



Millard West High School

ArchData Business Plan

Prepared by

MAC

Missing Alaskan Crabs

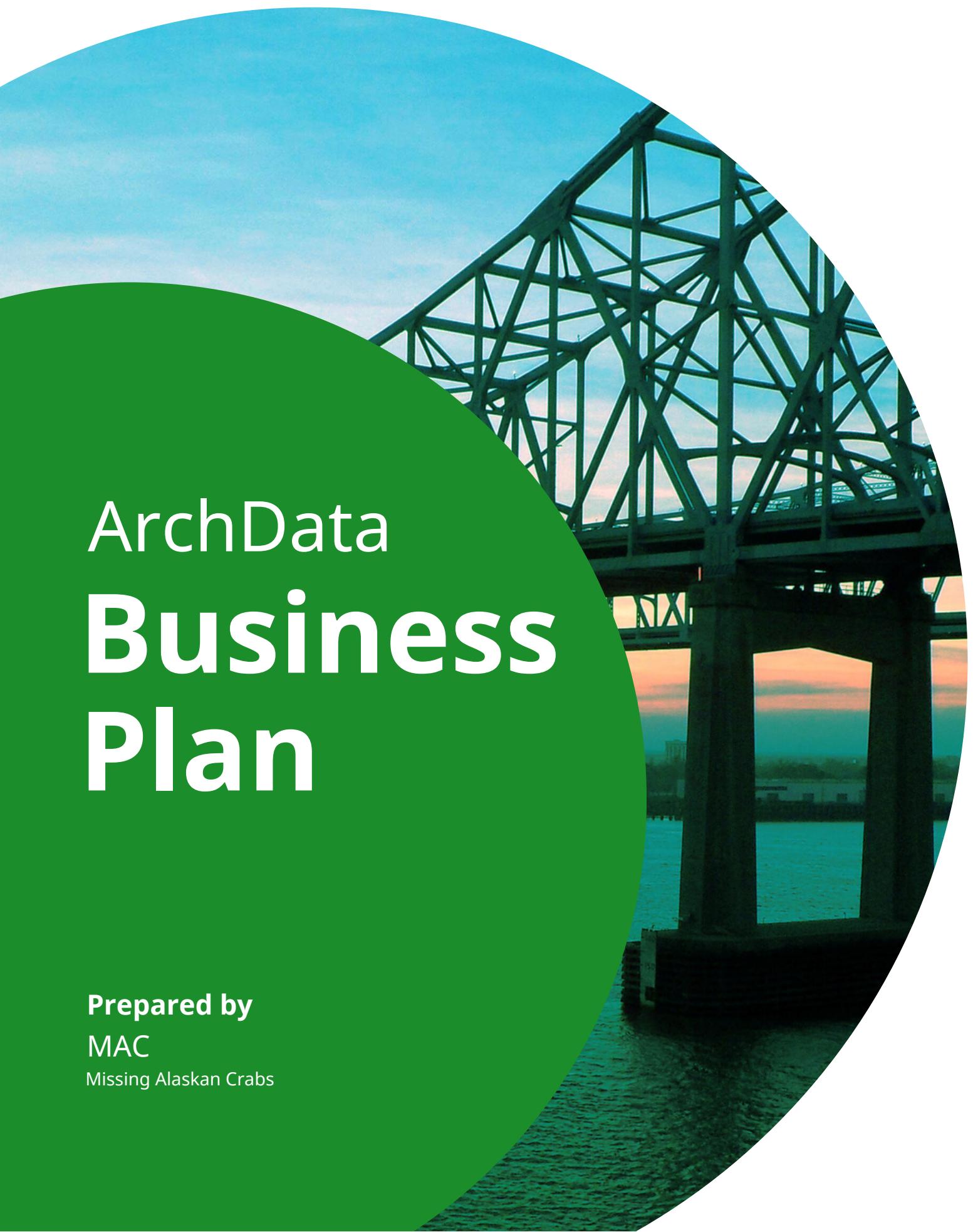


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II. Problem

Bridges are a staple of infrastructure around the world and help to create exponentially more accessible routes for both commercial and personal travel. The average bridge is often expected to last anywhere from 50 to 70 years, yet only 42% of US bridges make it that long. There are also around 5 people killed each year by bridge failures here in the US, which may not seem like many, but they are still unnecessary deaths that can mostly be prevented.



Bridges are incredibly valuable pieces of infrastructure that people use daily. Combined with the weather of Nebraska, these bridges take a huge amount of wear and tear over a year. With all of this, bridge materials quickly deteriorate and require constant repairs. The older the bridge, the more consistent the repairs. Repairs add up quite quickly and are very expensive in the long run. After about 10 years of repairs occurring, bridges are often slated for a rebuild.



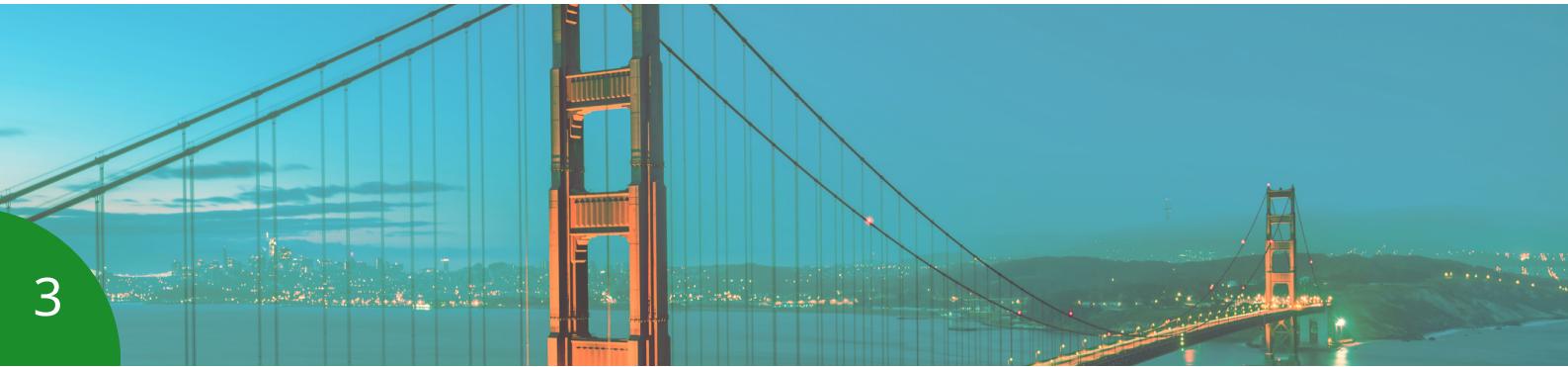
In addition to bridges having many failures that grow exponentially over time, currently the only way to check in on these bridges is to manually visit and inspect each bridge individually. Within Nebraska, there are at least 15,000 different bridges that have to be visited and inspected yearly. This method is rather inefficient with materials and resources. Thus, this entire system is rather costly to hire enough personnel, cover their millage cost, and fix any bridges if necessary.

With this combination of issues regarding bridge deterioration and consistent inspections, it is rather evident that states and countries spend a large majority of their transportation budget just upkeep this infrastructure. There needs to be a way to alleviate the cost of checking in with each individual bridge and streamline the process of getting a bridge repaired.



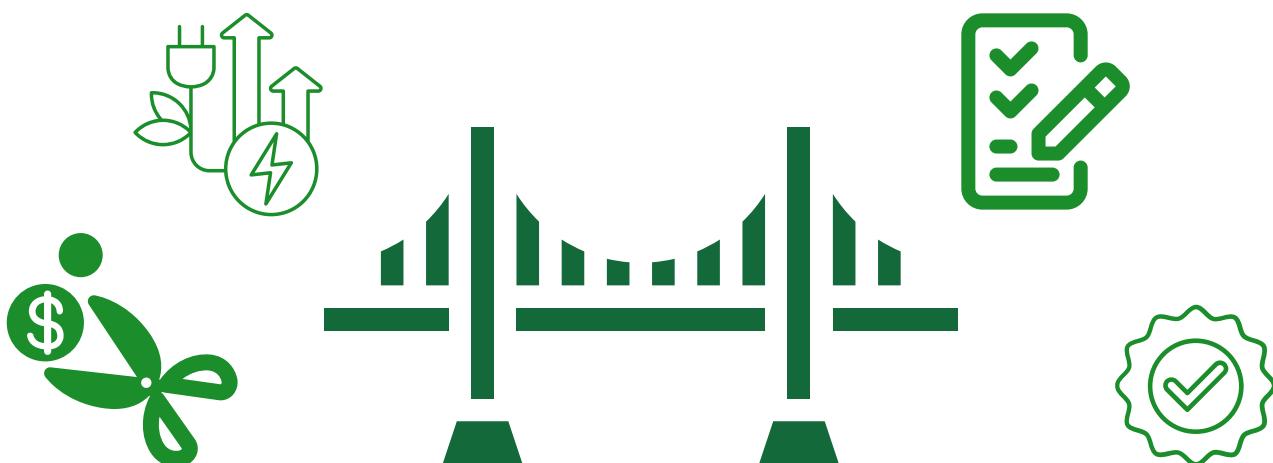
III. Customer Segments

	Primary Market (Governments)	Secondary Market (Businesses)
Demographics	Located across the country, 14.2 million work in this. (PG 9 for source)	Around 2.4 million work for private infrastructure. (PG 9 for source)
Psychographics	Prioritizes bridges in cities, not rural. (PG 9 for source)	Prioritizes bridges in cities, not rural. (PG 9 for source)
Financial	US spends 211.8 billion on infrastructure. (PG 9 for source)	US spends 211.8 billion on infrastructure. (PG 9 for source)



IV. Unique Value Proposition

ArchData supports bridge quality through providing a quality checking device while cutting costs and increasing resource efficiency for our customers.



V. Solution

Our innovative design uses sensors such as the temperature of the surrounding environment of the bridge, the humidity of the area around the bridge, the amount of cars that pass through the bridge, and the amount of time it has been since the last check in days and getting as specific to the amount of hours and minutes as well. It then transfers this data to a USB drive that is easily portable and accessible for many to get because they are usually cheaper options for the transfer of data. Not only this, but once this extremely useful data is passed through the unbelievably easy to transfer way of transferring the data, we can analyze this data to see which parts of the surrounding environment are now a risk to the structural integrity of the bridge. We measure the temperature to assess the structural stability of the bridge because dramatic increases and/or dramatic decreases in temperature can create conditions not ideal for bridges such as ice, cracks, and many more unfortunate factors. The humidity of the area around the bridge is measured because dramatic increases and/or dramatic decreases in humidity can create conditions not ideal for bridges such as ice, thawing of precipitation, the effectiveness of concrete in the face of extreme levels of humidity and many more unfortunate factors. We measure the amount of cars that pass through the bridge because that over time can wear down the bridge and reduce safety. Finally, we measure the time since the last check to see how up to date the safety regulations are on the bridge.





VI. Channels



Seeing as most of our customers are governments and large businesses, we would need to do in person consultations with our customers. These would include some presentations with each customer at their place of work.

VII. Revenue Streams



All of our revenue would be provided by the installation of the device for governments and businesses. Revenue is not our main concern for this as we are trying to keep our costs low for easier marketing practices.

VIII. Cost Structure



Our costs would be kept low so that our marketing practices can be more effective. Sensors would be about \$10. The Pi would run \$75 on average and the display is about \$15. We will be using 1GB USBs for the data collection and storage.





IX. Key Metrics

The Advantages of ARCHDATA.



Why we are measuring the humidity.

The humidity of the area around the bridge is measured because dramatic increases and/or large decreases in humidity can create conditions not ideal for bridges such as ice, thawing of precipitation, the effectiveness of concrete in the face of extreme levels of humidity and many more unfortunate factors.



We are measuring the temperature.

decreases in humidity can create conditions not ideal for bridges such as ice, thawing of precipitation, the effectiveness of concrete in the face of extreme levels of humidity and many more unfortunate factors.



We are counting the number of cars.

We measure the amount of cars that pass through the bridge because that over time can wear down the amt bridge and reduce safety. Finally, we measure the time since the last check to see how up to date the safety regulations are on the bridge.



X. COMPETITIVE ADVANTAGE

The Advantages of ARCHDATA.



We are **SUSTAINABLE**.

Not only does Archdata save money for those who are looking to monitor bridges, but it saves the time of the inspectors, sustains our environment by reducing road trips to check the bridges and reducing the amount of repair materials needed, and many more fascinating sustainable factors.



We are **COMMITTED TO BRIDGE SAFETY**.

Our device allows us to view the safety of bridges through the data that it collects in an effective & smart way. Our device monitors the temperature of the environment around a bridge, the humidity around the area, and the amount of cars that cross the area to see how safe that bridge is.



We are **FINANCIALLY RESPONSIBLE**.

our device itself is decently cost efficient. Compared to the 211.8 annually overall that the US spends on itself for infrastructure repairs (see PG 9 for the source of that data), this device would drastically reduce the amount the US spends on monitoring the condition of these structures.



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