

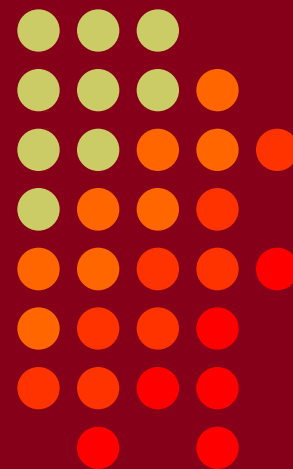
CTU Presents

RadioSport – Taking It on the Road

Jim Hall, AD4EB

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Who got me Started



Ted W4NZ



Don N4ZZ

KIA Carnival MPV

On the Road in the TXQP



Operating Position

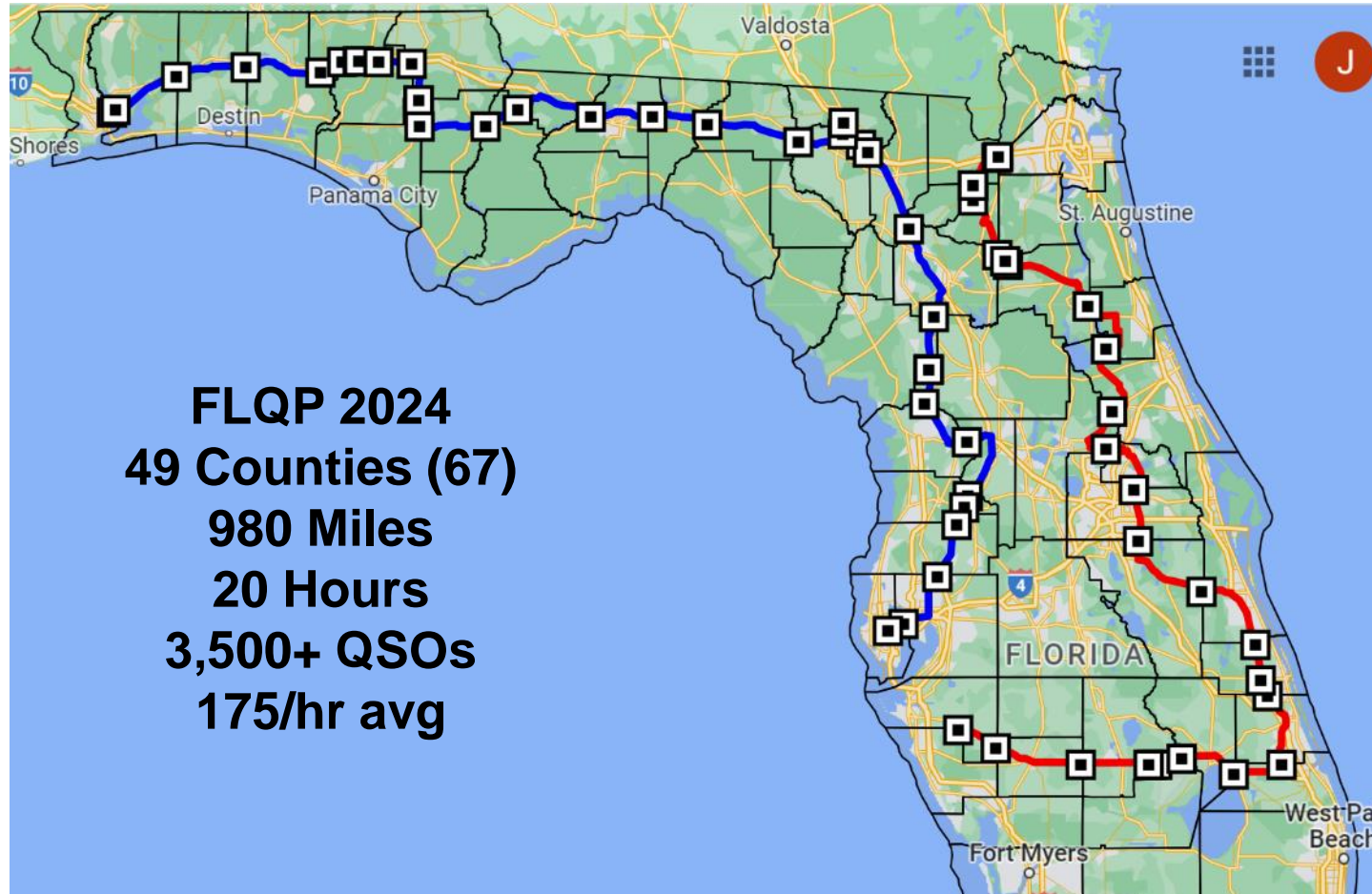


Melody KI4HVV

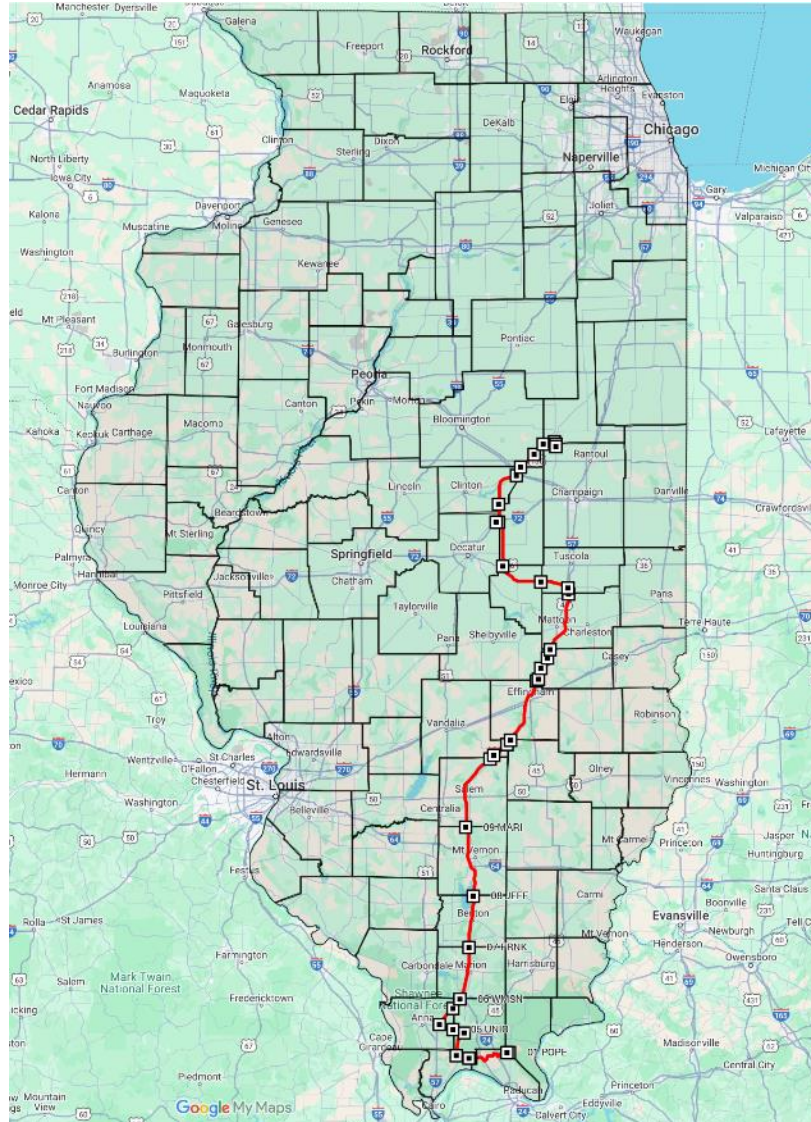


Melody KI4HVV – Just finished driving the
980 mile FLQP 2024 route

Mobile Operations

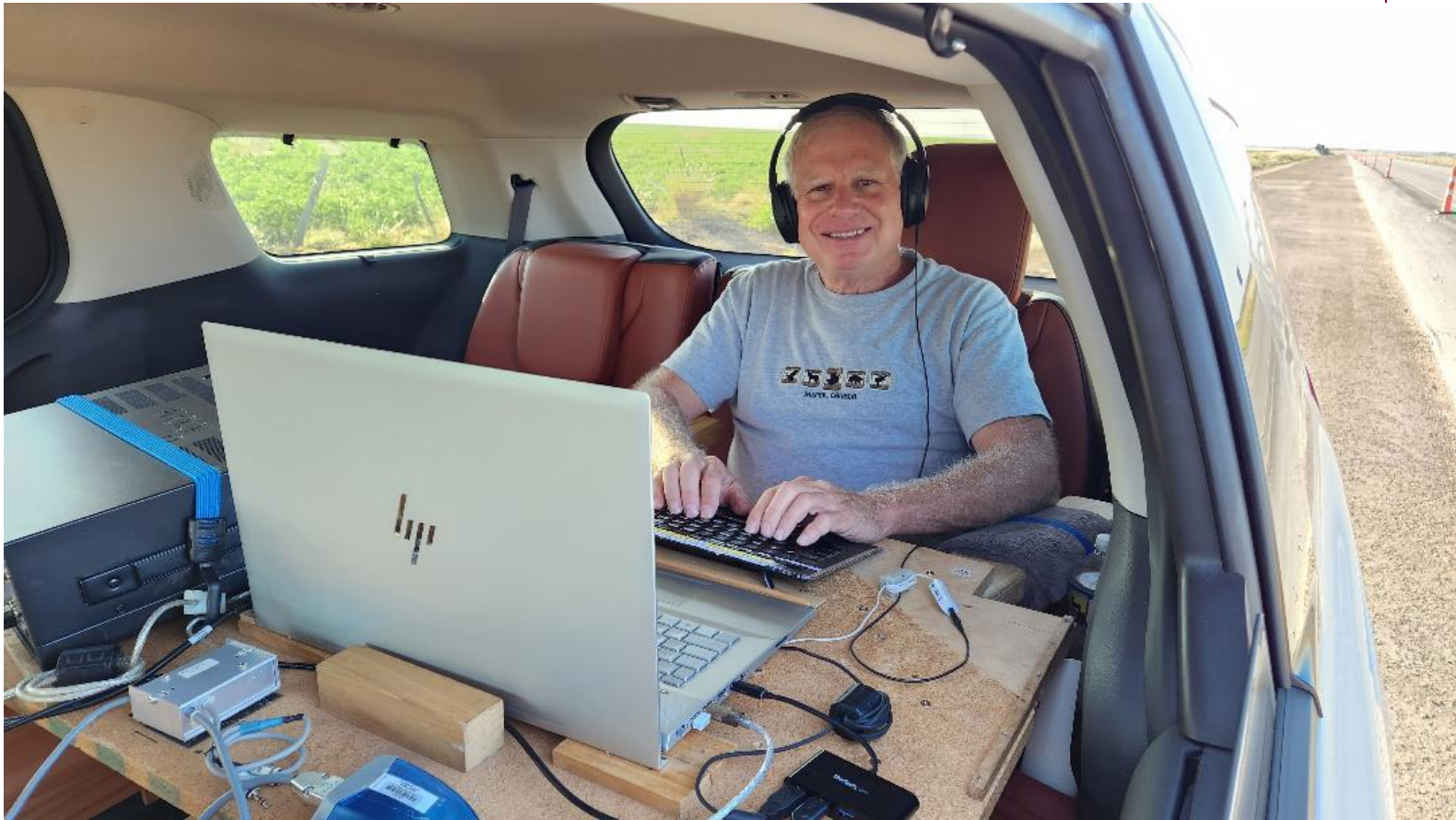


Mobile Operations



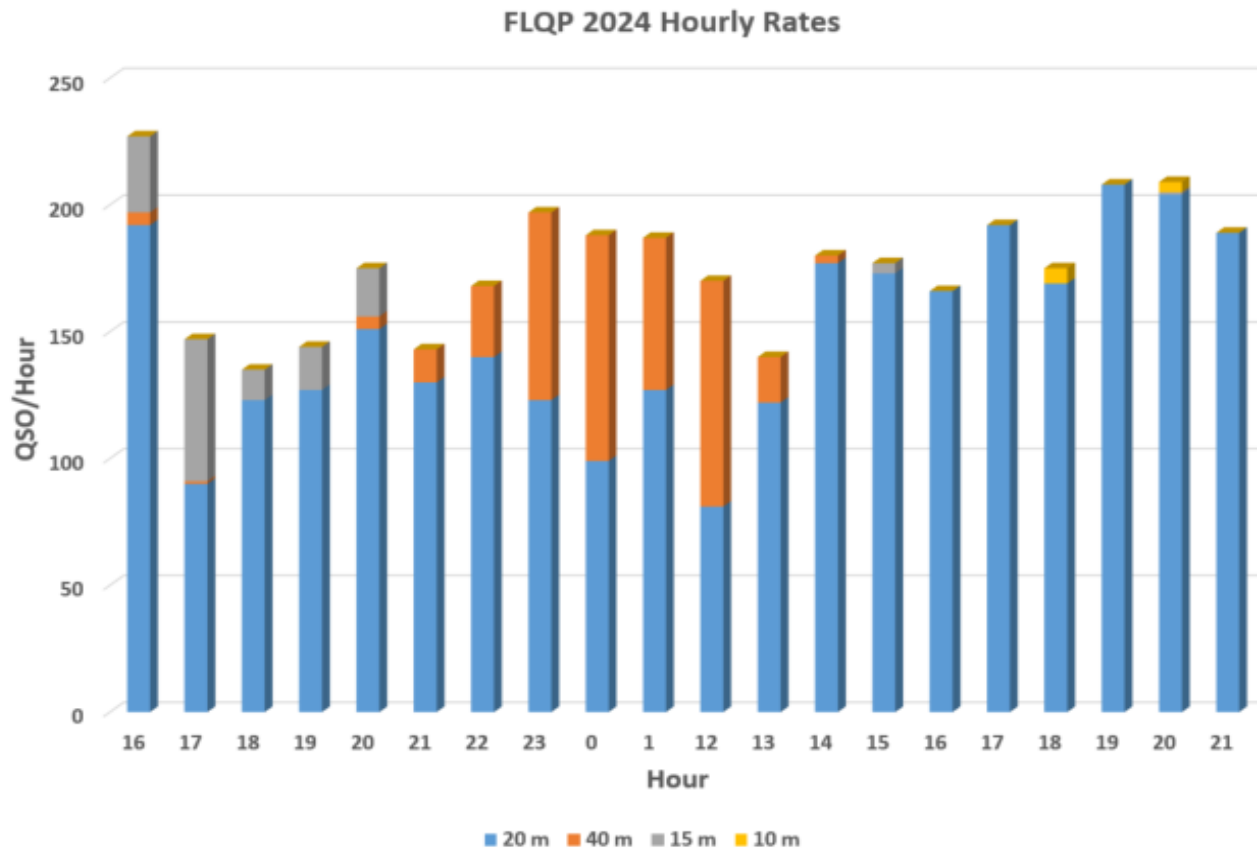
ILQP 2024
23 Counties (102)
307 Miles
8 Hours
1440 QSOs
180/hr avg

Why do I do It?



Why do I do It?

- High rates, 200+ per hour possible



Why do I do It?



- High rates, 200+ per hour possible
- Big pileups when entering each country
- Great way for Melody to see the country
- The challenge to find ways to do better each year

Presentation Topics



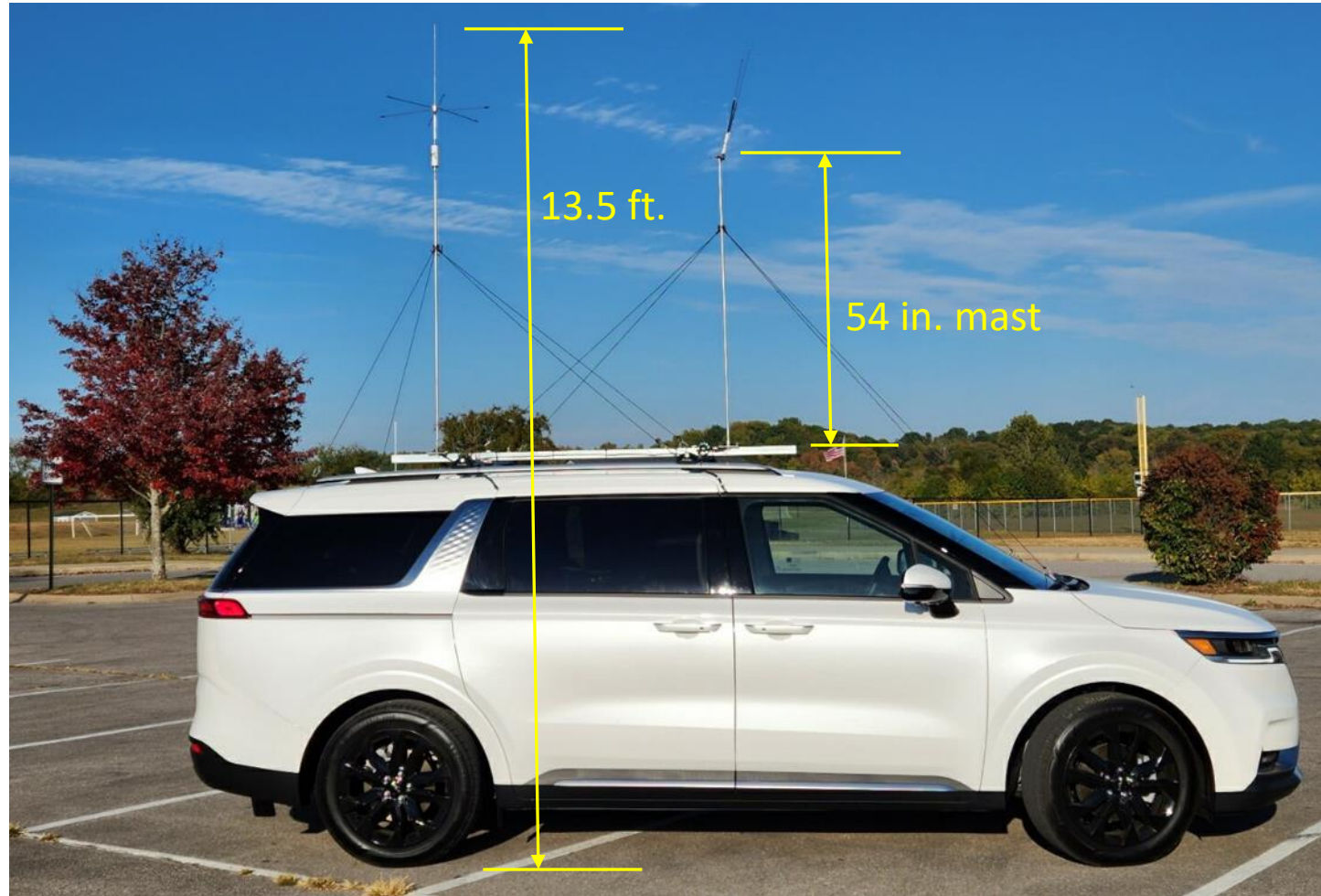
- 1) Antennas
- 2) Inside the Vehicle
- 3) Planning the Route
- 4) Contest Preparation
- 5) Operating Tips

1) Antennas



ILQP 2024 – Macon Co (MACN)

Hustler Vertical Antennas



Watch out for Low Obstacles



GAQP 2023 – Multi-Op with AC6ZM

Front Antenna 10,15, and 20m



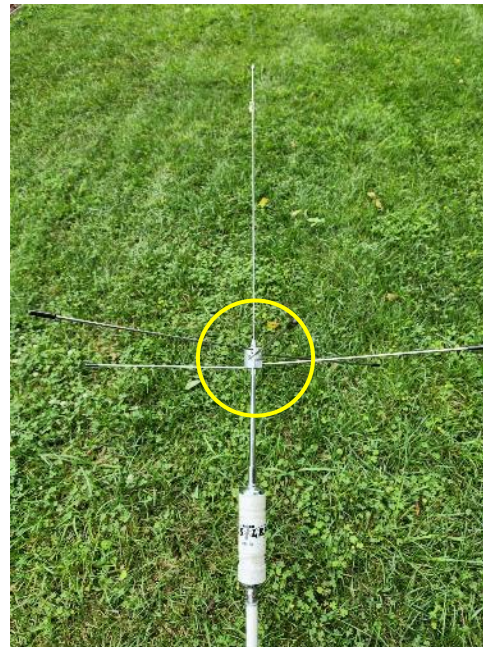
RM-10, RM-15, RM-20
Hustler Resonators



VP-1 Multi-Adapter Plate



40m Rear Antenna



RM-30 Resonator and
Capacitive Top Hat



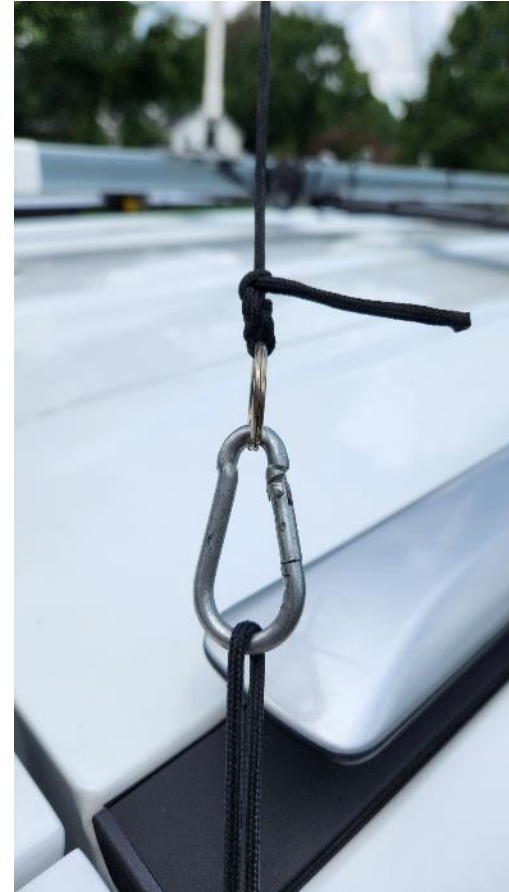
DXE Hot Rodz Hub with
6 12" Spokes

80m Front Antenna



RM-60 Resonator and 24" Capacitive Top Hat

3/32" Polyester Guy Ropes



Antenna Support Structure



KIA Roof Rails, PAW Aluminum Roof Racks, and
Galvanized Framing Strut (Lowes)

Support Strut Attachment



Stainless Steel Hose Clamps

Support Strut



Mast Mounting Plate and Ferrite Ring

Mast Mount and Bonding

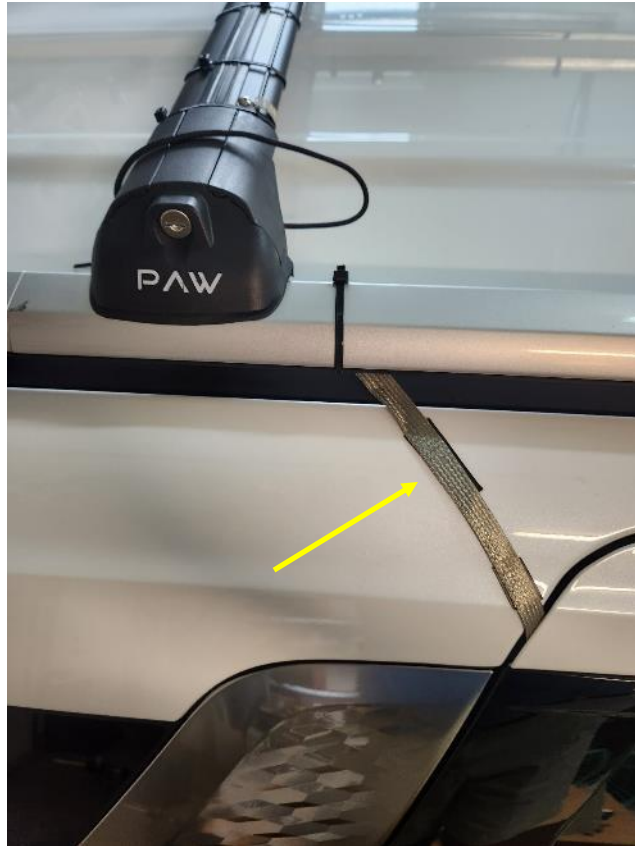


Aluminum Mounting Plate
with 1/2" Bonding Straps



Roof Rack Bonding Strap (x4)

Antenna Support Bonding



Tinned Copper Bonding Strap
and Scotch Double-sided Tape

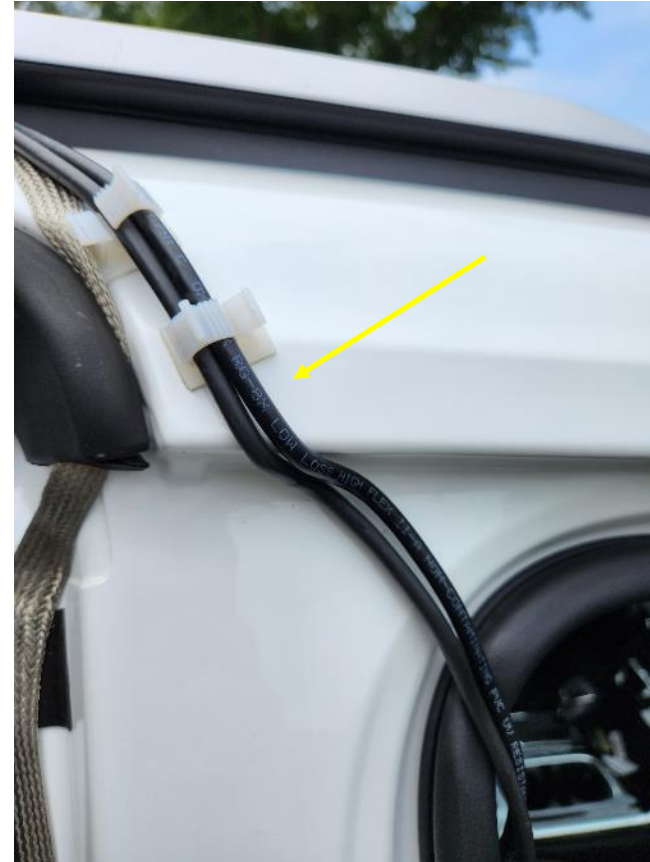


Braid Soldered to Copper Shims under
each Sliding Door Striker Plate (4)

Antenna Coax Routing



3/8" - 24 Stud Mount



RG-8X High Flex Coax

2) Inside the Vehicle



Home Station



Mobile and Home – Similar Ergonomics



PC monitors straight ahead at eye level
Same model Logitech keyboards
Radios off to the side and easy to reach
Bose noise cancelling headphones



Table and chairs at the correct height
Padded armrests
Plenty of leg room, footrest under tables

ICOM IC-7610 Connections



ICOM IC-7610 Connections



1:1 Isolation Baluns

Bonding

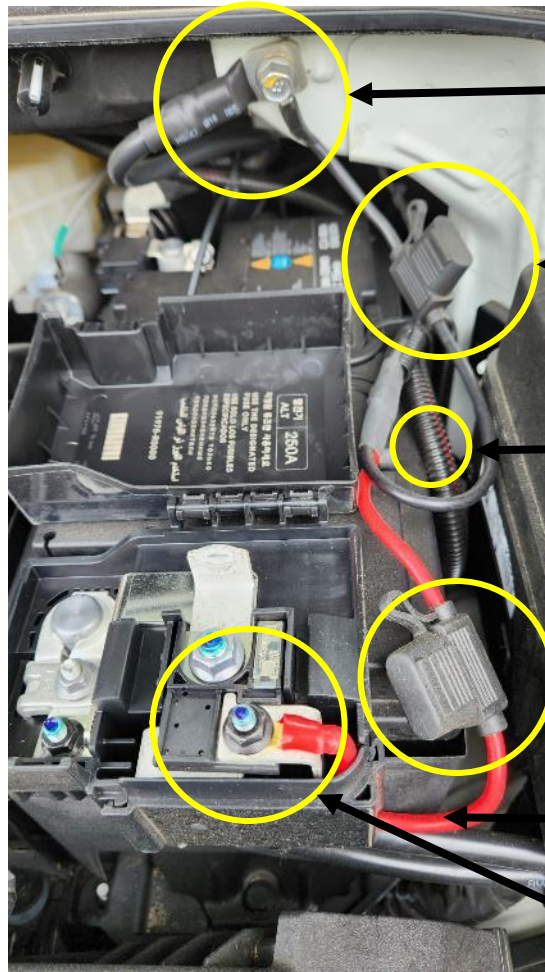


Sliding Door Striker Plate Bonding



Bonding the Hood

12V Power Connections



Ground Connection

30 Amp Fuse

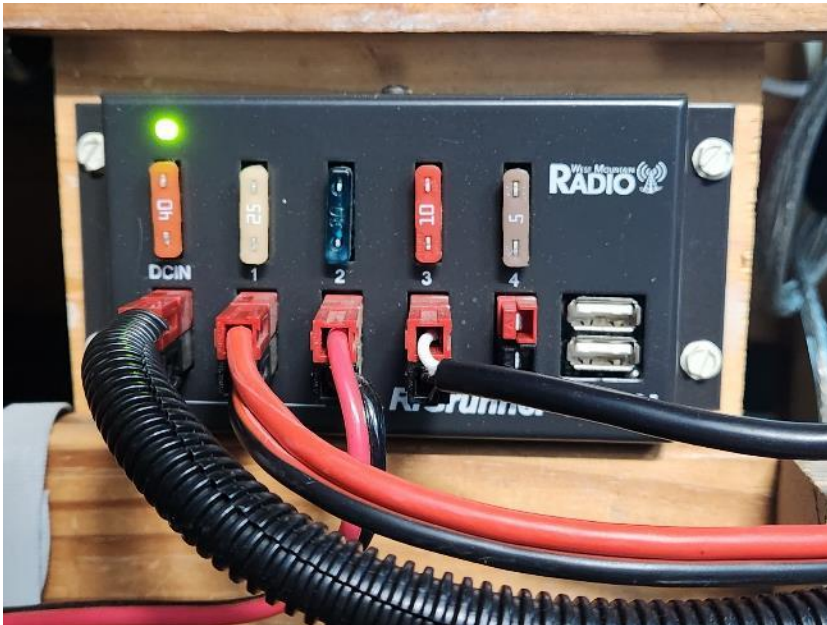
Flexible Split Wire Loom Tubing
3/8" Inside Diameter

30 Amp Fuse

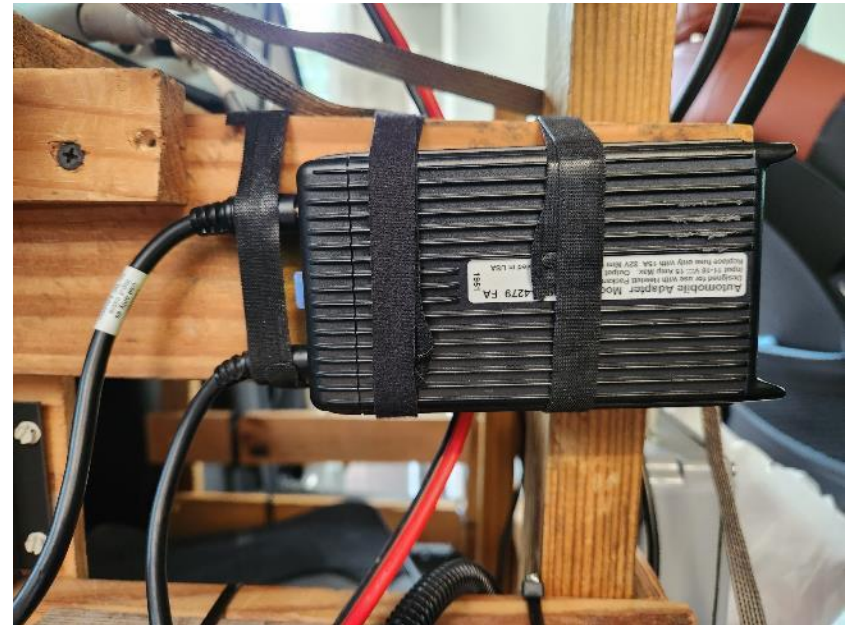
10 Gauge Zip Cord

+ Connection

12V Power and Laptop PS

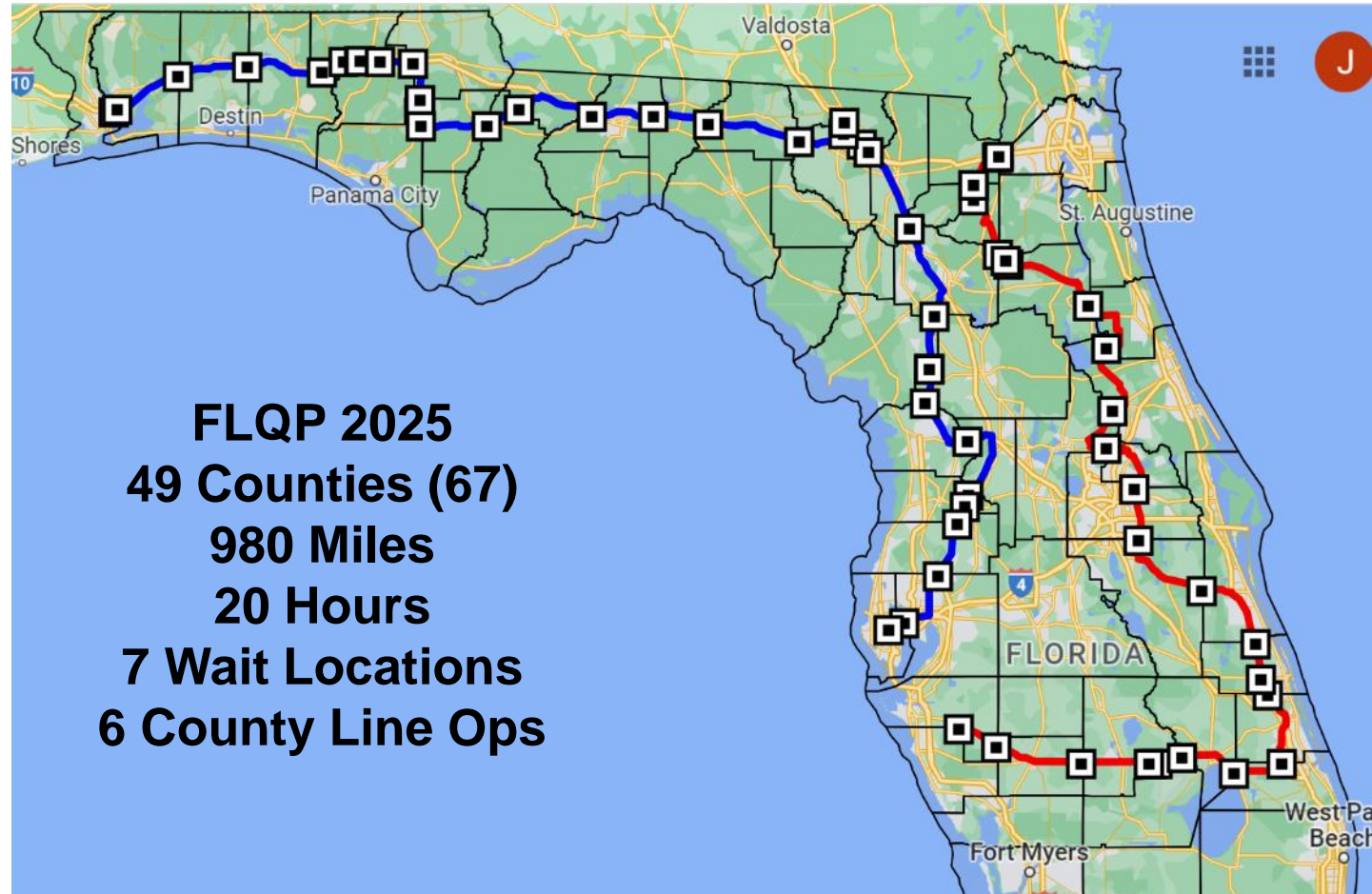


Fused Powerpole Junction Box

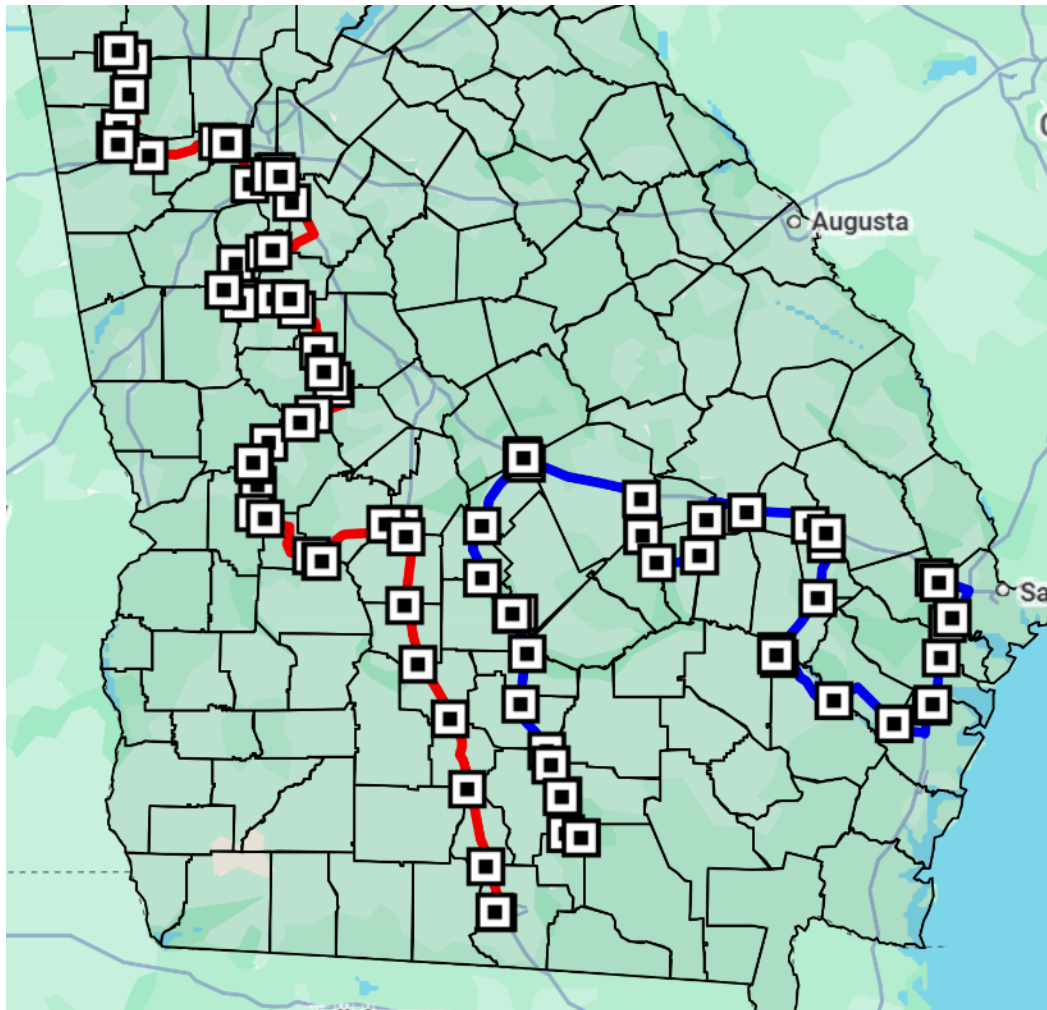


LIND Laptop Auto Power Adapter

3) Planning the Route



Planning the Route



GAQP 2025
66 Counties (159)
808 Miles
20 Hours
17 Wait Locations
11 County Lines Ops

Key Factors when Planning a Route

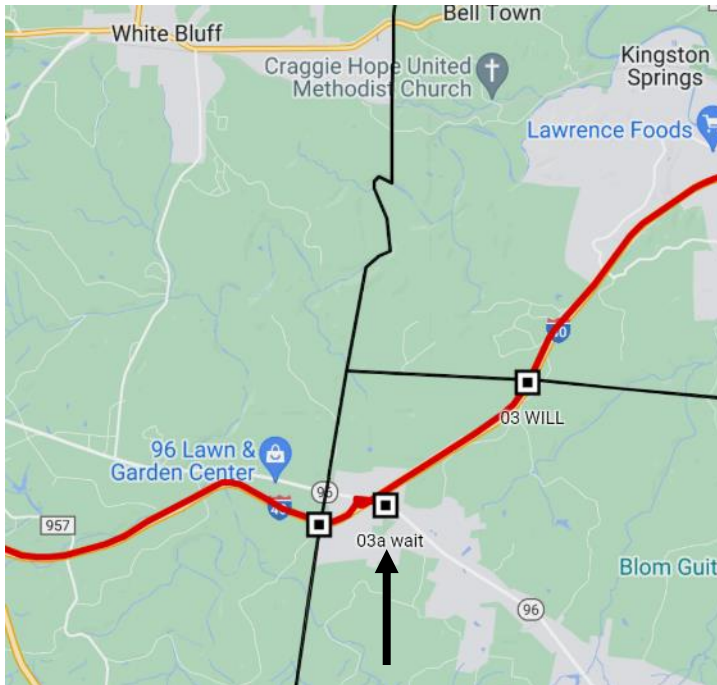


- Operate from as many counties a possible
 - More counties = more pileups
 - Rarer counties = bigger pileups
- Optimum time in each county is 15-20 mins

Key Factors when Planning a Route



- Drive thru corners of counties and find good wait locations



Short distances to/from the wait location

○ CTU ○

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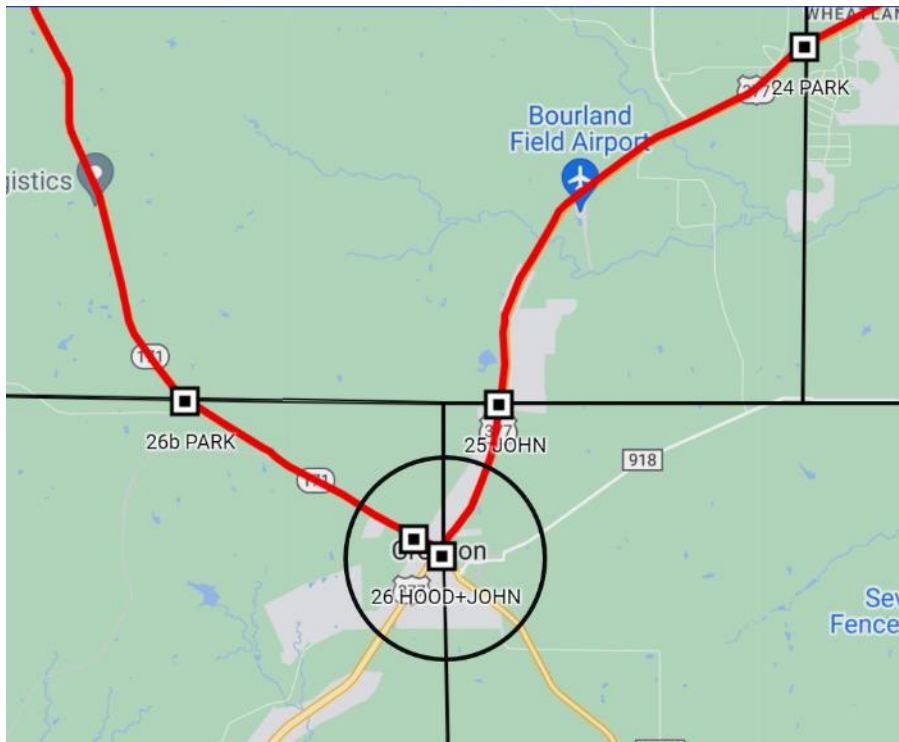
Most likely a noise free location

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Key Factors when Planning a Route



- If allowed, operate on county lines



5nn HOOD/JOHN

◦ CTU ◦
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Check MARAC Rules

 **ICOM**[®]

Key Factors when Planning a Route

- Pick the best roads



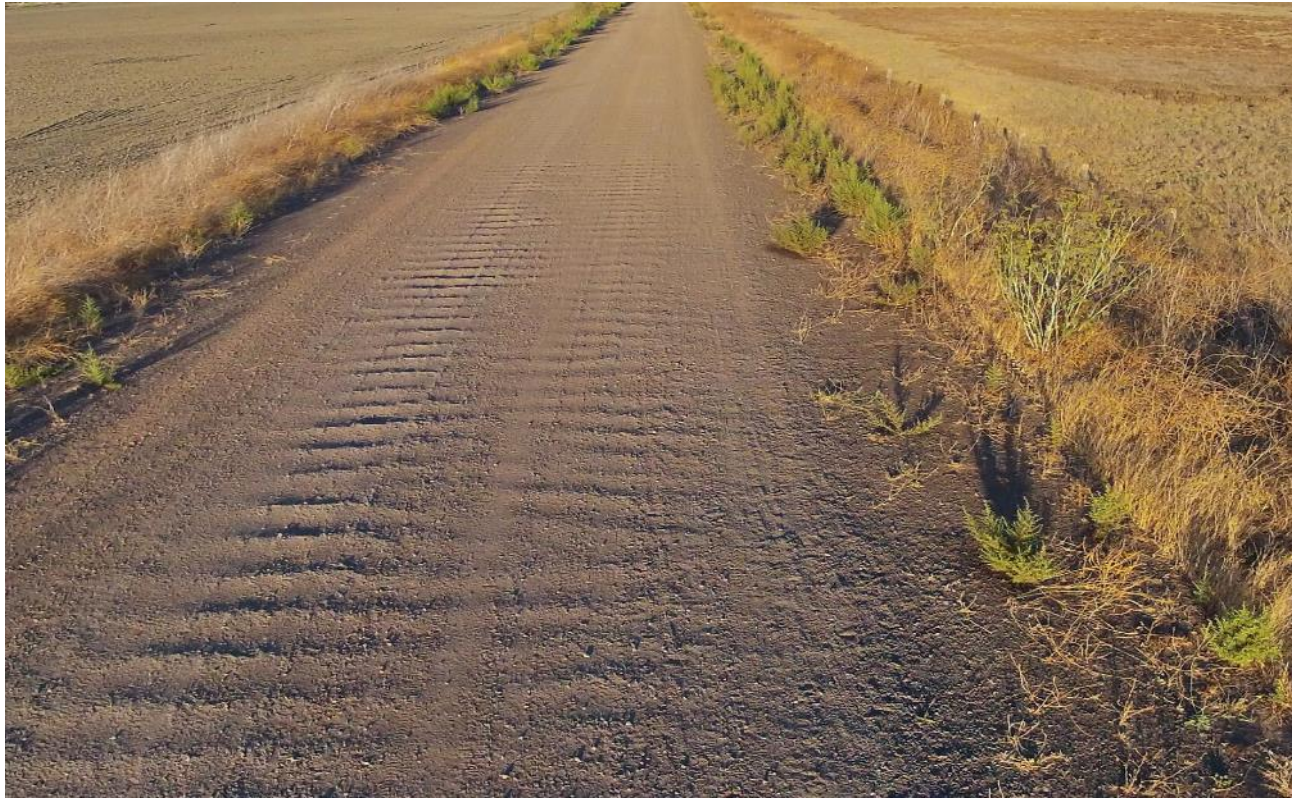
Good



Not Recommended

Key Factors when Planning a Route

- Pick the best roads



Definitely not recommended



Route Planning Tools

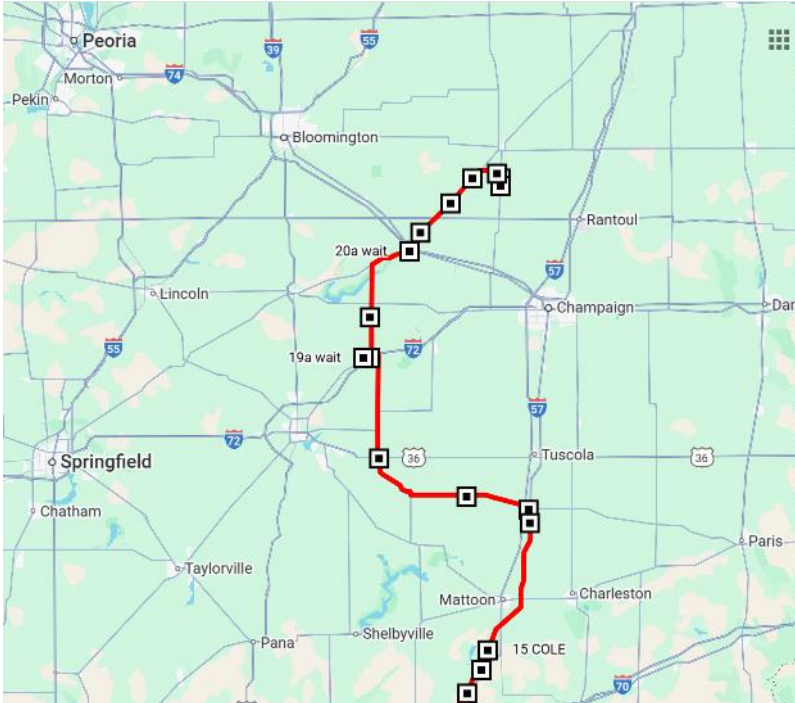
- State Highway Maps
- Google Earth
- Google Maps
- Garmin BaseCamp
- Microsoft Excel

State Highway Maps – Original Method

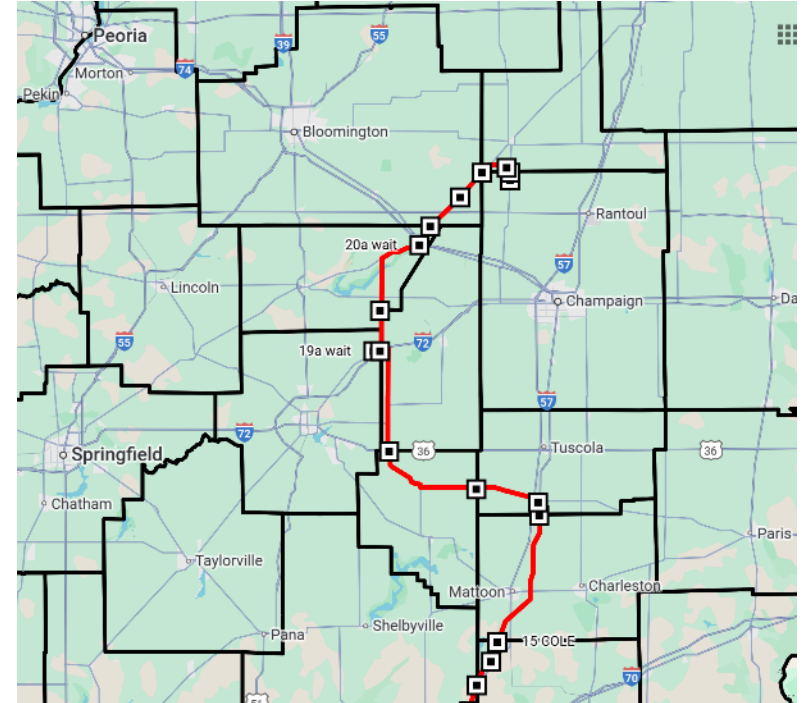


- State highway Mmap
- Highlight the county lines
- Sketch potential routes in pencil
- Use Google Maps to estimate travel times between county lines
- Use ink for the final route

Google Earth and Google Maps

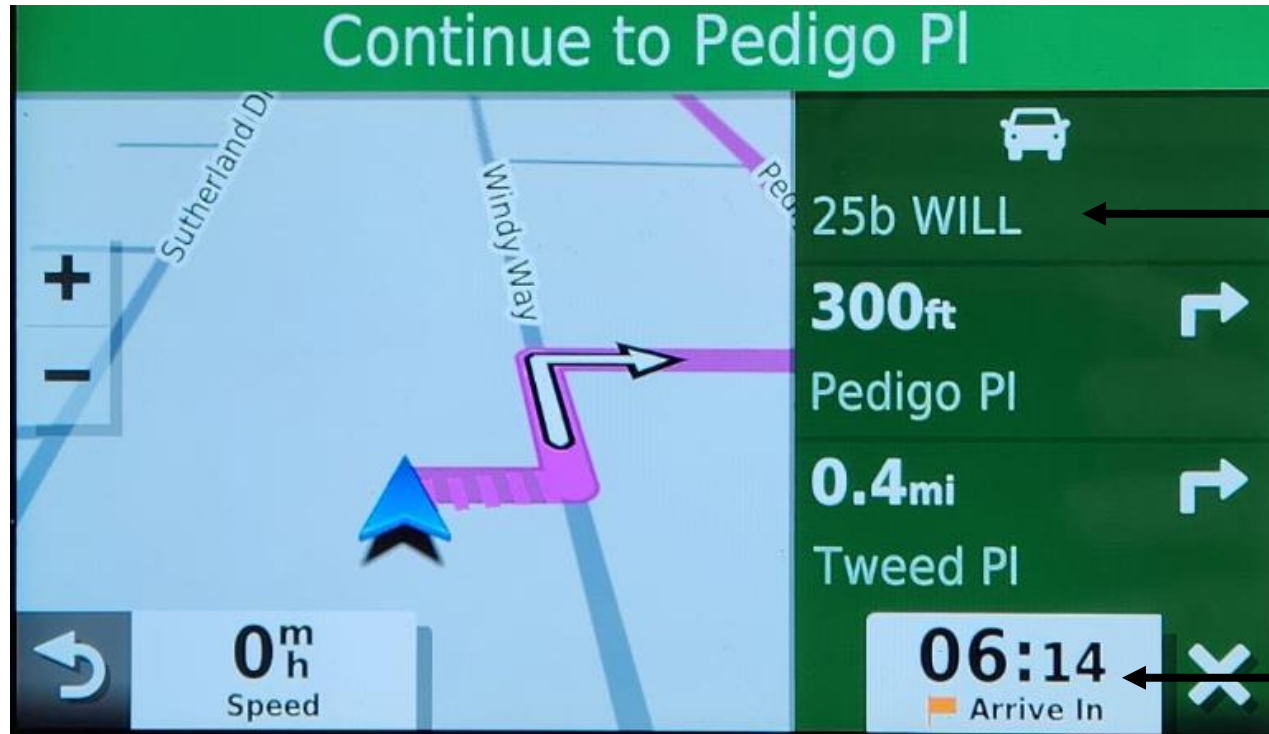


No county lines using just Google Maps



With a county overlay kml import file from Chuck NO5W

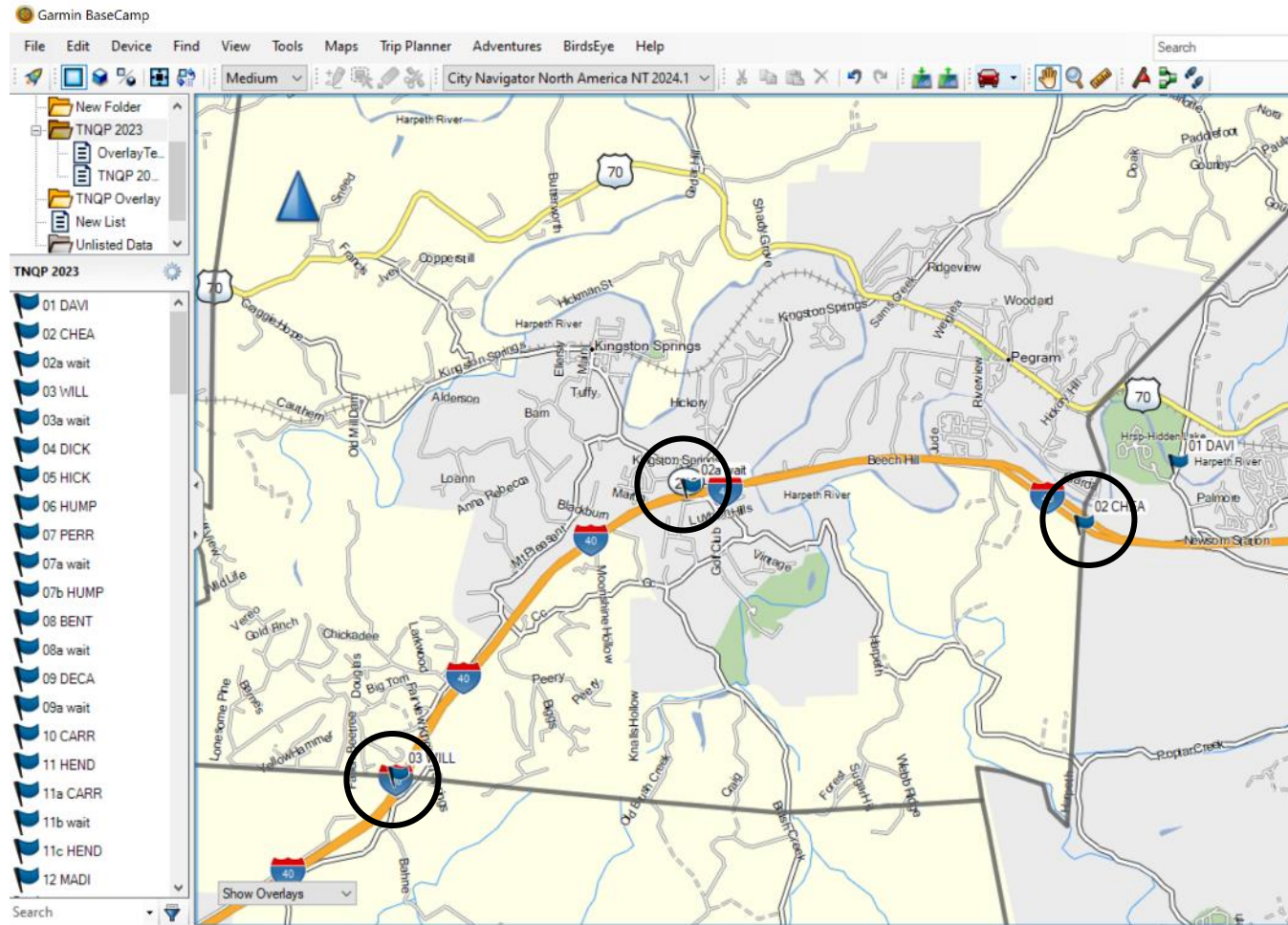
Garmin DriveSmart 65 GPS



Next
county

Minutes to
the next
county

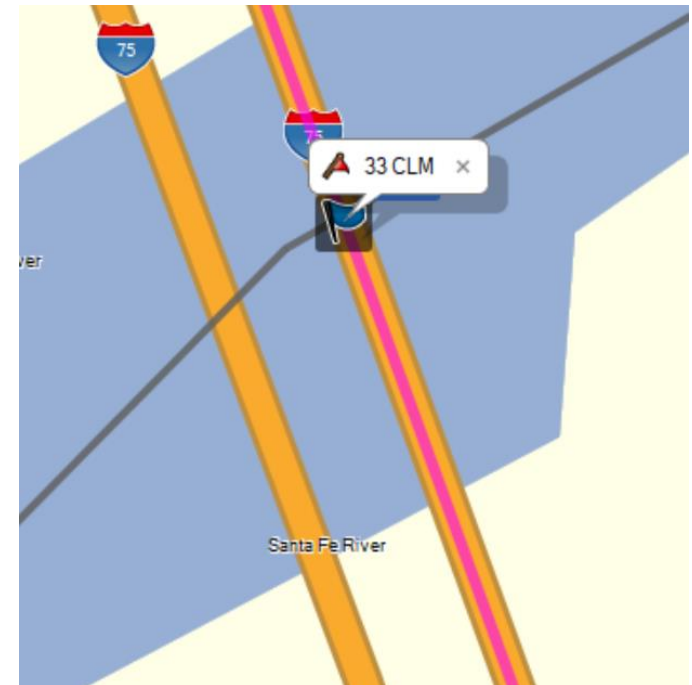
Garmin BaseCamp Program



Garmin BaseCamp Program



TNQP starting location



Zoom in fully when placing waypoints

Set BaseCamp Route Preferences



Route Preference

☒ Faster Time ☐ Shorter Distance

☐ Curvy Roads

Elevation Mode

☒ Standard ☐ Minimize Ascent

Road Type Avoidances

☐ Interstates ☐ Major Highways

☐ State Highways ☐ Residential Roads

☐ Unpaved Roads

Feature Type Avoidances

☐ Toll Roads ☐ Carpool Lanes

☐ Ferries ☐ Date and Time Closures

☐ U-Turns ☐ Climbing Paths

☐ Cable Cars ☐ Roundabouts

☐ Narrow Trails

Area Avoidances

Customize Speeds

Interstate Highway 65 mph

Major Highway 55 mph

Other Highway 45 mph

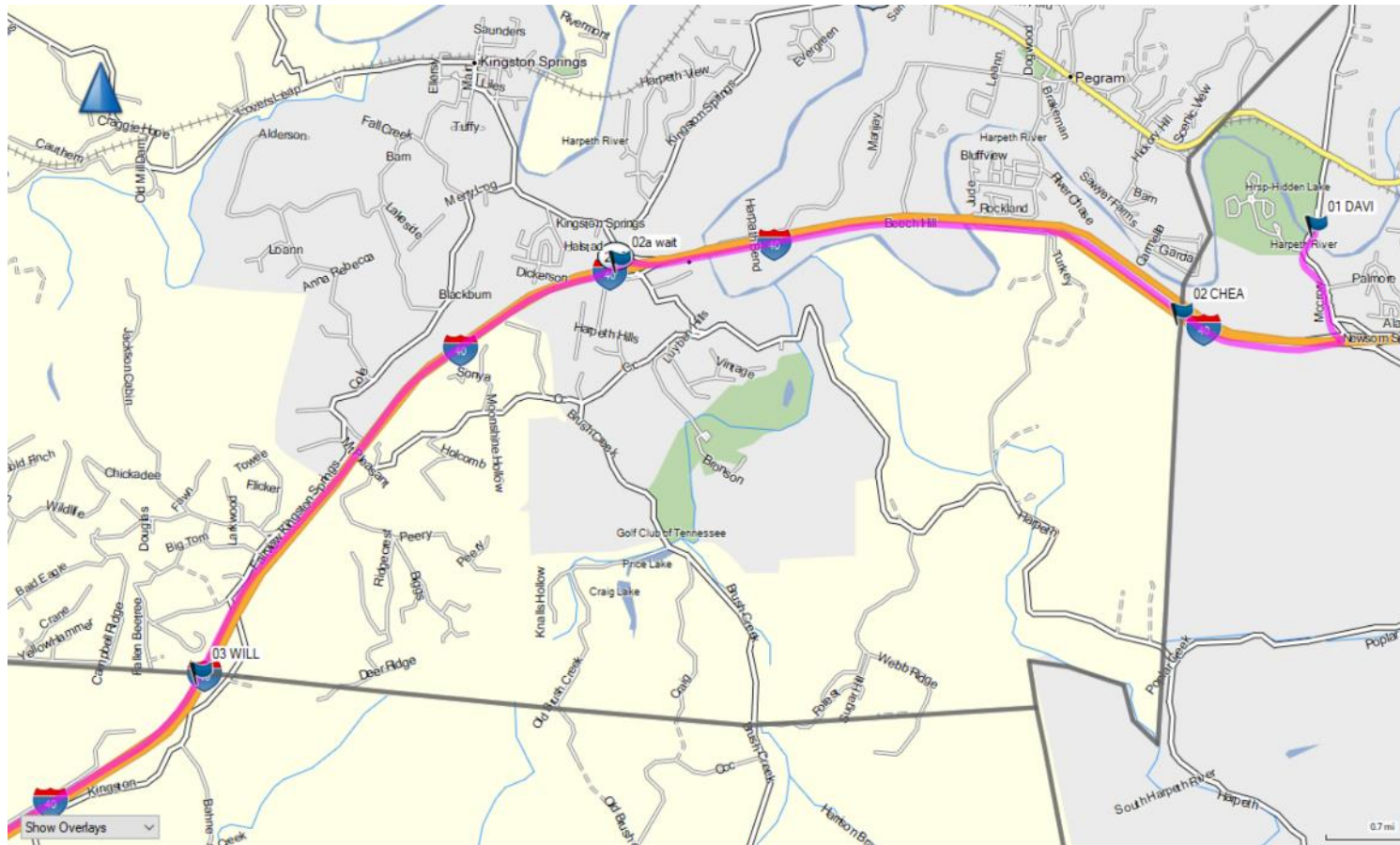
Collector Road 35 mph

Residential Street 25 mph

Reset Close

Driving speeds set a bit low
as a cushion to help stay on
schedule

BaseCamp Generates the Route



BaseCamp Calculates Times and Distances



TNQP 2023

Properties

Route Directions

Route Options

Graph

Notes

References

TNQP 2023

🚗

Driving

■

Magenta

Summary

Points: 142

Course: 164.6° true

Via Points: 43

Moving Time: 7 h, 39 min

Distance: 379 mi

Total Time: 7 h, 39 min

Symbol	Via Point Name	Distance	Time	Total Distance	Total Time	Course	Position
🚩	01 DAVI Depart: 8/12/2023 7:46 PM						N36° 05.273' W87° 01.455'
🚩	02 CHEA Arrive: 7:51 PM	1.82 mi	5 min	1.8 mi	5 min	36.5° true	N36° 04.808' W87° 02.321'
🚩	02a wait Arrive: 7:55 PM	3.57 mi	4 min	5.4 mi	9 min	29.7° true	N36° 05.070' W87° 05.949'
🚩	03 WILL Arrive: 8:01 PM	3.68 mi	6 min	9.1 mi	15 min	292.4° true	N36° 02.885' W87° 08.639'
🚩	03a wait	3.00 mi	4 min	12.1 mi	19 min	156.8° true	N36° 01.606' W87° 10.445'

BaseCamp Turn by Turn Directions



TNQP 2023

Properties Route Directions Route Options Graph Notes References

Summary

Points: 142 Course: 164.6° true
Via Points: 43 Moving Time: 7 h, 39 min
Distance: 379 mi Total Time: 7 h, 39 min

Directions/Name	Distance	Total Distance	Course	Position
01 DAVI				N36° 05.273' W87° 01.455'
Get on Mccrory Ln and drive south	2 ft	2 ft	117.2° t	N36° 05.273' W87° 01.455'
Take the I-40 W ramp to the right	0.78 mi	0.8 mi	134.4° t	N36° 04.677' W87° 01.291'
02 CHEA	1.04 mi	1.8 mi	36.5° tr	N36° 04.808' W87° 02.321'
Get on I-40 W and drive northwest	0 ft	1.8 mi	216.5° t	N36° 04.808' W87° 02.321'
Take exit 188 to the right onto Tn-249 towards Kingston Springs/	3.32 mi	5.1 mi	258.7° t	N36° 05.054' W87° 05.691'
Turn right towards Kingston Springs/Ashland City	0.23 mi	5.4 mi	259.2° t	N36° 05.055' W87° 05.937'
02a wait	109 ft	5.4 mi	29.7° tr	N36° 05.070' W87° 05.949'
Take the I-40 W ramp to the right	109 ft	5.4 mi	143.7° t	N36° 05.055' W87° 05.937'
03 WILL	3.65 mi	9.1 mi	292.4° t	N36° 02.885' W87° 08.639'
Get on I-40 W and drive southwest	0 ft	9.1 mi	112.4° t	N36° 02.885' W87° 08.639'
Take exit 182 to the right onto Tn-96 towards Fairview/Dickson/	2.49 mi	11.6 mi	241.7° t	N36° 01.607' W87° 10.749'
Turn right onto Tn-96 E towards Fairview	765 ft	11.7 mi	358.9° t	N36° 01.669' W87° 10.829'
03a wait	0.37 mi	12.1 mi	156.8° t	N36° 01.606' W87° 10.445'
Turn right onto Tn-96	2 ft	12.1 mi	0.0° tru	N36° 01.606' W87° 10.445'

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4) Contest Preparation



- Create the Route and Times Spreadsheet
- Set up APRS.fi and APRSdroid tracking
- Set up N1MM for mobile operation
- Post plans on QRZ.com and the County Hunters website
 - Estimated County Line Crossing Times

Route and Times Spreadsheet



GAQP 2025 Routes and Times - Sat.xlsx - Excel									
File Home Insert Page Layout Formulas Data Review View Developer Acrobat Tell me what you want to do									
B20 Keep right onto Ga-101 N									
	A	B	C	D	E	F	G	I	J
1	2025	April 12th - Saturday 1800-0400 (2 pm to 12 am EDST)	County	WaitTime	LocalTime	Duration	LegDist	TimeInCnty	w/CntyLine
2	1	01 FLOY - wait at church, then NE on Morris Rd	Floyd	0:11	2:00 PM	0:04	0 ft	0:15	
3	2	Get on Wax Rd SE and drive north			2:11 PM		1 ft		
4	3	Turn right onto Morris Rd SE			2:11 PM		41 ft		
5	4	Turn left onto Brumbelow Rd SE			2:12 PM		0.96 mi		
6	5	Turn right onto Taylorsville Rd SE			2:13 PM		0.21 mi		
7	6	02 BART	Bartow		2:15 PM	0:07	0.77 mi	0:15	
8	7	Get on Taylorsville Rd SE and drive east			2:15 PM		6 ft		
9	8	Turn right onto Taylorsville Rd SW			2:20 PM		3.63 mi		
10	9	Turn right onto Church St SW			2:22 PM		0.79 mi		
11	10	02a wait - church on left, then continue South		0:07	2:29 PM	0:01	413 ft		
12	11	03 POLK	Polk		2:30 PM	0:14	867 ft	0:14	0:22
13	12	Turn right onto Ga-113 S			2:31 PM		0.69 mi		
14	13	Turn left onto US-278			2:37 PM		5.22 mi		
15	14	Turn right onto Ga-101			2:42 PM		3.72 mi		
16	15	04 PAUL+POLK - stop at CL sign on right, then cont. South	Paulding	0:08	2:52 PM	0:00	1.05 mi	0:08	
17	16	Get on Ga-101 and drive north			2:52 PM		4 ft		
18	17	04a PAUL	Paulding (again)		2:52 PM	0:14	182 ft	0:14	0:22
19	18	Get on Ga-101 and drive south			2:26 PM		17.3 mi		
20	19	Keep right onto Ga-101 N			2:54 PM		1.83 mi		
21	20	Keep left onto Ga-101 N			2:58 PM		3.33 mi		
22	21	Turn right onto Buchanan Hwy			3:01 PM		3.14 mi		
23	22	05 HARA	Haralson		3:06 PM	0:06	3.40 mi	0:15	

Route and Times Spreadsheet



2025	April 12th - Saturday 1800-0400 (2 pm to 12 am EDT)	County	WaitTime	LocalTime	Duration	LegDist	TimeInCnty
1	01 FLOY - wait at church, then NE on Morris Rd	Floyd	0:11	2:00 PM	0:04	0 ft	0:15
2	Get on Wax Rd SE and drive north			2:11 PM		1 ft	
3	Turn right onto Morris Rd SE			2:11 PM		41 ft	
4	Turn left onto Brumbelow Rd SE			2:12 PM		0.96 mi	
5	Turn right onto Taylorsville Rd SE			2:13 PM		0.21 mi	
6	02 BART	Bartow		2:15 PM	0:07	0.77 mi	0:15
7	Get on Taylorsville Rd SE and drive east			2:15 PM		6 ft	
8	Turn right onto Taylorsville Rd SW			2:20 PM		3.63 mi	
9	Turn right onto Church St SW			2:22 PM		0.79 mi	
10	02a wait - church on left, then continue South		0:07	2:29 PM	0:01	413 ft	
11	03 POLK	Polk		2:30 PM	0:14	867 ft	0:14
12	Turn right onto Ga-113 S			2:41 PM		0.69 mi	

Waypoint
name

Driver instructions

Turn by turn
directions
(same as GPS)

Wait here for
7 minutes

Leave here at 2:29
PM to stay on
schedule

1 minute to
next waypoint

Total time in
county = 7+7+1

APRSdroid and APRS.fi

Tracking



APRSdroid on cellphone



APRS.fi tracking us live

Set Up N1MM – Create New Log



AD4EB-N1MM+10.s3db

Select Contest Type for New Log

Log Type **QSOPARTY** | QSO Parties (US and Canada) ▼

Start Date 2025-03-01 16:00:00

Total number of contacts in database 39225

Contest Associated Files

Category Show Setup Show Rules

Operator SINGLE-OP ▼

Band ALL ▼

Power LOW ▼

Mode CW ▼

Overlay N/A ▼

Station MOBILE ▼

Assisted ASSISTED ▼

Transmitter ONE ▼

Sent Exchange DUV

Operators AD4EB

Soapbox

State for Log Type QSOPARTY
FL

Note - the program does not validate categories. Check the contest rules for valid categories.

Time Category N/A ▼

Import Section List

Edit Section List

Update Ops from Log

OK Help Cancel

Log Type:
QSO Party


State

Station: Mobile
or Rover

Sent Exchange:
any valid county
abbreviation

Setup N1MM – Station Info



 Edit Station Information ✕

Tip: You need to fill out this form or the program will not perform properly... Also, make sure your computer date and time are set to the LOCAL date and time zone for your location.

Call

Name

Address

Address

City State Zip

Country

Grid Square CQ Zone ITU Zone

License Latitude Longitude

Station TX/RX Power

Antenna Ant. Height a.s.l.

ARRL Section ←

Rover QTH ←

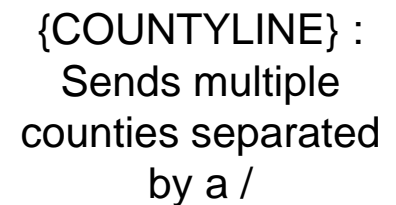
Club

Email address

ARRL Section:
Any valid section
in the state

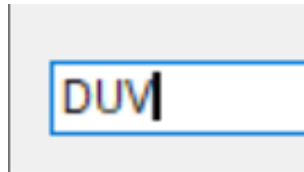
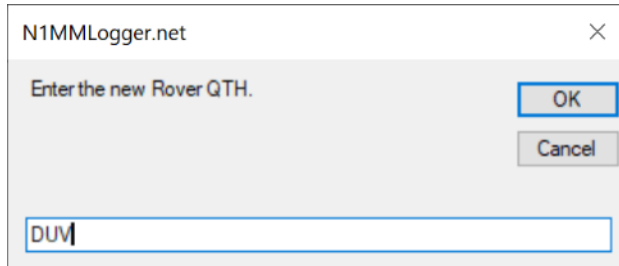
Rover QTH:
Any valid county
abbreviation in the
state

A decorative graphic in the bottom right corner consisting of a grid of colored dots. The dots are arranged in a roughly rectangular shape, with colors ranging from light green to red. The colors transition from light green on the left to orange in the middle and red on the right. The dots are of varying sizes and are scattered across the bottom right area of the slide.

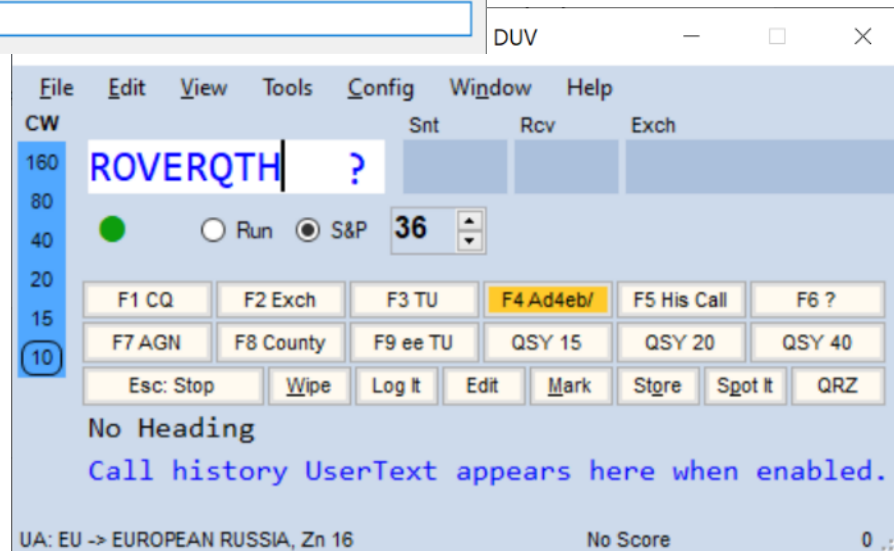


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Using N1MM – Changing Counties



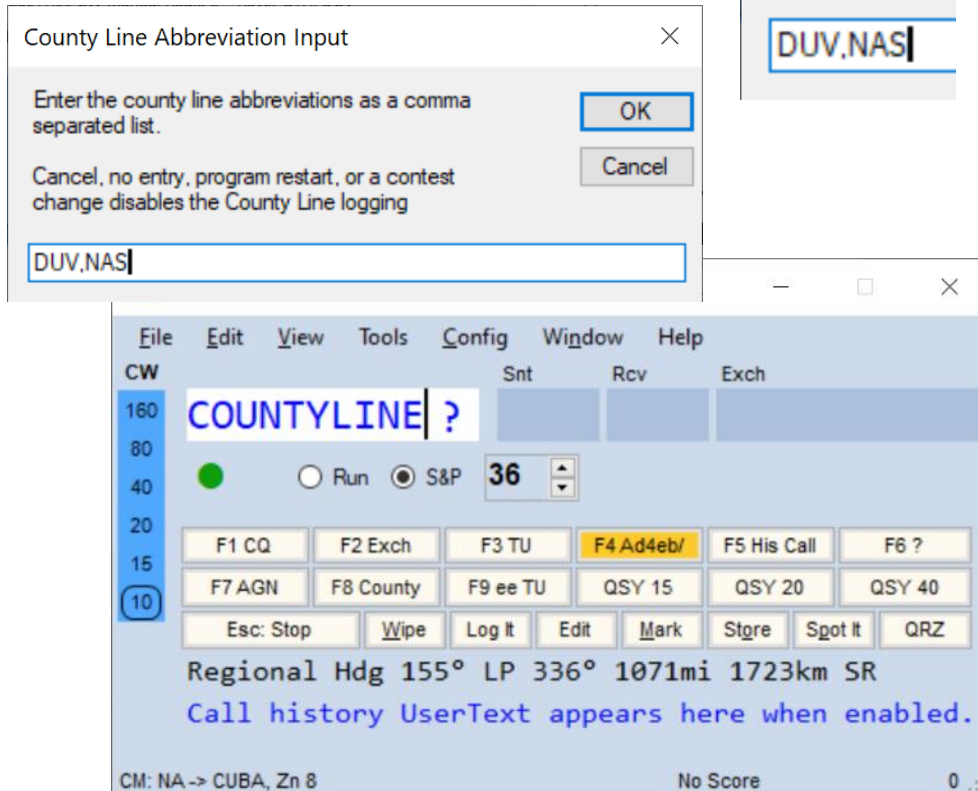
2) Then enter the country abbreviation in the popup window



1) Type ROVERQTH and press Enter (or press Ctrl-H)

Entry Window

Using N1MM – Operating on a County Line



2) Then enter the country abbreviations in the popup window, separated with commas

1) Type COUNTYLINE and press Enter

Entry Window

Contest Preparation

● Estimated County Line Crossing Times



2024 FLQP COUNTY LINE CROSSING TIMES :

<u>Saturday</u>	<u>GMT</u>	<u>EDST</u>	<u>County</u>
01 DUV/NAS	1600z	12:00 pm	Duval/Nassau
03 BAK	1625z	12:25 pm	Baker
04 UNI/BAK	1640z	12:40 pm	Union/Baker
04aUNI	1650z	12:50 pm	Union (again)
05 BRA	1701z	1:01 pm	Bradford
06 CLA	1728z	1:28 pm	Clay
07 PUT	1746z	1:46 pm	Putnam
08 FLG	1828z	2:28 pm	Flagler
09 VOL	1858z	2:58 pm	Volusia
10 LAK	1939z	3:39 pm	Lake
11 SEM	2006z	4:06 pm	Seminole
12 ORA	2027z	4:27 pm	Orange
13 OSC	2048z	4:48 pm	Osceola
14 BRE	2125z	5:25 pm	Brevard
15 IDR	2155z	5:55 pm	Indian River
16 STL	2225z	6:25 pm	St. Lucie
17 MRT	2250z	6:50 pm	Martin
18 OKE	2316z	7:16 pm	Okeechobee
19 HIG	2341z	7:41 pm	Highlands
20 GLA	2351z	7:51 pm	Glades
20b HIG	0015z	8:15 pm	Highlands (again)
21 DES	0041z	8:41 pm	DeSoto
22 MTE	0117z	9:17 pm	Manatee
23 SAR/MTE	0134z	9:34 pm	Sarasota/Manatee

<u>Sunday</u>	<u>GMT</u>	<u>EDST</u>	<u>County</u>
24 PIN	1200z	8:00 am	Pinellas
25 HIL	1214z	8:14 am	Hillsborough
26 PAS	1240z	8:40 am	Pasco
27 HER	1258z	8:58 am	Hernando
28 SUM	1315z	9:15 am	Sumter
29 CIT	1346z	9:46 am	Citrus
30 MAO	1417z	10:17 am	Marion
31 LEV/MAO	1431z	10:31 am	Levy/Marion
31a LEV	1438z	10:38 am	Levy
32 ALC	1501z	11:01 am	Alachua
33 CLM	1535z	11:35 am	Columbia
34 SUW	1603z	12:03 pm	Suwannee
35 HAM	1606z	12:06 pm	Hamilton
35b SUW	1629z	12:29 pm	Suwannee (again)
36 MAD	1648z	12:48 pm	Madison
37 JEF	1719z	1:19 pm	Jefferson
38 LEO	1736z	1:36 pm	Leon
39 GAD	1757z	1:57 pm	Gadsden
40 LIB	1827z	2:27 pm	Liberty
41 CAH	1843z	2:43 pm	Calhoun
42 BAY	1910z	3:10 pm	Bay
43 JAC/BAY	1922z	3:22 pm	Jackson/Bay
43a JAC	1933z	3:33 pm	Jackson
44 WAG	1950z	3:50 pm	Washington
45 HOL	2000z	4:00 pm	Holmes
45a HOL/	WAG 2006z	4:06 pm	Holmes/Wash.
45b WAG	2017z	4:17 pm	Washington (again)
45c HOL	2022z	4:22 pm	Holmes (again)
46 WAL	2030z	4:30 pm	Walton
47 OKA	2055z	4:55 pm	Okaloosa
48 SAN	2118z	5:18 pm	Santa Rosa
49 ESC	2140z	5:40 pm	Escambia

Contest Preparation



- Load route into Garmin GPS
- Review the route with Melody
- Create a detailed checklist
- Test everything in the driveway*
- Practice pileups using MorseRunner

4) Operating Tips



- Review the rules
 - Which bands, mobile frequency window
 - Are multipliers by band? Are DX and counties multipliers? Is self spotting allowed?
 - County line operations allowed? MARAC rules?
- Operate assisted - use cellphone as a hotspot
- Operate SO2V to find/work multipliers
- Typically use 400Hz CW filter

Operating Tips - N1MM Layout



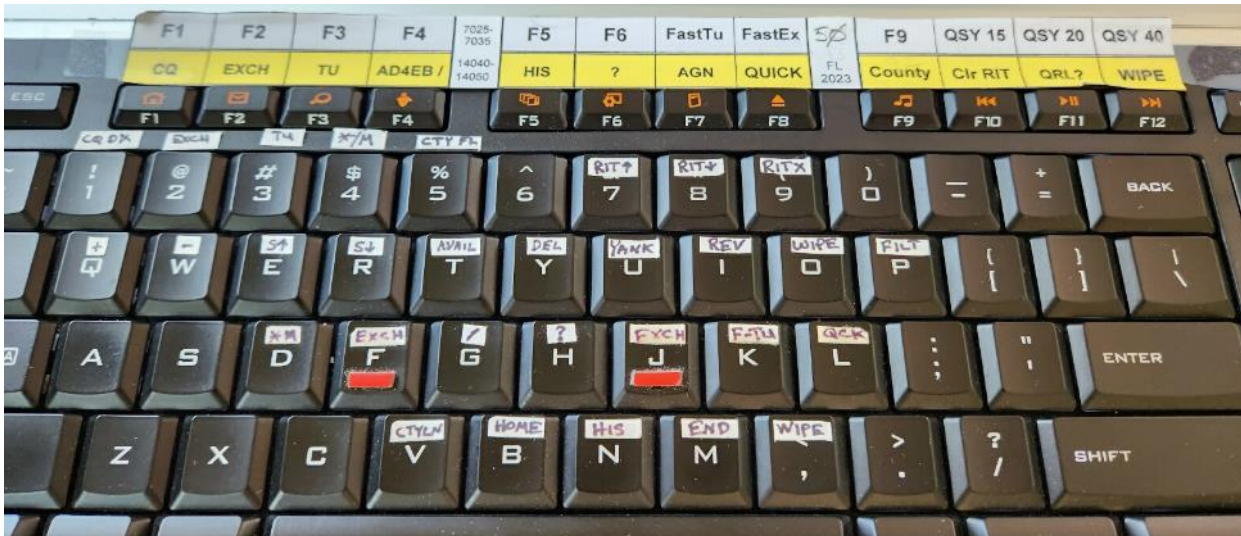
The screenshot displays the N1MM+ software interface with several windows open:

- Call Log:** A table listing call logs with columns for TS, Call, Freq, R... (Rate), Snt (Sent), Rcv (Received), E... (Error), M1, P (Power), and Pfx (Prefix). The log shows entries for various callsigns like N8II, WABKAN, W4APB, K2QO, AA7V, K3WJ, SN5X, NFBM, W8RZY, WATC, N8II, SAN, OKA, WAL, and N8II.
- Spectrum Display:** A central window showing a frequency spectrum with a peak at 14.0 MHz. The text "VFO B Spectrum Display" is overlaid on this window.
- VFO A:** A window showing the current frequency (21031.07) and various controls. The text "VFO A" is overlaid on this window.
- VFO B:** A window showing the current frequency (14050.00) and various controls. The text "VFO B" is overlaid on this window.
- Contest Log:** A window showing contest statistics, including a score of 1,123,440 points and a list of bands and modes.
- Other Windows:** Includes a "Check Log/Master/Call history" window, a "Info - AD4EB/M - Exch: 599 DUV" window, and a "Modes: CW Worked Expected Spotted Spotted (Dbi Multi)" window.

Operating Tips

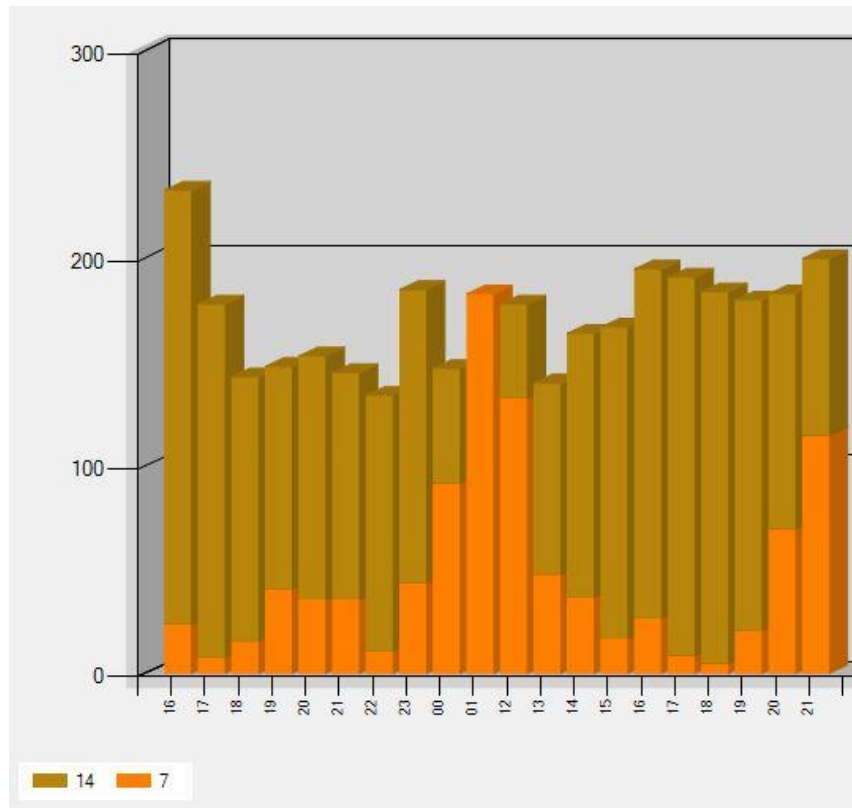


- Use AutoHotKey Macros
- Place bumps on the F and J keys
- Use a lighted keyboard



Operating Tips

- Compare how we are doing vs the previous years



Day	Hr	7	14	Tot
2011-04-24	16	24	209	233
2011-04-24	17	8	170	178
2011-04-24	18	16	127	143
2011-04-24	19	41	107	148
2011-04-24	20	36	117	153
2011-04-24	21	36	109	145
2011-04-24	22	11	123	134
2011-04-24	23	44	141	185
2011-04-25	00	92	55	147
2011-04-25	01	182	0	182
2011-04-25	12	133	45	178
2011-04-25	13	48	92	140
2011-04-25	14	37	127	164
2011-04-25	15	17	150	167
2011-04-25	16	27	168	195
2011-04-25	17	9	182	191
2011-04-25	18	5	179	184
2011-04-25	19	21	159	180
2011-04-25	20	70	113	183
2011-04-25	21	115	85	200
Total	0	973	2458	3431

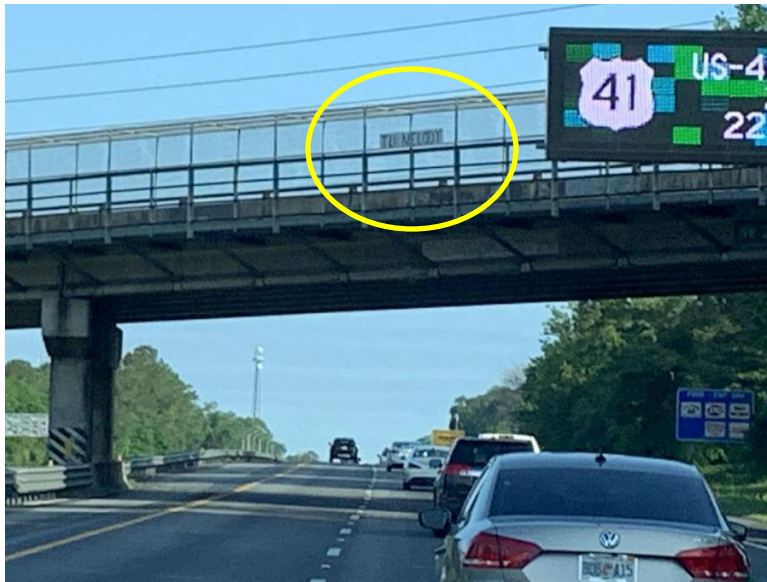
Highest hour: 233/hour
20 hour Avg: 172/hour

My #1 key to Success



Melody KI4HVV – super driver and navigator

My #1 key to Success



Florida testers, like Jeff N4RKK, appreciate Melody too

RadioSport – Taking It on the Road

