

CGIA Community Forum: Overture Maps

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Host: Jane Schafer-Kramer (Outgoing CGIA Board Member)

Summary with help from Zoom AI

A community forum featuring three presenters who walked attendees through the what, the why, and the how of **Overture Maps** — an open, interoperable base map platform with real potential for California's GIS community. Will Mortenson (Overture Maps Foundation) laid the conceptual groundwork, Ryan Lopez (Fresno County) made it tangible with a live demo, and Steve Moore (Esri) showed how it's already baked into Living Atlas products.

KEY CONCEPTS

- **Overture Maps Foundation**
 - A non-profit under the Linux Foundation, founded in 2022 by Amazon/AWS, Meta, Microsoft, and TomTom — with ~50 members today and growing.
- **GERS (Global Entity Reference System)**
 - A unique ID system for every map feature — think of it as a "global passport" for geospatial entities. It enables interoperability across agencies and systems without forcing schema changes.
- **Three Core Deliverables**
 - Reference Map — a stable, consistent base layer for anchoring data
 - GERS IDs — unique identifiers for individual real-world features
 - Extensions — a way to layer rich, org-specific context without giving away proprietary data
- **GeoParquet**
 - A relatively new open file format (~3 years old) optimized for large geospatial datasets. Now supported natively in ArcGIS Pro and increasingly in ArcGIS Online via Parquet Feature Layers (currently in beta).

- **Parquet Feature Layers**

- A brand-new ArcGIS layer type created via Data Pipelines. Files sit on disk rather than in a cloud database — delivering blazing fast queries even for datasets with 2.5 billion features.

KEY POINTS

DEFINITIONS

- **Conflation Tax**

- The enormous cost (time, resources, budget) organizations spend reconciling disparate geospatial datasets instead of performing analysis. Overture aims to reduce this by providing a consistent, pre-conflated base map.

- **GERS ID (Global Entity Reference System Identifier)**

- A persistent, unique identifier assigned to each real-world feature in Overture Maps. It allows different systems and organizations to refer to the same entity (e.g., a building, road, or business) without requiring identical schemas or data structures.

- **GeoParquet**

- An open geospatial file format based on Apache Parquet, optimized for large-scale spatial datasets. It supports fast queries, efficient compression, and is increasingly supported across GIS platforms including ArcGIS Pro (natively since v3.5) and ArcGIS Online (via Parquet Feature Layers in beta).

- **Parquet Feature Layer**

- A new ArcGIS layer type (currently in beta) that stores data as optimized GeoParquet files on disk rather than in a cloud database. This enables extremely fast rendering and queries even for datasets with billions of features.

- **Data Pipelines**

- An Esri tool (similar to Model Builder) that allows users to string together inputs, processing tools, and outputs to ingest and transform large datasets

from remote repositories (S3, Azure, etc.) and publish them as ArcGIS layers — currently the only way to create Parquet Feature Layers.

- **Extensions (Overture Context)**

- A mechanism for organizations to layer rich, proprietary, or specialized data on top of the Overture basemap without contributing it directly to the open dataset. Extensions link to features via GERS IDs, allowing data sharing or service offerings without "giving away the farm."

- **Community Maps (Esri Program)**

- An Esri initiative where customers contribute authoritative local data (e.g., buildings, roads) to be included in Esri base maps. Contributors can opt to allow Esri to reshare that data with open projects like Overture and OpenStreetMap.

- **DuckDB**

- An in-process SQL database engine optimized for analytical queries. It's frequently used to query and extract data from large Parquet files (including Overture's S3 buckets) via SQL, often from within Python scripts.

EXAMPLES

- **Emergency Response Use Case (Fresno County)**

- During a small wildfire in the Sierra Nevada forest, Fresno County Sheriff's Office needed building footprints within a 3-mile radius to support evacuations. Ryan Lopez used Overture data (conflated from Microsoft and OpenStreetMap sources) to quickly pull the footprints, export them as GeoJSON, and deliver them to responders using CalTopo — no need to maintain local building data.

- **GERSifying Local Data (Fresno County Addresses)**

- Ryan used his "GERSify Your Data" tool to match Fresno County's regional address dataset with GERS IDs. The tool performed proximity searches and concatenated address ranges to find matches. The result: every Fresno County address now has a GERS ID for interoperability with state and national systems (e.g., Next Generation 911, National Address Database) — with zero schema changes required.

- **Esri Living Atlas Integration**
 - Esri created an **Open Base Map** (2D vector tiles) built 100% from Overture data, available in 11 map styles. Esri also offers 3D buildings, trees, and labels as scene layers derived entirely from Overture.
- **2.5 Billion Buildings in a Single Layer**
 - Steve Moore demoed a Parquet Feature Layer containing *all 2.5 billion* Overture building footprints worldwide. The layer rendered smoothly in a web map with fast pan/zoom performance thanks to multi-scale geometry and the optimized GeoParquet format.
- **Contributing Data Back to Overture (Esri Community Maps)**
 - Esri has contributed over **17 million building footprints** from 250+ Community Maps contributors (e.g., IGN Spain for all of Spain's buildings, City of Vancouver buildings via Esri Canada). Esri also contributed 3,500+ localized place name translations across 40 languages, with several thousand more planned.
- **No Extra Work for Smaller Agencies**
 - Fresno County didn't modify their data or workflow to get into Overture. Their address data was automatically ingested from their open data portal via Open Addresses, which Overture pulls from weekly. A forum attendee asked: *"My greatest concern is extra work for smaller agencies."* Ryan's response: *"We do nothing, absolutely nothing with our schema stuff. It's just day to day, and our data's getting picked up."*

RESOURCES & LINKS SHARED

- **Overture Maps Foundation**
 - Website: overturemaps.org
 - Documentation: docs.overturemaps.org
 - Data Explorer: explore.overturemaps.org
 - GitHub (for data issues): github.com/OvertureMaps/data
 - GERS ID Documentation: github.com/OvertureMaps/workshop/blob/main/4-gers.md

- Infrastructure Blog Post: [overturemaps.org/blog \(platform-agnostic infrastructure\)](https://overturemaps.org/blog/platform-agnostic-infrastructure)
- STAC Catalog: docs.overturemaps.org/blog/2026/02/11/stac/
- **Ryan Lopez (Fresno County)**
 - LinkedIn: linkedin.com/in/ryan-lopez-fresnocounty/
 - Email: rylopez@fresnocountyca.gov
 - ArcGIS Pro GeoParquet Add-in (GitHub): github.com/COF-RyLopez/ArcGISPro-GeoParquet-Addin
 - Add-in on ArcGIS Marketplace: cofgisonline.maps.arcgis.com (item page)
- **Steve Moore (Esri)**
 - Email: steven_moore@esri.com
 - Esri Blog: Parquet Feature Layers in ArcGIS Online: [esri.com/arcgis-blog \(Parquet layer announcement\)](https://esri.com/arcgis-blog/Parquet-layer-announcement)
- **Overture Maps Foundation Staff**
 - Will Mortenson (Executive Director): will@overturemaps.org
 - Dana: dana@overturemaps.org
 - General inquiries: info@overturemaps.org
- **CGIA (California Geographic Information Association)**
 - Website: CGIA.org
 - 2026 Awards Ceremony RSVP: cgia.org/2026/06/join-us-for-the-2026-cgia-awards-ceremony/
 - Membership: cgia.org/about-cgia/membership-options/

QUESTIONS & DISCUSSION HIGHLIGHTS

- **Infrastructure & Cloud Agnostic Approach**
 - Q: Is Overture running on a shared cloud platform, or is the infrastructure intentionally cloud-agnostic?

- A: Overture is intentionally cloud-agnostic. Dana shared a blog post detailing their platform-agnostic infrastructure approach.

- **Data Attribution**

- Q: Some attendees noted that their own data appeared in Overture with attribution stripped out.
- A: Jeff (Overture) clarified that Overture makes an effort to attribute all source data. Individual features have a source field, and there's a full attribution page in the documentation. Dana invited attendees with attribution concerns to reach out directly.

- **Value Proposition for Smaller Agencies**

- Q: Abe asked about extra work for smaller agencies and whether the value justifies the effort.
- A: Ryan and Jeff clarified that *no extra work is required*. Data is pulled automatically from open data portals (e.g., via Open Addresses for address data). Agencies don't need to modify schemas or manually submit data. The value: access to a global, interoperable base map and the ability to enrich local data with GERS IDs for cross-system integration.

- **Submitting Data Corrections**

- Q: Are there tools to submit data corrections from local governments?
- A: Currently, corrections can be submitted via GitHub (link: github.com/OvertureMaps/data). If the issue is in the source data, agencies should fix it on their end (e.g., their open data portal), and Overture will ingest the correction automatically in the next release cycle (often weekly for US addresses).

- **Schema Documentation & Road Classification**

- Q: The schema doesn't include descriptions for allowable values. In particular, the RoadClass field has odd allowable values that don't follow the FHWA roadway classification standard.
- A: Steve noted that the Overture schema is well-documented at docs.overturemaps.org/schema/. Some fields (especially in transportation) use linear referencing, which can be complex. Ryan mentioned that Overture is starting to integrate data with agencies like FHWA, so this may evolve.

- **Downloading Large Datasets (e.g., LA County)**
 - Q: Mark (representing LA County) asked about downloading large areas without complex coding.
 - A: Multiple options exist:
 - Ryan's ArcGIS Pro add-in (includes DuckDB under the hood)
 - Overture Python client (overturemaps.py)
 - DuckDB for SQL queries against S3 buckets
 - Esri Data Pipelines for creating Parquet Feature Layers
 - Jeff mentioned he regularly downloads the entire address theme (~31 GB) using DuckDB without issue.
- **Specialty Data Themes**
 - Q: Is Overture seeking specialty data themes beyond normal base map data?
 - A: Will clarified that Overture focuses on foundational base map themes. For specialty data, organizations should use GERS IDs to link their rich datasets to Overture's base map via extensions or bridge files — no need to add everything directly to Overture. Example: a user created human geography layers linked to Overture's division theme via GERS IDs.

ADDITIONAL NOTES

- The forum was recorded and will be posted on the CGIA YouTube channel. Open discussion (last 30 minutes) was *not* recorded per the agenda.
- Will Mortenson and the Overture team will be at **Esri User Conference** (Booth 233) next week in San Diego.
- Steve Moore will give a Demo Theater presentation on open data and Overture on **Thursday morning** at User Conference and will be at the Living Atlas / Base Maps & Open Data booth all week.
- CGIA's **Annual Awards Ceremony** is Monday, July 12, 2026 at 6 PM at Revel Revel in San Diego. All are welcome; RSVP on CGIA.org.
- Overture releases occur **monthly**; the July 2026 release was not yet available at the time of the forum (June release was the latest).

- Ryan's add-in supports ArcGIS Pro 3.5+ (backward compatible to 3.5); latest version (v0.7.0) is built for Pro 3.7 with .NET 10 SDK.
- Parquet Feature Layers are currently in **beta** in ArcGIS Online and the JavaScript API. Not all analysis tools are supported yet, but basic filtering and attribute queries work well.
- Esri's Open Base Map is created 100% from Overture data.
- Overture's mission is to reduce the "**conflation tax**" — the enormous cost (reportedly ~90% of resources) that organizations spend preparing and reconciling data rather than doing analysis.
- Overture is **not** asking agencies to replace their data. Local datasets remain the source of truth; GERS IDs simply create a durable bridge to larger systems.
- Fresno County did **zero extra work** to get their address data into Overture — it was pulled automatically from their open data portal via Open Addresses.
- Esri joined Overture as a general member in early 2023 and is contributing data back: **17M+ buildings** from Community Maps contributors, plus thousands of localized place name translations.
- Data corrections for Overture can be submitted via **GitHub**; source data fixes on open portals are picked up automatically in the next release cycle.
- Overture focuses on **six data themes**: places (76M POIs), buildings (~2.6B footprints), roads (~760M connectors & segments), addresses (~500M address points across 17 countries), administrative boundaries (countries, states, cities in 40+ languages), and base layers (land & water data for visualization).
- Ryan Lopez created an **ArcGIS Pro add-in** for frictionless Overture data access — it downloads data directly from S3 buckets and includes a "GERSify Your Data" tool to match local datasets with GERS IDs.
- Overture data is updated **monthly** following the foundation's release cadence; Esri base maps lag about one month behind each release.
- Multiple access methods exist: Ryan's add-in, Overture Python client (overturemaps.py), DuckDB for SQL queries, Esri Data Pipelines, and direct S3 access via AWS Athena.
- Smaller agencies benefit without extra effort — data is pulled automatically from open data portals; no schema changes required on the agency side.

- The value proposition: **democratized access** to high-quality global base data, interoperability across systems via GERS IDs, and the ability to enrich local data without vendor lock-in.