



Statewide Building Footprints & Addresses

How GIS Brings Broadband Funding to Alaska

November 14th, 2022 Alaska Geospatial Council GIS Day Celebration

Flashback to Summer 2022

What was the situation BEFORE this important project?



NTIA to Administer \$42 Billion!

- BEAD Program (Broadband Equity, Access, and Deployment)
- Funded by the Bipartisan Infrastructure Law
- Prioritized Funding for:
 - **Unserved (25/3 Mbps or less)**
 - **Underserved (100/20 Mbps)**
 - **Community Anchor Institutions**
- Need to **identify service levels at individual locations** rather than previous reporting which only required census block level.

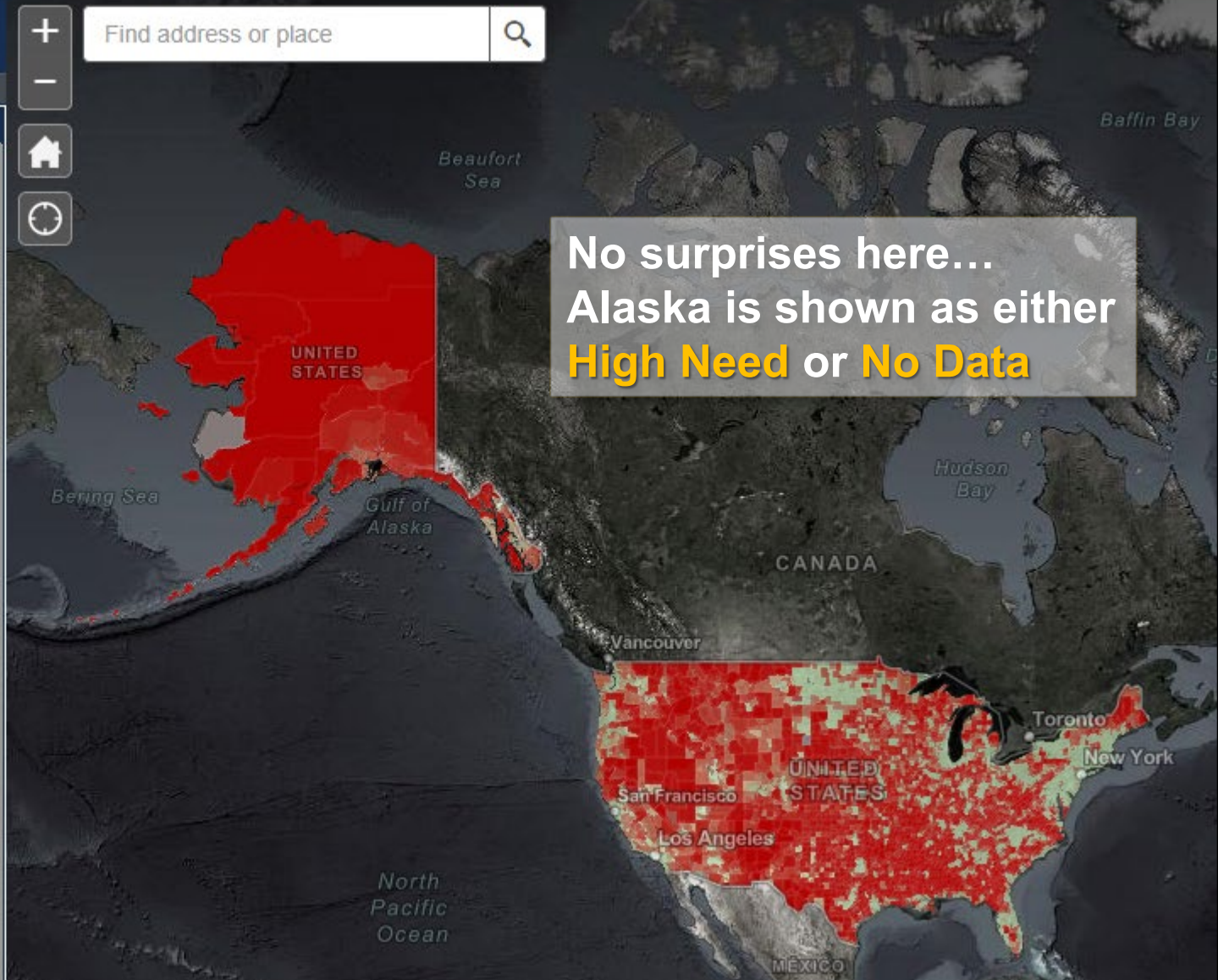


Indicators of Broadband Need

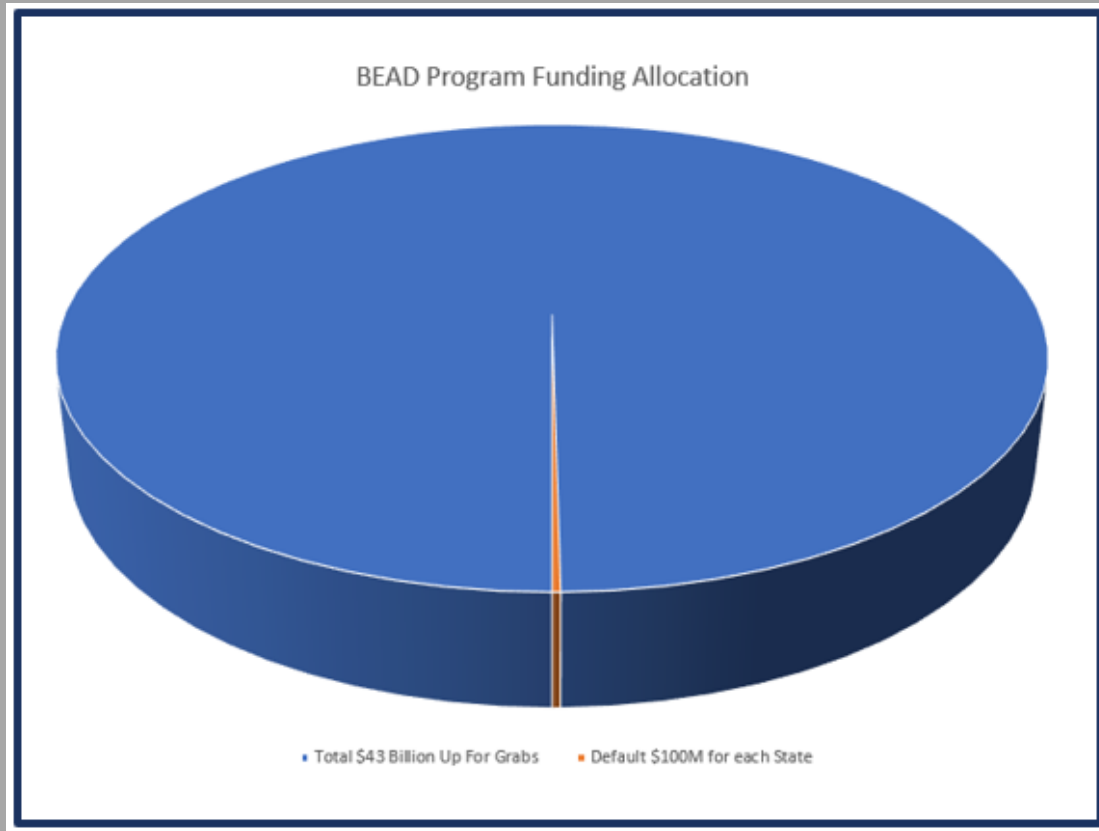


Legend

Level	Indicator of Broadband Need	Yes	No	No Data
County	Speed Tests - M-Lab Median Speeds Fixed Broadband Below 25/3 Mbps	Red	Green	Grey
	Usage - 75% or More of Devices Connect to Microsoft Updates/Services via Fixed Broadband Download Speeds below 25 Mbps	Red	Green	Grey
Census Tract	Speed Tests - Ookla Median Speeds Fixed Broadband Below 25/3 Mbps	Red	Green	Grey
	American Community Survey - 25% or More of Households Report No Internet Access	Red	Green	Grey
	American Community Survey - 25% or More of Households Report No Computer, Smartphone or Tablet	Red	Green	Grey
Census Block	FCC Form 477 – No Provider Reports Consumer Fixed Broadband Services at 25/3 Mbps	Red	Green	NA



BEAD Program Funding Allocation



- Each state gets \$100 Million automatically, eventually.
- **Remaining \$38 Billion all up for grabs!**
- Distributed via grants according to demonstrated need
- Without help, Alaska only gets 1/50th of the orange and none of the blue

Alaska Lacks 2 Critical GIS Datasets

- FCC is creating “**Serviceable Location Fabric**” for the US
- Fabric will determine who gets broadband grant funding
- Fabric is created in Lower 48 by compiling two GIS inputs:
 - **Statewide Building Footprints**
 - **Statewide Addresses**
- Alaska is the only state that lacks both!
- We are at an immediate disadvantage simply due to lack of foundational GIS data

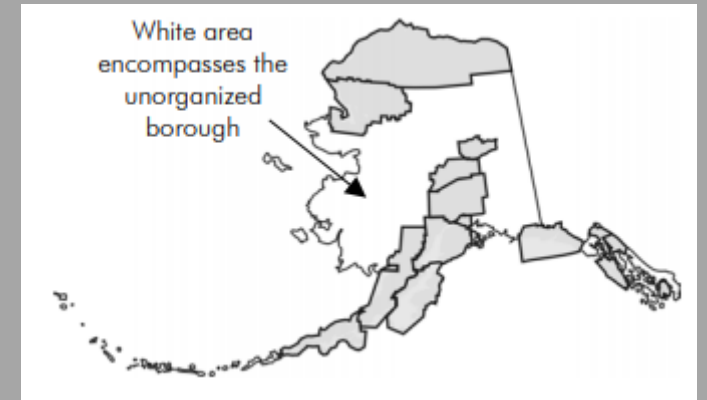
Status of Required GIS Datasets?

Building Footprints

- Required for geocoded serviceable locations
- Est. <5% complete
- Does not exist for the unorganized borough

Addresses

- Required for geocoded serviceable locations
- Est. 30% complete
- Have not been combined into a statewide dataset
- Does not exist for the unorganized borough



The unorganized borough makes up 70% of Alaska by area, and is 4th largest by population!

What are other states doing to prepare?

- Many states used ARPA funding to fully develop these GIS datasets in preparation for BEAD
- Many states also using IIJA funds to validate/update their building footprints & addresses so they can challenge FCC's Fabric if needed
- The inputs FCC requires literally do not exist for Alaska



Where are we now?

Alaska has kicked off a cornerstone project - GAME CHANGER!



Alaska Office of Broadband Collaborates with the **Rasmuson Foundation**

- Bridging the Digital Divide
- Equitable Internet Access for All
- Improve accuracy/completeness of FCC's Fabric to ensure Alaska gets fair share of \$\$\$
- Statewide Building Footprints
- Statewide Addressing
 - (compiled best available)



Ecopia AI



<https://www.ecopiatech.com>

- **Statewide Building Footprints**
- Vector Feature Extraction
- Source: MAXAR Mosaic
- Industry Leader in AI/ML
- Ecopia also specializes in creating Land use/Landcover
- Buy-up options exist for Maxar derivatives... or BYO-imagery!



Feature Extraction is an Equity Issue

Building Footprints for Alaska is a Home Run!

- Not only are Ecopia's building footprints excellent for Alaska's population centers...
- They're also excellent in all of Alaska's rural, remote areas
- Digital information must be equitable for Alaska and these guys knocked it out of the park!
- Let's look at data equity...



Cold Bay

Adak



Building Footprints: Ecopia
Imagery: Maxar

Gambell



Building Footprints: Ecopia
Imagery: Maxar

Savoonga



Hooper Bay

Building Footprints: Ecopia
Imagery: Maxar



Koyuk



Buckland



Kotzebue

Building Footprints: Ecopia
Imagery: Maxar



Skagway

Building Footprints: Ecopia
Imagery: Maxar

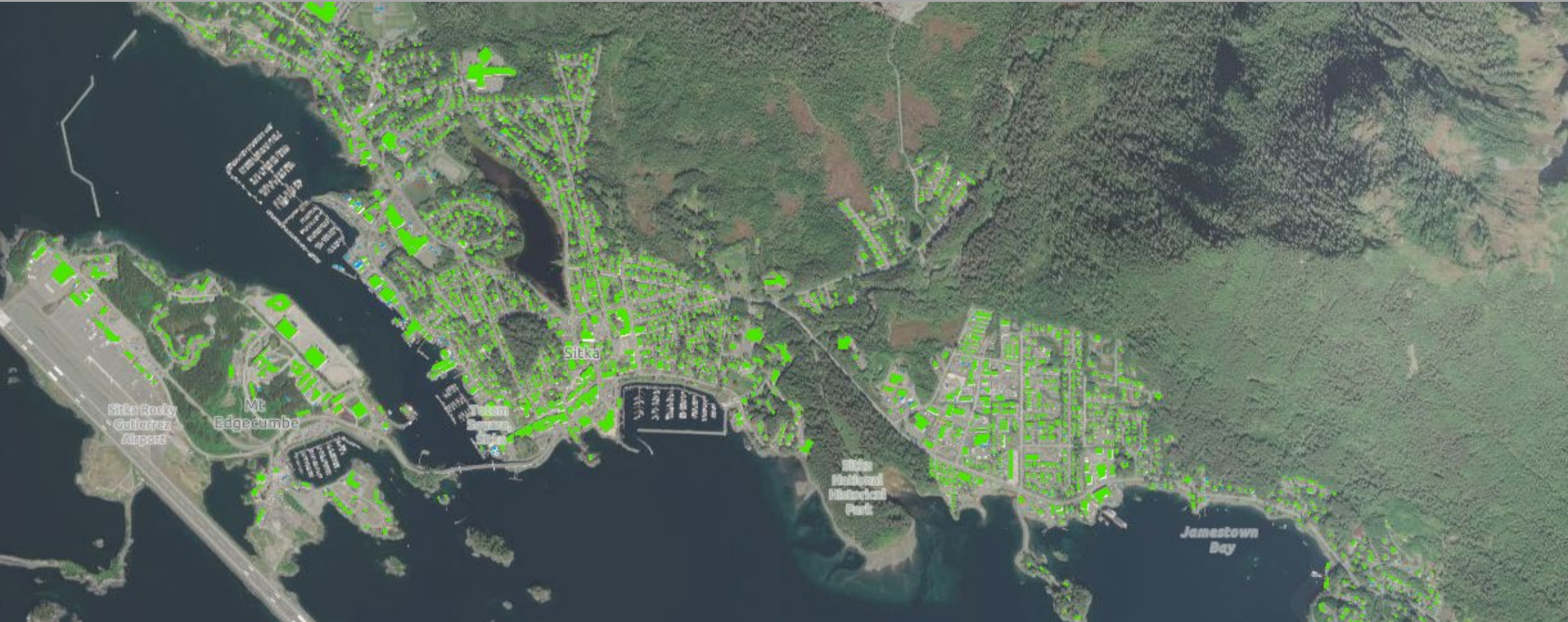


Yakutat



Sitka

Building Footprints: Ecopia
Imagery: Maxar



Healy



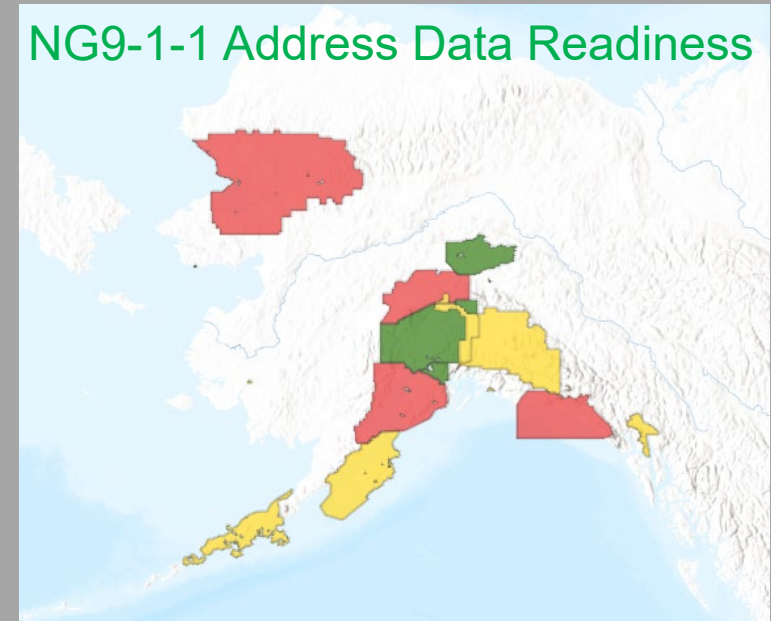
Building Footprints: Ecopia
Imagery: Maxar

Statewide Addresses

Compiling Best Available Physical Addresses - FME Saves the Day!

Addressing 101

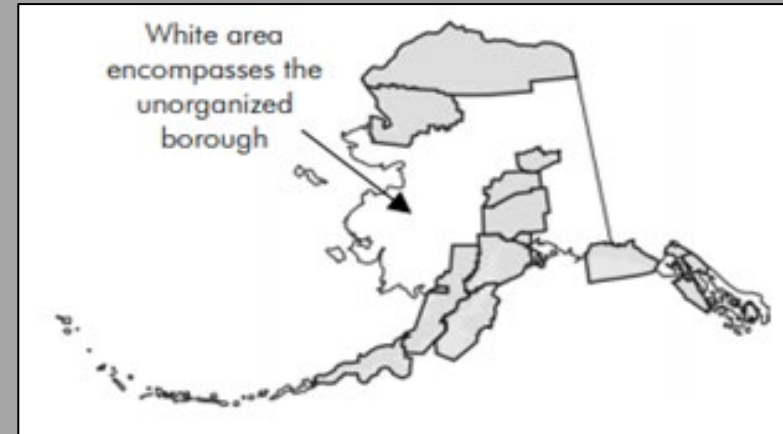
- **Mailing Address**
 - Created by USPS for mail delivery
- **Physical Address**
 - Created by local government authority
 - FCC requirement as “dispatchable location”
 - Many uses... primarily 9-1-1



- In Alaska, most (but not all) organized boroughs/cities assign physical addresses

The Problem of the Unorganized Borough...

- **Parcels** = DNR
- **Road Naming** = DOT
- **Addresses** - Authority hasn't been delegated by legislature
 - Art. X, § 6 of Alaska's Constitution, the legislature shall provide for the performance of services it deems necessary or advisable in Unorganized Boroughs.



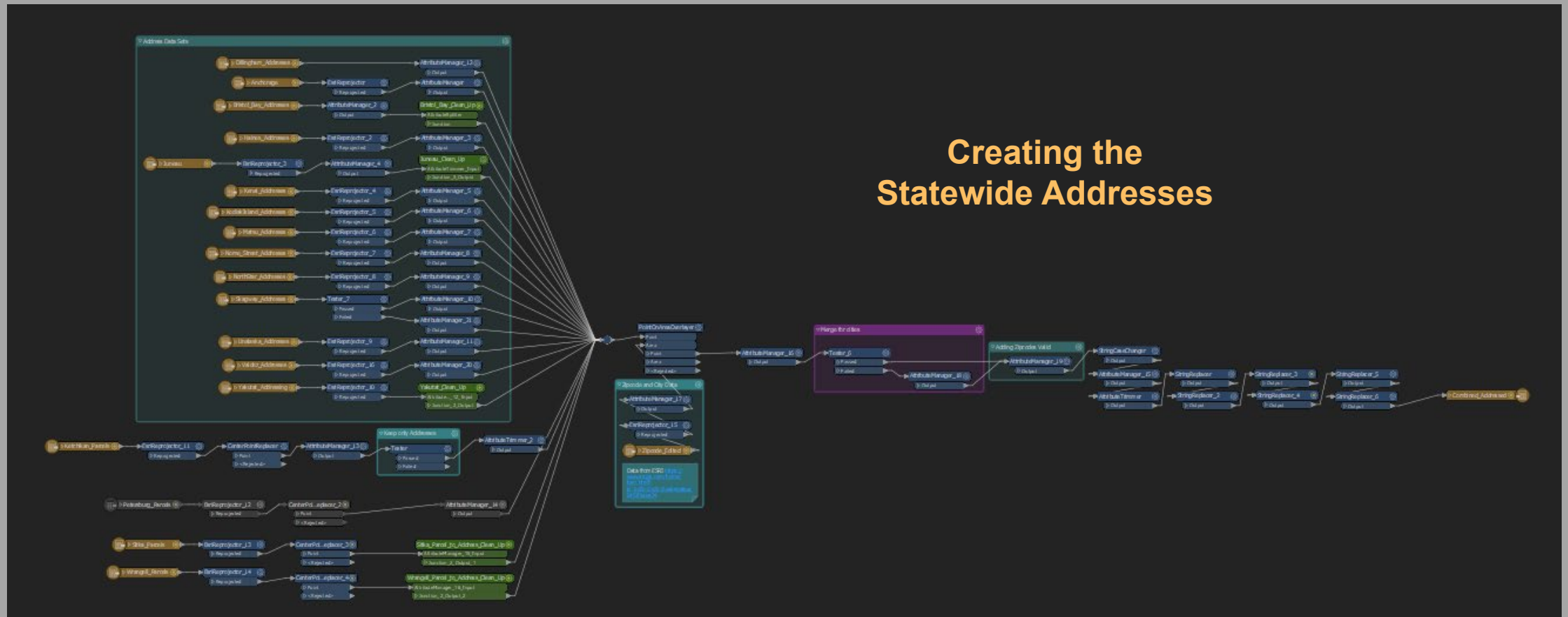
- Maine is the only other state with an unorganized Borough
- Maine has designated addressing authority to a branch of state government

Low Hanging Fruit First!

- **Step 1: Compile existing authoritative addresses**
- Sources:
 - Cities
 - Boroughs
 - Municipalities
 - Military Installations
 - State of Alaska Geoportal!



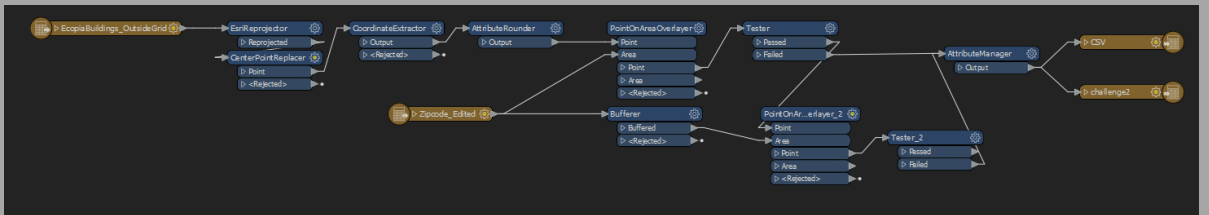
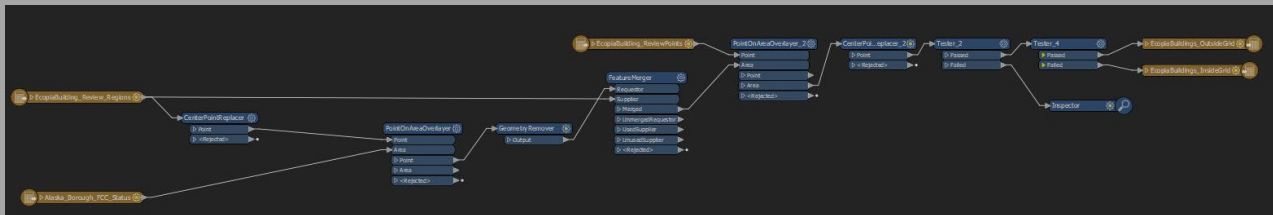
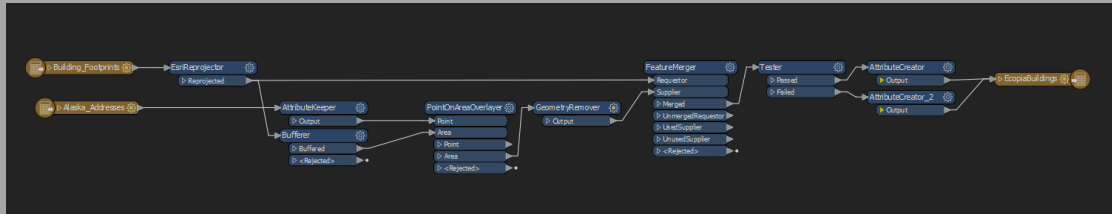
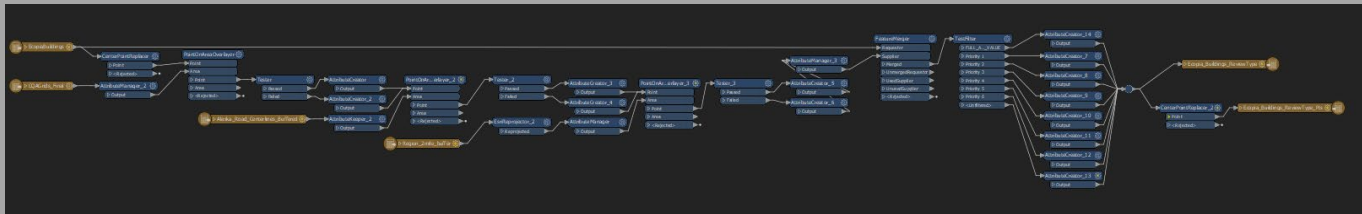
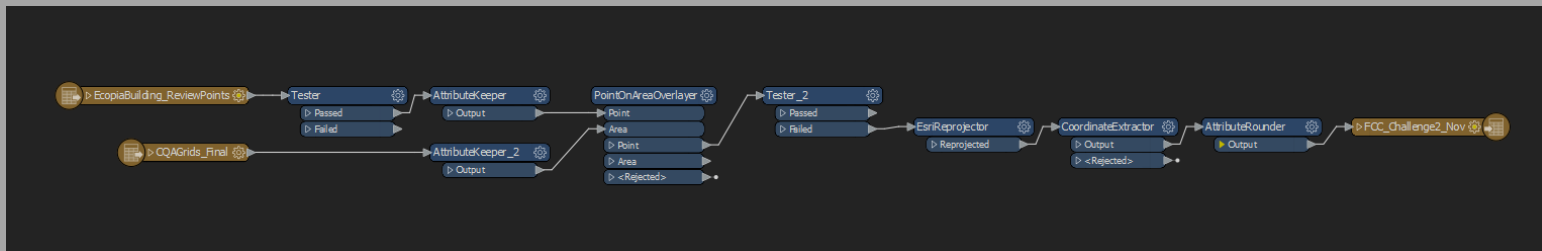
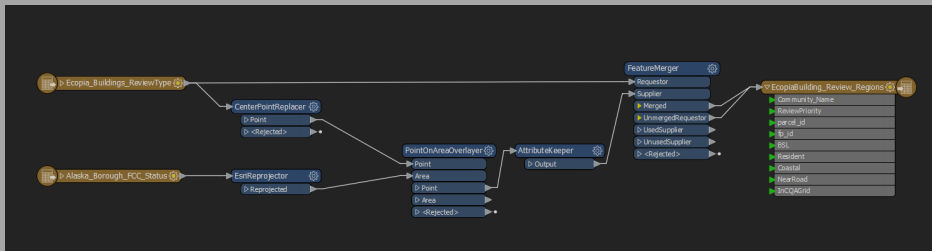
Glimpse of the FME Magic



Creating the
Statewide Addresses

Glimpse of the FME Magic

6 sequential scripts for reviewing and submitting buildings from Ecopia footprints



The Impossible made Possible by FME



- Repeatable
- Comprehensive Workflow Documentation
- Scripted for Automation
- Revise, Rerun, Repeat
- Reproject, Schema Crosswalk
- Tidy Packaging for Evidence to Support FCC Challenge

Challenge 1

4,026

Authoritative addresses OUTSIDE the CostQuest Grids

Challenge 2

24,568

Ecopia building footprints OUTSIDE the CostQuest Grids

Challenge 3

232,199

Authoritative addresses INSIDE the CostQuest Grids

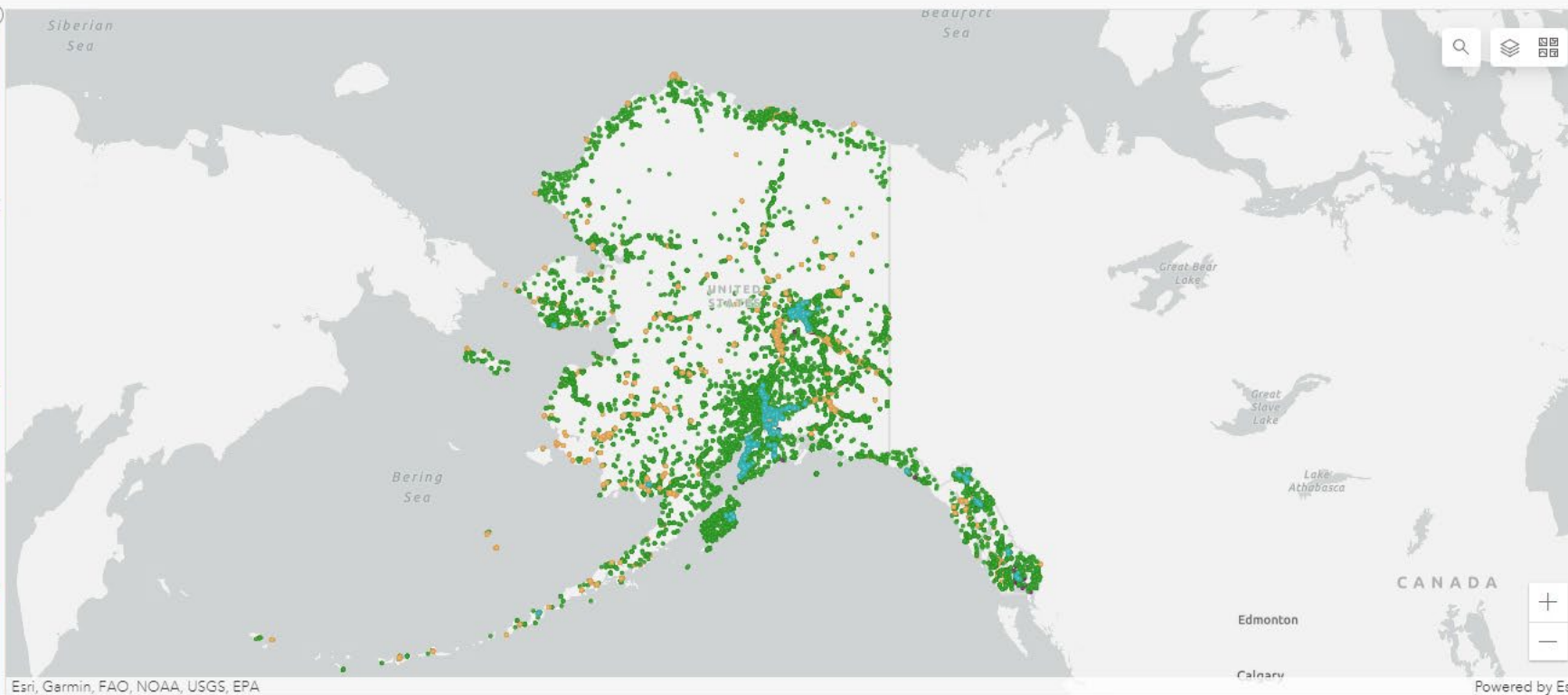
Challenge 4

107,448

Ecopia building footprints INSIDE the CostQuest Grids

Challenge 5

19



FCC BSL Challenge Points

Challenge

- 1
- 2
- 3
- 4
- 5

Total BSLs Submitted

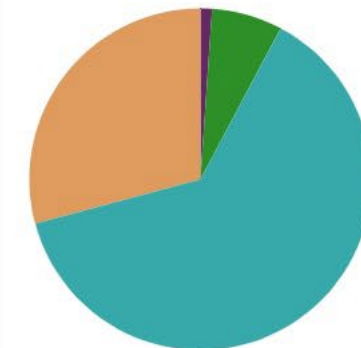
368,260

Addresses and Buildings

Total Units Submitted

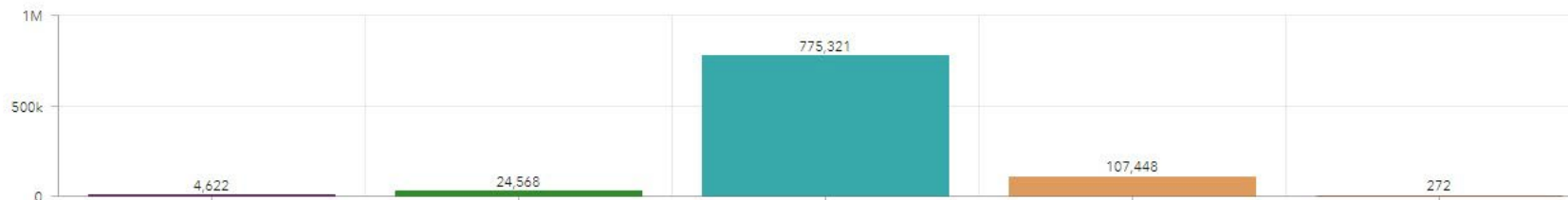
912,231

Points by Challenge



- Challenge 1 1.09%
- Challenge 2 6.67%
- Challenge 3 63.05%
- Challenge 4 29.18%
- Challenge 5 0.00%

Total Units Submitted By Challenge



Better Data = More BEAD Funding for AK!!!



Meet the Ecopia - Dewberry Team!



Sean Lowery



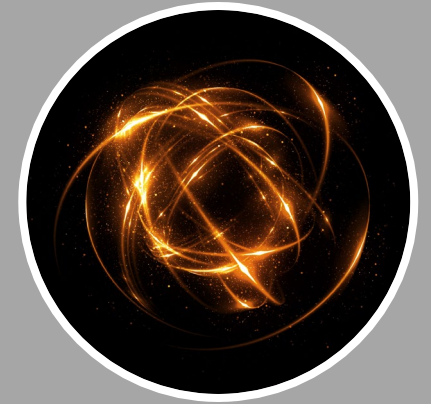
Karen Rogers



Hillary Palmer



Amber Chambers



Amber Chambers





Thank you

Hillary Palmer
Geospatial Project Manager for Dewberry Alaska

hpalmer@dewberry.com