# State Geospatial Data Coordination Procedure

Virginia

FINAL

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FEMA

# State Geospatial Data Coordination Procedure

## Virginia

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## Purpose of the Procedure

Flood Insurance Studies search for geospatial data during Discovery tasks. If needed data are not available, studies might fund the collection of new data and would like to know about other organizations that might share in these costs. Detailed information about the role geospatial data coordination plays in studies is in the Geospatial Data Coordination portal, which is available at http://pm.riskmapcds.com/riskmap_usergroups/GeoCoord/default.aspx (password required).

Resources developed through FEMA's geospatial data coordination activities provide information about data and contacts for organizations that have geospatial data that cover large areas (like states) in which many studies are interested. Studies can avoid wasting time with dead-end searches and cold calls by starting with these proven sources of information.

One resource is this Geospatial Data Coordination Procedure. It outlines sources of geospatial data and contact information, preferences for base map data and state geospatial participation in flood insurance studies, information for the project Discovery stage, and other useful information for the State.

If you have questions about this procedure or other geospatial data coordination resources, contact the geospatial data coordination lead in your Regional Support Center (RSC):

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RAMPP Regional Support Center 3
(215) 940-9220
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We appreciate the help of those who reviewed this document, in particular:
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Date Procedure last discussed: March 2007

## Default Flood Hazard Base Map for the State

The default base map for flood hazard maps for the State is either an image (orthophoto) or vector (road centerline) base map. Orthophotography is the preferred base map. The choice of orthophotography depends on the individual county being studied, and is selected on a case-by-case basis. VGIN orthophotography is available for use in FIRM products through the coordination efforts of Dan Widner at VGIN, David Gunn of VA Department of Conservation (DCR), Diane Eldridge at USGS, Nikki Roberts at FEMA Region III, and Regional Support Center 3 personnel. At the preference of specific county or communities, vector base map layers are used.

## Geospatial Data Coverage

Find below information about and links to statewide (and Federal agencies' national) geospatial datasets. The list is provided to save time during Discovery activities when building a list of candidate geospatial datasets available for the study; it is not a prescription of datasets that must be used in a Flood Insurance Study.

### Major State Holdings

#### *Orthophotos*

Dataset name: Virginia Geographic Information Network (VGIN), 2009-2011 Virginia Base Mapping Program Digital Orthophotography
Data currentness: Last updated in 2011, 5-year maintenance cycle as funding allows.
Accuracy/Scale: One of three resolutions is available for an area in the State (varies by area):

- 2 ft pixel resolution (1" = 400' scale); 10,000 x 10,000 ft tiles
- 1 ft pixel resolution (1" = 200' scale); 5,000 x 5,000 ft tiles
- 0.5 ft pixel resolution (1" = 100' scale); 2,500 x 2,500 ft tiles

Ground sample resolution: 2.0, 1.0, or 0.5 US Survey Feet depending on scale.
Horizontal datum: NAD 83/93 (HARN)
Coordinate System: Virginia State Plane North and South zones, US Survey Feet
Fee associated? Yes. No fee for FEMA and FEMA contractor use on FEMA projects. A fee is associated for the private sector on non-FEMA projects.
Available for redistribution? VGIN prefers to be the distributor for the orthophotography, although the data also will be available through USGS.
Dataset source: VGIN at http://www.vita.virginia.gov/isp/ FEMA Risk MAP Mapping Partners should access the copy provided to the FEMA regional office. The data are also available from the USGS through http://nationalmap.gov/viewer.html.
Dataset contact: Dan Widner, VGIN Coordinator, VITA. (804) 416-6198 dan.widner@vita.virginia.gov
Notes: New coverage for eastern half of State was flown in 2013 (1' resolution). 2011 and 2012 orthophotography are available for free viewing through a web service hosted by VGIN (http://www.vita.virginia.gov/isp/default.aspx?id=12118).

### *Transportation (roads, railroads, and airports)*

Dataset Name: VGIN Road Centerline File
Data currentness: 3/2013
Horizontal Datum: NAD 83
Accuracy/Scale: Unknown
Fee Associated: No
Available for distribution: Yes
Are road names part of the dataset: Yes
Are road names in TIGER format? Yes
Dataset source: VGIN at http://www.vita.virginia.gov/isp/
Dataset Contact: Dan Widner, VGIN Coordinator, VITA. FEMA Risk MAP Mapping Partners should request the data through the FEMA regional office.

### *Hydrography (rivers, streams, lakes, and shorelines)*

Dataset name: Virginia Geographic Information Network (VGIN), 2002 Virginia Base Mapping Program Hydrography
Data currentness: March 2001.
Accuracy/Scale: Data were collected from orthophotography at one of three resolutions (varies by area):

- 2 ft pixel resolution (1" = 400' scale); 10,000 x 10,000 ft tiles
- 1 ft pixel resolution (1" = 200' scale); 5,000 x 5,000 ft tiles
- 0.5 ft pixel resolution (1" = 100' scale); 2,500 x 2,500 ft tiles

Horizontal datum: NAD 83/93 (HARN)
Coordinate System: Virginia State Plane North and South zones, US Survey Feet
Fee associated? Yes.
Available for redistribution? VGIN prefers to be the distributor
Dataset source: VGIN at http://www.vita.virginia.gov/isp/
Dataset contact: Dan Widner, VGIN Coordinator, VITA. FEMA Risk MAP Mapping Partners should request the data through the FEMA regional office. The VGIN website references the NHD as the State's hydrographic dataset.
Are hydrography names part of the dataset? No
Notes: VBMP Hydrography data were collected as part of the Digital Terrain Model. The data are available as a web service or as a physical dataset.

### *Political boundaries (county, municipal)*

Dataset name: Virginia's jurisdiction boundaries
Data currentness: 2004
Accuracy/Scale: 1:24,000
Horizontal datum: NAD83
Coordinate System: Geographic and Lambert Conformal Conic
Fee associated? No
Available for redistribution? Unknown; check with contact.
Dataset source: VA DCR

Dataset contact: For access contact Karl Hubert, Department of Conservation and Recreation, karl.huber@dcr.virginia.gov (804) 371-7484.
Notes: In general, political boundaries will be obtained on a case by case basis from the best available source, usually the counties or regional planning agencies.

### *Publicly owned lands (national, state, and local parks, forests, etc)*

Dataset name: DCR Conservation Lands Database
Dataset currentness: Biannual review
Accuracy/Scale: varies; see metadata
Horizontal datum: NAD83
Fee associated? No
Available for redistribution? Redistribution for profit is prohibited
Dataset source: Conservation lands database at
http://www.dcr.virginia.gov/natural_heritage/cldownload.shtml
Dataset contact: David Boyd, Department of Conservation and Recreation,
(804) 371-4801; david.boyd@dcr.virginia.gov
Notes: Provides access to a composite set of boundaries and boundaries maintained by different agencies.

### *Cadastral (parcels)*

No statewide coverage available.
Notes: Local parcel data may be available from the individual jurisdictions.

### *Terrain (elevation)*

Dataset name: Virginia Geographic Information Network (VGIN), 2002 Virginia Base Mapping Program Digital Terrain Model
Data currentness: March 2001
Accuracy/Scale: Data at one of two scales are available for an area in the State (varies by area):

- 1:2,400 scale; 5,000 x 5,000 ft tiles; statewide; supports 4 foot contours (see notes)
- 1:1,200 scale; 2,500 x 2,500 ft tiles; supports 2 foot contours (see notes)

Vertical datum: NAVD 88
Fee associated? Yes
Available for redistribution? VGIN prefers to be the distributor
Dataset source: VGIN at
http://pubs.ext.vt.edu/303/303-104/303-104.html
Dataset contact: Dan Widner, VGIN Coordinator, VITA. FEMA Risk MAP Mapping Partners should request the data through the FEMA regional office.
Notes: Orthoimagery for the Virginia Base Mapping Program (VBMP) was developed using a flying height that would support the development of NSSDA standard contours. However, the DTM delivered as part of this project was developed for ortho-rectification only. Communities were provided the option to upgrade to additional products, including contours. In areas where this option was exercised, 2-foot or 4-foot contours are available, depending on the resolution of the imagery.

LiDAR is available for many Virginia counties and can be downloaded from http://www.wm.edu/as/cga/VALIDAR/index.php.
Name: VA LiDAR
Data currentness: 2010-2012 (varies by area)
Accuracy/Scale: Varies
Vertical datum: NAVD 88
Fee associated? No
Available for redistribution? Yes
Dataset source: USGS
Dataset contact: gis@wm.edu

Notes: See figure at end of document for status of high resolution topographic data acquisition in FEMA Region III.

### Data Distribution Process for State Data

VGIN hosts enterprise base map data through the Geospatial Enterprise Platform (GEP). The GEP is a combination of data storage, application hosting and web services. Information about accessing the GEP data can be obtained via email to vbmp@vgin.virginia.gov. In addition, VGIN has also established a metadata portal for browsing and accessing geospatial data for the Commonwealth of Virginia. Links to available data can be accessed via the Virginia Information Technologies Agency at http://www.vita.virginia.gov/isp/default.aspx?id=12094.

### Useful Risk MAP Discovery Data Sources

Preliminary information on Discovery data sources is provided in this document to reduce the level of effort needed on each subsequent Discovery data collection effort. Coordination with local community sponsors for additional local data still remains an integral part of Discovery and local data should be used where appropriate.

The *National Discovery Data Coordination Procedure* document contains information on data resources available from other Federal agencies (OFAs), including those that FEMA maintains at the national level, and should be used in conjunction with this *State Geospatial Data Coordination Procedure* document. In addition, FEMA and its contractors have created a geospatial Discovery Data Repository to host data that are not readily accessible through direct sources such as Web sites or subscription services and/or are not updated on a frequent basis. Instructions on accessing the Discovery Data Repository are given in the *National Discovery Data Coordination Procedure* document.

Table 1 identifies data resources that are available at the regional and State levels, and also if there are no data available other than the national datasets. Resources in this table have been identified as appropriate for Discovery projects and may not represent the best data sources for FIRM production (please see the Preferred Base Map Sources section of this document for geospatial data that meet FIRM production requirements).

Table 1. Discovery Data Resources

| Data | Data Source | Location |
|---|---|---|
| Watershed boundaries | National | See *National Discovery Data Coordination Procedure* |
| Jurisdictional boundaries | Virginia Information Technology Agency<br><br>VA DCR<br><br>National | http://www.vita.virginia.gov/isp/<br><br>Karl Hubert,<br>Department of Conservation and Recreation,<br>karl.huber@dcr.virginia.gov<br><br>See *National Discovery Data Coordination Procedure* |
| Tribal land boundaries | N/A | N/A |
| State lands | Virginia Information Technology Agency<br><br>VA DCR Conservation Lands Database | http://www.vita.virginia.gov/isp/<br><br>http://www.dcr.virginia.gov/natural_heritage/cldownload.shtml |
| Federal lands | Virginia Information Technology Agency<br><br>VA DCR Conservation Lands Database<br><br>National | http://www.vita.virginia.gov/isp/<br><br>http://www.dcr.virginia.gov/natural_heritage/cldownload.shtml<br><br>See *National Discovery Data Coordination Procedure* |
| Major roads | Virginia Information Technology Agency<br><br>National | http://www.vita.virginia.gov/isp/<br><br>See *National Discovery Data Coordination Procedure* |
| Streams | Virginia Information Technology Agency<br><br>National | http://www.vita.virginia.gov/isp/<br><br>See *National Discovery Data Coordination Procedure* |
| Coastal Barrier Resource Areas | National | See *National Discovery Data Coordination Procedure* |
| Coordinated Needs Management Strategy | National | See *National Discovery Data Coordination Procedure* |
| Topographic/ bathymetric data | VGIN<br><br>William and Mary<br><br>National | http://www.vita.virginia.gov/isp/<br><br>http://www.wm.edu/as/cga/Data%20Services/VALIDAR/index.php<br><br>See *National Discovery Data Coordination Procedure* |

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| Data | Data Source | Location |
|---|---|---|
| AAL data from Hazus | RSC<br><br>National | Use of AAL data from Hazus should be coordinated with RSC 3.<br><br>See *National Discovery Data Coordination Procedure* |
| Coverage areas for known community and Tribal risk assessment data | Virginia Department of Forestry | http://www.dof.virginia.gov/gis/ |
| Status of Hazard Mitigation Plans | Virginia Department of Emergency Management<br><br>National | http://www.vaemergency.com/<br>10501 Trade Court<br>Richmond, VA 23236<br>(804) 897-6500 (voice)<br>(804) 897-6506 (fax)<br>pio@vdem.virginia.gov<br><br>See *National Discovery Data Coordination Procedure* |
| Flood control structure data | National | See *National Discovery Data Coordination Procedure* |
| Locations of stream gages | National | See *National Discovery Data Coordination Procedure* |
| Locations of past flood claims and repetitive loss properties | National | See *National Discovery Data Coordination Procedure* |
| Locations of clusters of Letters of Map Change | National | See *National Discovery Data Coordination Procedure* |
| Known flooding issues not represented on effective FIRMs or listed in Coordinated Needs Management Strategy database | Local | Local |
| Areas of planned development | Virginia Information Technology Agency | http://www.vita.virginia.gov/isp/ |
| Areas of land use change datasets | Local | Local |
| Locations of ongoing projects or updated stream studies (e.g., highway improvements) | Virginia Department of Environmental Quality | http://www.deq.virginia.gov/ |
| Locations of wave and tide gages | National | See *National Discovery Data Coordination Procedure* |
| Locations of wind gages | National | See *National Discovery Data Coordination Procedure* |
| Proposed inland limit of the Primary Frontal Dune, if present | Local | Local |
| Locations of any beach nourishment or dune restoration projects | Virginia Department of Environmental Quality | http://www.deq.virginia.gov/ |

| Data | Data Source | Location |
|---|---|---|
| Comparison of preliminary stillwater elevations with effective stillwater elevations | Local | Local |
| Available effective study data | National | See *National Discovery Data Coordination Procedure* |
| Orthophotography | VGIN<br><br>National | http://www.vita.virginia.gov/isp/<br><br>See *National Discovery Data Coordination Procedure* |
| Proposed discussion areas, problem areas, areas of proposed mitigation projects | Local | Local |
| Land use and soil information | National | See *National Discovery Data Coordination Procedure* |
| Reference points to locate areas with flooding issues | Local | Local |
| Hydraulic structures | National | See *National Discovery Data Coordination Procedure* |
| Coastal structures, including flood protection structures, shoreline structures, manmade embankments, surge conveyance pathways, and shoreline change data | National | See *National Discovery Data Coordination Procedure* |
| Local structure and topographic data from the existing hazard mitigation plans | Local | Local |
| Historic inundation areas and high water marks | Regional | Discovery Data Repository |
| Clusters or locations of Individual Assistance/Public Assistance grants and locations of grant projects completed, planned, or underway | National | See *National Discovery Data Coordination Procedure* |
| Locations of projects and structures completed or planned for FEMA Hazard Mitigation Assistance grant programs or mitigation funds from other agencies or entities, such as the Small Business Administration | National | See *National Discovery Data Coordination Procedure* |
| Other information on FEMA grants | Local | Local |
| Any data deficiencies identified in hazard mitigation plans | Local | Local |

| Data | Data Source | Location |
|---|---|---|
| Information from FloodSmart on market penetration | National | See *National Discovery Data Coordination Procedure* |
| Community Assistance Visits / Community Assistance Contacts | National | See *National Discovery Data Coordination Procedure* |
| Community Rating System class information | National | See *National Discovery Data Coordination Procedure* |
| Information from other Federal agencies | National | See *National Discovery Data Coordination Procedure* |
| Information from State agencies, non-profit organizations, universities, etc. | Virginia Department of Emergency Management | http://www.vaemergency.com/<br>10501 Trade Court<br>Richmond, VA 23236<br>(804) 897-6500 (voice)<br>(804) 897-6506 (fax)<br>pio@vdem.virginia.gov |
| Current community plans, ordinances, or programs to alleviate flooding or manage stormwater | Virginia Department of Emergency Management<br><br>National | http://www.vaemergency.com/<br>10501 Trade Court<br>Richmond, VA 23236<br>(804) 897-6500 (voice)<br>(804) 897-6506 (fax)<br>pio@vdem.virginia.gov<br><br>See *National Discovery Data Coordination Procedure* |
| Other known hazards with geographical boundaries (e.g., earthquake faults) | Virginia Department of Forestry<br><br>National | http://www.dof.virginia.gov/gis/<br><br>See *National Discovery Data Coordination Procedure* |
| Information on active disasters | Virginia Department of Emergency Management<br><br>National | http://www.vaemergency.com/<br>10501 Trade Court<br>Richmond, VA 23236<br>(804) 897-6500 (voice)<br>(804) 897-6506 (fax)<br>pio@vdem.virginia.gov<br><br>See *National Discovery Data Coordination Procedure* |
| Campgrounds, recreational areas, emergency access routes, etc. | Virginia Information Technology Agency<br><br>National | http://www.vita.virginia.gov/isp/<br><br>See *National Discovery Data Coordination Procedure* |
| Any other data that might be appropriate | Local | Local |

### Federal Nationwide Geospatial Data Holdings

Information about nationwide holdings and programs of Federal agencies is available from the Mapping Information Platform web site at https://hazards.fema.gov/femaportal/docs/ProgFacts1.pdf.

## Finding and Accessing Other Existing Geospatial Data

Find below information about and links to ways of searching for additional geospatial data available for the State. These capabilities can be useful for finding geospatial data other than the statewide and Federal data listed above, including those of special governments, counties and parishes, municipalities, tribes, universities, and other organizations.

### Clearinghouses and Inventories for the State

VGIN has established a metadata portal for browsing and accessing geospatial data for the Commonwealth of Virginia through the Virginia Information Technologies Agency. The link is http://www.vita.virginia.gov/isp/default.aspx?id=12096 under "Base Map Data Layers".

VGEP, the Virginia Geospatial Extension Program hosts links to sites where statewide data are hosted by State agencies, educational facilities and other organizations. http://gep.frec.vt.edu/data.html

The Virginia Department of Conservation and Recreation has conservation and land data available for download at http://www.dcr.virginia.gov/natural_heritage/cldownload.shtml.

### National Digital Orthophoto Program (NDOP) and National Digital Elevation Program (NDEP) Tracking Systems

These systems allow the search of orthophoto and elevation project information entered by Federal and other organizations. To access the NDOP system, go to the NDOP web site at http://www.ndop.gov and follow the link "Project Tracking." For the NDEP system, go to the NDEP web site at http://www.ndep.gov and follow the link "Project Tracking."

### Geospatial One-Stop

Geospatial One-Stop, available at http://www.data.gov, provides access to geospatial data from many sources. Two parts of the site that should be investigated are the "data categories" for existing data and the "marketplace" for data that are planned or in-work and for potential partners for new data collection activities.

## Working with People

### Useful State and Federal Contacts

The main contacts for the State's geospatial activities and Federal agencies' representatives in State are available on the Mapping Information Platform web site at https://hazards.fema.gov/contacts/StateContacts/contacts.asp?page=VA

Additional useful contacts for the State can be found at http://www.vita.virginia.gov/isp/default.aspx?id=8386

### Involving the State's Geospatial Coordinator in Flood Studies

The State Contact prefers to be contacted by FEMA Region III or RAMPP RSC3 when questions about VGIN or other statewide datasets arise.

### State Coordination Process for Building Geospatial Partnerships

VGIN and the USGS have entered into an agreement to provide Federal access to the VBMP orthophotography. Other base map data are available for free. However, regular access to data using web services, etc. does require a support fee. Thanks to coordination between FEMA (Roberts), VGIN (Widner), and VA DCR (Gunn), approval to use the VGIN Orthophotography in FEMA FIRMs was granted.

VGIN acquired a new round of orthophotography flights and derived elevation datasets in 2009-2011. FEMA, VGIN, and VA DCR are considering partnering under FEMA's Cooperating Technical Partner (CTP) program to provide elevation data upgrades to some Virginia communities that are getting new orthophotography.

### Finding Local Geospatial Contacts

Local contacts, including those from special government districts (for example, a regional planning commission); counties, parishes, or equivalent governments; tribes, municipal governments; and other organizations (for example, local universities) also have geospatial data that can help a Flood Insurance Study. Contact information is available from the FEMA archive and web searches at government link portals such as http://www.statelocalgov.net.

The State provides a list of local, county, and regional GIS contacts through http://www.vita.virginia.gov/isp/default.aspx?id=8386

The levels of government in the list are:

a. Universities and Colleges
b. Cities and Counties

c. Private Sector
d. State Agencies
e. Planning districts

The State has very strong county governments and very strong independent city governments which exist outside of counties and function much like them. Most land use authority is in the hands of counties and independent cities.

The State has numerous water boards, river authorities, regional planning councils, councils of government, and major universities that have GIS data holdings. Examples include:

- Virginia Association of Planning District Commissions (http://www.vapdc.org)
- Radford University (http://www.radford.edu/content/csat/home/gis-center.html)
- Virginia Department of Forestry (http://www.dof.virginia.gov/gis/)
- Department of Transportation (http://gis.virginiadot.org)
- Department of Game and Inland Fisheries GIS (http://www.dgif.virginia.gov/gis/gis-data.asp)
- Department of Conservation and Recreation conservation lands database (http://www.dcr.virginia.gov/natural_heritage/clinfo.shtml)
- Department of Economic Development Partnership (http://gis.vedp.org/)
- University of Virginia (http://guides.lib.virginia.edu/content.php?pid=62214&sid=464804)

In general, GIS layers are available to FEMA are developed and maintained at both the State and local level.

## Provide Feedback on This Procedure

When you find information in this Procedure or in other FEMA or State resources that are outdated, please tell the geospatial data coordination lead in the RSC what was wrong and the correct information (if you know it). Use the contact information for the lead listed in the section Purpose of the Procedure.

The lead will use your feedback to update this Procedure.

## Other Useful Information

### FEMA Region III Elevation Data Updates

The following figures illustrate availability of high quality topographic datasets throughout FEMA Region III. These datasets may be of significantly higher resolution than the aforementioned statewide elevation datasets that are available.

# State Geospatial Data Coordination Procedure