PAGis Damage Assessment and Emergency Response Program

URISA ESIG Application - 2023

Alex Harper
PAGis Manager

www.pagis.org
A. System

1. Name of the system and ESIG™ category for which you are applying

PAgis (Pulaski Area Geographic Information System) located in Central Arkansas is submitting an application for consideration for the Enterprise Systems category for the PAgis Damage Assessment and Emergency Response Program in response to the March 31, 2023, tornado that tore through multiple jurisdictions in Central Arkansas.

![PAgis Damage Assessment Hub Site](image)

*Figure 1: PAgis Damage Assessment Hub Site*

2. A letter from the executive administrator authorizing submission of the system application – please see attachment

3. One (1) page, or less, a summary of what the system accomplishes and why it is exemplary.

On the afternoon of March 31, 2023, a tornado later rated as an EF-3 tornado caused widespread damage in heavily populated areas, including Little Rock, North Little Rock, Sherwood, and Jacksonville. Despite the destructive force of the tornado, the coordinated efforts of the Pulaski Area Geographic Information System (PAgis) and its member agencies led to an exemplary emergency response.

PAgis, an independent government agency comprising eight individual agencies in the Pulaski County area, specializes in acquiring, maintaining, and distributing GIS-related data for its members. In the aftermath of the tornado, PAgis collaborated with Esri, a leading GIS software provider, to activate a Damage Assessment Program. This program equipped PAgis members with the necessary maps and applications to conduct damage assessments efficiently.
Within a matter of days, PAgis staff provided over twenty (20) maps and applications to four member agencies, facilitating their assessment processes. Furthermore, PAgis consolidated aerial assessments conducted by in-house teams and external organizations such as FEMA and the Red Cross, enabling emergency responders to comprehensively understand the extent of the damage. In the following weeks, PAgis staff provided our water and wastewater member agencies with an analysis of locations that were affected by damage, so those member agencies could reach out to their customers.

Two days before the tornado, PAgis held a strategic retreat involving all its members, including emergency response discussions. As a result of this retreat, emergency management officials became aware of PAgis' capabilities and requested PAgis maps to be displayed in their Emergency Operation Centers. This proactive approach helped maximize the utilization of PAgis resources in the tornado's immediate aftermath.

With support from Esri, PAgis staff successfully deployed web apps, maps, and Hub sites across multiple jurisdictions. The Hub sites served as a centralized source of information for responders, providing them with quick access to essential data. One of the web applications developed was the Road Closure and Traffic Signal app, which enabled residents in Little Rock to monitor real-time road conditions in affected areas.

Another significant web application was the PAgis Before and After Map Viewer, allowing staff from multiple jurisdictions to swiftly view before and after imagery of affected areas. This facilitated better planning for field damage assessments, allowing for the selection of addresses from damaged structures. Each jurisdiction had the option to duplicate and rebrand the application for public sharing if desired.

![Figure 2: Little Rock Before and After Tornado Map](image)

Considering the significant impact of the tornado on approximately 6,574 addresses, each jurisdiction requested their dashboards to view real-time assessments collected in the field. This enabled them to monitor progress and allocate resources effectively.
Overall, the coordinated efforts of PAgis and its member agencies, combined with the strategic retreat, effective collaboration with Esri, and swift deployment of resources, resulted in a remarkable emergency response. Despite the destructive force of the tornado, the casualties were limited to just over fifty (50) injuries and one fatality. The exemplary response of PAgis demonstrates the importance of proactive planning, collaboration, and leveraging GIS technology in mitigating the impact of natural disasters and protecting the community and has advanced disaster response planning discussions across the region.

4. Three “user testimonials” – please see the attached.

B. Jurisdiction

1. Name of Jurisdiction
   PAgis (Pulaski Area Geographic Information System)

2. Population serviced by the organization/agency
   399,145 - based on Census Population Estimates 2022

3. Annual total budget for jurisdiction
   $1.1 million budget FY 2023

4. Name, title, and address of chief elected and/or appointed official
   Barry Hyde, Pulaski County Judge, 201 S. Broadway, Suite 400, Little Rock, AR 72201

5. Name, title, address, telephone, FAX, and email of contact person for the system
   Alex Harper, PAgis Manager, 221 E. Capitol Ave, Little Rock, AR, 72202, (501) 377-1253, alex.harper@carkw.com
C. System Design

1. What motivated the system development?

The motivation behind the system’s development was to empower responders with the necessary tools and technology to navigate the challenges posed by the tornado aftermath. PAgis is positioned to assist each of the jurisdictions that were affected by offering up services and technology. With PAgis recognizing the challenges posed by the disaster it was necessary to collaborate with Esri to deploy a Disaster Response Program (DRP) to gain expert assistance with applications and data availability. By leveraging GIS technology and collaboration with Esri, PAgis aimed to provide a comprehensive solution that facilitated efficient emergency response, data collection, and decision-making across multiple jurisdictions.

2. What specific service or services was the system intended to improve?

The system was intended to improve various services related to emergency response and disaster management. Specifically, it aimed to enhance services such as damage assessment, mapping, data collection, and decision-making processes. The development of web apps, maps, surveys, and Hub sites, along with the integration of GIS technology, aimed to streamline these services and facilitate efficient coordination and communication among multiple jurisdictions affected by the tornado.

3. What, if any, unexpected benefits did you achieve?

One of the most unexpected benefits we achieved with this system was the positive perception of GIS technology and its utilization by high-ranking officials within the organization. Another unexpected benefit that we saw was the deployment of more mobile devices by jurisdictions that had not deployed them in the past. These mobile devices helped gather data in real time and emergency managers are now thinking of ways to utilize this for future events.

4. What system design problems were encountered?

The Esri Disaster Response Program (DRP) solution provided a range of pre-built feature services, web maps, applications, Survey123 surveys, and dashboards. However, several of these components required extensive customization to meet the specific requirements of our jurisdiction. PAgis staff, with the assistance of Esri support, successfully implemented these customizations to tailor the system to our needs.

During the early stages of the system's design, a challenge emerged regarding user logins for ArcGIS Online. With a large number of end users being deployed to the field for damage assessment, the requirement for logins and training presented obstacles. To overcome this, the decision was made to prioritize ease of use and simplicity in training by initially utilizing shared logins and open access. This approach allowed users to swiftly access the system without individual logins, although it deviated from best practices. As the system progressed, efforts were made to transition all users to individual logins following proper security protocols.
D. Implementation

1. What phases did you go through in developing the system?

The initial phase of the response involved reaching out to all PAgis member agencies to ensure their well-being and safety. The next step was to assess how PAgis and its staff could assist in emergency response efforts. During this time, Esri informed PAgis about the availability of the Disaster Response Program (DRP) and offered their assistance.

While discussing the needs of PAgis members, a request for a large printed map was made. However, PAgis staff recognized the limitations of printed maps becoming quickly outdated and explored alternative solutions. They began working late into the night to launch online solutions on the PAgis ArcGIS Online organization site.

In the following days, PAgis staff collaborated with emergency responders to develop surveys and applications that could be used by non-GIS users in the field to collect data on damaged areas. Within a week, more than 20 applications were launched across all jurisdictions, providing dashboards and maps that fed into the Emergency Operation Centers (EOCs) for decision-makers. The large printed map was never looked at again.

As damage assessments were coming in, staff were monitoring to make sure assessment points were being placed on the addresses of the buildings. At one-point, additional training of field staff was needed to correct how they were collecting data in the field.

Figure 3: Little Rock Damage Assessment Dashboard

PAgis staff, along with the City of Little Rock and the City of North Little Rock staff, conducted aerial assessments using heads-up digitizing techniques to identify and map structures with visible damage based on aerial imagery captured immediately after the tornado. This data was combined with the
damage assessments collected in the field, providing decision-makers with a comprehensive and accurate understanding of the extent of the damage caused by the tornado.

The use of heads-up digitizing allowed for precise identification and mapping of affected structures, ensuring that decision-makers had access to reliable and up-to-date information. By integrating aerial assessments with on-ground data collection, a more complete picture of the damage was obtained, enabling effective decision-making and resource allocation for recovery and relief efforts.

The collaboration between PAgis staff and the City of Little Rock and the City of North Little Rock staff in conducting these assessments demonstrates a coordinated and comprehensive approach to assessing and documenting the impact of the tornado. This data-driven approach enhances the ability to prioritize response efforts and allocate resources efficiently in the aftermath of a natural disaster. PAgis played a significant role in coordinating efforts with EOCs, FEMA, and the Red Cross for damage assessments. Now that the assessments are mostly complete, PAgis has transitioned into the cleanup phase, continuing to provide data to support decision-making processes.

Figure 4: PAgis Aerial Image Damage Assessment Dashboard

2. Were there any modifications to the original system design? Why? What?

Yes, there were modifications made to the original system design based on the specific needs and requirements of each PAgis member agency. The modifications were necessary to ensure that the system aligned closely with the operational and organizational context of PAgis and its member agencies.

One of the modifications involved extensive customization of the out-of-the-box features, web maps, applications, Survey123 surveys, and dashboards provided by the Esri Disaster Response Program (DRP). These customizations were carried out by PAgis staff with the assistance of Esri support to tailor the system to better fit the jurisdiction’s specific requirements.

Additionally, a design problem that emerged early on was the need for user logins for ArcGIS Online. With a large number of end users being deployed to the field for data collection, user logins and training
became obstacles. As a result, the original design deviated from best practices, initially utilizing shared logins and open access to ensure ease of use and simplify training. However, efforts were made to transition all users to individual logins following proper security protocols as the system progressed.

These modifications were made to ensure that the system effectively met the jurisdiction's unique needs, provided a user-friendly experience, and aligned with the organizational requirements for efficient emergency response and data collection during the tornado aftermath.

**E. Organizational Impact**

1. **What user community does the system serve and how?**

   The primary user community that benefited from this system was the Emergency Management and Response staff across all jurisdictions affected by the March 31, 2023, tornado. The system provided them with a wide range of internal applications tailored to their specific needs, offering comprehensive information and tools to support their emergency response efforts.

   In addition to internal applications, PAgis also developed a public facing Before and After Web Application. This application allows anyone to assess the extent of the damage by using a slider bar to compare aerial imagery before and after the tornado. This public-facing tool provides valuable insights to residents, stakeholders, and the public about the impact of the tornado and the progress of recovery efforts.

   Furthermore, the City of Little Rock implemented public-facing web applications and surveys specifically designed for residents affected by the tornado. These applications and surveys enabled affected residents to submit relevant information and contribute to the recovery process, fostering a sense of engagement and collaboration between the city and its residents.

   The development of both internal and public-facing applications showcased the system's versatility in catering to different user groups and meeting the diverse information needs of emergency management personnel, residents, and the wider community.

2. **What are the ultimate decisions/operations/services being affected?**

   The system and the collaborative efforts between PAgis and Esri have significantly impacted various aspects of emergency response and recovery operations. Decision-making processes have been enhanced through the provision of comprehensive and up-to-date information on the extent of tornado damage. Accurate data collection and assessment have played a vital role in evaluating the impact, identifying critical areas, and guiding resource allocation for cleanup and recovery efforts. The system also facilitates public engagement by providing residents with access to information, aerial imagery, and channels for submitting relevant details. Furthermore, the system fosters coordination and collaboration among jurisdictions, emergency management agencies, and partner organizations, ensuring effective communication, data sharing, and a collaborative approach to disaster response. Overall, the system improves operational efficiency, supports informed decision-making, enhances public information dissemination, and promotes effective coordination for delivering essential services to those affected by the tornado.
3. What were the quantitative and qualitative impacts of the system?

The quantitative and qualitative impacts of the system are as follows:

**Quantitative impacts:**

Efficient data collection: The system facilitated efficient data collection processes, allowing for the assessment of over 6,574 addresses affected by tornado damage. This quantitative data provided a comprehensive overview of the extent of the damage, enabling informed decision-making and resource allocation.

Timely deployment of applications: Within a week, more than 20 applications were launched across jurisdictions, providing real-time dashboards and maps to Emergency Command Centers. This timely deployment ensured that decision-makers had access to critical information promptly, enhancing the efficiency and effectiveness of emergency response efforts.

**Qualitative impacts:**

Improved decision-making: The system provided decision-makers with a clearer vision of the damage through aerial assessments, heads-up digitizing, and field-collected data. This improved situational awareness empowered decision-makers to make informed choices regarding resource allocation, prioritization, and recovery efforts.

Enhanced collaboration and coordination: The system fostered collaboration and coordination among PAgis staff, Emergency Management and Response personnel, and other agencies such as FEMA and the Red Cross. This collaborative approach ensured a unified response to the disaster, streamlined communication, and facilitated effective coordination of resources and support.

Positive perception of GIS technology: The successful utilization of GIS technology and the system’s capabilities positively influenced high-ranking officials within the organizational chart. This recognition highlighted the value and potential of GIS technology for future emergency response and decision-making processes.

Public engagement and transparency: The public-facing web applications, including the Before and After Web Application, engaged residents and allowed them to assess the damage and track the recovery progress. The use of publicly accessible surveys for Little Rock allowed citizens to report damage assessments that added a level of public engagement not utilized in the past. This increased transparency and public involvement fostered trust, community resilience, and a sense of shared responsibility.

The system’s quantitative impacts were reflected in the efficient data collection and timely deployment of applications, while the qualitative impacts were seen in improved decision-making, enhanced collaboration, positive perception of GIS technology, and increased public engagement.
4. What effect has the system had on productivity?

The system has had a significant positive effect on productivity in several ways:

1. **Streamlined data collection**: The system facilitated streamlined data collection processes by leveraging technology and providing user-friendly applications. This automation and standardization of data collection reduced manual efforts, minimized errors, and accelerated the overall data-gathering process. As a result, emergency response staff could collect and update information more efficiently, saving time and increasing productivity.

2. **Improved data accessibility and sharing**: The system enabled easy access and sharing of data across jurisdictions and among different stakeholders involved in emergency response efforts. By centralizing data within the system and providing real-time dashboards and maps, decision-makers and response teams could quickly access relevant information, reducing the time spent searching for data and enabling faster and more informed decision-making.

3. **Enhanced collaboration and communication**: The system promoted collaboration and communication among PAgis staff, emergency response teams, and external agencies. The availability of shared platforms and applications facilitated seamless collaboration, enabling real-time data exchange, updates, and coordinated actions. This streamlined communication improved productivity by reducing delays, miscommunication, and duplicated efforts.

4. **Accelerated decision-making**: With access to up-to-date and comprehensive data through the system, decision-makers could make informed and timely decisions. The availability of visualizations, maps, and dashboards allowed decision-makers to quickly assess the situation, identify priority areas, and allocate resources effectively. This accelerated decision-making process enhanced productivity by ensuring swift actions and minimizing response time.

The impact on productivity can be attributed to streamlined data collection, improved data accessibility and sharing, enhanced collaboration and communication, and accelerated decision-making. These factors collectively optimized workflow efficiency, reduced administrative burdens, and empowered emergency response teams to work more productively in the face of the tornado aftermath.

5. What, if any, other impacts have the system had?

Overall, the system's impacts extend beyond immediate emergency response, contributing to situational awareness, resource allocation efficiency, public trust, long-term planning, and knowledge sharing. These broader impacts highlight the system's potential for improving overall disaster preparedness and response capabilities in the affected jurisdictions and beyond. A regional effort for emergency response and how GIS can make responding more efficient is in the works because of the efforts of implementing this Disaster Response Program.
6. How did the system change the way business is conducted with and/or service delivered to clients? Give specific examples comparing the old way with the new.

The system significantly changed the way business is conducted and services are delivered to PAgis member agencies, revolutionizing the approach to emergency response, and enhancing the overall experience. Here are specific examples comparing the old way with the new:

1. **Data collection and sharing:**

   Old way: In the past, data collection relied heavily on manual methods, such as paper-based surveys and physical inspections. This process was time-consuming, prone to errors, and hindered the timely sharing of critical information. Printed maps were hung across the Emergency Operation Centers and referenced.

   New way: The system introduced automated data collection methods, such as digital surveys and aerial assessments using heads-up digitizing. This streamlined process significantly accelerated data collection, reduced errors, and enabled real-time sharing of data among jurisdictions and emergency response teams. The availability of real-time dashboards, maps, and applications facilitated seamless communication and improved collaboration between stakeholders.

2. **Decision-making and resource allocation:**

   Old way: Decision-makers had limited access to timely and comprehensive data, which hindered their ability to make informed decisions. Resource allocation was often based on limited information, leading to potential inefficiencies and delays in response efforts.

   New way: The system provided decision-makers with a wealth of accurate and up-to-date data through real-time dashboards, maps, and visualizations. This empowered decision-makers to make informed choices regarding resource allocation, priority areas, and response strategies. The availability of detailed damage assessments, aerial imagery, and field-collected data enabled more effective and efficient resource allocation, minimizing response time, and maximizing the impact of available resources.

3. **Public engagement and transparency:**

   Old way: The public had limited access to information about the extent of the damage, the progress of recovery efforts, and available support services. Communication channels were often fragmented, and residents had limited opportunities to actively participate in the recovery process.

   New way: The system introduced public-facing web applications, such as the Before and After Web Application, that allowed residents to assess the damage and track recovery progress using interactive tools. Public surveys and feedback mechanisms were implemented, enabling residents to actively contribute information and insights. This increased transparency, fostered public engagement, and empowered residents to be active participants in the recovery process, creating a sense of community involvement and shared responsibility.

4. **Collaboration and coordination:**

   Old way: Collaboration and coordination among jurisdictions, agencies, and response teams were challenging due to limited data-sharing mechanisms and fragmented communication channels. This could result in duplicated efforts, miscommunication, and delays in response actions.
New way: The system provided a centralized platform for collaboration and coordination, facilitating seamless data sharing, real-time updates, and streamlined communication channels. By leveraging shared platforms, applications, and dashboards, jurisdictions, agencies, and response teams could collaborate more effectively, share critical information, and coordinate response efforts. This enhanced collaboration reduced duplicated efforts, improved communication, and ensured a more coordinated and efficient response to the tornado aftermath.

F. System Resources

1. What are the system’s primary hardware components?

The system lives in the cloud utilizing Esri ArcGIS Online technology.

2. What are the system’s primary software components?

The system utilizes Esri’s ArcGIS Online logins, Survey123, Dashboards, HUB sites, and Web Map Applications. Here is a list of some of the applications and a description of their uses.

**PAgis**

**PAgis Damage Assessment Hub** – Main site with information about all the applications and efforts.

**Area Wide Damage Map** – Map showing damage report locations from all member agencies.

**PAgis Before and After Tornado Application** – Custom web application with an image slider bar.

**Little Rock**

**Little Rock Damage Assessment Survey** – Custom Configuration of Esri’s Windshield Damage Template Form.

**Little Rock Damage Assessment Dashboard** – Custom Experience Mobile Responsive Dashboard.

**Little Rock Road Closure Submit Application** – Esri Road Closure Solution deployed with a solution customized with Little Rock branding.

**Little Rock Traffic Signal Outage Editor Application** – Custom application to update traffic signal outages.

**Little Rock Road Closures and Traffic Signal Outage Viewer** – City-wide Road closures and traffic signal outage map viewer for the public.

**Little Rock Before and After Tornado Application** – PAgis Before and After Application rebranded for Little Rock.

**Little Rock Damage Report Editor Application** – A custom application that allows editors to make corrections to Damage Reports collected in the field.
**North Little Rock**

North Little Rock Damage Assessment Survey – Custom Configuration of Esri’s Windshield Damage Template Form.

North Little Rock Damage Assessment Dashboard – Custom Experience Mobile Responsive Dashboard.

North Little Rock Before and After Tornado Application – PAgis Before and After Application rebranded for North Little Rock.

Aerial-Imagery Damage Assessment Dashboard – Custom Dashboard using data collected from North Little Rock geocoded and then presented in a dashboard format.

**Sherwood**

Sherwood Damage Assessment Survey – Custom Configuration of Esri’s Windshield Damage Template Form.

Sherwood Damage Assessment Dashboard – Custom Experience Mobile Responsive Dashboard.

**Pulaski County**

PAgis Pulaski County HUB Site – Custom Hub site with information about disaster response efforts.

3. **What data does the system work with? List and briefly describe the data.**

This system utilizes hosted Feature Services, Survey123 surveys, PAgis Basemap data, and PAgis geocode services.

PAgis Basemap Data:

Building Point Addresses (BPADD):

Building Outline (BO):
4. What staff resources were required to implement the system?

It would be difficult to list the scores of individuals who utilized the many different applications and collected so much of the data. But listed below are just some of the support staff and decision-making staff that helped get this program to where it is today.

**PAgis Staff:** PAgis Manager, Technical Manager, and two (2) GIS Analysts

**Esri Staff:** Lead Solutions Expert, Account Manager

Little Rock Staff: Chief Data Officer, Senior GIS Analyst, GIS Program Analyst, Emergency Management Administrator, Applications Development Manager – Public Safety, Civil Engineer 1, Design Review Engineer

North Little Rock Staff: Director of Emergency Services, Deputy Coordinator of Emergency Services, Emergency Services Analyst, Planning Director

Sherwood Staff: GIS and Engineering Analyst

Pulaski County Staff: Director of Public Works

5. Comment on anything unusual about the resources used to develop your systems, such as data, software, personnel, and financing.

PAgis held a strategic retreat two days prior to the tornado touching down in Central Arkansas that had a significant impact on the subsequent response efforts and the implementation of the Disaster Response Program (DRP). During the retreat, representatives from PAgis member agencies and partner organizations engaged in discussions covering a wide range of topics, including Emergency Response. This early gathering allowed participants to anticipate the challenges and needs that would arise in the event of a disaster, providing them with a head start in identifying possible solutions and data requirements. Notably, the presence of Esri staff at the retreat, who had previously collaborated with PAgis on developing a Roadmap, proved invaluable. Their deep understanding of PAgis' unique structure, capabilities, and relationships with member agencies facilitated fruitful discussions and ensured that the subsequent DRP implementation was tailored to meet the specific needs of PAgis and its stakeholders. The insights gained during the retreat and the relationships established laid a solid foundation for a seamless transition to the DRP, enabling the deployment of applications, data solutions, and technology infrastructure that effectively supported the emergency response efforts. Overall, the strategic retreat served as a catalyst, fostering collaboration, innovation, and efficient coordination between PAgis and Esri to deliver a comprehensive and tailored response to the tornado's impact.
Appendix:

**PAgis Damage Assessment Hub Site:** [https://damage-assessment-pagis.hub.arcgis.com/](https://damage-assessment-pagis.hub.arcgis.com/)

**PAgis Aerial Imagery Damage Assessment Dashboard:**
[https://pagis.maps.arcgis.com/apps/dashboards/4455b2cd634b46c0a9043c500c94e9be](https://pagis.maps.arcgis.com/apps/dashboards/4455b2cd634b46c0a9043c500c94e9be)

**PAgis Before and After Map Viewer Application:**
[https://pagis.maps.arcgis.com/apps/webappviewer/index.html?id=11c3c26f9dc8421c94b8ac57b3aa2e2d](https://pagis.maps.arcgis.com/apps/webappviewer/index.html?id=11c3c26f9dc8421c94b8ac57b3aa2e2d)

**Little Rock Damage Survey123:**
[https://survey123.arcgis.com/share/a15bee59aa67430189e71e59d81e9655](https://survey123.arcgis.com/share/a15bee59aa67430189e71e59d81e9655)

**North Little Rock Damage Survey123:**
[https://survey123.arcgis.com/share/bbeabb6804b64e63a4621237311415fd](https://survey123.arcgis.com/share/bbeabb6804b64e63a4621237311415fd)
May 31, 2023

To: URISA ESIG Award Committee

PAGis Damage Assessment and Emergency Response Program

Dear Award Coordinator,

As the PAGis Manager, I am authorized by the Management Agreement and the organization By-Laws to perform all administrative and executive functions. I am writing to formally authorize and express my full support for the submission of the PAGis Damage Assessment and Emergency Response Program for the URISA Exemplary Systems in Government (ESIG) Award.

The PAGis Disaster Response Project, known as the PAGis Damage Assessment and Emergency Response Program, has been a game-changer in our region. With its deployment, PAGis has played a vital role in facilitating information sharing, real-time damage assessment, and resource allocation during emergencies. The swift implementation of web applications, surveys, maps, and dashboards across multiple jurisdictions has empowered decision-makers with accurate and near real-time information, enabling efficient response efforts. This project has showcased the ability of multiple jurisdictions to work and communicate effectively together in times of need, overcoming the challenges often associated with such collaboration.

Given our region's susceptibility to natural disasters, ranging from flooding to wildfires, the PAGis Damage Assessment and Emergency Response Program will serve as a foundation for emergency response for years to come. It has demonstrated its potential to expedite the rollout of applications in future events, allowing for even quicker and more effective response efforts.

I extend my sincere gratitude to the URISA Exemplary Systems in Government Award Committee for considering our nomination. Should you have any further inquiries or require additional information, please do not hesitate to reach out to me directly.

Thank you for your consideration, and I am eagerly looking forward to the possibility of our project being recognized as an Exemplary System in Government.

Sincerely,

Alex Harper
PAGis Manager
June 5, 2023

Dear Committee Members,

I am writing to endorse PAgis (Pulaski Area Geographic Information System) and the work they have done on the PAgis Damage Assessment and Emergency Response Program for the URISA Exemplary Systems in Government Award (ESIG). As the Pulaski County Judge, I have witnessed firsthand the transformative impact of this project on our emergency response capabilities and its invaluable support during crises.

During the recent tornado that struck our region, PAgis played a crucial role in facilitating information sharing, real-time damage assessment, and resource allocation. The rapid deployment of web applications, maps, and dashboards across jurisdictions empowered not just our teams but teams across multiple jurisdictions with accurate and up-to-date information, enabling efficient response efforts.

The system's user-friendly interfaces and comprehensive training have made it accessible to non-traditional GIS users, expediting data collection in the field. This inclusive approach ensured prompt assessment of damages and effective addressing of critical needs.

In conclusion, the work that PAgis has provided during the disaster response has improved our emergency management and response, providing a robust and adaptable system that has proven its worth during crises. I wholeheartedly recommend PAgis and the PAgis Damage Assessment and Emergency Response Program for the URISA Exemplary Systems in Government Award, considering its outstanding features, successful collaboration, and significant positive impact.

Thank you for considering our nomination.

Barry Hyde
Pulaski County Judge/Chief Executive Officer
Dear ESIG Review Team:

As Mayor of the City of Little Rock, I am extremely grateful for the opportunity to provide this testimonial on behalf of the Pulaski Area Geographic Information System (PAGis). The City of Little Rock has been a proud partner member of PAGis since its inception in 1988. Over the years, our City has effectively utilized the many geographic information products and services that they provide.

Until recently, our use of PAGIS has primarily revolved around mapping utilities, building points, boundary lines, etc. This changed on the afternoon of March 31st, 2023 when our City was struck by a devastating EF-3 tornado. Its path was 6.5 miles long and it destroyed or severely damaged over 650 homes and businesses in Little Rock and injured over 50 individuals. The magnitude of the damage was historic and initially difficult to grasp. Thankfully, PAGis was at the ready and immediately began working on products that would prove essential in our response to this disaster.

Within a matter of hours, PAGis had created a Tornado Area Map with the storm’s path. This map was displayed in our Emergency Operations Center (EOC) and provided us with our first real look at the size and scope of the storm and gave us a starting point to begin allocating emergency resources in a more effective manner. This map was also essential in our public information efforts as we looked for ways to effectively communicate the situation to our citizens.

PAGis’s efforts did not end there. They continued working throughout the night and by the following day had launched the PAGis Damage Assessment Page. This provided us with an invaluable tool that allowed both citizens and City of Little Rock staff to submit damage surveys. The data captured through this application was key in detailing what areas of our City had been impacted the most and further allowed us to more effectively allocate disaster relief resources. Along with the surveys, a Damage Assessment Dashboard was created and displayed in our EOC. The dashboard provided us excellent situational awareness and strengthened our decision making capabilities, while also allowing us to better communicate the scope of the disaster to our citizens.

All told, PAGis created 9 different maps and applications for use in our tornado response. Without their expert professionalism and teamwork, our response efforts would have been severely hampered and its effectiveness lessened. I commend PAGis for their exemplary leadership in public service, and without hesitation submit this testimonial on their behalf. I appreciate your consideration of them for the Exemplary Systems in Government Award and hope you, as I do, find them most deserving.

Sincerely,

[Signature]

Frank Scott, Jr.
Mayor of Little Rock, Arkansas
Date: June 5, 2023

Subject: Exemplary Systems in Government Award (ESIG)

On Friday, March 31, 2023 a tornado struck the City of North Little Rock, Arkansas. Within minutes our Emergency Operations Center (EOC) was operational. The staff at Pulaski Area Geographical Systems (PAGis) were quick to jump into action and help us coordinate the disaster response. Their knowledge, expertise and innovative use of GIS technology provided an invaluable manner in which to coordinate, respond and brief the EOC staff. The before and after aerial photographs were extremely beneficial for damage assessment teams. PAGis was approached by the city to provide Building Point Addresses (BP Add) for the addresses in the affected area. When the PAGis staff applied the layer to the map, they were elated to see a one hundred percent match rate. Building upon that, the BP Adds were linked to the property assessments from the Pulaski County Assessor’s Office. PAGis worked with the ESRI Corporation to utilize the ESRI Disaster Response Program and a dashboard was built to allow mobile users to provide real-time damage assessment documentation which included pictures. The GPS driven data allowed the city to accurately identify damaged infrastructure and reduced the potential for duplicate records and time lost. The pulled data was able to help our EOC put our best foot forward during a disaster and prove to our public and civic leaders that we were prepared. This further proves the PAGis staff dedication and commitment to service that benefits our public. It is the frequent interactions with PAGis services and personnel that have resulted in our data being so accurate. PAGis runs a phenomenal product that is backed by passion and wisdom. The long hours, late night phone calls and seemingly endless emails are a testament to the exemplary service PAGis provided the City of North Little Rock during the disaster.

Please consider PAGis for the Urban and Regional Information Systems Association (URISA) Exemplary Systems in Government (ESIG) Award.

Gary E Gray RPL
Deputy Director
North Little Rock Emergency Services

Kim Francisco
Director
North Little Rock Emergency Services
Date: May 31, 2023
Subject: Exemplary Systems in Government Award (ESIG)

URISA Evaluators,

My name is Kevin Pruett, GIS Analyst SR. Little Rock Public Works. I believe our Pulaski Area GIS Organization (PAGIS) has earned the opportunity to be considered for Exemplary Systems in Government Award.

The PAGIS organization has grown through concerted effort of its member agencies into what it is today, a well-run group that not only maintains base data to a high standard but also builds web based applications, provides planning and coordination, and professional GIS leadership which support its member agencies (Little Rock, North Little Rock, Central Arkansas Water, Water Reclamation Authority, North Little Rock Wastewater, Jacksonville, Sherwood, Pulaski County). PAGIS is a unique organization, independent but funded by all member organizations, that has established a long rich history working in partnership with member agencies to achieve common goals.

In response to the March 31, 2023, tornado that tore through multiple jurisdictions in Central Arkansas, the Pulaski Area Geographic Information System (PAGIS) organization went to work immediately with ESRI and all member agencies to coordinate response efforts. PAGIS was the primary actor bringing both member agencies and the ESRI Corporation together utilizing the ESRI Disaster Response Program to develop web based applications coordinating a multi-jurisdictional effort leveraging tools and applications used to collect and disseminate data critical to response efforts. This tool set is the most technically advanced response solution ever deployed in central Arkansas responding to a disaster of this kind. This alone would be an impressive use of the latest technology but the speed at which these tools were developed, deployed, and then employed is staggering, cultivating the success of this implementation and speaks directly to the culture of cooperation developed throughout the PAGIS Organization and its member agencies. When the tornado hit on Friday afternoon representatives from ESRI reached out to our agency offering assistance and through the leadership of the PAGIS organization the initial tool set was developed and customized over the next two days through multiple customization cycles ready to fully collect data Monday morning.

Disaster response within the PAGIS area affecting one or more of its member agencies will be redefined from this point forward based solely on the success of the response and the leadership of the PAGIS organization to make this a multi-jurisdictional coordinated effort.

The PAGIS organization should be strongly considered in this application for the Urban and Regional Information Systems Association (URISA) Exemplary Systems in Government (ESIG) Award and I appreciate your sincere consideration.

Sincerely,

Kevin Pruett
GIS Analyst SR.
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