



Notice of Ex Parte Communication
Filed via ECFS

April 5, 2019

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: In the Matter of Modernizing the Form 477 Data Program, WC Docket No. 11-10

Dear Ms. Dortch:

On April 4, 2019 Zachary Cochran, Doug Kitch and the undersigned of Alexicon and Randy Tyree of GRTyree Consulting met with Sayuri Rajapakse and Susan Mort of the FCC's Office of Native Affairs and Policy, Kirk Burgee and Steve Rosenberg from the Wireline Competition Bureau, Barbara Esbin from the Consumer and Governmental Affairs Bureau, and Suzanne Mendez, Ken Lynch, and Ying Ke from the Office of Economic and Analytics to discuss broadband mapping issues as shown on the attached presentation. The discussion was focused on issues relevant to members of the National Tribal Telecommunications Association (NTTA) and Tribal areas specifically and rural broadband carriers generally.

Pursuant to Section 1.1206(b) of the Commission's Rules, this submission is being filed for inclusion in the public record of the referenced proceeding.

Please contact the undersigned if you have any questions.

Sincerely,

/s/ Chris Barron
Chris Barron
Regulatory Director
Alexicon
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Enclosure

Geospatial Rendering of Internet Deployment (GRID)

Agenda

- Federal Broadband mapping problems
- Solutions and Alexicon's GRID
- GRID Demonstration



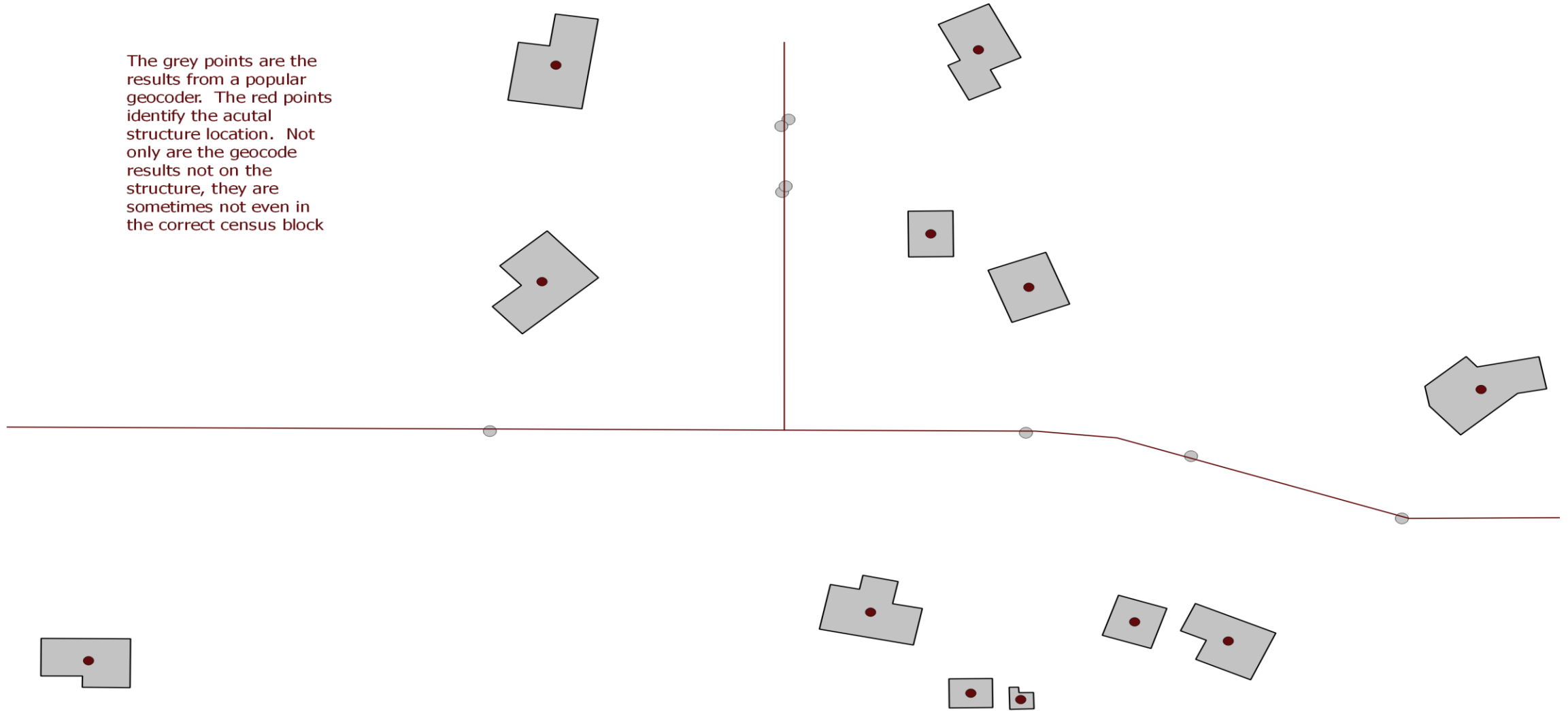
Federal Broadband Mapping Problems

Accurate broadband maps are critically important, but there are problems

- FCC Form 477 can be difficult to file and using billing-based geocoders to assist is common. Geocoders are not always accurate at the census block level and using subscription data to approximate deployment causes strange results
- Even when done correctly, Form 477 doesn't paint a clear picture in rural areas when census blocks are large
- Trying to get accurate geolocation data is burdensome and often ends up doubling down on the geocoder errors in the current 477 process

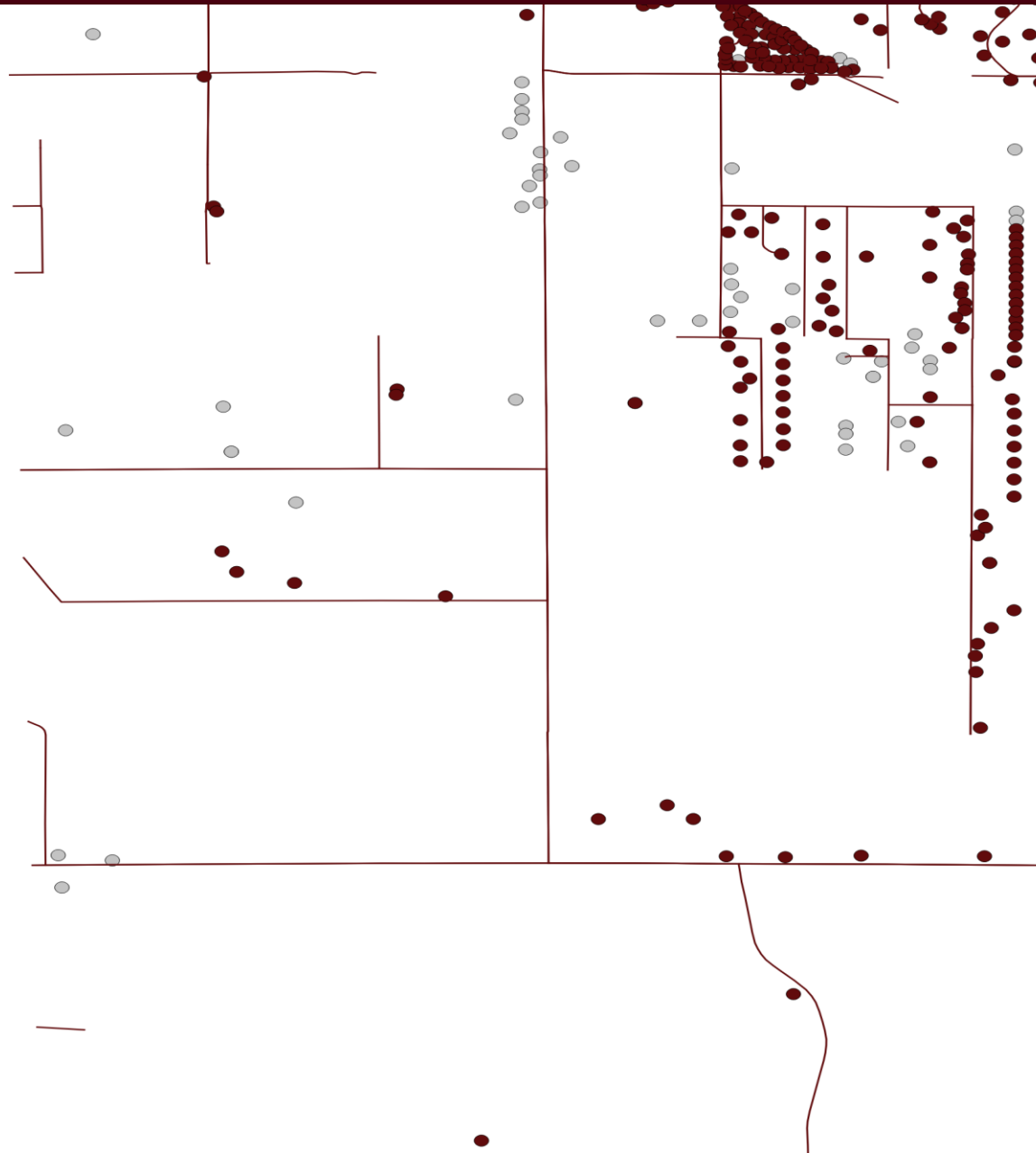
Federal Broadband Mapping Problems

The grey points are the results from a popular geocoder. The red points identify the actual structure location. Not only are the geocode results not on the structure, they are sometimes not even in the correct census block

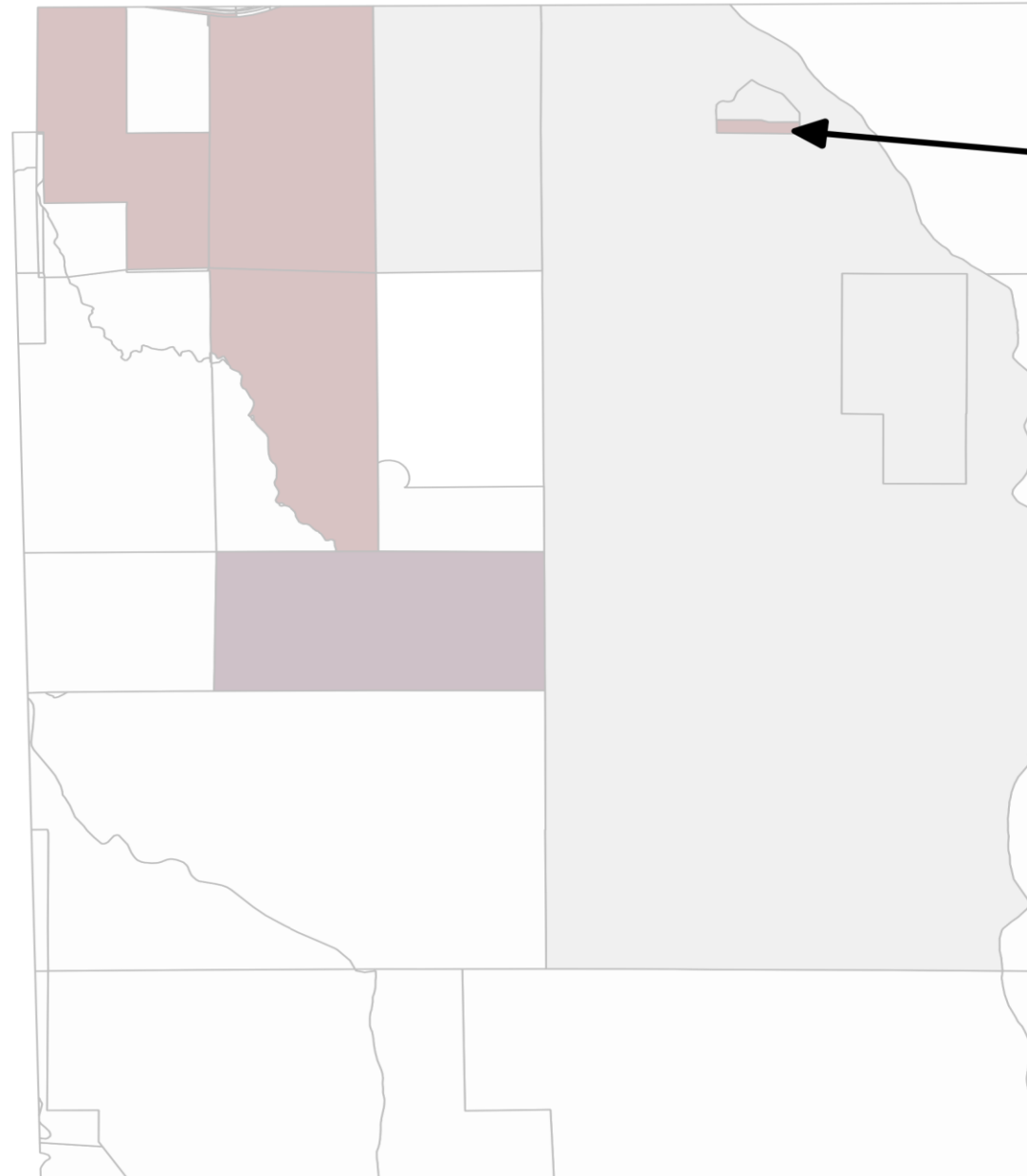


Federal Broadband Mapping Problems

This Map shows a sample of 275 addresses according to a publicly available county assessor database. When we compared geocoder results to actual census shape files we found that 4% were in the incorrect block, and 16% did not generate results at all, leaving 80% accuracy (red points) at the census block level. We also compared reverse geocoded address results to the actual county addresses. The geocoder was accurate 70% of the time at the address level.



Federal Broadband Mapping Problems



Note the small red census block surrounded by very large grey census blocks. The grey blocks are reported as broadband service on copper receiving 100 Mbps service. The red block is reported as broadband service on copper getting 20Mbps. It seems strange this one block is slower than all those surrounding it. This can often be an error caused by billing subscription data and geocoders used to identify deployment.

Federal Broadband Mapping Problems

There are quite a few proposals for improving 477 granularity, but there are trade-offs:

- Third party GIS experts being in control of maps are potentially expensive, they can take control from the people that know networks the best, and spending time to arrange analysis with a third party can motivate companies to simplify the process and over report
- Road segment data serves no other business purpose and is not great at identifying location counts
- General polygon shape file solutions do not address unpopulated areas well, are difficult to automate, and accuracy parameters and margin of error are difficult to define

Federal Broadband Mapping Problems

Method	Description	Layer Type	Complexity	ILEC Burden	Accuracy	Control of Data	Alternate Uses	Cost	Challenge Process?
Current 477	Submit CSV file listing census blocks and speeds	Polygon							
Address Clearing House (ATT 10/18)	Submit lists of Addresses to a clearing house that will clean and geocode them, then rely on "crowd funding" to improve accuracy	Point							
Road Segments (FCC/ACA)	Identify broadband speeds along segments of road. Billing data could be used with census road segments	Lines							
CostQuest Fabric of Data (USTelecom Broadband Mapping Initiative)	Use Microsoft rooftops, county parcels, census roads, and all available study area polygons to create a detailed fabric of data to be managed by CostQuest	ALL							
Alexicon GRID	Python script to automate visualization of current 477 data and create a GRID to divide large blocks	Polygon							
Expanded Geolocating	Expand the HUBB filing and require most reliable methods	Point							
"Shapes" (NCTA)	File a shape representing coverage	Polygon							
Connected Nation Bill	Start with shapes good enough to determine speed at road segment level. Third party processing, and crowd sourced revisions	Polygon							

Solutions and Alexicon's GRID

Geospatial Rendering of Internet Deployment (GRID) a solution to current Form 477 problems:

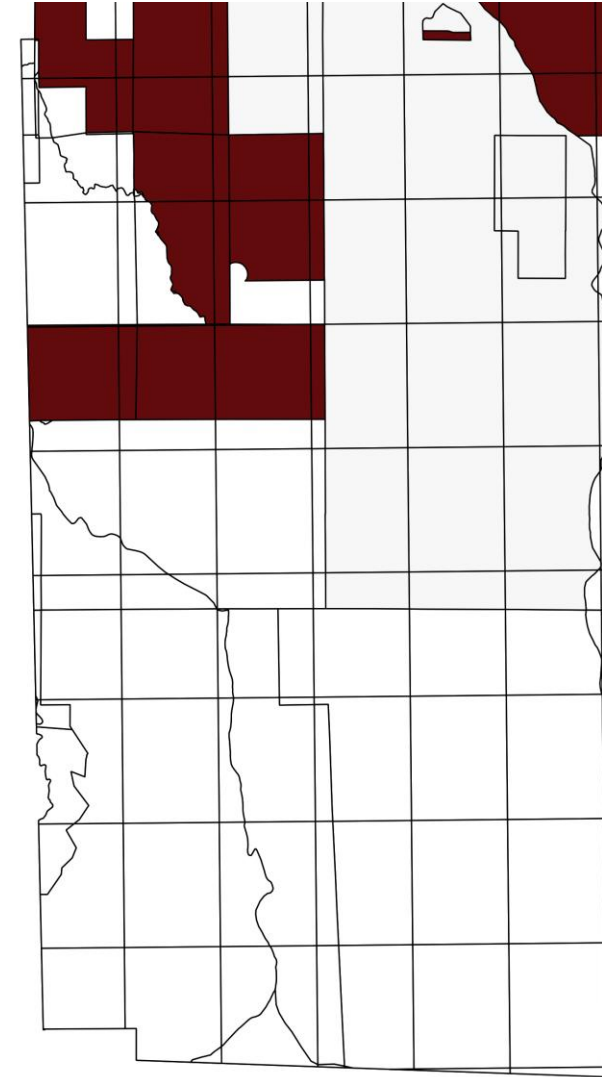
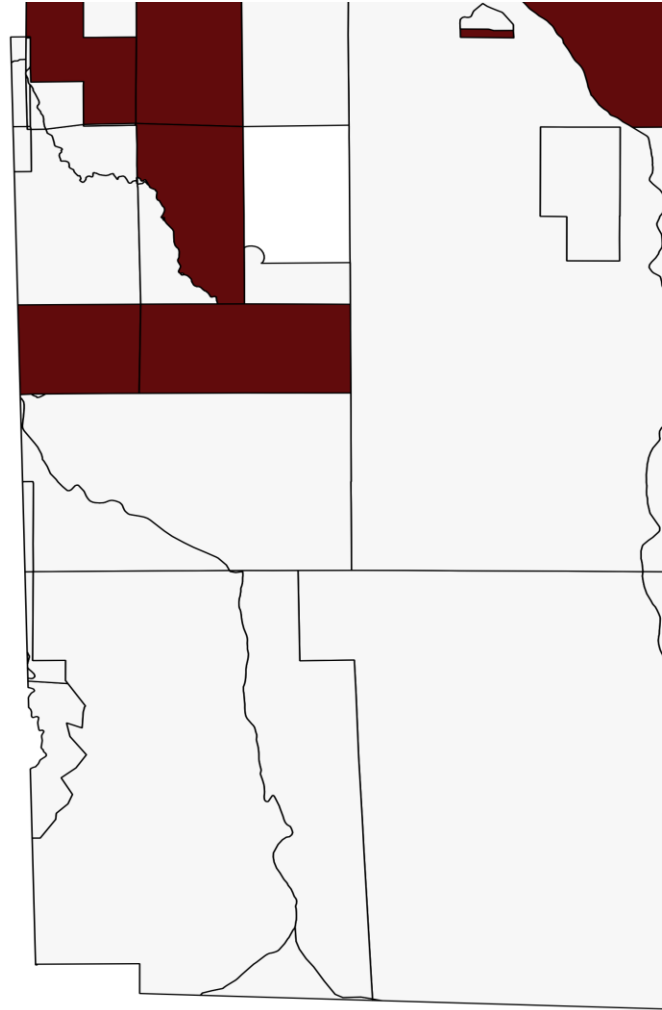
- Automates visualization of current 477 to review and revise mistakes from filing difficulty and geocoder inaccuracy
- Automates process to divide large census blocks when even accurate census block level data does not reflect reality
- Uses a GRID overlay intersected with location points to associate speeds with groups of locations

Solutions and Alexicon's GRID

GRID is a solution to current proposal trade-offs:

- Dividing an area into a specifically defined grid can be performed without purchasing Alexicon-specific software and can be performed in free open source programs. It is therefore low cost. It puts broadband maps in the hands of the people that know the network best, and can be automated and easily performed to minimize the incentive to over-report
- The GRID can capture locations off of main roads and presents a concise way to visualize deployment in large areas
- The GRID automates the shape file process, an indicator can be used to identify grid blocks without population, and accuracy parameters are automatically defined by the GRID block size that is ultimately chosen.

Solutions and Alexicon's GRID



GRID Demonstration

https://recordings.join.me/A8E42boY9UKLXnzaDCs_eQ