



## Attachment G – Project Impact Statement

### Direct Benefits

Nebraska’s North Platte National Resources District (NPNRD) is statutorily responsible for the development, management, utilization and conservation of groundwater and surface water that supplies drinking water for livestock and irrigation for agricultural crops throughout the District. The NPNRD requires sound information on which to base any water management decisions and has developed an extensive program of monitoring the quality and quantity of the groundwater resources within the district.

The NPNRD currently uses a variety of technologies to provide its staff and Directors with timely and accurate information, including conventional flow meters and water level gauges. Conventional devices, however, are in contact with water or immersed in water, which creates certain challenges. For example, float-type gauges need to be installed in loggings and are expensive to construct, and the accuracy of pressure-type gauges is easily affected by sand content and water temperature. In addition, since contact devices need to be submerged in water, they are prone to damage under the action of sediment and floating objects, which can lead to outages and increase maintenance costs.

The connectivity provided by this project will enable affordable connectivity for image-based non-contact water monitoring devices—a capability that the NPNRD currently lacks—in areas that are currently unserved by broadband. Non-contact measurement techniques provide several advantages over contact water level monitoring. A major advantage of image-based systems for surface water monitoring is that they do not drift, which eliminates the need for on-site recalibrations. The timing for and necessity of maintenance on an image-based system can be detected by the user remotely (i.e., seen on the images as a large camera move, obstructed view, etc.). Image-based systems also provide contextual information for monitoring sites that is not available with contact-only monitoring systems. Finally, image-based systems can be used as backups to conventional systems in areas where convention systems are prone to failure.

The addition of image-based water monitoring systems with remote monitoring capabilities and weather sensors will directly benefit the NPNRD’s collection of sound information that enables the District to fulfill its hydrological mission.

### Potential for Expansion

In addition to the farm site that is the subject of this application, the proposed wireless network will provide 100/20 service to thousands of acres of unserved agricultural land. Broadband network connectivity will thus be immediately available to many more farm sites upon completion of the project. Though we do not expect that our wireless network will require substantial capacity upgrades over the next ten years, if there is sufficient demand, we can rapidly increase network capacity by deploying additional base nodes to the tower that is the subject of this application.

## **Engagement Measures**

Vistabeam will monitor connectivity to the site 24 x 7 x 365 using the Tarana Cloud Suite, which provides cloud-based network monitoring and maintenance. See Attachment H\_2 for additional information on the Tarana Cloud Suite. We will work with the NPNRD to provide additional connectivity options that support the District's mission.