



## Attachment A\_1 – Business Plan

### Executive Summary

The proposed project will provide broadband connectivity to support weather monitoring and image-based water monitoring at sites operated by Nebraska’s North Platte National Resources District (NPNRD) in Scotts Bluff County, Nebraska. The NPNRD is statutorily responsible for managing the water resources that supply drinking water for livestock and irrigation for agricultural crops throughout the District. The NPNRD is unique among Nebraska’s NRDs because its agriculture has more surface water irrigated acres than groundwater irrigated. Real-time access to image-based water monitoring devices will support the NPNRD’s efforts to manage the resources that are essential to all agricultural operations in the NPNRD.

### Project Proposal

In its initial stage, the proposed project will provide broadband connectivity to support weather monitoring and image-based water monitoring of surface waters at key operational locations operated by Nebraska’s North Platte National Resources District (NPNRD).<sup>1</sup>

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 provide a platform that will enable affordable connectivity for image-based non-contact water monitoring systems in key operational locations 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 conventional systems are prone to failure.

The project will also provide connectivity to a weather sensor at each key operational location. The weather sensor will provide additional contextual information to the data provided by the image-based system. This additional information will be used to measure the impact of various weather conditions on

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<sup>1</sup> An example is the GaugeCam image-based water level measurement system developed by professors at the University of Nebraska and others. See [gaugecam.org](http://gaugecam.org).



surface water levels.

Given the ubiquitous nature of the NPNRD's responsibilities, its "farm site" is coextensive with the boundaries of its jurisdiction, which covers approximately 220,000 acres. The area within the county that is covered by center pivot irrigation or other irrigated land and that will also be covered by the newly deployed Vistabeam antennas is approximately 177,518 acres and the unserved and unfunded portion of those areas is approximately 52,732 acres.<sup>2</sup> We have included the latter measure in Field 11 of the Application, because the NPNRD's data collection in any given area impacts its mission throughout its jurisdiction. At a minimum, the contiguous unserved area for NPNRD's purposes would include the acreage that will be monitored directly by the devices to be deployed, which would include the unserved portion of the watershed within the imaging device's viewshed. An assessment of this area cannot be determined prior to deployment of the imaging device.

In addition to the NPNRD sites that are the subject of this application, the base nodes in the proposed project would provide broadband service to thousands of acres of unserved agricultural land that include 152 well heads, 122 center pivot irrigation systems, and approximately 877 other irrigation systems. Network connectivity will thus be immediately available to many more farm owners and sites upon completion of the project.

Vistabeam will also use the new base nodes to provide general broadband services within the towers' coverage areas. Their combined coverage area where the upload and download speeds will meet or exceed the required speeds (100/20 Mbps) encompasses 10,826 broadband serviceable locations, including 68 unserved locations and 23 underserved locations. The provision of general broadband services to these locations will provide additional revenues to support the economic sustainability of Vistabeam's precision agriculture connectivity.

Descriptions of the proposed wireless network that will provide connectivity are provided in Attachments C and J\_1.

## Certification Statement

The applicant hereby certifies that the farm sites to be served are currently unserved or lacking broadband Internet service at speeds of at least 25 Mbps for downloading and 3 Mbps for uploading. The applicant further certifies that, upon completion of the project, the farm sites served by this project will have access to minimum speeds of 100/20 Mbps for precision agriculture connectivity to on-farm structures and devices, as required by Neb. Rev. Stat. § 86-1404(2)(a). These certifications are based on data in the FCC's National Broadband Map.

## Timeline for Project Implementation

Vistabeam is prepared to begin work on the project immediately upon receiving a grant distribution. The project will take approximately six months to complete.

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<sup>2</sup> The project will also cover portions of Sioux County, which is not included in these calculations.

## **Sustainability**

Vistabeam has demonstrated the resiliency of its existing fixed wireless and fiber networks, which have yielded a Net Promoter Score of 50, well above the telecommunications industry's average of 31.<sup>3</sup> Vistabeam's network operations center and primary maintenance facility are both in Scotts Bluff.

Maintenance, repair, and replacement is built into Vistabeam's business plan. The Tarana equipment that will be installed on the tower facilities and at the farm sites are high-end, high-quality components with expected useful lives of ten to fifteen years.

The network will use a combination of fiber and microwave backhaul. The useful lives of both backhaul options is fifteen years or longer.

We do not expect that our wireless network will require substantial capacity upgrades or replacement over the next ten years.

When outages do occur, we have the necessary technical staff to restore service rapidly from our primary maintenance facility in Scotts Bluff.

The company is already serving areas near the project area and will continue to use the same staff to serve the project area when the fiber project is complete. With 52 employees, we have a large and very capable staff for our company's size. We currently have an infrastructure staff of 35 people working out of locations in Mitchell, Scottsbluff, Gering in Nebraska, Laramie in Wyoming, and Yuma in Colorado. Vistabeam is committed to adding more staff as the number of customers increases.

We will proactively maintain our network using the Tarana Cloud Suite software-as-a-service solution. This platform equips network engineering and maintenance teams with continuous monitoring and management. Additional information regarding the resiliency benefits of this solution is provided in Attachment H\_2.

Physical maintenance of the proposed network will occur through regular visits to add, remove, and upgrade equipment as needed, scheduled inspections of the plant, and routine maintenance of electronics and backup equipment.

## **Eligible Entity Documentation**

Our Certificate of Good Standing from the Nebraska Secretary of State is provided in Attachment H\_1.

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<sup>3</sup> Net Promoter Score is a customer loyalty and satisfaction measurement derived from surveys asking customers how likely they are to recommend a product or service to others on a scale of 0-10. A score of 50 is considered "excellent."



## Project Budget

Vistabeam’s project budget is provided in Attachment A\_2.

## Financial Projections

The following financial analysis is based on the provision of precision agriculture and residential broadband services.

Year	1	2	3	4	5	6	7	8	9	10
Revenues	\$ 28,800.00	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72	\$ 408,006.72
Expenses	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26	\$ 56,014.26
Net Margin	\$ (27,214.26)	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46	\$ 351,992.46

For these projections, we assume a penetration rate of 3% and an average revenue per user of \$72, which would yield an annualized ROI of approximately 21% over a ten-year period.

## Financial Statements

Vistabeam is a certified ETC for whom financial statements are not required.

## Rate Comparability

Vistabeam will offer the same three primary service packages for precision agriculture that Vistabeam already offers for residential fixed wireless service.

Value (Advanced Wireless):	100 Mbps x 20 Mbps	\$49.95/month
Fast (Advanced Wireless):	250 Mbps x 20 Mbps	\$63.95/month
Max (Advanced Wireless):	500 Gbps x 80 Gbps	\$79.95/month

The company publishes its retail fiber rates proudly on its public-facing website, which can be accessed at [Pricing & Fees - Vistabeam Internet](#).

These packages do not have usage caps, early termination fees, long-term contracts, metered rates, or usage limits. A precision agriculture user can connect an unlimited number of wi-fi enabled devices to the remote noted installed at the farm site.