



Business Strategy Report

Lassen County Transportation Commission | CA

Lassen County Transportation Commission GIS Needs Assessment and Implementation

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Executive Summary

The Lassen County Regional GIS Business Strategy outlines a vision for advancing the region's geospatial capabilities to improve transportation, infrastructure, emergency response, and public engagement. This strategy reflects a shared path forward with the Lassen County Transportation Commission (LCTC), City of Susanville, Lassen Transit Service Agency (LTSA), and the Susanville Indian Rancheria (SIR), to regional collaboration, streamlined operations, and long-term sustainability through the strategic use of GIS technology.

Strategic Vision and Framework

At its core, this initiative promotes a *Collaborative Regional GIS Model*, a framework that encourages cross-jurisdictional cooperation, shared data stewardship, and coordinated GIS development. By integrating geospatial infrastructure, governance, and applications across participating agencies, the region is better equipped to make informed decisions and respond to complex, multi-agency challenges.

Key Areas of Focus

- ◆ **GIS Governance:** The strategy calls for establishing a formal governance framework that includes a lead agency, a GIS Steering Committee, Service Level Agreements (SLAs), and clear policies. This ensures data quality, accessibility, legal compliance, and strategic alignment.
- ◆ **Data Maintenance:** Regional standards for data creation, maintenance, and metadata are critical. The plan emphasizes prioritizing foundational datasets such as parcels, zoning, transportation networks, and environmental data layers to ensure regional consistency and interoperability.
- ◆ **Data Sharing:** The report recommends leveraging existing platforms like ArcGIS Online and ArcGIS Hub to centralize data access. Standardized sharing protocols will foster greater transparency, encourage public engagement, and support inter-agency collaboration.
- ◆ **GIS Applications:** A suite of recommended applications—ranging from internal infrastructure viewers to public transit planners and cultural StoryMaps—will enable regional stakeholders to improve services, increase efficiency, and enhance public communication.

Anticipated Benefits

- ◆ **Operational Efficiency:** Streamlined workflows and standardized data management practices reduce duplication and enable faster, more reliable services.



- ◆ **Cost Savings:** Shared licensing models and collaborative development of GIS tools reduce costs across agencies.
- ◆ **Enhanced Decision-Making:** Reliable, high-quality data enables leaders to make better, more strategic decisions.
- ◆ **Public Engagement:** Tools like StoryMaps, recreation viewers, and open data portals promote transparency and empower residents.
- ◆ **Resilience and Risk Management:** High-quality GIS data improves emergency response capabilities and supports long-term resilience planning.

Path Forward

To realize these benefits, the following steps are recommended:

- ◆ Formalize partnerships and define roles through SLAs and regional governance bodies.
- ◆ Centralize GIS data and adopt standardized maintenance procedures.
- ◆ Prioritize critical GIS applications and integrate Esri's regional solutions.
- ◆ Host regional GIS meetings and training to build capacity and ensure ongoing stakeholder engagement.

Through coordinated investments in governance, data infrastructure, and application development, the Lassen County Region is positioned to become a model of innovation and collaboration in geospatial planning. This strategy will ensure regional partners are better connected, more responsive, and prepared to meet both current and future challenges with confidence.





Regional GIS Business Strategy

The Lassen County Planning and Building Department, along with the Information Services Department (ISD), manages a GIS program that includes on-premise infrastructure, a geospatial database, GIS software, and support from Esri. In 2023, the department signed a contract with GTG for various GIS services:

Task	Status
Five-Year GIS Strategic Plan	Completed in 2024
Public Web Portal	June 2025
Addressing Tool	Completed in 2024
Parcel Layer Updates and Corrections	In progress
Update Zoning and General Plan Designation Layer	In progress
Update Roads Layer	Future
Data Mining and Data Integration	Future
GIS Training	Ongoing
Create New GIS Layers	Future
GIS Administration Support	Various tasks, including facilitating the establishment of a GIS Steering Committee
Miscellaneous GIS Support	Ongoing

In 2024, the Lassen County Transportation Commission (LCTC) engaged Geographic Technologies Group® (GTG) to assess the GIS needs of the City of Susanville, the Lassen County Transportation Authority (LTSA), and the Susanville Indian Rancheria (SIR) with the goal of collaboratively advancing GIS capabilities throughout the region, tying into what the County has already completed, is working on, and has plans for.

Below are the business processes to which geospatial technology would add value to the Lassen County Transportation Commission, and what is being produced within the region.



GIS Governance

Regional governance of GIS is a critical indicator of long-term success with GIS. Generally, governance refers to how a region manages its GIS initiative. Indicators of good GIS governance include the existence of a lead agency, GIS strategic plan, a GIS-specific vision statement, GIS goals and objectives, a GIS Steering Committee and end-user groups, coordinated GIS project management, GIS policies and mandates, a GIS budget, a GIS work plan, and key performance indicators for tracking these GIS metrics. It ensures that GIS data, tools, processes, and resources are used in a structured, efficient, and compliant manner.

Recommended Actions

Identify a Lead Agency and Participating Organizations

There are many regional GIS framework models and regional service providers throughout the country, and county agencies often lead the establishment of regional initiatives. Lassen County is recommended to take the lead in this Regional effort, as they currently have the GIS architecture and infrastructure implemented, and maintain ArcGIS Online, which streamlines data sharing opportunities.

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. It is recommended, at a minimum, that Lassen County, LCTC, City of Susanville, LTSA, and SIR all participate in this regional effort.

Encourage Regional Collaboration and Cooperation

The collaborative bodies that oversee Regional GIS framework models often include one or more of the following: a Policy or Governing Body, a Technical Committee, a User Group, a Steering Committee, an Advisory Body, Working Groups, or a Regional GIS Task Force. The Lassen County regional partners should continue to build the Regional GIS Framework to improve collaboration between all regional stakeholders.

Establishing inter-agency, regional technical user groups within Lassen County would help solicit feedback and input as to the geospatial needs of the region. These user groups would allow non-GIS subject matter experts to engage in the process, understand the power of



geospatial activity, and buy into regional efforts. These non-GIS subject matter experts also help guide the development of regional datasets and other GIS support through representing agency needs and prioritization.

Another way to encourage collaboration and cooperation regionally is for the Lassen County regional partners to hold quarterly or biannual regional GIS meetings. These meetings would promote the use and benefits of GIS and assist in obtaining buy-in and growth in GIS usage.

Formalize Regional Relationships

Most regional GIS framework models have formal agreements between the participating organizations in the form of a written formal policy or agreement that can include data-sharing agreements, subscription membership, or other legislative mandates.

One recommendation is that the lead agency define and implement Service Level Agreements (SLAs) between the City, the County, the Rancheria, and any other regional partners for data sharing that includes defining performance metrics, identifying quality standards, and documenting the responsibilities agreed upon by all parties. These data sharing agreements typically govern the sharing of data between parties, ensuring that data is handled securely, used appropriately, and protected under legal frameworks. They help mitigate risks associated with data misuse, privacy violations, and compliance issues by clearly outlining the roles, responsibilities, and rights of each party involved in the data sharing process.

Expected Benefits

Make Better Quality and More Effective Decisions: With proper GIS governance, the LCTC can be confident in the integrity of its spatial data used in decision-making. Maintaining high-quality, consistent, and well-governed data leads to more informed, strategic, and impactful decisions.

Save Time: Governance frameworks ensure that GIS data is accessible when needed, and the right stakeholders have access to the right data by streamlining operations and workflows to maximize efficiency and minimize wasted time.

Comply with State and Federal Mandates: Many industries are subject to regulations that dictate how geographic data must be handled, especially when it involves public safety, land use, or environmental data. GIS governance can help the LCTC and regional partners adhere



to and satisfy the legal and regulatory requirements set forth by relevant state and federal authorities.

Identification of Potential Risks: GIS data can be instrumental in identifying and analyzing risks, such as flood zones, traffic congestion, or environmental hazards. GIS governance ensures that the data used for these analyses is accurate, up-to-date, and comprehensive, allowing organizations to make proactive decisions and mitigate risks.

Help Build a Resilient Community: In the event of natural disasters or emergencies, GIS governance ensures that geographic data is readily available and can be used to guide response efforts, ensuring that all stakeholders are using the same, accurate information. This supports the development of a strong and adaptable community that can effectively handle and recover from challenges and setbacks.

Streamlining Business Operations: Well-defined GIS governance protocols help streamline the processes for data collection, storage, and usage. This reduces inefficiencies by simplifying and optimizing workflows and procedures to minimize redundancies and improve overall operational efficiency.

Save Money: By ensuring that GIS resources (such as data, tools, and staff) are used effectively, GIS governance can reduce costs related to data redundancy, storage, and unproductive workflows.

Effective Management of the Organization's Assets: GIS data is one of the most valuable organizational assets and should be managed in a way that optimizes its use to achieve organizational objectives. Data governance frameworks establish clear roles and responsibilities for managing geographic data and systems. This ensures that data stewardship, data management, and decision-making processes are properly assigned and accountable.

Data Maintenance

Data maintenance involves managing, updating, and ensuring the quality of data throughout its lifecycle. These processes include various tasks that ensure that data remains accurate, up to date, accessible, and compliant with any relevant regulations. Effective data



maintenance is critical to business operations, as data is a vital asset that supports decision-making and operational efficiency.

Recommended Actions

Develop Regional Data Standards

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

- ◆ **Data Creation and Maintenance Standards and Procedures** – The process by which data is collected, digitized, cataloged, and turned into information products, including data accuracy standards, assigned data stewards and custodians, and update frequency by layer, and Field data collection standards
- ◆ **Data Submittal Standards** – Requirements to ensure data received from third parties is complete and interoperable with existing systems.
- ◆ **Schemas and Models** – Common structures for key datasets such as parcels, roads, addresses, utilities, and land use.
- ◆ **Attribute Definitions and Naming Conventions** – Standardized field names, formats, and domain values for clarity and uniformity.
- ◆ **SLAs for Data Maintenance** – The legal framework for mitigating risks, facilitating transparent operations, and improving collaboration by formalizing expectations and compliance requirements.
- ◆ **Metadata Standards and Procedures** – Guidelines for documenting datasets, including required metadata elements and update frequency.
- ◆ **Data Retention and Update Policies** – Definition of how long data is retained to avoid stagnant data, how data and systems are backed up, and procedures for restoring archived content.

Create and Maintain Critical Data Layers

Critical base data layers refer to the data layers that are central to the GIS initiative and are mandatory for the successful use of GIS at an organization. The Lassen County regional partners identified multiple data layers that are mission-critical throughout the county. Regional collaboration will allow the Lassen County regional partners to develop new ways



to maintain mission-critical and regional data. These layers include (but are not limited to) the following:

Category	Data Layer
Boundary Data	◆ Parcel Boundaries ◆ Right of Way Boundaries ◆ Zoning Data ◆ Political Boundaries
Transportation Data	◆ Road Centerlines – County, State, and National Highways ◆ Bike Lanes ◆ Sidewalks ◆ Bridges
Transit Data	◆ Transit/Bus Routes ◆ Bus Stops ◆ Ridership Data ◆ Bike Lanes and Trails ◆ Recreational and Historical Amenities
Environmental Data	◆ Flood Plain Maps ◆ Wildfire Hazard Maps ◆ Evacuation Routes ◆ Wildlife Corridors

Centralize GIS Data Layer Services

A central repository is the region's aggregated collection of GIS data gathered from all information resources. Establishing a central repository within the region would provide a formal mechanism for organizing, maintaining, updating, and distributing geospatial data as it continues to evolve. It would also minimize the duplication of efforts associated with multiple regional agencies managing multiple geospatial datasets. In addition, 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.



Expected Benefits

Centralized Data Access: Governance frameworks enable the creation of centralized repositories where GIS data is stored, which makes it easier for employees from various departments or regions to access and share spatial information.

Data Provenance and Traceability: Allows tracking the history of data, including its source, updates, and changes, improving data traceability and auditability.

Standardization of Data: Regionalization of data maintenance ensures that geographic data is standardized throughout the region. This includes consistent formats, naming conventions, and metadata standards, which make the data more reliable and interoperable.

Improve Data Accuracy: Setting guidelines for data collection, processing, and validation helps maintain high data quality. This ensures that geographic data used for decision-making is accurate and trustworthy.

Adaptation to Change: As the region grows, so do its GIS needs. Effective governance frameworks allow the organization to scale its GIS operations while maintaining data quality, security, and accessibility. Whether incorporating new data sources, technologies, or users, GIS governance ensures that the system remains adaptable and effective.

Enhance Data Analytics: When adopting new technologies and systems, spatial data may be integrated seamlessly with other enterprise systems (e.g., customer relationship management, asset management). This involves improving the process of examining, cleansing, transforming, and modelling data to gain meaningful insights, make decisions, and solve problems.

Security and Privacy: Ensures that sensitive geographic data (such as personal location data) is protected and only accessible to authorized individuals, mitigating the risk of data breaches and ensuring compliance with privacy laws.



Data Sharing

Regional data sharing offers numerous benefits for addressing issues that transcend local boundaries, such as economic development and infrastructure.

Recommended Actions

Define 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. The Lassen County Region should implement guidelines to ensure shared data is easily consumable by other resources, such as standardizing the use of external REST services.

Provide Opportunities to Share Regional Data

To provide universal access to geospatial data and information by, for, and about their respective stakeholders, regional GIS programs rely on partnerships among data creators to provide data to be shared with their partners. Information is typically stored and shared online through a central data hub and browser-based applications, which allows GIS professionals to access spatial data and provide opportunities for regional partner agencies to explore the data through live, interactive mapping websites. ArcGIS Hub is ideal for organizing and sharing data. Its configurable entry page lets the lead agency share regional information dynamically. It mainly serves as a hub for categorizing and sharing data in an organized and user-friendly way.

Lassen County's ArcGIS Online and ArcGIS Hub should be leveraged to host and centralize frequently needed GIS data layers for regional use. Regional partner datasets may also be included in the Hub data, and state and federal agencies' datasets can be accessed through the central hub and web applications, such as CALTRANS data layers.



Expected Benefits

Improve Access to Government Information: Enhancing the availability and accessibility of government-related information to Lassen County's regional partners.

Visualize Planning Scenarios: Lassen County regional partners will be able to create visual representations of potential future situations or strategies to aid in decision-making and planning.

Improve Inter-Agency Thinking: Encourages collaboration and knowledge sharing across different departments to promote a broader and more holistic approach to problem-solving.

Improve Communication, Coordination, and Collaboration: Fosters better interaction, teamwork, and synergy among employees and departments to achieve common goals.

Improve Information Processing: This involves enhancing the way data and information are handled, managed, and utilized within an organization.

Promote Economic Growth: Encouraging and supporting the expansion and development of economic activities within a community.

Respond Faster to Regional Risks: Sharing GIS data allows regional authorities to more efficiently coordinate emergency response efforts. This reduces response times, saves lives, and enhances regional resilience.

GIS Applications

The GIS Needs Assessment has identified several applications to improve information sharing and collaboration. These apps could be hosted on the ArcGIS Hub site. Below are the benefits for Lassen County regional stakeholders to consider in deciding which apps to develop.

Recommended Actions

Advance the Esri Ecosystem of Solutions for Regional Use

Advancing the Esri ecosystem for regional use requires a strategic approach that integrates scalability, interoperability, and accessibility. Regional governments and organizations must



ensure that GIS solutions can handle large datasets efficiently while maintaining seamless integration with existing infrastructure.

Another key consideration is customization and adaptability. Esri's tools should be tailored to meet the unique needs of the regional stakeholders, whether for planning, disaster response, infrastructure, or economic development. Investing in training and capacity-building ensures that local professionals can leverage GIS technology effectively. Finally, embracing cloud-based solutions and AI-driven analytics can enhance predictive modelling and real-time decision-making, making GIS more impactful at a regional scale.

Esri offers various licensing structures tailored to different organizational needs, including regional agreements that provide flexibility for governments, businesses, and institutions. One option is the Enterprise Agreement (EA), which simplifies procurement and offers organization-wide access to ArcGIS software. This model allows regional entities to scale their GIS infrastructure while maintaining predictable costs.

Additionally, Esri provides user-type-based licensing, where different levels of access are granted based on roles within an organization. This ensures that GIS professionals, analysts, and casual users can access the tools they need without unnecessary costs. The Esri representative for the area should be consulted to determine the best license structure for the regional consortium.

Develop Regionally Targeted Software Applications and Solutions

GIS solutions play a crucial role in local government operations, helping officials make data-driven decisions and improve services. The targeted and focused applications and solutions listed below will enable the regional stakeholders to make smarter decisions, deliver better services, and increase operational efficiency, all while supporting long-term sustainability and community outcomes.

Application Type	Description	Identified By
Internal Economic & Infrastructure Viewer	Internal web GIS viewer with data on parcels, zoning, utilities, infrastructure, and public safety/fire zones.	City of Susanville
Public Recreation & Tourism Viewer	Public-facing GIS app showcasing parks, trails, scenic areas, and recreational amenities to promote tourism.	City of Susanville, SIR



Application Type	Description	Identified By
Transportation & Active Mobility Viewer	Viewer showing roads, sidewalks, bike lanes, bus routes, and OHV trails.	City of Susanville, LTSA, SIR
Transit Trip Planner Application	Public-facing route planner integrating bus and trail networks.	LTSA
Transit & Crash Dashboards (Internal)	Dashboards for ad-hoc reporting, transit ridership trends, and traffic crash metrics.	LTSA
Cultural & Historical StoryMaps	StoryMaps showcasing cultural, tribal, and business district history or tourism opportunities.	City of Susanville, SIR
Transportation Plan StoryMaps	StoryMaps communicate elements of the Regional and Active Transportation Plans.	LTSA
Public Engagement & Interpretive App	GIS app for community engagement through interpretive walking paths and traditional knowledge.	SIR
Open Data Portal (ArcGIS Hub)	Public/partner-facing data sharing platform for downloading GIS datasets.	City of Susanville, SIR

Expected Benefits

The GIS applications deployed across Lassen County, the City of Susanville, LTSA, and SIR deliver a wide spectrum of strategic benefits. Overall, the potential key benefits include:

Improved Operational Efficiency: Applications streamline business operations, support more informed decision-making, and enhance coordination across departments and jurisdictions.

Streamline Business Operations – A shared-service software license agreement streamlines procurement and support by reducing duplication across agencies and centralizes administration, budgeting, and licensing management.

Save Money – A regional license agreement reduces per-user licensing costs through volume discounts and avoids redundant expenditures.

Enhanced Public Engagement and Transparency: Public-facing viewers, StoryMaps, and open data portals empower residents, promote cultural and historical awareness, and foster transparency in governance.



Stronger Infrastructure and Asset Management: Internal viewers and dashboards support effective management of transportation, utilities, and public safety assets while improving data accuracy and monitoring.

Increased Access to Services: Tools like trip planners and transportation viewers help residents access services more efficiently, promoting equity and convenience.

Engineer Technology Strategies – Advancing Esri as the regional ecosystem supports standardization of technology platforms, improving integration and IT planning.

Support for Economic and Environmental Goals: Applications stimulate tourism, economic development, and environmental stewardship by showcasing opportunities and tracking sustainability initiatives.

Cultural and Historical Preservation: Interpretive and StoryMap applications preserve tribal history and traditional knowledge, enhancing education and cultural resilience.

To assist in determining which solutions to implement, the key benefits of each of the identified regional applications are listed below:

Application Type	Key Benefits Realized
Internal Economic & Infrastructure Viewer	◆ Effective Management of Assets and Resources ◆ Make Better Quality and More Effective Decisions ◆ Improve Data Accuracy ◆ Promote Economic Growth
Public Recreation & Tourism Viewer	◆ Empower and Engage Residents ◆ Promote Economic Growth ◆ Improve Access to Government Information ◆ Promote Cultural Enrichment and Education
Transportation & Active Mobility Viewer	◆ Improve Efficiency ◆ Respond More Quickly to Citizen Requests ◆ Monitor Real-Time Critical Events ◆ Promote Environmental Stewardship ◆ Improve Access to Government Information
Transit Trip Planner Application	◆ Save Time ◆ Improve Communication, Coordination, and Collaboration ◆ Empower and Engage Residents



Application Type	Key Benefits Realized
	◆ Help Build a Resilient Community
Transit & Crash Dashboards (Internal)	◆ Track People, Vehicles, and Events ◆ Improve Information Processing ◆ Visualize Planning Scenarios ◆ Engineer Technology Strategies ◆ Monitor Real-Time Critical Events
Cultural & Historical StoryMaps	◆ Promote Cultural Enrichment and Education ◆ Preserve and Promote Historic Resources ◆ Inform and Educate Stakeholders ◆ Promote Economic Growth
Transportation Plan StoryMaps	◆ Inform and Educate Stakeholders ◆ Visualize Planning Scenarios ◆ Promote Open and Transparent Government ◆ Engineer Technology Strategies
Public Engagement & Interpretive App	◆ Promote Cultural Enrichment and Education ◆ Empower and Engage Residents ◆ Foster Social Equity, Justice, and Equality ◆ Preserve and Promote Historic Resources
Open Data Portal (ArcGIS Hub)	◆ Improve Access to Government Information ◆ Promote Open and Transparent Government ◆ Provide Data to Regulators, Developers, and Other Parties ◆ Establish Economic, Societal & Environmental Sustainability



Conclusion

Collaborative GIS efforts, effective data governance, and robust sharing practices are crucial for improving regional transportation, emergency response, and economic planning in Lassen County. This business strategy report for Lassen County Regional Partners highlights a pathway towards enhanced regional collaboration, operational efficiency, and strategic decision-making through the adoption of advanced geospatial technologies.

Key Outcomes and Benefits

Improved Data Governance: Establishing robust governance frameworks ensures effective management, accessibility, and compliance of GIS resources. This leads to more informed decision-making, time savings, and better alignment with state and federal mandates.

Streamlined Data Maintenance: By creating and maintaining high-quality, standardized, and centralized GIS data, the Lassen County regional partners can support critical operations such as transportation planning, emergency response, and economic development.

Enhanced Data Sharing: Implementing formal agreements and leveraging platforms like ArcGIS Online will enable seamless data sharing among stakeholders, fostering collaboration and improving regional planning efforts.

Strategic Recommendations

Strengthen Regional Partnerships: Formalize relationships through Service Level Agreements and collaborative committees to ensure sustained engagement and cooperation among regional stakeholders.

Prioritize Critical Data Layers: Focus on developing and maintaining essential GIS data layers, including transportation networks, zoning data, and emergency response maps.

Invest in Capacity Building: Organize regular training sessions and workshops to enhance the technical capabilities of all involved personnel and encourage broader adoption of GIS tools.

The Lassen County Region's commitment to leveraging geospatial technology lays a foundation for a resilient, well-connected, and informed community. Through collaborative



efforts, this initiative not only addresses current operational needs but also prepares the region for future challenges and opportunities. The successful implementation of this GIS framework will ensure that the region remains a model for innovation and effective governance in regional planning and management.

