



# TECHMAVEN GEOSPATIAL

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**Mapbox Services by Tech Maven Geospatial**

November 2022

<http://techmaven.net> <http://techmavengeospatial.com>



# Advanced Mapping Mobile apps powered by MapBox

iOS apps tested on MacOX  
with M1 or M2 Chips

Android Apps tested on  
Chromebooks and FireTV/FireOS  
Enable GIS on affordable devices

[GeoNames Map Explorer iOS](#) Native



[Geo Data Collector iOS](#) Native

[Map Data Explorer](#) iOS and Android - DART/FLUTTER

(also does 3D)



[Print Map](#)



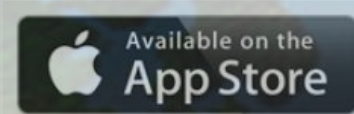
[Portable Tile Server](#)



Coming Soon:



[Offline Map Data Generator](#)



**Mobile  
Apps**

The Grand Challenge 2020 Winner is officially ready for download! GeoNames Map Explorer App is an app designed for maintaining your situational awareness and getting around in a foreign country. It has NGA's Foreign GeoNames & L ...see more



## GEONAMES MAP EXPLORER

By Tech Maven Geospatial, LLC

- Maintain situational awareness and travel in a foreign country with audio playback pronunciations, advanced map navigation, and bearing and distance calculation tools
- Download data for a defined area for offline use
- Load custom map data using GeoJSON, MBTILES, or GPKG raster tiles 3857
- Vector tile based advanced mapping engine with OpenMapTiles OpenStreetMap Vector Tiles and custom stylesheets as well as raster tile basemaps
- Customize data display by Feature Class
- Advanced GeoNames Search and Spatial Search



<https://appstore.nga.mil/Home/Store/Detail/iOS/GeoNames-Map-Explorer/>  
<http://geonamesmapexplorer.xyz> <http://geonamesmapexplorer.com>

**GEOINT APP STORE**  
EXPLORE MORE

Download Apps: [apps.nga.mil](https://apps.nga.mil)  
Provide Apps: [igapp.com](https://igapp.com)

**IGAPP | SAIC**

# Winner of Grand Challenge App Competition



VADM Bob Sharp

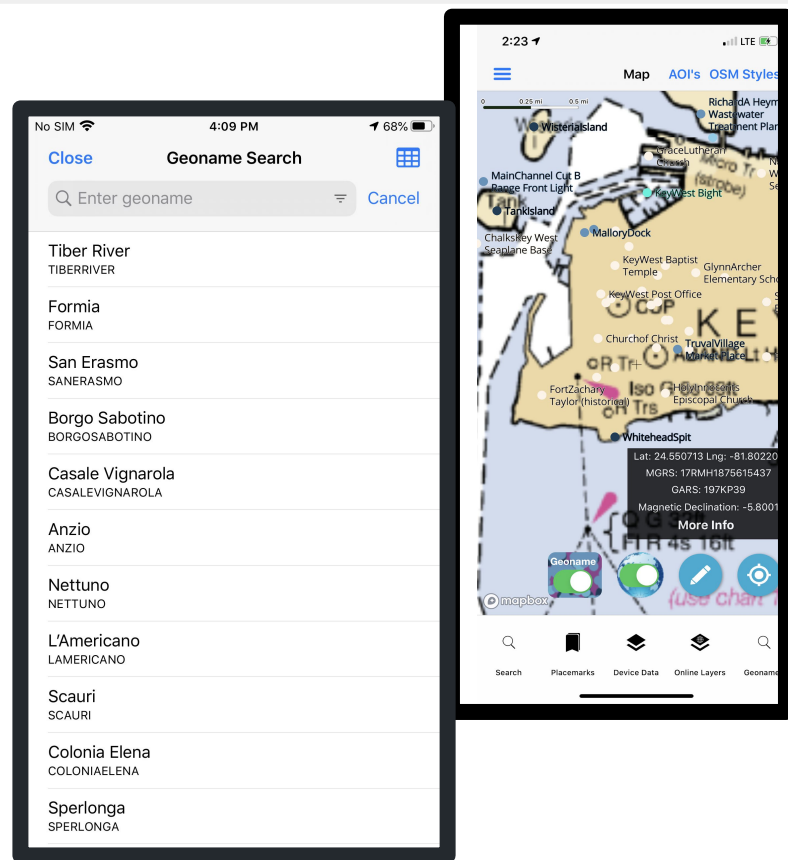
# GeoNames Map Explorer iOS (Other Platforms Planned)

GeoNames Map Explorer iOS App is an app designed for maintaining your situational awareness and getting around in a foreign Country. Area of Interest Downloading of all basemaps, map overlays, databases and audio translations. Advanced mapping engine powered by MapBox GL Native.

Users can view offline mapping data in the following formats GeoJSON and MBTILES raster tiles 3857. a vector data converter exists to convert other formats.

The app works equally well either Online connected to internet mapping services and API's and Tile Servers or in a D-DIL Environment with offline mapping data and database.

GeoNames data is displayed by Feature Class and users can decide what feature classes to show. The GeoNames Display field is used to control the scaling/zoom levels of the data.

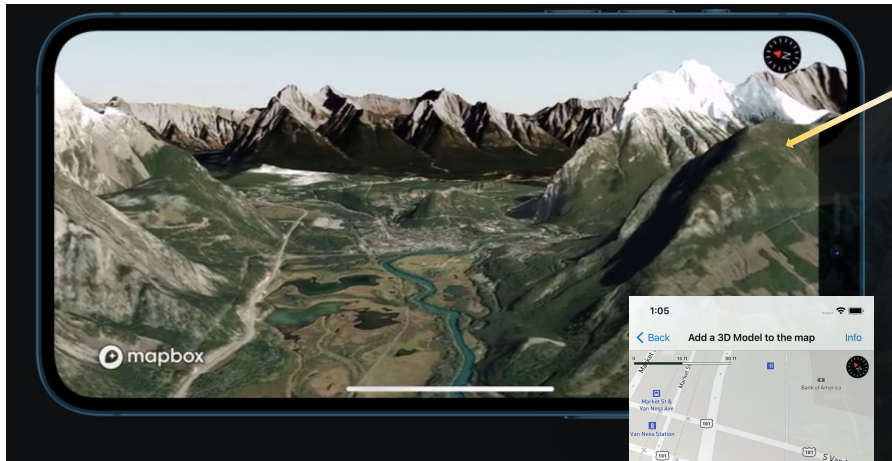


<http://geonamesmapexplorer.xyz>

VIDEO

# 3D Terrain & 3D Models & 3D Data

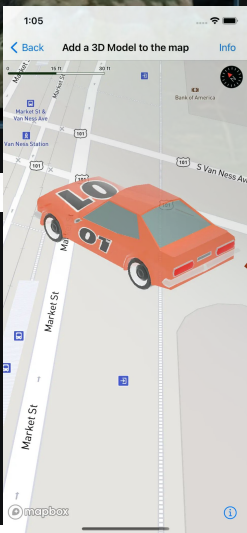
Coming Soon V10 Version



RGB PNG encoded Elevation Tiles build a dynamic mesh terrain

TMG has this data offline in mbtiles/gpkg and can build any area of interest as well as online tile server.

TMG developed dotnet core tool to convert DEM to RGB Encoded elevation tiles



GLB/GLTF 3D Models

GeoJSON 3D extrusions

And advanced 3D Visualizations



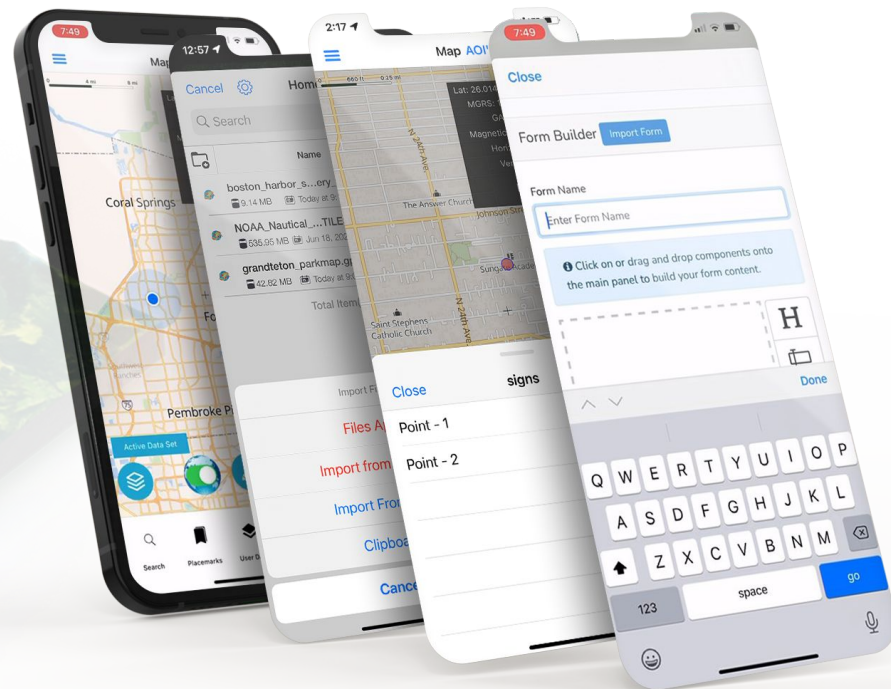
# Geo Data Collector iOS App

## Advanced Field Data Collection Application Works Offline

App comes with ready to go data that's highly optimized using Tech Maven Geospatial's GeoRequest Area of Interest (AOI) API –  
Downloading OpenMapTiles/MapTiler Data

OpenStreetMap Vector Tiles with more than 8 Stylesheets to choose from including Klokantech Terrain/Topo Style

**Available Now**



Bright(Opac)



Klokantech 3D



Klokantech Terrain



Positron



Toner



Bright



Klokantech Terrai...



DarkMatter



<https://geodatacollector.techmaven.net/>

# Print Map App

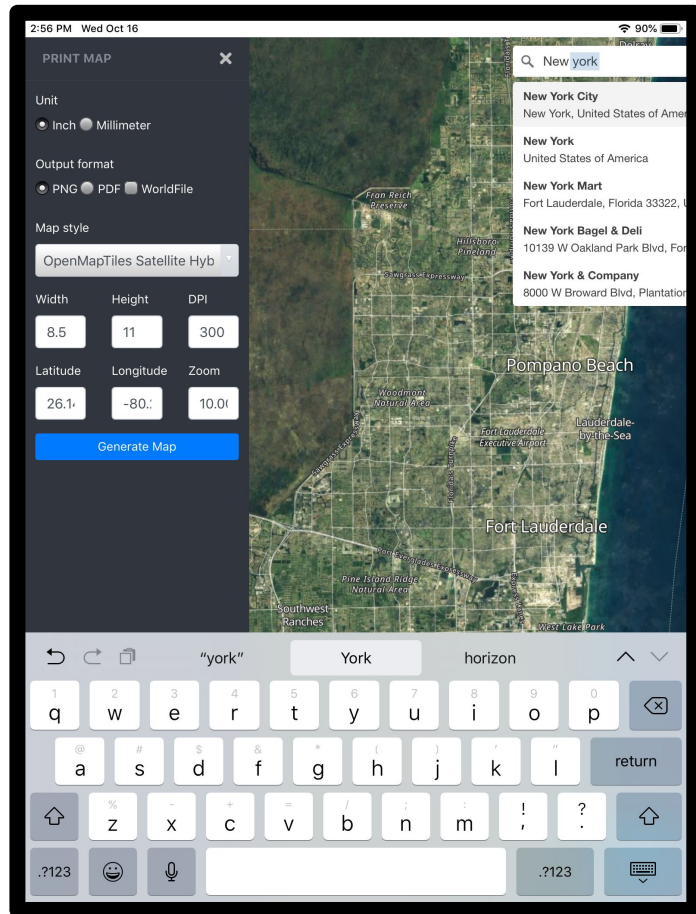
Mobile App for preparing offline high quality georeferenced PNG maps and PDF from custom vector tile basemaps

(OpenMapTiles and MapBox) with custom configurable stylesheets. Select Output size, format and DPI.

The app supports Search with OSM Nominatim for place searches and geocoding.

The PNG Images include PGW -Worldfile and PRJ-Projection sidecar files that are recognizable by all GIS Software packages and many mobile apps. The PNG images can also be inserted into reports and documents.

Using Coordinate Transformation Panel, you can change map coordinate system ,latitude longitude and MGRS code.

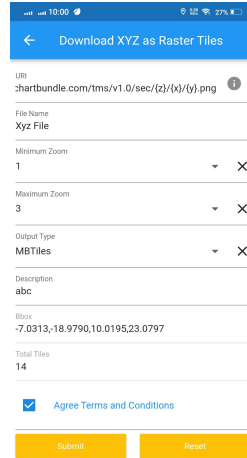
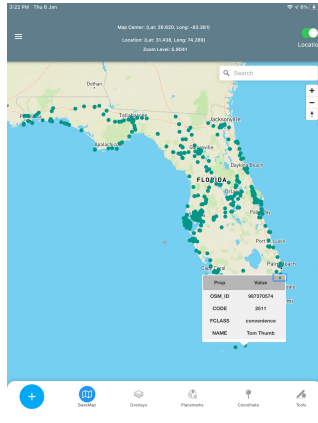
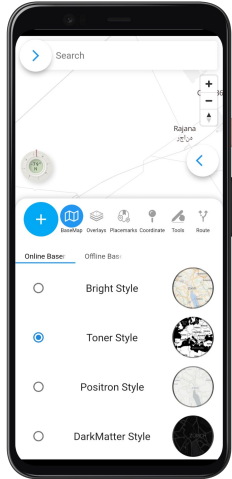


# Map Data Explorer - Flutter

<https://mapexplorer.techmaven.net/>

## Cross-Platform MapBox GL JS webview

- ✓ Powerful 2D/3D mapping app that is simple to use
- ✓ Fast & responsible map powered by Vector Tiles (base maps and overlays)
- ✓ Tilt the map Visualize 3D Terrain & View 3D Buildings
- ✓ Digitize/Draw/Edit vector features – save as GeoJSON
- ✓ Data Collection forms with JSON schema and form designer
- ✓ Attribute Table/Grid with Search



## Map Tools

- ☐ Search – places, addresses
- ☐ Advanced forms with form builder
- ☐ Draw/Digitize Data Creation and Editing
- ☐ Information Box for GeoJSON data
- ☐ Measure linear and Area Distance
- ☐ Geolocation & Coordinate Widget
- ☐ Go to Lat Long Coordinates (Move the Map)
- ☐ Placemarks (spatial bookmarks)
- ☐ View Spot Elevation
- ☐ Display Military Symbolology (App6/MilSpec2525C)
- ☐ Display Location in MGRS – Military Grid Reference System
- ☐ Radius Ruler/Range Rings
- ☐ Coordinate Converter to/from many formats and Grids (MGRS & GARS)



## Business Analysis Project Management Services

Tech Maven Geospatial, LLC is well adept at performing Software, IT, Cloud Computing Architecture and Data Business/Systems Analysis and Project Management ...

[Read More](#)


## Consulting Services

We are a full-service Geospatial Information Technology Solutions provider. There is no problem or challenge with data, application development, tools ...

[Read More](#)


## Geospatial CMS-SDI Development

Geospatial Content/Data Management Systems part of a Spatial Data Infrastructure Tech Maven Geospatial, LLC has a proven track record of developing ...

[Read More](#)


## Software Development

We are JavaScript Web Experts and we leverage the web technology to also make mobile apps with Apache Cordova and ...

[Read More](#)


## Map Portal Development

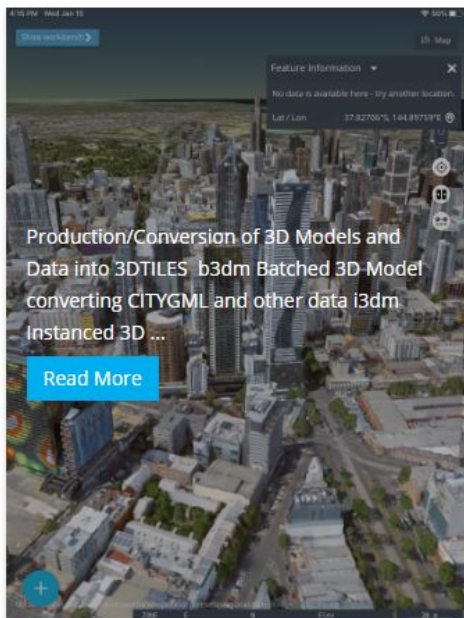
Web Mapping Applications Development Tech Maven Geospatial, LLC has experience developing advanced mapping applications Powered by back-end Map Servers Geoserver, GeoWebCache, PostGIS Database, ...

[Read More](#)


## Mobile Mapping/GIS Development

Tech Maven Geospatial, LLC Developers of Mobile Mapping Apps (iOS, Android and Windows) Make your ideas a reality. Tech Maven Geospatial builds ...

[Read More](#)

Production/Conversion of 3D Models and Data into 3DTILES b3dm Batched 3D Model converting CITYGML and other data i3dm Instantiated 3D ...

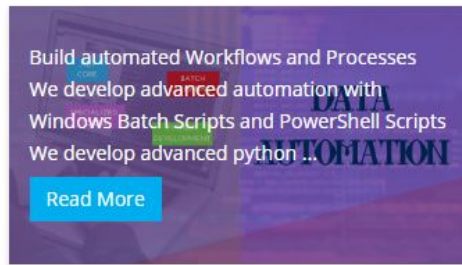
[Read More](#)

3DTiles\_3DModels\_3DGeospatialData



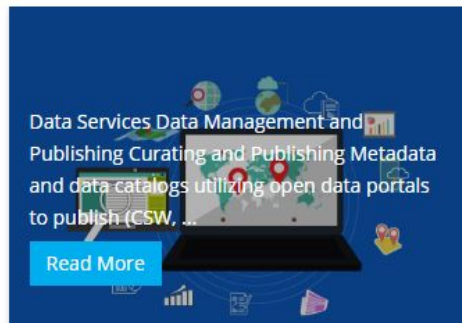
[Read More](#)

Map Tiling

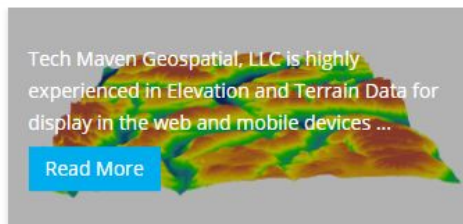


[Read More](#)

Data Automation



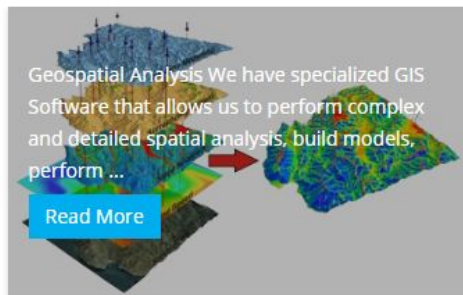
[Read More](#)



Tech Maven Geospatial, LLC is highly experienced in Elevation and Terrain Data for display in the web and mobile devices ...

[Read More](#)

Terrain Elevation Data Services



Geospatial Analysis We have specialized GIS Software that allows us to perform complex and detailed spatial analysis, build models, perform ...

[Read More](#)

Spatial Analysis



[Read More](#)

Pre-Cached Offline Ready Data

# **Web Mapping MapBox GL JS**

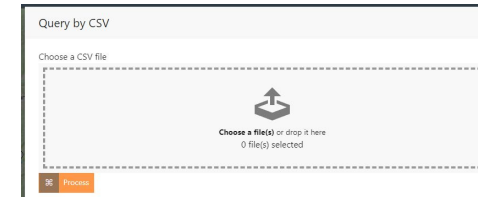
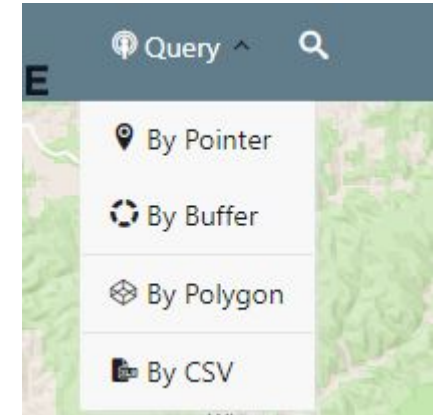
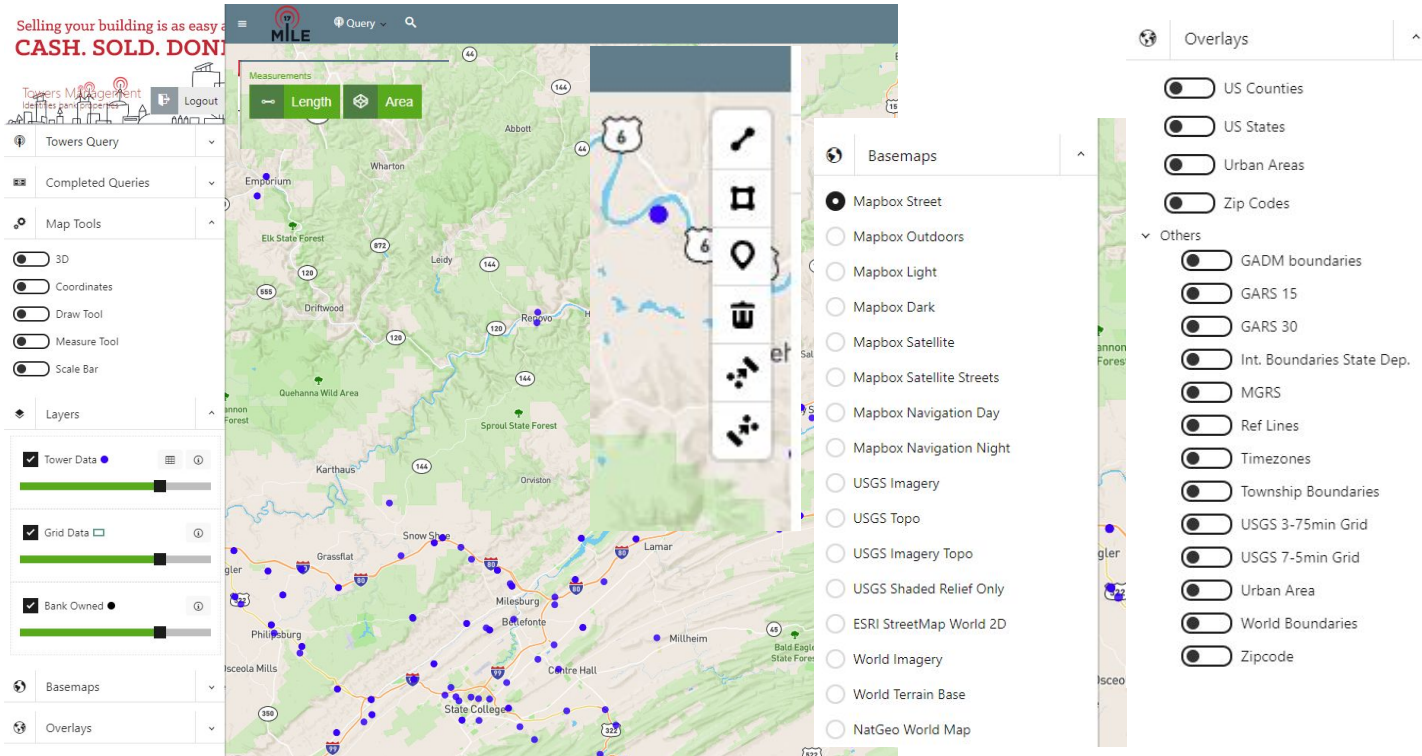
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## **Web Mapping Applications**

# Unique Features of TMG MapBox GL JS implementation

- Catalog Loading/Configuring of Data (JSON) can build a JSON file that shows XYZ Raster Tiles, Vector Tiles, GeoJSON and WMS layers
- Programmatic loading of data JS Functions
- Enabling Tools and Widgets and Drawing by JS Functions
- Bi-Directional Map Communication JS Functions (Get Map BBOX or Center, Move Map to a Certain location) We've extended the built in API's.
- ThreeJS Bindings to support 3DTILES and GLB/GLTF
- Custom functions for Range Rings/Distance Rings Buffers
- Custom Function for APP6/MilSpec2525 Military Symbolology Rendering
- Map Export

# Real Property and Facility (land management) applications



# View information box and Attribute Table

## Tower Info

Search:

Show entries: 10

### Property

Property	Value
MARKETSITE	FALSE
SITENAME	Country Club
CITY	Bald Eagle Township
SITEOWNER	SBA Communications
GROUNDWNE	0
STATE	PA
SITETYPES	Monopole
MAJORTENAN	FALSE
AGL	190
SITEOWNERS	PA06604-B

Showing 11 to 20 of 22 entries

Prev 1 2 3 Next

Last Updated: undefined

## Towers Data

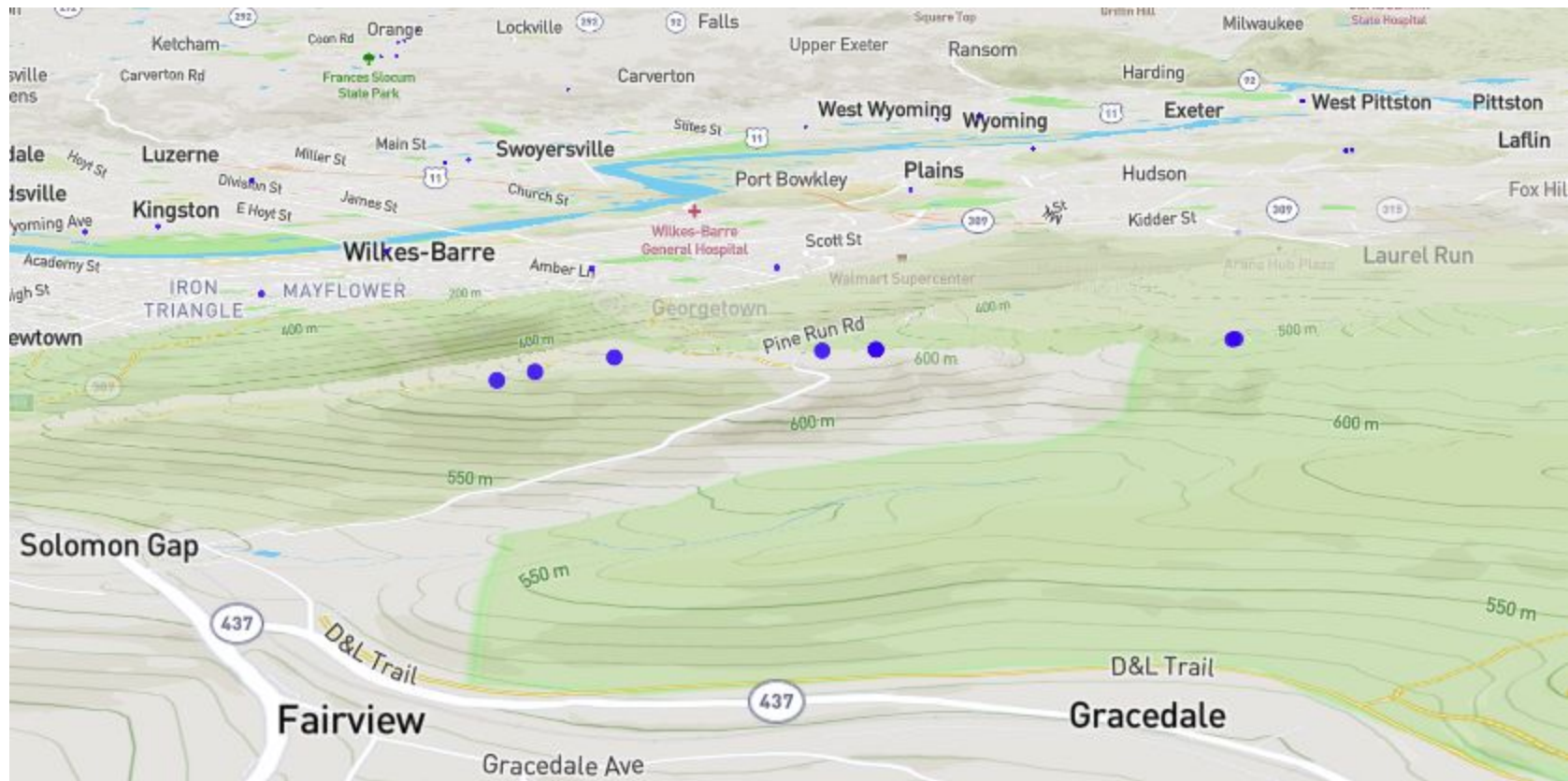
Search:

Show entries: 10

latitude	structure	towerid	btanumber	longitude	mtanumber	gm_type	btaname
40.97445489746579	Tower	1007240	412	-75.91192245483398	1	Unknown Point Feature	Scranton--Wilkes-
40.99972296971245	Rooftop	01-PA-0007	412	-76.46055221557617	1	Unknown Point Feature	Scranton--Wilkes-
40.95086262813277	Rooftop	01-PA-0011	412	-76.45523071289062	1	Unknown Point Feature	Scranton--Wilkes-
40.95177017904933	Rooftop	01-PA-0546	412	-75.97320556640625	1	Unknown Point Feature	Scranton--Wilkes-
40.80497409762779	Tower	15261	360	-76.12220764160156	9	Unknown Point Feature	Pottsville, PA
40.731779210582346	Tower	15267	360	-76.29215240478516	9	Unknown Point Feature	Pottsville, PA
40.8500469454971	Tower	75080	360	-76.11431121826172	9	Unknown Point Feature	Pottsville, PA
40.76390128094587	Tower	75081	360	-76.13920211791992	9	Unknown Point Feature	Pottsville, PA
40.51445167927483	Tower	75082	370	-76.32854461669922	9	Unknown Point Feature	Reading, PA
40.939711698787335	Tower	75086	412	-76.42501831054688	1	Unknown Point Feature	Scranton--Wilkes-

Showing 1 to 10 of 2534 entries

Prev 1 2 3 4 5 ... 254 Next



# Indoor Mapping

Zero Grid

Head Start  
Lat: 25.81934, Lng: -80.23336

☐ Satellite  
☐ Sat. Hybrid  
☐ Light  
☐ Dark  
☐ Streets  
☐ Outdoors  
☐ 3D Buildings  
☐ ESRI World Imagery  
☐ Open Street Map  
☐ Stamen Terrain

50 m

Site Plan

1. Floor

2. Floor

Roof

Plan

Grid L1

Grid L2

☒ Grid L3

Zones

☒ Assets

☒ Buildings

Panic

☒ Air Quality

☒ Disinfectant Spray

☒ Cameras

Risk Profiles

Loss Value

1A1 1A2 1B1 1B2 2A1 2A2 2B1 2B2

1A4 1A3 1B4 1B3 2A4 2A3 2B4 2B3

1D1 1D2 1C1 1C2 2D1 2D2 2C1 2C2

1D4 1D3 1C4 1C3 2C3

4A1 4A2 4B1 4B2 3B2

4A4 4A3 4B4 4B3 3A4 3A3 3B4 3B3

4D1 4D2 4C1 4C2 3D1 3D2 3C1 3C2

4D4 4D3 4C4 3D3 3C4 3C3

Marva Y Bannerman Park & Pool

Earlington Heights Elementary School

© Mapbox © OpenStreetMap Improve this map

# Indoor Mapping

## GeoJSON & Vector Tiles Fill Extrusion



# Indoor Room/Asset/Bldg Search table

Assets				Buildings				
CODE	ASSET	EXPIRY_DATE	HEIGHT	CODE	FLOOR_NAME	BUILDING_NUMBER	BUILDING_TYPE	ROOM_NO
<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>
2A3	fire_extinguisher	2021-12-23		2B4	1st Floor P1an	12	Dinning	306
2B3	fire_extinguisher	2021-12-23		2A3	1st Floor P1an	11	ESE Full-Time	001
2B4	fire_extinguisher	2021-12-23		1C2	1st Floor P1an	7	Laboratory	002
2A4	fire_extinguisher	2021-12-23		1C3	1st Floor P1an	8	Planning	096
1D3	fire_extinguisher	2021-12-23		2D1	1st Floor P1an	8	Lokers	096E
4A2	fire_extinguisher	2021-12-23		3A2	1st Floor P1an	17	Potlo	105A
4C1	fire_extinguisher	2021-12-23		3A3	1st Floor P1an	16	Storage	001
1A3	fire_extinguisher	2021-12-23		2A2	1st Floor P1an	12	Planning	001



Close

### Actuarial Analysis

\$7.9 million loss (visual chart)

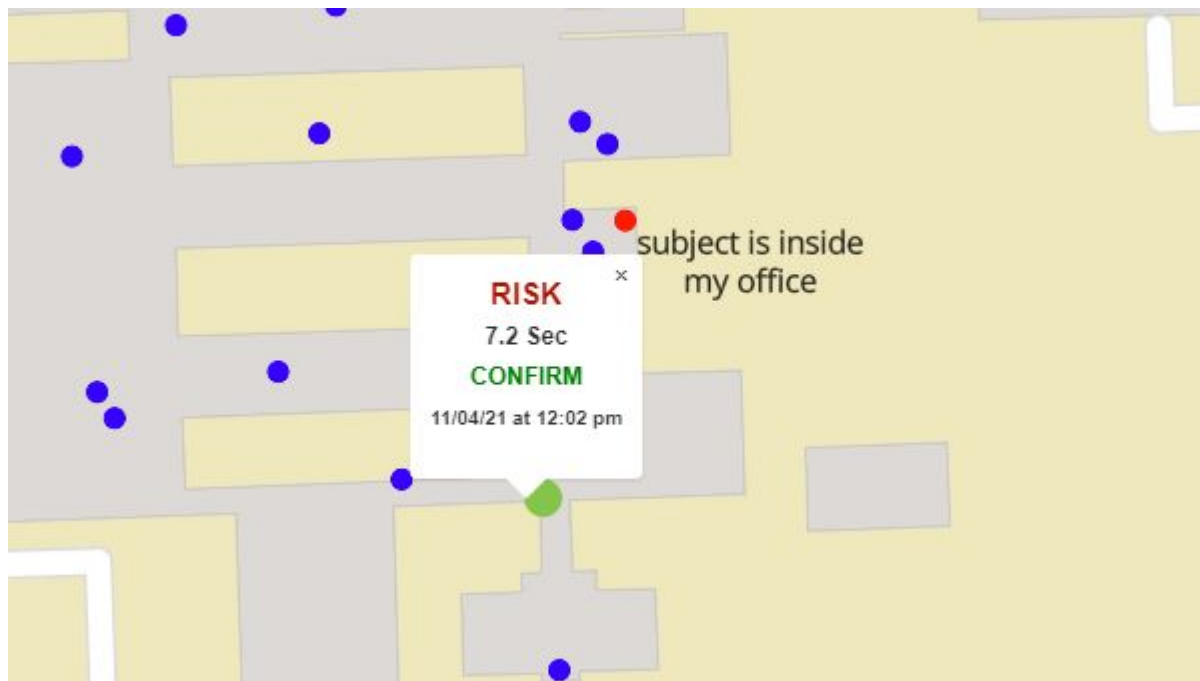
Prop	Value
Assets	School population: 989 Occupants
Crime Area Index	High
Subject Risk Time	03:00
Technology Interoperability	Poor
Victim Risk Time	06:00

Close



- ☒ Annual Safety Assessment Report
- ☐ Building signage standardization with Z.E.R.O.
- ☐ Camera standardization with Z.E.R.O.
- ☐ Mapping interoperability with Z.E.R.O.
- ☐ Panic Buttons augmented by Z.E.R.O.
- ☒ Artificial Intelligence augmented by Z.E.R.O.
- ☒ First Responders / Civilians utilizing Z.E.R.O.

Close



# Desktop Apps



Windows Mapping Applications  
Powered by JavaScript MapBox GL JS

# Robust Windows native .NET C# Based solution

CEFSHARP/Chromium V8 JavaScript Engine  
WebGL for adding MapBox GL JS into native C#  
App.

Native UX/UI Controls

Native sensor integration GNSS/GPS and AIS  
Ship Traffic

Ability to leverage best of both worlds .NET  
packages and modules and web

We've developed a few MapBox Based Windows  
Solutions

- Property Land Explorer - Windows
- GeoNames Map Explorer -Windows
- Marine Explorer - Windows

We've also used Flutter to build MacOSX, Linux  
and Windows apps and use MapBox GL JS map

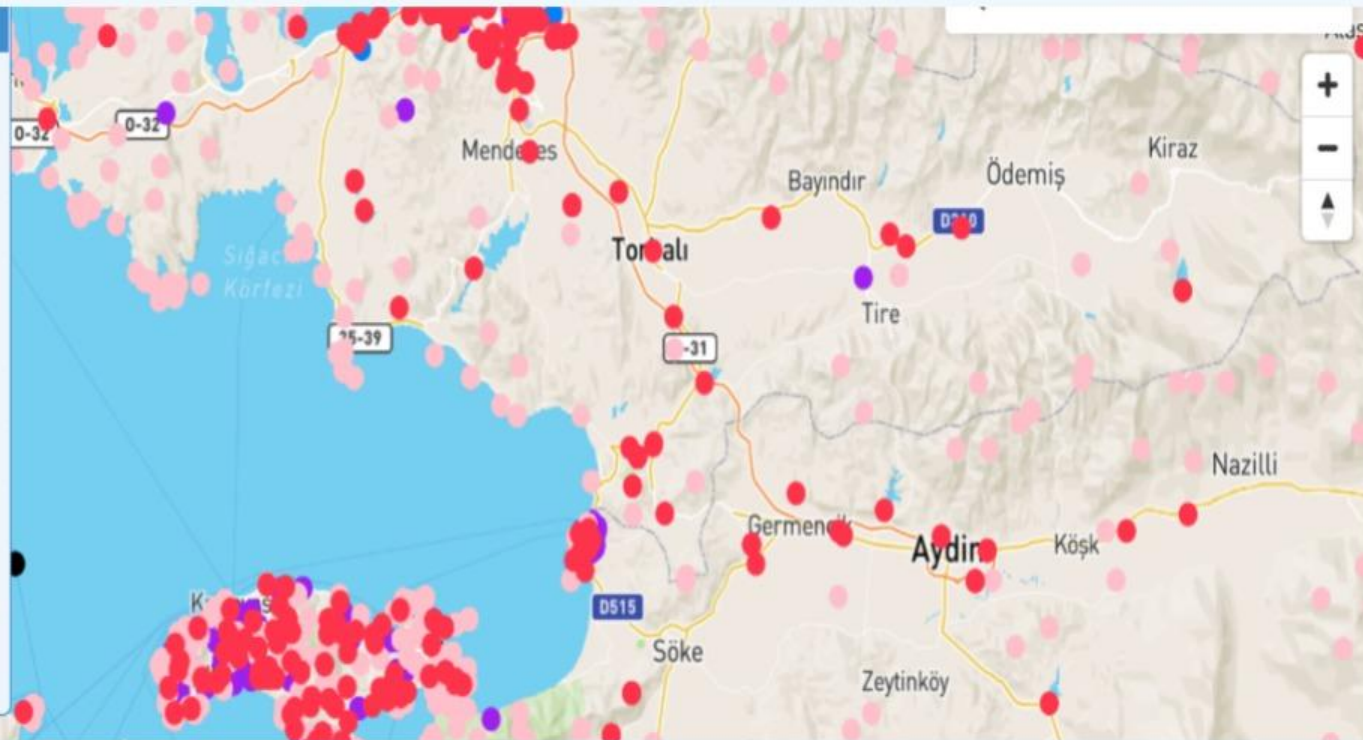
IP Geo Location:

Lat, Long (31.5801373798312, 74.382956814749)

MGRS : 43R DQ 41452 94063

## Layer Box

#	Layer Name	Visibility
1	Under Sea	<input checked="" type="checkbox"/>
2	Vegetation	<input checked="" type="checkbox"/>
3	Streets Highways Roads Railroad	<input checked="" type="checkbox"/>
4	Locality Area	<input checked="" type="checkbox"/>
5	Hypsographic	<input checked="" type="checkbox"/>
6	Hydrographic	<input checked="" type="checkbox"/>
7	Spot	<input checked="" type="checkbox"/>



# **We know Mapbox Services, API, Data MapBox Studio**

- **We've got experience working with MapBox Cloud**
- **Using Mapbox Studio**
- **Uploading data and building tilesets**
- **Using Mapbox API's in our apps**

# **We are Geospatial Experts and can Standup a FOSS4G back-end stack or can work with ESRI**

We build robust solutions with PostGIS Database back-end

Python Fast API powered applications

We work with many open source dynamic PBF Vector tile packages and  
GeoServices REST/OGC API Features

GeoServer and GeoNode Experts

Tile Servers

MapProxy

We also build data engineering  
pipelines and can do data  
analytics and ML/AI/Deep  
Learning/CV

# Common Re-usable Server-side Modules Ready to Go

Batch Geocoding

Back-end Identity Provider (OAUTH2) authentication and authorization

Elevation and Grids

Vector Conversion & Publishing

3DTiling and 3D Model Conversion

GeoRequest AOI API

# Common Re-usable Javascript/Typescript client-side code

WASM WebAssembly Modules (GDAL and Spatialite and others)

Graticules and Grids Module

Symbology Rendering Module

Attribute Table with expressions and search

Vector Conversion (convert KML, GPX, CSV, GeoPackage, Shapefile ) to GeoJSON

Coordinate Converter - convert to /from projected/geographic and MGRS, GARS, what3Words, PlusCode, PlaceyKey

# Reusable Common Flutter/Dart Modules for Flutter or Native iOS/Android

Map Data Downloading (Tile Layers, Dynamic and cached mapping services as tiles and as GeoJSON) + Pre-staged data downloading + GeoRequest AOI Submissions

Forms with Form Designer

Spatialite Engine with in-app API and forms - convert GPKG Vector Features or ESRI Mobile Geodatabase to GeoJSON - convert collected /edited geojson back to SQLite database

ESRI FeatureServer Sync

Vector Conversion and Publishing API (sync to PostGIS)

Elevation & Grids API

# Re-usable Common Native Modules for Native iOS & Android

NGA GeoPackage Library - Render GPKG Vector Features as Raster Tiles and connect tiles to features for query and feature info popup.

TMG Tile Server Module- MBTILES and GPKG raster tiles, vector tiles, elevation/terrain tiles

File Manager with viewer/editor with clouds integration (Dropbox, SugarSync and WebDav and FTP) and Wifi Share

Pre-staged data downloading

GeoRequest AOI Downloading

# Server-Side Static Map Rendering using MapBox GL JSON Styles and Vector Tiles

<https://portfolio.techmaven.net/webapps/map-export/>

We've build a robust (in-production by several clients) Map Rendering Engine using Nodejs and several packages

Builds large size 11x17, 13x19 and standard large format (Arch C 18x24, Arch D 24x36, Arch E 36x48) exports in PNG or JPG or PDF format

Can use MapBox Vector Tiles or OSM Vector Tiles (produced by PlanetTiler/Tile Maker) with GL JSON Stylesheets

Supports adding Text, Title, other layout elements

Works with WebHooks and has a Job Queue

# Carefully Watch MapBox GITHUB

We use many tools and libraries from Mapbox

Produce Vector Tiles with Tippecanoe for many years in heavy big data pipelines

Python and Nodejs and other Libraries by Mapbox we've used heavily

# back-end Geospatial stack

- **Geo Data Converter** TMG hosted Software as a Service (Data Conversion and Analysis)
- **AWS/AZURE/GC Marketplace Account for back-end Geospatial Stack.** (Multiple offerings from Geospatial Content Management System focused on 4D/3D Data and add-on services)
- **LOW CODE Geospatial App Builder** with integration with Mobile Apps
- **Team Collaboration**

Will be selling for self hosting on prem or as Marketplace accounts in AWS, GCP, AZURE

Complement to Mapbox Atlas

# On-Premises or Edge Data Serving

## Geo Data Server

<https://geodataserver.techmaven.net/>

Offers ESRI FeatureServer without need for ESRI AGOL/Portal

## 3D Scene Server and Converter

<https://3dsceneserver.techmaven.net/>

3D Scene Server offers SceneServer without need for ESRI AGOL/Portal via SLPK file

## Tile Server

with Vector tiles to Raster Tiles and Tile Group Blending Merging

<https://techmaven.net/portabletileservers/windows-tile-server/>

# Geospatial Data Production

## Map Tiling

<https://maptiling.techmaven.net/> - builds MBTILES Vector Tiles and Raster Tiles

## Tile Utilities

<https://portfolio.techmaven.net/apps/tile-utilities/> Converts Between Tile Formats and AOI Clipping

## Offline Map Data Generator

<https://offlinedatadownloader.techmaven.net/windows/> - Downloads nearly any online data for offline or on-prem use

# **Mapbox**

## **For Jupyter Notebooks and BI Tools**

# Reference Links



<http://techmaven.net/home> | <http://portfolio.techmaven.net>

<http://geodataexplorer.world> | <http://earthexplorer.world>

<http://geonamesmapexplorer.xyz> | <https://xtremepdfmap.techmaven.net/>

<https://mapdiscovery.techmaven.net/> | <https://techmaven.net/giscms/>

<https://tilemapdataserver.techmaven.net/> | <https://techmaven.net/portabletileservers/>

<https://portfolio.techmaven.net/dataservices/map-tiling/>

<https://portfolio.techmaven.net/dataservices/elevation-terrain-dataservices/>

<https://portfolio.techmaven.net/dataservices/pre-cached-offline-ready-data/>

<https://portfolio.techmaven.net/dataservices/data-services-landingpage/>

[https://play.google.com/store/apps/developer?id=Tech+Maven+Geospatial&hl=en\\_US](https://play.google.com/store/apps/developer?id=Tech+Maven+Geospatial&hl=en_US)

<https://apps.apple.com/tt/developer/tech-maven-geospatial-llc/id1459067502>

**APP STORE LINKS**

# Social Media

<https://www.linkedin.com/in/tech-maven-geospatial-b89638160>

<https://www.facebook.com/TechMaven/>

<https://twitter.com/techmavengeo?lang=en>

<https://twitter.com/gisinfotech?lang=en>

<https://www.instagram.com/techmavengeospatial/>

<https://blog.techmaven.net/>

<https://www.reddit.com/user/techmavengeospatial>  
<https://www.reddit.com/user/TechMaven-Geospatial>

# Contact Us



# TECHMAVEN GEOSPATIAL



## PHONE NUMBER

775-573-0253 SUPPORT

775-573-0164 SALES

754-333-1650 CONSULTING AND  
DATA SERVICES AND NEW BUSINESS



## E-MAIL

SUPPORT@TECHMAVEN.NET

[Jordan@techmaven.net](mailto:Jordan@techmaven.net)

Google Hangouts/Meet

Microsoft Skype/Teams

<https://geodataexplorer.world>  
<https://earthexplorer.world>  
<https://mapdiscovery.app>

**Jordan Bess**

Sr. Geospatial Data Engineer

& Chief Software Architect /Owner



# TECHMAVEN GEOSPATIAL

## GIS Data and Development Services

Developer of innovative Mobile Mapping Apps, GIS Web Mapping, Software as a Service Mapping Solutions, Desktop GIS tools & software and full data services & consulting

754-333-1650 Mobile [Jordan@techmaven.net](mailto:Jordan@techmaven.net) [maps@techmaven.net](https://techmaven.net)  
775-573-0164 Main 775-573-0253 Support <https://techmaven.net>

# Thanks For your time and interest

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[https://techmavengeo.cloud/tmg\\_website\\_content/Portfolio/pitchdeck\\_for\\_investors.pdf](https://techmavengeo.cloud/tmg_website_content/Portfolio/pitchdeck_for_investors.pdf)



**TECHMAVEN**  
**G E O S P A T I A L**