

Navigating the Logistical Challenges of Transporting Pre-Built Homes Across Iowa



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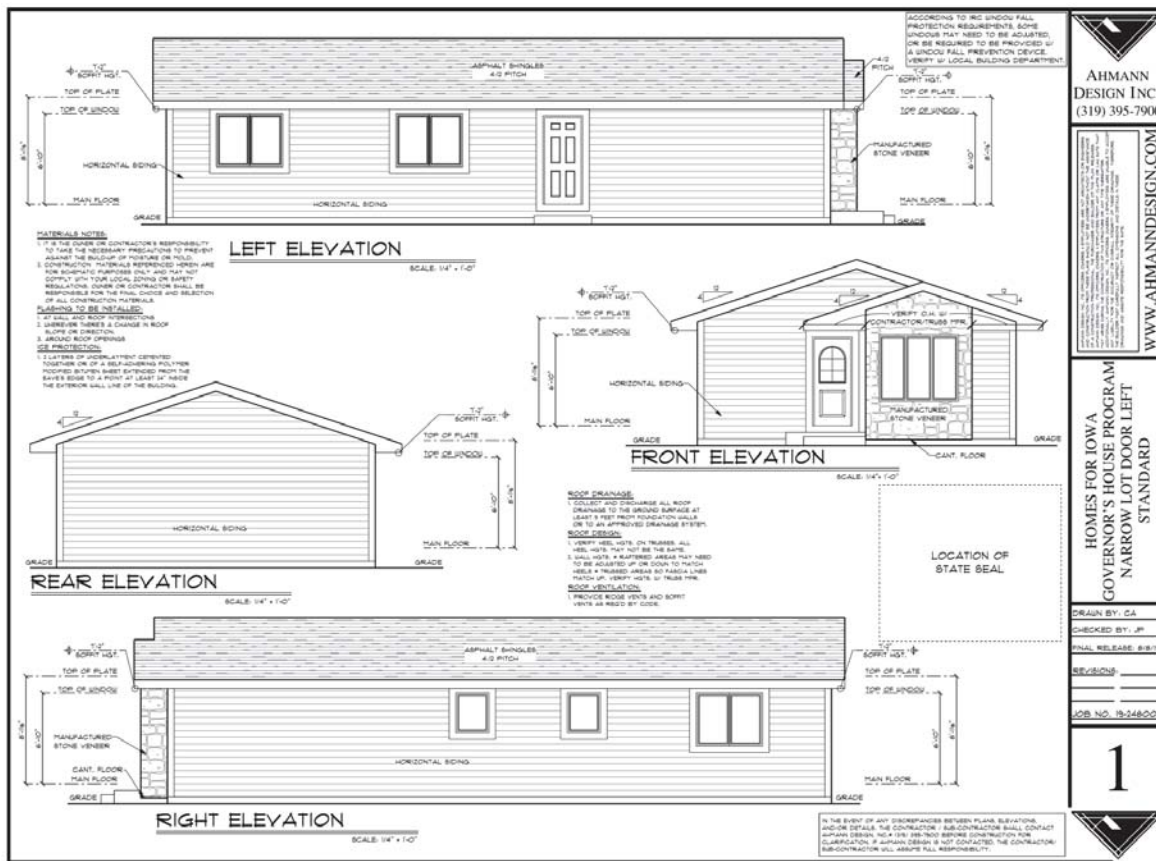
Homes for Iowa - Background

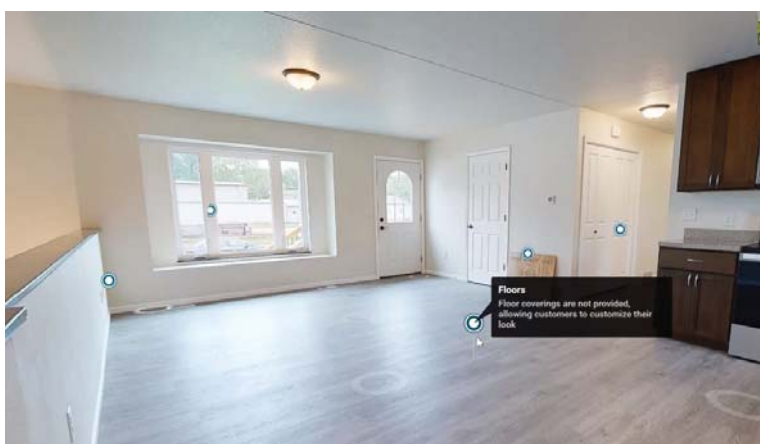
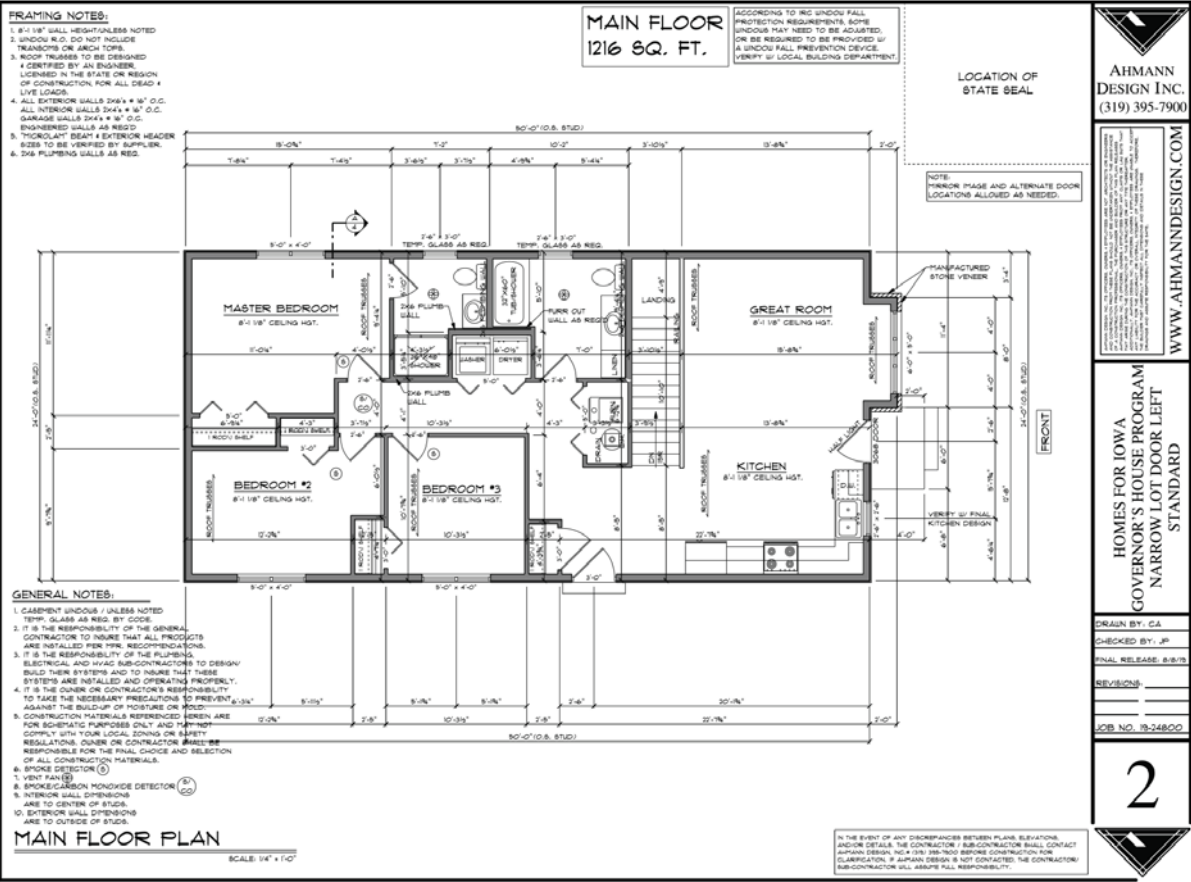
- Goal 1: Produce high-quality, affordable homes for Iowa residents
- Goal 2: Train offenders in building trades (Newton Correctional Facility)
- Modeled after the Governor's House program in South Dakota, which has now been in operation for 25 years



Homes for Iowa Homes are:

- Quality: 2x6 construction, attention to detail, good materials
- Efficient: R60-attic, R-29 walls, air sealed, heat rec. ventilation
- Flexible: Main floor living, or expand into a basement
- Add-on friendly: Garage, addition, deck





Role of Iowa Prison Industries

Manages program operations

Employs all supervisory staff in homebuilding program

Trains all offenders in homebuilding program

Owns homebuilding site

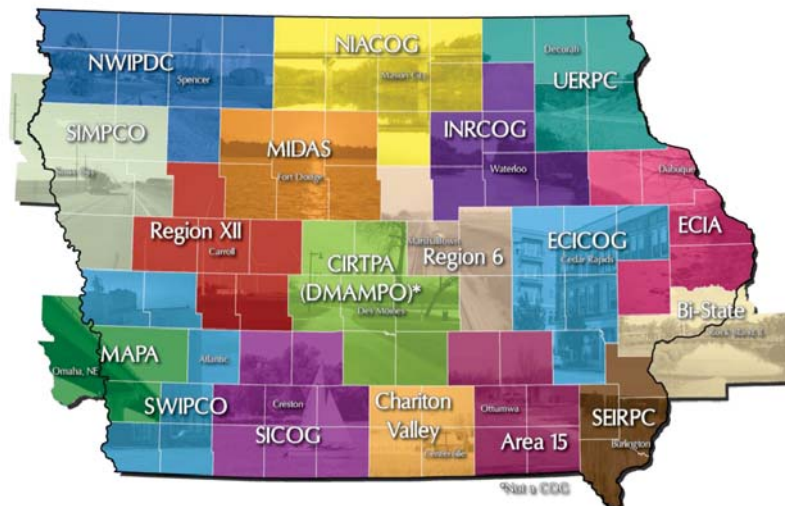


Training offered:

- *OSHA 10 for Construction card (taught by DMACC)*
- *DMACC Construction Program Certificate*
- *NCCER certification for Core Curriculum, Construction Laborer I, Carpentry I, and Weatherization*
- *US Dept of Labor registered apprenticeship as Home Performance Laborer (2,000 hours of on-the-job-training plus 160 hours of classroom study)*
- *Some of the men will continue on as an apprentice plumber, electrician, or carpenter*

Role of Councils of Governments

- COGs will serve as regional intake/sales coordinators for Homes for Iowa



The Moving Process

- Homes for Iowa has utilized the services of Ferneau & Sons House Moving & Raising, based in Marshalltown.
- The home is lowered onto the “trailer” with hydraulic jacks and beams at the home site. A beam and dolly system is used as a “trailer” pulled with the 6x6 semi tractor. 12” steel I-beams are bolted to the hitch and to wheel dollies in the rear forming the trailer.
- Weight is approximately 95,000 pounds for the setup. An oversize, overweight dual-lane permit is required from DOT



The Moving Process

- Law Enforcement officers are required for a front-rear escort to stop traffic if needed during transport.
- At the home site the home is lifted off the trailer with hydraulic jacks and another set of beams to slide it over the foundation. Another beam set up with cribbing lowers the home to the foundation.
- HFI will have its own moving crew in Summer 2021 and will be set up for a more efficient outside-jacking system to lower the home, saving 40% on lowering time.



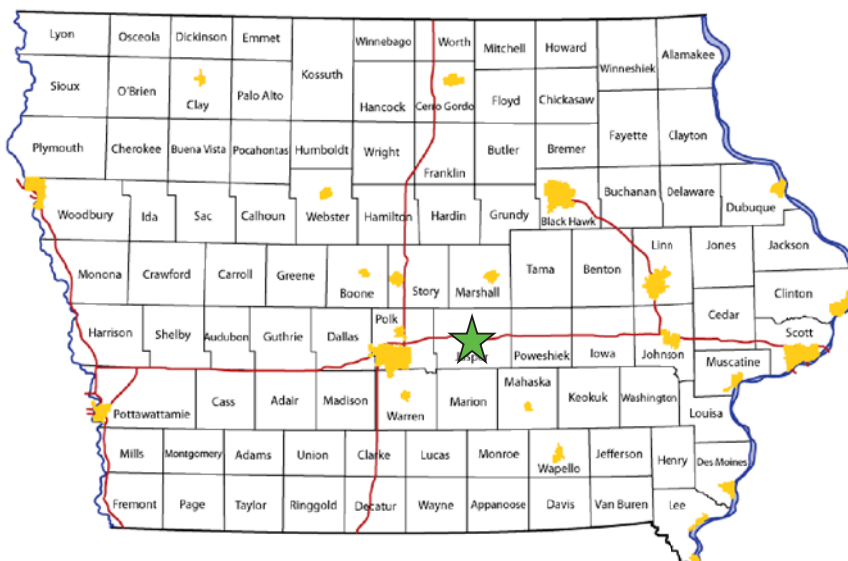
The Moving Process

- Coordinating the move includes:
 - Electric utility providers (five along the West Point move)
 - County permits (only if on county routes)
 - City permits (not all cities have them)
 - DOT permit (expires soon after approval)
 - Weather
 - Mover schedule
 - Home development site conditions
 - A mid-route parking spot (West Point route used old DOT weigh station)
 - A 100-mile travel day easily possible under ideal conditions



The Origin Point

- Newton Correctional Facility
- 4 Miles South of I-80, near Newton, Jasper County
- Roughly centralized within the state



DOT Route Planning Tool

- Part of the online permitting procedure
- Allows you to enter in a specific route on the map, and uses its database to verify whether it will work for your oversize load, at the width, height and weight dimensions specified.
- Drawback – if your preferred route gets rejected, finding a suitable detour could take considerable time. Plus, each subsequent detour has the potential to be rejected as well (trial and error).
- To make the process more efficient, you can use various data applications in advance, to select a route that avoids the most obvious obstacles.

Challenge 1 –Driving Distance

- Minimize the travel distance and time between origin and destination.
- In Iowa, that's typically more challenging than in South Dakota – particularly for oversize loads.

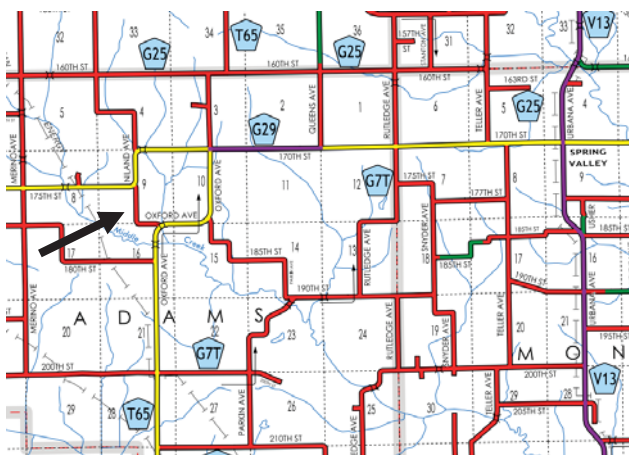


Challenge 1 –Driving Distance

- The quickest route from origin to destination is often unfeasible for an oversize load, due to:
 - Low overpasses
 - Narrow width-roads
 - Presence of medians and dividers
 - Bridges with weight restrictions
 - Passage through high-density urban areas with high traffic volume
- Should avoid large urban areas and Interstates in general, to avoid causing serious traffic disruptions.

Challenge 2 – Roadway Surface

- Minimize the use of gravel roads, traveling on them only when the nearest paved road is too far of a diversion, and the gravel road serves as a brief shortcut (*arrow below*).
- DOT offers pavement surfacing maps for each county:
<https://iowadot.gov/maps/digital-maps/city-and-county-maps>



LEGEND

INTERSTATE HIGHWAY	
PRIMARY HIGHWAY-DIVIDED	
PRIMARY HIGHWAY	
PORTLAND CEMENT CONCRETE ROAD	
ASPHALT ROAD	
BITUMINOUS ROAD	
GRAVEL ROAD	
EARTHEN ROAD	

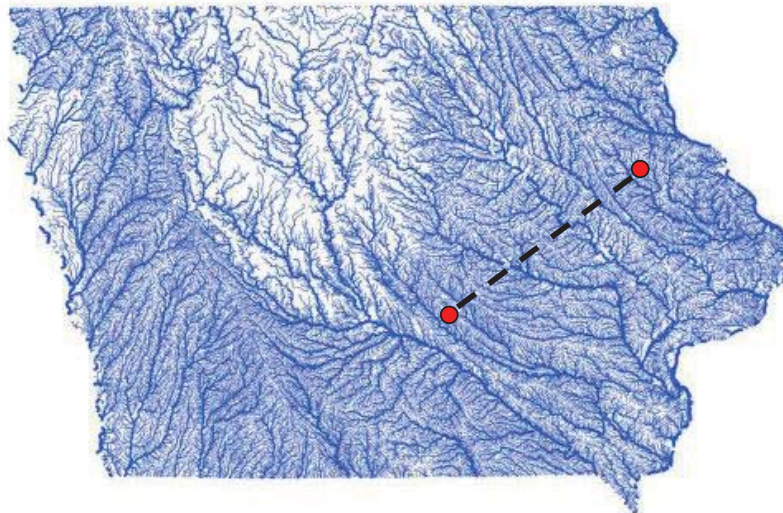
Challenge 3 – Medians & Dividers

- The house will require the width of at least 24 feet, or approx. two standard travel lanes.
- Cannot assume that any two-lane highway is up to the task – if it has a median, divider, and/or one-lane roundabout, it won't work.
- In Iowa, such dividers on two-lane highways are typically found on the immediate approach of a major highway intersection – these short spans are easily overlooked.



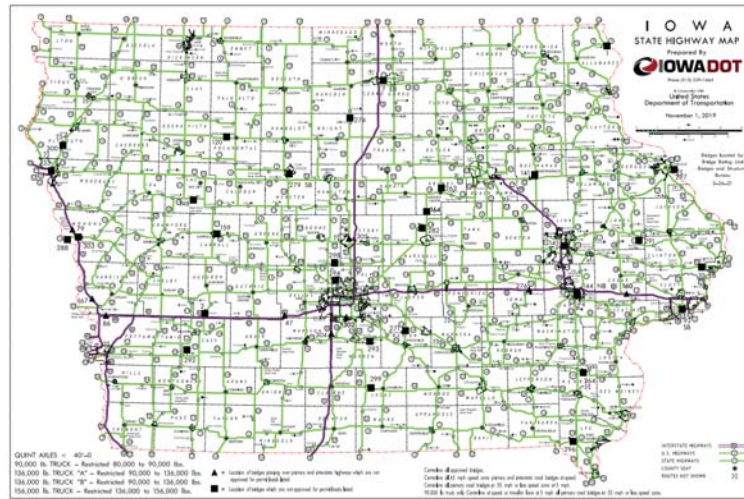
Challenge 4 - Bridges

- Iowa's natural drainage pattern necessitates that many bridges be crossed, even within one quadrant of the state.
- If relying on Secondary and Local Roads, the design and condition of each bridge must be evaluated.



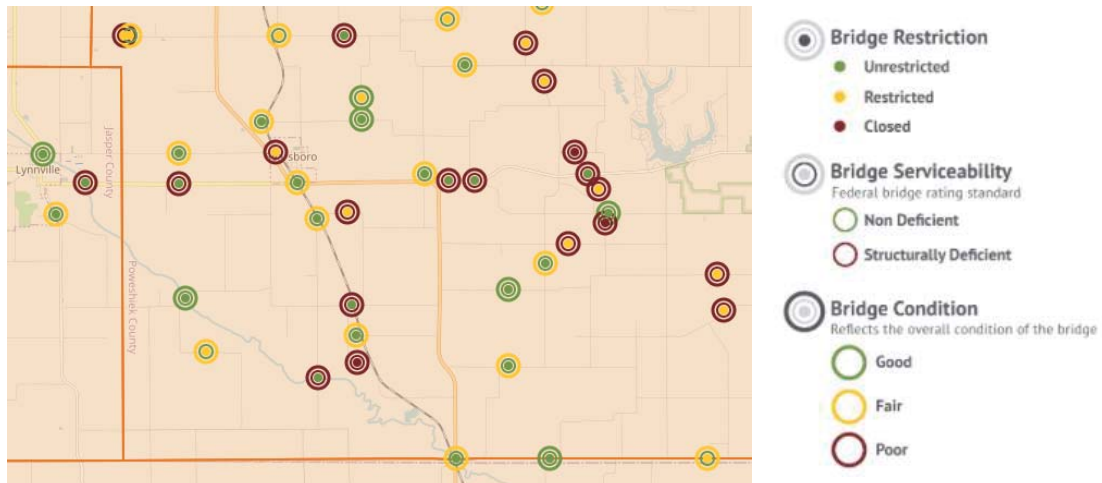
Challenge 4 - Bridges

- Bridge Embargo Map (Primary Highways only)
<https://iowadot.gov/mvd/motorcarriers/bridgemap.pdf>
- Bridge Embargo List (some may have weight limits that exceed the amount necessary for Homes for Iowa)
<https://iowadot.gov/mvd/motorcarriers/embargolist.pdf>



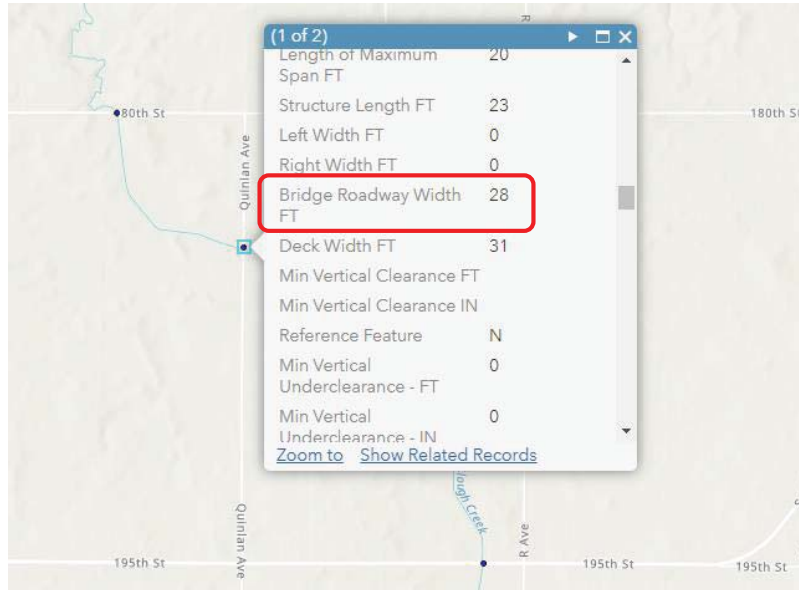
Challenge 4 - Bridges

- Iowa bridge condition story map available from DOT:
<https://iowadot.maps.arcgis.com/apps/MapSeries/index.html?appid=db6cb43313354a4f85505089ab317e7a>
- Indicates the condition of a bridge and whether it currently has any restrictions – includes those on Secondary and Local roads.



Challenge 4 - Bridges

- DOT has GIS data for bridges that includes attribute data on roadway surface width.



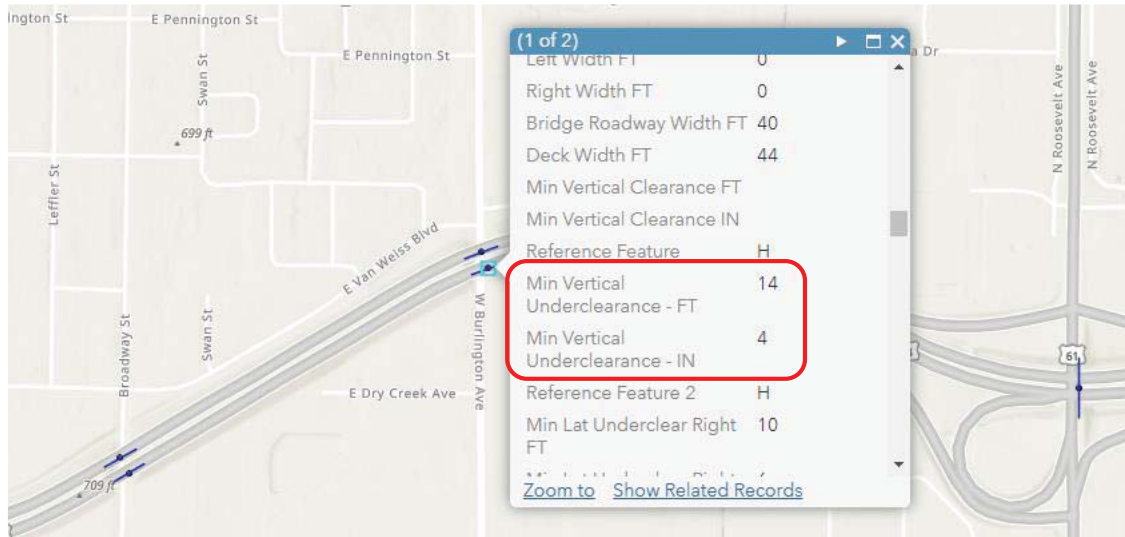
Challenge 5 – Overpasses

- Must avoid any overpasses with less than 16 feet of clearance.
- DOT has a map showing vertical clearance: <https://iowadot.gov/mvd/motorcarriers/clearance.pdf>
- However, this is only for the Primary Highway system, and doesn't address Secondary or Local roads that pass under a Primary Highway.



Challenge 5 – Overpasses

- Back to GIS again – attribute data available for the vertical clearance/underclearance of bridges.



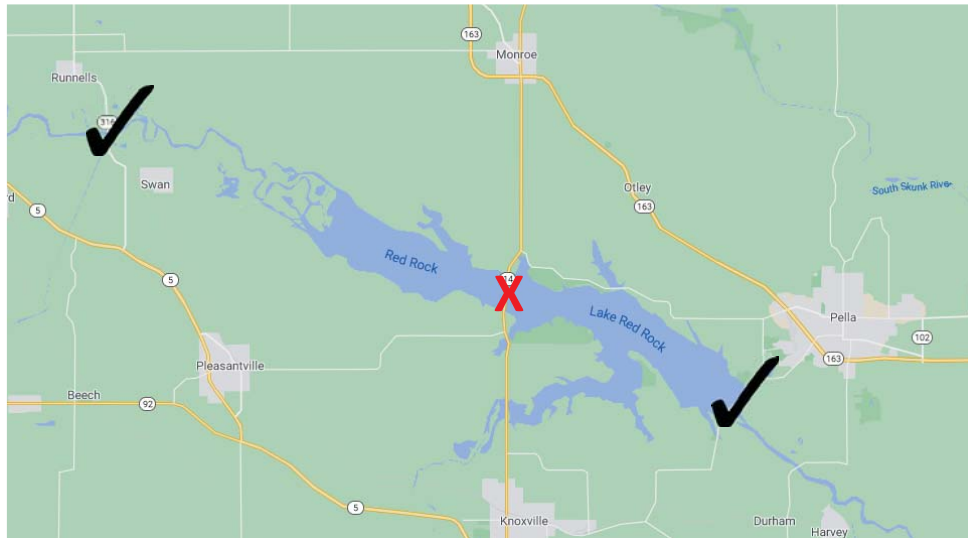
Challenge 6 – Power Lines and Trees

- While larger urban areas should be avoided, even smaller towns can present serious obstacles, if there are numerous low trees and power lines present over the roadway surface.
- Use Google Maps to scope out how the highway looks as it passes through a small town – identify areas of special concern.
- If it's just one tree here or there, within the ROW, they can be trimmed. But some towns may have an extensive corridor like this



Putting it All Together

- In areas of the state where limited alternatives are available, one factor can seriously complicate things.
 - Ex: Red Rock Lake Bridge (Highway 14) in Marion County has a weight limit of 80,000 lbs. the nearest alternatives across Red Rock Lake are 8-12 miles away



Example Routes

- Oelwein
- Need to avoid urban areas at Waterloo and Marshalltown
- Challenging to get across Cedar River, I-380, and US 20
- Gravel shortcut to bypass Jesup
- Rural roundabout with raised median on approach south of Fairbank – requires use of County W13 instead of County V62
- Must meander through Oelwein since the most direct entrance into town (from the west) has a low clearance underpass below a rail line

