

# Creating and Evaluating a Collaborative Web Mapping Platform

Alexandria Shreffler

*Pennsylvania State University  
MGIS Capstone Project Proposal, Summer 2020*



**Alexandria Shreffler**

*Geospatial Analyst, Venango County Planning  
Quality Associate, Allegheny Inspections*

Vision

Background & Research

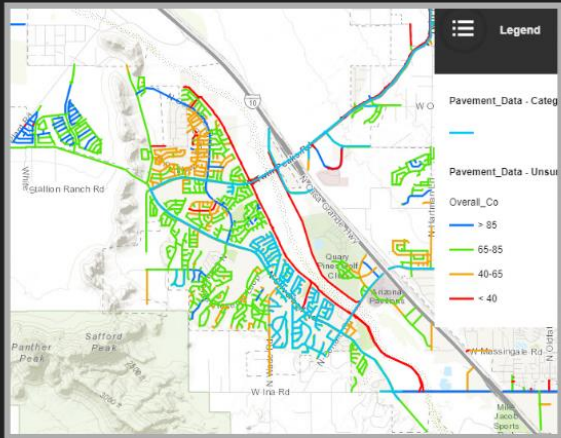
Project Goals

Prototype Specifications

Outcomes

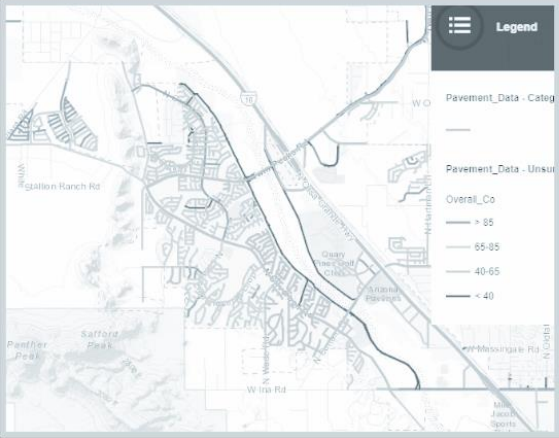
Timeline

"Where have we been?"



# Collaborative Mapping

"Where have we been?"



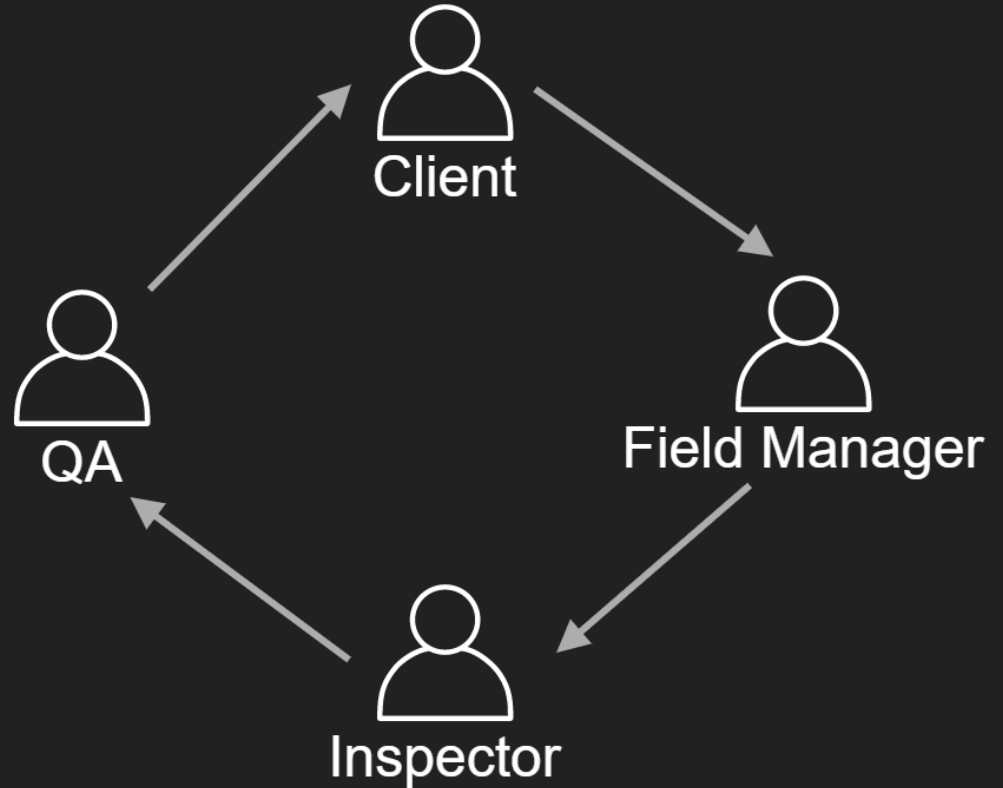
"Where should we go?"





1. Mitigate risk
2. Identify hazards
3. Reduce loss

## Business Model





1. Targeted recruitment
2. Case assignment
3. Queue mapping
4. Property reporting
5. Visual context

## User Roles



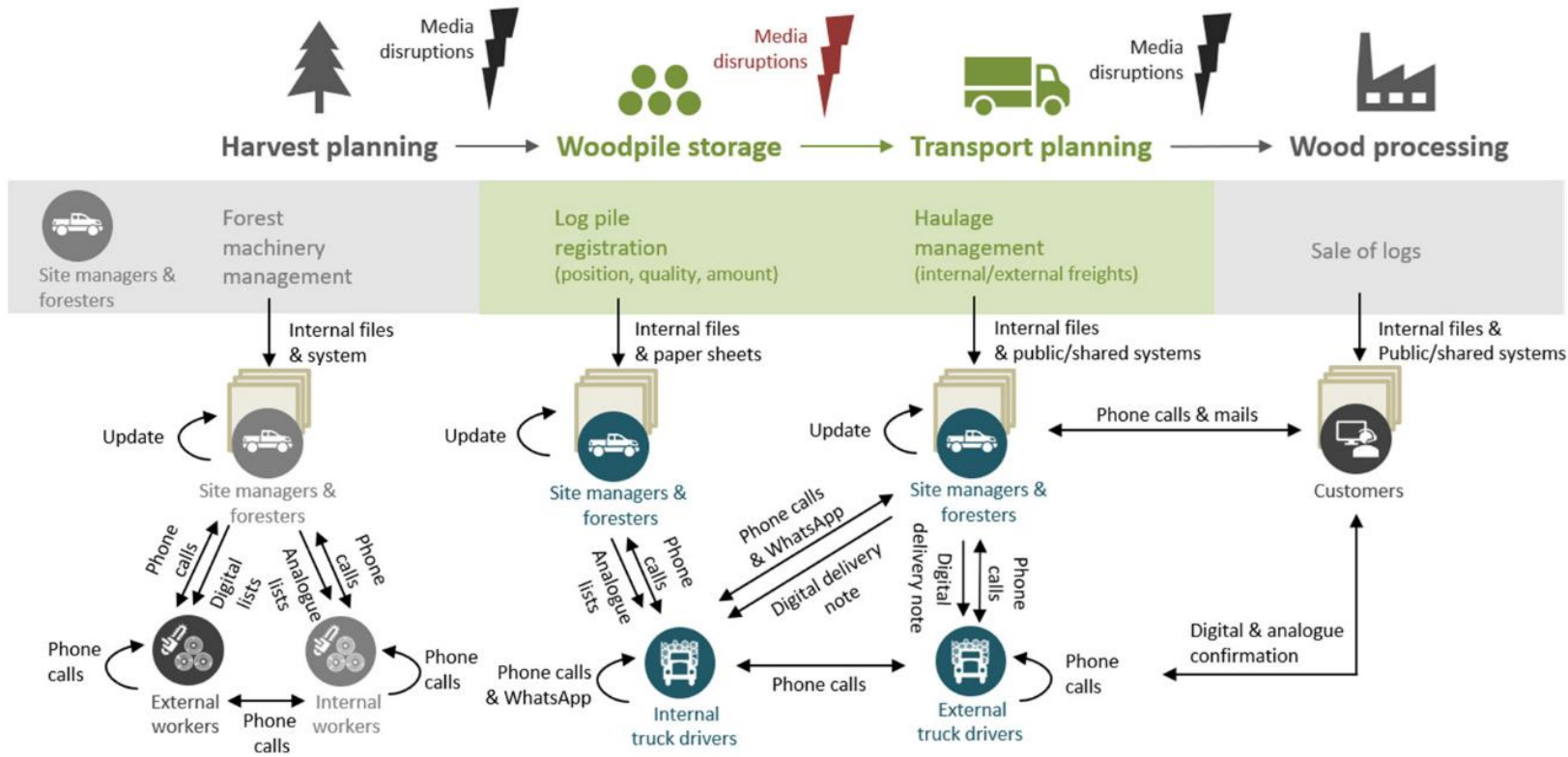
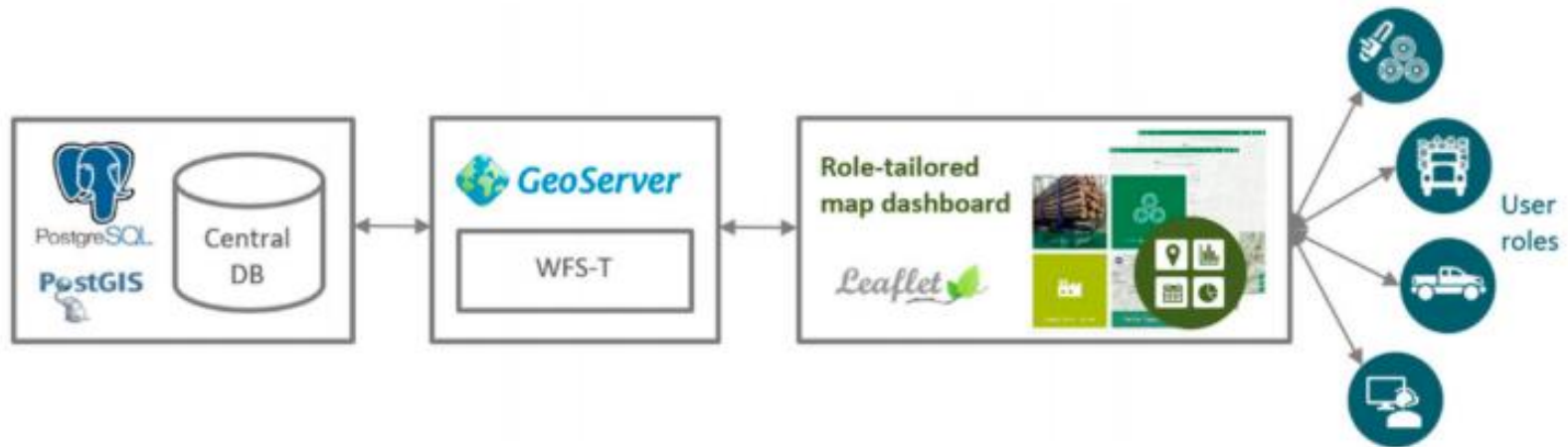


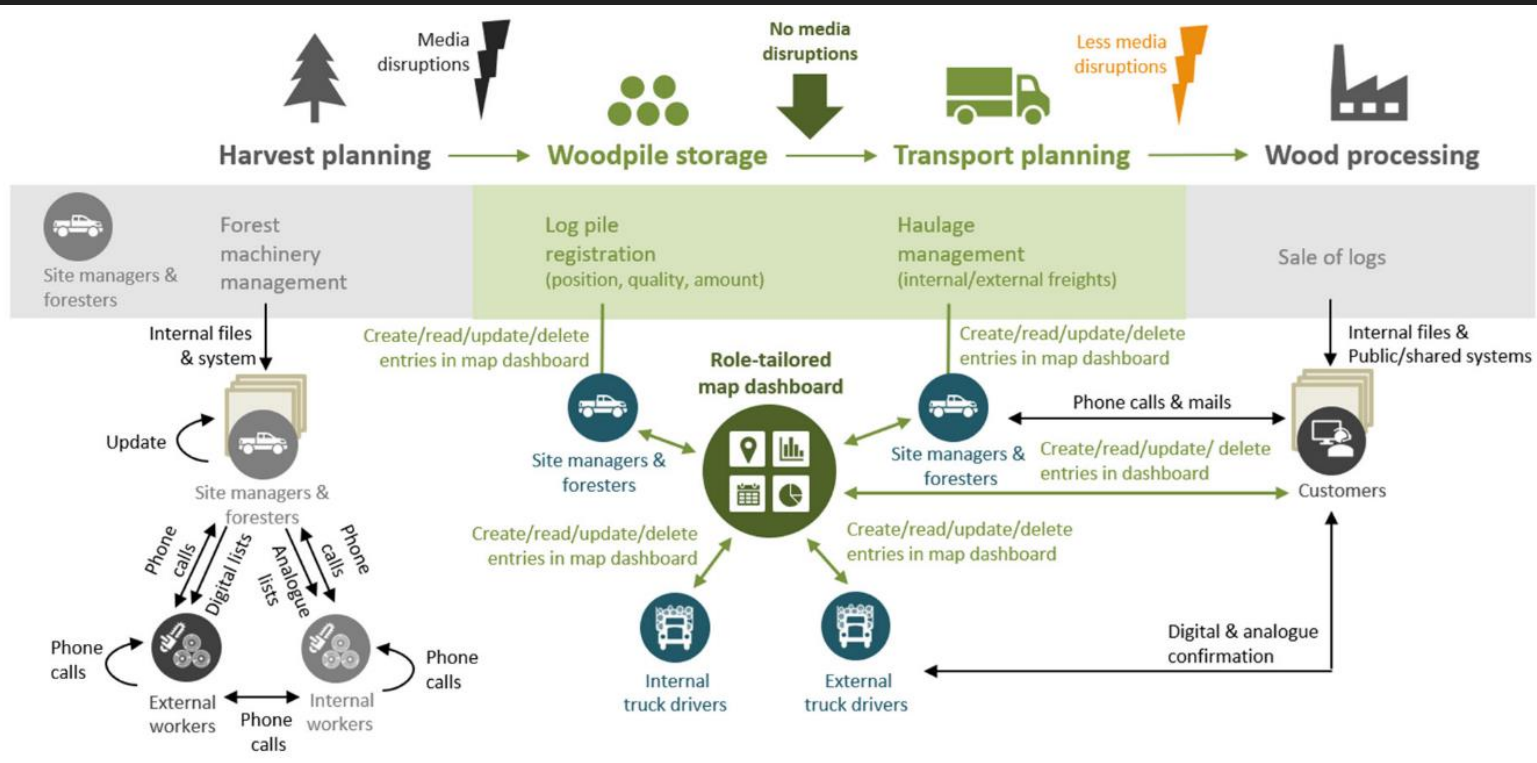
Figure 11. Media disruptions within the FbSC processes showing the actual state (now).



**Figure 1.** Technical open-source workflow for creating a role-tailored map dashboard.

*(Aztl et. al, 2019)*





**Figure 12.** Reduction of media disruptions within the FbSC processes by using the role-tailored map dashboard prototype (then).

"The idea is to put the *users* and their *roles* as well as their daily working *tasks* in the *foreground* and to build the map dashboard *around* them."

- Atzl et. al (2019)

# “GIS: Integrating Our World”

“... explores how geospatial technology can *integrate* everything and *engage* everyone to overcome unprecedented *global challenges...*”

- Esri User Conference 2020



- Geospatial Content Management System (GeoCMS)
- Open Source Geospatial Foundation (OSGeo) project
- Platform for deploying spatial database infrastructures (SDI)
- User profiles “facilitate the use, management, and quality control of the data”
- Disaster risk management

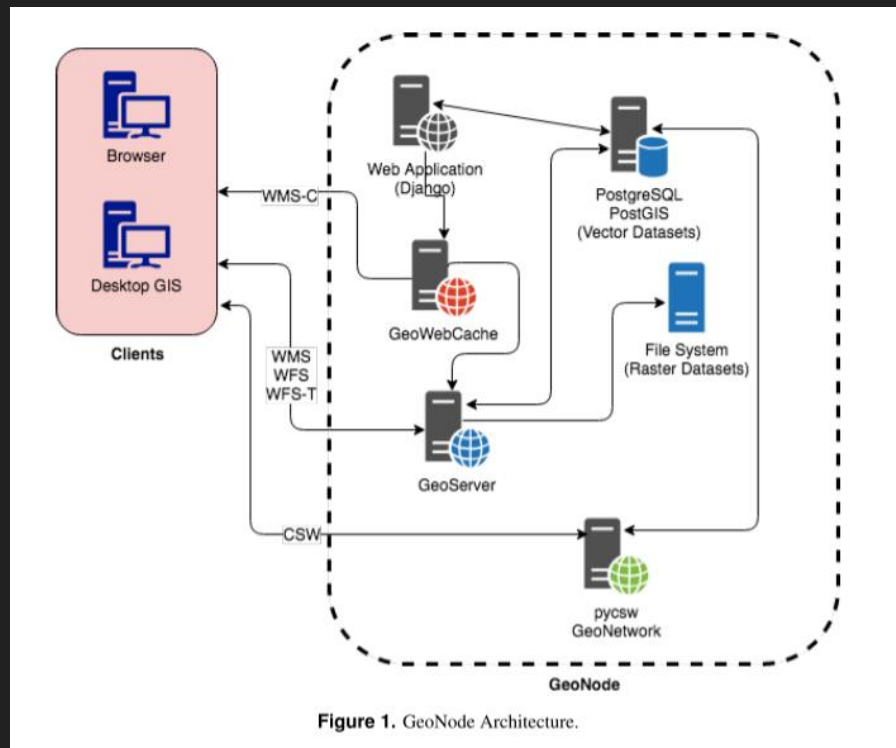
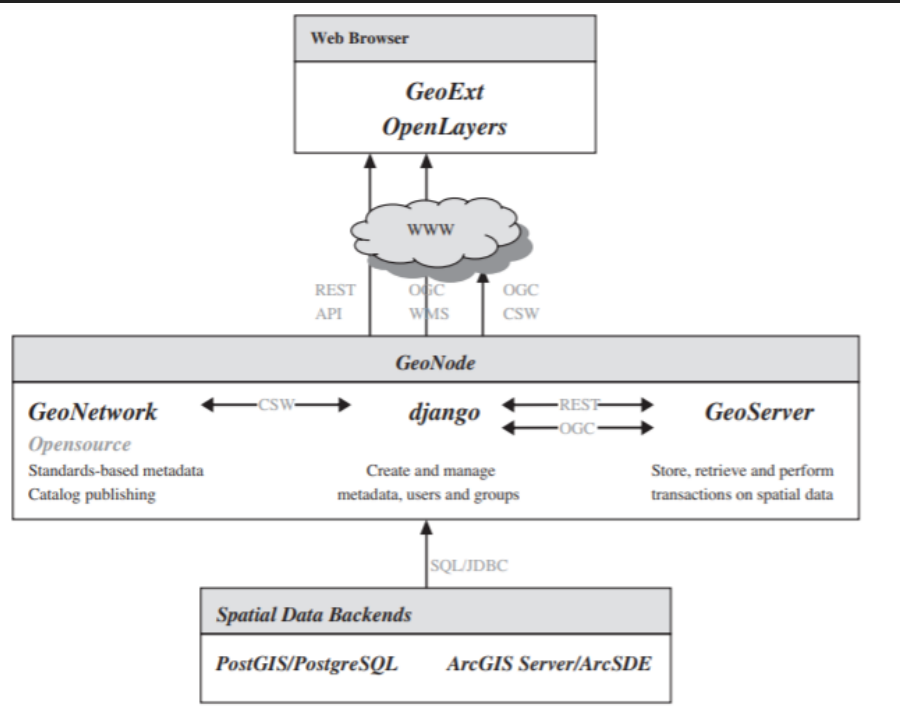


Figure 1. GeoNode Architecture.

# Demo



Data ▾

Maps

About ▾

Register

Sign in

# Welcome

GeoNode is an open source platform for sharing geospatial data and maps.

[Get Started »](#)

## Search for Data.



[Advanced Search](#)

# InnovationLab

We maintain a curation of hazard datasets



## EARTHQUAKE

89 datasets



## COASTAL FLOOD

14 datasets



## WILDFIRE

2 datasets



## STRONG WIND

21 datasets



## EXTREME HEAT

3 datasets

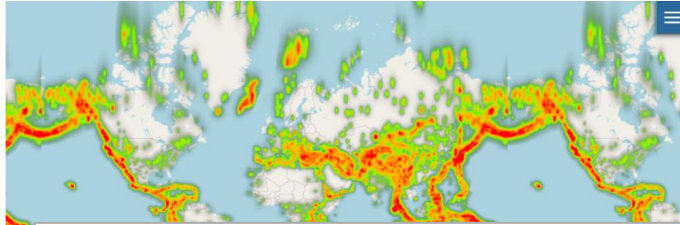
DE

1

No datasets

No datasets

## Seismic



Download Map

Metadata Detail

View Map

### Map Layers

This map uses the following layers:

EQ-GLOBAL-GAR17-175

Filter layers

Default

EQ-GLOBAL-GAR17...

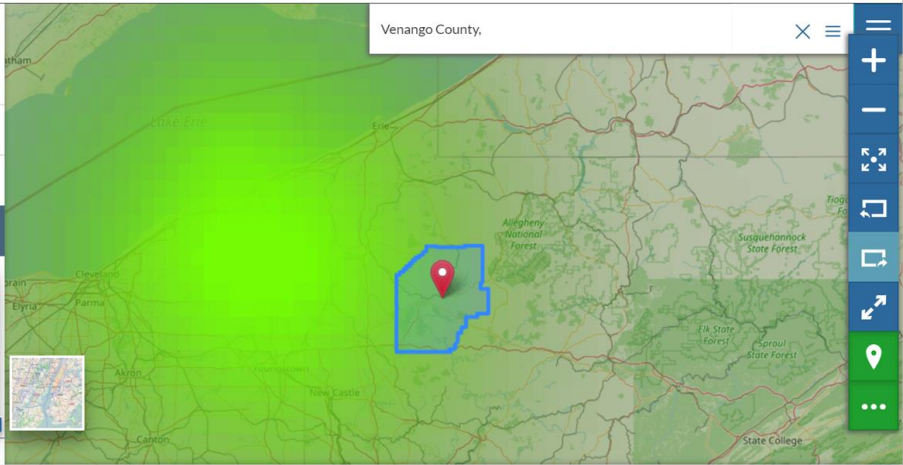
50

100

200

300

100%



Venango County,

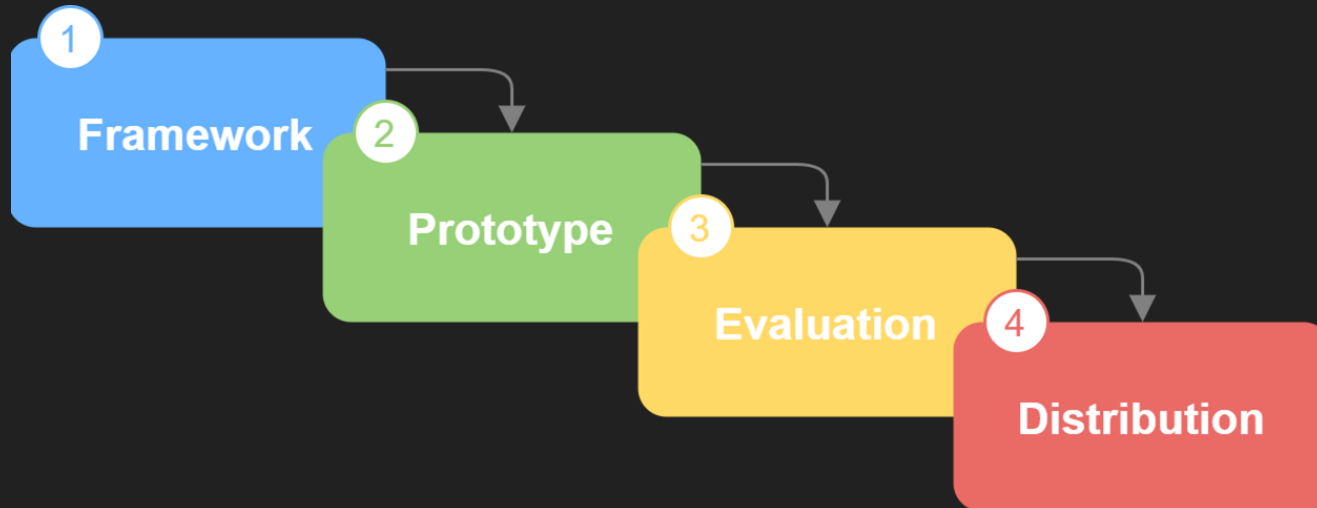
Scale: 1:2311167

No datasets

No datasets

# Project Goals

- Open-source **Framework** development supporting role-tailored functionality
- **Prototype** development in GeoNode, testing, and evaluation
- **Evaluation** of GeoNode as a platform for providing collaborative functionality
- **Distribution** of prototype for use in the GIS community and beyond





# Prototype

## System Specifications



HR Admin

Recruitment



GIS Admin

All-Access



QA

Queue



Universal

Notes

Documents



Inspector

Queue



Field Manager

Assignment



Client

Orders



Public



Username

Password

Remember me next time.

Login

### Mapping Screens

- Layer 1
- Layer 2
- Layer 3

- Simple
- Imagery

Search



User Role

Table Overview for the Layer



### Mapping Screens

- Layer 1
- Layer 2
- Layer 3

- Simple
- Imagery

Search



Documentation

### Layer Documents

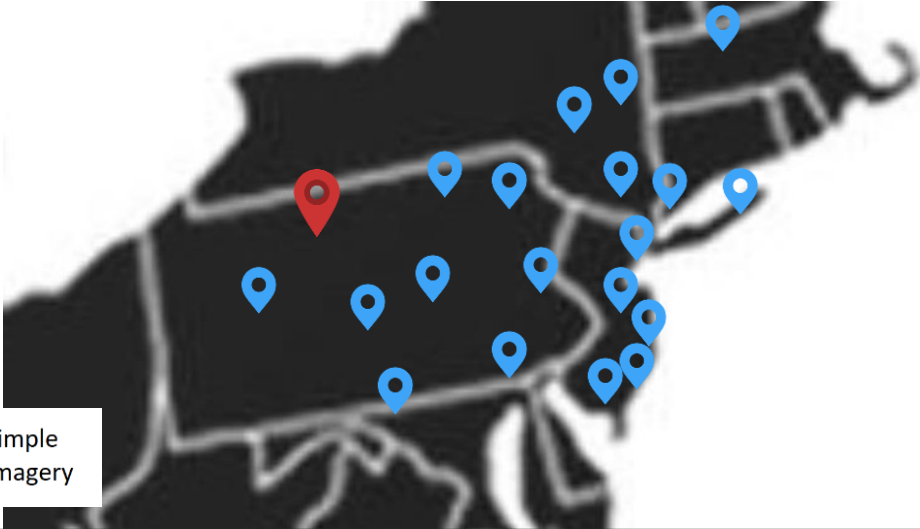
- DocumentName.ext - User (Role) | Date
- DocumentName.ext - User (Role) | Date
- DocumentName.ext - User (Role) | Date



Upload a File...

Submit

Search



- Simple
- Imagery

Photo



### Case Information

Case Number  
 Client  
 Date Ordered  
 Due Date  
 Vendor Pay



Documentation

### Case Documents

- DocumentName.ext - User (Role) | Date
- DocumentName.ext - User (Role) | Date
- DocumentName.ext - User (Role) | Date



Upload a File...

Submit

Search



- Simple
- Imagery

Photo

### Case Information

Case Number  
 Client  
 Date Ordered  
 Due Date  
 Vendor Pay



Communication

### Case Notes

User (Role): "Information regarding the status of a case."

User (Role): "Awaiting review by <user>."

Type here to add a case note...

Submit

Search



- Simple
- Imagery

Photo



### Case Information

Case Number  
 Client  
 Date Ordered  
 Due Date  
 Vendor Pay



## Assignment

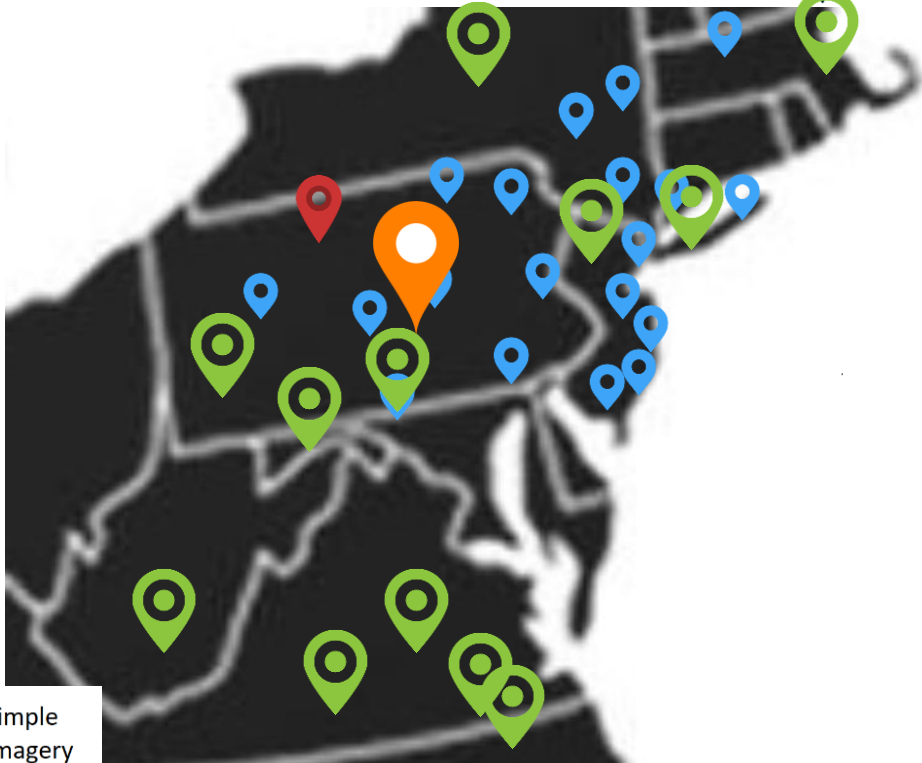
### (Nearby) Inspectors

<input type="checkbox"/>	Inspector 1	Pay	Current / Max Cases	Score
<input type="checkbox"/>	Inspector 2	Pay	Current / Max Cases	Score
<input type="checkbox"/>	Inspector 3	Pay	Current / Max Cases	Score
<input type="checkbox"/>	Inspector 4	Pay	Current / Max Cases	Score

Submit



Search



- Simple
- Imagery

Photo



### Case Information

Case Number  
 Client  
 Date Ordered  
 Due Date  
 Vendor Pay



## Assignment

### (Nearby) Inspectors

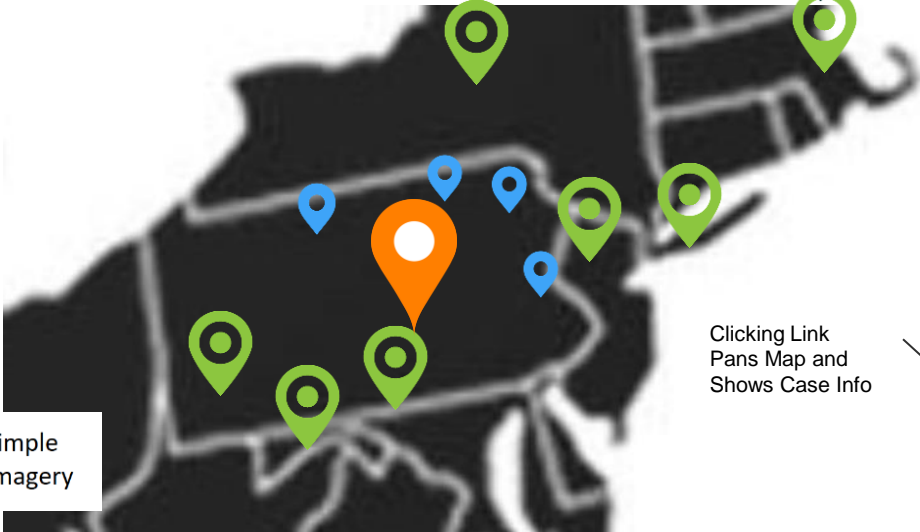
<input checked="" type="checkbox"/>	Inspector 1	Pay	Current / Max Cases	Score
<input type="checkbox"/>	Inspector 2	Pay	Current / Max Cases	Score
<input type="checkbox"/>	Inspector 3	Pay	Current / Max Cases	Score
<input type="checkbox"/>	Inspector 4	Pay	Current / Max Cases	Score

Submit

Search



Allegheny INSPECTIONS, LLC



- Simple
- Imagery

Clicking Link Pans Map and Shows Case Info

Photo

### Inspector

City  
 Vendor Pay  
 Max Case Allowance  
 Current Assignments  
 Territory Count

### Case Queue

<u>Number</u>		Due Date		Status
<u>Number</u>		Due Date		Status
<u>Number</u>		Due Date		Status
<u>Number</u>		Due Date		Status

Queue View

Table Overview for the Layer (Selection Highlighted)



Name, Title



Department



Tasks

## Evaluation

### ✓ Rating of Key Design Elements

✓ Color Scheme

✓ Map Appearance

✓ Icon Designs

✓ Symbol Size

✓ Panel Arrangement

✓ Header, Fonts

### ✓ Level of Functionality & Effectiveness

○—○ Ease of Use

—○— Communication

—○— Collaboration

### ✓ Overall Benefit & Open-Ended Feedback

+/- Helpful?

💬 New information?

+/- Time?

💬 Best feature?

+/- Interest?

💬 Anything missing?

*(Atzl et. al, 2019)*

*(Veenendaal & Dhliwayo, 2013)*



## Evaluation

### ✓ Ease of Development

- ✓ Installation
- ✓ Reference
- ✓ Programming

### ✓ Level of Support for Key Features

- Default Views
- Panel Customization
- Document Attachment
- Case Notes
- Queue Assignment

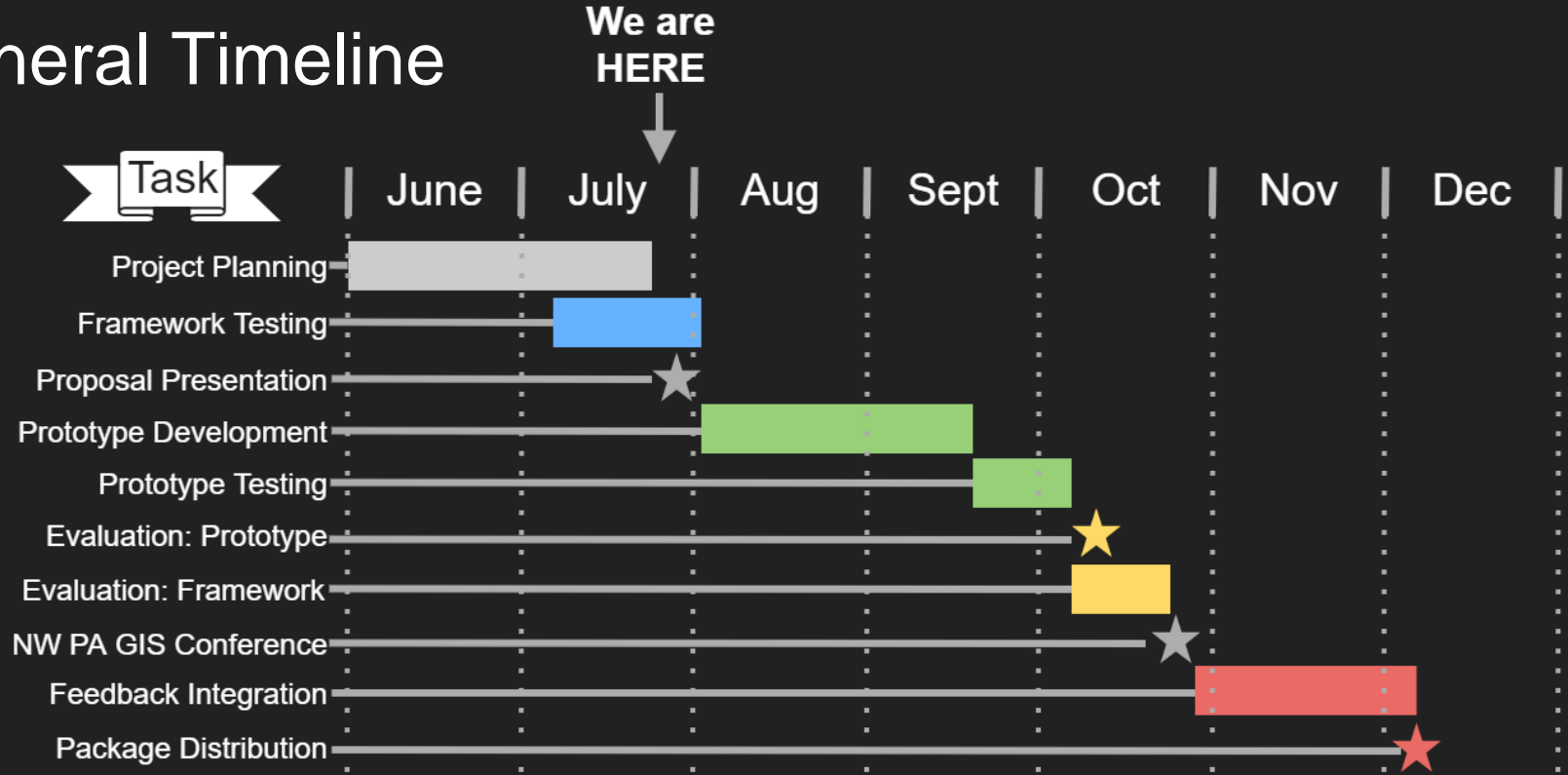
### ✓ Invested Resources

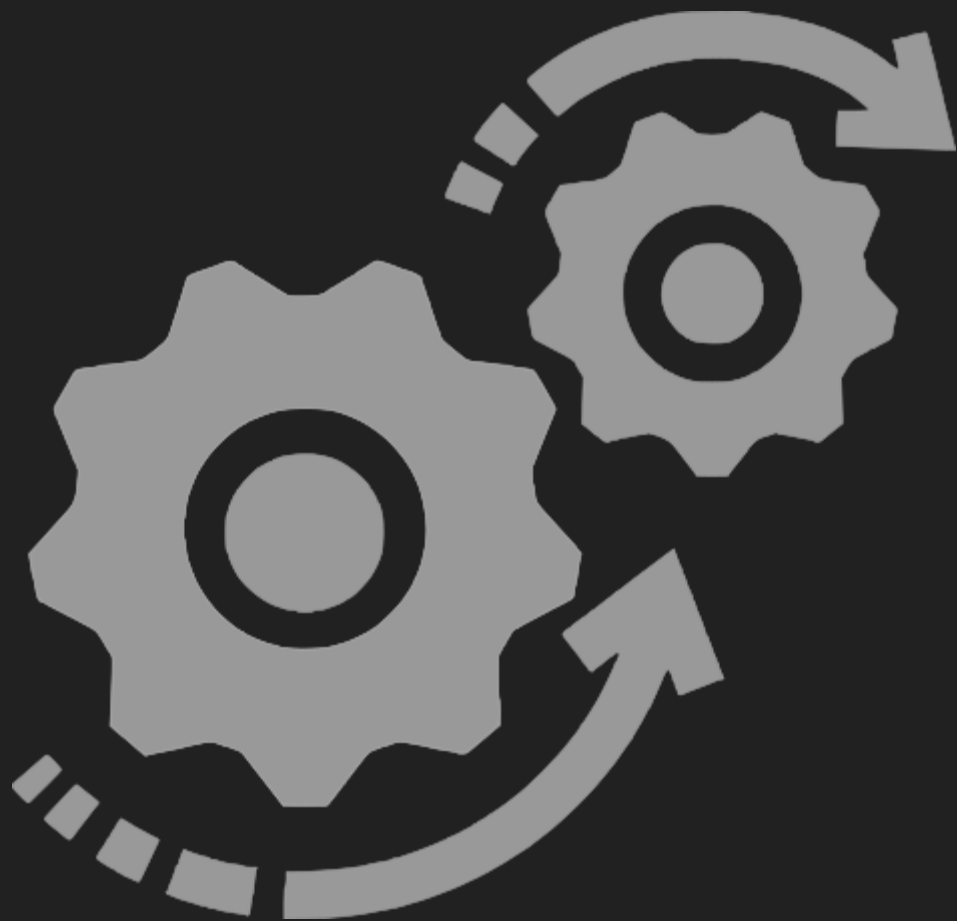
- 📎 Hardware
- 🕒 Time
- ⚙️ Expected Ongoing Maintenance

# Outcomes



# General Timeline





# Presentation References

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