

MEETING NOTES

Iowa Advisory Council on Automated Transportation (ATC)

Joint Economic Development/Infrastructure Readiness Subcommittee Meeting

Tuesday, July 21, 2020

10-11 am

Action Items:

- Gannett Fleming and Iowa DOT – finalize the drafts of subcommittee work plans
 - Subcommittee chairs and members – review work plans when available on [SharePoint](#) and begin working toward tactical priorities
1. Welcome and introductions – Jacob Heiden, UI National Advanced Driving Simulator
 - Erin Mullenix (Infrastructure Readiness Subcommittee Chair) – Iowa League of Cities
 - Rick Peterson (Economic Development Subcommittee Chair) – Iowa Economic Development Authority
 - Dave Ness – City of Dubuque
 - John Gibson – Iowa Division of the FHWA
 - Sandra Larson – Stanley Consultants
 - Mark Buschkamp – Iowa Falls Area Development
 - Mark Nahra – Woodbury County Engineer
 - Mickey Shields – Iowa League of Cities
 - Mark Peterson – AAA-The Auto Club Group
 - Danny Waid, Rachel Bennett – Iowa County Engineers Association
 - Peter Rafferty, Todd Szymkowski, Lia Yakumithis – Gannett Fleming
 - Dan Messerich, Andy Lewis, Brent Paulsen, Renee Jerman, Mikel Derby, Adam Shell – Iowa DOT
 - Dan McGehee, Omar Ahmad, Jacob Heiden – University of Iowa (UI), National Advanced Driving Simulator
 2. Chair Update – Rick Peterson, Economic Development Chair & Erin Mullenix, Infrastructure Readiness Subcommittee Chair
 - Erin Mullenix noted [the Infrastructure Readiness \(IR\) subcommittee last met on March 5](#) with presentations from Liesl Seabert on the Governor’s Empower Rural Iowa Initiative, Neal Hawkins on current and future needs of pavement markings in Iowa, and Peter Rafferty on the work plan development process.
 - Rick Peterson commented that a lot has happened since the last round of meetings including the COVID-19 pandemic. [The Economic Development \(EcDev\) subcommittee last met on February 6](#) with presentations from Liesl Seabert on the Governor’s Empower Rural Iowa Initiative, a CAT challenge discussion with subcommittee members, and Peter Rafferty on the work plan development process. EcDev and the ATC should look for innovative solutions moving forward and work toward aligning activities with various innovation committees or councils across Iowa.
 - [The last Council meeting was held on March 11](#) with subcommittee updates, Iowa rulemaking updates, and presentations from Local Motors, National Advanced Driving Simulator, and Gannett Fleming. Since then, [Iowa’s Automated Transportation Vision](#) has been finalized and subcommittee work plans are in development. *(The information in this bullet was not mentioned during the chair updates. It was discussed later throughout the meeting, but it is listed here for better organization.)*
 3. Iowa Real Time Network (IaRTN) - Dan Messerich, Iowa DOT (20 minutes)

- This laRTN presentation was organized as a follow-up from the Local Motors presentation at the ATC meeting in March 2020. Local Motors' slow speed shuttle solution, Olli, uses location reference technology to address data redundancy. Iowa DOT has been contacted by GMV as part of their work with BMW to determine how the laRTN might be utilized.
- To set the stage, a reference was made to Local Motors March 2020 ATC presentation on their slow-speed shuttle solution, Olli, and their use of location reference technology to address redundancy. It was also pointed out that GMV reached out to Iowa DOT staff, as part of their work with BWM, to determine how this resource might be utilized.
- Dan Messerich is the laRTN administrator with the Iowa DOT. The laRTN contains 103 reference stations across Iowa and neighboring states that supply corrections for Static and Real-Time Kinetic Observations. It is an ancillary method for determining your location in real-time at centimeter accuracy. Upgrades were made to the laRTN in 2019 to improve service for all types of users. It is currently provided as a free service but can be changed to a fee-based subscription where needed.
- There are currently over 1600 subscribers and users registered on the laRTN. These users range from precision ag equipment, land surveyors, construction workers, Geographic Information System users, government and non-government agencies. The laRTN has been used for autonomous navigation for precision ag for several years. The Iowa DOT does not currently charge for use of the RTN. There is opportunity to use the RTN as a fee-based subscription. This revenue could assist in replacing the fuel tax funds lost from electric and hydrogen powered vehicles.
- The laRTN has limitations. Poor cellular data coverage in rural areas can cause high latency issues. The receiver needs to maintain a constant stream of data for Real Time Corrections. Global Navigational Satellite System signals need to have a clear line sight to the satellites. Buildings, trees, and tunnels are a few topographic features that block the radio signal from the satellites.
- Omar Ahmad commented on using the laRTN for a project with the Iowa DOT. UI's Lincoln MKZ has hardware to connect to the RTN to help locate the vehicle. The technology has some limitations as described above, but it works well when it's working. Omar developed a poster and wrote a report on this project. These can be made available if interested.
- This technology was new information to most meeting attendees after a question was posed on laRTN familiarity. There is a small user group currently made mostly of testing and research cases. This technology has not been integrated into fleets.
- Although similar, there is a difference between the laRTN and Real Time Kinetic (RTK) stations. Local Motors mentioned at the last Council meeting that an RTK is required on the highest building for their low speed shuttles to operate.

4. EcDev/IR Work Plan & Actions – Peter Rafferty, Gannett Fleming

- [The ATC SharePoint site](#) is the hand-off point for subcommittee work plans and other documents. The SharePoint resides with the subcommittee to use and update as needed, especially with the work plan being a living document.
- The work plans lay out the Iowa ATC background and specific subcommittee tactical priorities including details, actions, roles, resourcing, and timelines. Again, workplans are a living breathing document for subcommittees to update as needed. Priorities may change moving forward so subcommittees have the ability to adapt. For example, the CAT challenge and platooning were originally ranked high in EcDev tactics. However due to funding challenges from COVID-19 and industry interest waning in platooning, these tactics may not be the most important at this time. Subcommittees should still keep these topics on their radar moving forward.
- EcDev and IR tactics align with the overall theme of automation readiness. "Readiness" is a reference to national efforts and is important when planning for regional strategy toward automation. It's important for Iowa to coordinate regionally and nationally and avoid being becoming a "silo of excellence".

a. Automation Readiness

- There are national efforts on automation readiness. The Federal Highway Administration's Safe System Approach to Roadway Automation includes the integration of vehicle, infrastructure, and institutional systems with communities, businesses, and travelers (these are noted in the work plan).

- Three readiness areas based on AASHTO framework include physical, digital, and operational topics. Readiness also includes framework at state, national, and organizational levels. All themes and levels should align and work synergistically for a safe systems approach.
- Dave Ness from the City of Dubuque commented on their efforts at the local level. They have focused on communications improvements in the city after not addressing issues in the past. Dubuque has laid 30+ miles of duct to support broadband efforts. The city partnered with private companies to integrate solutions for both line and wireless communications. They have put in 9 roadside units and are working on coordinated signals in the future. This connectivity can lead to many solutions including travel ease and efficiency (snow plow operations given as efficiency example with signal coordination).
- Public Private Partnerships can assist in getting fiber companies to make investments – West Des Moines recently put in Google Fiber. Real-life examples can help show cities how to prepare for a connected future.

5. Open Discussion (What's in the News?)– All subcommittee members (5 minutes)

- Following up from the last subcommittee meetings, the Empower Rural Iowa initiative has shifted focus to emergency management services. A new advisory board has been formed in response to the pandemic – [the Governor's Economic Recovery Advisory Board](#). There are working groups related to innovation and connectivity that align with the ATC and subcommittees.
- Iowa will make \$50 million in federal CARES Act funding available for rural broadband expansion. State seeking proposals from internet service providers.

6. Information and key upcoming dates – Jacob Heiden, UI National Advanced Driving Simulator

- Iowa ATC Meeting: Monday, August 31 from 1-3pm. Remote only.
- The ATC will be sending a press clippings email in the near future with recent news stories on automated transportation related to council and subcommittee focuses.

ATC SUBCOMMITTEE MEETING

Joint Economic
Development /
Infrastructure Readiness
July 21, 2020



Automated drive

Destination: 50° 43' 50.34" N - 6° 10' 55.294" E
Arrival: 08:55 pm - Distance 783 miles

TCP/IP: 192.56.327.684.1
SYNC: **enabled** | Sensors: **active** | Cameras: **active**

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WELCOME AND INTRODUCTIONS

Jacob Heiden





CHAIR UPDATE

Rick Peterson & Erin Mullenix

IOWA REAL TIME NETWORK (IARTN)

Dan Messerich, Iowa DOT





Iowa Real Time Network

JULY 21, 2020

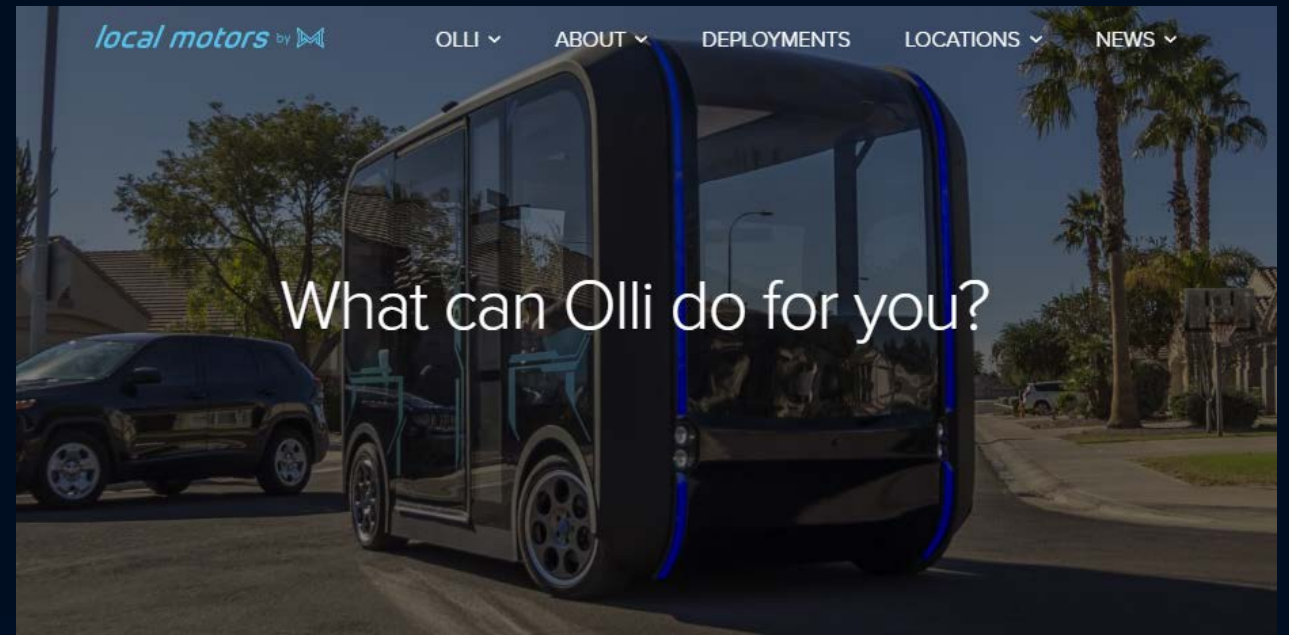
AUTOMOTIVE



GMV is a global provider of advanced systems for the Connected Autonomous Vehicle and Cybersecurity applied to the Automotive Sector, based on its own research and development.

Connected Vehicles

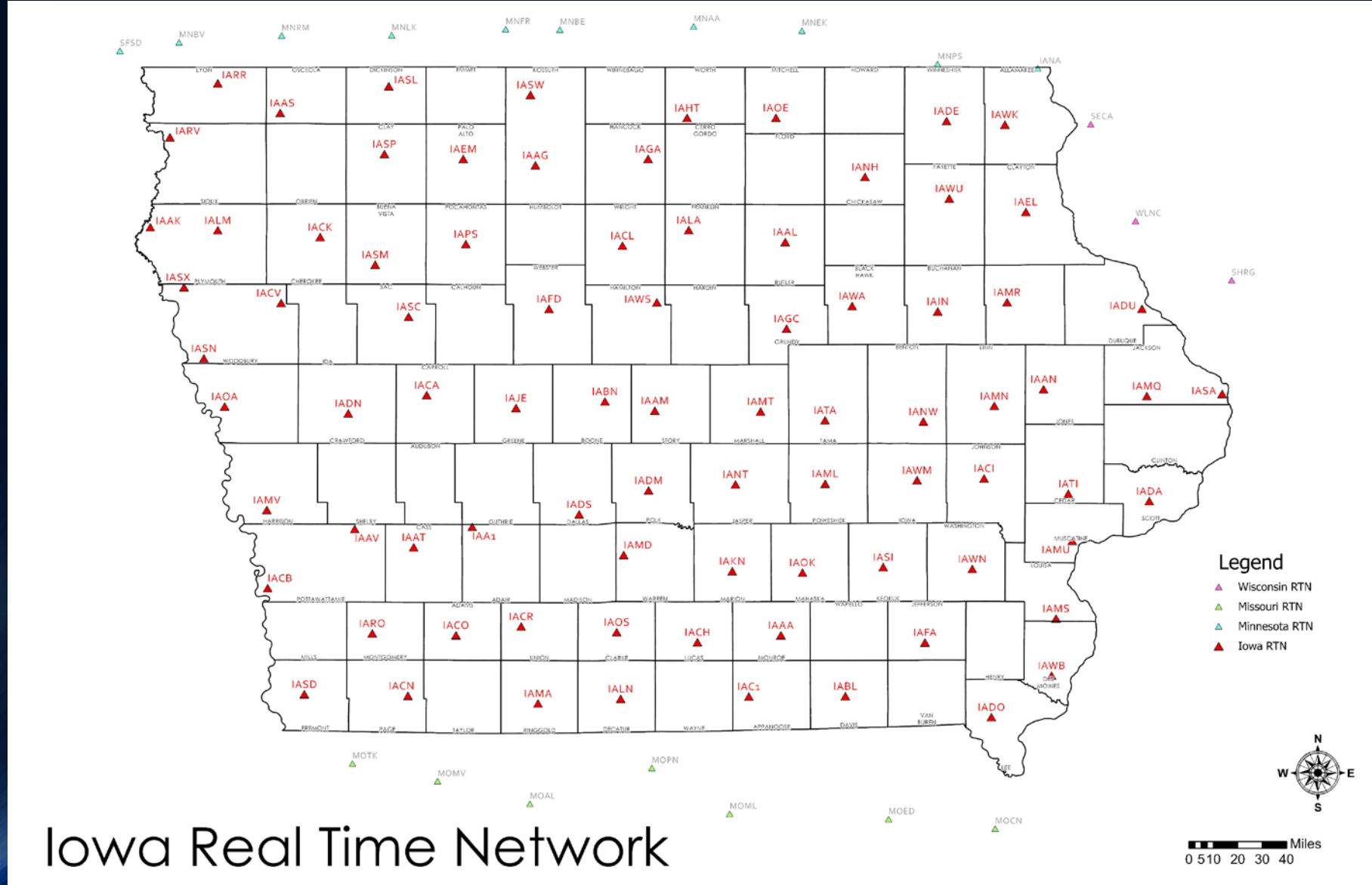
- RTK is used for redundancy
- GMV was working with BMW
- OLLI system currently sets up a base station in the area of operation.



Points of Discussion

- IARTN Background
- Continuously Operating Reference Stations – CORS
- Static Observations and NRTK
- 2019 IARTN Upgrades
- IARTN Users
- Limitations

Continuously Operating Reference Stations - CORS

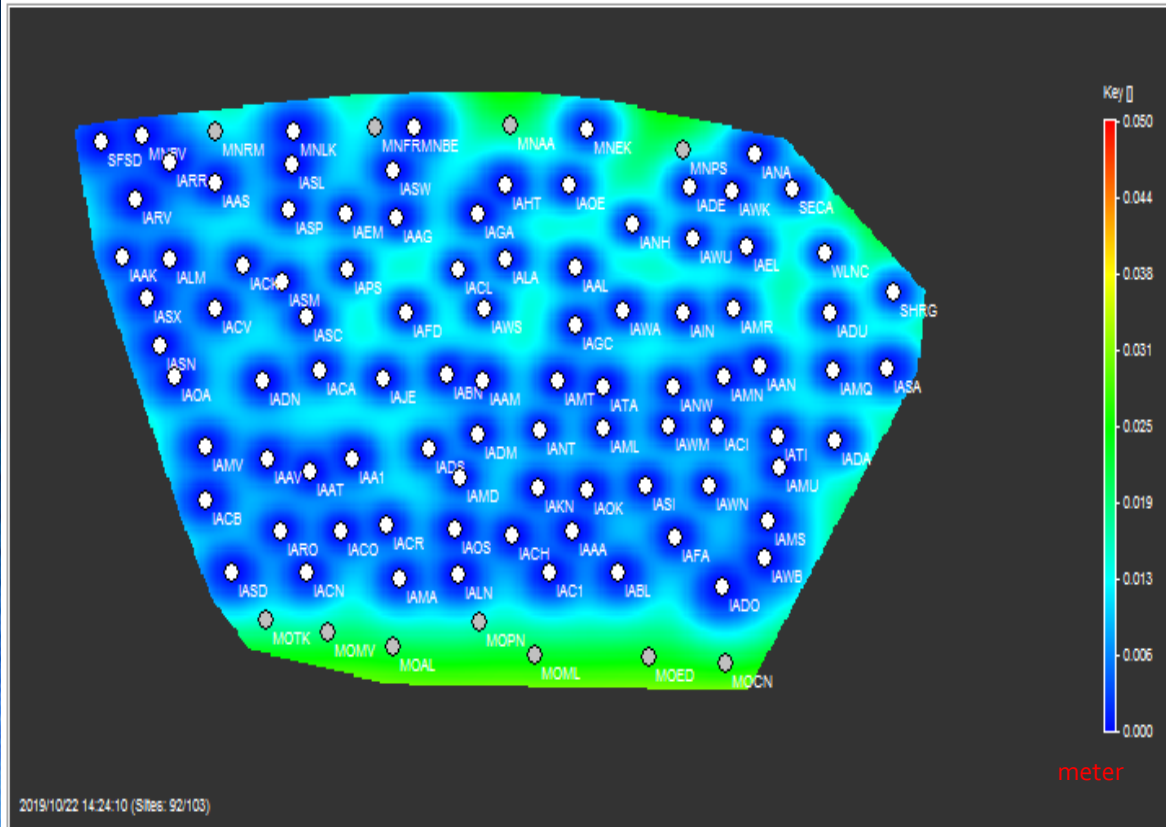


RTK and NRTK

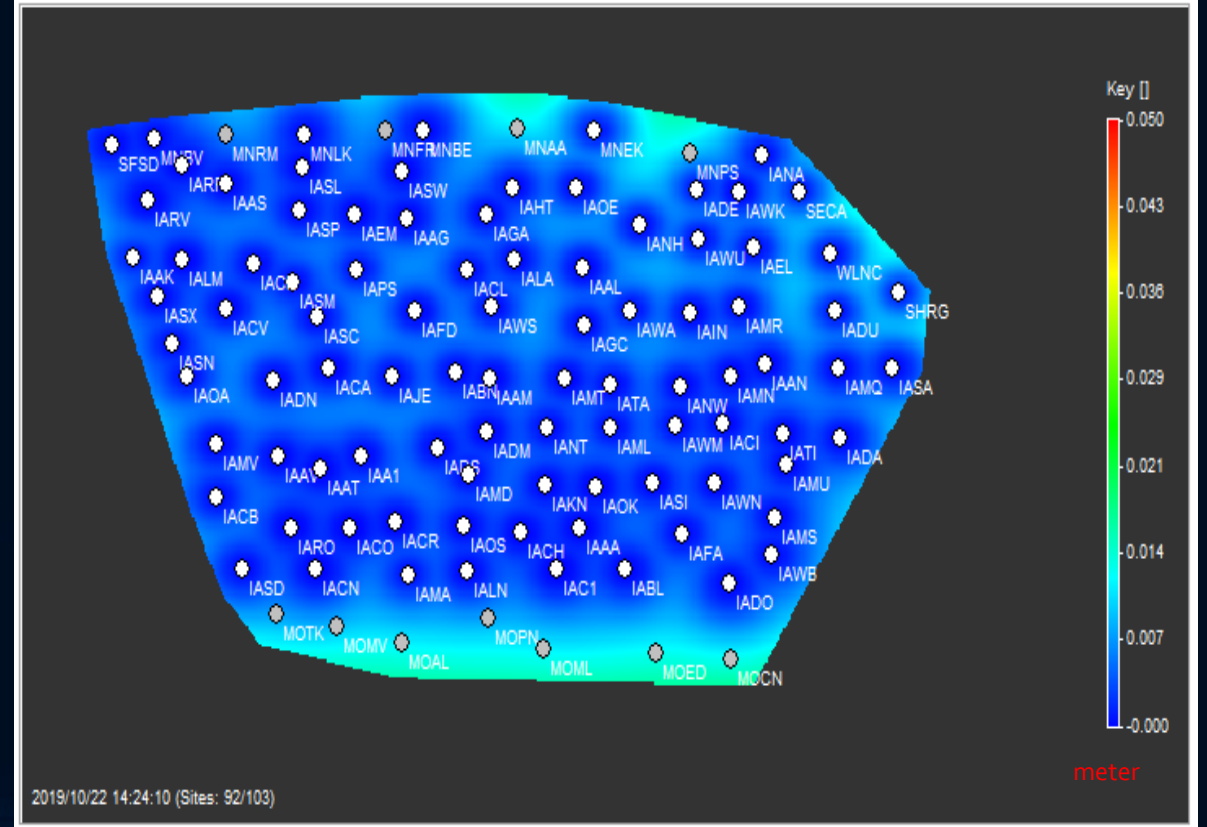
REAL TIME KINETIC

NETWORK REAL TIME KINETIC

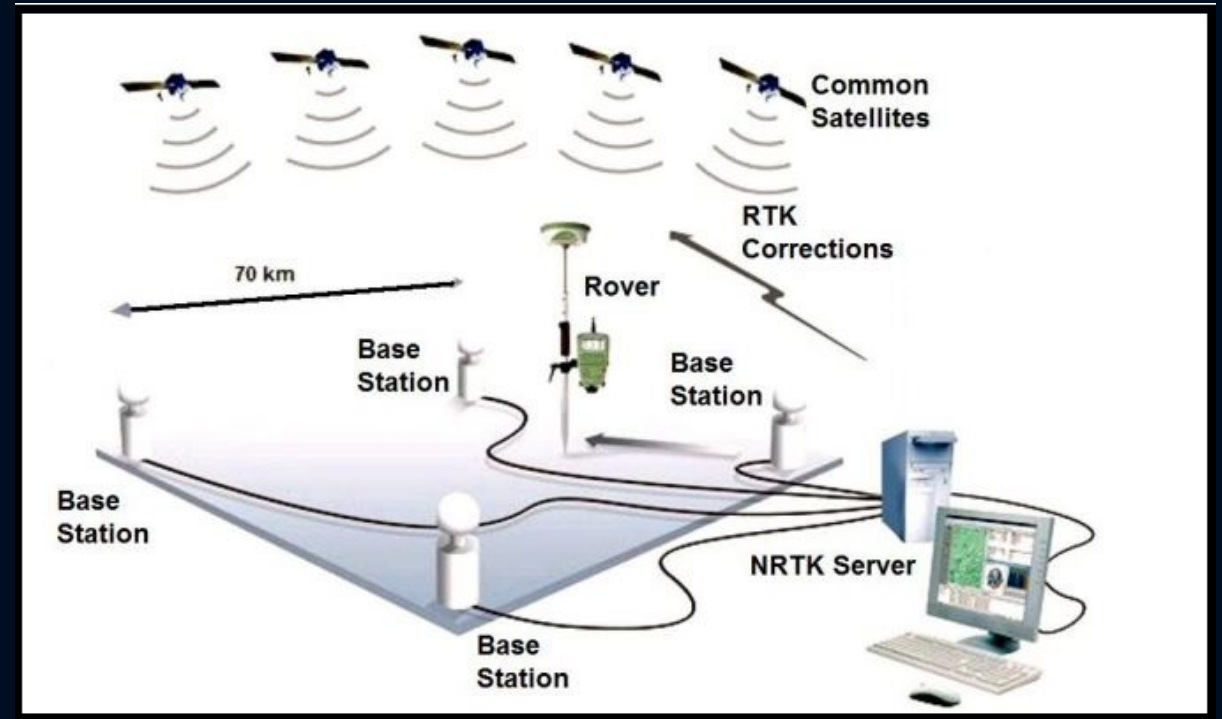
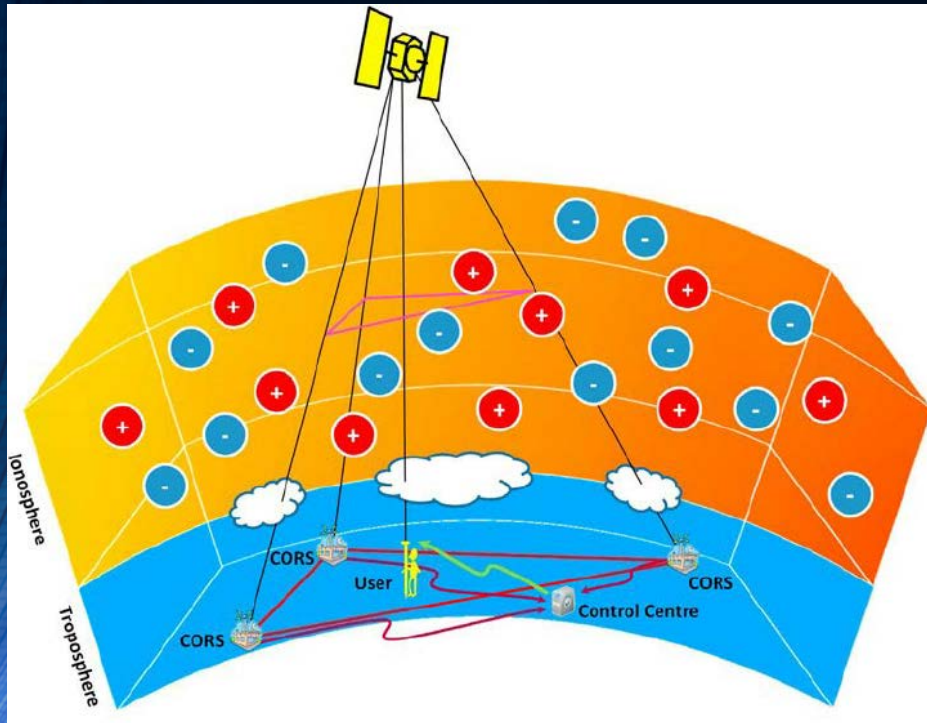
Residual Ionosphere (RTK): The estimated residual ionospheric error for a single base RTK user using data from the nearest site.



Residual Ionosphere (Network RTK): The estimated residual ionospheric error for a network RTK user.



Network RTK



IaRTN Equipment



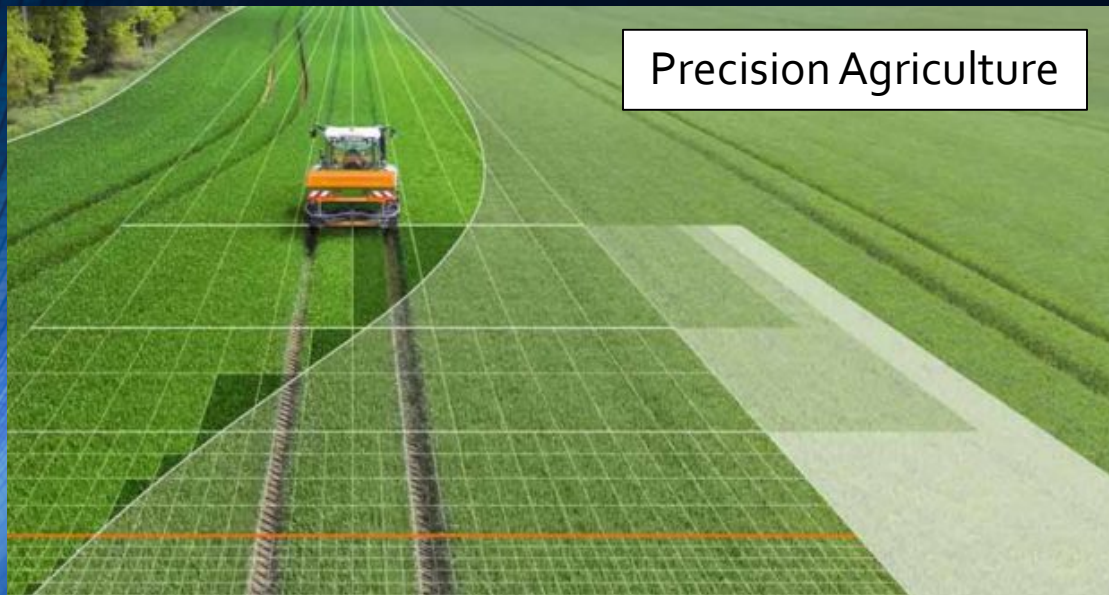
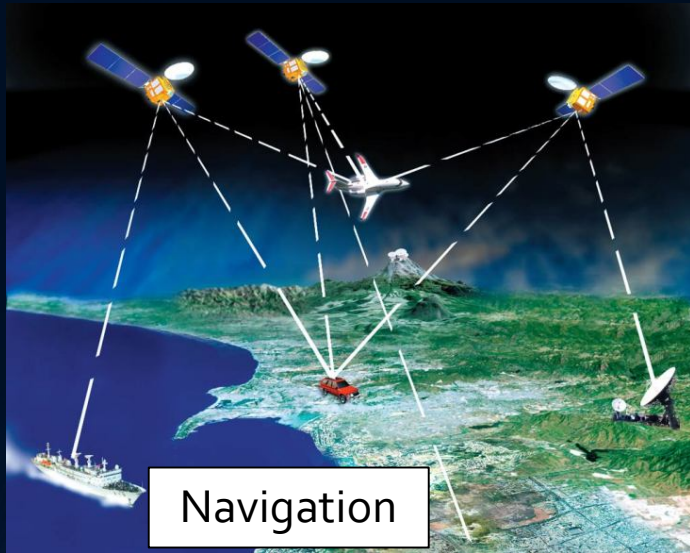
Leica GR-50 Receiver



Antenna Mast



Network Real Time Users



Thank You.

DAN MESSERICH, PLS

DANIEL.MESSERICH@IOWADOT.US



ECONOMIC DEVELOPMENT / INFRASTRUCTURE READINESS WORK PLANS & ACTIONS

Peter Rafferty, Gannett Fleming

AUTOMATION READINESS



INFORMATION AND KEY UPCOMING DATES

Next ATC Meeting

- Monday, August 31st, 1-3pm
- Remote only



THANK YOU