Creating a Benefiting Area Map for an Application or Subapplication for the Fiscal Year 2023 Grant Cycle

The following guidance is for subapplicants and applicants to create successful area maps for the Fiscal Year 2023 Building Resilient Infrastructure and Communities (BRIC) or Flood Mitigation Assistance grant programs submissions.

Background

Within both the BRIC and Flood Mitigation Assistance programs, FEMA intends to capture the wider effects of mitigation projects on more than just the immediate area surrounding a proposed project. To facilitate this objective, FEMA has updated its eligibility criteria to include a geospatial file/map requirement. This job aid explains acceptable file types and software that can be used, as well as the creation and preparation of a geospatial file.

Applicants must submit a map and associated geospatial file(s) highlighting the proposed project's benefiting area and project location (footprint). For on-the-ground mitigation projects, the project location (footprint) should represent where construction is being completed.

Geospatial files enable FEMA to assess a project's precise location and evaluate the potential benefits to National Flood Insurance Program (NFIP) properties for Flood Mitigation Assistance subapplications, and the potential benefits to the broader community for BRIC and Flood Mitigation Assistance subapplications.

Only geospatial files that identify the benefiting area and project location (footprint) are required; no other geospatial information should be included to limit the file size.

Overview of Benefiting Area Maps

For the BRIC and Flood Mitigation Assistance grant programs, the development of benefiting area maps will support the review and understanding of multiple activities. Benefiting area maps most typically need to be submitted under the Capability and Capacity Building (C&CB) Activities and then for larger, community flood risk reduction type projects to show the downstream effects of the mitigation project.

Criteria for Projects and Additional Information

- Under **BRIC and Flood Mitigation Assistance**, the map and associated geospatial file(s) will be used to determine if a project benefits or primarily benefits Justice40 communities, or Community Disaster Resilience Zones.

Justice40 communities are defined at the census tract level, but many project benefiting areas are located across multiple census tracts, either partially or fully.

   o Under **BRIC**, in addition to the above, subapplicants submitting a map and associated geospatial file(s) delineating the proposed project area or footprint boundary will be used by FEMA to determine if a project benefits or primarily benefits Economically Disadvantage Rural Communities.

▪ Subapplicants for **BRIC and Flood Mitigation Assistance** are encouraged to use the Resilience Analysis and Planning Tool (RAPT)—which encompasses geospatial layers including the National Risk Index and Justice40—to understand the population impacted by a proposed project, delineate the area benefiting, and translate between census tract geographies identified by Justice40. The table below showcases common geospatial software programs that are a mixture of both free and paid products that enable geospatial file creation.

▪ Subapplicants for **BRIC and Flood Mitigation Assistance** may include narrative descriptions of populations benefiting to supplement the data and shapefile provided, particularly in rural areas with limited population data or for projects benefiting geographically dispersed populations.

▪ All subapplications submitted under **Flood Mitigation Assistance**'s Capability and Capacity Building Activities – Project Scoping and Additional C&CB Activities priorities, and **Flood Mitigation Assistance**'s Localized Flood Risk Reduction Projects must demonstrate that the proposed project benefits NFIP-insured properties by submitting a map and associated geospatial file(s) (e.g., shapefile, Keyhole Markup Language [KML/KMZ], geodatabase, list of census tracts, or other GIS-enabled documents) must delineate the proposed project area or footprint boundary, and for Localized Flood Risk Reduction Projects only, the benefiting area in alignment with Hydrologic and Hydraulic modeling, as available, except for Phased Project: Phase I.

Table 1: Mapping Software

Software Program	Producer	Program Description
MPX	▪ Microsoft Project Exchange	▪ Microsoft
ArcGIS Desktop	▪ ESRI	▪ ArcGIS Desktop is the foundational piece of the ArcGIS platform for GIS professionals to create, analyze, manage, and share geographic information so decision-makers can make intelligent, informed decisions. It allows you to create maps, perform spatial analysis, and manage data. www.esri.com
ArcGIS Pro	▪ ESRI	▪ ArcGIS Pro is the latest professional desktop GIS application from ESRI. With ArcGIS Pro, you can explore, visualize, and analyze data; create 2D maps and 3D scenes.
QGIS	▪ Open Source Geospatial Foundation	▪ QGIS is a free and open-source cross-platform desktop geographic information system application that supports viewing, editing, and analysis of geospatial data. www.qgis.org

Software Program	Producer	Program Description
Google Earth Pro	▪ Google	▪ A free geospatial software application that displays a virtual globe, which offers the ability to analyze and capture geographical data. www.google.com/earth
RAPT	▪ ESRI ArcGIS Online	▪ RAPT includes over 100 preloaded layers including community resilience indicators from peer-reviewed research, the most current census demographic data, infrastructure data, and data on weather, hazards, and risk. Information about RAPT's easy to use analysis tools, the ability to add in data from other sources, and print and download functions are available [online](#).

Creating a Benefiting Area Map

Acceptable Geospatial File Types

The file types listed here represent some of the acceptable geospatial file types that can be submitted to fulfill the new eligibility criteria. Many are commonly used and accessible through free opensource software.

Table 2: Acceptable Geospatial File Types

File Extension	File Type Name	Producer
MPX	▪ Microsoft Project Exchange	▪ Microsoft
SHP	▪ Shapefile	▪ ESRI
GeoDB/GDB	▪ Geodatabase file	▪ ESRI
KMZ/KML	▪ Keyhole Markup Language	▪ Google
GeoJSON	▪ Geographic JavaScript Object Notation	▪ Opensource
DGN	▪ Design	▪ AutoDesk/Bentley
MPK	▪ Map Package	▪ ESRI
Geo-enabled PDF	▪ Portable Document Format	▪ See instructions below.

File Preparation and Submission Instructions

While many of the file types can be submitted as is (e.g., KMZ/KML, geoJSON files), the best practices below should be kept in mind when preparing and submitting certain file types. Further information is provided about file creation and preparation in the links under the "Additional Information" column from each respective producer. An example for creating a geospatial file using Google Earth Pro is presented in the following section.

Table 3: File Types and Submission

File Type	Additional Information	FEMA Preparation Instructions
SHP	Link	▪ When preparing an SHP file for FEMA Grants Outcome (FEMA GO), it should be packaged as a zip file because it reduces the file size. The zip file should include all necessary files associated with the shape files, and not only the one with the shp extension. The naming convention for the zip file should follow this format: Project_Title_benefiittingarea.
MPK	Link	▪ For MPK files, FEMA recommends that the file be converted to a PDF before submitting it to the eGrants portal to reduce overall file size. If possible, please export the data layer with the polygon of the benefiting areas as .shp files. The naming convention for the zip file should follow this format: Project_Title_benefiittingarea.
Geospatial PDF	Link	▪ A range of file types can be converted to a geospatial PDF, which is an easy-to-use format. The naming convention for the zip file should follow this format: Project_Title_benefiittingarea.

Example Process for Creating a Geospatial File

The following section demonstrates the file creation process and provides step-by-step instructions on how to submit a geospatial file. FEMA is adding functionality to RAPT that will also allow users to create a shapefile, as well as provide key information about the population benefiting from a proposed project, including data indicators for equity or resilience challenges. Additional guidance and job aides for RAPT are available. The example shown utilizes Google Earth Pro to produce a KML file for a proposed project. This example is not the only process for creating an eligible geospatial file; other software alternatives are provided in the sections above.

STEP 1: DOWNLOAD AND OPEN GOOGLE EARTH PRO

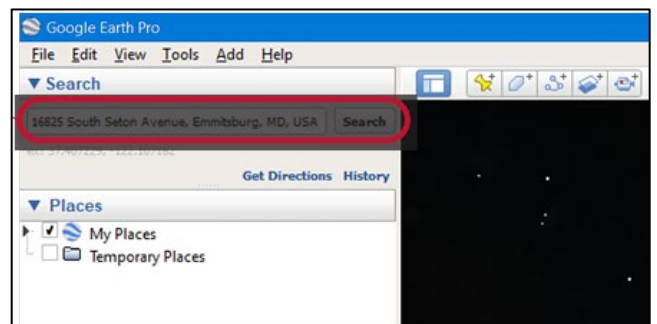To start Google Earth Pro, click its icon on your desktop.

For more information, click this link.

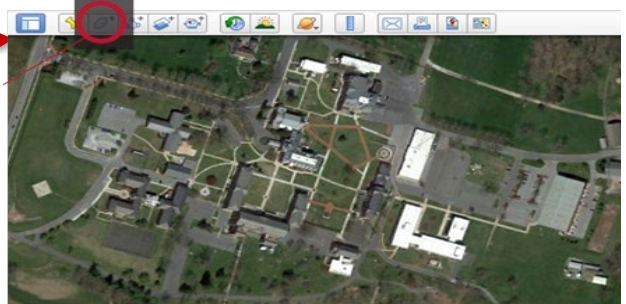## Step 2: Enter your address and click Search to zoom in

Click within the Search bar and enter the address, then click Search to zoom in to the location.

For more information, click this link.

STEP 3: ABOVE THE MAP, CLICK AND ADD THE POLYGON ICON. OPEN THE POLYGON DIALOGUE BOX.

Click on the polygon tool to open the menu.

For more information, click this link.

STEP 4: A NEW POLYGON DIALOGUE BOX WILL OPEN. MOVE IT OUT OF THE WAY BEFORE PROCEEDING TO THE NEXT STEP.

Here you can name your polygon and add a description (please review Step 6).

Drag this dialogue box out of the way to begin drawing your polygon.
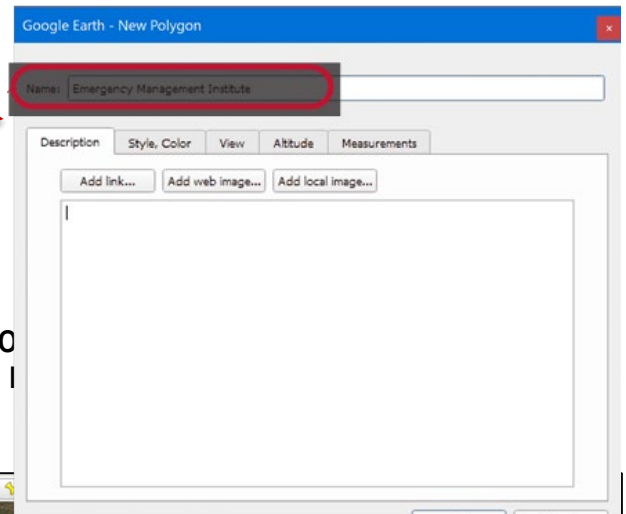
STEP 5: TO DRAW THE SHAPE YOU WANT, CLICK A START PO[...] COMPLETE A LINE. DRAG THE CURSOR TO CREATE CURVES. [...] POLYGON.

It is important to try to make this area accurate and representative of the project area you are mapping.

Be sure to create one polygon for the project footprint (shown here in green) and one polygon for the benefiting area (shown here in white).

STEP 6: DRAG THE DIALOGUE BOX UP AND ENTER A DESCRIPTION AND PROPERTIES. CLICK OK TO COMPLETE THE DRAWING.

After you pick your end point, you can enter a description, and click the Style, Color tab to change the polygon's appeared.
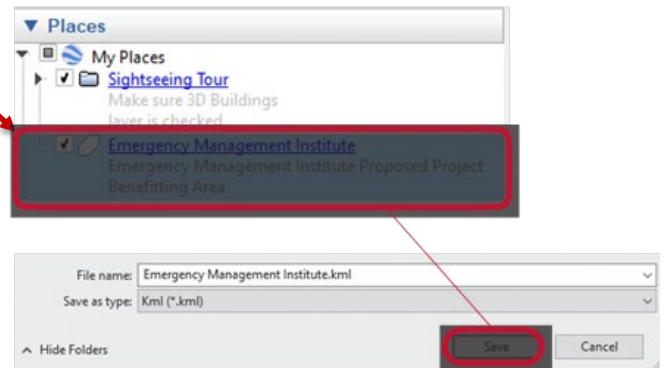
Once you are finished, click OK to complete the drawing.
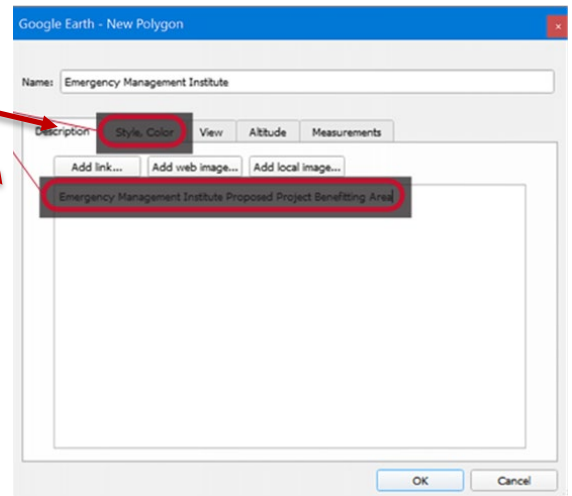
STEP 7: SAVE THE POLYGON AS A KML/KMZ FILE.

To save the polygon as a KML/KMZ file, right click the polygon name under the Places module on the left-hand side of your screen. Then click on Save Place As. Enter your desired file name and click Save.

You can repeat this process for multiple geospatial files as needed.

Additional Resources

If you have any questions or comments, please contact the Hazard Mitigation Assistance Helpline at 1-866-222-3580 to speak to someone from FEMA. Callers can leave a message, which will be returned during business hours Monday–Friday, 9 a.m.–5 p.m. Eastern Time.

Additionally, please reference the latest NOFO and the HMA Job Aids website for more information:

- For the **BRIC and Flood Mitigation Assistance funding opportunities** and additional program support materials, visit https://www.fema.gov/grants/mitigation

- For **HMA Job Aids**, visit https://www.fema.gov/grants/mitigation

- Resilience Analysis and Planning Tool User Guide (fema.gov) For RAPT questions, email TARequest@fema.dhs.gov

- To determine if your community is a disadvantaged community under the **Climate and Economic Justice Screening Tool (CJEST)**, visit https://screeningtool.geoplatform.gov

- To identify the social vulnerability of your community under the **Center for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI)**, visit https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

- To determine if a community is identified as a **Community Disaster Resilience Zone**, visit https://www.fema.gov/partnerships/community-disaster-resilience-zones