



Snoqualmie Valley Preservation Alliance is a 501(c)(3) nonprofit organization committed to protecting the rural character and the viability of farms, residents, and businesses of the Snoqualmie River Valley.

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Request for Proposals: Network Integration Specialist (Contract) - Floodzilla Gauge Network

Position Type: Contract Position, Part-time, Temporary

Project Timeline: February 1, 2025 – December 31, 2027. Funding is allocated for roughly 690 hours over 36 months, averaging around 18-20 hrs per month, with the majority of hours spent in the first 12 months.

Compensation: This project has a fixed budget of \$34,400 over the course of 36 months. Compensation is estimated at \$50.00 per hour for roughly 690 hours over the course of 36 months.

About the SVPA:

The SVPA is a community-based 501(c)(3) nonprofit dedicated to protecting and enhancing the lives, livelihoods, lands, and waters of a Pacific Northwest regional treasure, the Snoqualmie Valley. The SVPA works collaboratively to find balanced, long-term solutions to challenges facing the Snoqualmie Valley — land use planning, agricultural viability, watershed management, ecosystem health, and flood risk reduction and mitigation.

The Snoqualmie Valley is comprised of over 440,000 acres of forests, farms, and small towns, all within an hour's drive of Seattle. As the urban centers expand rapidly, the rural counterpoint, the environmental and economic viability of the Valley are put under great pressure. Since forming in 2010, the Snoqualmie Valley Preservation Alliance has become a steadfast, organized, reliable, and respected advocate for protection of these irreplaceable working lands. We have become a very effective force for forging productive relationships between community members, farmers, residents, tribes, and county and state officials. We have found creative solutions to shared challenges and made significant headway on some key issues central to protecting the Valley, especially in the area of flooding, agricultural viability, development impacts, and water rights.

Background/purpose:

One of the SVPA's main programs is the Floodzilla Gauge Network. Floodzilla monitors water levels throughout the Snoqualmie Valley in real-time. This flood monitoring network is primarily the innovation of a group of local technology professionals who have volunteered their time and expertise to develop this tool for the benefit of the community. Paid staff and consultants have also



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contributed to the project with funding from SVPA's generous donors and with a grant from King County Flood Control District.

The Floodzilla Gauge Network relies on a series of SVPA gages placed in strategic locations to monitor water levels in drainage ditches, farm fields, on public roads, and on the Mainstem Snoqualmie River. The SVPA gages are ultrasonic sensors that have been programmed to read and transmit water level data every 15 minutes. The locations of the gauges are surveyed to convey water elevation (often in reference to a nearby road) on Floodzilla.com. Flood impacts to local roads is significant to farmers, residents, and commuters, and this information is critical in helping them prepare and mitigate flood risks.

Before Floodzilla, only one USGS gauge covered a 32-mile stretch of the Snoqualmie River. Since 2018, SVPA has installed and maintained over 12 new gauges, providing real-time water surface elevation data every 15 minutes and an advanced warning system through SMS, email, and the Floodzilla mobile application. Funded by the King County Flood Control District, Floodzilla has become an essential tool for flood risk management, helping the public prepare and respond to flooding, protecting homes, infrastructure, businesses, and lives. The data has also supported broader floodplain planning and modeling including informing the development of King County's 2D hydrologic model. It is also used by partners like the Snoqualmie Watershed Improvement District to monitor flood reduction and drainage projects.

To sustain this critical service and its significant public benefit, SVPA must adapt to changing flooding conditions and technological challenges. Over time, more of our gauges are requiring frequent maintenance and replacement due to exposure to the elements. Additionally, we are in the process of integrating a new type of sensor into our network and will be expanding the network with these new sensors in the coming years. We also face other unique technological challenges such as broadband internet access in the valley that limits data transmission and network stability during storms. Contracting a Network Integration Specialist will help SVPA upgrade the network, reduce data lag, improve reliability, address broadband internet challenges critical for data transmission, and enhance gauge sites to secure network stability during storms.

Project Scope:

The Network Integration Specialist will oversee "backend" project tasks related to network communication, onboarding new sensors into the network, and adapting current data transmission protocols to communicate with existing gateways. Additional tasks include cloud administration, database management, and trouble hooting & debugging device/data transmission issues. The Network Integration Specialist will work closely with existing Floodzilla staff, contract/volunteer



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software engineers, device supplier/manufacturing technological support teams on these and other network/software responsibilities outlined in general scope of work below.

Task 1: Support Technological Upgrades

- A. Assist Floodzilla Program Manager with ensuring network communication, performance, reliability, and functionality throughout the process of replacing existing gauge equipment with non-proprietary technology. This includes assisting with configuration and connection of sensors and transmitters to LoRA WAN network & database and ensuring accurate and reliable device readings.

Task 2: Support ongoing management of Floodzilla Gauge network, software, and hardware (i.e. ultrasonic sensors, receivers, transmitters).

- A. Monitor, troubleshoot, maintain, document, and improve network communication and webservice software (i.e. Cloud administration, LoRA WAN and internet connectivity, database management)
- B. Sustain availability of Floodzilla.com webservice, Floodzilla mobile application, and advanced warning system (SMS, email, and push notifications) in coordination with current staff, contractors, and volunteers.
- C. Reduce service disruption during flooding events measured by amount of time gauges are "offline"

Overview of Key Responsibilities:

- Adapt and/or identify, implement, and maintain network integration solutions and data transmission protocols for Floodzilla Gauge Network's existing and new sensors on LoRa WAN system.
- Manage and optimize internet network communication for seamless data transmission from ultrasonic sensors to gateways, and further to the cloud via broadband internet and cellular bridges.
- Administer cloud-based systems to support the storage, processing, and analysis of flood monitoring data.
- Perform network administration tasks to ensure the reliability, security, and scalability of the network infrastructure supporting the Floodzilla Gauge Network.
- "Debugging" and troubleshooting data transmission and sensor reading issues.



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Position Overview:

The ideal candidate will have expertise in network integration, with a focus on LoRa WAN technology, IoT, telemetry systems, internet network communication, cloud administration, and network administration. This role requires a strong understanding of network protocols, cloud-based systems, and experience in integrating various telemetry solutions to support a flood monitoring system.

Required Qualifications:

- Bachelor's degree in Computer Science, Information Technology, or related field.
- Proven experience in network integration
- Familiarity with telemetry and data communication systems
- Experience with LoRa WAN technology
- Strong understanding of internet network communication principles and protocols.
- Experience in Cloud Administration, preferably with major cloud platforms such as AWS, Azure, or Google Cloud.
- Proficiency in network administration, including configuration, troubleshooting, and monitoring tools.
- Proficiency with general troubleshooting of IoT devices, editing and updating firmware, or strong aptitude and willingness to learn.
- Excellent problem-solving skills and ability to work independently and collaboratively in a team environment.
- Strong communication skills and ability to effectively collaborate with cross-functional teams.
- Willingness to stay updated with the latest advancements in network integration and telemetry technology
- Aptitude to learn new skills and knowledge

Preferred Qualifications - An ideal candidate will have experience with the following:

- Experience with Linux Ubuntu (22.04 LTS)
- Experience with APIs
- Experience with or willingness to learn MQTT protocol.
- Certifications such as CCNA, AWS Certified Solutions Architect, or equivalent are a plus.



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Submittal Instructions and Deadline – Proposals should be submitted to Lauren Silver-Turner, lauren@svpa.us by **January 12, 2025 at 5:00 pm**. Please submit 1.) resume; 2) a cover letter describing qualifications; 3) and a brief proposal outlining general project approach and proposed schedule/time commitment to project.

Please address questions and requests for additional information to Executive Director, Lauren Silver-Turner, at lauren@svpa.us.

Review Process and timeline – Proposals will be evaluated for the contractor’s demonstrated network integration expertise and the most highly qualified contractor will be selected. Once the final selection is made, the scope of work will be finalized and an agreement drafted based on the proposal. The preferred project start date is early – mid February, 2025.

