NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

Sole Source Application and Determination Form

A sole source determination is not effective until the sole source application for determination has been posted on the Purchasing website for thirty (30) calendar days without protest and is subsequently approved in writing by the Vice President of Administration and Finance.

1. Name of Department: NMBGMR/GIS Services
   Contact Name: Phil L. Miller
   Phone: 575-835-5487
   Email: phil.miller@nmt.edu

2. Name of Prospective Vendor: ESRI
   Contact Name: Andrew Haglund
   Phone: 909-369-3893 x3893
   Email: ahaglund@esri.com
   Estimated Cost: $140,000
   Duration (for Services or Professional Services – limited to four years): 4 years

3. Purpose/need for purchase and detailed list of items of tangible property, services, or professional services:

   The department is purchasing an Educational Institutional Agreement (EIA) for the ESRI ArcGIS platform, including ArcGIS Enterprise, ArcGIS Online, ArcGIS Pro, Drone2Map, and associated technical support services. This software suite is used by New Mexico Tech (NMT), the University of New Mexico (UNM), and New Mexico State University (NMSU) for education, geospatial data management, scientific research, spatial analysis, cartographic production, web GIS development, field data collection, and public dissemination of research products and publications.

   The software is used to create, manage, analyze, visualize, and publish spatial data related to geological, environmental, hydrological, geothermal, seismic, mineralogical, biological, and other scientific research activities where the location on the earth is imporant. It supports the

creation of professional-quality maps, web applications, dashboards, story maps, and enterprise GIS services used by faculty, staff, students, and researchers.

The purchase provides licensing for approximately 55,000 users across the three-university consortium and supports both desktop and enterprise GIS operations, including web-based GIS services, field data collection, drone mapping workflows, cloud-based data management, and secure organizational licensing.

4. Detailed explanation of criteria developed for this purchase:

An established GIS workflow has been in place and evolved using the ArcGIS platform provided by ESRI since the mid 2000's, prior to my employment at New Mexico Tech. That workflow has evolved using the technology provided by ESRI, and evolved as their software has developed new capabilities. The original workflow was basic, but utilizing the technology provided in ArcGIS by ESRI has grown to a 172 page workflow process, that is being revised as of the writing of this application to incorporate new developments in our publication process.

The software solution must meet the following minimum requirements:

Licensing and Enterprise Requirements

- Institutional licensing sufficient to support three universities of varying sizes.
- Centralized user management and organizational administration.
- Active Directory/Single Sign-On (SSO) compatibility.
- Remote licensing capabilities.
- Cloud-based and on-premises deployment options.
- Enterprise-level security controls and permissions management.
- Multi-organization collaboration and data-sharing capabilities.

Data Management Requirements

- Support for enterprise geodatabases.
- Management of both spatial and non-spatial databases.
- Native integration with SQL Server, PostgreSQL, and other relational database management systems.
- Full attribute table editing and schema management.
- Full implementation of metadata standards.
- Import and export of data from multiple GIS platforms and design software.
- Data type conversion and migration tools.
- Support for proprietary legacy GIS formats, including MXD and MPK files to prevent the loss of legacy datasets.

GIS Analysis and Visualization Requirements

- Vector and raster data support.
- Advanced spatial analysis capabilities.
- Hydrology analysis tools, including but not limited to:

    - flow modeling
    - flow accumulation
    - flow direction
- Raster analysis and remote sensing workflows.
- NDVI and other imagery-based analysis tools.
- Contour generation, slope analysis, aspect analysis, and shaded relief generation.
- Mosaic dataset creation and management.
- Real-time visualization of seismic, geothermal, and scientific monitoring networks.
- Integrated drone mapping workflows.

Cartographic Production Requirements

- Professional cartographic design capabilities.
- Highly configurable symbology and style management.
- Cartographic blending modes.
- Advanced font and labeling controls.
- SQL-based layer configuration.
- Multi-map and multi-page layout production.
- Export capabilities for:
    - vector formats: GeoPDF, PDF, AIX
    - raster formats: tif, jpg, png.
- Preservation and transfer of project settings, layers, styles, and workflows.
- Savable and reusable layer files.

3D and Specialized Visualization Requirements

- Stereoscopic viewing environments
    - Active shutter
    - beam-splitting
    - anaglyph 3D
- Integration with photogrammetry and 3D mapping workflows.

Automation and Development Requirements

- Python scripting support.
- Geoprocessing tool scripting.
- Workflow automation tools.
- Model Builder or equivalent low-code/no-code workflow automation.
- API and extensibility support.

Web GIS and Field Operations Requirements

- Distributed Web GIS publishing and management.
- Web-based mapping applications and services.
- Story Maps creation and publication.
- Offline-capable field data collection.
- Public-facing and citizen science data entry applications.
- Public GIS service hosting and data dissemination.

Support Requirements

- Vendor-provided technical support.
- Formal software documentation.
- Defined software lifecycle and support schedules.
- Software maintenance and update services.

5. Provide a detailed, sufficient explanation of the reasons, qualifications or unique capabilities of the prospective vendor that make that prospective vendor the one source for providing the items of tangible property, services, or professional services:

   ESRI is the sole source for the ArcGIS platform and associated licensing. ArcGIS Enterprise, ArcGIS Online, ArcGIS Pro, Drone2Map, and the Educational Institutional Agreement are proprietary products developed, licensed, and distributed exclusively by ESRI.

   The consortiums requirements include a fully integrated platform that combines:

   - Enterprise GIS infrastructure.
   - Desktop GIS production.
   - Web GIS deployment.
   - Institutional user licensing.
   - Field data collection.
   - Drone mapping integration.
   - Enterprise geodatabase management.
   - Low-code/no-code workflow automation.
   - Vendor-supported technical assistance.

   No other vendor offers the ArcGIS software products, licensing structure, institutional agreement, or direct access to ESRI technical support.

   While individual competitors may provide portions of the required functionality, no alternative vendor has been identified that can provide all required capabilities within a single integrated platform that supports the consortium-wide deployment, enterprise administration, web GIS infrastructure, and educational licensing model required by NMT, UNM, and NMSU.

6. Provide a detailed, sufficient explanation of how the items of tangible property, services, or professional services is/are unique and how this uniqueness is substantially related to the intended purpose of the department/grant:

   Use of the ArcGIS enterprise environment has been built and established for our interactive web map for over a decade. It is how we share our progress, mapping, research, and planned efforts with our stakeholders. This was chosen because it directly integrates with our production process for anything that we publish that has a geospatial component to it.

ESRI doesn't authorize the use of resellers so the only way to obtain the software for desktop GIS and Enterprise GIS and licensing is directly through ESRI.

The ArcGIS platform is unique because it combines desktop GIS, enterprise GIS, web GIS, cloud services, field data collection, drone mapping, enterprise database management, and scientific analysis tools within a single integrated ecosystem.

This integrated environment allows researchers and GIS professionals to:

- Collect field data in online and offline environments.
- Manage enterprise geodatabases.
- Conduct advanced spatial and raster analysis.
- Produce publication-quality cartographic products.
- Create and manage web GIS applications.
- Share data securely across multiple institutions.
- Publish public-facing GIS services.
- Automate workflows through scripting and model-based processes.

The platform's integrated architecture allows data, services, user accounts, security settings, maps, applications, and analysis workflows to operate within a common environment without requiring custom software development or extensive third-party integration.

These capabilities directly support the department's scientific research, public service responsibilities, educational mission, and statewide collaboration efforts.

Disruption of services caused by lapse of access or change from ArcGIS would be detrimental to the Bureau's, the National Cave and Karst Research Instituted, and other departments at NMT, as well as NMSU's, and UNM's current and ongoing projects. This would not be in the best interest of the universities or the state of New Mexico.

7. Please provide a narrative description department's due diligence in determining a basis for the procurement. Include:

The department has evaluated and utilized through prior use, as well as conversations with other State Surveys and Universities as well as a review of documentation of multiple GIS and mapping platforms, including QGIS, GRASS GIS, Global Mapper, Google Earth, Avenza Maps, Kingdom, and Petrel.

QGIS

QGIS provides many GIS functions and is a viable open-source GIS platform. However, it does not provide a single-vendor enterprise ecosystem that includes institutional licensing, enterprise GIS infrastructure, integrated web GIS deployment, centralized technical support, and the complete suite of capabilities required by the three-university consortium. Many advanced functions rely on community-developed plugins with varying levels of documentation and support.

GRASS GIS
GRASS GIS provides advanced analytical capabilities but lacks the integrated desktop, enterprise, web GIS, and institutional licensing environment required by the consortium. It also requires significantly greater technical expertise for many workflows.

Global Mapper
Global Mapper provides certain GIS and data conversion functions but lacks enterprise GIS capabilities, distributed web GIS infrastructure, enterprise licensing management, and many of the advanced cartographic, database, and publishing tools required for departmental operations.

Google Earth
Google Earth is effective for visualization and public display of geographic information but lacks the advanced data management, analysis, cartographic production, enterprise GIS, automation, and publication capabilities required by the department.

Avenza Maps
Avenza primarily supports mobile mapping and field operations and does not provide a comprehensive enterprise GIS platform capable of meeting the department's requirements.
Kingdom
Kingdom provides strong subsurface interpretation capabilities but is designed primarily for geological interpretation rather than enterprise GIS operations, web GIS publishing, large-scale cartographic production, and multi-institution GIS administration.

Petrel
Petrel provides advanced subsurface modeling capabilities but is focused primarily on petroleum industry workflows. It does not provide the broad GIS, web GIS, enterprise licensing, and cartographic production environment required by the consortium. Additionally, implementation costs are significantly higher for comparable deployment levels.

Based on this evaluation, no alternative product was identified that satisfies all required technical, operational, enterprise, licensing, support, and collaboration requirements within a single commercially supported platform. ESRI remains the only vendor capable of providing the complete integrated solution required for the three-university consortium's GIS operations.

I certify I have performed thorough and diligent research and analysis to determine that ESRI is the only source capable of providing the required Enterprise Geographic Information Systems software. I understand that violations of the New Mexico Procurement Code (Chapter 13, Article 1 NMSA 1978) can carry severe penalties. I affirm that the information provided in this Sole Source Determination is true and accurate to the best of my knowledge and belief.

Name, Title: Phil L. Miller, GIS Services Program Manager

AdobeSign/Date
Phil L. Miller / 2026/06/01

Review: Purchasing Services (Name, Title): Meradeth Montoya Associate Director

AdobeSign/Date
7.7.26

Website Posting Date:

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Protested (Yes/No):

Approval: Delilah A. Walsh
Vice President of Administration and Finance

AdobeSign/Date
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