GIS for NextGen 911 in South Eastern Pennsylvania

Regional Centerline Project

Who is the Southeast PA Regional Taskforce

IT/Communications subgroup of the Southeastern Regional Counterterrorism Taskforce.

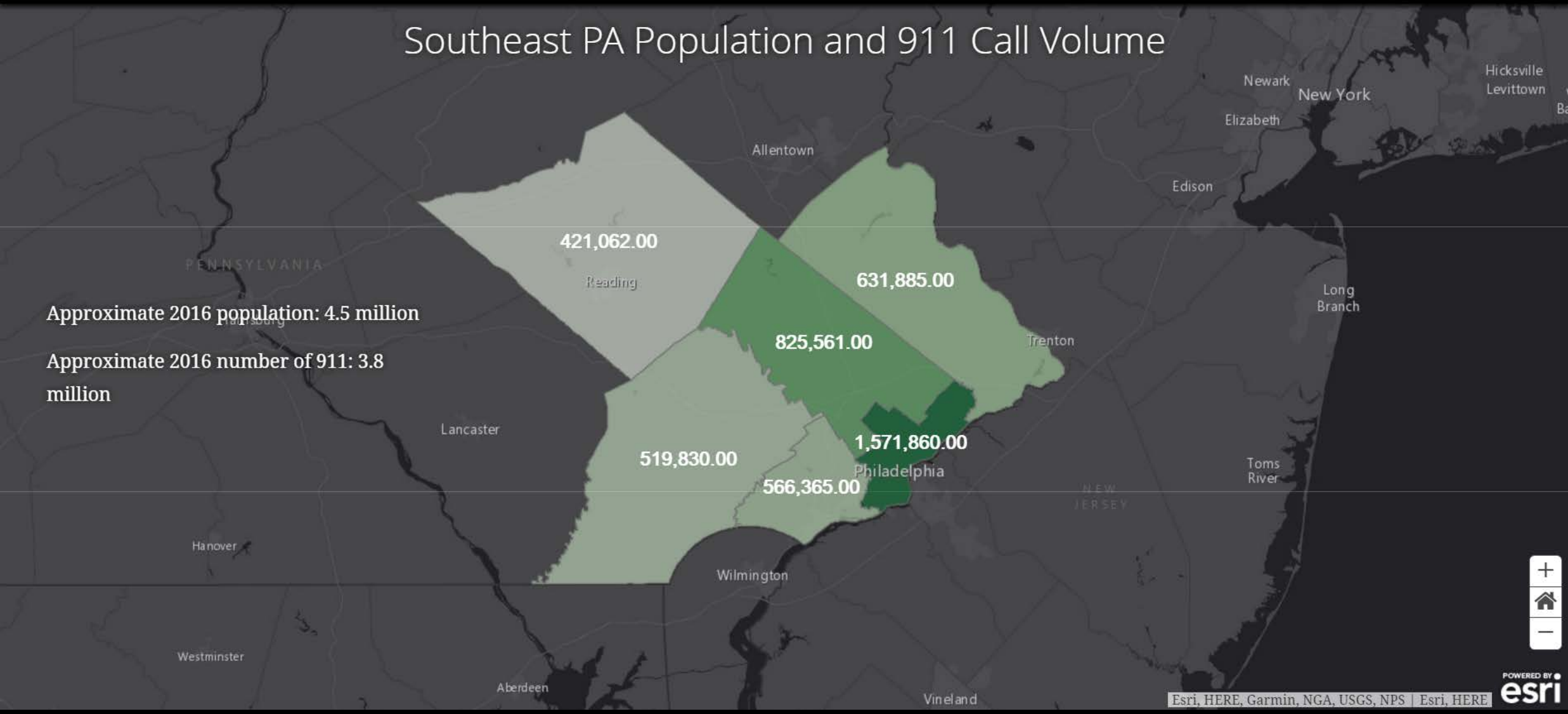
Group consists of 911 center directors and GIS staff from the member counties.

The goal of this group is to prepare the region for the move to NG911 and promote inter-county cooperation and collaboration.

GIS for NextGen 911 in South Eastern Pennsylvania

Who is the Southeast | SEPA Call Volume | Initial Concerns | Decision Points | Edit × | NextGen 911 Story

Southeast PA Population and 911 Call Volume



Approximate 2016 population: 4.5 million

Approximate 2016 number of 911: 3.8 million

Initial Concerns

The GIS sub group was tasked with getting E911 dispatch dependent GIS data ready for use in the NG911 system.

Multiple CAD systems in use in the region.

Datasets involved: Address points, Road centerlines, ESZ's, PSAP boundaries

Decision points for the group

What data model will be used?

What county boundary layers will be referenced?

What will the edge matching process look like?

How often will the data be updated initially?

What is the best maintenance process to ensure that effort isn't wasted?

How will the varying levels of county GIS data completeness be handled?

Where will the data/software/hardware/process live?

Known Issues between E911 and NG911 GIS Data

Missing or Incomplete Attributes/Fields due to those items NOT being REQUIRED within an E911 system

Feature Overlap/Gap/Duplication within and between jurisdictions

MSAG /Centerline Discrepancies

ALI/Telephone Number Listing and Address Point Discrepancies

Address points on parcel centroids vs. building footprints vs. entrances/exits

The group agreed to take the following approach

Use the (draft) NENA data model for the center lines.

To use the PennDOT county boundary layer.

To work with their neighbors to determine center line snapping points on county boundaries.

Cloud based, central repository was the best solution for sharing and processing the data so that no one organization had to be responsible for providing access to the entire group.

ArcGIS Online

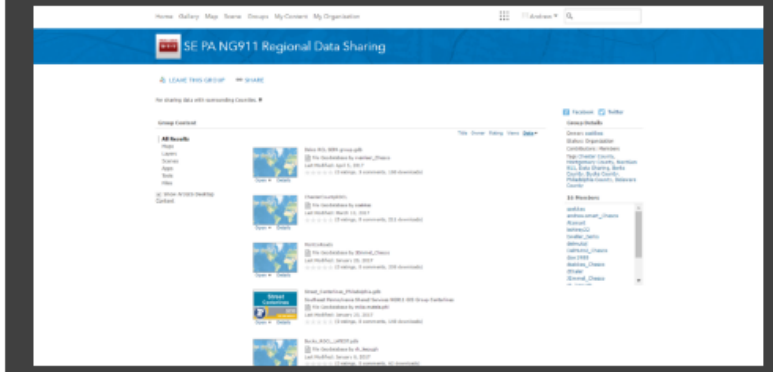
amazon web services

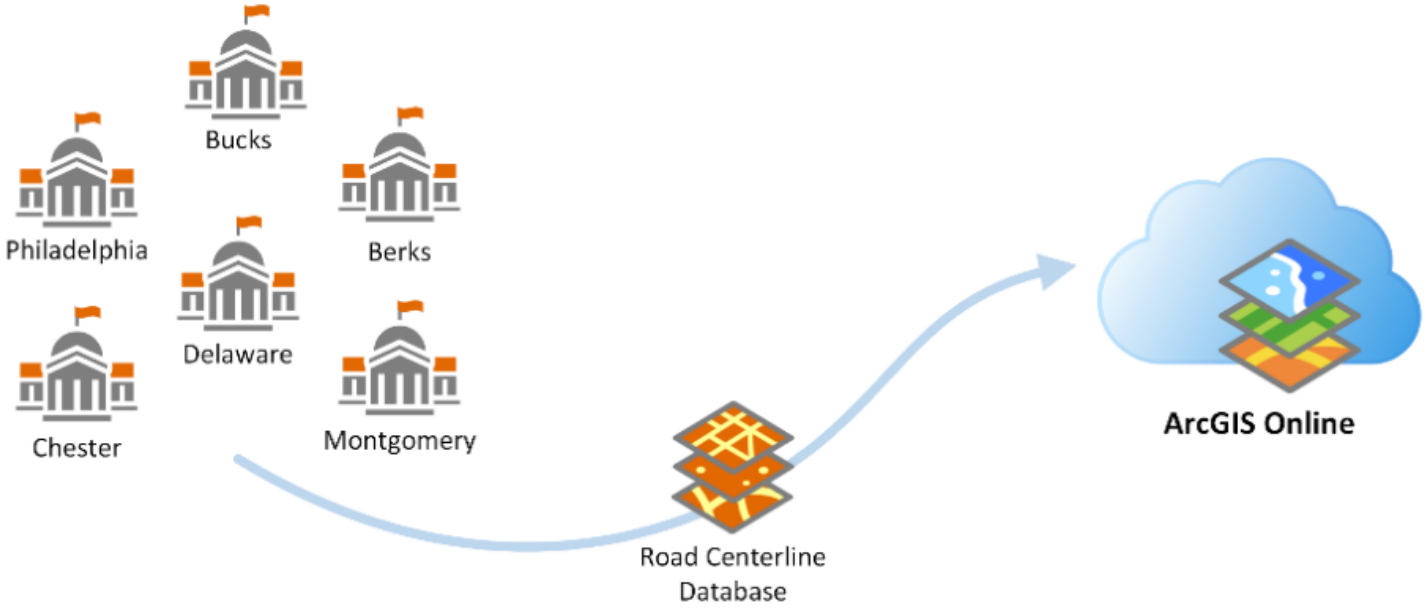
Enlist the help of a GIS vendor for the set up of the AWS and the ETL process. We partnered with geographIT, a division of EBA Engineering to help with this effort. geographIT has a long history working with many of the partners on this project.

geographIT™

a division of EBA ENGINEERING

Each participating County uploads road center line database to ArcGIS Online Group that all participants have access to





Amazon EC2 instance wakes up according to schedule each month

Downloads update from AGOL and completes analysis process

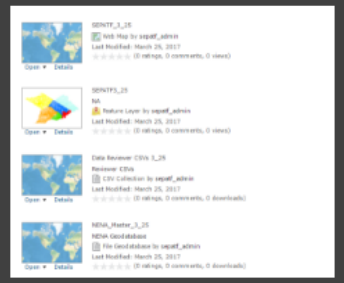
Converts data to NENA model creating regional road center line

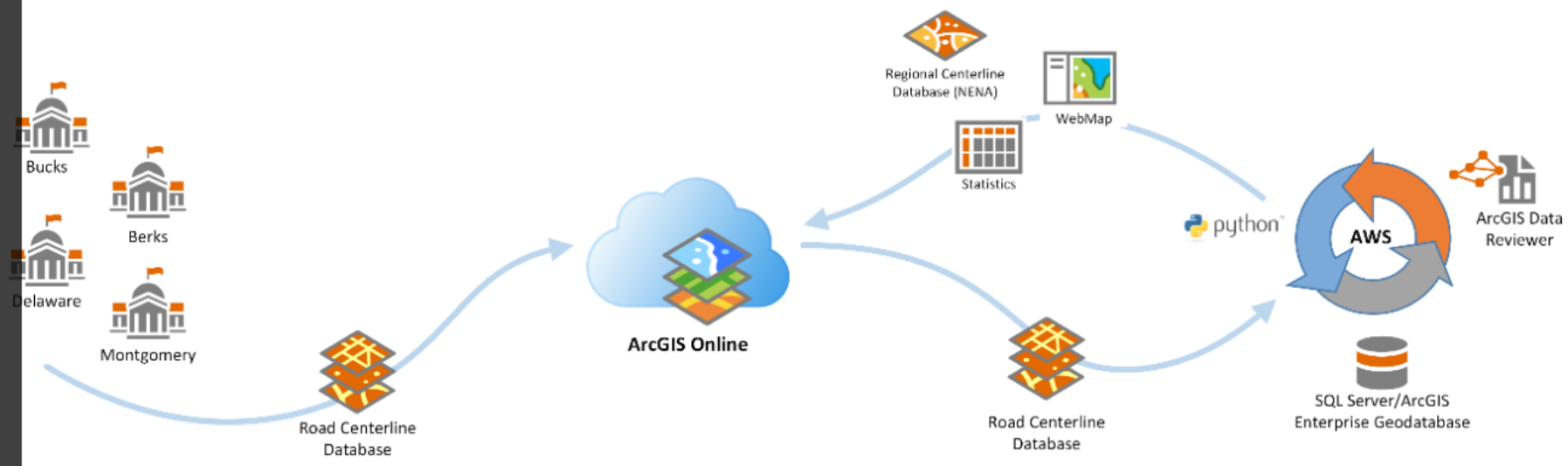
Performs quality checks using ArcGIS DataReviewer

Results are uploaded to AGOL with full regional database

Webmap showing results

Statistics about what errors were found and how many





Notifications are sent back to each participant with details on the process that was run, where results can be found and diagnostic information about the analysis run

3_11 SEPATF Road Centerline Analysis

Hello Friend,

The road centerline analysis started at 3/11/2017 10:16 AM and finished at 3/11/2017 11:19 AM. Below is a summary of the results. The full results have been uploaded to ArcGIS Online. The updated Web Map and associated data is available within the SEPATF NENA Road Centerline Group

Analysis Summary:

Berks County

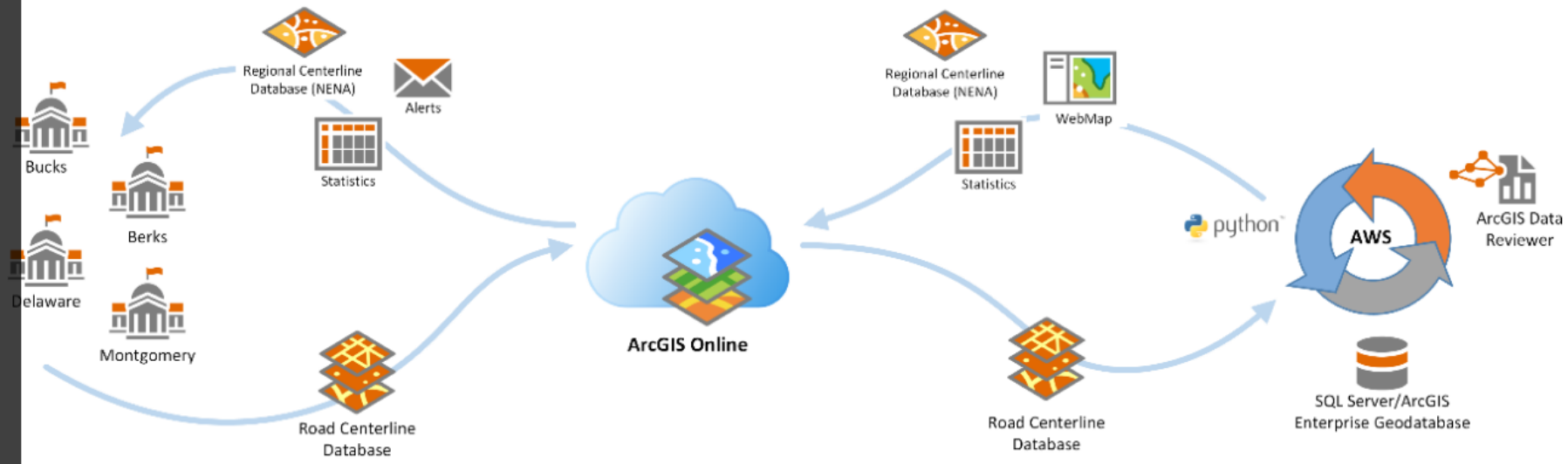
- Downloaded: No Update
- Schema Check: Pass
- NENA Conversion(ETL): Pass

Bucks County

- Downloaded: No Update
- Schema Check: Pass
- NENA Conversion(ETL): Pass

Chester County

- Downloaded: Pass
- Schema Check: Pass
- NENA Conversion(ETL): Pass



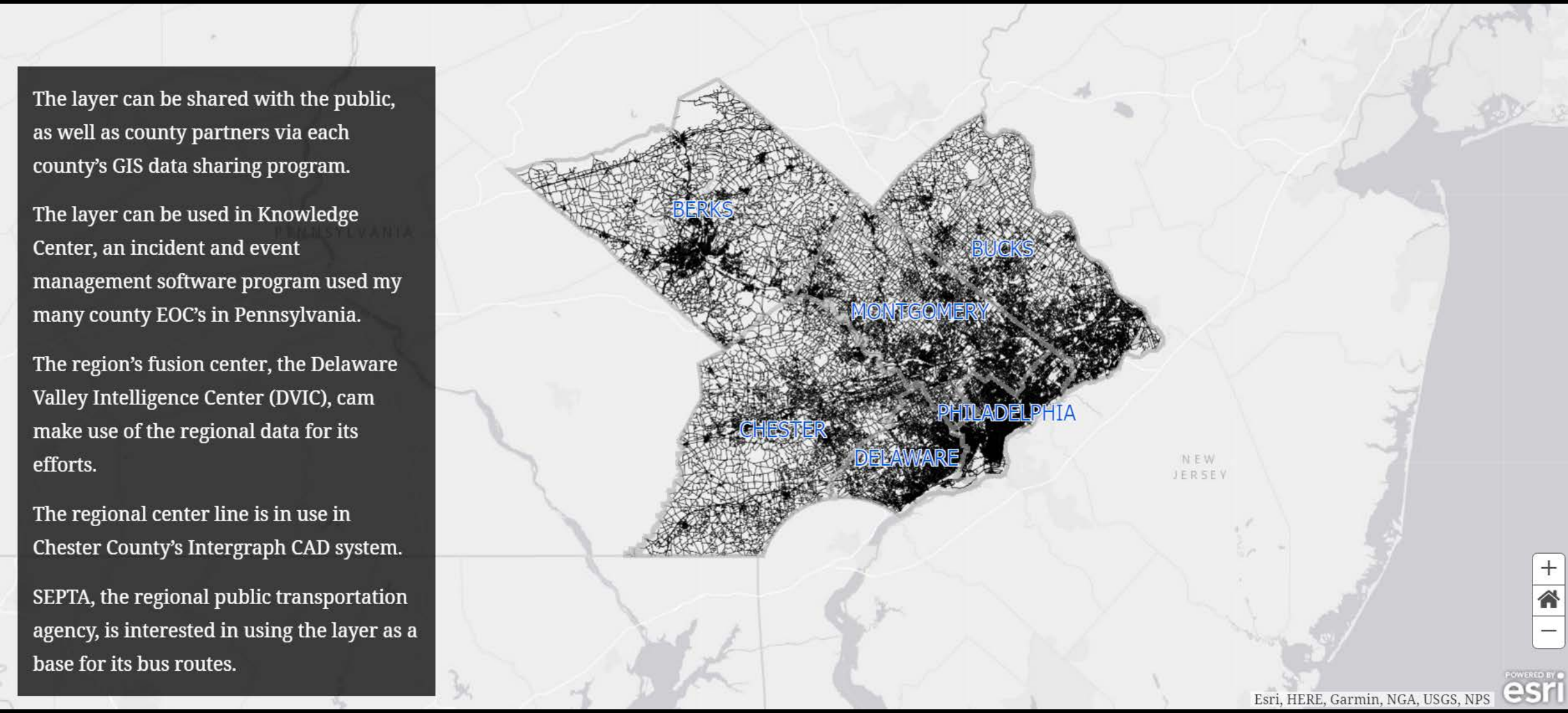
The layer can be shared with the public, as well as county partners via each county's GIS data sharing program.

The layer can be used in Knowledge Center, an incident and event management software program used my many county EOC's in Pennsylvania.

The region's fusion center, the Delaware Valley Intelligence Center (DVIC), cam make use of the regional data for its efforts.

The regional center line is in use in Chester County's Intergraph CAD system.

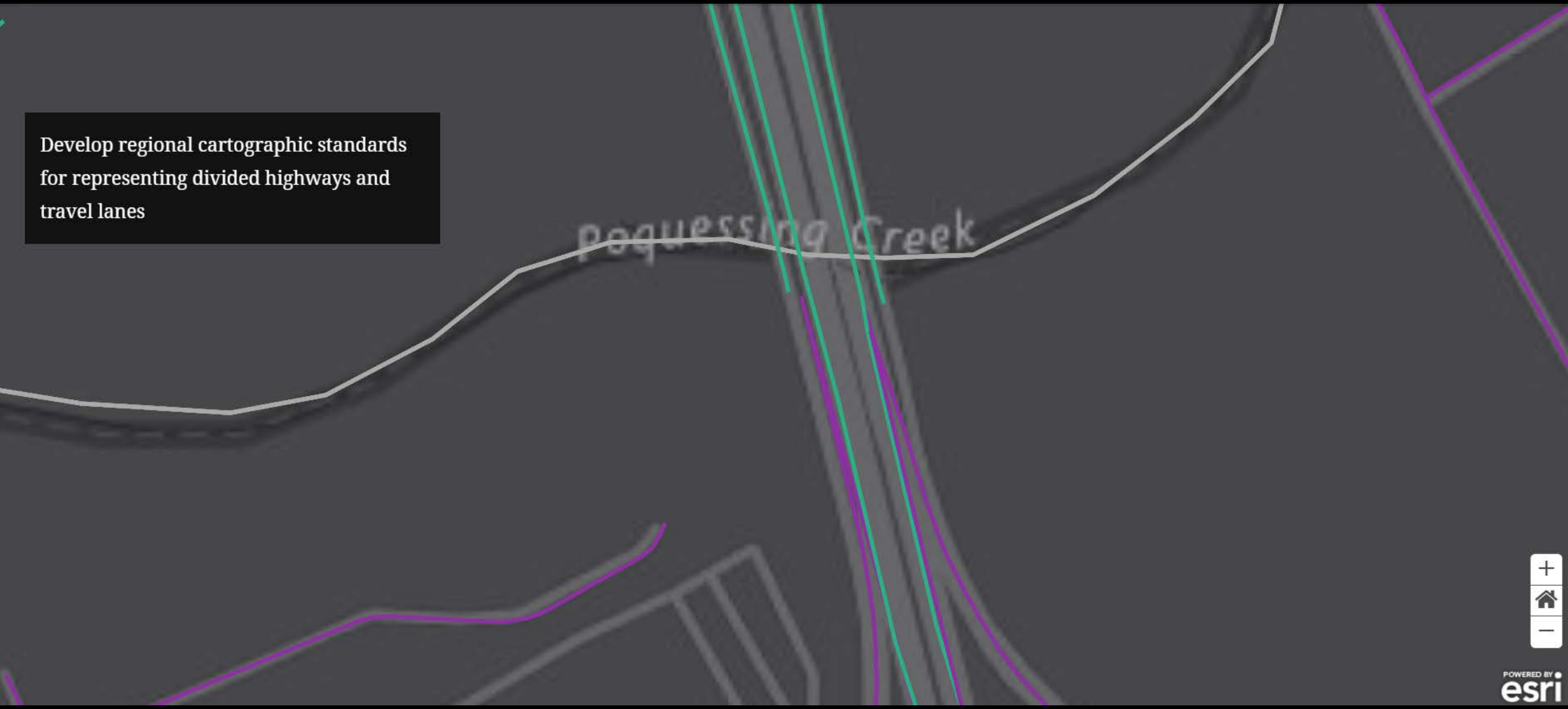
SEPTA, the regional public transportation agency, is interested in using the layer as a base for its bus routes.



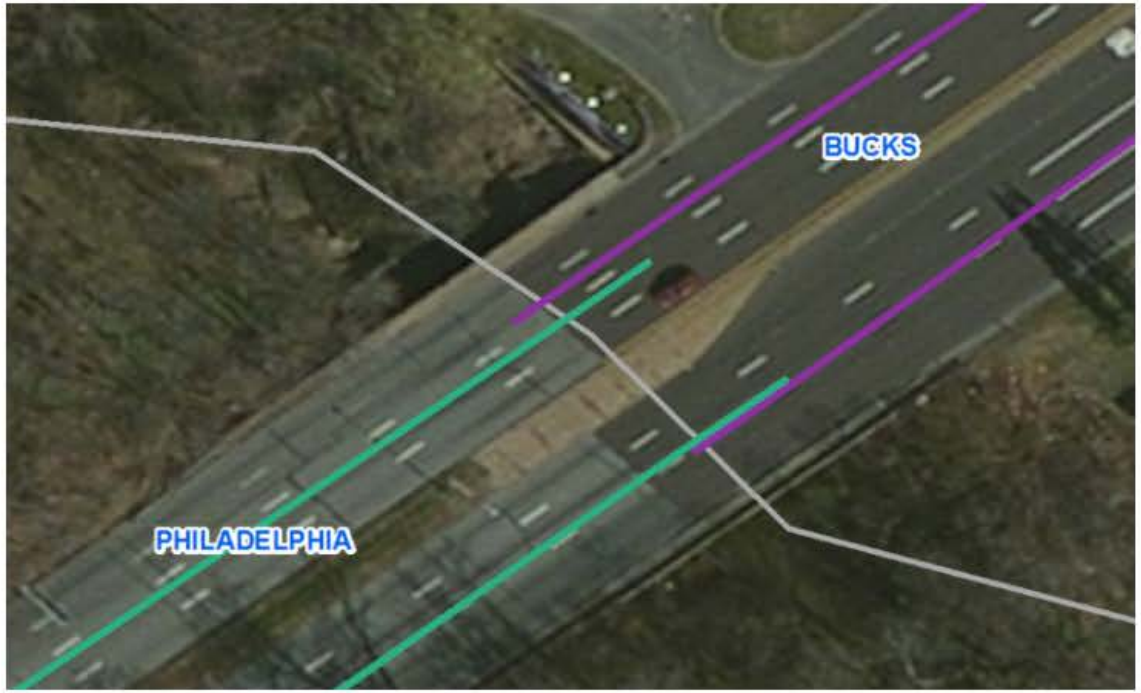
Each partner reviews their authoritative data along with errors that were found, edits the corrections as part of their normal editing workflow, and resubmits the data for the next iterative batch process

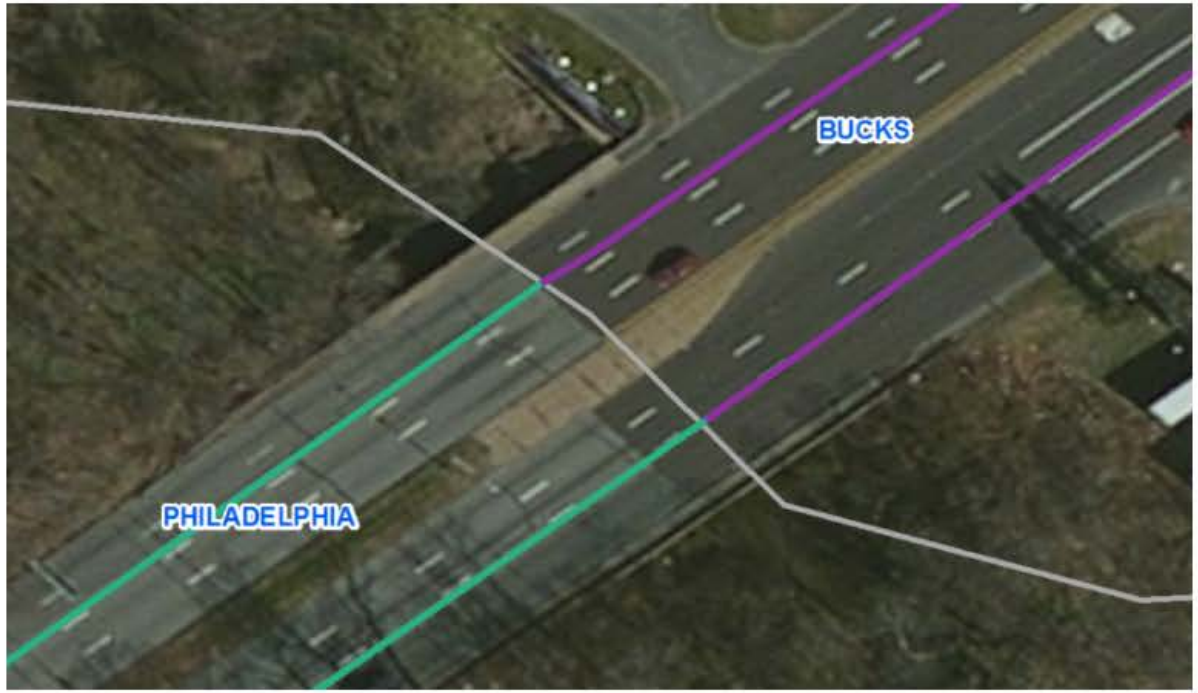
Work together to address attribute consistency such as road name differences

Develop regional cartographic standards for representing divided highways and travel lanes



Each bordering partner work together to edge match center lines creating a seamless road centerline network progressively over each run of the process.





First monthly analysis on left followed by a later analysis

Incorporate address point data in various states and formats from each partner with same concept.

Center of building, driveway, entrance?

Compare ALI data to county GIS address data

Regional Pictometry flight completed in the Spring of 2017

Project Participants

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