

Low Cost Roadway Cameras in Kansas

NRITS 2015

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Why Roadway Cameras?

- Inspired by Aurora pooled fund project 2012-03 “Cameras and Operational Impact of Remote Road Condition Monitoring.”

www.aurora-program.org

- Save DOT resources by reducing “expedition trips” in snow and ice
- Provide better information to maintenance managers/decision-makers
- Provide better information to travelers

Why Low Cost?

- Over 2.1 billion reasons per Kansas Economic Lifelines
- T-Works program passed in 2010
- Transfers from State Highway Fund made by every legislative session since passage
- KDOT ITS programs and operating programs are all experiencing reduced resources
- Only way to get rural cameras – Low Cost from district maintenance operating budget

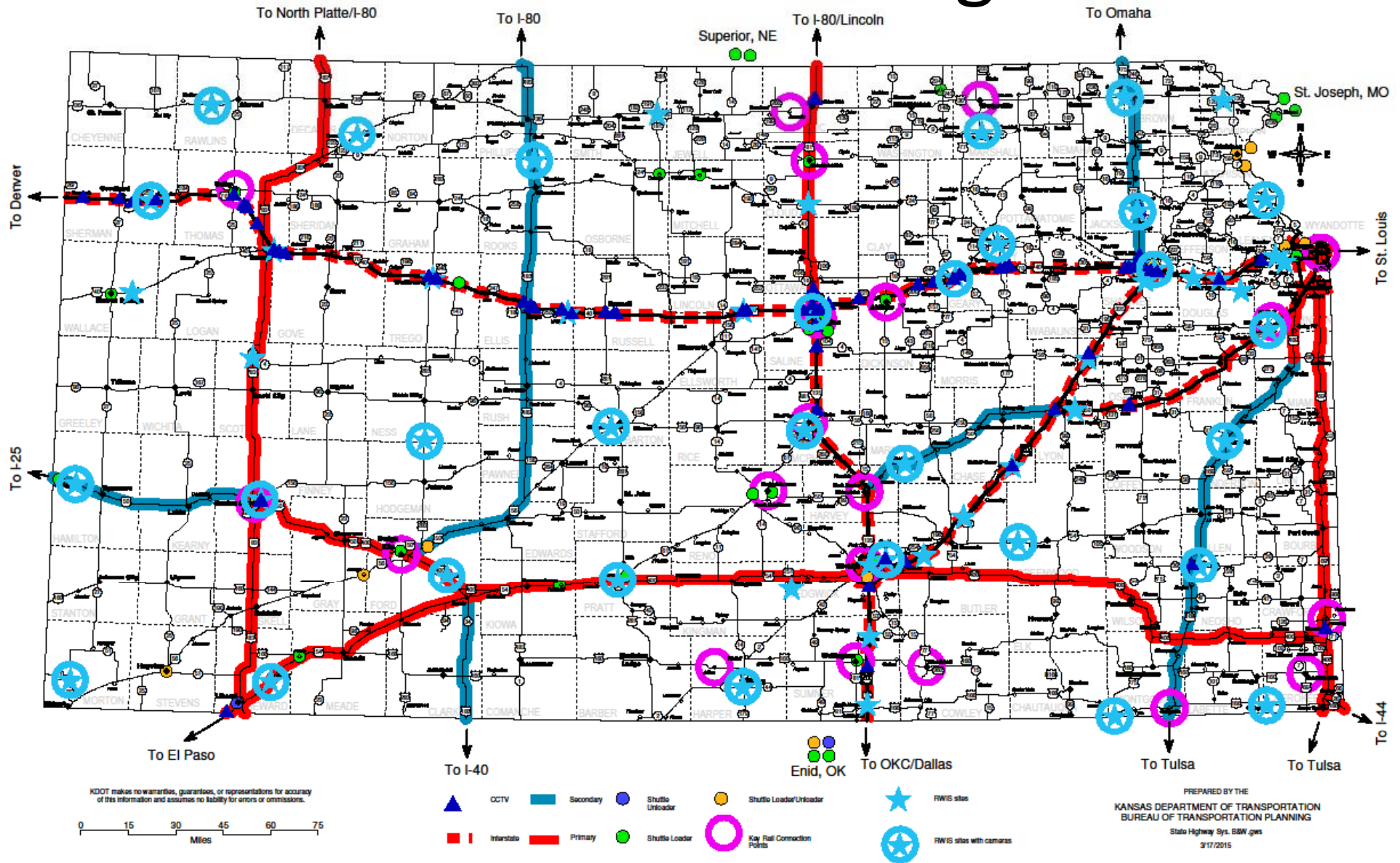
All this technology is making us antisocial

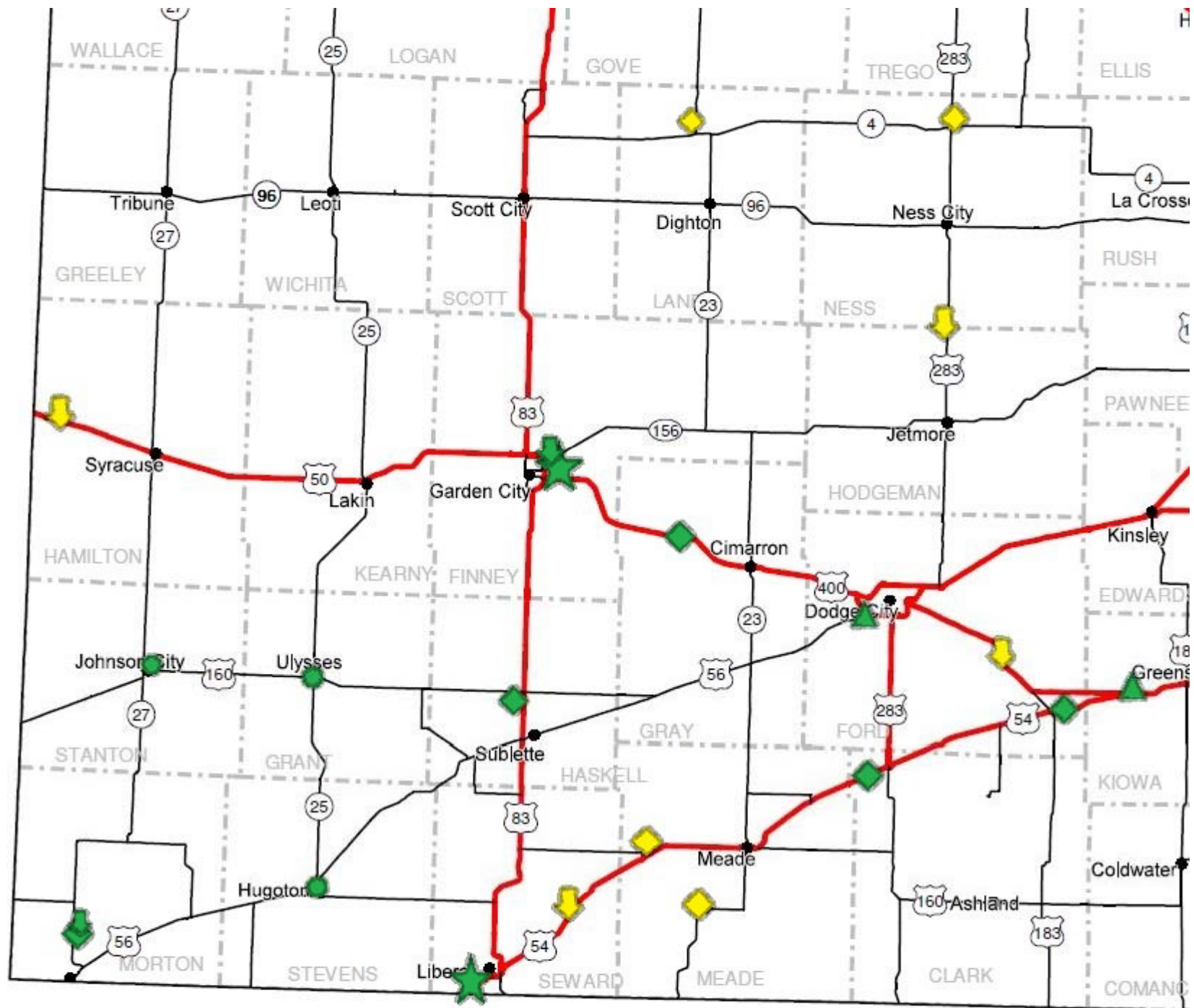


Where are we doing it?



Where are we doing it?





Where are we doing it?

- Locations where we get decision information
- Location characteristics:
 - Multiple crew turn around points, e.g. remote salt bunkers, intersections with beacons, RWIS sites
 - Existing power
 - Close to existing internet access is desirable
 - Traffic volume/freight routes

KEEP



RIGHT

What are we doing?

- Installing simple outdoor security cameras



- Ubiquiti UniFi UVC camera (\$133)
- 720p HD, Power over Ethernet



IR Illuminator



What you see, to the East

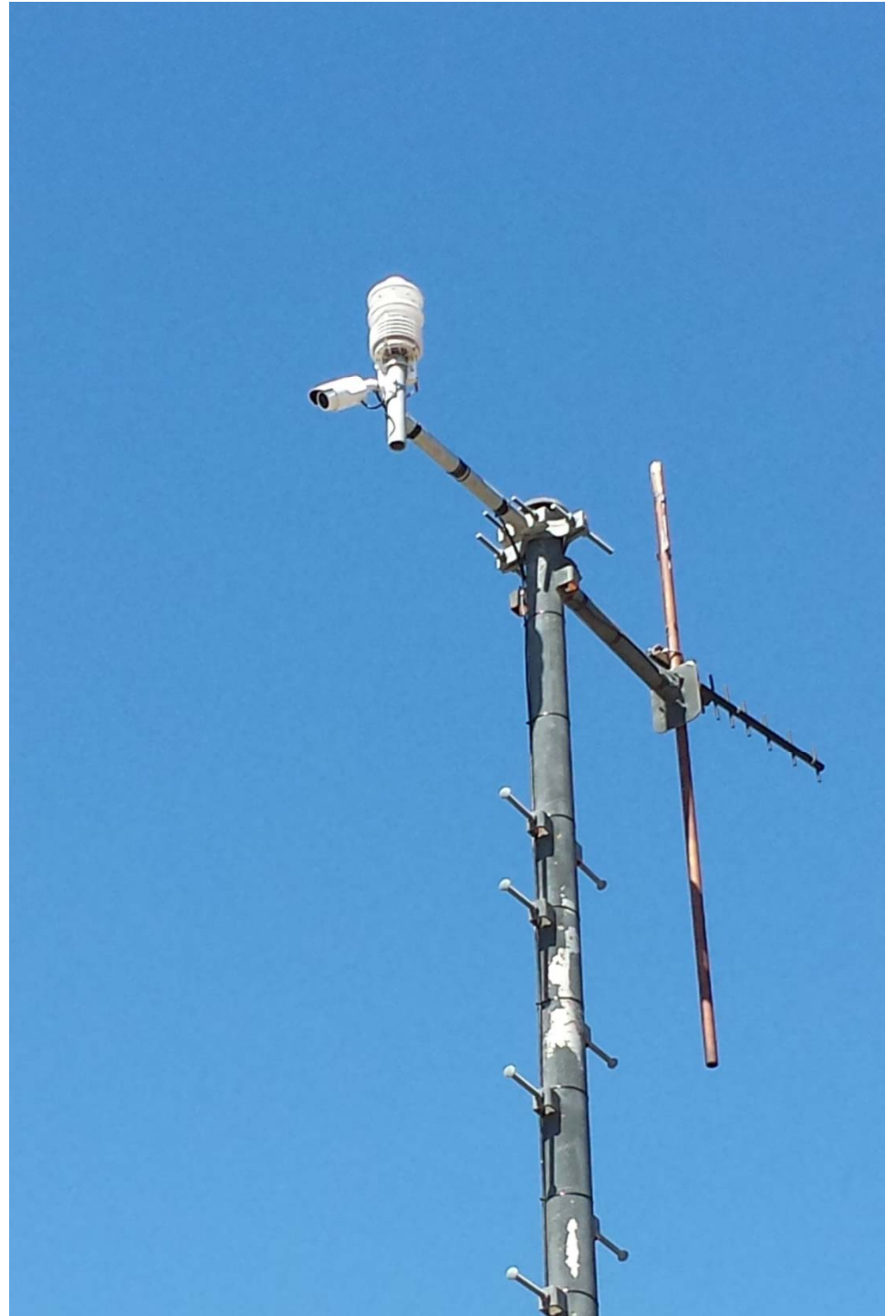


To the West

Bucklin Looking West

08/04/2015 09:36:06



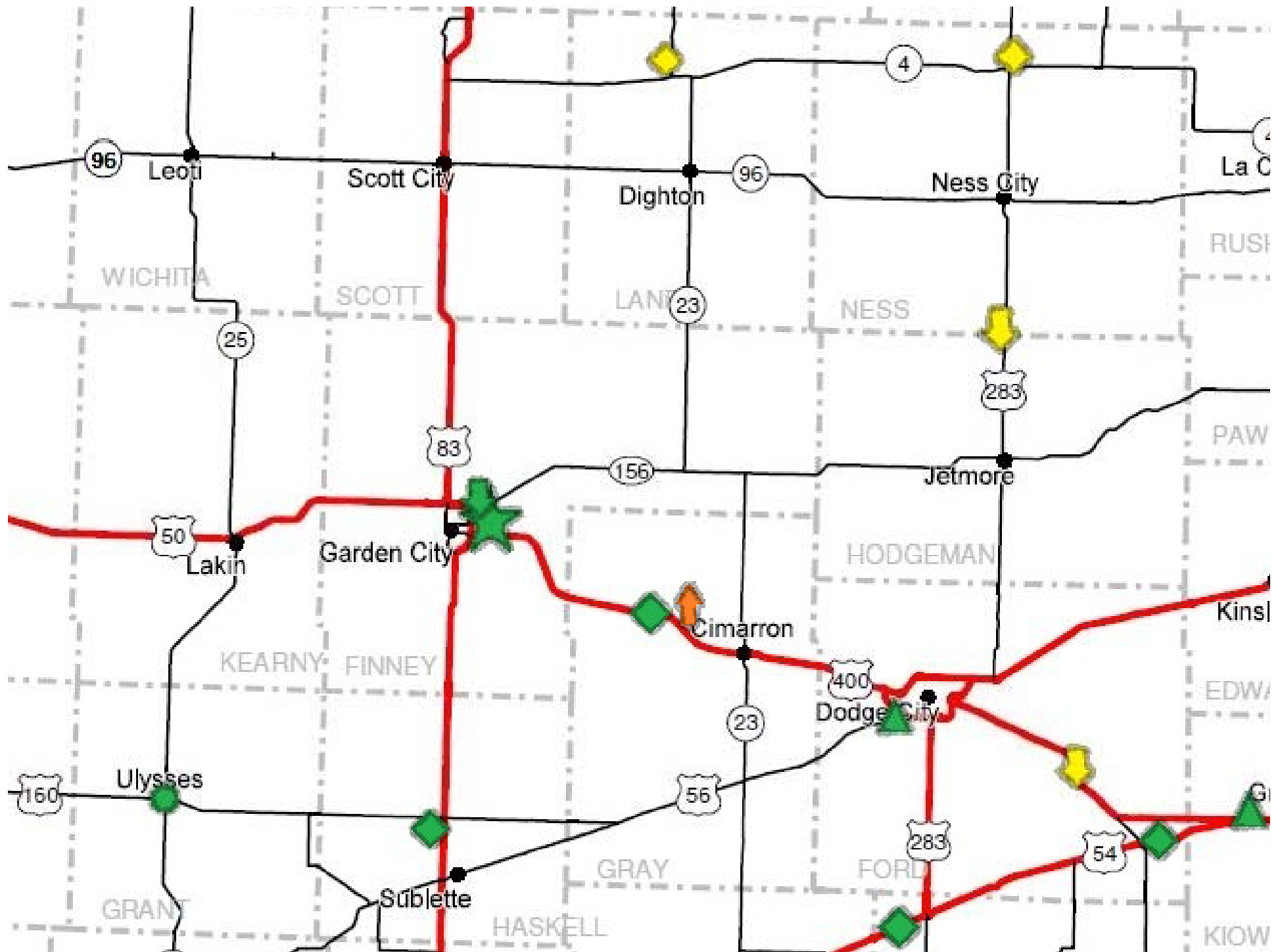


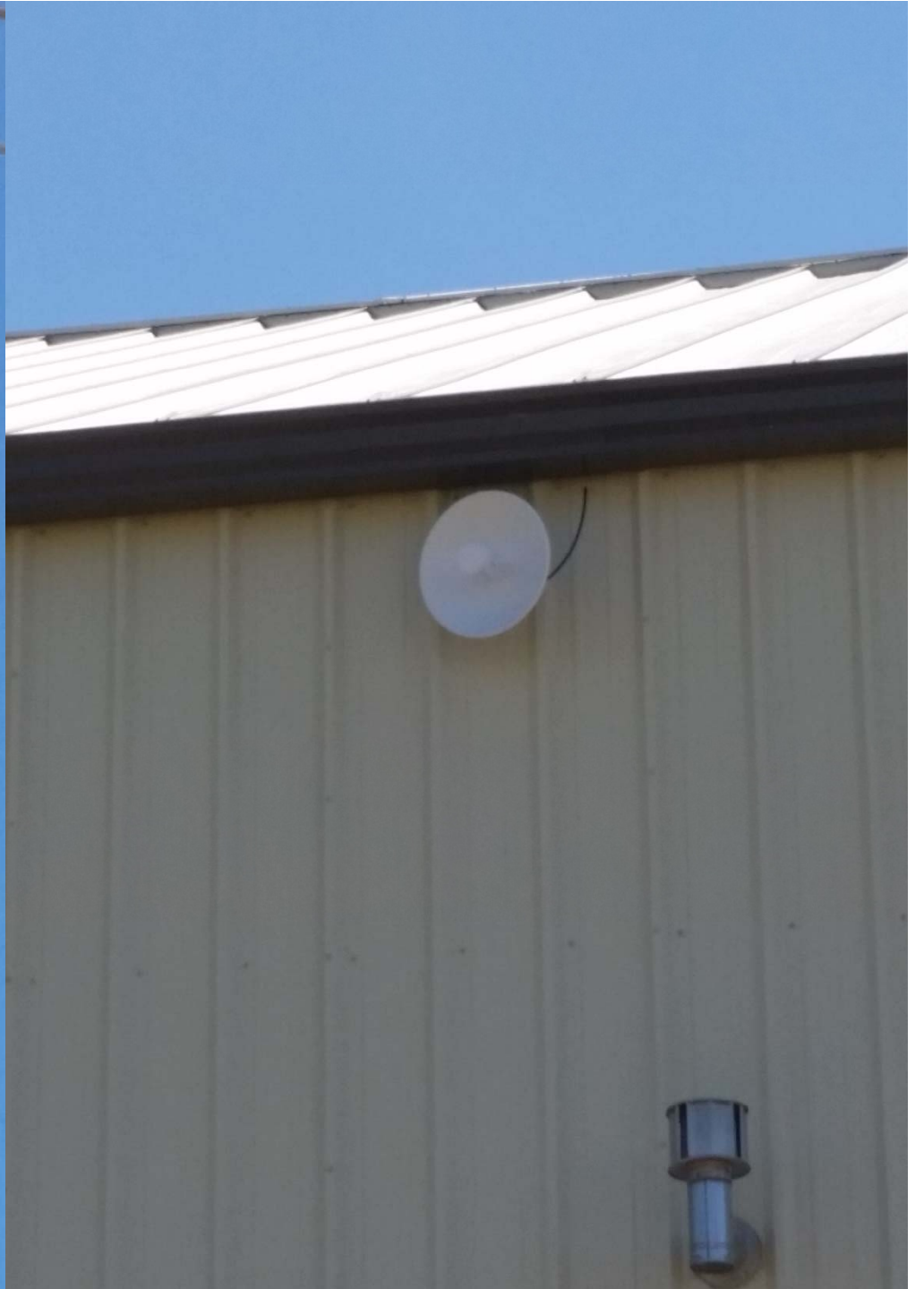
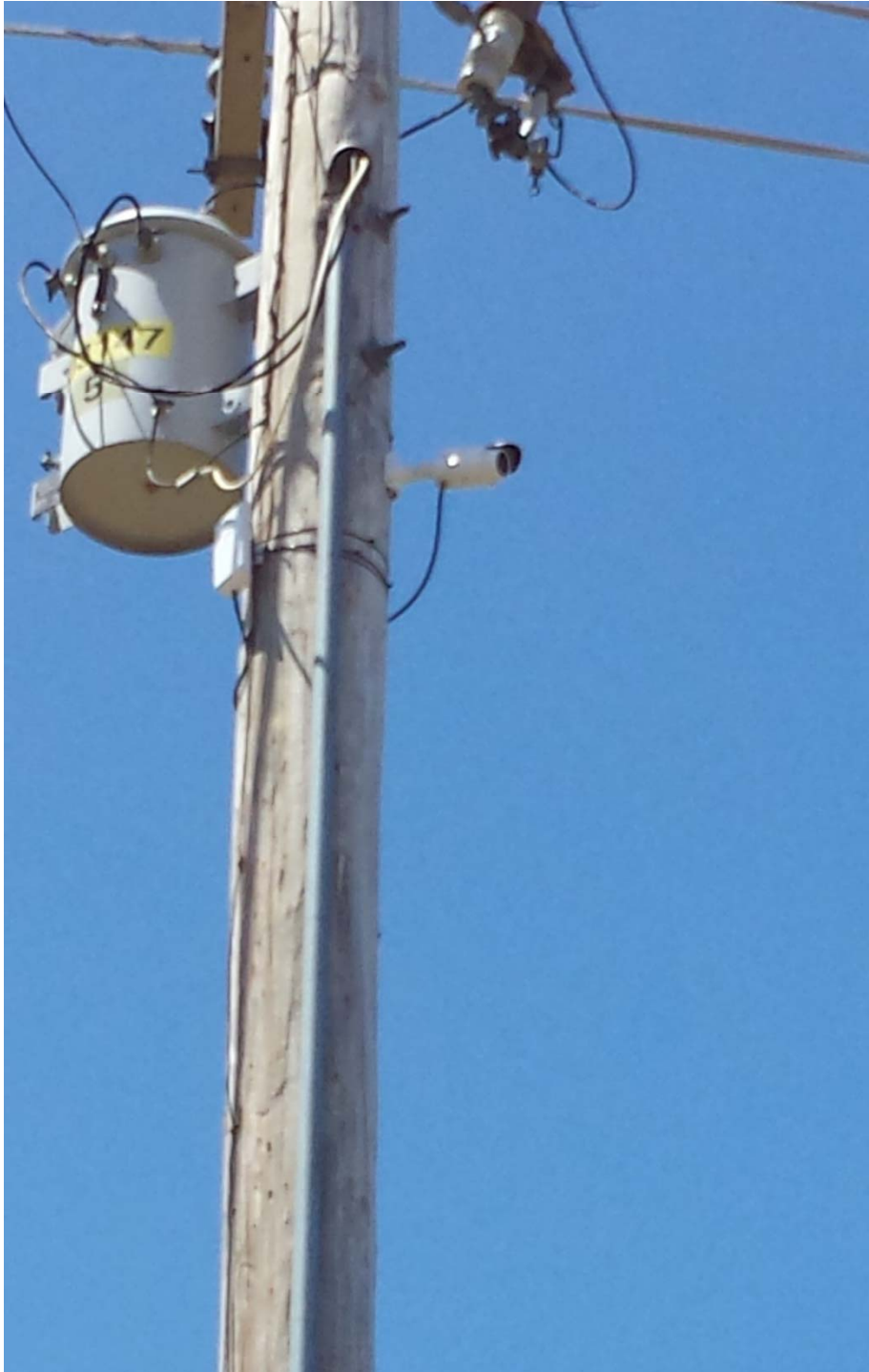
An Area Engineer Selfie

Cimarron River Bridge North of Elkhart

03/06/2015 10:43:53







3 locations use this one





Bad blowing/driftng spot

3 West of Ingalls looking East

07/30/2015 14:09:42

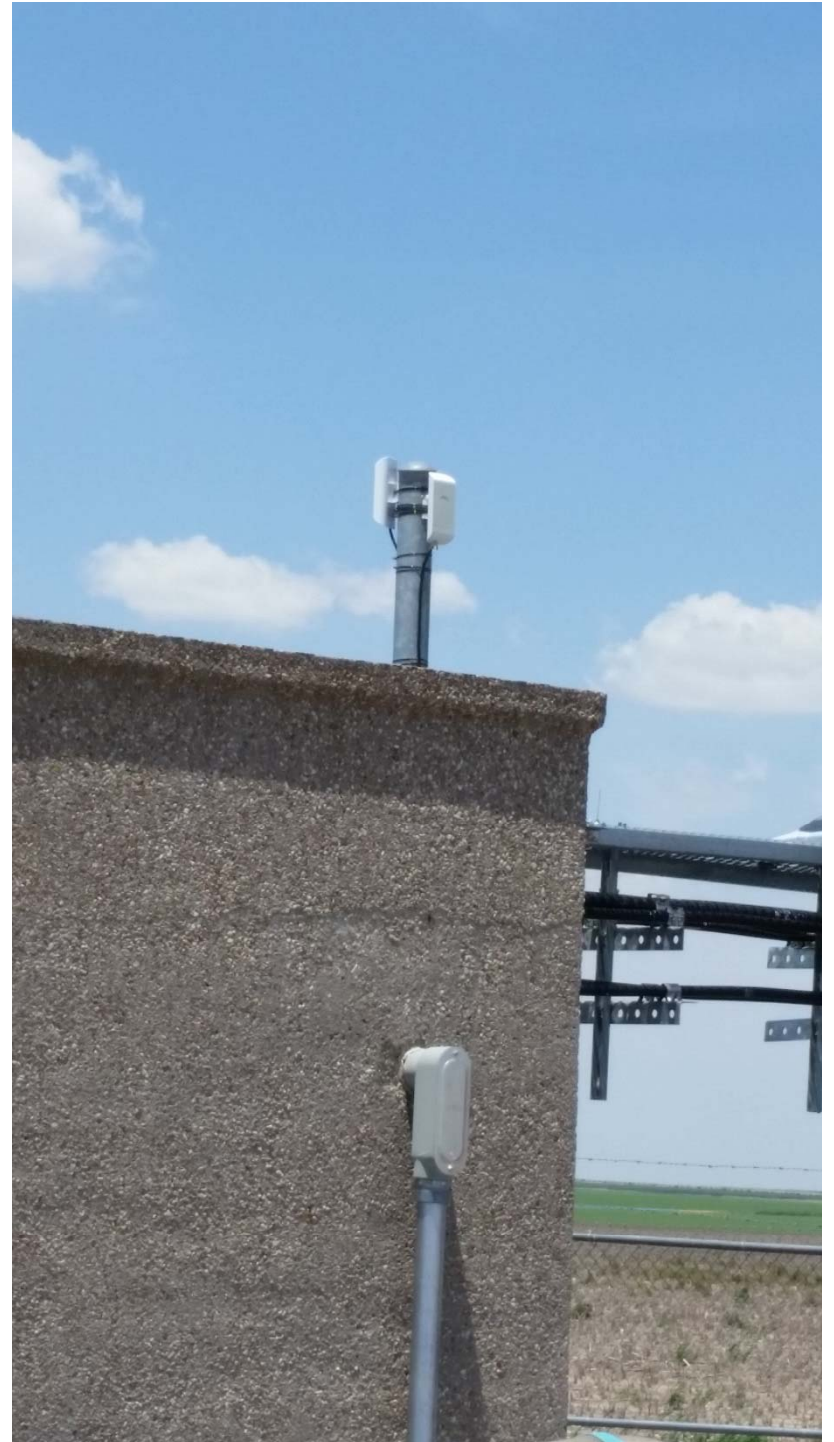


West view same pole

3 West of Ingalls looking West

08/03/2015 15:07:58







Why multiple cameras?

3 Miles West of Ingalls

02/04/2015 08:17:33



Bad morning for cameras

Freezing fog

DAILY HISTORY

HOURLY HISTORY

KS FORD, US 400/AR RIVER K5FRD (541003) (K5FRD) for February 4, 2015

Hour	Temperature (°F)	Dew Point (°F)	Relative Humidity (%)	Precipitation (in.)	Wind (mph)	Conditions
12:00 AM CST	37.9	32.0	79	-	SSW at 7	Clear
1:00 AM CST	36.0	32.0	85	-	SSW at 9	Clear
2:00 AM CST	34.0	30.0	85	-	SSW at 3	Clear
3:00 AM CST	32.0	30.9	96	-	SSW at 7	Clear
4:00 AM CST	32.0	28.9	89	-	SSW at 5	Clear
5:00 AM CST	33.1	28.9	85	-	SSW at 6	Clear
6:00 AM CST	33.1	30.0	89	-	N at 6	Clear
7:00 AM CST	32.0	27.0	82	-	NNF at 17 G 29	Clear
8:00 AM CST	27.0	25.2	92	-	NNE at 21 G 33	Cloudy
9:00 AM CST	25.0	23.0	92	-	NNE at 36 G 54	Cloudy
10:00 AM CST	24.1	21.9	92	-	NNE at 25 G 40	Snow
11:00 AM CST	24.1	21.0	88	-	NNE at 24 G 39	Snow
12:00 PM CST	23.0	19.9	88	-	NE at 23 G 38	Snow
1:00 PM CST	21.9	19.0	88	-	NNE at 22 G 37	Cloudy

Freezing fog

US-50 and Spruce at Garden City MP 71

02/04/2015 08:21:19



Aargh!

Bucklin Looking East

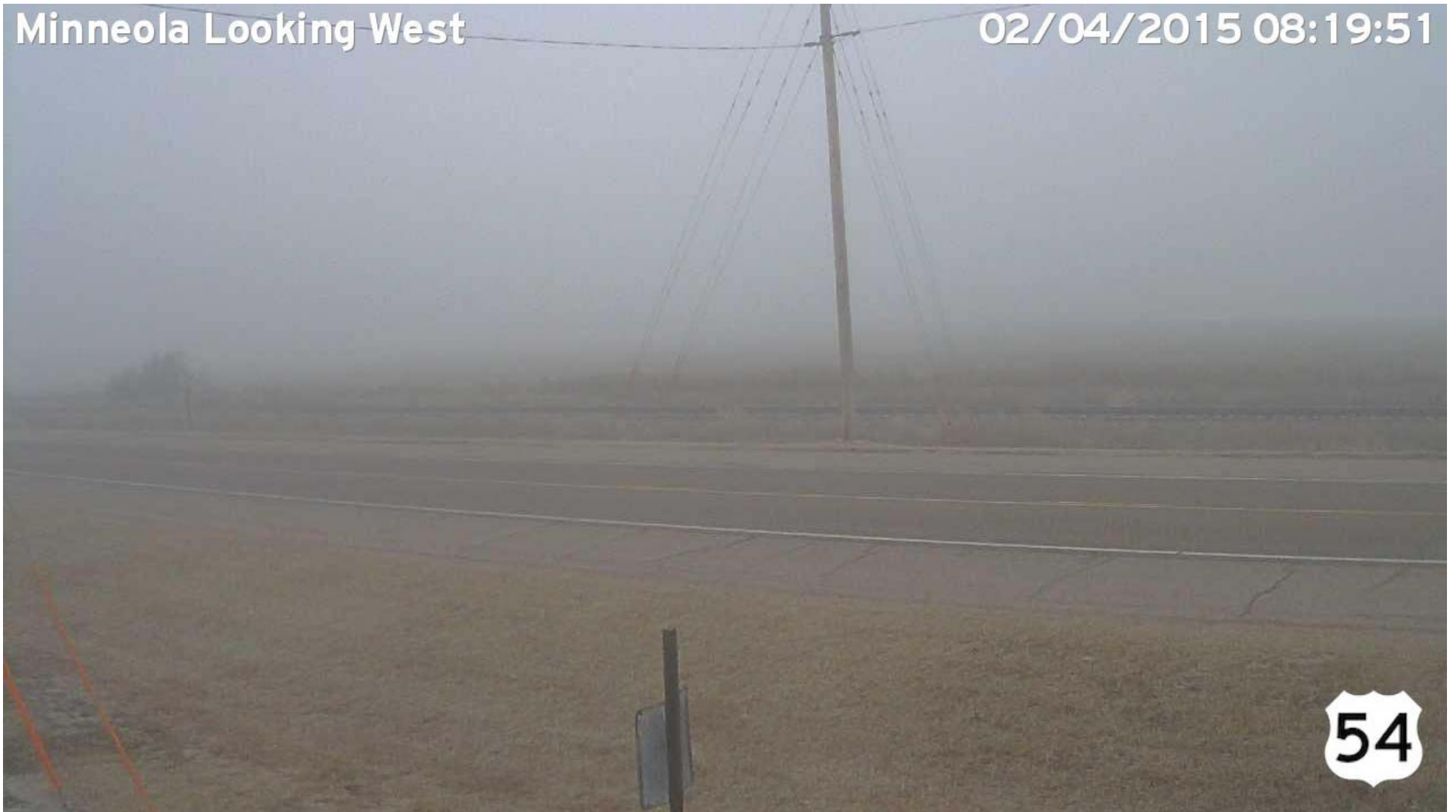
02/04/2015 08:18:43



There's a roadway!

Minneola Looking West

02/04/2015 08:19:51





[click here for road map
with camera locations](#)

[click here for district
map with camera images](#)

US-54 East of Bucklin



US-54 West of Bucklin



US-50 East of Ingalls



US-50 West of Ingalls



K156 @ US-50/83 at Garden City MP 65



US-83 US-160 North Of Sublette





Trucking Technology



Thank You!

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