Accelerating Broadband Deployment on Unserved Agricultural Lands Working Group – preliminary 7/22/20

Charges for the Working Group	Working Group Members
- Policy recommendations for the Commission, the Department, and federal, state, and local governments intended to promote the acceleration of broadband internet access on unserved agricultural lands; - How the Commission can reduce and/or remove regulatory barriers to broadband infrastructure investment on agricultural lands; - How the Commission should allocate and license spectrum for the purpose of accelerating deployment to unserved agricultural lands; and - In conjunction with the Mapping and Analyzing Connectivity on Agricultural Lands Working Group, specific steps the Commissions should consider to ensure that the expertise of the Secretary and available farm data are taken into account in Commission policymaking affecting broadband deployment on agricultural lands.	- Jeff Pettit - Heather Hampton+Knodle - Renee Bivens - Luke Deryckx - Anthony Dillard - Craig Ganssle - David Goldman - Betsy Huber - Zach Hunnicutt - Nick Moody - Jarrett Taubman - Dr. Alex Thomasson - Jimmy Todd - Steve Vail - Dan Watermeier
Anticipated Challenges	**Assumptions**
- Unlicensed spectrum or a hybrid with licensed spectrum in proximity to urban areas – cost, including expertise, for application and installation of leasing or owning spectrum to an individual agricultural enduser (farmer) could be prohibitive - Resistance from providers to increase performance targets and to set uniform standards across all federal agencies. - While cost to build out broadband infrastructure is large, the ongoing costs of maintenance and innovation prevent private sector investment.	- Demand for increased download and upload speeds and bandwidth will only increase over time. - Broadband to the last acre is important to support precision agriculture technologies. However, it relies on significant upload and download capability from "the last mile" or headquarters where data-driven decisions are made. - The proposed Fabric approach is an improvement on existing mapping capabilities. - Providers self-reporting advertised speeds are not an accurate reflection of actual speeds and reliability at the customer level.

Potential Recommendations	Expected Benefits
• Further explore options in spectrum from Tband, CBRS, to unlicensed to hybrid licensed and unlicensed products. Effort to be informed by industry standards. • Consider adding Farm Service Agency field level data to "Fabric" that would include adding some questions to the Form 578 to assess if farmers use precision ag. and method and reliability of data (including voice) transmission from that field • Setting performance targets at a higher level and being consistent across all federal agencies. • Leverage state and federal funds to build to and to provide continuous service to the last mile and last acre. • Act on the Broadband Deployment Advisory Council recommendations.	• Unused spectrum may provide a more affordable delivery mechanism for data transmission from fields/grazing ranges. • Field level data would provide a more granular view of data needs and speeds. • Bridging the rural-urban digital divide (enabling same socio-economic activities and capacity) will happen when upload and download service targets are consistent and scalable technologies are in place. • Policies that encourage leveraging state and federal funds to build and to maintain rural systems are the only realistic means to bring enough resources to cover the expense of reaching the last acre and the last mile to residential and commercial decision centers. • BDAC recommendations are at the crux of on-the-ground issues that can hinder or increase the cost of deployment. Implementing these recommendations should result in streamlined processes that respect property rights and varied levels of governmental authority while also bringing world class data/telecom. capabilities to rural and remote areas.
Relevant Artifacts/Presentations – Posted on TRELLO Board	**Out of Scope / Deferred Topics**
Name Feed & Grain News - Broadband Mapping Legislation Moves to President's 3 4 20_file 1Q_2020_Earnings-Call-Presentation Deere 3.23.2020 Meeting and questions and FCC response 58546-1_rural_bb_jaymyers_final 58546-1-ruralbroadband-whitepages-final 699916 GAO Report Accelerating Deployment WG Charges-FINAL Accelerating Deployment WG Charges-FINAL AEM Mobility 2050 Vision Airband Overview	**Mapping and Analyzing Connectivity** 03/23/2020 - Is there a generally accepted standard for what 'successful deployment' looks like? (Deployment WG Call) 03/23/2020 - Maps lag about 18 months and are formed based on census blocks which makes them inaccurate measures of broadband access across the rural landscape. (Deployment WG Call) 03/23/2020 - Suggest a broadband census to all consumers asking them to check boxes on how they get the internet today and for what purposes. Conduct it electronically and overlay with Google maps. (Deployment WG Call).

Airband US COVID Response Summary (FINAL)

bdac-regulatorybarriers-01232018 January 10 2018

BILLS-116s1822enr

Blades - AEM to FCC - 032420

Broadband expansion bills 4.20.20

Broadband funding Matrix 4.2020

Broadband Mapping DOC-365171A1

BSL List February 10 2020

Carpenter - Precision Ag Meeting FCC USDA 25MAR2020 FINAL

case-for-rural-broadband

Connect Illinois Broadband Grant Announcement Coming Soon

Connectivity Needs by Alex Thomasson

Connectivity Needs-Demand WG Charges-FINAL

DA-19-1225A1_Rcd

Data and Mapping WG Charges-FINAL

DOC-365131A1 Pai Testimony 6-24-2020

Document # 1 FCC-20-18A1_Rcd Auction 105

Document #2 Report & Order FCC-18-149A1

Encouraging Adoption and Jobs WG Charges-FINAL

FCC Working Group Presentation - Matt Splitter 5 20

FCC-20-50A1

FCC-20-89A1 T-Band NPRM

FCC-20-89A2 Commissioner Rosenworcel statement

Federal Reserve on Rural Broadband 2019

Feed & Grain News - Broadband Mapping Legislation Moves to President's 3 4 20

Ganssle -Small Business in Agriculture Presentation (Farmwave)

History of the Cooperative

Hudson Institute Economic Impact of Rural Broadband 1 to 14

Hudson Institute Economic Impact p 15 to 29

Indiana North Carolina 2019

KC Federal Reserve on Digital Divide

KC Federal Reserve on Digital Divide

LancasterFarming_20200711_B04_1

LancasterFarming_20200711_B07_3

Lead Farmer responses to Broadband questions 2019

Maine Scenario

03/23/2020 - Does USDA NASS have data from the agricultural census or other survey tools related to internet access, quality and cost? (Deployment WG Call)

03/23/2020 - Are there any economic models of the various costs of modes of delivery in various parts of the country? (Deployment WG Call)

03/23/2020 - Are there any good maps for spectrum? (Deployment WG Call)

04/07/2020 - Does the mapping effort take into account connectivity by geography regardless of population? (Heather Hampton+Knodle)

04/07/2020 - How do we ground truth data collection for some of the maps? (Dr. Michael Buser)

Examining Current and Future Connectivity Demand for Precision Agriculture

03/23/2020 - How are vendors currently facilitating the use of Precision Ag practices? (Deployment WG Call)

03/23/2020 - What vendors see as limitations for using the technology in underserved areas? (Deployment WG Call)

03/23/2020 - What are manufacturers input on the specifications they consider necessary for the precision agriculture equipment to function efficiently and properly? (Deployment WG Call)

03/23/2020 - Latency, throughput. What are the needs in the agriculture space? Differentiating data needs - big data vs. small data? How much of that data needs to be transmitted wirelessly? (Deployment WG Call)

03/23/2020 - What do equipment manufacturers and vendors view as the cause for delaying deployment of specific uses? (Deployment WG Call)

03/23/2020 - Is there a generally accepted standard for what 'successful deployment' looks like?

04/07/2020 - What measurements and methods are companies using to measure connectivity demand for precision agriculture now and 10 years from now? (Heather Hampton+Knodle)

Hudson Institute Economic Impact p 15 to 29	04/07/2020 - What are the technological needs such as file sizes, connectivity profiles that end users require? (Luke Derykx)
Indiana North Carolina 2019	
KC Federal Reserve on Digital Divide	04/20/2020 - Is it possible to identify distinct use cases for broadband on agricultural lands (e.g., IoT vs. consumer broadband) and demand for each (Jarrett Taubman)?
KC Federal Reserve on Digital Divide	
LancasterFarming_20200711_B04_1	
LancasterFarming_20200711_B07_3	04/20/2020 - Is it possible to measure/characterize broadband "demand" at different points in the network (e.g., demand for last-mile vs. long-haul/ "middle-mile" connectivity) (Jarrett Taubman)?
Lead Farmer responses to Broadband questions 2019	
Maine Scenario	
Microsoft FCC-20-17A1	
Microsoft-Rural-ISP-Technology-Considerations-November-2019	
NRECA RE Magazine Special Broadband Insert	
precision ag 3.25.20_USF 101	
Quiet Zones Section 1.924	
RE 5G fund	
Rupe - RD 101_FCC Rupe	
Rural Partners Newsletter	
Self Reporting Pros and Cons	
Spectrum Subgroup FCC Response 5 29 20	
Sudduth - PA Task Force Mar 2020	
Task Force Announcement 12 19 DOC-361208A1	
Task Force Members 11 19 19	
t-bandfactsheet2018	
The Co-op Story	
USDA Rural Development News Release	
USDA RUS v 1 Response toQuestions	
USER SCENARIOS	
USER SCENARIOS	
Utility Lease Model 2 14 20	
Work Group Leadership Public Notice	
Working Group Nominations Sought 11 19 19	
WSMI News from Home Anecdote	

Deployment Working Group Progress Report

Initial Meetings Focused on generating questions; identifying expertise among our members; collecting or surveying members on barriers and researching information.

We sorted through our initial contributions to identify issues that we thought other working groups' charters were directly or more closely relevant than ours. We posted these items in a Google document and shared with fellow working group leaders.

We've had some informative presentations on FCC programs and on technology needs.

Aggregated our information into Themes that we are now exploring in a timed manner July through Sept. 8 to generate recommendations.

Working Group members have volunteered to facilitate discussion of themes which is helping to spread the workload, engage our individual members, and lead to better or at least varied perspectives in our thinking overall.

Our current Timeline and Themes are:

- Jarrett, David and Luke – 7/14/20 Theme 3, "Inappropriate broadband service targets;" Theme 2 "Failure to properly identify broadband-related needs of particular rural/agricultural areas,"
- Jimmy and Steve – 7/28/20 Theme 1 "Lack of viable business case for network deployment/operation;" Theme 5 "Issues involving funding mechanisms"
- Heather – 8/11/20 Reviewing Progress to Date; Identifying Gaps and Further Opportunities
- Alex – 8/25/20 Theme 6 "Ecosystem Issues,"
- David/Jarrett – 9/8/20 Theme 4 "Right-of-way access and permitting issues"
- All Facilitators and group members be aware of items in the Category 7 "Other" as we move through the themes to determine if questions can be addressed in another area or require further attention.