the self-serving functions desired by Environmental Services staff, potentially saving citizens time and money, as well as reducing staff workload.

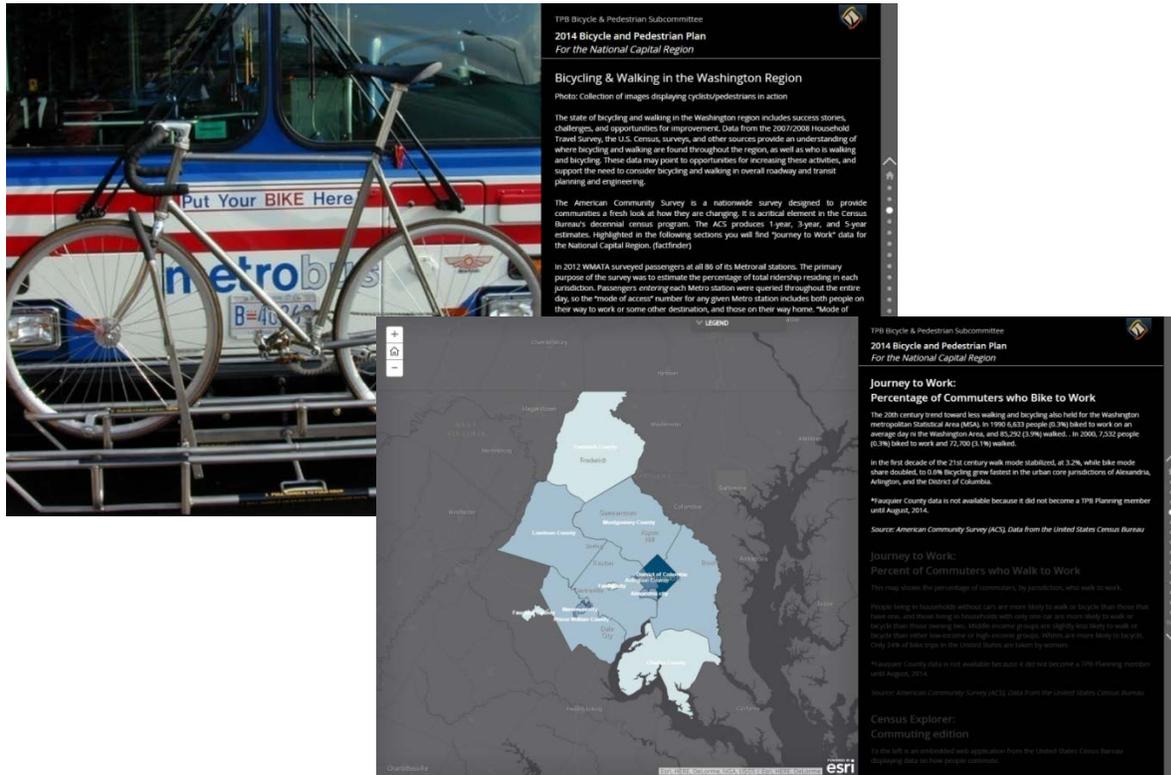
Providing maps and other visuals of projects with information important to residents and other stakeholders can enhance citizen relations. Esri has introduced Story Maps, which is designed to allow users to find information in a very intuitive and user friendly fashion. Story Maps are targeted and are designed to be easy-to-use. The goal with Story Maps is to present key data sets to the public without the need for training and to be able to get to pertinent data within a few clicks. Environmental Services would benefit from offering Story Maps on their web-site and could easily enhance many of their static maps and initiatives by providing the information through a Story Map. Story maps could be used to provide further information on business, public projects, and other information related to public awareness.



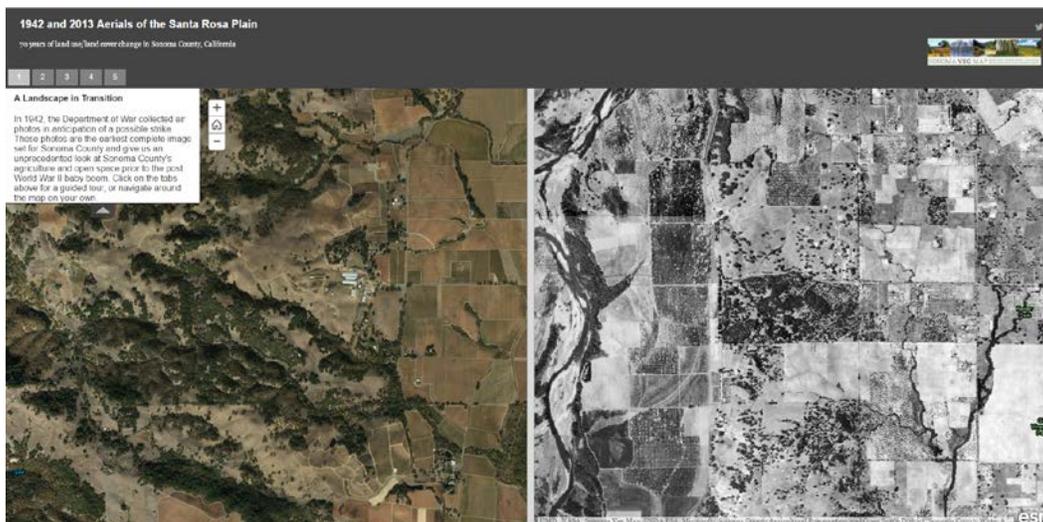
City of Carson, CA – Development Project Status StoryMap

Environmental Services would benefit from offering Story Maps on their web-site and could easily enhance many of their static maps and initiatives by providing the information through a Story Map. Story maps could be used to provide further information on business, public projects, and other information related to public awareness.

Another consideration for Environmental Services is to make some of its plans such as the Simi Valley General Plan live, public-facing documents. Through the use of Esri's Story Map template, Environmental Services can publish their plan data key text and live maps. Unlike traditional plans that include static maps, the use of a StoryMap would allow for sharing live GIS data for key themes like land-use and zoning. The example below shows a Bicycle and Pedestrian Plan with dynamic graphics and live mapping.



StoryMaps can be used to create Dynamic Planning Documents



Change Detection Story Mpa



GIS NEED

Field Access to Geospatial Data Solutions

Building and Safety stated the desire to utilize GIS in the field. Some staff may need access to geographic data while conducting their duties in the field. Accordingly, providing personnel with remote access to maps and GIS data such as open Code Enforcement cases and rental units while working in the field is an important part of maintaining an enterprise GIS. Through the use of hardware, software and data that are designed to be accessed and manipulated away from the office, staff can realize benefits of GIS while in the field. Integrating with mobile computers, input devices, software and GIS data into the GIS enterprise will give Building and Safety tools to perform field data collection, site visits, routing capabilities, and interactive geographic data query and analysis.

Environmental Services has tablets that are available for Building and Safety staff to utilize in the field. Building and Safety staff performing visits to sites may need immediate access to the various department/division database systems to retrieve records and documents, history, or any other pertinent data related to the division's activities. Access to geospatial data from the field will enable field personnel to look up relevant project related



documents, map a project site's location, and make necessary project notes which will prove to be helpful in monitoring project status, and required environmental mitigation measures, or conditions of approval. Free data viewing applications exist from Esri as well as applications that allow staff to augment data in the field. EnerGov might provide all of the visualization tools necessary. If not, staff can use a version of the Esri WebAppBuilder for visualization in the field. For the most part, staff will not be collecting/maintaining GIS data in the field. However, if the need arises Collector from Esri should be used. This application, Collector for ArcGIS, provides robust and intuitive tools for viewing maps, collecting and updating data, getting driving directions, and tracking and reporting areas visited. Collector operates through ArcGIS Online and with the newest release allows the ability for working offline. Collector is designed to work with iPhone and Android smartphones, but can also be used on tablets running iOS or

Android. Collector is a simple way to expedite a mobile GIS solution that allows users from across the organization to have the power of GIS in their hands.



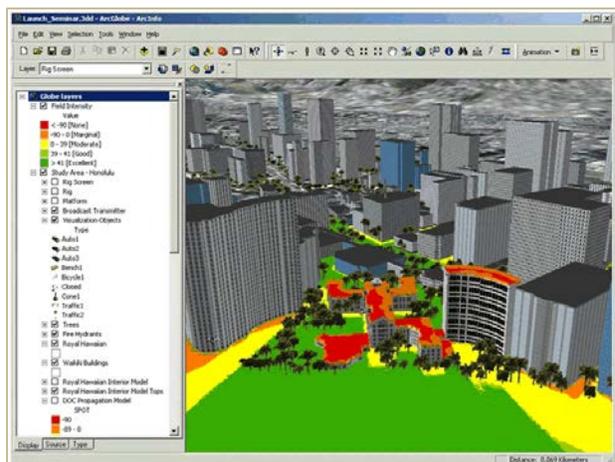
GIS NEED

Advanced Analysis Tools

Fully mature and enterprise-wide implementations allow for users to move to more advanced toolsets. Advanced analysis is often impossible within municipal governments because the needed data is unavailable. As the GIS effort at the City matures and more data is readily available, Environmental Services should consider implementing some advanced tools and functions. Advanced extensions to ArcGIS such as 3-D Analyst and Spatial Analyst, both of which the City already has licenses for, will allow staff to extend their capabilities as needed. ArcGIS Spatial Analyst provides a range of spatial modeling and analysis tools. ArcGIS Spatial Analyst could allow the Simi Valley to:

- Find suitable locations for City projects and/or planning efforts.
- Perform land-use and housing-related analyses.
- Identify areas prone to hazards such as fire, liquefaction, or flood zones.
- Analyze transportation corridors in relation to land use planning or housing efforts.
- Map pollution levels overlaid with residential zones or other sensitive receptors.
- Perform demographic analysis.
- Conduct risk assessments.

3-D Analyst allows for the use of existing 2D GIS datasets to create 3D scenarios that can be stored, viewed, and edited in 2D or 3D. Users can use attributes, such as elevation, to display the data at a present height; or use attributes to extrude the data.





GIS NEED

Formal GIS Training for Department Staff

Simi Valley needs to develop a GIS Training Plan and Environmental Services should participate and provide input to ensure their needs are being met. Staff that will be performing more advanced GIS analysis and mapping should participate continually in foundational and advanced GIS skills training. In addition, staff will need training in the use of advanced analysis tools like 3-D Analyst and Spatial Analyst. Staff should participate in any enterprise-wide ArcGIS training that is made available. Various divisions expressed their desire to utilize GIS more extensively. Training should be provided on utilizing GIS for analysis and data maintenance. Tier three training should be provided on tools, as they are made available and throughout the year.

3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

Environmental Services will benefit from access to almost all data layers created and obtained for the City. It is expected that once all departmental data is integrated, consolidated, and centrally stored, that staff will have access to all non-classified GIS data layers from other City departments and other public agencies or data providers. The following legend describes the data layer table below:

LEGEND

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was, or is anticipated being created.
Recommended Update Division or Individual	This field outlines the division or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City's GIS.
Recommended/Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the City. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

The following is a list of desired layers by the Environmental Services Department:

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Environmental Services GIS Data			
Available Properties	Economic Development Records	Economic Development	Recommended
California Environmental Information	Downloaded from State Websites	GIS Team/Environmental Services	Desired
Capital Improvement Projects	On-Screen Digitization	Various	Recommended
Census Data	Download from Census Bureau	GIS Team	Existing
Code Enforcement	Extract from Code Enforcement database, cleanse and geocode from database	Community Services - Automated	Desired
Conditional Use Permits	Extract from EnerGov database, cleanse and geocode from database	Environmental Services	Desired
Contours (Topography)	Derived from Aerial Flyovers	Regional Consortium	Existing
Development Agreements	Digitized	Environmental Services	Recommended
Environmental Information including	Import from external sources. CA Fish and Wildlife, CA Hazardous	Ventura County	Desired

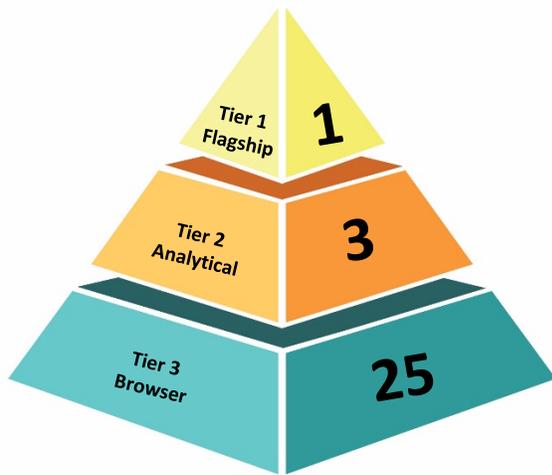
earthquake faults, liquefaction zones etc.	Materials Site		
Easements (public utilities, city easements, and Rights of Ways)	Various	Public Works and Environmental Services	Partial
Flood Zones	Acquire from FEMA	GIS Team	Existing
General Plan Land Use	Digitized	Environmental Services	Existing
Grant Location Areas (CDBG, others)	Digitized	Environmental Services	Desired
Homeowners Association	Digitized (need to be converted from the personal geodatabase to the enterprise)	Environmental Services	Desired
Inspector Aones	Digitized	Environmental Services	Existing
Junk Areas	Digitized or Derived from a database like EnerGov	Environmental Services	Desired
Land Use	Digitized	Environmental Services	Existing
Liquefaction Zones	Digitized	State of California	Desired
Past Permitting Information	Digitize and geocode from document management system	Environmental Services	Desired
Plan Development Permits and Certificates of Occupancy	Extract, cleanse and geocode from database/spreadsheets.	Environmental Services-automated through EnerGov	Desired
Residences by Occupancy	Extract, cleanse and geocode from database/spreadsheets.	Environmental Services-automated through EnerGov/document management program	Desired
Revenue Sinks	Derived from Analysis for complaint areas	Environmental Services	Desired
Public Utilities	Field collection, digitization, and as-builts	Public Works & Various Utilities	Partial
Redevelop Areas	Digitized	Environmental Services	Desired
Rental Information	Extract from database, cleanse and geocode from database	Environmental Services	Desired
Restaurant Grease Interceptors	Extract locations from EnerGov and automatically map	Environmental Services	Desired
Schools	Digitize/Geocode	Schools	Existing

Sidewalks	GPS and digitizing from aerials	Public Works	Partial
Specific Plan Areas	Digitized	Environmental Services	Partial
Traffic Analysis Zones	Digitized	Public Works	Partial
Undeveloped and Underutilized Parcels	Extract, cleanse and geocode from database/spreadsheets	Environmental Services	Desired
Zoning	Digitized on screen	Environmental Services	Partial
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS initiative. Have aerials from 2001, 03, 05, 07, 10, and 13	Regional CIRGIS Initiative	Existing
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Staff.	GIS Team	Existing
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The pyramid and table below outlines the recommended “Tiers of GIS Use” within the department. All are color coded by the level of desired GIS application use. As defined in the Tiers of GIS Users table, a Tier 1 user is a Flagship GIS user who has access to a fully functioning GIS toolset. A Tier 2 Analytical user focuses on data analysis, in addition to general browsing capabilities. A Tier 3 Browser user requires only general browsing GIS data functions. Environmental Services will consist of Tier 1, Tier 2 and Tier 3 Users. One of the existing staff should get advanced level training on using ArcGIS Advanced so that they can edit and maintain data within the enterprise-wide geodatabase.



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for the Environmental Services Department. These specific examples show the true return on investment of the technology.

RETURN ON INVESTMENT OPPORTUNITY Environmental Services Department	
OPPORTUNITY	EXPLANATION
<u>Save Time and Respond More Quickly to Citizen Requests</u>	<p>The public should have Internet access to GIS data. GIS will allow users to find information much more quickly and in many cases on their own. This should save multiple staff hours a week in Environmental Services. The internet access has to be really well-thought-out to fully realize the maximum savings.</p> <p>Staff should have access to current GIS data to better serve and provide information to the public and decision makers. This should save multiple staff hours a week in Environmental Services.</p>
<u>Improve Data Accuracy</u>	<p>Working with other City departments to update data with higher accuracy can improve the results when analyses are performed.</p>
<u>Improve Communication, Coordination and Collaboration</u>	<p>Having access to other department's information will allow City staff to work across departmental boundaries and complete tasks. (ex. Building and Safety and Code Enforcement)</p>

RETURN ON INVESTMENT OPPORTUNITY Environmental Services Department	
OPPORTUNITY	EXPLANATION
Improve <u>Public Access to Government</u>	Environmental Services wants to share critical information with the public. This will allow the public to be more informed and make better decisions. This could also save the public many trips to the department, saving time, pollution, energy, frustration, and would empower the public with the ability to get the information they need.
Compliance with <u>State/Federal Mandates</u>	Maps needed to satisfy reporting requirements for state mandates and/or grants such as CDBG or other federal or California programs.
Improved Information <u>Processing</u>	Environmental Services would expect GIS to increase the complexity of analysis opportunities. Increasing demand for impact analysis for new developments or land use or housing policy proposals should propel methods for faster processing of information frequently requested.

NEEDS ASSESSMENT

ADMINISTRATIVE SERVICES
Information Services Division



CITY OF SIMI VALLEY

CALIFORNIA

GIS ASSESSMENT AND REVITALIZATION PLAN

SECTION OUTLINE

1. EXISTING CONDITIONS

 Department Overview

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 Hardware and Software

2. GIS NEEDS ASSESSMENT

 GIS Needs

3. GIS GAP ANALYSIS

 GIS Data Layer Inventory

4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1 EXISTING CONDITIONS



DEPARTMENT OVERVIEW

The Information Services Division, located in the Administrative Services Department, is tasked with the centralized management and planning of computer resources, services and applications for all City departments. The Division has responsibility for technical and administrative support of the financial Information System, Integrated Police System (IPS), Community Development and Permitting System, Wide Area Network (WAN), wireless infrastructure and Internet connections. The Division is responsible for all computer hardware, software, mobile devices, security, and network architectures. The Division is also

responsible for hardware maintenance, equipment replacement, software licensing and maintenance, development of new systems, system infrastructure, and training on enterprise and City-standard PC software.

The Division includes a staff of 11 as follows:

- Information Services Analysts, who focus on maintaining the City’s servers, network and desktops, as well as providing support for the end-users.
- Business Analysts, who focus on the software the City utilizes to complete daily functions
- There is also an Information Services Help Desk, manned by Information Services Analysts to provide help to City Staff.

Information Services has virtualized most of the City servers using VMWare and has standardized on Microsoft for Database, Email, desktop and server operating systems. Currently, the Information Services Division does not have an IT Steering Committee and no Service Level Agreements exists between departments.



GOVERNANCE OF GIS

As of 2014, the GIS Coordinator was moved to the Public Works Department, so there is currently little usage of GIS within Information Services. However, Information Services still supports the hardware, database, security and networking associated with GIS.

Current GIS Staffing				
Type	Number of Users	GIS Usage	Primary Tools	
 GIS Flagship (Tier 1)	0	N/A	None	
 GIS Analytical (Tier 2)	0	N/A	None	
 GIS Browser (Tier 3)	0	N/A	None	



HARDWARE AND SOFTWARE

Information Services has personal computers available as needed for each of its employees. Staff provide help desk support to all City departments. However, within the Police Department, there are 70 Panasonic Toughbooks equipped in the police vehicles. These are not on the City's Airwatch MDM (Mobile Device Management) network, and are on a private network. Within the City, over 95 employees use City issued iPhones and/or iPads, and the City uses AT&T, Sprint and Verizon to provide wireless access in the field. There are also a substantial number of staff members who have been assigned iPads to perform work in the field.

Information Services supports a number of systems for various departments to include:

1. Windows 7 currently used, when PCs are upgraded they are moving to Windows 10
2. Microsoft Enterprise
3. Versaterm
4. Symantec
5. Adobe Reader
6. Flash
7. PhotoMapper
8. EnerGov (in implementation – production date of February 2018) MUNIS for financials, purchasing, HR, Payroll, Utility Billing, (in implementation, currently live with many modules)
9. AutoCAD

In terms of networking, there are three campuses for Simi Valley City Government, with anywhere from 1-5 buildings on each campus. The City has Time Warner fiber connecting the buildings, with 1 GB capacity. Currently the fiber between the buildings is being used to around 30% of its potential max usage. Within the facilities, switches provide 1 GB to the desktops. Information Services staff mentioned that they believed the Network suited their needs. The City's intranet operates at 50 MB, but the City is will be upgrading to 100 MB in FY2018

The City virtualizes its servers using VMWare. The City's GIS database is stored SQL Express environment. The City has standardized on Microsoft SQL server, but some applications use other databases (Oracle, Informix and Postgress). Individual personal computers are on a 4-5 year replacement cycle, but lately have been extended to 6-7 years. GIS staff get a more robust PC configuration than other staff. The City Manager's office is responsible for maintaining the City's webpage, which is cloud based and hosted by Vision Internet. The City does not develop any applications on their own. Internet policies are enforced by firewall rules.

2

GIS NEEDS ASSESSMENT

GIS NEEDS

Because GIS Management is housed in the Public Works Department, the Information Services Division’s needs lie more in providing support to GIS infrastructure and access to information to further help staff in their daily work. Each need is identified in the table below and then discussed in more detail thereafter. A method to fulfill the need is also listed and expounded upon in the needs discussions below.

GIS Need	Method/Application to Meet Need
Access to Relevant Geospatial Data	<ul style="list-style-type: none">• Intranet GIS Data Browser (AGOL, WebAppBuilder)
Expedient Connectivity and Data Access	<ul style="list-style-type: none">• Network Analysis Tools
Training and Education	<ul style="list-style-type: none">• Annual Training and Education Strategy

GIS NEED

Access to Relevant Geospatial Data

Information Services personnel have the following GIS needs or requirements:

1. Ability to locate, update, and map all fiber network data
2. Ability to locate, update, and manage Information Services asset locations – Although, assets are tracked in Munis a representation of their exact location could be housed in a GIS layer and linked to Munis data and/or expounded upon in the GIS layer.

Information Services utilizes fiber to connect its various buildings and facilities. Managing and mapping fiber requires a fair amount of GIS and fiber network expertise to produce meaningful results. The current fiber network should be mapped and maintained via GIS. As with any infrastructure, it is important to know its location and details about each feature. Additionally, Information Services is looking at expanding the use of the fiber assets. GIS is a logical tool for managing the fiber network and services. It would also be beneficial for Information Services staff to have geospatial data on where 3rd party fiber is located.

GIS would also be beneficial for managing and tracking the physical infrastructure such as camera locations and wireless network equipment. Layers could be developed to track the physical characteristics and details of this equipment and develop a strategy for replacement and ensuring the City optimizes its lifecycle.



These datasets would be available to Information Services staff through the development of an Intranet browser, a recommendation for Simi Valley. Information Services staff would have access to all data relevant to their division, possibly through a specified portal for the Division.



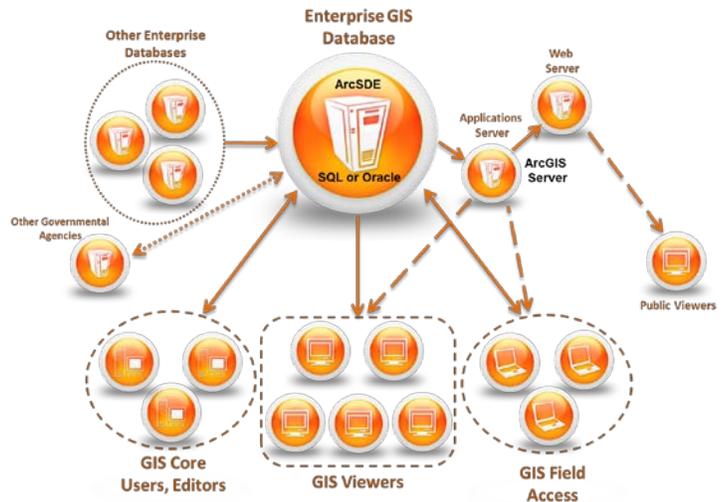
GIS NEED

Expedient Connectivity and Data Access

As with any applications, it is imperative that users have access to needed data and that response time is very quick. Working closely with the GIS staff, Information Services will continue to administer the City's network in support of GIS and its related components. Information Services will need to continually evaluate network infrastructure and configuration to facilitate data transfer and systems integration. This plan recommends

the City develops intranet and internet GIS portals, which are discussed in more detail in the Software chapter of the Strategic Plan and in other departmental needs assessments. The GIS staff will need to work closely with Information Services staff to diagnose and correct any speed and connectivity issues.

Security is a concern for many departments. Some datasets cannot be legally disseminated. As such, it is imperative that database security is addressed and the GIS database set up in such a way that ensure the security of data. The GIS Team and Information Services staff should administer an individual user permissions policy whereby each user is granted a specific level of access (e.g. read, write), based on assigned responsibility. This would serve to increase security, and in turn minimize risk of integrity compromise, for all data stored and delivered through the GIS enterprise. The GIS staff will need to coordinate closely with Information Services in regards to database design and access.



GIS use in the field and untethered from a traditional personal computer is recommended for several City Departments. In many cases, the GIS application might be embedded as part of another IT system (EnerGov or Munis) or an additional application, such as the Esri Collector application. Therefore, it is important that the GIS Team in tandem with appropriate Information Services staff understand the underlying technology that is being used. Training classes on database management, database optimization, and mobility should be captured in an annual training plan. Requirements will inevitably change (i.e. demands will increase). The role of IT must be one sufficiently flexible to respond, anticipate, and change, in accord.



GIS NEED

Training and Education Strategy

As GIS becomes more readily available for use enterprise wide and within the Information Services Division, training will be necessary to fully reap the benefits from having access to the GIS Data. Information Services staff should participate in GIS training to become more comfortable and capable of utilizing GIS to further the Division's needs.

3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

It is expected that once all departmental data is integrated, consolidated, and centrally stored, that staff will have access to all non-classified GIS data layers from other City departments and other public agencies or data providers. The following legend describes the data layer table below:

LEGEND

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was, or is anticipated being created.
Recommended Update Division or Individual	This field outlines the division or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City's GIS.
Recommended/Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the City. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

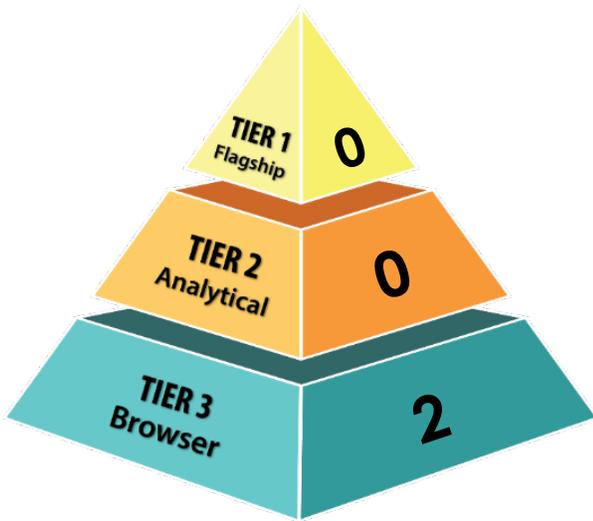
The following is a list of desired layers by the Information Services Division:

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Information Services GIS Data			
3rd Party Fiber Networks	Digitized by 3 rd party agencies – although getting these 3 rd party agencies to share their data is often difficult if not impossible.	Automated	Desired
Infrastructure (Camera, Wireless Network Equipment) Location	On screen digitization and linked to any live feeds	GIS Team	Desired
Traffic Signals	Field collected or digitized	Public Works	Desired
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS initiative. Have aerials from 2001, 03, 05, 07, 10, and 13	Regional CIRGIS Initiative	Existing
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Staff.	GIS Team	Existing
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The pyramid and table below outlines the anticipated “Tiers of GIS Use” within the Information Services Division. All are color coded by the level of desired GIS application use. As defined in the Tiers of GIS Users table, a Tier 1 user is a Flagship GIS user who has access to a fully functioning GIS toolset. A Tier 2 Analytical user focuses on data analysis, in addition to general browsing capabilities. A Tier 3 Browser user requires only general browsing GIS data functions. The below pyramid reflects IS staff having access to the intranet viewer to visualize their assets if/when mapped



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for the Information Services Division. These specific examples show the true return on investment of the technology.

Return on Investment Opportunity Information Services Division	
OPPORTUNITY	EXPLANATION
Save <u>Time</u> and <u>Money</u>	<i>Intranet GIS Data Browser and Spatial Analysis:</i> <ul style="list-style-type: none">• Better management of fiber infrastructure and City equipment will allow staff to take better care of it and to optimize it's use.

NEEDS ASSESSMENT

POLICE DEPARTMENT



CITY OF SIMI VALLEY

CALIFORNIA

GIS ASSESSMENT AND REVITALIZATION PLAN

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4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1

EXISTING CONDITIONS



DEPARTMENT OVERVIEW

The Simi Valley Police Department is guided by the mission statement that its members are “committed to achieving excellence in public safety by providing superior police services that promote a safe community and encourage community involvement.” Its goal is to provide quality service, treat everyone with dignity, respect, and equality and secure a safe environment for Simi Valley citizens. The department is divided into three divisions: Field Services, Investigative Services and Critical Support and Logistics, with each division housing a number of critical services. Each division is responsible for the following tasks:

Field Services Division:

- K-9 Unit
- Patrol Unit
 - Serves as the Department's first responders to emergency and non-emergency calls for service throughout the Community.
- Traffic Unit
 - Consist of Accident Investigators and Motorcycle Enforcement Officers and Police Services with Vehicle Abatement responsibilities.

Investigative Services Division:

- Auxiliary Services Unit
 - Supports the officers and professional staff who serve the community of Simi Valley through the management of several community outreach programs. They also provide logistical support as the first point of contact between the City and residents.
- Crime Analysis and Prevention Unit
 - Provides timely and accurate information regarding crime statistics, and to track criminal and offender activity by providing reports to the Police Department and surrounding law enforcement agencies.
- Detective Unit
 - Provides investigative support to all citizens, outside agencies, and other units within the Department. It is responsible for the investigation of major crimes against persons and property, and overseeing the Technical Services Team (TST).
- Special Operations Unit
 - Provides direct law enforcement services to the public, support to other components of the Police Department, and to conduct comprehensive, technical, narcotics, vice, and gang investigations.

Critical Support and Logistics Division:

- Communications Unit
 - Responds to emergency and non-emergency calls for service by providing information, assistance, and advice to callers.
- Fiscal Services Unit

- Provides operational support to all units in the Department through a number of actions including but not limited to processing purchase orders, enter timesheet data, create invoices, reviews permits of businesses and solicitors.
- Maintenance Unit
 - Responsible for all equipment and the vehicle fleet.
- Records Management Unit
 - Responsible for managing the Department's automated Records Management System (RMS) and any paper files as well as ensuring accuracy in reports to the DOJ.

Also housed within the Police Department is the Office of Emergency Services, whose mission is to prepare Simi Valley for, respond to, and recover from disasters and high impact emergencies. This is accomplished through nine major programs areas:

1. Emergency Response Planning
2. Emergency Management Training
3. Emergency Operations Center (EOC) program
4. The 32-member Disaster Service Worker Team
5. Emergency Communications Technology program
6. Intergovernmental Coordination
7. Disaster Recovery Planning
8. Hazard Mitigation Planning
9. Public Education program

Their staff consists of two employees, an Emergency Services Director and an Emergency Services Manager. In 2016, FEMA approved the City's Multi-Hazard Mitigation Plan.

The Department responds to approximately 45,000 calls a year, and has around 24,000 incidents to report and log annually. The Department comprises of 181.5 positions, with roughly 70% of those being sworn officers. There are six Computer Aided Dispatch (CAD) call taker positions of which four are active. The City also has responsibility for some Mutual Aid Areas it shares with neighboring jurisdictions.



GOVERNANCE OF GIS

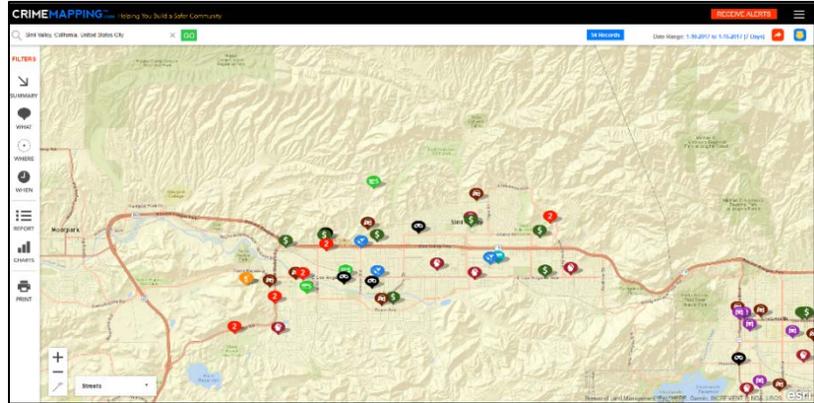
There are generally three tiers of GIS users. A Tier 1 - Flagship GIS user typically conducts GIS administration and coordination at the enterprise level, has access to a fully functioning GIS toolset to create and maintain enterprise data, and manages the enterprise database. A Tier 2 - Analytical GIS user focuses on data analysis, complex querying and data modeling, along with department level data maintenance. A Tier 3 - Browser GIS user requires only general browsing GIS data functions to create reports, query standard data sets, create tasks like mailing labels, and produce maps.

The Simi Valley Police Department does currently use GIS in multiple ways. In regards to emergency operations, the City has access to EMOPS, which is a web-based GIS application provided by the Pacific Disaster Center. The Department has a virtual Emergency Operations Center browser that can be accessed in the event of an emergency. Ventura County has an emergency notification system- VC Alert that is utilized across jurisdictions during an emergency. In regards to Crime Analysis, the City has implemented CrimeView, which leverages ArcGIS. However, the Department recently switched to the National Incident-Based Reporting System (NIBRS) that resulted in a majority of the automated CrimeView queries and reports not working. The Crime Analyst can still use CrimeView in a more manual fashion but its utility has been greatly diminished. Additionally, the Crime Analysis team uses ArcGIS Desktop for various mapping initiatives. PhotoMapper is used for both crime analysis and in dispatch, as well as to track homeless shelters.

The Department utilizes Versadex for their Computer Aided Dispatch (CAD) software, and Versaterm for its Record Management System (RMS). Versadex has the capability to produce maps quickly and reliably to send to officers in the field. Simi Valley is currently Next Generation compliant. Police vehicles are equipped with mapping through Versadex. However, the information provided in the mobile mapping application is limited in the data presented and only has data for the area within the city limits, not in Mutual Aid Areas Simi Valley is responsible for. It has the capacity to show Aerials, AVL, and GIS Data. The CAD mapping application also shows the following information:

- Police beats
- Property information
- CAD History
- Railroads
- Schools
- Etc.

The City also uses CrimeView to provide a visual display of their recent incidents. This gives the public a way of accessing information related to incidents in the community.



CrimeView Public Facing Incident Mapping

The nature of law enforcement agencies is to inherently rely very heavily on spatial data on a daily

basis. Crime pin-mapping, both historical and current, provides detailed insight into where crime occurs and where crime is likely to occur. The Police Department should use GIS as a primary information tool. The majority of GIS users in the Police Department will be Tier 3 GIS users; however, some GIS use within the Police Department does involve more complex GIS data analysis, mapping, and some geospatial data creation, such as that of Tier 2 GIS users – for example staff in Crime Analysis should be considered a Tier 2 GIS Analytical user.

Making quick and accurate decisions is critical in policing—GIS can assist in making these decisions. Cities throughout the world are finding that GIS can save lives, time, and money. The use of GIS has been heralded as having contributed to the nationwide drop in the crime rate over the past few years. GIS can help depict patterns in criminal behavior that are impossible to visualize with traditional methods.

The table below summarizes the current GIS staffing within the Police Department. Type represents the current level of GIS experience based on job requirements, GIS usage can be categorized as Limited, Moderate, or High (i.e. frequency of use), and Primary Tools describes what specific software tools are used to carry out GIS functions. The majority of the Police Department will be Tier 3, users who only utilize GIS for mapping.

Current GIS Staffing				
Type	Number of Users	GIS Usage	Primary Tools	
	GIS Flagship (Tier 1)	0	NA	NA
	GIS Analytical (Tier 2)	3	High	Esri Tools (ArcGIS) for mapping and Crime Analysis. Crime Analyst and Technicians.
	GIS Browser (Tier 3)	50	Moderate	In car mapping and 911 dispatch



HARDWARE AND SOFTWARE

All staff within the Police Department has access to a personal computer. Mobile data terminals (MDTs) are being used in the field. Officers use the MDTs to fill out field reports and occasionally view GIS data. Printers are available for office use.

Hardware Issues Summary	
Type	Notes
Personal Computers	Available to all staff
Laptops	In the vehicles
Printers	Ample printers available for use
Plotters	None
GPS	Utilized for AVL in the Vehicles
PDA/Tablets	Eight iPads available for Emergency Services
Scanners	Available as needed

The Versadex Public Safety Suite is used for 911 and records management. CrimeView Community is used for public crime mapping through a web application. CrimeView and ArcGIS for Desktop (ArcView) is used for Crime Analysis and mapping. Microsoft Office is used to conduct office productivity tasks. The following are the pertinent software packages (for this report) used by the Police Department:

1. Microsoft Office– used for office productivity
2. PhotoMapper– used for mapping
3. Versaterm – RMS system
4. Versadex – CAD system, mapping
5. CrimeView Community – public crime mapping
6. CrimeView – used for crime analysis
7. ArcGIS Desktop – used for crime analysis and GIS data maintenance
8. VC Alert – countywide emergency notification system
9. EMOPS – emergency preparedness software provided by the Pacific Disaster Center
10. Nixle – used for sharing data with the public
11. Google Maps - visualization

2

GIS NEEDS ASSESSMENT



GIS is one of the most effective tools for fighting crime and delivering public safety services quickly and effectively. A majority of information tracked by police departments have a locational component. Additionally, it has been well documented that criminal activity occurs within predictable parameters, which can frequently be tied to locations. Therefore, geographic visualization and analysis should be an inherent tool in all facets of public safety. The Simi Valley Police Department uses GIS in Communications, Policing, and Emergency Services, and should continue to implement GIS and its complementary technologies.

The GIS industry has radically changed over the past few years. Software companies have spent hundreds of millions of dollars improving their end-user experience. Intranet, Internet and mobile tools have become much easier to use and much more targeted in their purpose. Historically, most police departments have been satisfied using the GIS tools provided by their E911/RMS vendor. However, in many cases these tools are not using the latest toolset and are not as comprehensive as they should be. Therefore, it is highly recommended that the Simi Valley Police Department consider all of the tools now available on the market.

Based on this Needs Assessment, the Police Department has several GIS identified needs. Where applicable each need will be followed by an application or method to meet that need, some applications/methods will meet several needs. A method or application is only described under one need, if it applies to multiple needs, refer to the previous need for a description. The table below summarizes these needs and how they are to be met:

GIS Need	Method/Application to Meet Need
Mapping and Spatial Analysis of Criminal Activity, Incidents, and Accidents – Department-Wide Access to Geospatial Data	<ul style="list-style-type: none"> • Executive Information System - Intranet GIS Data Browser • ArcGIS Desktop
Enable Decision Makers via an Executive Dashboard	<ul style="list-style-type: none"> • Esri Operations Dashboard
Improved Access to Mobile Mapping	<ul style="list-style-type: none"> • Intranet Data Browser • Mobile Computers with Mobile GIS Data Browsers
Emergency Operations – Disaster Response and Recovery	<ul style="list-style-type: none"> • Disaster Recovery and Damage Assessment Application
Enterprise Access to Digital Pre-plans, Hazardous Material Data, and other supporting datasets	<ul style="list-style-type: none"> • Data Creation and Integration
Public Access to GIS Data	<ul style="list-style-type: none"> • CrimeView Publically Accessible Esri Applications such as Story Maps



GIS NEED

Mapping and Spatial Analysis of Criminal Activity, Incidents and Accidents – Department-wide Access to Geospatial Data

A primary need for the Police Department is to improve the tools available to the Crime Analysis Unit and to provide Department-wide access to GIS-based mapping and spatial analysis. This includes the most recent parcel, address, and street centerline data as well as high-resolution orthophotography. Users will benefit from access to the City’s base data as well as department-specific information. Using the most recent, accurate GIS layers provides staff members with an invaluable tool for everyday tasks. The Police Department has already implemented tools for crime analysis and pin mapping through tools such as CrimeView and PhotoMapper. The Versadex mapping system in the Communication center and in the vehicles needs augmentation. Additional city base data should be made available such as a fully built out address point layer in addition to other key data (CCTV, weather, traffic, etc.). These tools should be upgraded as soon as possible. The Police Department should be able to conduct the following types of mapping and analysis:

- Incident analysis – with ArcGIS and a crime analysis package
- Mapping E-911 Calls – from Versadex

- Crisis management – schools and other critical businesses with data in cruisers
- Mapping homeless camp locations and maintain photographs
- Mapping sex offenders, parolees, probationers, persons with warrants
- View and query existing infrastructure – water, sewer, storm water, and facilities
- View and query utility billing information
- Weekly PIN map and Hot Spot Analysis
- Court case support for detectives
- Logistical support (i.e. planning for a raid)
- Tracking drug free zones around schools
- Creation of new response areas
- Maintain GIS data layers
- Staffing analyses – what is happening when
- View aerial imagery for drug raids and traffic accident analysis
- Assisting in evacuation during disasters
- Mobile access with an easy-to-use data browser
- Traffic collision intersection studies
- Crime scene diagrams
- Tracking locations of the homeless/mentally ill and their encampments
- Track history of individuals via an aggregate database
- High volume of officers on a given call
- Track average speed of vehicles
- Know location of speed zones, survey zones, etc.
- Regional crime analysis
- Situational and operational awareness including a common operating picture
- Mapping where public and private video cameras are focused

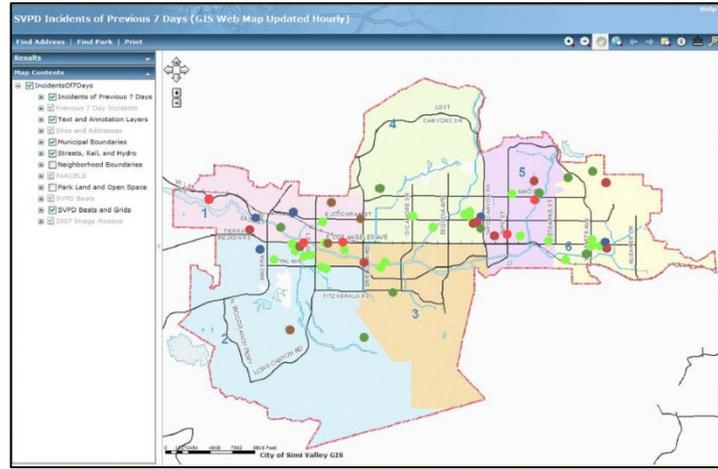
Applications to Meet Need

Incident Mapping and Executive Information System

The Simi Valley Police Department should continue to upgrade their suite of GIS tools. The Department should use GIS to create high quality maps for presentation and analytical purposes to include crime scene mapping, summary data, and specific crime information as needed. Additionally, the Department should

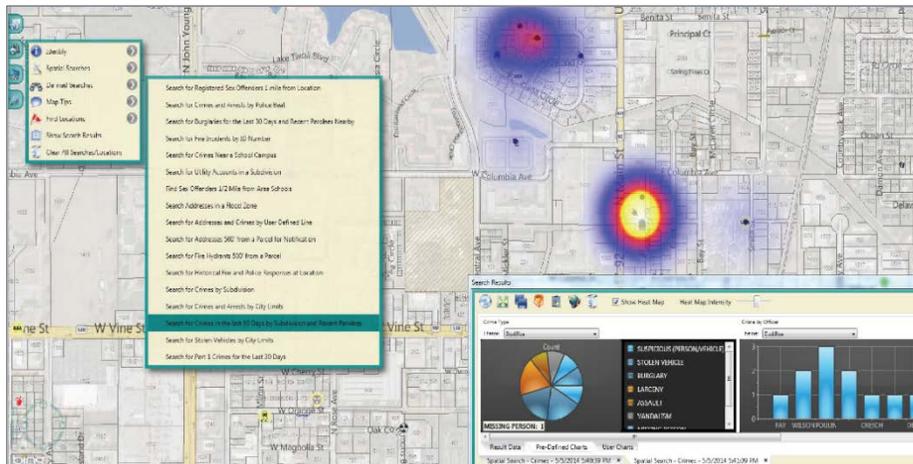
be using tools to create an internal, web-based portal for personnel to view a pin map and do some basic analysis.

Within the Simi Valley Police Department, the Crime Analysis Unit- consisting of a Crime Analyst and Reporting Manager, a Crime Analyst, and a Technician, has primarily utilized CrimeView for their crime analysis. However, when the Department switched NIBRS reporting system, CrimeView's automated mapping and reporting no longer was functional. The department must re-establish the ability to automate many of the Crime Analysis



Current Incident Tracking Capability of Simi Valley Police

reports and maps. The department has two options. The first option is to pay the Omega Group to re-establish all of the automated functions. Alternatively, the department should re-analyze the tools available on the market and consider a package that automates many of the time consuming tasks that are consuming the Crime Analysis Unit's time. This would free staff up to do more in depth analysis and analytics. Additionally, the department in tandem with the GIS Team should identify a tool that automates the download and address matching of case data. Tools exist that can be setup to automatically map data from Versadex for use within the various GIS applications. These tools would better help the Crime Analysis Unit achieve their mission of providing timely and accurate information regarding crime statistics, and to track criminal and offender activity by providing reports.



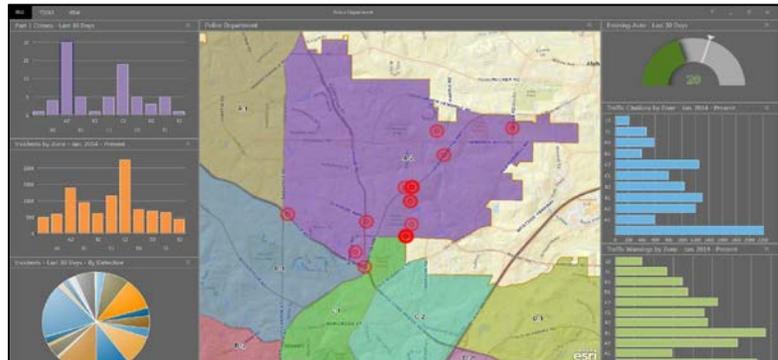
Esri Crime Analysis



GIS NEED

Enable Decision Makers via an Executive Dashboard – Operations Dashboard

A tool that would benefit Simi Valley Police Department and decision-making is the Esri Executive Dashboard application. Organizations use Operations Dashboard to monitor various key metrics. For example, departments are using dashboards to view incidents by a



Executive Dashboard for Police Decision Makers

variety of variables such as type, incidents within the last 30 days, incidents by officer, incidents by beat, traffic accidents among others. It is recommended that the Police Department in conjunction with the GIS staff develop an Executive Dashboard for command staff. This involves a process of deciding what should be viewed and then mining the data using the aforementioned backend data mining toolset. The result is a live look at key metrics via user selected widgets and an interactive map.



GIS NEED

Improve Access to Mobile Mapping

The 911 center and police vehicles are outfitted with mapping through Versadex. However, for the most part the mapping provided to the officers is limited to the available data that while beneficial, is limited. The City should consider an upgrade officer mapping capacity as soon as is practicable. Effective policing requires that the front line officers have easy, fully integrated access to mission-critical data including property ownership, utility accounts, aerial photography, crime trends in an area, and building pre-plans. The latest GIS tools provide easy access to a wealth of data. The City should expect to have high-quality mobile access on their personal computers, MDTs, iPhones, iPads, Android smartphones and tablets.



GIS NEED

Emergency Operations – Disaster, Response and Recovery

Emergency Services staff are required to participate and lead the City in disaster response and recovery, as well as be in the field after a disaster; such as a after a flood, fire, or a terrorist event. They are required to participate in damage assessments and report this information back to the City for reporting to the state and federal government and for recovery operations. It is recommended that Simi Valley implement a disaster recovery tool that will enable staff with tablets to quickly assess and report the extent of a disaster. This application will allow users to enter the damage done on a site-by-site basis. Also, the computers are GPS enabled allowing for the location of each field representative and the path they have already traveled to be easily ascertained.

Emergency Services should leverage all of the functionality afforded through a modern GIS. The City has invested in Esri GIS technology, which has a number of tools that can be used to meet the mapping needs of the department. The tools are as follows.

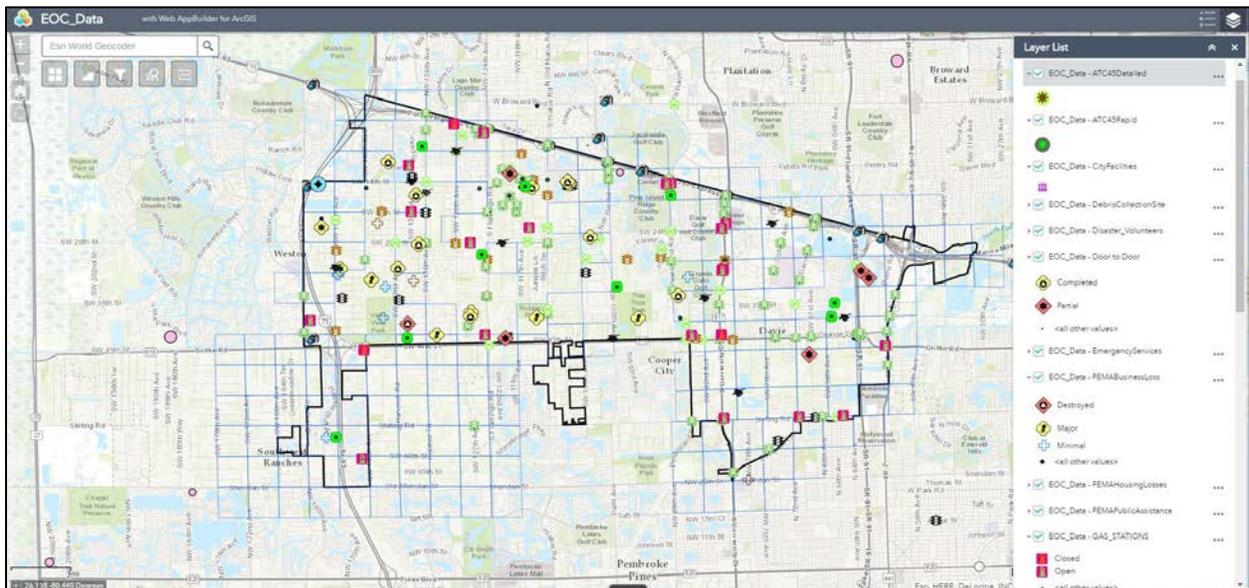
Common Operational Picture

Esri has released a very powerful toolset, Web AppBuilder, which can be used as a Common Operational Picture (COP). The Web AppBuilder should be configured to show all of the key GIS layers and key analytics to include:

- Shelter locations and information
- Flood prone areas
- Live GPS feeds from the field showing damage assessment activities
- Infrastructure
- Location of Disaster Service Workers
- Database of CERT members personal information
- Essential Locations including critical businesses, hospitals, staging areas, traffic feeds, volunteer locations, etc.
- FEMA compliant data layers

This application would allow EOC staff to quickly visualize and assess a disaster in a live environment. Reports and queries would be set up within the software for mapping, analysis, and reporting. Additionally, this same browser can be used for analysis and mapping for non-emergency planning. The application allows for the following functionality:

- Flood Impact Analysis
 - How many people may be affected?
 - What critical infrastructure may be affected?
 - What target properties (schools, nursing homes, etc.) may be affected?
- Evacuation Planning
 - The goal would be to design an effective evacuation plan for a given incident or to change an existing evacuation due to dynamic conditions.
 - Determine street capacities to manage expected evacuation capacity – i.e. if the need to evacuate 15000 people in 2 hours and the streets in area flow x vehicles per hour, how many streets do we need to designate as evacuation routes
 - Identify stop lights and other traffic control devices that will need to be controlled to assist with evacuation

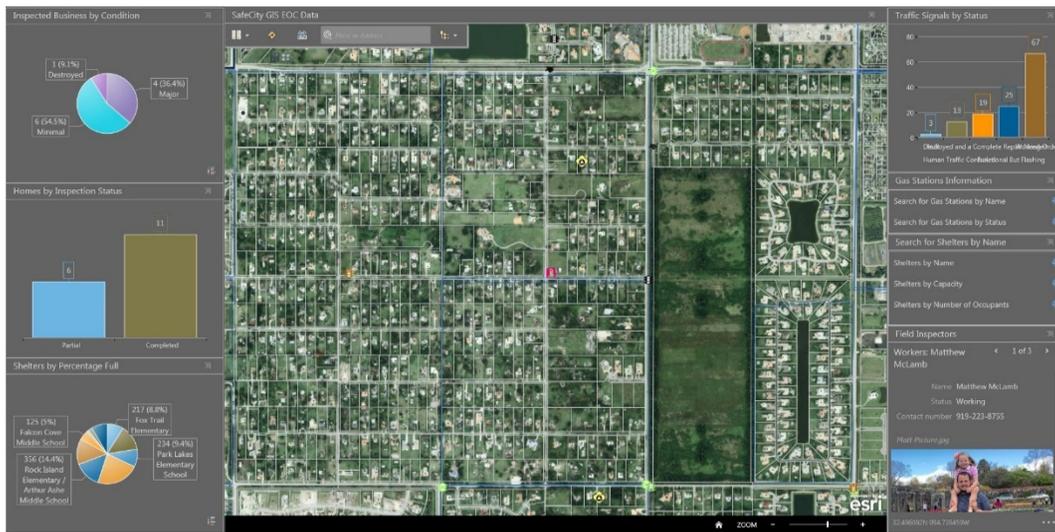


Common Operational Picture

EOC Dashboard

Emergency Services would benefit from developing an Emergency Operations Center dashboard. Esri has released their Executive Dashboard application that can be used for this purpose. The dashboard can be configured to view any key metrics. The toolset provides organizations with an application for monitoring real-time data related to an emergency situation. For example:

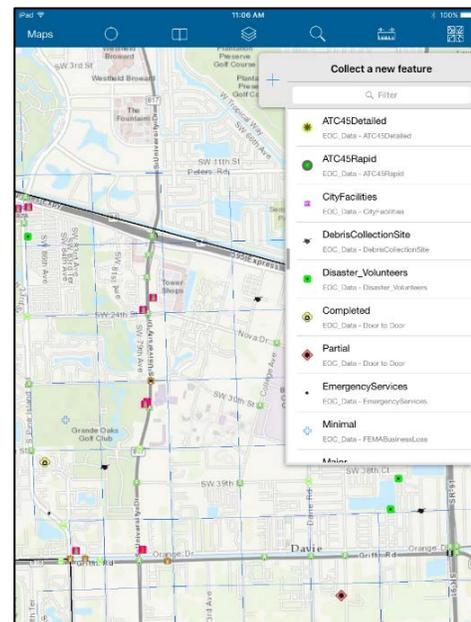
- Total area canvassed
- Damage by percentage
- Location of all field personnel



GIS EOC Dashboard

Disaster Recovery and Damage Assessment Application

A mobile application rounds out the EOC suite. The Esri Collector Application (which the City currently owns) should allow users to rapidly and confidently enter field notes on a mobile form and then Esri Collector App Configured for Damage Assessment transmit the data back to a central location using a wireless connection. Emergency Operations already has eight iPads that could work utilize Esri Collector to gather data in the field during an emergency. Routing and tracking staff during an emergency is also a benefit of using GPS enabled tablets during an event. This application suite



EOC Configured Collector Application

should be tested as part of the emergency preparedness process to ensure that each of the components is in an operational state.



GIS NEED

Enterprise Access to Key Data Sets to Include Community Services

The Community Services Team is in need of GIS access and GIS tools. They should be provided software similar to what has been described earlier in the document to include:

- Intranet data browser – Web AppBuilder to see key information in the office and in the field
- Collector – updating key layers in the field with photographs

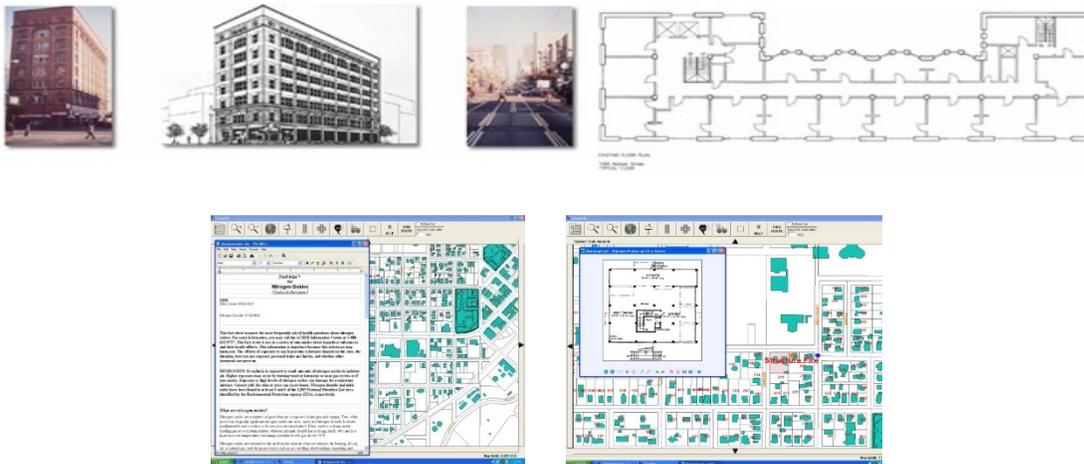
The Police Department wanted a need to access a number of GIS layers. Many of these are currently provided through the central GIS or through the efforts of the Police Department staff. However, there are some data layers that need to be created and/or accessed that are not today to include:

- Streets outside of the city limits
- Three aside bank trigger locations
- Camera feeds – (DOT, Private, Dashboard Cams)
- Homeless camp locations – Community Services Group
- Encampment trash layers – using a GPS for Community Services
- Code enforcement locations mapped
- Railroad easements – Community Services Group
- Ventura County Flood Control Areas – Community Services Group
- Fire Pre-Plans – 100s from the County Fire Department
- Hazardous Materials
- Neighborhood Watch Districts

A pre-plan shows the layout of critical facilities like industries, schools, hospitals, and government buildings. Exits, fire suppression devices, and other key features are noted on these pre-plans. The Police Department should work in cooperation with GIS staff to access this important data. Linking plans to GIS

can add additional information and analysis capabilities. Pre-plans of critical facilities should be linked to a GIS Intranet application, the 911 mapping application, and a mobile data browser application. An icon will show up in the application if a pre-plan is available for a structure. Additionally, hazardous material information should be geo-enabled and linked to the GIS by address. Access to preplans and hazardous materials information would be beneficial for both aspects of the Simi Valley Police Department: Policing and Emergency Services.

Modern mapping applications allow for integration with data from a wide variety of sources. Hazardous materials permits are granted through Public Works, while pre-plans would be received and managed through Environmental Services. Enterprise-wide implantation of GIS would allow this data to be shared and available to the necessary departments. This data could be combined with information such as live traffic data, live camera feeds, and data from multiple sources to obtain a comprehensive view of a situation. The Police Department should continue to review what data layers are available through an ongoing education effort. This will be one of the focus areas for the enterprise-wide GIS effort.



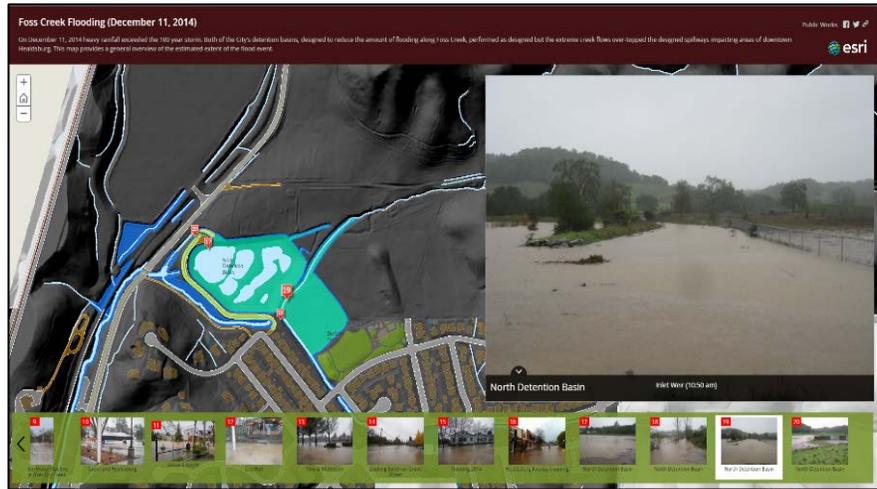
GIS Accessing Pre-Plans and Hazardous Materials Information



GIS NEED

Public Access to GIS Data

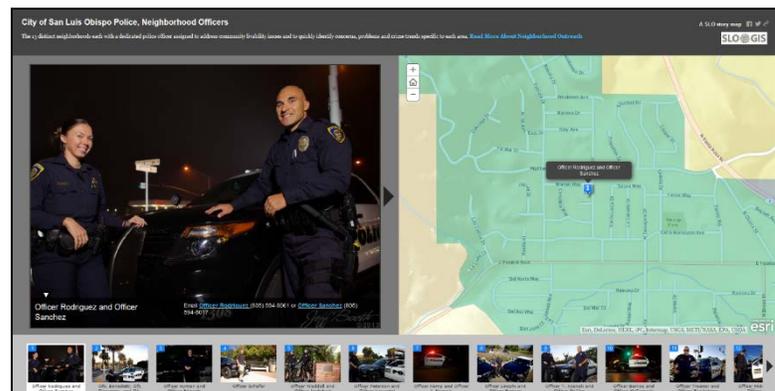
As mentioned earlier in this needs assessment, the Police Department is already sharing crime data on the web via the public access pin mapping application CrimeView. This provides the citizens with salient crime information by geographic location. Esri's technology called Story Maps would add additional value to



Story Map Highlighting Flooding Event

the department on both sides Police and Emergency Services. On the policing side, Story Maps would be a tremendous tool to utilize to promote outreach programs and partnerships such as neighborhood watch areas. Emergency Services could utilize Story Maps after an event to highlight emergency preparations, track the emergency event, and highlight recovery efforts. Public facing applications of interest for the Police Department include:

- Living document that shows key elements of the hazard mitigation plan
- Meet the officer story map
- Emergency Operations Story Map showing critical facilities and emergency game plan
- Neighborhood watch districts story map
- Post disaster story map
- Liaison Officer Story Map – showing each area, the officers, and activities



Meet the Officer Story Map

3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

The Crime Analyst will be creating data sets for analysis purposes. However, the department will consist mostly of Tier 3 GIS users who are interested in using GIS data layers for browsing, basic spatial analysis, and mobile applications. The Police Department will benefit from access to other GIS data base layers as well as department-specific layers. It is expected that once all departmental data is integrated, consolidated, and centrally stored, the Police Department staff will have access to all non-classified GIS data layers from other City departments.

LEGEND

The following legend describes the data layer table below:

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was or is anticipated being created.
Recommended Update Division or Individual	This field outlines the division or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City's GIS.
Recommended/Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the City. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

Police Department personnel expressed that access to the following GIS data layers would be beneficial.

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Police Department Requested Data			
Arrests and Citations	Extract, cleanse and automatically map from RMS.	Automated from Versadex	Existing but needs to be automated
Aside Bank Trigger Locations	Tracked in a database then geo-enabled	Police Record	Desired
Calls for Service	Extract, cleanse and automatically map from dispatch databases.	Automated from Versadex	Recommended
Camera Feeds	Tied by unique number to a GIS layer and viewable within applications	DOT, Dashboards, Private Feeds	Desired
CCTV Data	Tied by unique number to a GIS layer and viewable within applications	Police in conjunction with GIS Staff and Public Works	Recommended
CERT Team Members Personnel Data	Tracked in a database then geo-enabled	Emergency Services Records	Desired
Code Enforcement Locations	Extracted from Accela Code Enforcement software	Community Services	Desired
Crime Data	Extract, cleanse and automatically map from RMS	Automated from Versadex	Existing but needs to be automated
Critical Businesses	Tracked in a database then geo-enabled	Emergency Services Records	Desired
DEMS Database	Extract from Accela permitting software and geo-enabled	Community Services, Environmental Services and Police in conjunction with GIS Staff	Desired
Drug-free zones around schools and churches	Buffer appropriate properties.	Police in conjunction with GIS Staff	Recommended
Encampment Trash Layers	Collected using a mobile application	Police and Community Services	Desired
Evacuation Routes	Extract from Street Centerline Data	Emergency Services in conjunction with GIS Staff	Recommended
Gated Neighborhoods	Tracked in a database then geo-enabled	Automated	Desired
Hazardous Materials Locations	Tracked in a database then geo-enabled	GIS Staff, Public Works records	Recommended
Homeless Encampments	Tracked in a database then geo-enabled	Automated from DEMS Database	Desired
Liquor Licenses / Bars	Geocoded	State of California and Business License Data	Recommended
Mutual Aid Areas	Scanned from	Police in conjunction with GIS Staff and County	Desired
Neighborhood Watch Districts	Digitized On Screen	Police Department in conjunction with GIS Staff	Recommended

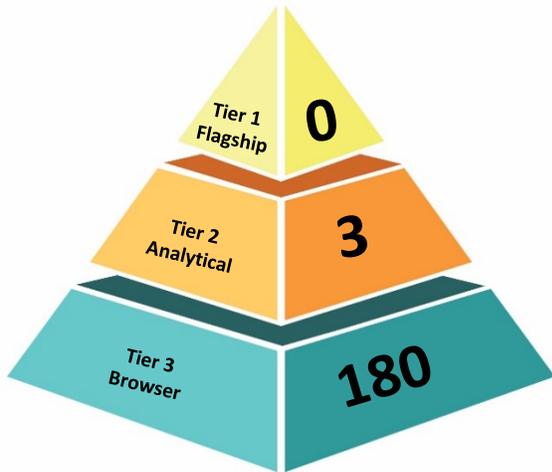
Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Offenders on Parole	Extract, cleanse and automatically map from State and/or County Data.	Automated	Recommended
Offenders on Probation	Extract, cleanse and automatically map from City, County, and/or State Data.	Automated	Recommended
Parking Violations	Extract, cleanse and automatically map from RMS.	Automated from Versadex	Recommended
Policing Beats and Response Zones	Digitize on screen	Police in conjunction with GIS staff	Existing
Pre Plan Data (Buildings)	Link Digital and Scanned Drawings	County Fire Department GIS Staff	Recommended
Railroad Right of Way	Digitized on screen	Parcel data, Ventura County	Desired
Sex Offenders	From State	Automated	Recommended
Shelters	Tracked in a database then geo-enabled	Emergency Services Records	Desired
Social Media	Automatically linked via software	Automated	Recommended
Special Needs Residents	Extract and map from Versadex CAD/RMS data.	Automated	Recommended
Standing Plans	Tracked in a database then geo-enabled	Automated from?	Desired
Traffic Accidents	Extract, cleanse, geocode, and map from database	Police	Existing
Utility Systems and Billing	As-builts and GPS collections, automated from billing applications	Public Works and Administrative Services	Partial
Ventura County Flood Control Areas	County Database	Community Services	Desired
Volunteering Locations	Tracked in a database then geo-enabled	Emergency Services Records	Desired
Warrants	Extract, cleanse and automatically map from RMS.	Automated	Recommended
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS	Regional CIRGIS Initiative	Existing

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
	initiative. Have aerials from 2001, 03, 05, 07, 10, and 13		
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Staff.	GIS Team	Existing
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The pyramid and table below outlines the anticipated “Tiers of GIS Use” within the department. All are color coded by the level of desired GIS application use. As defined in the Tiers of GIS Users table, a Tier 1 user is a Flagship GIS user who has access to a fully functioning GIS toolset and is considered professional GIS personnel. A Tier 2 users is considered an advanced GIS user who is a data custodian. A Tier 3 Analytical user focuses on data analysis, in addition to general browsing capabilities. The Police department will consist of mostly of Tier 3 Users.



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for the Police Department:

RETURN ON INVESTMENT OPPORTUNITY POLICE DEPARTMENT	
OPPORTUNITY	EXPLANATION
Increase <u>Productivity</u>	Internal Executive Information System: Staff can quickly visualize and analyze the location of crime in the city. Decisions can be made quickly in roll call. Detectives have information in one place that was impossible or very time consuming to compile previously. Enhanced management capabilities will assist Emergency Services staff during emergency events.

RETURN ON INVESTMENT OPPORTUNITY POLICE DEPARTMENT	
OPPORTUNITY	EXPLANATION
<u>Save Time, Lives and Property</u>	<p>Mobile GIS Data Browser and AVL: Can prevent life threatening situations where officers locations are unknown during an emergency situation</p> <p>Will reduce time required to locate pre-plans in the field. Particularly important in instances where potential safety hazards may not be readily visible</p> <p>Better 911 mapping, Mobile GIS Data Browser and AVL: Officers will be able to arrive at an incident more quickly, thus potentially saving lives.</p> <p>Officers will have access to information about previous criminal activity, allowing them to be more aware of life threatening situations</p> <p>Internal Executive Information System: Staff can quickly visualize and analyze the location of crime in the city. The appropriate resources can then be deployed to mitigate the problems.</p>
<u>Protecting the Community</u>	<p>Better capacity to prepare and manage emergency events Staff can predict emergency situations more comprehensively, allowing them to be better prepared in the event of an emergency.</p>
<u>Better Decisions</u>	<p>Optimal Response Area Analysis: Will allow public safety resources to respond more quickly to calls for service and may result in saved lives and less crime.</p> <p>Emergency Services staff will be able to better calculate and analyze the department’s abilities to respond to any particular emergency incident.</p>
<u>Better Public Relations</u>	<p>Internet Viewer: The public has access to selected incidents. This allows them to be more informed and improves relations. Also, the story maps will relay critical information.</p> <p>Story Maps: Gives the department the ability to highlight efforts of emergency staff before, during, and after an emergency.</p>

NEEDS ASSESSMENT

PUBLIC WORKS



CITY OF SIMI VALLEY
CALIFORNIA
GIS ASSESSMENT AND REVITALIZATION PLAN

SECTION OUTLINE

1. EXISTING CONDITIONS

 Department Overview

 Governance of GIS

 Hardware and Software

2. GIS NEEDS ASSESSMENT

 GIS Needs

3. GIS GAP ANALYSIS

 GIS Data Layer Inventory

4. MULTI-TIER GIS APPLICATION USE

5. DEPARTMENTAL RETURN ON INVESTMENT (ROI)

1 EXISTING CONDITIONS



DEPARTMENT OVERVIEW

As outlined on the City's website, the Department of Public Works has an array of responsibilities, with the mission of providing efficient services. The Department also assures the appropriate construction and maintenance of the infrastructure in Simi Valley in the most economical way possible.

Public Works is comprised of seven divisions: Administration, Waterworks, Sanitation, Environmental Compliance, Maintenance Services, Engineering Services, and Development Services. Together, these seven divisions employ over 200 staff.

- The Administration Division is responsible for the general administrative coordination and support among all Public Works divisions, the City Manager's Office, and all other City departments. The Department also prepares staff reports for City Council action; is responsible for budget preparation and control; acts as liaison between the community and Public Works divisions; and is responsible for personnel, payroll, purchasing, and other support services.
- Waterworks is responsible for delivering high-quality, reliable, and cost effective water service to homes and businesses in the District service area including most of Simi Valley. They have approximately 26,000 meters, and read meters twice a week through six cycles in two separate routes. They also handle customer service questions regarding water service.
- Sanitation is responsible for collection of and treatment of wastewater. The Division also oversees the maintenance and improvement of the sanitation system and infrastructure. Sanitation treats waste water and collections and maintain 375 miles of pipe, 13,000 manholes, and 3 lift stations.
- Environmental Compliance consists of Pretreatment, Stormwater, Hazardous Materials and Household Hazardous Waste, and Water Conservation. The division contracts out the cleaning of storm drain catch basins. Environmental Compliance also provides a safe place for citizens and businesses can bring hazardous materials to be disposed. Environmental Compliance also inspects city businesses to ensure they are in compliance with the requirements of the pretreatment and stormwater programs as well as investigating complaints of illegal dumping and water waste.
- City Engineering provides design and construction services for the City's public infrastructure, and assures the proper construction of these facilities. They also are responsible for traffic engineering, and provide traffic engineering services for all traffic programs, capital improvement projects, land development projects, and administers the lighting maintenance functions
- Maintenance consists of several divisions including Street Maintenance, Traffic Maintenance, Vehicle Maintenance, Landscape Maintenance, and is also responsible for the City's Graffiti Abatement Program. They are responsible for maintaining all trees and landscape inside city right-of-ways, but do contract out some maintenance work.
- The Development Services Division is responsible for capital projects management and ensuring accommodations for all potential growth in Simi Valley. They are responsible for final review of all proposed development projects. They handle grading, drainage mapping, and all pre plans for developers throughout a construction project.

Interviews of Public Works staff were conducted on-site in January of 2017. Interviewees included staff from: GIS, Development Services, Floodplain Management, Water, Sanitation, Streets, Traffic, Capital Projects, Environmental Compliance, and Building Maintenance.



GOVERNANCE OF GIS

The complexity and costs of maintaining the vast amounts of infrastructure which Public Works manages (public streets, right-of-ways, sanitation lines, etc.) has greatly increased the demand for geographic information systems (GIS). Public Works maintains and supports the physical infrastructure essential to social and economic development, which is indispensable to community commerce, and industry, while also protecting the City's natural resources. After years of being in various departments including IT, GIS was moved to Public Works. One major reason for the move is the sheer volume of GIS needs of the department. Historically, there have been a number of full-time GIS positions. Today, one person, a GIS Manager, is tasked with maintaining enterprise GIS for the City. However, there are others who support the GIS effort and maintain GIS data. Specifically, within Public Works an Engineering Technician uses ArcGIS to edit and maintain GIS layers and a Support Systems Manager uses ArcMap for Map Production. These employees are responsible for creating maps and maintaining a majority of GIS data for the Department as well as the entire City.

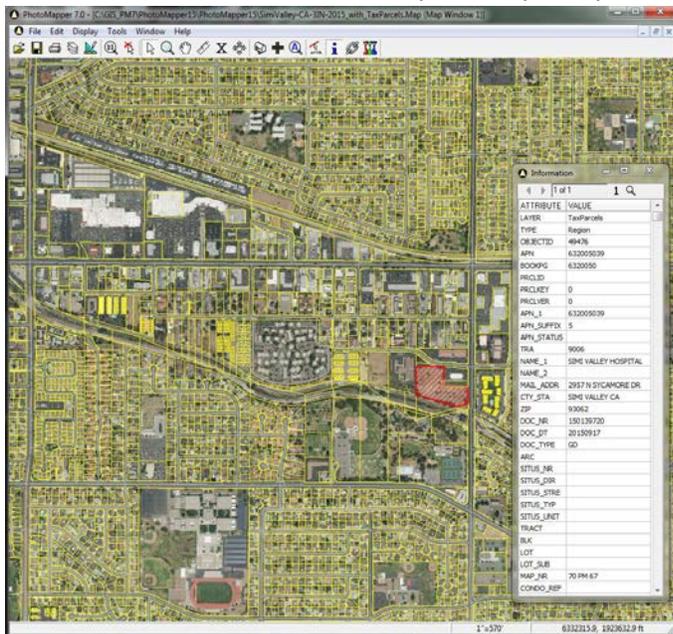


Map identifying properties in the flood plain created by Simi Valley Staff

Each of the major Public Works layers have been mapped to various levels of completeness and accuracy. The water layer is one of the more complete layers. The sanitary sewer GIS layers are improving over time but are incomplete and have errors. Hansen is used as the primary software for asset management and work order processing. Water staff use Spatial Wave to manage their assets and to view and manage data in the field. Water has eight users of Spatial Wave who use the software extensively. The GIS Manager

but to a much lesser extent. They use the application primarily as a data viewer. Sewer videos are captured using cameras and the data is managed in GraniteXP software. The videos have been tied to GIS. The Senior Engineering Technician creates the map books for all sewer vehicles. Data from field crews is relayed back to office staff and entered into the GIS as received. This is mostly accomplished on paper or verbally. Water keeps submitted changes in electronic format via red-lining (through Spatial Wave). These red-lined documents are then entered into GIS as time permits by the Engineering Technician. Each of the systems reside in a geometric network which was originally based on the Esri Local Government Information Model.

Public Works has a sign inventory layer that was created by a consultant and has good attribute data regarding the signs. City Staff update the data when replacing and repairing signs. Traffic accident and collision data is received from the Police Department. A pavement survey is maintained in Street Saver software. Minor streets are surveyed every five years and major streets are surveyed every two years.

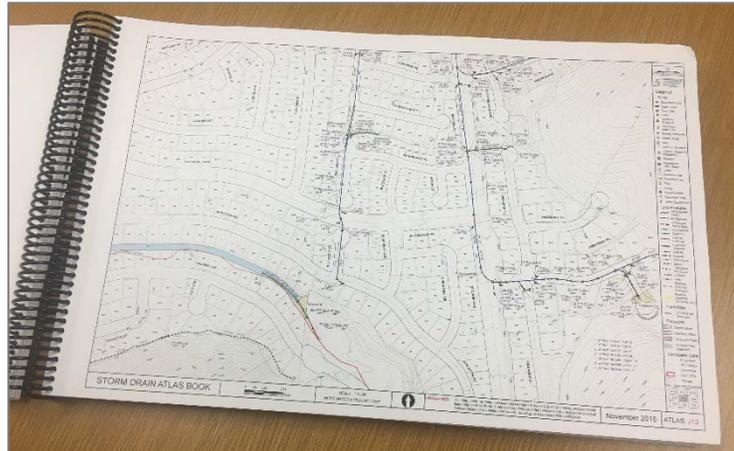


PhotoMapper software used for property searches and visualization

Street maintenance is highly reactive with 90% of the work generated from public concerns and 10% from City staff. The calls coming from citizens are not being entered into any work order software but are being maintained in Microsoft Access. Customer Service uses GIS daily. Photomapper software is used to locate properties and for visualization. Work orders are printed off from Access for employees to fix, then once completed, the file is updated in Access. No work order data is being viewed within GIS.

The Flood Plain Manager uses GIS extensively. He has developed a number of maps and datasets for flood plain management purposes. Digital flood insurance maps (DFIRMs) are available in the GIS. The City participates in the FEMA Community Rating System (CRS) for which GIS is key. A layer has been created of existing policies as they relate to flood plain management. Various years of aerial photography are referenced by the Flood Plain Manager.

Additionally, the Flood Plain Manager has asset management responsibilities. A detailed storm drain atlas is maintained by the City and referenced for by the Flood Plain Manager. He maintains a list of storm drain components (150+) that are managed including detention basins and treatment devices. This is currently tracked in Microsoft Excel and should be moved to GIS.



Storm Drain Atlas Detail

Environmental Compliance uses the storm drain atlas for reference. Additionally, staff use ArcMap to view and analyze GIS data, mainly for locational purposes. The following table identifies the current usage of GIS within the Public Works department.

The City also has recently acquired LiDAR data available. LiDAR was collected in 2005 and 2016, and provides Public Works with a more comprehensive view of the topography than aerial photography can provide.

Current GIS Staffing				
Type	Number of Users	GIS Usage	Primary Tools	
	GIS Flagship (Tier 1)	3	Medium	ArcGIS for Desktop ArcGIS Server
	GIS Analytical (Tier 2)	2	Medium	ArcGIS for Desktop
	GIS Browser (Tier 3)	35	Medium	GIS Data Browser such as Photo Mapper



HARDWARE AND SOFTWARE

Any hardware issues that were discussed during this Needs Assessment are summarized in the table below. Enterprise-wide issues will be discussed in greater detail throughout later chapters of this Needs Assessment and GIS Strategic Implementation Plan.

Hardware Issues Summary	
Type	Notes
Personal Computers	All office staff have access to a PC
AVL/GPS	Yes. GPS is used for data collection. Ashtech used with GlobalMapper
Plotters	Available
Tablets/Laptops	Water and Sanitation Vehicles have laptops in vehicles

Public Works currently, or plans to, utilize the following software applications:

- MS Office - office productivity
- Google Earth – visualization
- Global Mapper – mapping with GPS
- ArcGIS – data creation, viewing, and maintenance
- AutoCAD and Civil 3D – engineering software utilized for infrastructure projects
- Granite XP – CCTV maintenance and software
- Infor Hansen – work order systems
- Photomapper – give the ability to tie photos to locations
- Tyler Munis – going to EnerGov for work orders; currently utilized for time sheets
- Street Saver – condition rating pavement management
- Facility Dude – vehicle maintenance
- Spatial Wave (online view only) – water line management, viewing, and red-lining in the field
- ArborPro – management of street trees
- SAP – billing
- H2ONet – water modelling

2

GIS NEEDS ASSESSMENT



While GIS is currently used for specific tasks such as sign maintenance and managing storm drains, a more comprehensive implementation of GIS would allow Public Works to expand their GIS capabilities in order to enhance productivity and functionality. The Department of Public Works has several distinct needs related to GIS. In addition to in-house benefits, enhancing Simi Valley’s GIS capacity would benefit the public and many of the local contractors the City hires to conduct work.

Through the in-person and online interviews, the following concerns were identified by Public Works staff:

1. The primary need is a more comprehensive Computerized Maintenance Management System (CMMS) and work order system.
2. Vehicle tracking and perform route optimizations for enhanced efficiency in the field
3. Develop/Enhance/Update GIS layers (e.g. flood plain, traffic infrastructure, drainage, hydrology, complaints, parking, topography, sanitary, etc.)
4. Mobile GIS opportunities
5. Data sharing between various departments and divisions

6. GIS integration of EnerGov work order information
7. Method to share information with the public regarding projects
8. Capability for the public to provide input

The table below highlights the identified needs and provides solutions for each. Where applicable, each need will be followed by an application or method recommended to meet that need. Some applications/methods will meet several needs. A method or application is only described under one need, if it applies to multiple needs refer to the previous need for a description.

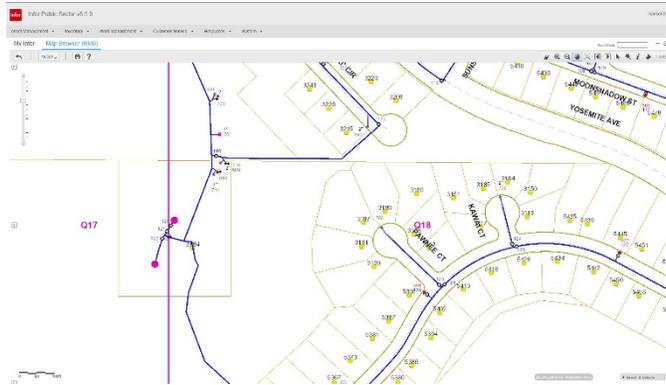
GIS Need	Method/Application to Meet Need
Work Order Management, Mapping and Spatial Analysis in Support of Public Works Operations	<ul style="list-style-type: none"> • Work Order Management System • Desktop GIS • Intranet GIS Browser • Web AppBuilder
Data Creation, Management, Mapping and Enabling Existing Databases	<ul style="list-style-type: none"> • ArcGIS • Intranet GIS Browser • Data Mining and Geo-enabled data
Department-wide Access to GIS Data	<ul style="list-style-type: none"> • Intranet GIS Browser
Advanced Analytical Tools	<ul style="list-style-type: none"> • Spatial Analyst Extension
Capital Project Management and Presentation to the Public	<ul style="list-style-type: none"> • Intranet GIS Browser • Story Maps
Access to Spatially Enabled As-Builts, CAD Drawings, and Documents - Linking Digital Documents to GIS	<ul style="list-style-type: none"> • Desktop GIS • Intranet GIS Browser
Field Access to Geospatial Data	<ul style="list-style-type: none"> • Mobile Laptops/Tablets • ArcGIS Online
Executive Dashboard	<ul style="list-style-type: none"> • Operation Dashboard
Expand Public Access to Geospatial Information	<ul style="list-style-type: none"> • Internet GIS Browser • Story Maps • Citizen Problem Reporter
AVL	<ul style="list-style-type: none"> • AVL • Intranet Dashboard • Network Analyst Extension
GIS Training for Departmental Staff	<ul style="list-style-type: none"> • ArcGIS Training • Third Party Application Training



GIS NEED

Work Order Management, Mapping and Spatial Analysis in Support of Public Works Operations

The primary and most pressing need for Public Works is a work order management system and a computerized maintenance management system (CMMS). Today there is a multitude of processes and software for initiating, capturing, and monitoring work orders and assets. Software from Hansen was procured years ago for this purpose. However, it has been implemented to varying capacities for the various infrastructure systems at the City.



Hansen used by Simi Valley

Water uses it the most but admittedly not to its capacity. Other Public Works divisions use it sporadically or not at all. Spatial View is used primarily by Water to view assets in the field and to provide red-lining so that GIS data can be augmented. Sanitation’s work order management is largely paper driven or through verbal communications. Some divisions track work orders and assets via paper, in Excel, or in other systems. The result is a hodge-podge of systems and methods. This results in inefficiencies and data not being captured consistently within GIS. Work orders are not viewed in GIS and therefore repair and maintenance is mainly reactive and not proactive.

GIS, aerial photography, asset locations, property information, and address information, when used together, can assist in analyzing and updating various City owned infrastructure, viewing water quality areas, work orders, assets, and City-owned facilities. GIS reduces the time needed for map production, revisions, and information storage while allowing for the combination of data “layers” and the timely analysis of spatial variables. Staff should be utilizing GIS technology to accomplish analytical tasks as follows:

- Asset management (e.g. locational, inspection information)
- Mapping collection of hazardous materials as well as compliance with California Trash Policy

- Work order mapping and planning through EnerGov
- Track history of citizen concerns/complaints
- Link as-builts and other documents to infrastructure and parcel layer
- Mapping of all traffic signals, sidewalks, trees, street lights
- Traffic Collision Analysis
- Mapping of all capital projects past and future
- Ability to coordinate work schedules with other departments and make public aware of projects

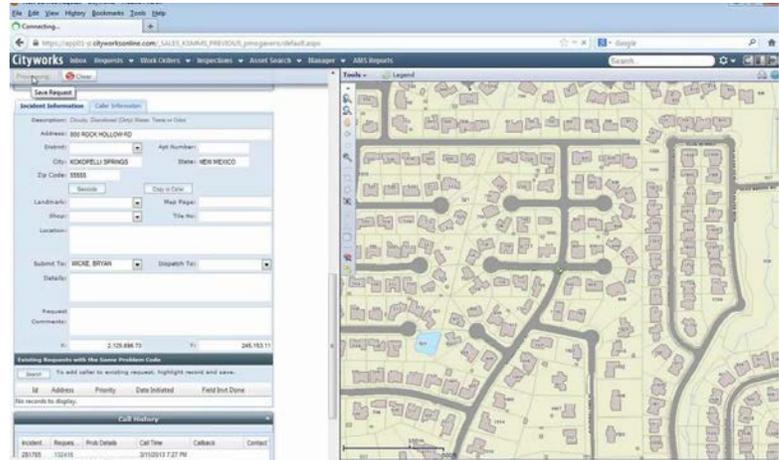
The City should consider acquiring an asset management system that accomplishes asset and work order management. The City has invested in Hansen software. Hansen has been acquired by Infor and for the most part has not been adopted fully by the City and Public Works. The City should consider a next generation system. For this to be accomplished, the City should consider a study to identify everything that should be included in a CMMS to include workflows and data. This could then be used to create an RFP. Asset management programs can be defined as managing infrastructure capital assets to minimize the total cost of owning, operating, and maintaining assets at acceptable levels of service. Enterprise Asset Management (EAM) encompasses the entire organization and recognizes the interdependencies of maintenance, operations, asset performance, personnel productivity, life cycle costs, and capital planning. Each municipality, public works, and utility has the responsibility to provide sustainable services to their citizens while maintaining their assets in a cost effective manner. The following are key reasons to consider a new asset management system:

- An effective CMMS will improve asset utilization, extending asset life and performance while reducing capital costs and asset-related operating costs.
- Because assets occupy a location, maps have always been a desirable method to catalog an organization's assets. As every organization knows, assets are interconnected and in proximity with other assets and features, even if the location is not fixed. Modern "mapping systems" like ArcGIS are able to provide far more than graphical representations of data. The ArcGIS geodatabase is a database system with all the typical data assessment tools to categorize, classify, diagram, index, order, schematize, sort, and tabulate. In addition, it can render data as maps, analyze interconnectivity, proximity, and other complex spatial relationships; and model the physical world. The geodatabase as an advanced database structure is inherently location-aware, providing far more power for managing assets than traditional non-location-aware database

systems, including the ability for three-dimensional modeling. This is obvious for dispersed and networked assets (roads, signs, trees, water and wastewater networks, etc.). The ability to build an asset registry based on feature locations with multiple levels of related objects assures all of an organization's assets are maintained in one asset data management repository, easily accessible enterprise-wide.

- Over time, nearly all municipalities, public works, and utilities tend to become more GIS-centric in their thinking and approach. How much GIS functionality they employ, how it evolves, and how authentically GIS-centric their organization becomes is influenced by how they view their GIS.
- As organizations accept that assets are central to their business purpose, realize the importance of knowing location, and recognize ArcGIS as a superior tool for creating an inventory of assets, they readily view ArcGIS as more than a mapping system. They recognize the powerful geodatabase is the best and only needed asset data management repository, and they recognize the benefits ArcGIS provides to optimize their maintenance and operations. The ArcGIS advanced data structure and analytical functionality proves critical for asset management and other needs. Their goal is to move more and more from short-term reactive work to longer-term life-cycle asset management. The logical and cost-effective conclusion is to use the geodatabase as the asset data management repository and to leverage their investment in GIS for asset management. ArcGIS becomes a mission critical and authoritative system and the organization becomes GIS-centric.
- Because water, wastewater, solid waste, and storm drain utilities are some of the most capital-intensive assets to manage, the EPA, AWWA, and WEF have advocated the need to implement an effective EAM plan. An asset management system includes two critical components: 1) a Computerized Maintenance Management System (CMMS) focused on maintenance and rehabilitation work orders, and 2) inspection and monitoring of assets with regular periodic condition assessments of selected assets. The asset management focus is to maintain a desired level of service at the lowest life cycle cost.
- Organizations can use maintenance history assessment, visual inspection, monitoring, and condition assessment to determine and gain insights regarding the level of asset deterioration to assess likelihood of asset failure. Generally, the cost to assess likelihood of asset failure increases from CMMS maintenance history inspection (clustering, frequency, and costs analysis of unplanned maintenance) and visual inspection (routine maintenance, SCADA interface, etc.), to non-destructive and destructive condition assessment.

- The consequence of asset failure (or criticality) can be determined using subjective-based criteria such as usage (e.g., hospital) or determined by using GIS and other analytical tools (e.g., a water main servicing a large area without redundancy or located under major transportation routes) to rate the overall impact of the failure based on the impacts to local government, customers, and the community.



An Asset Management System like CityWorks should be considered for Simi Valley

GIS-centric AMS is a cost-effective approach that helps decision makers balance risk and cost. Risk takes into consideration the likelihood and consequence of the asset failing. In fact, many assets are low-risk assets. The asset management system should be GIS centric and mesh with the City’s existing GIS. The leader in this field is CityWorks from Azteca although other systems exist (Hansen and Cartegraph).

If a new CMMS system is not acquired, there are still numerous ways to improve Public Works operations. Desktop GIS applications, using mobile GIS data browsers (ArcGIS Online), Public Works can provide field crews or contractors with maps of facilities, streets, sidewalks, street lights, aerial photographs, and any pertinent assets. This will provide field crews with quick access to information that is needed to do routine maintenance, inspection, repairs and other field work.

Although eliminating the use of all paper and PDF maps is unrealistic, having digital GIS layers available through these tools can greatly reduce their use and will keep users apprised of changes more quickly. This will inevitably lead to better data and decision making with reduced labor and file management.

In addition to online GIS data browsers, Desktop GIS can be used as a tool to provide more advanced capabilities for users who will perform map production and spatial analysis. As previously mentioned, ArcMap is used by staff to generate some PDFs of maps for field work. However, data viewing and basic map production would be better served through a robust intranet browser. However, ArcGIS is needed

for more sophisticated analysis. The information in the existing GIS layers can be viewed with desktop GIS to perform network routing, proximity analysis, and cartographically complex maps.



GIS NEED

Data Creation, Management, Mapping and Enabling Existing Databases

The majority of Public Works' tasks have a geographic component. Staff and citizens need to be able to visualize and understand the dispersion of assets within the City. To that end, a number of data layers have been created in conjunction with the base map layers. These include but are not limited to:

- Hydrology
- Elevation
- Water System (95% complete)
- Sanitary Sewer System (Partial)
- Water Service Area
- Utilities Grid
- Trash Pick Up Days
- Trees (ArborPro)
- Storm Drain

However, staff pointed out that they desire some additional data. The following are key data sets that will need to be created/updated for Public Works:

- Current Topography
- Home Owners Association
- Service location bins & carts (solid waste)
- Refuse Materials Collected
- Hazardous Materials Locations
- Work Order integration
- Sidewalk Inventory
- Graffiti Locations
- Drainage

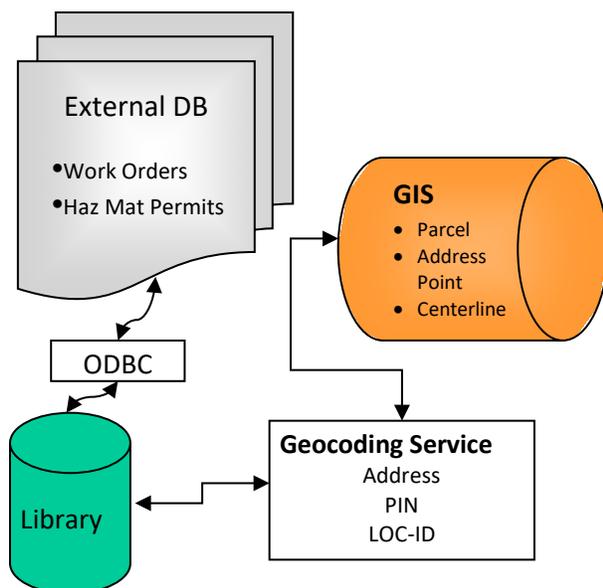
- Several data sets that would be obtained from Ventura County, (ADA Handicapped facilities, SOCAL Gas, Edison Electric)
- Among others

Mapping and spatial analyses will enable Public Works to improve in many facets such as management, operations, administration, and maintenance of the department’s infrastructure. Mapping data such as work orders, service request, capital projects, hazardous material permits, pavement ratings, etc. can often reveal patterns and relationships that would otherwise go unnoticed. Geo-enabling this type of data offers a host of analysis applications to provide solutions to problems that affect Simi Valley.

A large amount of valuable data for Public Works resides in existing databases (Access, Street Saver, Granite XP) and could be mapped out with the assistance of an Intranet GIS Data Browser. In order for this process to be automated and spatially enabled, these databases need to be linked to a GIS Data Browser for maximum use of both systems. Also, Public Works needs access to other departments’ and organizations’ data such as the Police Department’s traffic collision data. A configuration specific to Public Works will allow staff to easily and quickly review vital information.

Any database with associated addresses can be address-matched to a street centerline layer, tax parcel centroids, or address point layer. This data can be geo-enabled through an automated geocoding service that creates GIS data layers from non-spatial relational databases. The results of a successful geo-coding effort will be stored in an industry standard relational database management system (SQL Server, Oracle, etc.).

The automated process is based completely on standard SQL statements and is customized to utilize a variety of stored location-based data (Parcel PIN, Address, Location-ID, etc.). A second function of the automated service is to generate GIS layers in an industry standard portable format (SDE layers) that could be utilized by a variety of applications. These GIS layers will be created to user specifications. X, Y coordinates will be utilized to display features in a GIS layer. The geocoding service can generate and export the resulting GIS

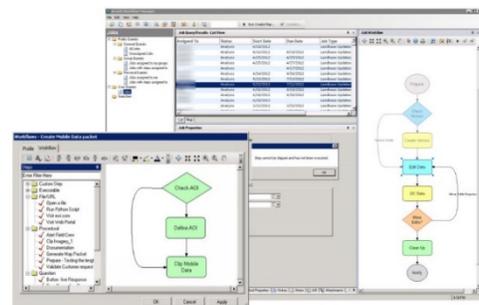


layer on a regularly scheduled basis. The graphic at left shows the process of using a geocoding service to extract data.

Development and management goes beyond the creation of GIS layers. Many considerations must be made as to data capture, structure, maintenance, integration, reporting, visualization, and analysis. Several solutions exist to assist Public Works with these areas.

As seen above, sometimes enabling existing databases involves geocoding or making linkages to data based on address or coordinates. However, there are other instances when more tightly designed integrations with transactional business systems are required.

Capturing accurate data (both location and attributes) is vital to any successful GIS implementation. Through ArcGIS Solutions there are a number of applications available. One of which is Collector for ArcGIS, which provides tools for viewing maps, collecting and updating data, getting driving directions, and tracking and reporting areas visited. The ability to collect and update data is a critical component for Public Works. There exist differing opinions as to the completeness and accuracy of the data. By putting tools in the hands of field staff, data discrepancies and needed updates to the GIS can be captured at the source and seamlessly uploaded to the database (see Field Access section below). Collector operates through ArcGIS Online and with the newest release allows the ability for working offline. Collector is designed to work with iPhone and Android smartphones, but can also be used on tablets running iOS or Android. Collector is a simple way to expedite a mobile GIS solution that allows users from across the organization to have the power of GIS in their hands.



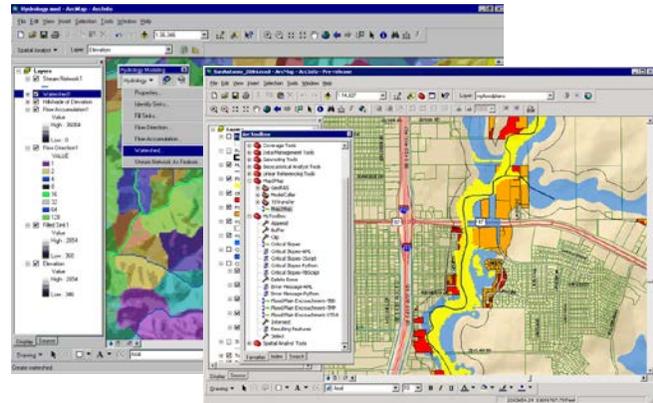
GIS NEED

Department-Wide Access to Geospatial Data

Providing users with the ability to view spatial data in a quick and intuitive manner is important for local governments and is critical within the enterprise. Utilization of Web AppBuilder would allow Public Works

extend their capabilities as needed. ArcGIS Spatial Analyst provides a range of spatial modeling and analysis tools. ArcGIS Spatial Analyst could allow Simi Valley to:

- Identify areas prone to hazards such as fire, liquefaction, or flood zones.
- Hydrology modeling
- Analyze transportation corridors in relation to infrastructure needs and development
- Map pollution levels overlaid with residential zones or other sensitive receptors.
- Conduct risk assessments.



GIS NEED

Tracking and Coordination of Capital Improvement Projects

Another essential role of Public Works is the management of capital public infrastructure projects. GIS could be used to provide staff with background information related to projects as well as include graphics to assist staff. Currently, staff relies on multiple sources of information to track and manage capital projects. The development of a capital projects layer would allow staff to track historical, current, and future information related to capital projects, reducing possible redundancy and duplication of work. This ability to track capital project information would ensure better coordination and efficiency in capital project resource allocation.

Esri has provided a set of tools that can assist Public Works with this need. By downloading, installing, and configuring the Capital Improvement Planning (CIP) Solution, Public Works will have access to editing workflows, geoprocessing tools, and data layers to maintain their CIP. The following graphic identifies proposed Bus Stops and Pre-Fab Shelters in Simi Valley.



GIS NEED

Access to Spatially Enabled As-Builts, CAD Drawings, and Documents - Linking Digital Documents to GIS

Any digital document can be linked to its associated feature on the earth's surface. Many of the documents, such as building plans can be stored and reviewed by Public Works can be linked to spatial data features, thereby creating the potential to utilize GIS as a look up tool for these documents. Linking documents to GIS features can be performed by creating hyperlink fields in the GIS data, creating data tables containing links to documents or by linking to a document management system. Establishing links between digital documents and spatial data will reduce time spent locating documents in map drawers, managing historical drawings, and inefficiencies caused by viewing paper documents. It can also become a gateway to offer print on demand services.

The process of establishing GIS to document links has four general phases:

Identifying Candidate Documents

The process of identifying candidate documents requires analysis of existing data and performing deterministic analysis on the document's content for its relevancy to the department's spatial data and its business procedures. Documents must have some spatial element to them in order to have a logical link (i.e. address, street name, tie in point, etc.)

Scanning and Attributing Documents

The process of scanning and attributing documents consists of creating digital copies of paper maps. The process can result in a variety of digital document formats ranging from simple images to images that indexed using Optical Character Recognition (OCR). During this phase the document and the elements that can be used to locate the document are captured and stored.

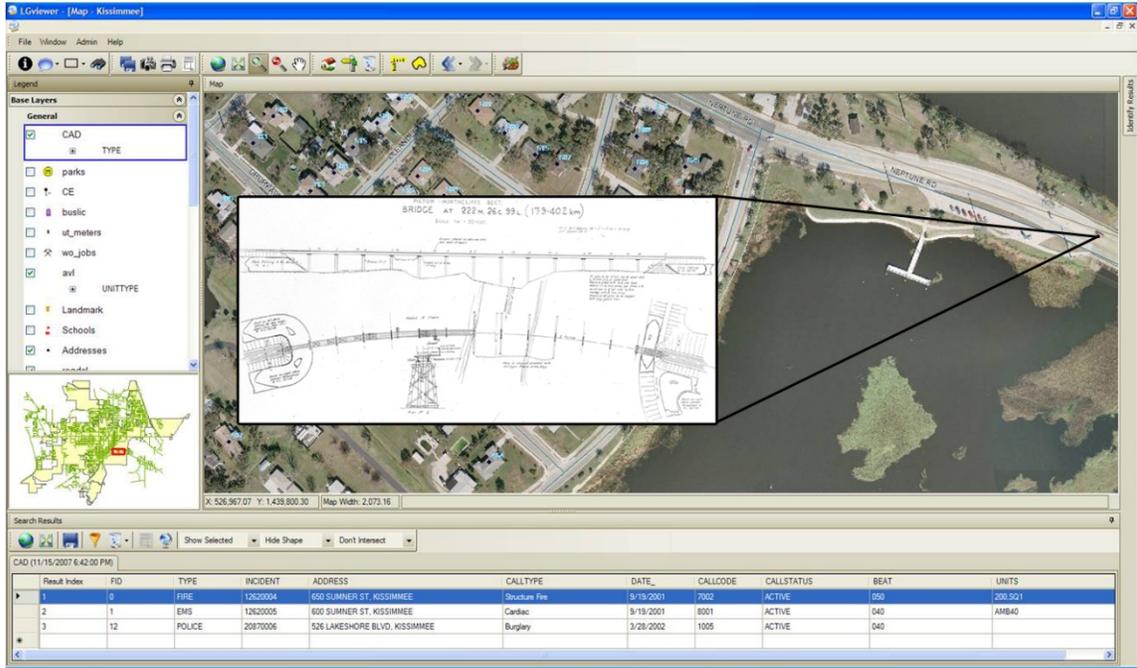
Geo-referencing and Spatial Indexing

The geo-referencing and spatial indexing step of the process involves the physical linking of the drawing to spatial data or to bounding coordinates. Through geo-referencing, the documents can be viewed against actual spatial data in the map. Spatial indexing is creating a physical link between the document and a geographic feature. During this phase, the method of presenting documents is determined and created.

Process Documenting and Metadata

The final phase of the linking procedure is to document the digitization and spatial referencing processes. Metadata should be created during this phase that outlines the digitization process, source data and creation date. Documenting the procedure in this manner allows for users to view and understand the history and development of the data being viewed.

Establishing the link between the GIS and digital documents can be accomplished by storing the data on shared file storage, in a database or within a document management system. Public Works will realize more efficient retrieval of spatially related documents, permanent document storage and easier dissemination of the data held within these linked documents. Public Works has already linked a number of as-builts and should continue for all as-builts as they are finalized.



Establishing a Geographic Link for Scanned Documents of Project Plans



GIS NEED

Field Access to Geospatial Data

Currently, Public Works uses Spatial Wave and map books for viewing GIS data in the field. Public Works can benefit from expanding mobile GIS capabilities, which can be done by providing users with mobile tablets, GIS software and/or ArcGIS Online access. Providing personnel with access to maps and GIS data while working in the field is an important part of maintaining an enterprise GIS. Through the use of hardware, software, and data that are designed to be explored and manipulated away from the office, staff can realize benefits of GIS while away from their workstations. Some staff already have mobile technology in their vehicles. Public Works needs to take full advantage of this opportunity and enhance their mobile strategy by fully implementing ArcGIS Online and utilizing the many tools available through ArcGIS Solutions. Implementing mobile computers, software and GIS data into the GIS enterprise will give staff tools to perform address searches; query attributes of all information, such as infrastructure features, inspection/permit data, work orders, obtain driving directions, as well as view links to digital plans and drawings.



Many opportunities exist for Public Works to take advantage of technology to improve usage and access to GIS data in the field. By combining mobile laptops and/or tablets with a GIS data browser/Apps, Public Works can provide field personnel with tools that would allow complete their daily tasks with higher efficiency and effectiveness. As mentioned before, putting tools in the hands of field staff, allows data discrepancies and needed updates to the GIS to be captured at the source and seamlessly uploaded to the database. Many municipalities throughout the country are utilizing mobile laptops/tablets in conjunction with a mobile data browser to view, update, and log changes to existing infrastructure. An added benefit is that updates to GIS data can be made available to the enterprise quickly.

A mobile data browser provides field personnel with all relevant layers, including base map layers and aerial photography. The laptops/tablets should be set-up to synchronize wirelessly with the City's network as much as possible using mobile networking capability, however, working offline is also supported. Data

can be provided to mobile computers by replicating data, or extracting updated data from the enterprise geodatabase when mobile networking is not available or is not plausible. Simi Valley could employ ArcGIS Online and/or Portal as their intranet, internet, and mobile solution. One benefit of using ArcGIS Online is the ability to harness pre-developed applications and maps. ArcGIS Online could also be utilized for field mobility including data collection. Since ArcGIS Online is an integral part of the ArcGIS system, organizations can use it to extend the capabilities of ArcGIS for Desktop, ArcGIS for Server and other ArcGIS based applications.



Pavement Marking Inventory

Public Works should also consider utilizing the Collector application from Esri. Collector for ArcGIS should be used to improve the efficiency of field staff with the goal of improving the accuracy of the City's GIS. Instead of taking paper maps into the field to mark data irregularities, an application such as the Field Markup Tool through the Collector App would allow field crews to record and correct discrepancies in GIS data. This allows the organization from field to back office to focus on data cleanup and validation in a more efficient manner. The Collector App works on iOS or Android devices and is used to collect and update information in the field, whether connected or disconnected.

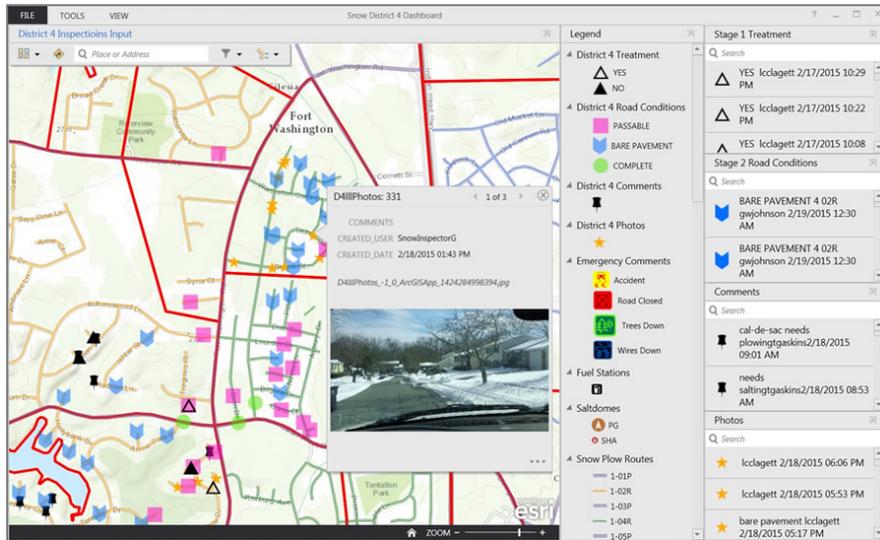


GIS NEED

Operations Dashboard

Another tool that would benefit Simi Valley Public Works and decision-making is the Esri Executive Dashboard application. Organizations use Operations Dashboards to monitor various key metrics. For example, departments are using dashboards to monitor traffic accidents and track hydrology, among others. An Operations Dashboard would allow Simi Valley to adhere to the California Trash Policy and monitor high trash areas, equipment, materials removed, etc. It is recommended that Public Works in conjunction with the GIS staff develop an Executive Dashboard for managerial and other applicable staff. This involves a process of deciding what should be viewed and then mining the data using the

forementioned backend data mining toolset. The result is a live look at key metrics via user selected widgets and an interactive map.

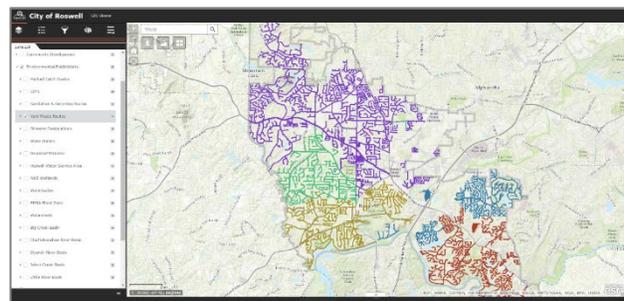


An Example of a Public Works Operation Dashboard

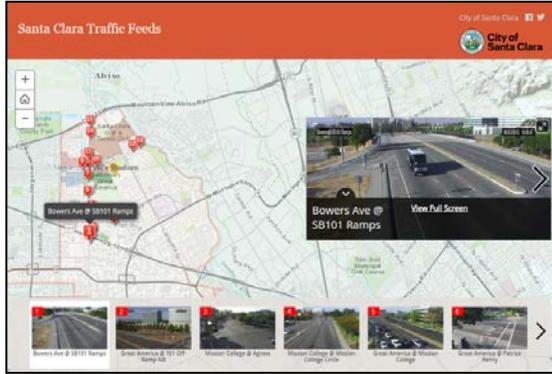
GIS NEED

Expand Public Access to Geospatial Information

Providing public access to GIS maps through the Internet provides information to Simi Valley citizens. The City should provide residents with a variety of dynamic, interactive maps to provide them with information. These maps may include capital projects, pavement projects, road closures, and many others. Through dynamic web maps and apps, the data specific to Public Works can be provided to the public through intuitive and easy to use interfaces.



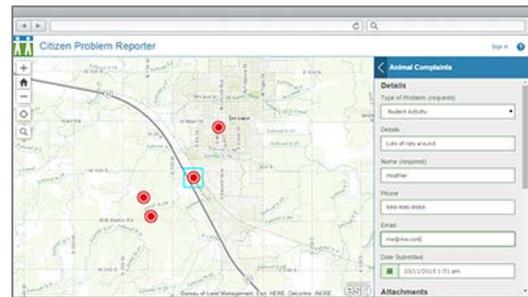
Internet Map displaying Yard Waste Pickup Day



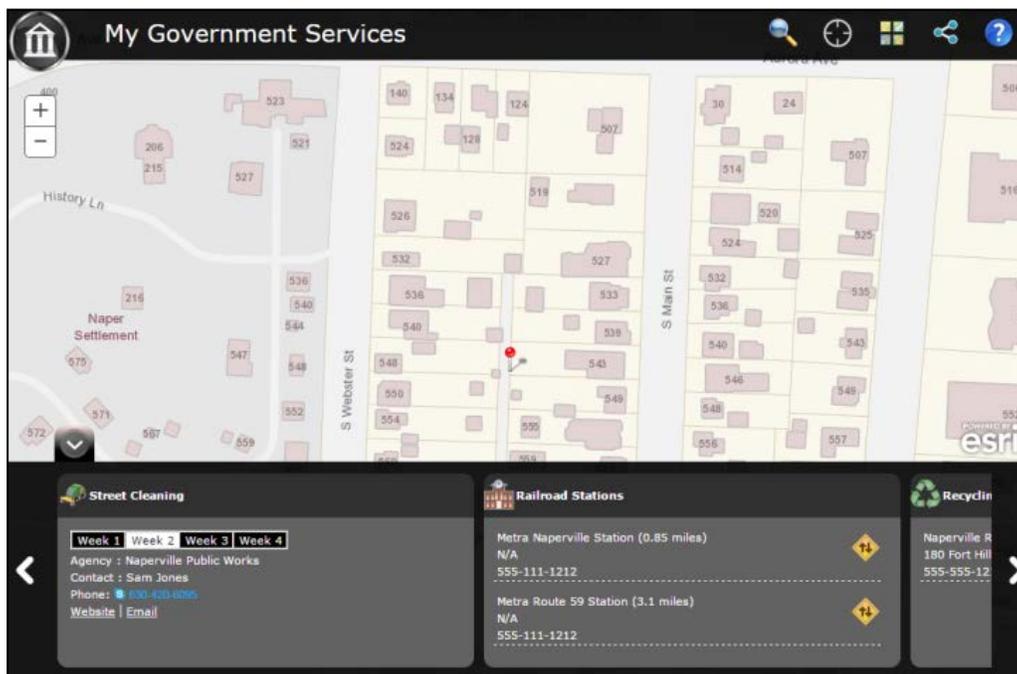
Providing maps of projects with important information to citizens and business can enhance communication efforts. Story Maps is an Esri application designed to allow users to find information in a very intuitive and user friendly fashion. Story Maps are targeted and are designed to be easy-to-use. The goal of a Story Maps is to present key data sets to the public without the need for training and to be able to get to pertinent data within

a few clicks. Public Works would benefit from offering Story Maps on their web-site and could easily enhance communication concerning Capital Improvement Plans, street closures and others by providing the information visually through Story Maps.

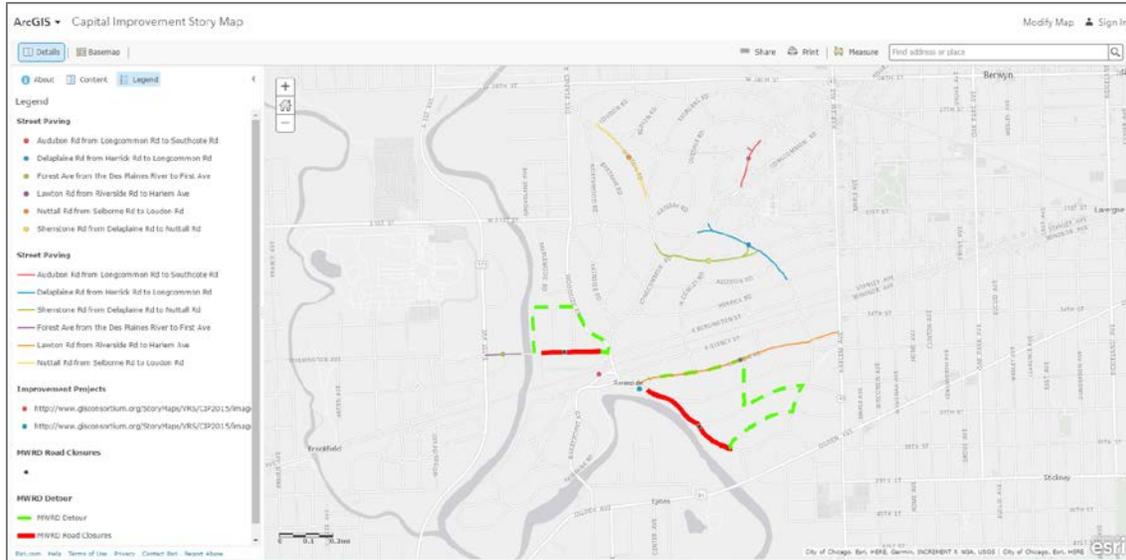
Staff also mentioned the need to enable the public to submit requests for services or to report problems in the field. One application that would assist with this is the Esri Citizen Problem Reporter. It provides the public with the capability to report and submit non-emergency problems such as potholes or graffiti.



Citizen Problem Reporter



Esri's My Government Services allows citizens to understand what services are provided

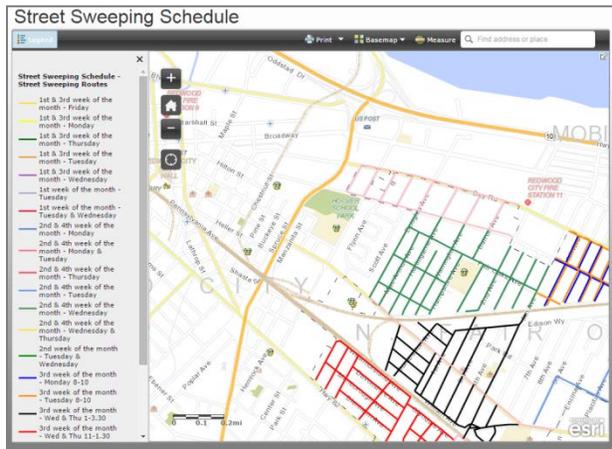


Capital Improvement Projects Shared with the Public

GIS NEED

AVL

Public Works would benefit from implementing an AVL system that tracks current and historical location data of vehicles. For example, Public Works recently had a vehicle stolen, and was unable to locate it. By overlaying AVL data with routing information, Public Works can quickly identify where drivers are deviating from the planned routes as well as identify possible gaps in the transportation data that might not get reported back to the office (e.g. new streets). This type of checks and balances can greatly improve overall operations and can even help customer service since dispatchers can know where crews have already been working. These benefits can easily be achieved by using Esri's GeoEvent Processor to combine AVL with enterprise GIS. AVL, through Esri's Network Analyst can also provide staff with efficient routing saving



time and money while increasing productivity. The City would need a subscription to the Esri Network Analyst Extension (which the City does not currently have).



GIS NEED

Formal GIS Training for Staff

As Public Works Staff begin performing more advanced GIS analysis and mapping, they should participate continually in foundational and advanced GIS skills training. Public Works staff should participate in any enterprise-wide ArcGIS training that is made available. Various divisions expressed their desire to utilize GIS more extensively. Tools the City already has access to, such as Esri's ArcGIS Spatial Analyst, can conduct some of the tasks the Department hopes to complete. Training on this application and other tools recommended such as the Network Analyst Extension should be provided on utilizing GIS for analysis and data maintenance.

3

GIS GAP ANALYSIS



GIS DATA LAYER INVENTORY

The Department of Public Works will benefit from access to almost all data layers created and obtained for the municipality. It is expected that once all departmental data is integrated, consolidated, and centrally stored, that staff will have access to all non-classified GIS data layers from other municipal

departments. Some of the existing data in Public Works has not been kept up-to-date. Esri’s Data Reviewer should be used to assess the status of each layer. The following is a list of desired layers for Public Works:

Legend

Data Layer	The data layer is the GIS thematic data that is being described. The name of the layer or description of the layer is placed in this column.
Creation Methodology	This column describes how the layer was, or is anticipated being created.
Recommended Update Division/ Department	This field outlines the Department or individual that is anticipated to maintain or develop the data layer during and after full implementation of the Citywide enterprise GIS. Development of new recommended layers will be prioritized for each year of the Strategic Implementation Plan.
Layer Status	Layer state of existence.
Existing	These layers currently exist within the City’s GIS.
Recommended/ Desired	These layers are recommended for development or procurement, based on departmental and enterprise needs. These data layers will help support existing business procedures or will compliment other GIS data sets that are already existing and in use by the City. Costs associated for these recommended layers will be based on general estimates – actual cost may vary.
Partial	These layers currently exist in an incomplete or outdated state.

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Department of Public Works GIS Data			
Building Footprints	Capture from Aerial Photography	Environmental Services/Public Works	Partial
Catch Basins	Digitize From As-Builts and other Source Documents	Public Works	Existing
CIP Locations	On-Screen Digitization	Public Works	Desired
Crosswalk	Digitize	Public Works	Partial
Facilities	Digitize	Public Works	Partial
Fire Hydrants	Existing Database/Field Collection	Public Works	Recommended
Flood Plain Mapping	Via FEMA shape file	Public Works	Existing

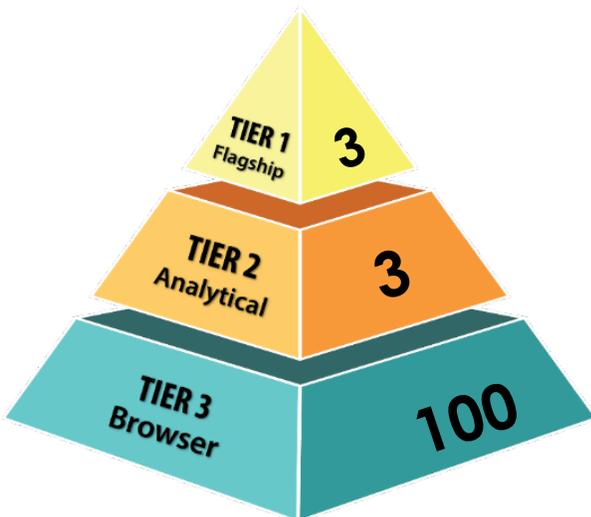
Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Graffiti	Field Collection	Public Works	Desired
Hazardous Materials	Tracked in a database and Geo-enabled	Public Works	Desired
High Trash Areas	Field Collection	Public Works	Desired
Homeowners Associations	Tracked in a database and Geo-enabled	Public Works	Partial
Hydrology	Aerial Flyovers	GIS Team	Existing
Irrigable Land	Digitize	Public Works	Desired
Known Septic Systems in the City	GPS collection in the field/ Public Works documents	Public Works	Recommended
LiDAR	Collected from 3 rd Party Source in 2005, 2016	Public Works	Existing
Parking Lots	Digitize	Public Works	Partial
Pavement Condition	Link with Street Saver Software	Public Works	Desired
Pavement Markings	GPS collection in the field and documentation	Public Works	Existing
Right-of-Way	Digitize	Public Works	Existing
Service Requests from EnerGov	EnerGov mapping viewer	Public Works	Desired
Sidewalks	Digitize	Public Works	Desired
Storm Water System	Digitize From As-Builts and other Source Documents	Public Works	Existing
Street and Traffic Signs	GPS collection in the field	Public Works	Partial
Street Lights	Digitized or provided by consultants	Public Works	Existing
Topography	Flyovers	GIS Team	Desired
Traffic Data	Integrate from traffic count data	Public Works	Partial
Traffic Signals	GPS collection in the field	Public Works	Partial
Trash Equipment	Field Collection	Public Works	Desired
Waste Water Collection System	Digitize From As-Builts and other Source Documents	Public Works	Existing
Water Distribution System	Digitize From As-Builts and other Source Documents	Public Works	Existing

Data Layer	Creation Methodology	Recommended Update Division or Individual	Existing or Recommended?
Work Orders	Can be viewed in EnerGov’s mapping viewer	Public Works	Desired
Citywide Base Data			
Parcels	Digitized from paper maps and plats by a consultant in the 1990s. Parcel lines updated internally using source documents. A quarterly update of assessment data is linked to the parcels via PIN	GIS Team	Existing
Aerial Photography	Color orthophotography derived from a fly-over. Multiple years. Part of CIRGIS initiative. Have aerials from 2001, 03, 05, 07, 10, and 13	Regional CIRGIS Initiative	Existing
Road Centerlines	Derived from aerial photography. Originally acquired from the Fire Department. Has been modified and enhanced by City GIS Staff.	GIS Team	Existing
City Limits	Digitized from source documents	GIS Team and Environmental Services	Existing
Water Bodies	USGS – ponds, lakes and streams from national dataset. Received from the County years ago	GIS Team	Existing
Address Points	Was compiled as part of a Police Department Project 13 years ago. Points at every entrance. Main address for condos	GIS Team	Existing

4

MULTI-TIER GIS APPLICATION USE

The graphic below depicts the recommended GIS application use by the Department of Public Works. The pyramid and table outlines the “Tiers of GIS Use” within the organization. All are color coded by the anticipated GIS application use. As defined in the Tiers of GIS Users table, a Tier 1 user is a Flagship GIS user who has access to a fully functioning GIS toolset. These will primarily be the GIS Team. A Tier 2 Analytical user focuses on data analysis, in addition to general browsing capabilities. A Tier 3 Browser user requires only general browsing GIS data functions.



TIERS OF GIS USERS	
GROUP	ACTIVITY
Tier 1 Flagship	<ul style="list-style-type: none"> • GIS Administration • Data Maintenance • Data Conversion and Creation • Spatial Data Management • Technical Support • Coordination
Tier 2 Analytical	<ul style="list-style-type: none"> • Data Maintenance • Analytical Functions/Geoprocessing • Complex Queries • Modeling • Use of Desktop Extensions • High Quality Map Production
Tier 3 Browser	<ul style="list-style-type: none"> • Browsing/Look-Up • Standard Reports • Simple Query • Map Production

5

DEPARTMENTAL RETURN ON INVESTMENT (ROI)

The following table indicates specific Return on Investment opportunities for the Department of Public Works:

Return on Investment Opportunity Department of Public Works	
OPPORTUNITY	EXPLANATION
Save <u>Time</u>	<p>Decrease in time spent on tasks come from better automated map/route production, data updates/maintenance, and data access. Access to departmental data (spatial and non-spatial)</p> <p>Process and tools for timely and standardized map/feature updates.</p> <p>Automated tools to capture field data and update assets</p> <p>Route planning tools</p> <p>Enterprise data access via browser based viewing tools</p> <p>Optimize work order assignment by location</p>

**Return on Investment Opportunity
Department of Public Works**

OPPORTUNITY	EXPLANATION
	<p>Locate infrastructure in the field</p> <p>Target areas to perform work and services.</p> <p>Become more responsive to citizen requests</p> <p>Quicker location of infrastructure</p> <p>Determine the needs of the field crews (quantities and types) in the office before going out into the field</p> <p>The review of planning applications with readily available /easily accessible data saving 100s of hours per year</p> <p>Field access to data will reduce trips to the office for data saving 100s of hours per year</p> <p>Reduce the need to utilize paper maps in the field</p>
Increase <u>Productivity</u>	<p>Intranet GIS Data Browser and Spatial Analysis: Use GIS to assist in production of maps and reports that are submitted to State and Federal agencies</p> <p>The use of GIS analysis, for locating record drawings, or calculating flow direction, and identifying problem areas, is much faster than completing the tasks manually.</p>
Save <u>Money</u>	<p>Intranet GIS Data Browser and Spatial Analysis: Data can be queried quickly, reducing time spent looking up records manually</p> <p>Can find areas of high demand and adjust practices accordingly</p> <p>Providing electronic copies of maps to customers reduces the printing costs of the department.</p>

Return on Investment Opportunity Department of Public Works	
OPPORTUNITY	EXPLANATION
Improved <u>Efficiency</u>	<p>Desktop GIS: GIS can assist in tracking inventory of pavement markings and signage making staff more efficient in finding assets and replacing them as needed</p> <p>Mobile GIS: Providing field personnel with laptops reduces the time spent in the office preparing for assignments. It may reduce their downtime as they wait for record drawings to be located.</p> <p>Quicker location of infrastructure</p>
<u>Compliance with Regulatory Requirements</u>	<p>GIS is utilized to ensure compliance with required reports and laws, such as the California Trash Policy.</p> <p>Mapping of the various data in conjunction with work orders will allow the Department Public Works to better respond to field needs</p>
<u>Ability to Respond More Quickly to Citizen Requests / Improved Access to Government</u>	<p>Providing electronic maps to outside consultants allows the users to quickly fulfill requests through e-mail, without having the engineer visit the department.</p> <p>Maps with accurate spatial locations of infrastructure would enable the users to respond more quickly to emergencies and citizen requests.</p>
<u>Effective Management of Assets and Resources and Save Money</u>	<p>Asset management systems tied into GIS will allow Public Works to identify problematic areas based on the age of the system, the number of service calls to an area, or the repair history.</p> <p>Optimize work order assignment by location</p> <p>Target areas to perform work and services.</p> <p>Become more responsive to citizen requests Economize routine maintenance and scheduling based on spatial location.</p> <p>Reduce labor costs by reducing field time - for looking up data and drawings within the GIS</p> <p>React more quickly to issues with roads and associated features</p>

Return on Investment Opportunity Department of Public Works	
OPPORTUNITY	EXPLANATION
Save <u>Lives</u>	Engineers can monitor accident and collision data and determine hotspots where traffic updates need to be performed



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