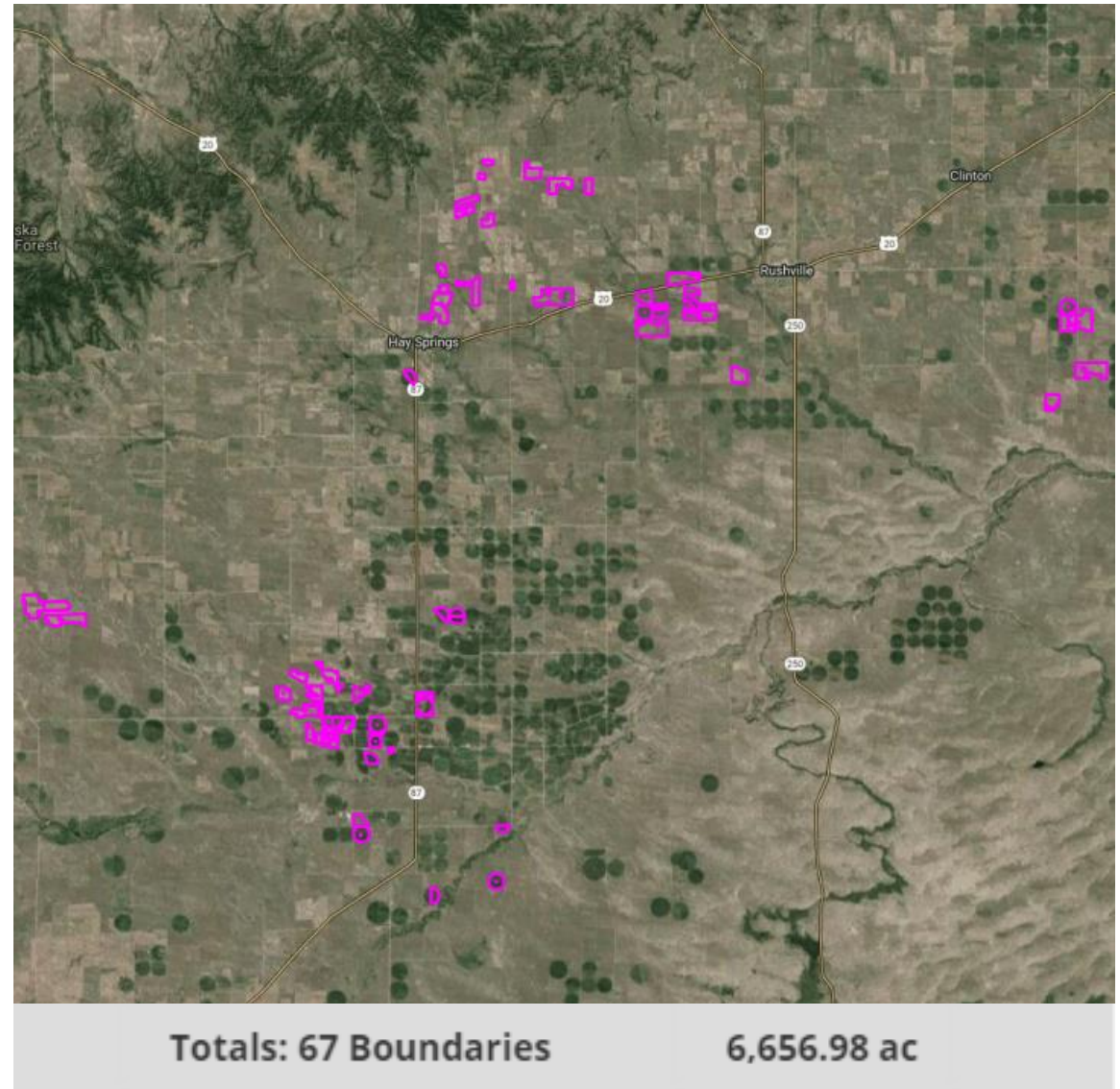


Project Diagram

Sandberg Farms Whole Farm Connectivity

Operational Locations



See attachment "1" for full scope of operational locations

Operational Locations

- The main operation locations and size of project area will include one central hub location at our home shop. The office inside of the shop will be the central information distribution point. The other operational locations will include all our machines once connected with wireless modems to connect to cell signal (4G).
- The size of the project location will include 67 field locations in a 25-mile radius from our home location covering 6,650 total acres.

Key Infrastructure Components

- The key components for this project include John Deere Precision Ag displays, John Deere Precision Ag receivers, and John Deere wireless connectivity modems.



Key Infrastructure Components-Continued

- G5 Display- Newest precision ag display offered by John Deere with larger display size, faster boot up times, and increase processing power.
- Starfire 7000 receiver- Newest precision ag receiver offered by John Deere with increased accuracy communicating to 4 satellite constellations as well as offering sub-inch satellite accuracy.
- John Deere Connectivity Modem- Newest precision ag data transferring modem offered by John Deere. Offers farmers ability to collect and send information wirelessly, monitor machine performance, and track acres covered with 4G connection.

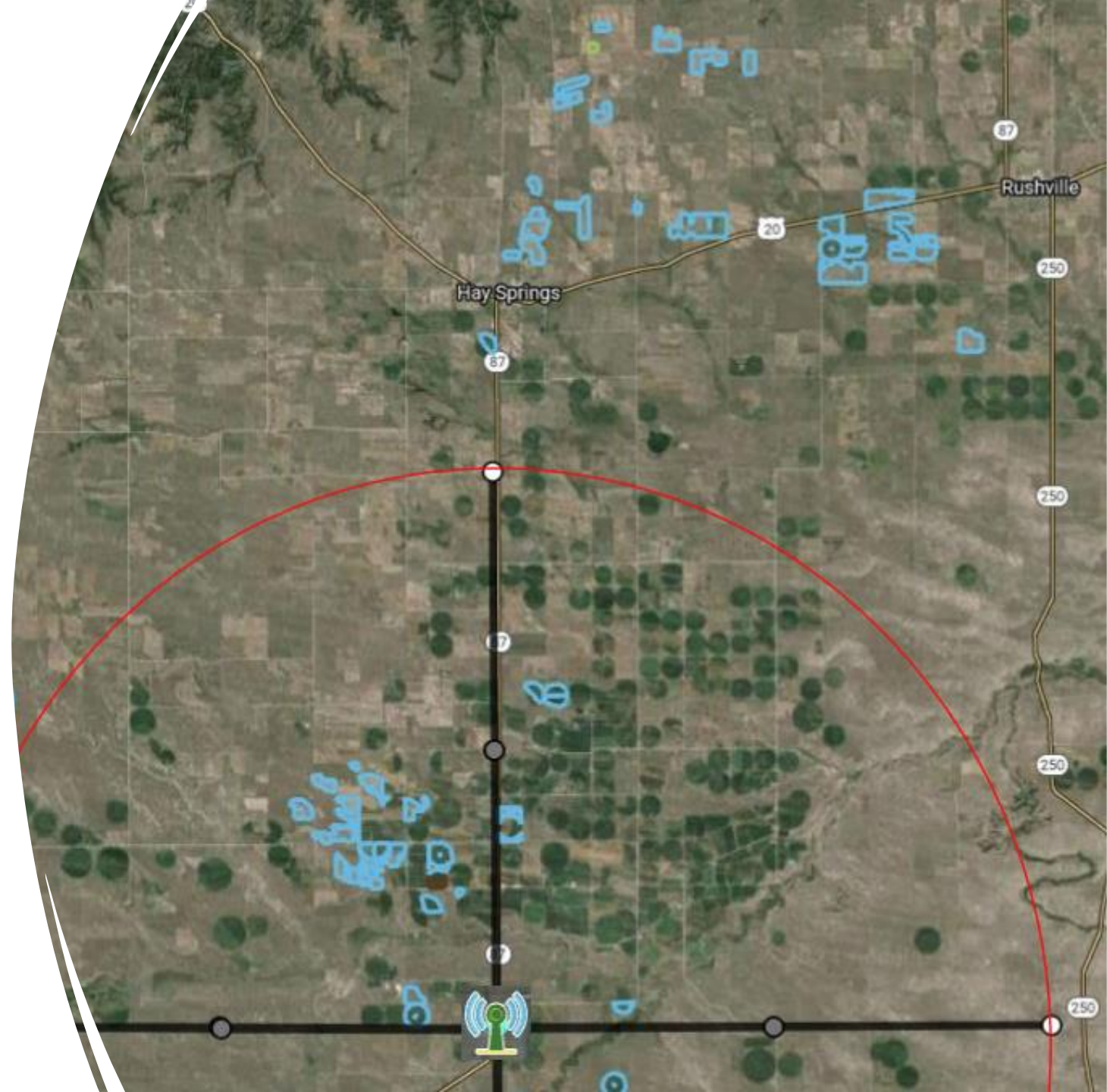
Connectivity Pathways

- With this project we will be able to increase connectivity pathways to agriculture machinery through wireless John Deere 4G modems. Currently we have 7 machines that are unable to have connectivity due to lack of equipment, and outdated equipment.

Name	Serial Number	Model	Make	Connectivity Type	Connectivity Status
4955	---	4955	JOHN DEERE	Connectivity Unavailable	No Eligible Modem
9320	---	9320	JOHN DEERE	Connectivity Unavailable	No Eligible Modem
Case Quad Trac	---	QUADTRAC	CASE IH	Connectivity Unavailable	No Eligible Modem
Claas Lexion	---	740	LEXION	Connectivity Unavailable	No Eligible Modem
Gleaner	---	S-78	GLENER	Connectivity Unavailable	No Eligible Modem
Sandberg 8130 011909	RW8130P011909	8130	JOHN DEERE	JDLink Connectivity	Inactive
Sandberg 8370R 092334	1RW8370RCED092334	8370R	JOHN DEERE	JDLink Connectivity	Activated
Sandberg 8370R 092334	1RW8370RCED092334	8370R	JOHN DEERE	Wi-Fi Connectivity	Activated
Sandberg 9460R 012630	1RW9460RHEP012630	9460R	JOHN DEERE	JDLink Connectivity	Inactive
Sandberg 9460R 012630	1RW9460RHEP012630	9460R	JOHN DEERE	Wi-Fi Connectivity	Inactive
Sandberg R4038 174372	1N04038RLG0174372	R4038	JOHN DEERE	JDLink Connectivity	Activated

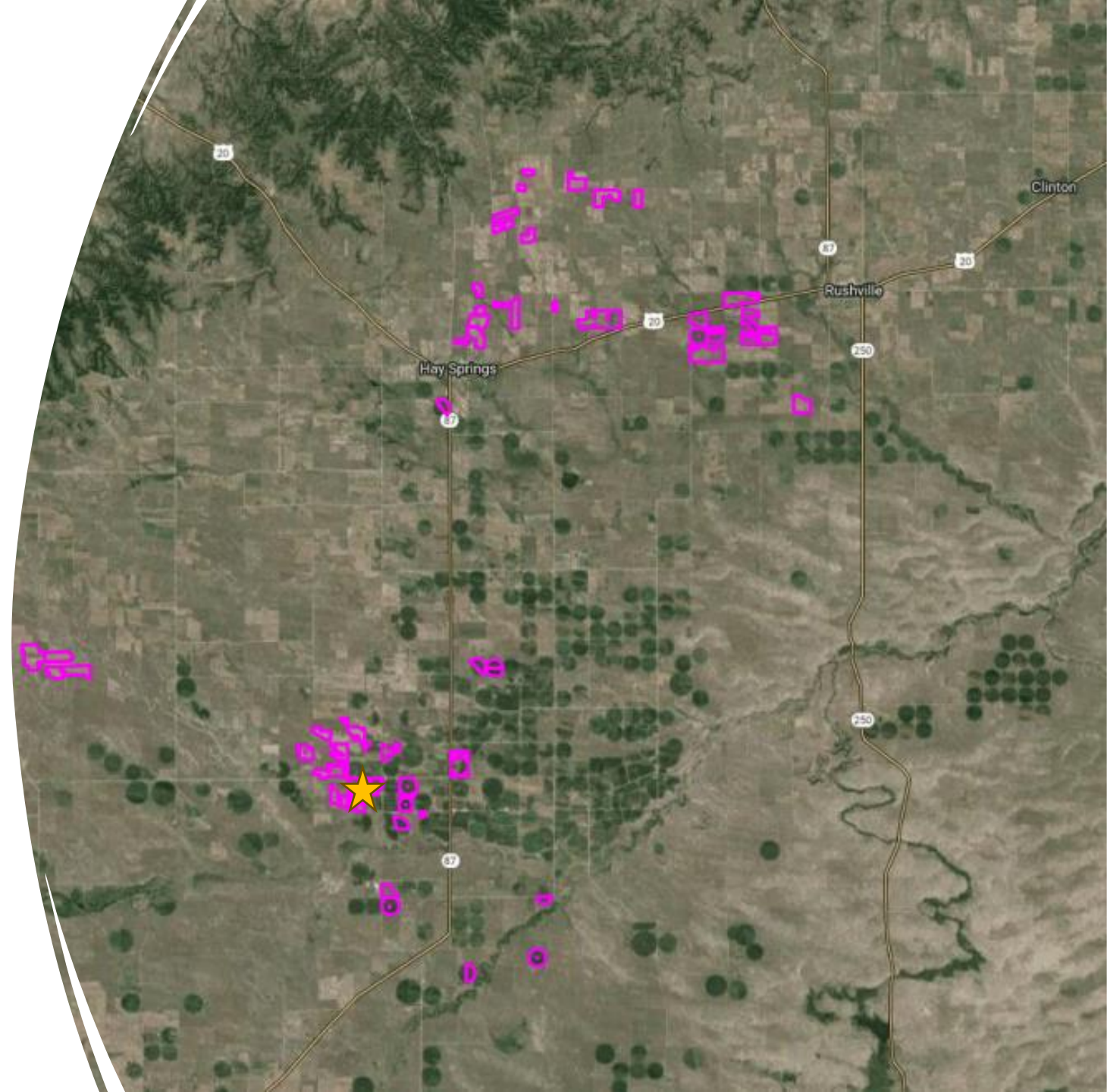
Connectivity Pathways-Cont.

- With the current RTK network coverage provided by our John Deere dealership, we have limited access to high accuracy GPS. With this project, our farm will now have full coverage of High Accuracy GPS provided by new receivers and satellite correction services.



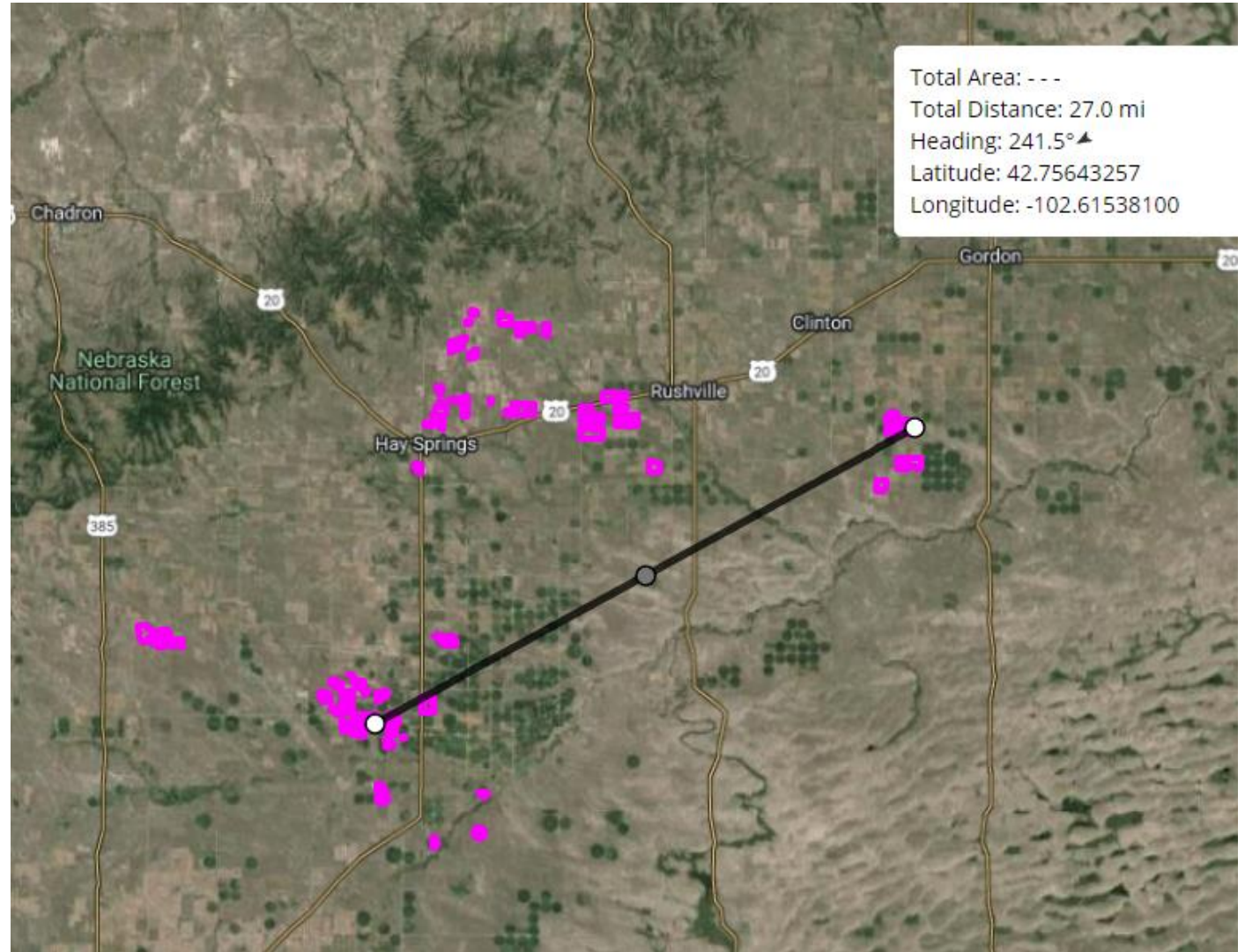
Central Hub

- The central hub for this project will be the farms office, located inside of the machine shop at our home (star on the map) We currently have wired internet to the router provided by Great Plains Communications. The shop has Wi-Fi connectivity as well for machines that are inside.



Distribution points and connectivity route

- For this project, distribution points will be from home office to machines. With this grant our farm will become fully connected wirelessly so that machines can transmit data back to the office. The furthest field from our home office is over 25 miles away, making machine monitoring an asset to our operation. The connectivity route would be much the same, as machines would have a direct connection to both satellites and cell coverage.



Project Diagram



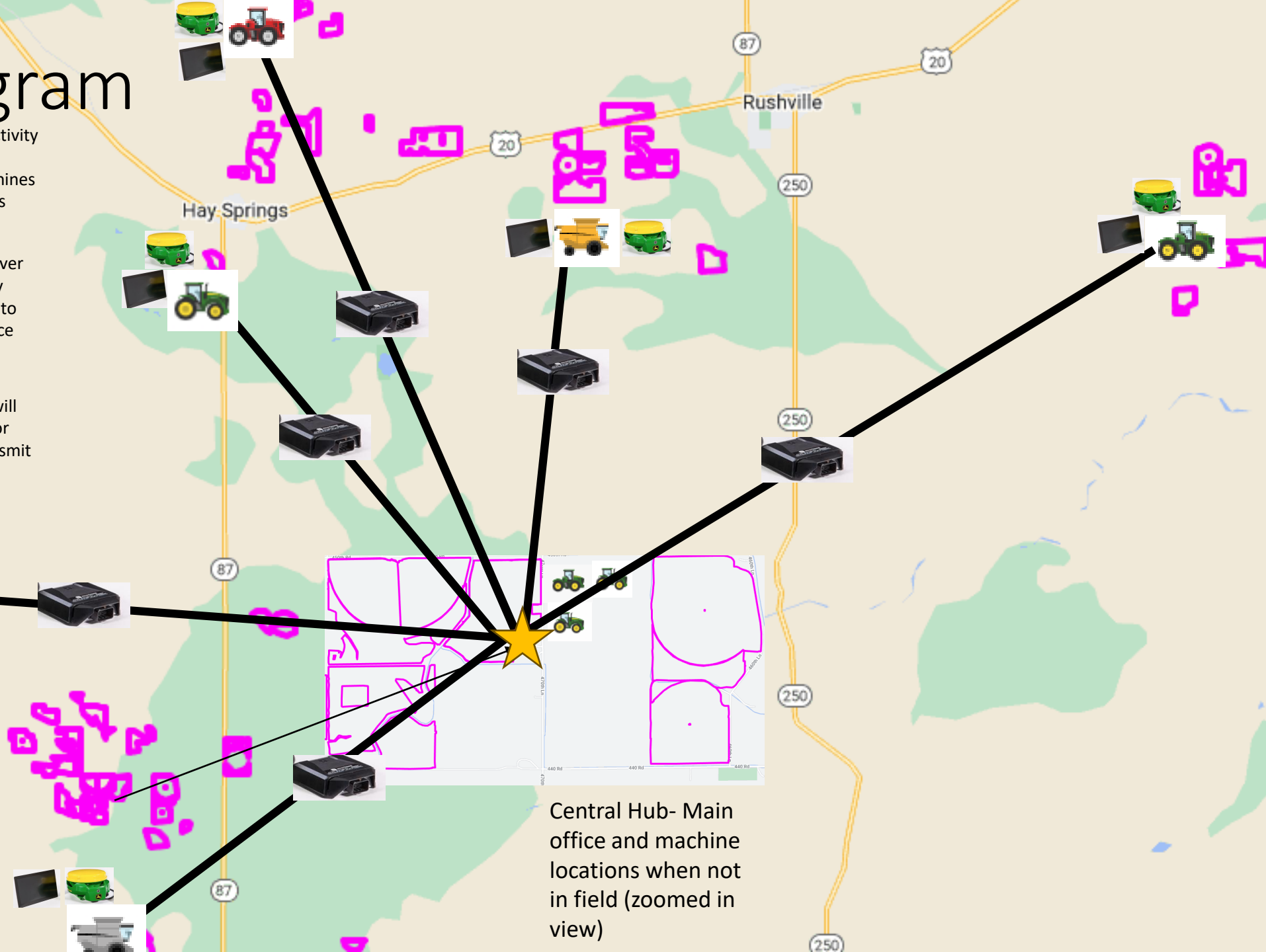
Wireless machine connectivity provided by John Deere modems to connect machines back to central hub across project area



John Deere satellite receiver will provide high accuracy correction to all machine to improve farm performance



John Deere G5 displays will connect to central hub for remote support and transmit agronomic data back to central hub.



Central Hub- Main office and machine locations when not in field (zoomed in view)