



GIS for Regional Initiatives

Lassen County Transportation Commission | CA

Geographic Information System Services



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Executive Summary

GIS for Regional Initiatives Goals and Objectives

An important component of the Lassen County Transportation Commission's (LCTC) GIS Needs Assessment and Implementation was the evaluation, assessment, and examination of how the LCTC and regional stakeholders can leverage and benefit from a Regional GIS initiative. A Lassen County-based regional GIS framework model could play a significant role in future success including working relationships within the region, digital data sharing, project coordination, formal legal agreements, collaboration, regional consortiums, multi-agency initiatives, intergovernmental cooperative, regional software solutions, open data, and future opportunities for GIS resource sharing.

The following 12 regional GIS framework model goals and objectives establish a vision for regionality through which regional organizations and agencies can collaboratively grow and evolve regional GIS initiatives.

Regional Framework Goals and Objectives

1. Assessment of current regional GIS initiatives
2. Identify geospatial needs, priorities, and constraints of the County, City, and Susanville Indian Rancheria, and LCTC
3. Stakeholder outreach with relevant agency departments and external partners
4. Identify data sharing opportunities
5. Identify a strategy for improving regional business processes using geospatial technology while maximizing the benefit and value of GIS Technology
6. Ensure data is made more accessible to regional communities and general public
7. Provide current, up-to-date data to regional stakeholders, communities, and general public
8. Increase collaboration efforts with external agencies and organizations



Key Factors for Success in Regional GIS Initiatives

Research indicates that regional GIS initiatives throughout the United States have overarching challenges to success, including lack of awareness of participating organizations about regional service offerings, the changing landscape of the capabilities of participating organizations, issues related to data management, data duplication, and data quality, the funding of the regional effort, the workload of the lead staff, turnover of staff and succession planning, as well as the upkeep and modernization of technology and systems architecture. There always seems to be a distinct lack of training, education, and knowledge transfer in regional GIS initiatives as well, and a failure to realign service delivery based on innovation, needs, and technology. All these findings will need to be continuously addressed by Lassen County and the Lassen County Transportation Commission.

Regional GIS Framework Model: 10 Key Factors for Success

Evidence suggests that the success of any regional GIS framework model strategy will depend on 10 key factors, including:

1. Funding – secure initial and ongoing funding
2. People and Governance – the value of people and relationships
3. Politics – the importance of sound regional politics
4. Data – standards, accurate, reliable, open, and well-maintained digital data
5. Needs – understanding the needs of the participating agencies
6. Participation – the importance of active participation
7. Communication – monthly meetings and consensus building
8. Benefits – documenting tangible benefits of the regional GIS framework model strategy
9. Interoperability – integration of enterprise applications
10. Technology Ecosystem – leading-edge versus bleeding-edge technology

This document serves as a guide to help the Lassen County region, its partners, commissions, and agencies plan, design, and implement an effective regional GIS model. The following chapters outline:



- ◆ The Importance of Regional GIS
- ◆ The Importance of a Regional GIS Framework Model
- ◆ A Review and Assessment of 35 Regional GIS Framework Models
- ◆ Considerations, Goals, and Objectives for a Successful Regional GIS Framework Model for Lassen County



Section A: Overview

Introduction

Local governments and agencies face challenges that are not always defined by jurisdictional boundaries. Public safety, emergency operations, hazard mitigation, the environment, including air quality and clean water, telecommunications, transit and transportation, social services, public health, parks and recreation, social equity, and economic development do not have political boundaries. They are regional in nature.

Geographic Information Systems (GIS) is one of the few technologies that extends into all areas of government operations and is agnostic to any geography. Today's conventional wisdom is that a significant part of local government operations should be examined, defined, and analyzed in a regional context. This means regional cooperation, collaboration, and coordination between towns, cities, counties, and other interested parties.

Planning, designing, building, and maintaining a regional GIS framework model that offers geospatial services and solutions to a consortium of regional participants makes sense for local government. By pooling resources, organizing the collective knowledge base, centralizing open data, and working together on regional projects, local governments can effectively and efficiently achieve more for the communities they serve. Regional collaborations, regional data centers, regional resources, and regional initiatives are a critical part of today's government landscape. It is for this reason we see regional planning agencies, regional transportation agencies, and regional GIS data centers, as well as regional GIS framework models of all sizes and complexities and all levels of success.

The challenging questions for any local government or agency are: *What form should a regional initiative take now and in the future? Who should the lead agency be? Who should participate? How should it be governed? How will it be funded? How will it function in terms of software, technology, data, and support services? Most importantly, what should a modern, state-of-the-art, regional GIS framework model look like? Should social unrest, the demands for social accountability, COVID-19 pandemic impacts, and other social dynamics influence how we structure regional GIS models today?*



Study Objectives

The objective of this assessment is three-fold.

- ◆ **Firstly**, we need to understand why regionalization of GIS is important to Lassen County, The Susanville Indian Rancheria, The City of Susanville, and the Lassen County Transportation Commission, and why it should be considered a part of the County's vision for the future.
- ◆ **Secondly**, we need to document the critical components that make up a successful regional GIS framework model.
- ◆ **Thirdly**, we need to develop strategic considerations and recommendations for Lassen County to implement an effective regional GIS framework model or a blueprint for the modernization of Lassen County's regional GIS initiative.

The successful outcome of this assessment will depend on consensus and buy-in from key decision-makers within the Lassen County Region. Facts, observations, ideas, and assumptions have come from many sources, including the experience of the GTG team with over 250 Local Government GIS Strategic Plans, a detailed assessment of comparable organizations, the development of a Regional GIS Strategic Plan for Lane County Multi-Agency Regional GIS, and extensive work with Louisville-Jefferson County Information Consortium. The 2015 Report on the National Survey of Multi-Organizational GIS Programs also offered strong insights into regional GIS framework models.

Nomenclature

There are many terms used to define regional GIS initiatives throughout the United States, including Multi-Jurisdictional Cooperative Partnership Agreements, Intergovernmental Cooperation Models, Interagency Cooperation Models, Regional GIS Consortia, Enterprise GIS Consortia, Multi-Jurisdictional GIS, and Multi-Agency GIS. For this evaluation and assessment, we will use the term 'Regional GIS Framework Model' to cover all regional initiatives discussed.

The Regionalization of GIS

The first objective is to understand why regionalization of GIS is important to the Lassen County Region and why it should be considered a part of the Region's vision for the future.



The Lassen County regional partners are looking for ways to build a safe, healthy, and resilient community. The evidence indicates that a regional approach to GIS and geospatial technology can lead to a more productive, transparent, and collaborative organization. A regional GIS framework model tends to offer a broad range of benefits to all participating organizations, including but not limited to the following benefits:

- ◆ Reduced redundancy in data and data maintenance
- ◆ Meaningful project collaboration
 - ◆ Public Safety
 - ◆ Emergency Operations
 - ◆ Hazard Mitigation
 - ◆ Environment and Natural Resources
 - ◆ Telecommunications
 - ◆ Transit and Transportation
 - ◆ Social Services
 - ◆ Public Health
 - ◆ Parks and Recreation
 - ◆ Social Equity
 - ◆ Economic Development
- ◆ Lower cost of software
- ◆ Development of regional data standards
- ◆ Improved and effective data sharing
- ◆ More public-private partnerships
- ◆ Formalized regional data centers promoting data accuracy and functionality
- ◆ Lower cost of sharing data
- ◆ Cost-sharing for database creation and maintenance
- ◆ More efficient technical and user support
- ◆ Expansion of GIS user community
- ◆ Promotion of other multi-agency initiatives
- ◆ Benefits to small and medium-sized organizations and municipalities
- ◆ Shared resources and expertise



The most documented benefits of a regional GIS framework model are focused on the multi-agency and project-specific outcomes. The following represent examples of government operations that benefit from a regional approach to GIS technology:

Public Safety – Maintaining mission-critical data layers and technology to support public safety agencies is a priority for local government organizations. The evidence is overwhelming that Fire, Police, and EMS benefit from a regional approach to data, databases, and analysis. Often, Public Safety agencies are mandated to assist neighboring agencies and are first responders even outside of their immediate jurisdiction.

Emergency Operations – Geospatial technology has become commonplace for Emergency Operations Centers (EOC). Pre-disaster planning, hazard mitigation, preparedness, response, and recovery are all inherently geospatial and regional in nature. Having a strong central and regional geospatial entity to assist with services and data is mission-critical. Additionally, State and Federal agencies require rapid, detailed, and accurate assessments of damage which are directly tied to financial aid and compensation. Hurricanes and tornadoes, as well as outbreaks of disease, are not confined to geography.

Next Generation E-911 – Core Next Generation 911 services include location validation, routing, and geospatial call routing to the appropriate agency for dispatch. Implementation of a Next Generation 911 data model is regional. Agencies must have uniformity in databases to fully implement and leverage this technology. A regionally coordinated effort is key to success.

Transportation and Transit Operations – Transportation inherently has regional implications. Road networks and various transportation modes are cross-jurisdictional and geospatial in nature. Transportation planning is typically a core service provided by a regional agency, which often prompts transportation agencies to develop regional initiatives.

Natural Resources and the Environment – Environmental concerns require a regional perspective. Watersheds and basins almost always cross multiple jurisdictions. Modeling pollutants, the effects of climate change, and many other environmental concerns are large-scale issues. Local government agencies share common environmental concerns, and all contribute to the same ecosystem. However, no individual agency has the purview to examine and model environmental concerns regionally. Regions are collaborating to create climate change action plans and environmental plans that need a regional agency to spearhead and administer.

Social Services – Typically, social services are administered at the county level and by a county agency. However, many of the issues surrounding social services could benefit from the expertise of a regional agency. Homelessness, affordable housing, social equity, welfare-to-work, and a host of other initiatives will benefit from a regional geospatial perspective.

Public Health – Public Health issues lend themselves to a regional perspective. Environmental health issues, epidemiology, and a variety of other public health issues all have a strong geographic component. A regional GIS approach offers smart mapping and database solutions, digital information, business-specific applications, analytical decision support tools, and extensive access to local, state, and federal mission-critical and interoperable data.

Parks and Recreation – Park locations and recreational opportunities lend themselves to a regional perspective. Residents and visitors want to see what is available in the region and without searching through an individual agency's website to discover what is available. Therefore, a regional entity is a likely candidate to participate in the regionalization of tools and data to make the user experience more impactful and to effectively promote the region.

Economic Development – Economic Development benefits from a regional effort. Although individual agencies have their own economic development initiatives, a regional economic development geospatial hub has merit. The ability to represent what the entire area has to offer has inherent advantages over representing just one town, city, or county. Typically, location matters when a large company is relocating to an area. The region, as well as costs, workforce, community, and taxes, are important.

Public Engagement and Awareness – Historically, local governments have enjoyed limited success in deploying public-facing applications. Many are too narrow in scope, not user-friendly, and not well designed. The public may get frustrated when portals are duplicative and not regional. Thus, poor resident experience may result when the need arises to refer to multiple agency websites to discover what services are offered throughout a region. A regional agency is often the best conduit to lead a continuity push and ensure that public-facing geospatial services are not duplicative. This enables users to access key information from one coherent site.

Regional Data Center and Collective Knowledge Base – A key benefit of any regional geospatial effort is a central data warehouse that acts as a hub of information for participating agencies. A central warehouse of available data benefits all partner agencies. A



central repository of regional data helps all partner organizations visualize, analyze, and interpret information to better understand complex relationships, spatial patterns, and emerging trends. A regional data hub encourages collaboration and enables data-driven decision-making.

Data Assimilation and Analytics – Regional geospatial analytics has become a key foundation of regional agencies. A residual benefit of having a central data warehouse is being able to easily access this data resource to produce meaningful insights into the problems and challenges facing local government.

Data Collection – In many cases, geospatial data is needed by one organization but will also benefit other organizations in the region. Some of the more obvious and popular regional data collection efforts are remotely sensed data (i.e., vertical and oblique aerial photography, LiDAR), addressing, and road networks. However, most data collection efforts could benefit from a regional perspective. If one agency is collecting or needs a certain dataset, partnering with other agencies in the region might lead to economies of scale and uniformity of the deliverables. A regional agency is often best suited to organize these projects.

Innovation – Progressive regional geospatial efforts focus on collaboration and being an incubator of new ideas and innovation. The old model of the geospatial effort focusing mainly on storing data and databases has been replaced with a central, standardized data repository that is maintained and effectively used by all regional organizations to promote innovation and original thought.

Education and Knowledge Transfer – Education and knowledge transfer is without a doubt the most underserved pillar of geospatial sustainability. Almost every organization in North America touts the desire for more education and training but universally points out that efforts and resources are lacking in that area. Regional entities have identified this weakness and have begun to offer knowledge and education centers for their region.

Opportunities for Economies of Scale – Having a regional geospatial proponent allows for economies of scale. Regional organizations typically offer services whereby they are the agency that oversees technology and data acquisition in a region-wide fashion. For example, the most frequent region-wide data initiative is the acquisition of digital orthophotography and associated datasets. Many regional agencies act as a hub for the region-wide acquisition of all sorts of geospatial products to include data, software, innovation solutions (i.e., drone programs), and hardware.



There is documented evidence to support the importance and value of a regional GIS framework model. **It needs to be understood that the regional effort is bigger than any one organization and that the collective experience and commitment of all key organizations makes the region stronger.** Any organization opting not to participate dilutes the value of the region and potentially endangers the entire initiative. Also, each organization must guard against serving the immediate and sacrificing the bigger picture.

Today, one organization may have a progressive team and believe they do not need all the services provided by the regional entity. They may consider leaving the initiative with the idea that ‘we can do it all ourselves.’ These organizations run the risk of being short-sighted. Inevitably, organizations will have a turnover in staff. This is especially true in the geospatial field as job opportunities are plentiful. Therefore, an organization with a highly qualified geospatial team will not have the same team in five years. This means that some of the regional services may not apply today but may tomorrow. Therefore, each participating agency needs to reflect on the importance of active participation, the positive impact on the region, and the plethora of reasons, described herein, to support a regional model. Without an understanding of the benefits of a regional geospatial presence and an associated buy-in, partner agencies may see limited value and potentially not desire participation.

In addition to maintaining accuracy, improving information access, and minimizing the duplication of efforts associated with multiple regional agencies managing multiple geospatial datasets, a single regional GIS data repository can also serve as a primary resource to track progress and identify gaps through future indicator reports and data-driven analyses.



Section B: Research and Analysis

Regional GIS Framework Models in the US

Most regional GIS framework models in the United States have a specific set of criteria that needs to be in place to guarantee success. This set of criteria will help quantify the level of regionalization and the level of regional services provided by the lead organization. These criteria can be organized into three specific mission-critical components: **(1) Regional Workable Collaborative Partnerships; (2) Software, Technology, and Data Systems; and (3) Shared System Support Services.** The following is a discussion of the key components of regional GIS framework models.

Twenty-six very specific elements need to be considered when planning, designing, implementing, maintaining, as well as evolving a regional GIS framework model. They include understanding the lead agency, participating organizations, regional governance, agreement types, program management, coordination and collaboration, funding, understanding the benefits and value of a regional strategy, challenges and barriers, best management, and technology business practices, as well as issues related to software, technology and data systems and shared system support services.

The following represents a methodology that will allow us to benchmark Lassen County's existing regional GIS framework model against a set of generally accepted standards and performance measures.

Regional GIS Framework Model:

Components and Key Performance Measures (KPI)

Component 1: Workable Collaborative Partnership

Typical Lead Agencies

There are many regional GIS framework models and regional service providers throughout the USA. County agencies in many cases are the lead organization in regional initiatives, followed by a Regional Agency and then municipal government.



Regional GIS Framework Model Lead Agencies

- ◆ County Government
- ◆ Regional Agency
 - ◆ Municipal Government
 - ◆ Public Utility Organization
 - ◆ Universities

Key Tasks

- ◆ Understand Regional Politics
- ◆ Define Type of Regional GIS Framework Model
- ◆ Define Lead Agency
- ◆ Develop Regional GIS Program Mission – Vision, Goals, and Objectives

Participating Organizations

Participating organizations often include County government, municipal government, public and private Utility Companies, Special Service Districts, Regional Agencies, State and Federal Governments, non-profit organizations, universities, and private companies. Participating organizations are an important ingredient in the success of a regional GIS framework model.

Participating Organizations

- ◆ County Government
- ◆ Municipal Government
- ◆ Federal Government
- ◆ Public Utility Organizations
- ◆ Regional Agencies
- ◆ State Government
- ◆ Universities
- ◆ Non-Profit Organizations
- ◆ Private Utility Companies
- ◆ Private Companies
- ◆ Special Service Districts



Key Tasks

- ◆ Define Major Participants and Contributors
- ◆ Define Regional Partner Requirements
- ◆ Define Types of GIS Users
- ◆ Define Level of Participation
- ◆ Define Population Served by the Regional GIS Framework Model

Governance and Oversight

The collaborative bodies that oversee Regional GIS framework models often include one of the following: a Technical Committee, a Policy or Governing Body, a User Group, Steering Committee, Advisory Body, Working Groups, or a Regional GIS Task Force.

Governance and Oversight Alternatives

- ◆ Technical Committees
- ◆ Policy or Governing Body
- ◆ User Group
- ◆ Steering Committee
- ◆ Advisory
- ◆ Working Groups
- ◆ Task Force

Key Tasks

- ◆ Define Regional Governance Structure
- ◆ Define Regional Oversight and Collaborative Bodies
- ◆ Define Regional Collaboration and Cooperation

Formal Agreements

Most regional GIS framework models do have a formal agreement between the participating organizations in the form of written formal policy or agreement that can include data-sharing

agreements, subscription membership, or other legislative mandates. Organizational structure varies significantly from organization to organization.

- ◆ *Example:* Interlocal Agreement Between the City of Susanville and Lassen County Regarding Master Address Repository
- ◆ *Example:* GIS Mutual Non-Disclosure and User Agreement – Fiber Optic Infrastructure

Key Tasks

- ◆ Define Regional Agreements
- ◆ Define Service Level Agreements (SLA)

Program Management

Most regional GIS framework models are supported by a dedicated staff consisting of management, analysts, technicians, software developers, and databases administration. People and relationships are one of the most critical components of a successful regional GIS framework model.

Program Management Staff

- ◆ GIS Manager
- ◆ GIS Analyst
- ◆ GIS Technician
- ◆ GIS Software Developers
- ◆ Database Administrator

Key Tasks

- ◆ Define Regional Staffing Structure
- ◆ Define Job Descriptions

Funding Sources

Funding sources for regional GIS initiatives often come from a specific line item in the lead organization's general fund, part of an individual GIS Department's budget, or established contributions using an agreed-upon formula from the participants of the regional



consortium. Regional GIS initiatives are often assisted by user fees or chargeback services for sales of GIS products and services. This includes the sale of data, maps, software licensing, as well as data maintenance and application development services.

Funding Sources

- ◆ Lead Agency Funding – Line Item in the General Fund
- ◆ Contribution from Participating Organizations
- ◆ User Fees

Key Tasks

- ◆ Define Funding Sources
- ◆ Define Equitable Contributions for Participants

Value, Benefits, and Return on Investment (ROI)

GIS technology offers many benefits to local government organizations, including saving time, improving efficiency, and increasing productivity. A regional GIS framework model tends to offer a different and broad range of benefits to all participating organizations, including but not limited to the following:

Benefits

- ◆ Reduced redundancy in data maintenance
- ◆ Joint project collaboration
- ◆ Lower cost of software
- ◆ Development of regional data standards
- ◆ Improved and effective data sharing
- ◆ More public-private partnerships
- ◆ Lower cost of sharing data
- ◆ Cost-sharing for databases creation and maintenance
- ◆ More efficient technical and user support
- ◆ Expansion of the GIS user community

- ◆ Promotes other multi-agency initiatives
- ◆ Benefits to small and medium-sized organizations and municipalities
- ◆ Shared resources and expertise

Key Tasks

- ◆ Conduct Benefit Realization Planning

Challenges, Obstacles, Barriers, and Pitfalls

The start-up and maturation of regional GIS framework models do have challenges, obstacles, barriers, and pitfalls, which include, but are not limited to:

- ◆ Initial funding
- ◆ Ongoing funding
- ◆ Legal, policy, or political obstacles
- ◆ Loss of control from the lead agency of participating organizations
- ◆ Loss of effective management
- ◆ Use of different software within the consortium
- ◆ Maintaining database standards and database architecture
- ◆ Different need for custom solutions/applications
- ◆ Effective technical support requirements
- ◆ Roles and responsibilities
- ◆ Data update issues
- ◆ Education of stakeholders
- ◆ Training of stakeholders
- ◆ Knowledge transfer to stakeholders
- ◆ Maintaining support
- ◆ Too much reliance on regional staff by participants
- ◆ Finding and retaining qualified regional GIS staff
- ◆ Priorities of individual organizations

Key Task

- ◆ Develop Regional GIS Framework Model Strategic Plan

Best Management Business Practices

The most important best management practices include the involvement of senior management and buy-in, the development of a multi-year GIS strategic plan, competent

staff, user groups, project planning, and formal agreements on data sharing. The following represent key practices for a successful regional GIS framework model:

Best Management Practices

- ◆ Branding of the GIS Regional Framework Model
- ◆ Active Engagement and Support from Senior Management
- ◆ Streeting Committee
- ◆ Multi-year Strategic Plan
 - Vision, Goals, and Objectives
- ◆ Help Desk User Satisfaction Surveys
- ◆ Business Realization Planning
- ◆ Sustained Funding Model through Participants
- ◆ Maintaining Competent GIS staff
- ◆ Tracking Staff Level of Effort
- ◆ Regional Training Plan
- ◆ User Group
- ◆ Team Building Methods
- ◆ Involvement in Professional Organizations
- ◆ Expansion of User Community
- ◆ Expansion of Services
- ◆ Use of Staff options - Part-time, Interns
- ◆ Project Planning
- ◆ Formal Agreements

Key Task

- ◆ Develop and Implement Regional GIS Framework Model Best Business Practices

Component 2: Software, Technology, and Data Systems

Regional Style Architecture

Defining a regional GIS framework style architecture should include state-of-the-art cloud-based architecture and IT technology that will support a consortium style effort.

Key Task

- ◆ Define Regional Architecture for Regional GIS Framework Model

Regional Technology Framework

The components that comprise the regional technology framework are an organized central repository of technology, services, tools, and geospatial data that provide a formal mechanism for maintaining, updating, and distributing geospatial data as it continues to evolve.

Key Task

- ◆ Develop Conceptual Framework for Technology

Regional Data Sharing Strategies

Regional data sharing strategies save time and money by providing current and reliable data direct from multiple government sources in one central location that is available anytime through internet access, whether through the download of raw data or direct access to member agency GIS map services. Applicable state and national standards for data sharing should be referenced to adopt the necessary protocols and policies.

Key Task

- ◆ Define Regional Data Sharing Strategies

Regional Data Standards

A regional GIS initiative should encourage collaborative efforts to create datasets that adhere to up-to-date geospatial technology standards to serve the regional agencies. Standards for content and data, and metadata, must be established through coordination with local government data providers and aligned with state and national standards.

Key Tasks

- ◆ Digital Data Standards
- ◆ Define Metadata Templates

Regional Open Data

To provide universal access to geospatial data and information by, for, and about their respective regions, regional GIS programs rely on partnerships among data creators to provide open data to be shared with data consumers. This information is typically stored and

shared online through browser-based applications, which allows GIS professionals to access raw GIS data and provide opportunities for regional partner agencies, external organizations, and the public to explore the data through live, interactive mapping websites.

Key Task

- ◆ Open Data Strategy

Centralized Regional GIS Services and Solutions

A regionalized governance model is based on shared services and solutions. Regional GIS programs invest in staff and infrastructure to increase GIS capacity and improve mapping services for agencies in the region. Member partners in a regional GIS have access to centralized GIS services and solutions, such as parcel and address mapping, access to an ArcGIS Server and ArcGIS Online platforms for hosted content and apps, creation of online basemaps/imagery, GIS project assistance, and more. This model provides an opportunity for local and regional governments to receive mapping services, support, and products, sometimes for a need-based fee, that they may not otherwise be able to afford.

Key Task

- ◆ Regional GIS Services and Solutions Plan

Regional Workflow, Procedures, Integration, and Interoperability

A workflow that includes regular updates of core data layers — such as addresses, centerlines, parcels, ownership, schools, and zoning — is key to effective collaboration. Protocols for standardization of data establish a state-of-the-art regional GIS program that provides an opportunity for the region to function seamlessly and at the highest level of efficiency. Members of regional GIS programs can take advantage of a central repository to download raw data or access map services to integrate into their systems. Regional views of software-specific data, including permitting, land use, crime, capital improvement projects (CIP), fire incidents, pavement conditions, economic development, and more, will require innovative strategies for integration and interoperability.

Key Task

- ◆ Define Regional Interoperability Opportunities

Regional Technology Partner Interaction

A regional agency, or lead stakeholder agency, may offer technology services and project assistance to provide short-term or on-site technical consulting and support for partner agencies. It may include design, implementation, troubleshooting, and training, with a focus on sharing knowledge and building capacity and technical skills to help partners become self-sufficient.

Key Task

- ◆ Partner Interaction Plan

Regional Software Licensing Models

A collaborative approach to regional GIS software licensing should be explored to identify potential cost savings. Addressing the complexity of software applications across a multi-agency model can be challenging. The number of users and the licensing structure will need to be addressed in the model.

Key Task

- ◆ Regional GIS Software Licensing Model

Regional Software Applications

An optimal Regional GIS provides a suite of web-based applications that allow users to view, query, analyze, and map the region's data and also to print customized reports.

Key Task

- ◆ Deploy Regional GIS Software Applications

Best Technical Business Practices

The deployment of a true regional GIS requires understanding and deploying the correct hardware, networking, software, and operating systems. Best technical business practices for GIS center around data standards, quality assurance, spatial accuracy, information security, network connectivity, and data stewardship.

Best Technical Business Practices

- ◆ Automated Database Update and Maintenance
- ◆ Quality Control
- ◆ Open Access to Data
- ◆ Improved Data Acquisition of Updated Core Data Layers
- ◆ Workflow Documentation
- ◆ Cloud-based IT Infrastructure
- ◆ Cloud-based GIS Applications
- ◆ Cloud-based Services
- ◆ Enterprise Software Licensing Management
- ◆ Expansion of Software Solutions
- ◆ Integration and Interoperability of Database Software Solutions
- ◆ Custom Application Templates
- ◆ IT Technology and Databases Assistance
- ◆ Cyber Security

Key Task

- ◆ Document and Utilize Best Technical Business Practices

Component 3: Shared System Support Services

Regional Shared GIS Technology Support and Service Components

A regional GIS framework model strategy must address the shared technology support components. These components should be documented and detailed. Regional participant organizations need to understand how the regional initiative is being supported by the lead agency, including IT infrastructure, hosting, software licensing, legal agreements, data, and training.

Key Task

- ◆ Define Technology Support Service Components

Regional Training

A regional GIS framework model strategy often includes GIS Training for the participant organizations. Additionally, the Regional GIS framework can pool resources to procure and provide members with formal training courses led by experienced GIS instructors.



Key Task

- ◆ Implement a Regional Training Program

Regional Education

GIS education is less formal than GIS training. Member agencies would receive local expert support from the regional GIS provider's staff through individual and group workshops.

Key Task

- ◆ Implement a Regional Education Plan

Regional Knowledge Transfer

GIS knowledge transfer helps the regional partners succeed by transferring up-to-date GIS knowledge from one organization to another. News blogs, community forums, and online webinars are several formats that can be employed to leverage the wealth of knowledge of the GIS professionals within the Regional GIS Framework.

Key Task

- ◆ Implement a Regional Knowledge Transfer Plan

Coordinated Activities and Services

Organizational coordination is a mission-critical activity of any regional GIS initiative. There are a significant number of activities that are fundamental to the success of a regional GIS model, including but not limited to the following:

- ◆ IT Hosting
- ◆ Management of Servers and Network Infrastructure
- ◆ Software Licensing
- ◆ Data Hosting
- ◆ Data Accessibility
- ◆ Vendor Management
- ◆ Data Standards
- ◆ Coordination of Databases Projects
- ◆ Database Updates
- ◆ Data maintenance and Quality Control
- ◆ Joint Development of Custom Applications

- ◆ Technical Support and Help Desk
- ◆ Training Program and Services
- ◆ Regional GIS Projects

The consensus is that a fundamental role of a regional GIS model includes database administration and the provision of access to data. GIS database development, management, and data upkeep typically focused on parcels, address points, street centerlines, and imagery.

Key Task

- ◆ Develop a Coordinated Activities and Services Plan

Working Regional GIS Framework Models in the United States

The following are 35 regional GIS framework models in operation in the United States. They take on different forms with different goals and objectives, including cooperative GIS programs, shared service programs, and GIS and Land Information Systems Consortia. Some are more successful than others.

1. Allen County, City of Fort Wayne iMap Consortium, Fort Wayne, IN
 - <https://www.acimap.us/>
2. Berkeley County GIS Consortium, Moncks Corner, SC
 - <https://gis.berkeleycountysc.gov/consortium.html>
3. Butte County Association of Governments Regional GIS, Chico, CA
 - <http://www.bcag.org/Planning/GIS/index.html>
4. California GIS Council
 - <http://cgia.org/cagiscouncil/>
 - <https://cgia.org/cgia-collaboration/regional-gis-collaboratives/>
5. Central Upper Peninsula Planning and Development Regional Commission (CUPPAD) GIS, MI
 - <https://www.cuppad.org/what-we-do/mapping-gis/regional-gis-initiative/>

6. Champaign County GIS Consortium (CCGISC), Urbana, IL
 - <https://www.ccgisc.org/>
7. Channel Islands GIS Collaborative (CIRGIS), Santa Barbara, CA
 - <https://cirgis.org/>
8. Chemung County GIS Consortium (CCGC)
 - https://www.chemungcountyny.gov/departments/h_n_departments/information_technology/centralized_gis.php
9. Cheyenne and Laramie County Cooperative GIS Program, WY
 - <http://clcgisc.com/>
10. Chicago Area GIS Consortium GIS Consortium, Des Plaines, IL
 - <https://public.gisconsortium.org/>
11. City of Mississauga, Ontario, Canada
 - <https://www.mississauga.ca/our-organization/data-and-maps/mississauga-maps/>
12. City of Cincinnati /Hamilton County Cincinnati Area Geographic Information System (CAGIS), Cincinnati, OH
 - <https://cagis.hamilton-co.org/>
 - [Cincinnati Area Geographic Information System - ETS \(cincinnati-oh.gov\)](#)
13. DeKalb County City/County GIS (CoCiGIS), Auburn, IN
 - <https://www.cocigis.us/>
14. Franklin County Regional Information System (FRIS), Franklin County, WA
 - <http://franklingis.org/>
15. Georgia Geospatial Information Office (GAGIO), Atlanta, GA
 - <https://gio.ga.gov/>
16. King County King County GIS, Seattle, WA
 - <https://www.kingcounty.gov/services/gis.aspx>
17. Knoxville, Knox County, Knoxville Utilities Board GIS (KGIS), Knoxville TN
 - <https://www.kgis.org/>
18. Land Information of Northern Kentucky GIS (LinkGIS), Fort Mitchell, KY



- <https://linkgis.org/>
- 19.** Lane Council of Governments (LCOG) Regional Land Information Database (RLID), Eugene, OR
 - <https://lcog.org/253/Geographic-Information-Systems-Data-Serv>
- 20.** Louisville/Jefferson County Information Consortium (LOJIC), Louisville, KY
 - <https://www.lojic.org/>
- 21.** McLean County Regional Planning Commission (McGIS), Bloomington, IL
 - <https://www.mcgis.org/>
- 22.** Metro GIS, St Paul, MN
 - <https://www.metrogis.org/>
- 23.** Miami Valley Regional Planning GIS (MVRPC), Dayton, OH
 - <https://www.mvrpc.org/regional-planning/regional-planning-services/regional-geographic-information-system>
- 24.** MidAmerica GIS Consortium (9 states), Lawrence, KS
 - <https://magicgis.org/>
- 25.** Minnesota GIS/LIS Consortium
 - a. [Minnesota GIS/LIS Consortium](#)
- 26.** Muscatine Area Geographic Information Consortium (MAGIC), Muscatine, IA
 - <http://magic-gis.com/magic/>
- 27.** North State GIS (NSG), Far North Regional GIS Council (FNRGC) - 16 counties, CA
 - <https://www.northstategis.org/>
- 28.** Oregon Metro Regional Land Information System (RLIS), Portland, OR
 - <https://www.oregonmetro.gov/tools-partners/data-resource-center/rlis-live>
- 29.** Palm Beach County Countywide GIS (CWGIS), West Palm Beach, FL
 - <https://discover.pbcgov.org/iss/cwgis/Pages/CountywideGIS.aspx>
- 30.** Pulaski Area Geographic Information System (PAgis), Little Rock, AR
 - <http://www.pagis.org/>
- 31.** Savannah Area Geographic Information System (SAGIS)

- a. <https://www.sagis.org/>
- 32.** San Diego Geographic Information Source (SanGIS), San Diego, CA
 - o <https://www.sdrgc.org/>
- 33.** Shelby County Regional GIS (ReGIS), Memphis, TN
 - o <https://shelbycountyttn.gov/467/REGIS-Regional-GIS>
- 34.** Solano Regional GIS Consortium (Solano ReGIS), CA
 - o <http://regis.solanocounty.com/>
- 35.** Yolo County GIS Cooperative, Sacramento, CA
 - o <https://www.yolocounty.org/general-government/general-government-departments/general-services/geographic-information-system-gis>

Innovative Ideas Used by Regional GIS Framework Models

It is important to review and glean valuable insights from the GIS framework models listed above. The goal is to identify how they function and what practices should be considered for Lassen County's Regional Initiative. The following is a summary of valuable GIS activities from the example regional initiatives:

- 1.** 3D GIS Models (City of Mississauga, ON)
- 2.** Document Management Integration with GIS
- 3.** Organizational Executive GIS Steering Committees, GIS Technical Committees, and GIS User Groups
- 4.** GIS Funding models based on use and participation
- 5.** GIS HUB Web sites
- 6.** Map Galleries
- 7.** GIS Mapping Services
- 8.** GIS Member Surveys
- 9.** On-Call GIS Technical Services
- 10.** Regional GIS Education



11. Regional Esri Licensing (Esri Enterprise Agreement?)
12. Regional GIS Key Performance Indicators
13. Regional GIS Policy Development
14. Regional GIS Portals
15. Regional GIS Training
16. Shared GIS IT Services
17. GIS Staffing Resources
18. GIS Story Maps
19. Unique Regional GIS Projects
20. Unique GIS Web/Business Applications

Five Tiers of Regional GIS Framework Models

The goal is to understand how other regional GIS framework models work to assess the value of the Lassen Regional GIS initiative. The following details the name, vision, key services, and objectives of the 35 Regional GIS framework models listed above. To help understand the level of regionalization, the following tiers have been created. Tier 5 represents the most comprehensive and complex regional model, whereas Tier 1 represents a simpler model.

◆ Tier 1: Independent Organization GIS Model

- ◆ This model is used by an ***independent organization*** (such as a private company, non-governmental organization, or research institution) that operates autonomously. The organization has full control over its GIS data, analysis, and decision-making processes.
- ◆ **Key Characteristics:**
 - ***Autonomy:*** The organization manages its GIS infrastructure and data without reliance on external agencies or governing bodies.
 - ***High-Level Data Management:*** The GIS model is designed for highly specialized, accurate, and reliable geographic data and analysis.
 - ***Self-contained:*** The model is tailored to the specific needs of the organization, typically for targeted research, business operations, or specific projects.



- **Use Cases:** Corporations managing supply chains, NGOs tracking environmental changes, or academic institutions conducting spatial research.

◆ Tier 2: Cooperative Regional GIS Model

- ◆ This model involves **cooperation between multiple independent organizations or entities** within a region. These entities share GIS data and resources but retain control over data and operations.
- ◆ **Key Characteristics:**
 - **Cooperative Sharing:** Multiple entities, such as municipalities, utilities, or businesses, share GIS data to work together on regional issues without central governance.
 - **Non-centralized:** Each entity maintains control over its data but participates in a network to exchange and integrate information for common benefits.
 - **Collaboration on Common Regional Issues:** Often used for addressing region-wide concerns like transportation networks, environmental conservation, or infrastructure planning.
 - **Use Cases:** Local governments share geographic data on zoning, utilities, or land use for planning purposes.

◆ Tier 3: Collaborative Regional GIS Model

- ◆ This model represents a **more integrated collaboration** between regional partners (such as governments, agencies, or organizations) who jointly manage GIS data, often through formal agreements.
- ◆ **Key Characteristics:**
 - **Shared Control and Data:** Multiple agencies or entities actively collaborate on GIS projects, with joint responsibility for data, analysis, and decision-making.
 - **Integration:** Data is often integrated into a shared system or platform where stakeholders can access, update, and analyze the data.
 - **Focus on Regional Impact:** The collaboration focuses on issues or initiatives that span multiple jurisdictions or sectors, such as regional transportation systems, emergency response networks, or large-scale environmental projects.
 - **Use Cases:** Regional planning committees working on transportation corridors, disaster response coordination across jurisdictions, or multi-county environmental monitoring efforts.

◆ Tier 4: Multi-Agency Regional GIS Model

- ◆ A **multi-agency** model refers to **multiple government agencies or organizations** working together on a shared GIS platform. These agencies may have different



mandates but agree to contribute to and share data for regional management and decision-making.

◆ **Key Characteristics:**

- **Government-Driven:** Typically involves several public sector agencies, including local, state, or federal government entities.
- **Centralized Coordination:** Often a lead agency (e.g., a state government or large city) coordinates the collaboration, though all agencies have input and access to the GIS data.
- **Shared Data for Public Benefit:** GIS data used is typically related to public safety, urban planning, infrastructure development, environmental protection, etc.
- **Use Cases:** State or national-level emergency response systems, infrastructure management, environmental monitoring, or land use planning that require input from various agencies at different governmental levels.

◆ **Tier 5: Regional Consortium Style Intergovernmental Membership Model**

- ◆ This tier describes a **formal consortium of government entities** or regional stakeholders who work together under a **membership-based structure**. They jointly manage and share GIS data and resources through legally binding agreements or membership protocols.

◆ **Key Characteristics:**

- **Formalized Governance:** A regional consortium typically includes multiple levels of government (local, regional, state, and sometimes federal) and possibly private sector partners or NGOs.
- **Intergovernmental Collaboration:** The model is built on intergovernmental agreements or regional councils facilitating cooperative decision-making and resource sharing.
- **Shared Long-Term Goals:** The participating entities focus on region-wide issues that require long-term, multi-jurisdictional planning, such as regional economic development, water resource management, or climate change adaptation.
- **Use Cases:** Regional flood management districts, regional transportation authorities, or large-scale conservation efforts that span several cities or counties.

Tier 1: Independent Organization GIS Model

Central Upper Peninsula Planning and Development Regional Commission (CUPPAD) GIS

Key Services: Shared GIS Services, Mapping Services, Support, Parcel Mapping, Data Access

Vision or Mission Statement: CUPPAD is investing in staff and infrastructure to increase its GIS capacity and improve mapping services to its members and local units of government in the Central Upper Peninsula of Michigan.

Innovations: Pricing based on need

◆ Tier 1: Independent Organization GIS Model

City of Mississauga, ON, Canada

Key Services: Open Data, City Planning Data, Interactive Maps, Demographics, Crowdsourcing

Vision or Mission Statement: Mississauga, ON Open Data portal, is public information that can be freely used by anyone and is available for public research, analysis, reporting, and mobile app development. Search from a variety of applications and datasets such as census results, city data, and other local, regional, and national government agencies. Mississauga Maps is an interactive map used to search addresses, street intersections, points of interest, survey monuments, aerial photography, and more.

Innovations: Open Data Portal, City 3D Model, Planning Information Hub

◆ Tier 1: Independent Organization GIS Model

King County GIS Center

Key Services: Enterprise GIS Resources, Staffing, Client Services, Education, GIS Needs Assessment

Vision or Mission Statement: The King County GIS Center (KCGIS Center) delivers efficient, high-quality GIS technology solutions to King County, WA agencies, the public, and



regional partners in the Puget Sound region, to meet the needs of King County government and the communities we serve. The core value of the KCGIS Center is to provide services that are accurate, consistent, accessible, affordable, and comprehensive.

Innovations: Innovative approach to business solutions

◆ Tier 1: Independent Organization GIS Model

Palm Beach County Countywide GIS

Key Services: Data Sharing, Data Standards, Open Data Portal, Education, Mapping Applications

Vision or Mission Statement: Palm Beach, FL Countywide GIS Coordination meets regularly with public and private sector organizations to establish standard operating procedures and data formats to facilitate the integration of GIS data and applications across agencies. Cost-sharing for the maintenance and sharing of GIS data is coordinated with other public entities. Collaboration with both the public and private sector agencies is promoted through the non-profit Palm Beach Countywide [GIS Forum](#) to constantly expand and improve the quality of GIS data and technology. Countywide Enterprise GIS organization structure includes the GIS Policy Advisory Committee (GIS-PAC), the GIS Project Management Team (PMT), and the Palm Beach Countywide GIS Forum.

Innovations: Integration with Tax Assessor PAPA website, Project Management Team, Forum

◆ Tier 1: Independent Organization GIS Model

Shelby County Regional GIS (ReGIS)

Key Services: Mapping Applications, Data Standards, Policies, Funding/Cost Sharing,

Vision or Mission Statement: The mission of the ReGIS is to develop an enterprise geographic information system for governments and private concerns in the Mid-South region of Tennessee that will assist and promote a shared, centralized resource for decision-makers and the public.

Innovations: Election Districts Map, Parks and Grounds Story Map

◆ Tier 1: Independent Organization GIS Model

Tier 2: Cooperative Regional GIS Model

Allen County, City of Fort Wayne iMap Consortium

Key Services: Shared Data Viewers

Vision or Mission Statement: none

Innovations: Allen County iMap Data Viewer, Allen County/City of Fort Wayne Engineering Viewer, City of Fort Wayne Parks, Recreation, & Trails Finder, Allen County Election Board Viewer

◆ Tier 2: Cooperative Regional GIS Model

Cheyenne and Laramie County Cooperative GIS Program (CLCGISC)

Key Services: Coordination, Education, Interactive Map Services & Portal, Open Data, Cooperative Data Collection

Vision or Mission Statement: The Executive Committee will 1) Promote communication, cooperation, and support for the City of Cheyenne/Laramie County, WY Cooperative Geographic Information System (GIS) Program; 2) Ensure that all city and county interests are represented and will communicate between those agencies involved in GIS; 3) Serve as a focal point in the coordination between city and county agencies for the establishment of GIS policies, data integration and management, and pricing guidelines for mapping programs and products; and 4) Encourage input from all government agencies, private businesses, and citizens toward the ongoing success and development of the GIS Program.

Innovations: GIS Executive Committee, GIS Technical Committees, and User Groups

◆ Tier 2: Cooperative Regional GIS Model

Georgia Geospatial Information Office (GA GIO)

Key Services: Coordination, Cooperative Data Collection, Data Standards, Open Data and Apps, Cost Savings

Vision or Mission Statement: The mission of the Geospatial Information Office is to coordinate, promote, and enhance the development and use of spatial information to continuously enable all levels of government throughout the State of Georgia to make better-informed decisions. It is the mission of the GA GIO to empower all levels of government to



higher effectiveness, efficiency, and innovation through the coordination and use of geospatial data, standards, and technologies.

Innovations: [Georgia Geospatial Data Hub](#)

◆ Tier 2: Cooperative Regional GIS Model

Solano Regional GIS Consortium (Solano ReGIS)

Key Services: Mapping Applications, Static Maps, Data Downloads, Map Services, Education

Vision or Mission Statement: Solano Regional GIS Consortium (Solano ReGIS) is a cooperative of local government agencies within Solano County, California, working together to share spatial data, pool resources, and provide GIS expertise to Solano ReGIS members.

Innovations: Sandbag Locations web map

◆ Tier 2: Cooperative Regional GIS Model

Tier 3: Collaborative Regional GIS Model

Butte County Association of Governments Regional GIS (BCAG GIS)

Key Services: Data Sharing, Support Transportation Planning Programs, GIS Data Requests, GIS Base and Regional Planning Data Sets, GIS Coordinating Groups

Vision or Mission Statement: Butte County, CA Association of Governments (BCAG) initiated a regional geographic information systems (GIS) program in 1997/98 with the goals of providing BCAG and its member agencies with a comprehensive parcel-based GIS database; providing cartographic output for transportation planning and other planning within the region; assisting the public and member jurisdictions with data needs.

Innovations: [BCAG Project Mapping \(csuchico.edu\)](#), GIS Coordinating Groups

◆ Tier 3: Collaborative Regional GIS Model

Champaign County GIS Consortium (CCGISC)

Key Services: Cost Sharing, Mapping Applications, Data Maintenance and Distribution, Member Web map and Open Data Portal Links, Mapping Services

Vision or Mission Statement: The mission of the Consortium and its Members is to: a) Lead development effort for acquisition of data; b) Act as a data repository/custodian; c) Establish standards for content, quality, and structure of repository data; d) Host data on a server accessible to all Members; e) Provide all Members access to data; f) Establish and maintain metadata for data held in the repository; g) Provide computer system administration and ongoing system support, upgrades, and maintenance for Consortium-controlled assets; h) Provide services to Members in accord with a work plan approved by the Policy Committee; i) Promote use of the GIS county-wide by contributing data and utilizing the GIS; j) Establish operational, administrative, and procedural policy as related to the GIS system operations, data standards, and data distribution. Currently, there are seven members of the Champaign County GIS Consortium: Champaign County, City of Champaign, City of Urbana, University of Illinois, Village of Rantoul, Village of Mahomet, Village of Savoy, and three Principal Data Clients: Champaign-Urbana Mass Transit District, Champaign-Urbana Public Health District, Urbana-Champaign Sanitary District.

Innovations: Aerial Imagery Comparison Web Map

◆ Tier 3: Collaborative Regional GIS Model

Channel Islands GIS Collaborative (CIRGIS)

Key Services: Education, Data Sharing, Cooperative Data Collection, Data Standards, Collaboration

Vision or Mission Statement: The Channel Islands Regional GIS (CIRGIS) is a California nonprofit public benefit corporation that is tax-exempt under the social welfare provisions of section 501(c) of the Internal Revenue Code. CIRGIS is a regional collaborative for the preparation, collection, and sharing of spatial data. Its purpose is to facilitate the development and maintenance of an ongoing public-private partnership for sharing and expanding the use of standard spatial data to foster informed community decision making, innovative business development, environmental management, and education in the Channel Islands region of California covering Santa Barbara and Ventura Counties.

Innovations: Hub website

◆ Tier 3: Collaborative Regional GIS Model

Chemung County GIS Consortium (CCGC)

Key Services: Shared Services, Centralized GIS, Data Standards, Licensing, Education

Vision or Mission Statement: The Chemung County GIS Consortium (CCGC) is a consortium of government agencies within Chemung County, NY, brought together to centralize geospatial data, provide strategic direction in facilitating or addressing geospatial services and projects, coordinate technical standards, administer fiscal resources, and effectively deliver GIS services throughout the County, its municipalities and to the public. The CCGC undertakes tasks of coordination, communication, and facilitation intended to advance the understanding, growth, and effectiveness of Geographic Information Systems (GIS) within Chemung County. The CCGC encourages the development of standards and the exchange of expertise and geographic data among its members.

Innovations: Inter-municipal Agreements for Shared IT Services, Esri EA

◆ Tier 3: Collaborative Regional GIS Model

Chicago Area GIS Consortium, Des Plaines, IL

Key Services: Shared Services, Data Standards, Staffing Resources, Cost-Savings, Data Sharing

Vision or Mission Statement: The GIS Consortium is an organization of Chicago, IL area communities unified by a common goal: to share resources, information, staffing, and technology so that municipalities can optimize the value of geographic information systems (GIS). Our mission is to reduce the cost and risk of GIS for small-and medium-sized communities. The vision is to create value for our members through collaboration, sharing, and smart solutions.

Innovations: Shared Intellectual Property

◆ Tier 3: Collaborative Regional GIS Model

Miami Valley Regional Planning GIS (MVRPC)

Key Services: Data Sharing, Mapping Applications, Regional Geospatial Coordination, GIS Professional Services Support, Web Services

Vision or Mission Statement: The purposes of the Miami Valley, OH Regional GIS program are to 1) provide its members direct access to MVRPC's datasets and interact with MVRPC's

GIS to map and analyze data to meet their own needs; and 2) address regional needs through on-going coordination and cooperation amongst organizations in the region.

Innovations: [MVRPC's Map Gallery](#)

◆ Tier 3: Collaborative Regional GIS Model

MidAmerica GIS Consortium

Key Services: Advocacy and Outreach, Grants, State Data Clearinghouses, Education, National Coordination

Vision or Mission Statement: The MidAmerica GIS Consortium is a network of dedicated leaders in the field of mapmaking, location services, and data management. We support the growing infrastructure of geospatial data analysis through coordination, networking, outreach, and education. MAGIC represents 9 states in the region, from local government to academia to private industry. Partner states are Arkansas, Illinois, Iowa, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota.

Innovations: Manager's Community and Summit

◆ Tier 3: Collaborative Regional GIS Model

Minnesota GIS/LIS Consortium

Key Services: Education, Outreach, Networking, Grants, Scholarships

Vision or Mission Statement: The mission of the Minnesota GIS/LIS Consortium is to develop and support the GIS professionals in Minnesota for the benefit of our state and its citizens.

Innovations: 2019 Member Survey

◆ Tier 3: Collaborative Regional GIS Model

Muscatine Area Geographic Information Consortium (MAGIC)

Key Services: Mapping Applications, Data Maintenance, Data Sharing, Custom Services, Collaboration

Vision or Mission Statement: MAGIC is a consortium of local government entities within the geographic confines of Muscatine County, Iowa. Principal partners are Muscatine County,

the City of Muscatine, and Muscatine Power & Water; affiliate partners consist of the City of Wilton, the City of West Liberty, and the Muscatine Community School District. MAGIC builds and maintains quality base mapping for the community, configured both mobile and browser-based applications, and provides custom GIS services to its partner organizations, the private sector, and the citizenry of Muscatine County.

◆ Tier 3: Collaborative Regional GIS Model

North State GIS (NSG)

Key Services: Data Standards, Coordination, Data Sharing, Education, Mapping Applications, Open Data Portal

Vision or Mission Statement: North State GIS (NSG) provides access to interactive maps and data for citizens and decision-makers in California's 16-county Far North Region. In addition to providing useful and easy-to-use maps, NSG supports improved data consistency, coordination, and exchange among data providers. We also provide information on news, events, education, jobs, and links related to the growing field of Geographic Information Systems (GIS). North State GIS is a project of the CGIA Far North Regional GIS Council (FNRGC), with funding and resource support from Shasta College and Shasta Regional Transportation Agency.

Innovations: Hub website with 'About Us' Story Map

◆ Tier 3: Collaborative Regional GIS Model

Oregon Metro Regional Land Information System (RLIS)

Key Services: Data Sharing, Regional Data Collection, Data and Map Web Services, Mapping Applications, Developer Tools

Vision or Mission Statement: Metro's Regional Land Information System (RLIS Live) is a compilation of more than 100 GIS data layers that serve as the spatial data infrastructure for the Portland, OR metropolitan area. Metro's Data Resource Center staff have worked with regional partners to collect and combine a wide array of data into a seamless dataset for use in regional decision-making.

Innovations: [RLIS Discovery](#) site for data downloads, Historic Photo Viewer with time slider

◆ Tier 3: Collaborative Regional GIS Model

Savannah Area Geographic Information System (SAGIS)

Key Services: Open Data, Mapping Applications, Data Standards, Education, Coordination

Vision or Mission Statement: Savannah Area Geographic Information System (SAGIS) provides access to geospatial data on a standardized and accessible platform. SAGIS works with the City of Savannah, GA; Chatham County; The Metropolitan Planning Commission; and non-profit and private organizations to maintain standards, manage data, provide geospatial education, and coordinate geospatial projects that affect the greater Savannah - Chatham County area.

Innovations: [MPC-SAGIS Coronavirus Dashboard](#)

◆ Tier 3: Collaborative Regional GIS Model

Yolo County GIS Cooperative

Key Services: Data Sharing, Data Downloads, Mapping Applications, Open Data Portal, Cost Sharing

Vision or Mission Statement: The County of Yolo, CA is cooperating with other agencies in Yolo County and the region to share technical knowledge, processes, and costs for developing GIS data and systems. The County of Yolo, the cities of Davis, Woodland, Winters, and West Sacramento, along with the Sacramento Area Council of Governments (SACOG), are working jointly as a cooperative to develop shared GIS data layers and maintaining shared regional GIS resources.

Innovations: Election Results Portal

◆ Tier 3: Collaborative Regional GIS Model

Tier 4: Multi-Agency Regional Model GIS

Cincinnati Area Geographic Information System (CAGIS)

Key Services: Cost Sharing, Data Sharing, Enabling Technology, Document Management, Field Implementation

Vision or Mission Statement: CAGIS (Cincinnati Area Geographic Information System) is an enterprise-wide information consortium that provides The City of Cincinnati and Hamilton County, OH government agencies and private utilities with access to real-time data for



decision support, leading to improvements in the coordination, efficiency, and quality of public service. The system embeds existing business rules and the management of information resources directly into departmental workflows, all made possible through the innovative integration of geographic information system (GIS) technology with automated business-process workflow software.

Innovations: CAGIS Online web map

◆ Tier 4: Multi-Agency Regional Model GIS

DeKalb County City/County GIS (CoCiGIS)

Key Services: Shared Resources, Single Repository for Public Information, Cost Sharing, Connectivity, Cooperative Data Collection

Vision or Mission Statement: The County-City Geographic Information System (CoCiGIS) is a collaborative, multi-agency effort to create, maintain, and use a GIS in the governing local DeKalb communities. Formed through a partnership between DeKalb County, IN, and the cities of Auburn, Butler, and Garrett, CoCiGIS leverages the shared resources of these government entities to provide a single repository for public information that can be trusted for its accuracy and completeness. Even more, it has helped each entity reduce costs and duplication of effort. CoCiGIS is actively seeking ways to improve how our communities use our data and applications.

Innovations: Dekalb County Beacon (search website), County-City GIS Committee

◆ Tier 4: Multi-Agency Regional Model GIS

Franklin County Regional Information System (FRIS)

Key Services: Shared Mapping Web App Viewers, Data Downloads

Vision or Mission Statement: The Franklin County Regional Information System (FRIS) is a group of agencies in Franklin County, WA that includes Franklin County GIS and Public Works, Franklin Public Utility District, and South Columbia Basin Irrigation District.

◆ Tier 4: Multi-Agency Regional Model GIS

Knoxville, Knox County, Knoxville Utilities Board GIS (KGIS)

Key Services: Data Clearinghouse, Technical Support, Shared Data, Mapping Applications

Vision or Mission Statement: The Knoxville, Knox County, Knoxville Utilities Board Geographic Information System (KGIS) was established in 1985 by a charter agreement between the City of Knoxville, Knox County, and the Knoxville Utilities Board. While our primary mission is to provide support for these agencies, we also provide GIS services and data to the public.

Innovations: KGIS is unique in that it was the nation's first major multi-participant, municipal GIS. [COVID-19 Resource & Services Map](#)

◆ Tier 4: Multi-Agency Regional Model GIS

Land Information of Northern Kentucky GIS (LINK-GIS)

Key Services: Mapping Applications, Cooperative Data Collection, Digital Data Sales, Business and Data Client Subscriptions, Education

Vision or Mission Statement: The LINK-GIS Mission is to share Northern Kentucky's unparalleled geographic resources with the world! The LINK-GIS Partnership is a multi-jurisdictional collaboration authorized under KRS65.240. Contributing partners include Campbell County Fiscal Court, Campbell County Property Valuation Administration, Kenton County Fiscal Court, Northern Kentucky Water District, Pendleton County Fiscal Court, Pendleton County Property Valuation Administration, Planning and Development Services of Kenton County, Sanitation District 1.

Innovations: [NKY Map Lab](#), Key Performance Indicators

◆ Tier 4: Multi-Agency Regional Model GIS

Lane Council of Governments (LCOG) Regional Land Information Database (RLID)

Key Services: Data Sharing, Support, Public/Private Subscriptions, Education, Applications

Vision or Mission Statement: The Regional Land Information Database (RLID) is the central resource for land-based information in Lane County, Oregon. RLID is both a repository of integrated land records and a web system for finding and reporting information about properties within the county. RLID combines data from government business systems across the region with mapping information from shared Geographic Information Systems (GIS) to provide a unique and valuable resource for the governments, businesses, and citizens of Lane County and beyond. RLID is jointly developed by the cities of Eugene and Springfield, Lane County, the Eugene Water & Electric Board (EWEB), LCOG, and its member agencies.



Innovations: A steadily growing subscriber community of non-partner agencies, businesses, and individuals that has resulted in a public-private partnership that offers a win-win-win value proposition.

◆ Tier 4: Multi-Agency Regional Model GIS

Louisville/Jefferson County Information Consortium (LOJIC)

Key Services: Interactive Maps, Data Maintenance, Custom Maps, Web Services, Open Data Portal

Vision or Mission Statement: The mission of the City of Louisville/Jefferson County, LA Information Consortium (LOJIC) is to build, maintain, and proactively support a comprehensive Enterprise Geographic Information System that promotes information sharing and the effective use of geospatial technology for the benefit of our partners, our customers, and our community. LOJIC represents a multi-agency effort to build and maintain a comprehensive Geographic Information System (GIS) to serve all of Louisville Metro, Jefferson County, Kentucky. Four agencies make up the core members of LOJIC: Louisville / Jefferson County Metro Government, Metropolitan Sewer District (MSD), Property Valuation Administrator (PVA), Louisville Water Company (LWC)

Innovations: Strategy Innovation team formed to develop recommendations for best innovative practices in governance, organization, funding, and opportunities.

◆ Tier 4: Multi-Agency Regional Model GIS

McLean County GIS Consortium (McGIS)

Key Services: Mapping Applications, GIS Dataset Downloads, Open Data Portal, Feature Layer Services

Vision or Mission Statement: McGIS consists of three member agencies: McLean County, IL; City of Bloomington; Town of Normal. The Consortium also supports our partners: McLean County Regional Planning Commission, City of Bloomington Township Assessor, and METCOM.

Innovations: McGIS Consortium members are striving to be as open as possible with GIS data.

◆ Tier 4: Multi-Agency Regional Model GIS

Metro GIS

Key Services: Regional Geospatial Datasets, Regional Collaborative Operations, Regional Inter-Agency Projects, Advocacy, and Inter-Agency Coordination, Data Standards

Vision or Mission Statement: MetroGIS exists to expand stakeholders' capacity to address shared GIS needs and to maximize investments through the collaboration of organizations serving the Twin Cities (Minneapolis & St Paul, MN) metropolitan area. The goal of MetroGIS is for organizations to be successful in working together using GIS to solve real-world problems. The purpose of MetroGIS is to institutionalize the sharing of accurate and reliable geospatial data so user and producer communities can share in the efficiencies of being able to effortlessly obtain the data they need, in the form they need, when they need it.

Innovations: MetroGIS Geocoder Service

- ◆ Tier 4: Multi-Agency Regional Model GIS

San Diego Geographic Information Source (SanGIS)

Key Services: Land Base Maintenance, Regional Data Warehouse, Public GIS Data Access, Mapping Applications, Custom Map Services

Vision or Mission Statement: The San Diego Geographic Information Source (SanGIS) is a Joint Powers Authority (JPA) of the City of San Diego and the County of San Diego responsible for maintaining a regional geographic information system (GIS) land base and data warehouse. The JPA allows the City and the County to combine resources to meet common objectives to reduce duplication of efforts, maximize resources, provide for an efficient method of sharing information, and provide timely updated data to the public. The SanGIS mission is to maintain and promote the use of a regional geographic data warehouse for the San Diego region and to assist in the development of shared geographic data and automated systems which use that data.

San Diego Association of Governments (SANDAG) Partnership - Through a formal Memorandum of Agreement (MOA), SanGIS and SANDAG have partnered to provide a single source Regional Data Warehouse through a common data download site and interactive parcel lookup map from either the SanGIS or SANDAG websites.

Innovations: [San Diego Regional GIS Council](#)

- ◆ Tier 4: Multi-Agency Regional Model GIS



Tier 5: Regional Consortium Style Intergovernmental Membership Model

Berkeley County GIS Consortium

Key Services: Data Downloads, Desktop Mapping Applications, Mobile Web Applications, Map-Requests, Technical Assistance

Vision or Mission Statement: The mission of the Berkeley County Geographic Information System (GIS) is to provide Berkeley County officials, departments, consortium members, other agencies, and the public with accurate and reliable geographic information through responsive and innovative GIS services. The Berkeley County Geographic Information System (GIS) is also a regional geographic information resource that provides for the business needs of Berkeley County Government, Berkeley County GIS Consortium, and the public. The Berkeley County GIS Consortium consists of Berkeley County, Berkeley County Water and Sanitation, Berkeley Electric Cooperative, Berkeley County Soil and Water Conservation District, Berkeley County School District, Home Telephone Company Inc., the City of Goose Creek, the City of Hanahan, the Town of Moncks Corner, and Santee Cooper. In 1994, they combined to fund a comprehensive Berkeley County GIS department. All consortium members have access to data and GIS products, such as street atlas. They maintain their own data and exchange updated information as changes occur. This helps maintain system cost efficiencies and eliminate duplication of data.

Innovations: School Attendance Mapping, Voter Registration Mapping app, Magistrate and Small Claims Courts Mapping app, Mosquito Abatement Spray Zones Mapping app

◆ Tier 5: Regional Consortium Style Intergovernmental Membership Model

California Geographic Information Association; California GIS Council

Key Services: Data Sharing Policy, Data Partnerships, Open Data, Regional Collaboration, Training Opportunities

Vision or Mission Statement: CGIA coordinates with the California GIS Council to focus on statewide GIS issues - the Council is focused more on working relationships and data creation, while CGIA is focused on more personal relationships.

CGIA's mission is to promote the effective use of GIS by pursuing the following goals:

- ◆ Encouraging appropriate, coordinated, and cost-effective use, acquisition, exchange, and management of geographic information in the state of California
- ◆ Promoting the use of consistent standards, procedures, and mechanisms for ensuring the accuracy and quality of geographic information used and created by public and private entities in California
- ◆ Supporting and promoting the practice of GIS
- ◆ Monitoring developments in the field of GIS and informing the membership of the same
- ◆ Serving as a resource for its membership
- ◆ Providing a forum for the exchange of ideas and information

The purpose of the California GIS Council is to promote a greater understanding and use of the benefits of GIS and facilitate cooperation throughout the State of California by supporting the collection, acquisition, sharing, and dissemination of GIS data, standards, and policies. The Council, comprised of a diverse body of GIS professionals, will act as an advisory body to members of its constituencies, the State Geographic Information Officer, and agencies and groups that develop and implement geospatial initiatives, policies, and standards, by providing recommendations, best practices, and expertise.

- ◆ Tier 5: Regional Consortium Style Intergovernmental Membership Model

Pulaski Area Geographic Information System (PAgis)

Key Services: Data Sharing, Applications, Public Data Resources, Data Download, Advisory Committees

Vision or Mission Statement: PAgis is an independent government agency specializing in the acquisition, maintenance, and distribution of GIS-related data within Pulaski County, Arkansas. PAgis is supported by eight partner agencies: Central Arkansas Water, the City of Little Rock, the City of North Little Rock, the City of Jacksonville, the City of Sherwood, Little Rock Water Reclamation Authority, North Little Rock Wastewater, and Pulaski County Public Works. PAgis maintains a high-quality, centralized, enterprise-class geodatabase with many layers that are updated and published monthly. PAgis' daily focus is on the maintenance of framework data layers that provide the foundation for each member agency's custom GIS applications.



Innovations: [PAgis COVID-19 Infographic](#)

- ◆ Tier 5: Regional Consortium Style Intergovernmental Membership Model

Other Types of Regional Organizations

It will be useful to review as many existing regional GIS framework models as possible. It highlights the varied approaches to regional GIS government initiatives. Looking outside of the government sector, we can consider the Joint Ventures: Silicon Valley example below.

Joint Ventures: Silicon Valley – Born out of Fear

Joint Ventures, Silicon Valley, was formed in 1993 to provide analysis and action on issues affecting the Silicon Valley region, economy, and quality of life. The organization brings together business, government, academia, labor, and the broader community to spotlight issues, launch projects, and work toward innovative solutions. Joint Ventures, Silicon Valley builds the framework for regional thought, analysis, and action. It provides a forum for collaborative thinking and leadership from both the public and private sectors. Joint Ventures was an **“experiment in regional thought and action on issues that do not respect city limits, county borders or state lines.”**

- ◆ <https://jointventure.org/>

It is important to review the types of initiatives Joint Ventures undertake. This is more than a ‘think tank.’ It is a regional organization that provides data and guidance on the region’s economic and community challenges. They act on the most pressing issues by launching initiatives. For each initiative, they create a plan, form a working group or task force led by board and community champions who convene to assess the need, and then carry out the necessary activities toward a solution.

- ◆ <https://jointventure.org/initiatives/about-our-initiatives>

Regional GIS Framework Models: 10 Key Factors for Success

Regional GIS initiatives often have overarching challenges to success, including:

- ◆ Lack of awareness of participating organizations about regional service offerings
- ◆ Changing landscape of the capabilities and needs of participating organizations
- ◆ Issues related to data management, data duplication, and data quality
- ◆ Funding the regional effort
- ◆ Workloads of the lead staff, turnover of staff and succession planning
- ◆ Upkeep and modernization of technology and systems architecture.
- ◆ Lack of training, education, and knowledge transfer
- ◆ Failure to realign service delivery based on innovation, needs, and technology.

The evidence suggests that the success of any regional GIS framework model strategy will depend on 10 key components, including:

1. Funding – identify and secure initial and ongoing funding
2. Governance – Manage and value the people and relationships
3. Politics – the importance of sound regional politics
4. Data – standardized, accurate, reliable, open, and well-maintained digital data
5. Needs – understanding the needs of the participating agencies
6. Participation – the more participation, the better
7. Communication – monthly meetings and consensus building
8. Benefits – tangible benefits of the regional GIS framework model
9. Interoperability – integration of enterprise applications
10. Technology Ecosystem – leading-edge versus bleeding-edge



Section C: Lassen County Regional GIS Framework Model: Considerations and Recommendations

Lassen County Transportation Commission's Regional GIS Framework Model Considerations

Regional Geo-Smart Government

The world of local government is continuing to grow in complexity. More data to gather, more questions to answer, more options to consider, more decisions to make. Lassen County likely is the most well positioned organization to take the lead on a regional geospatial initiative – to track the vital signs of the region, to promote collaboration and innovation, to provide centralized geospatial and data services to partner organizations, to promote regional resilience and sustainability, and to actively engage with the community geospatially.

Regional Geo-smart government will play a significant role in LCTC's future. The social democratization of **GIS Governance and Management Styles** will allow geospatial science to guide town, city, and county growth so that it is aligned with individual citizen needs and public service delivery.

The automated and universal collection, accuracy, standardization, reliability, access, and effective use of **Digital Data and Databases** will become more important than software and everything else for that matter.

The Smart Geo Hub will focus on optimum automated **Procedures, Workflow, and Interoperability**, as well as an **Agnostic System of Systems**, to perform evidence-based analysis and data-driven decision-making as well as innovative algorithmic solutions. It introduces a new way of regional thinking! Lassen County is the region's natural central Geo Hub repository.



The eventual collapse of desktop, web, and mobile **GIS Software functionality** into a standard seamless cross-platform ecosystem of geospatial widgets, wallpaper, and smart and wearable gadgets will re-invent how we interact, access, analyze and query real-time data. The future of GIS software lends itself to a regional approach to application design and deployment.

Future **Local Government Training, Education, and Knowledge Transfer** curriculum will be agile, real-time, transparent, and focused on the capabilities and patterns of use. It will allow professionals to learn, unlearn, and relearn. The possibility of a regional approach to GIS training, education, and knowledge transfer are very real.

The future framework of **Information Technology (IT) Infrastructure** is a highly secure hosted 'as-a-service' cloud environment that will stimulate a more ubiquitous GIS environment across town and city limits and county borders. The IT Department will focus on governance and management rather than implementation and maintenance.

What Does Lassen County Need to Consider?

- ◆ Developing a Regional Vision, Goals, and Objectives
- ◆ Developing a Regional Central GIS Hub Strategy
- ◆ Developing a Regional Ecosystem of Software Solutions
 - ◆ Web
 - Dashboards
 - ◆ Mobile
 - ◆ Desktop
- ◆ Evaluating a Regional Esri Software Licensing Solution
- ◆ Developing a Cross-Platform Ecosystem of Geospatial Software – Desktop, Web, and Mobile Solutions
- ◆ Creating a Ubiquitous GIS Environment Across Lassen County
- ◆ Enabling Lassen County and its Municipalities with Regional Aerial Imagery — Nearmap Licensing
- ◆ Taking a Lead Role in Community Engagement and Crowdsourcing
 - ◆ Resident Needs Survey
 - ◆ Demographic Statistics



- ◆ Tracking Vital Signs of Lassen County and Municipalities
- ◆ Taking a Lead Role in Public Services Delivery Solutions
 - ◆ Regional Crime Analysis
 - ◆ Regional 311 Analysis
 - ◆ Regional Growth Mapping
 - ◆ Regional Economic Development
 - ◆ Hazard Mitigation and Automated Damage Assessment
 - ◆ Regional Information
 - ◆ Regional Statistics
- ◆ Developing Regional Agreements and Collaboration About Data Accuracy, Data Collection, and Automating Data Capture
- ◆ Developing Regional Data Standards and Standardization Policy
- ◆ Designing a Regional Approach to an Agnostic System of Systems and Total Interoperability Across Lassen County
- ◆ Developing Regional Agile GIS Training, Education, and Knowledge Transfer – How to Learn on a Regional Scale
- ◆ Creating a Highly Secure Hosted Cloud It Infrastructure
- ◆ Developing a New and Improved Structure to Regional Governance and Management
- ◆ Building Innovative Regional GIS Solutions
 - ◆ 3D Model of the Region
 - ◆ Regional Crowdsourcing Solutions
 - ◆ Smart Government Technology
- ◆ Regional GIS Initiatives and Projects
 - ◆ Public Safety
 - ◆ Emergency Operations
 - Disaster Preparedness
 - ◆ Next Generation E-911
 - ◆ Transportation and Transit Operations
 - ◆ Natural Resources and the Environmental
 - ◆ Social Services
 - ◆ Public Health
 - ◆ Parks and Recreation
 - ◆ Economic Development
 - ◆ Public Engagement and Awareness
 - ◆ Regional Data Center and Collective Knowledge Base



- ◆ Data Assimilation and Analytics
- ◆ Data Collection
- ◆ Innovation
- ◆ Education and Knowledge Transfer
- ◆ Opportunities for Economies of Scale
- ◆ Community Broadband
- ◆ Wireless Communications
- ◆ Transportation Capital Improvements
- ◆ Gasoline
- ◆ Climate
- ◆ Food
- ◆ Businesses
- ◆ Food Delivery
- ◆ Education
- ◆ Energy
- ◆ Electric Vehicles
- ◆ Smart Energy and Smart Homes
- ◆ Renewable Energy
- ◆ Workforce Development
- ◆ Smart Health
- ◆ Defining Participating Organizations
- ◆ Improving Open Data Strategy
- ◆ Developing New Ways to Maintain Mission Critical and Regional Data
 - ◆ Parcel
 - ◆ Address Points
 - ◆ Street Centerlines
 - ◆ Nearmap Aerial Photography
 - ◆ LiDAR
- ◆ Develop Regional IT and GIS Architecture
- ◆ Centralize GIS Data Layer Services
- ◆ Improve Regional Collaboration
- ◆ Innovate on a Regional Scale
 - ◆ Unique Web/Business Application
 - ◆ On-Call Technical Services
 - ◆ Regional Policy Development
 - ◆ Regional Training
 - ◆ Regional Education



- ◆ Regional Esri Licensing (EA)
- ◆ Regional Portals
- ◆ Staffing Resources
- ◆ Unique Regional Projects
- ◆ Funding models (based on use and participation)
- ◆ Mapping Services
- ◆ Hub Website
- ◆ Shared IT Services
- ◆ Executive Committees, GIS Technical Committees, User Groups, GIS Coordinating Committee, Project Management Team, Policy Committee
- ◆ Shared Intellectual Property
- ◆ Document Management
- ◆ Regional Key Performance Indicators
- ◆ Subscription Models
- ◆ Map Gallery
- ◆ Member Surveys
- ◆ Story Map – About Us

12 Recommended Regional GIS Framework Model Goals and Objectives

The following information is based on an understanding of the five tiers of regional GIS framework models and an assessment of Lassen County's vision for the future. The information below details the 12 recommended goals and objectives for Lassen County.

There are 12 recommended goals for Lassen County:

- 1. BUILD ON SUCCESS** – Establish and Build on Lassen County Regional GIS Framework Model Successes
- 2. DEFINE AND EXTEND** – Address the Larger Multi-Jurisdictional GIS Needs
- 3. DEFINE THE REGIONAL GIS FRAMEWORK MODEL** – Define and Understand the Distinguishing Factors of Regional GIS Framework Models to Guide Lassen County's Regional Maturation
- 4. EVALUATE BENEFITS AND COSTS** – Evaluate Costs, Value, Level of Effort, Dependencies, and Benefits of Each Component of a New Regional Model



- 5. IMPROVED UNDERSTANDING** – Improve Lassen County’s Understanding of Regional Stakeholder, Partner, and Community Needs
- 6. IMPROVED COLLABORATION** – Promote a Collaborative Strategy and Philosophy
- 7. COMMUNICATION AND EDUCATION** – Increase Communication, Awareness, Education, Support, and Assistance to all Regional GIS Framework Model Members
- 8. FORMAL AGREEMENTS** – Establish Formal Regional Agreements
- 9. REGIONAL SOFTWARE INITIATIVES** – Develop a Regional Ecosystem of Software Solutions to Build on Existing Success
- 10. REALISTIC LONG-TERM OPPORTUNITIES** – Identify Long-term Opportunities for Regional Initiatives
- 11. FUTURE OPPORTUNITIES** – Anticipate the Future Geospatial Needs of Lassen County
- 12. REGIONAL IDEAS AND INNOVATION** – Create Innovative Geospatial Ideas for the Regional GIS Framework Model

Goal 1 — BUILD ON SUCCESS: Establish and Build on Lassen County Regional GIS Framework Model Successes

- ◆ Objective 1: Improve collaboration between all regional stakeholders.
- ◆ Objective 2: Define regional partners, major participants, and contributors.
- ◆ Objective 3: Define existing regional entities, programs, groups, and activities.
- ◆ Objective 4: Define existing regional roles and responsibilities.
- ◆ Objective 5: Develop new formal agreements with municipalities, universities, State government agencies, adjacent counties, regional COG’s, non-profit and private organizations.
- ◆ Objective 6: Formalize existing regional relationships with Service Level Agreements (SLA), defining the level of participation and services provided by all parties.
- ◆ Objective 7: Improve open data initiatives.
- ◆ Objective 8: Advance the Esri ecosystem of solutions for regional use.
- ◆ Objective 9: Develop regionally targeted software applications and solutions.
- ◆ Objective 10: Develop a regional program charter with a regional vision, goals, and objectives.



Goal 2 — DEFINE AND EXTEND: Address the Larger Multi-Jurisdictional GIS Needs

- ◆ Objective 1: Define the type of regional model Lassen County is building.
- ◆ Objective 2: Define the lead agency, its roles/responsibilities and communicate to all stakeholders.
- ◆ Objective 3: Understand the politics of the region by soliciting opinions and perspectives from the various agencies.
- ◆ Objective 4: Define the major initiatives of all participants and contributors through strategy sessions and feedback methods.
- ◆ Objective 5: Define Types of Users and Level of Participation.

Goal 3 — DEFINE THE REGIONAL GIS FRAMEWORK MODEL: Define and Understand the Distinguishing Factors of Regional GIS Framework Models to Guide Lassen County's GIS Maturation

- ◆ Objective 1: Formalize Lassen County's nomenclature for its regional GIS framework
- ◆ Objective 2: Brand Lassen County's regional GIS framework model.
- ◆ Objective 3: Determine the services that the regional GIS framework model will provide.
- ◆ Objective 4: Define funding sources, such as no-fee strategy, user fees, chargeback, etc.

Goal 4 — EVALUATE BENEFITS AND COSTS: Evaluate Costs, Value, Level of Effort, Dependencies, and Benefits of Each Component of a New Regional Model

- ◆ Objective 1: Develop a Benefits Realization Plan to measure how projects and programs add true value to Lassen County and the region.
- ◆ Objective 2: Evaluate staffing options, objectives, and level of effort required for a regional GIS framework model.
- ◆ Objective 3: Formalize a sustained funding model for the regional GIS framework
- ◆ Objective 4: Develop best business practices related to regional agreements, regional participation, and regional funding.



Goal 5 — IMPROVED UNDERSTANDING: Improve Lassen County's Understanding of Regional Stakeholder, Partner, and Community Needs

- ◆ Objective 1: Define all regional partners in terms of the type of organization, existing GIS activities, level of contribution, commitment, and funding.
- ◆ Objective 2: Examine and understand the population served by Lassen County's regional GIS framework model.
- ◆ Objective 3: Establish a regional GIS framework model governing body, including but not limited to a steering committee, advisory working group, and project management teams.
- ◆ Objective 4: Encourage feedback from all participating agencies, non-profit groups, private businesses, and residents toward the ongoing success and development of the regional GIS initiative.
- ◆ Objective 5: Provide a feedback method for submitting requests and comments about the regional GIS initiative, including, but not limited to, online surveys and community forums.

Goal 6 — IMPROVED COLLABORATION: Promote a Collaborative Strategy and Philosophy

- ◆ Objective 1: Develop specific regional collaborative goals and objectives.
- ◆ Objective 2: Define regional oversight and collaborative bodies, such as a steering committee or advisory group.
- ◆ Objective 3: Define equitable contributions from all regional participants.
- ◆ Objective 4: Develop team-building methods that involve collaborative objectives, such as group presentations, workshops, webinars, and seminars.
- ◆ Objective 5: Host a community forum to promote the benefits of joint project collaboration and shared resources.
- ◆ Objective 6: Invite regional and community partners to participate in strategy sessions.



Goal 7 — COMMUNICATION AND EDUCATION: Increase Communication, Awareness, Education, Support, and Assistance to all Regional GIS Framework Model Members

- ◆ Objective 1: Develop a regional GIS initiative website (ArcGIS Hub).
- ◆ Objective 2: Publish a Lassen County regional GIS newsletter to present project successes.
- ◆ Objective 3: Define a regional training plan incorporating education, training, and knowledge transfer.
- ◆ Objective 4: Coordinate and schedule regional training, education, and online seminar classes.
- ◆ Objective 5: Define and ratify a regional GIS user group and schedule regular meetings.
- ◆ Objective 6: Encourage stakeholder involvement in professional organizations.
- ◆ Objective 7: Promote the benefit of a GIS user community to include improved networking and knowledge transfer.

Goal 8 — FORMAL AGREEMENTS: Establish Formal Agreements

- ◆ Objective 1: Collaborate with stakeholders to define the terms of the agreement(s).
- ◆ Objective 2: Execute identified agreements with community and regional partners.
- ◆ Objective 3: Review the agreements annually to ensure they meet current needs.

Goal 9 — REGIONAL SOFTWARE INITIATIVES: Develop a Regional Ecosystem of Software Solutions to Build on Existing Success

- ◆ Objective 1: Survey members of the participating organizations to determine the need for software applications, data warehousing, and data services (Completed during this project).
- ◆ Objective 2: Form a task force to determine the extent and breadth of regional software applications and solutions (to be completed during this project).



- ◆ Objective 3: Evaluate improved opportunities to share geospatial data.
- ◆ Objective 4: Explore options for multi-agency software licensing models.
- ◆ Objective 5: Define funding sources and strategies for a joint GIS software licensing structure.

Goal 10 — REALISTIC LONG-TERM OPPORTUNITIES: Identify Long-term Opportunities for Regional Initiatives

- ◆ Objective 1: Evaluate formalized membership in a consortium-style regional solution.
- ◆ Objective 2: Identify innovative regional geospatial solutions, programs, and activities.
- ◆ Objective 3: Define a future regional activities and services plan.
- ◆ Objective 4: Evaluate evolving into a regional GIS Center of Excellence.

Goal 11 — FUTURE OPPORTUNITIES: Anticipate the Future Geospatial Needs of the Lassen County Region

- ◆ Objective 1: Explore future opportunities of collaboration and cooperation with regional partners, including but not limited to the following:
 - ◆ Regional governance and management
 - ◆ Centralized services
 - ◆ Data sharing opportunities
 - ◆ Software solutions and software licensing
 - ◆ A wider constituency – public, private, non-profit, and utility service participation
 - ◆ Regional training, education, and knowledge transfer
 - ◆ Participation, partnerships, and collaboration
 - ◆ Technology and architectural framework
 - ◆ GIS workflows, integration, procedures, and protocols
 - ◆ Funding model – regional strategy – cooperative partnership - sustainable model



Goal 12 — REGIONAL IDEAS AND INNOVATION: Create Innovative Geospatial Ideas for the Regional GIS Framework Model

- ◆ Objective 1: Form a Strategic Innovation Team (SIT) to develop recommendations for best regional innovative practices and opportunities.
- ◆ Objective 2: Research innovative strategies for regional GIS services, interoperability, technology, and funding.
- ◆ Objective 3: Assess cost-sharing initiatives, such as subscription data services.
- ◆ Objective 4: Build innovative regional GIS solutions, such as a 3D model of the region, regional crowdsourcing solutions, and other 'smart' government technology solutions.

