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# Building Unified Geospatial Data for Land-Change Modeling—A Case Study in the Area of Richmond, Virginia


By David I. Donato and Jason L. Shapiro

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Cover: Map showing the location of the 24 cities and counties in the Richmond, Va., area for which data were collected. Base from U.S. Geological Survey National Elevation Dataset. Shaded relief at 200-meter resolution from the National Atlas of the United States, 2006. City and boundary names from the National Historical Geographic Information System. Albers Equal-Area Conic projection. North American Datum of 1983.

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# Conversion Factors

U.S. customary units to International System of Units

| Multiply | By | To obtain |
|---|---|---|
| | Length | |
| mile (mi) | 1.609 | kilometer (km) |

International System of Units to U.S. customary units

| Multiply | By | To obtain |
|---|---|---|
| | Length | |
| meter (m) | 3.281 | foot (ft) |
| kilometer (km) | 0.6214 | mile (mi) |

## Datum

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

## Supplemental Information

Terms in the “Glossary” are shown in bold type upon first occurrence in the report.

## Abbreviations

| | |
|---|---|
| API | application programming interface |
| DCR | Virginia Department of Conservation and Recreation |
| EGSC | Eastern Geographic Science Center |
| ETL | extract-transform-load |
| FTP | File Transfer Protocol |
| GDAL | Geospatial Data Abstraction Library |
| GIS | geographic information system |
| GRASS | Geographic Resources Analysis Support System |
| LCM | land-change model or land-change modeling |
| LULC | land use and land cover |
| MSA | Metropolitan Statistical Area |
| NAD 83 | North American Datum of 1983 |
| NPS | National Park Service |
| NTFS | New Technology File System |
| U.S. | United States |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VDGIF | Virginia Department of Game and Inland Fisheries |
| VDOF | Virginia Department of Forestry |
| VGIN | Virginia Geographic Information Network |
| VITA | Virginia Information Technologies Agency |
| XML | Extensible Markup Language |

# Building Unified Geospatial Data for Land-Change Modeling—A Case Study in the Area of Richmond, Virginia

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## Abstract

An effort to build a unified collection of geospatial data for use in land-change modeling (LCM) led to new insights into the requirements and challenges of building an LCM data infrastructure. A case study of data compilation and unification for the Richmond, Va., Metropolitan Statistical Area (MSA) delineated the problems of combining and unifying heterogeneous data from many independent localities such as counties and cities. The study also produced conclusions and recommendations for use by the national LCM community, emphasizing the critical need for simple, practical data standards and conventions for use by localities. This report contributes an uncopyrighted core glossary and a much needed operational definition of data unification.

## Introduction

> Compiling comparable data from local-level cadastral, land use, survey, and other data sets is an important challenge for the land change modeling community.
>
> —National Research Council
>
> (2014, Advancing Land Change Modeling, p. 96)

The U.S. Geological Survey (USGS) Eastern Geographic Science Center (EGSC) required a **unified**[1] and complete set of spatially referenced[2] land-use and **land-cover** (LULC) data for use in land-change modeling (LCM) projects for the **area** including and surrounding the City of Richmond, Va. Because an adequate collection of LULC data was not already available for this area, the EGSC took on the effort to find, acquire, and compile a unified set of geospatial LULC data for Richmond and its surrounding area. The EGSC collected and processed heterogeneous geospatial data for 30 categories of geographic **features** from more than 20 data producers.

In retrospect, the work done by the EGSC on this task illustrates and exemplifies the challenges of preparing data for use with process-based land-change models (National Research Council, 2014, p. 3) as well as steps that can be taken to address these challenges. Further, it is

[1]The term "unified" as used in this report has a specific meaning explained in the "Concepts and Terms" section and in the "Glossary."

[2]The "Concepts and Terms" section compares the terms "spatially referenced," "geospatial," and "geographic information system" (GIS) when used as adjectives to describe data.

now clear that the community of land-change modelers can benefit from this work's incremental contributions toward standards and methods for creating, documenting, and organizing a data infrastructure for land-change modeling. This work acts on recommendations in a recent National Research Council report on advancing land-change modeling, which advised, "Future infrastructure developments need to further support compilation, curation, and comparison of the heterogeneous data sources for input to, and parameterization and validation of LCMs [land-change models]. This component of the infrastructure for land change modeling requires open access to, documentation of, and structured organization of heterogeneous data for land change science…" (National Research Council, 2014, p. 96–97).

This report presents the data-unification effort for the Richmond area as a case study, showing how the general problems of unifying heterogeneous data from independent sources were addressed and either solved or mitigated for the specific case of LULC data in this area. This case study tracks months of effort to acquire and prepare a rich collection of geospatial data for use in process-based land-change modeling, and it presents the work in the form of concrete steps taken to build a unified, consistent, and coherent **dataset**[3]. The case study and report generalize the discoveries and conclusions made from working with data for the Richmond area into specific recommendations for the land-change modeling community. These recommendations suggest how the modeling community might use and extend these contributions in order to advance the development of an LCM[4] data infrastructure (National Research Council, 2014, p. 96–98).

The innovations presented in this report include (1) a much needed operational definition of **data unification**, (2) the core of a working glossary, (3) a starting point for developing data standards and data conventions for localities, and (4) an outline of three generalizable methods of **geographic information system (GIS)** processing.

# Background

## Why This Report is Necessary

The authors acknowledge that professionals who regularly work with geographic information system (GIS) data are already well aware of the frequent need to combine, **merge**, and otherwise aggregate heterogeneous spatial data into more readily usable datasets (Butenuth and others, 2007). These professionals may therefore reasonably ask why this report is necessary, and whether the work described in this report is really any different from what any number of GIS users and analysts do almost every day.

The answer is that the work described in this report differs from everyday GIS activities with respect to problem scope and scale of effort. As long as the scope of the problem is as narrow as just finishing today's task involving just a few GIS data **files**, and as long as the scale of the effort is just one or two day's work, there is no need for a report on the methods applied. When the problem scope expands, however, to the breadth of creating a data infrastructure for a professional community of land-change modelers, a report like this one is necessary because the inefficiencies that are (but perhaps should not be) tolerated on a day-to-day basis, when aggregated over the efforts of an entire modeling community, become unacceptable and intolerable. By the same token, when the scale of effort is weeks or months of work with

[3]The term "dataset" is subject to more confusion than many other terms in geographic information science. Refer to the "Glossary" for a definition of its intended use in this report.
[4]LCM may stand for either "land-change model" or "land-change modeling" depending on context.

hundreds of GIS data files, attention must be paid to the causes and cures of the major inefficiencies.

## Requirements for Land-Change Modeling

> An important challenge to making the most of remotely sensed data for use within LCMs is to integrate them with a variety of heterogeneous data sets. Land change information at a variety of spatial and temporal resolutions can be integrated with socioeconomic and biogeophysical data for coupling of LCMs and other types of models such as models of climate change, ecosystem services and biodiversity, energy use, and urbanization.
>
> —National Research Council
>
> (2014, Advancing Land Change Modeling, p. 87)

The data requirements for a land-change model (LCM) or modeling project depend on the specifics of the model or project. Even so, it is possible to say in general that process-based land-change models require a richer collection of spatially referenced data about land use and land cover than many of the other types of LCMs (National Research Council, 2014, p. 3). For example, consider a cellular model (which is not process based) that projects alternative futures based on a small number of transition rules that govern changes on a cell-by-cell basis from one land-use or land-cover class to another. Such a model is less likely to require detailed socio-economic data (such as data on population, housing density, and detailed location of amenities and dis-amenities) than a model that simulates the natural, social, and economic processes that result in changes in land cover and land use.

The EGSC is developing a process-based land-change model that is designed to forecast plausible alternative futures and allow users of the model to investigate how both natural and human-induced changes may interact to influence the spatially-explicit structure of future urban and **regional** landscapes. The process-based model will enable testing, study, and understanding of the effects of specific changes in socio-economic behavior and public policy on environmental outcomes. For example, the model can simulate the effects of a trend towards multi-centric and increasingly walkable cities on the space required for parks, roads, and housing. As another example, the process-based model will allow county-based or city-based forecasting of future water requirements under various zoning and taxation-policy scenarios. Hence, understanding and forecasting changes with the process-based model requires detailed spatial data on population, employment, roads, streams, water bodies, topography, soils, business, industry, climate, urban and suburban buildings and infrastructure, and major structures and institutions.

Like other classes of land-change models, process-based LCMs require both current and historical data. At the national **extent**, comparable satellite image data have become increasingly available over the course of decades. Unfortunately, at the local level the situation with respect to socio-economic and land-use data is more problematic (National Research Council, 2014, p. 87 and 96–97). Obtaining detailed local historical data is difficult or impossible at this time because such detailed data are typically produced and provided by counties or other localities that serve their local businesses and citizens with up-to-date information and data, but typically they do not regard the provision of historical data as an important service for this constituency. Historical data will, no doubt, become more readily available over time because of the increasing digitization of **records**. The availability of historical data will be a natural result of providing data in digital form, since digital data are fairly easy to archive, and because serving data from a

digital archive is simpler and less expensive than providing information from paper records and other non-digital media. However, even if historical digital records from localities become more readily available in the coming decades, deficiencies in documentation and incompatibilities in data formats will continue to impede quick and easy comparison between current and historical data.

## Geospatial-Data Portals

It is natural for readers to question whether the datasets discussed in this report can be located and obtained through an online **geospatial**-data portal. Available geospatial-data portals that provide data at no cost to the user include the following:

- ArcGIS Open Data—An Esri Web site with published data that anyone can use without charge at http://opendata.arcgis.com/.
- DATA.GOV—A U.S. General Services Administration Web site that is home to the U.S. Government's open data at https://www.data.gov/.
- Geospatial Data Gateway—A U.S. Department of Agriculture (USDA) Web site that provides access to a map library of over 100 high-resolution **vector** and **raster layers** in the Geospatial Data Warehouse at https://gdg.sc.egov.usda.gov/.
- Geospatial Platform—A Federal Geographic Data Committee (FGDC) Web site that provides "shared and trusted geospatial data, services, and applications for use by the public and by government agencies and partners to meet their mission needs" at https://www.geoplatform.gov/.
- Landsat Data Access—A USGS Web site that allows search and download of Landsat image data at http://landsat.usgs.gov/Landsat_Search_and_Download.php.
- The National Map—A USGS Web site for "a collaborative effort among the USGS and other Federal, State, and local partners to improve and deliver topographic information for the Nation" at http://nationalmap.gov/.
- Virginia Geographic Information Network Geospatial Services—A Virginia Information Technologies Agency (VITA) Web site that provides geospatial information and services related to areas within the Commonwealth of Virginia at http://www.vita.virginia.gov/isp/default.aspx?id=12096.

As readers may confirm, there are a number of sources of freely available geospatial data that provide consistent and complete **coverage** for a few particular types of data over national, multi-State regional, and even State extents. Examples of features that are widely and consistently **covered** include major roads and other transportation features, streams and water bodies, land-cover classification, and topography. National coverage with satellite images is also readily available. None of these sources, however, provides consistent and complete coverage for the many other types of detailed local data that are typically provided by counties, cities, and other localities. The most detailed, complete, and current data for localities (such as counties, cities, and towns) are generally available only from these localities' governments. Thus, at this time there is no one-stop geospatial data portal, so GIS analysts and data managers seeking detailed GIS data for small extents must expect to look for multiple data sources, particularly agencies of county and city governments.

## Ontologies

An explanation about ontologies is in order because of growing awareness among GIS data producers and consumers of the need for a conceptual and terminological framework for geospatial data, and also because of the incomplete state of development of the ontologies that might be relevant to geospatial data (Buccella and others, 2009). The term "**ontology**" as used in reference to data management and information management, however, is not easily defined in a few words. This term puzzles and offends some readers because many of the definitions of the term, and much of the discussion of ontologies in the professional literature, are opaque to anyone who is not already familiar with ontologies. In lieu of a definition, a brief description of the purpose of ontologies is provided here.

The purpose of an ontology is to provide an unambiguous and precise set of words, concepts, and relationships for a specific and circumscribed **field** or area of human concern (Lutz and others, 2009). An ontology is intended to remove the ambiguity and contradictions that are normally present in English and other natural[5] languages, and an ontology is intended to present a single way of viewing, speaking about, and writing about a field or area of concern. For example, an ontology for governmental boundaries within the United States would provide words, concepts, and relationships for all of the different types of governmental entities and governmental boundaries found in the United States, including terms and concepts for States, Territories, counties, parishes, boroughs, towns, cities, townships, **regions**, and both disputed and undisputed boundaries. Such an ontology would also describe the spatial nature and **geometry** of these governmental entities and boundaries, such as the presumption that in most States the set of all counties makes up a mutually exclusive and complete cover of the entire surface area of their State. The specific vocabulary and view provided by an ontology is intended, among other goals, to allow independent data providers and data consumers to produce compatible data products and results.

Two important points need to be made about ontologies:

1. Although an ontology can provide a useful common basis for development of geospatial data, an ontology ordinarily would not include data standards, coding conventions, file formats, or other specifications for geospatial data.
2. At this time no single, comprehensive ontology for geospatial data exists,[6] nor do domain-level ontologies exist for all of the socio-economic and geographic features frequently represented by geospatial data (Podobnikar and Ceh, 2012, p. 4–6).

In view of these points, it should be clear that ontologies for the many types of LULC data used in process-based LCM might be useful (if they existed and were readily available) but would not, in and of themselves, be sufficient to promote the independent development of compatible GIS datasets by localities. For the purpose of developing an LCM data infrastructure, accessible and therefore widely used standards and conventions for geospatial data would be of much greater and more immediate practical value. Because the coherent view and precise language provided by ontologies would facilitate the development of common geospatial data

[5]The English language is natural as opposed to artificial. Artificial languages, such as computer programming languages, are mostly free of the ambiguity found in natural languages.

[6]Although some specialists do refer to a "universal ontology" for geography, the reference is not intended to mean that there is an accessible document or document collection that constitutes a universal ontology and that provides a complete framework of words and ideas about geography and geospatial data and information. No such document or collection exists in any practical form. What does exist is a virtual collection of partially incompatible and incompletely realized ontologies and controlled vocabularies scattered among numerous publications and other sources.

standards and conventions, ontologies and data standards could be complementary. A data infrastructure for LCM would benefit from parallel and coordinated development of data standards and ontologies.

## Metadata and Existing Standards

Many standards for geospatial data and metadata have been developed (Federal Geographic Data Committee, 2015a), yet the data produced by localities in the Richmond area were not standardized. The reason may be that the information required by resource-constrained localities (for producing standards-compliant geospatial data) is scattered, costly, and difficult to use. Information published by the Federal Geographic Data Committee on the internet (Federal Geographic Data Committee, 2016) about geospatial standards illustrates this problem. Not only are there numerous categories of standards and guidelines, but many are only available for purchase through the American National Standards Institute (American National Standards Institute, 2016) or the International Organization for Standardization (International Organization for Standardization, 2016). Because of the complexity and changing state of geospatial standards, even large, better-funded local governments may find it difficult to locate the standards, guidelines, and software tools needed for building standards-compliant geospatial datasets.

In obtaining geospatial data directly from localities, structured metadata are of limited use. Under current standards, metadata are structured in Extensible Markup Language (XML) in order to enable and facilitate machine indexing and searching of large collections of data. The offerings from localities tend to be limited, so the localities and their government staff provide more useful help in finding and understanding their geospatial data than do (or would) XML files. Metadata for geospatial data are more important for data producers or distributors than for data consumers since metadata files are better structured for machine consumption than for human reading, and especially because metadata files do not consistently include effective user documentation, such as lists of **attribute codes** and definitions for data fields.

## Concepts and Terms

Some of the terms that are defined in the "Glossary" require special explanation here because they are used inconsistently and confusingly in professional books, reports, and articles.

- In this report the term "**dataset**" has essentially the same meaning as the term "**data collection**[7]" (this term is also frequently rendered as "data set"). Some writers use "dataset" to refer to a single computer data file, but in this report "dataset" only occasionally refers to a single computer data file and more often refers to a collection of any number of related computer data files. With rare exceptions, the computer data files that make up a dataset are related; hence a dataset is in some sense a unified or coherent collection. This report's use of "dataset" as equivalent to "data collection" is consistent with other terminology in the field of GIS, such as the use of the term "**shapefile**" to refer to a collection of computer files.
- In general, the term "**attribute**" is used in multiple senses in articles and documentation related to GIS. In this report, however, the term is used only to denote a specific, single value or characteristic associated with a specific geographic feature. For example, the

[7]The word "collection" here refers to a set of data files, not to the process of collecting them.

name of a particular school building might be "Benjamin Franklin Elementary School;" in this case, the name "Benjamin Franklin Elementary School" is an attribute of a particular school building. In a feature-class file containing data on a number of schools, there may be a table of attribute data that includes a **column** of school names. In this report, the column of attributes is called a **column** or **field**, and the name of this column or field is called the **field name** or **column name**. This usage differs from the practice of some writers who use the term "attribute" to refer to an individual value in a table column and also to refer to the entire table column. To avoid this ambiguity, in this report the term "attribute" is not used to refer to a column or field of data. The set of all potential attributes within a column or field of data is referred to as its "**range**."

- Data that include coordinate pairs that each identify a precise point on the surface of the Earth are variously called **geospatial** data, **spatially referenced** data, and **GIS** data. Although these terms are used in the professional literature of geographic information science with meanings that only partially overlap, in this report they are used essentially interchangeably.
- Terms that are often used to describe operations to make heterogeneous data more compatible, coherent, consistent, or comparable include "**integration**," "**fusion**," and "**reformatting**." The meanings of these terms vary according to context and source, so there is some advantage to avoiding them. This report applies the alternative term "**data unification**" consistently throughout. The next sub-section provides a new operational definition of this term.
- The term "**feature class**" can refer either to a geospatial data file or to a collection of actual, on-the-ground geographic features, depending on context. When the meaning is not clear from context, the qualified term "feature-class file" is used to specify a data file as opposed to a group of actual geographic features (such as canyons or roads or lakes). The terms "feature class" and "**feature type**" are not equivalent. A feature type specifies general geometric or spatial characteristics, such as whether the feature is a point, line, curve, polygon, or area.

The "Glossary" provides a detailed listing and explanation of the concepts and terms used in this report that might otherwise be subject to misunderstanding.

## Desirable Qualities of a Unified GIS Dataset

Because there seems to be no technical term in widespread use that denotes the qualities required in the collection of spatially referenced LULC data for the Richmond area, this report proposes and applies the term "**unified**" to describe a suitable collection of spatially referenced computer data files (Gotway and Young, 2002; Buccella and others, 2009). Such a collection of files is allowed to be redundant, but it must not be inconsistent. The collection may include, for example, the same kind of feature-class files separately for several counties as well as the same feature-class files merged together to provide a **seamless** feature cover for the entire multi-county area; in this case, the redundancy is regarded as beneficial because it provides geographic analysts with immediate access either to data for a single county or data for a larger area.

As the term is used in this report, a collection of GIS data files for an area is said to be "unified" if it has the following desirable qualities:

- **Availability of documentation**—Self-contained documents that describe all data files in the collection should be provided. These documents should be formatted for ease of reference and human-eye perusal, and should include user notes and complete lists and definitions of attribute codes, **data types**, and data fields.
- **Completeness of coverage of the area by data for all essential features**—There should be no gaps in the important and required features, although partial coverage by optional features is acceptable. This means that the dataset can include optional data that are provided by some counties or cities but not others, as long as essential features are available for the entire area. The determination of which features are essential and which are not depends on the specifics of the modeling task for which data are being gathered and unified.
- **Consistency in the use of codes, descriptions, and other values within data tables**—As examples, the same codes for types of roads should be used throughout the data tables; the same classifications for streams and water bodies should be used; and the same land-cover types should be used throughout. For example, an interstate highway should not be coded as "80" in one file and as "ISHwy" in another file.
- **Consistency in use of field names**—A data table for a particular kind of feature in any one of the files within a unified GIS dataset should use the same field (column) name as any other data table for the same kind of feature in any other file of this **unified dataset**.
- **Equivalence of level of detail**—**Raster image** files should be based on the same overall grid for the entire area covered by the collection of data files, and should use the same cell size. The spacing of points for each vector feature should be approximately equal throughout all of the files. Data that have an equivalent level of detail can be accurately mapped at the same maximum map scale.
- **Seamlessness of merged data**—There should be no cracks, seams, overlaps, gaps, slivers, or other artifacts in merged datasets. When **raster data** are merged by constructing a **mosaic**, each composite feature should be free of artificial jags or offsets. Merged vector line and vector area features should be joined smoothly and without visible or detectable artificial offsets.
- **Uniformity of accuracy**—A collection of GIS data files cannot be regarded as "unified" if any of the sets is substantially less accurate than any other of the sets. Accuracy is not the same as level of detail. Accuracy is relative to the level of detail.
- **Uniformity of spatial reference**—All coordinate data in the data files of the collection apply in the same **system of geographic reference**, such as the combination of a map projection, datum, and zone.
- **Uniqueness of data**—Although data from the data files for sub-areas, such as counties, may be duplicated in the merged data files for the entire area, there should be only one version of data for any particular feature within a particular sub-area or within the files for the entire area.

The desirable qualities listed in this section, taken together, describe an ideal unified dataset. This ideal is presented here as a long-term goal and as an expression of the need for data standards and coordination among developers and distributors of spatially referenced datasets (Gotway and Young, 2002; Buccella and others, 2009). This ideal is difficult or impossible to

achieve when combining datasets that were independently developed without the application of common data conventions and standards.

## Difficulties of Building a Unified GIS Dataset from Independently Developed Datasets

The EGSC's experience with data for the area of Richmond, Va., illustrates the uncoordinated current state of dataset development and distribution across localities in the United States. To say that these independently produced geospatial data are heterogeneous is an understatement. There is value, however, in studying the many differences among these independently produced datasets. Contrasting the desirable, ideal qualities of unified data with the contrary, actual qualities of real-world data is a useful exercise for achieving a clearer understanding of the need for widespread adoption of common standards and conventions for defining, naming, organizing, and coding spatially referenced data.

The effort to build a unified GIS dataset for the Richmond area was typical of projects to collect and consolidate GIS data for urban areas or similar-sized regions. This is because of the difficulties encountered in almost any attempt to unify and consolidate a collection of independently-developed spatial data files (Williams and Dreza, 2005). These challenges and hindrances include the following:

- Variations in file formats and distribution media;
- Differences in **spatial reference**;
- Differences in **spatial extent**;
- Overlaps of coverage;
- Contradictions within areas of overlapping coverage;
- Inconsistencies in the availability of features among the sources;
- Restrictions on the use and redistribution of data;
- Differences in the set of features included in feature classes;
- Incompatibilities among conventions for naming files and fields;
- Incompatibilities among definitions of geographic features and their attributes;
- Inconsistencies in the labeling of fields (columns) within data tables; and
- Inconsistencies in the coding or representation of feature attributes.

An attempt to unify heterogeneous, independently-developed GIS datasets can be only partially successful. Until, or unless, independent jurisdictions follow common standards and ontologies for the description, selection, collection, formatting, and packaging of spatially referenced data, the ideal unified dataset described in the preceding sub-section will be only partially achievable (Butenuth and others, 2007).

These observations about the difficulties of building unified GIS datasets are not new (Zhao and others, 2008; Federal Geographic Data Committee, 2015a,b). There is also an abundance of published information related to the compilation, integration, and **unification** of spatial data, much of it addressing these difficulties through the topics of semantic homogenization, shared vocabularies, ontologies, and extract-transform-load (ETL) tools and techniques (Ziegler and Dittrich, 2004; Program Manager, Information Sharing Environment, 2015). Unfortunately, much of the information published on this topic is too abstract to be of immediate help to the GIS specialist who is building a dataset. The unification of spatial data

remains a challenge despite the abundance of published information about the problem (Buccella and others, 2009; Lutz and others, 2009; Vassiliadis, 2009). Any effort to unify heterogeneous and disparately sourced spatial data will benefit from the development of practical tools and methods, especially until widespread adoption of common standards and conventions leads to the general availability of compatible data.

### Conventions for Naming, Coding, and Describing Files and Data Tables

Although there is an abundance of standards for spatially referenced data, it will take years for them to be adopted and implemented within the working procedures of those who collect and distribute data for cities, towns, counties, States, and even Federal agencies. Furthermore, finding, understanding, and applying data standards is a resource-consuming task in its own right, one that often must be subordinated to the primary goal of collecting and distributing useful data, even if those data are not fully compliant with available standards. The effort in compiling data for the Richmond, Va., area was itself resource-constrained, requiring the development of conventions and standards for naming and coding data files and data tables.

The new naming conventions developed for files from the Richmond area specify simple names that describe the essential characteristics of their content and therefore make it easy to identify files, to distinguish one file from another, and to organize files into sub-collections. Concatenating short codes for the key characteristics of data in file names created meaningful names that also facilitate the classification of files. Names include short codes for each type of spatial extent (such as a State or county), feature class (such as a road or railroad), data shape (such as points or polygons), data source, and the year of data currency.

## The Richmond Area

The EGSC compiled a dataset for numerous geographic features of the area surrounding and including the city of Richmond, Va. This area was chosen because it is well suited to a study of land development and change using a process-based land-change model. The resulting set of LULC data covers 24 distinct jurisdictions (counties and incorporated cities) within an approximately 50-mile[8] (80 kilometer) radius of the city of Richmond, Va. (fig. 1, table 1) in formats suitable for processing with a GIS. This dataset corresponds to the Richmond **Metropolitan Statistical Area** (MSA) as it is defined by the U.S. Census Bureau, except for the exclusion of Cumberland County[9] and the inclusion of a few additional jurisdictions (fig. 2, table 1) (U.S. Census Bureau, 2009).

This geographic dataset includes more than 30 feature classes (table 2) and covers the Richmond area with both raster and **vector datasets** representing a wide array of natural and anthropogenic features. The set includes data files for topography, waterways, water bodies, population, transportation, and other features of the built and natural environments. These geographic data are potentially useful especially for land-change and other environmental and policy-related studies.

[8]A 50-mile radius includes the areas in which land development is most strongly influenced by the socio-economic activity centered on the city of Richmond. The selection of a 50-mile radius is partially arbitrary, but it meets the basic requirement of providing a large enough area for a preliminary land-change modeling study. Depending on the findings and goals of the study, the area may need to be expanded for subsequent phases of the study.

[9] Cumberland County was omitted from the dataset because it lies outside of the 50-mile-radius circle around Richmond, Virginia.

This report describes the decisions and procedures that went into building this set of LULC data for the Richmond, Va., area. It identifies the difficulties that were encountered and the methods used to overcome or work around some of these problems.

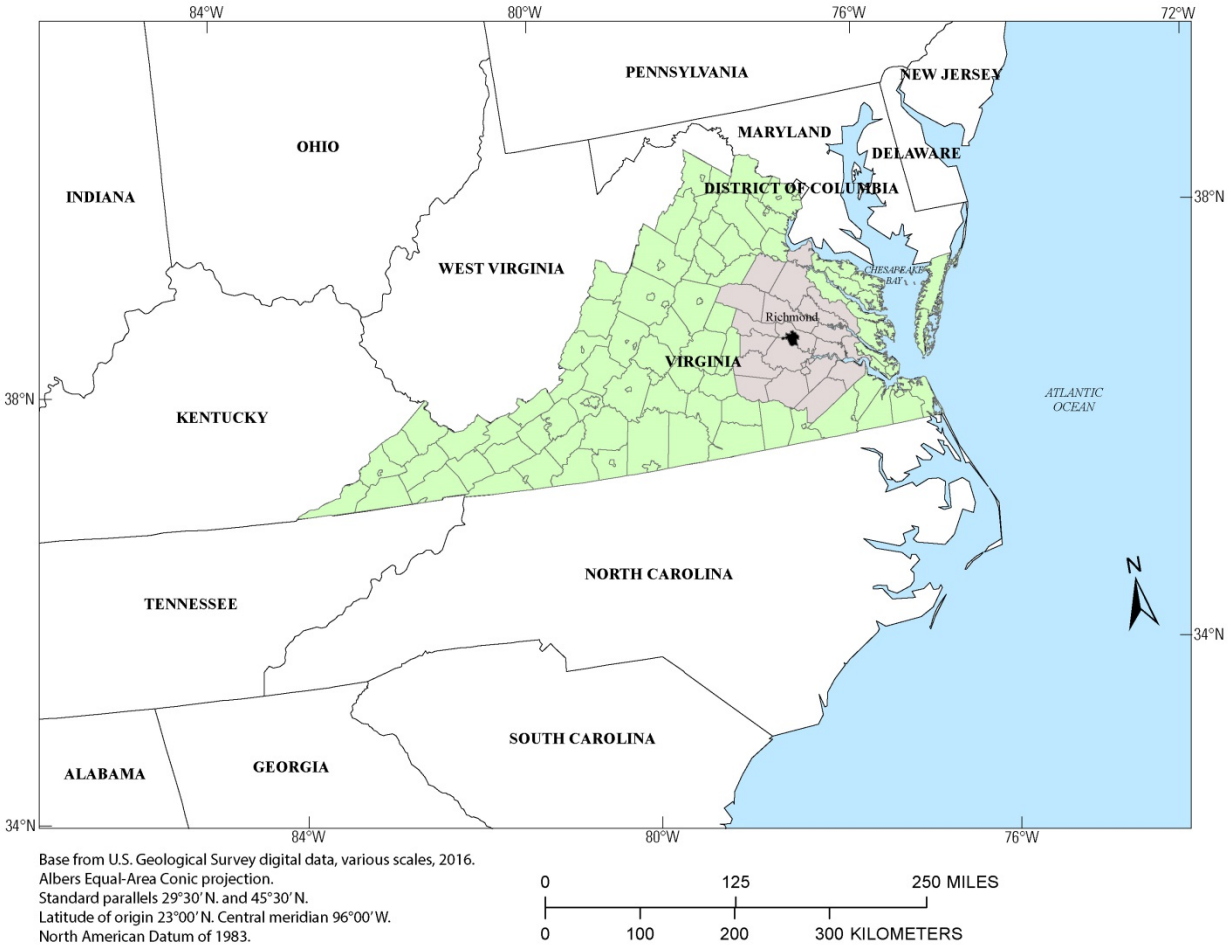


Figure 1. Map showing the location of the 24 jurisdictions (cities and counties) in the Richmond, Va., area for which data were collected; shown in light grey. Virginia jurisdictions outside of the area of data collection are shown in green. The city of Richmond is shown in black.

Because of restrictions placed on much of the data by their sources, the final collection of data files and file **geodatabases** cannot be redistributed in its entirety. Some portions of the unified dataset, however, are available for redistribution as explained in the section on "Data availability." Appendix 1 provides information on the data sources and lists restrictions on re-distribution by source.

Table 1. List of jurisdictions in the Richmond, Va., Metropolitan Statistical Area (MSA).

[The 5 jurisdictions included in the dataset described in this report that are not in the MSA as defined by the U.S. Census Bureau are marked with [+]; and the one jurisdiction that is in the MSA as defined by the U.S. Census Bureau that is not in the dataset described in this report is marked with [–] and shown in red type. Refer to appendix 1 for contact information for these and other data sources]

| Name of Jurisdiction | Type of Jurisdiction |
|---|---|
| Amelia | County |
| Caroline | County |
| Charles City | County |
| Chesterfield | County |
| Colonial Heights | City |
| Cumberland [–] | County |
| Dinwiddie | County |
| Goochland | County |
| Hanover | County |
| Henrico | County |
| Hopewell | City |
| James City **[+]** | County |
| King and Queen | County |
| King George **[+]** | County |
| King William | County |
| Louisa | County |
| New Kent | County |
| Nottoway **[+]** | County |
| Petersburg | City |
| Powhatan | County |
| Prince George | County |
| Richmond | City |
| Spotsylvania **[+]** | County |
| Surry **[+]** | County |
| Sussex | County |

# The Process of Building the Dataset and Geodatabases

## Phase 1: Discovery, Acquisition, and Preliminary Compilation of the Data

### Discovery

The first step was to seek out data from the various counties in the Richmond, Va., area because, in general, counties are the choice of first resort for up-to-date and detailed local information. At the same time, data were also requested from cities in the area because incorporated cities in Virginia commonly provide many of the same data and information services provided by counties. Web sites were used for finding information from these jurisdictions. E-mail and telephone contacts helped to locate additional information. Once the data were in hand, comparison and classification began. Data were classified by the following characteristics:

- Data type;
- Feature class;
- Spatial extent;
- Dates of data and data sources;

- Cost, if any, for the data; and
- Data licenses and other restrictions on the use or redistribution of data.

After the availability of data from local sources was assessed, the search turned to sources that might be able to provide coverage of the entire extent of the Richmond area. Notably, the Virginia Geographic Information Network (VGIN) (VGIN and VITA, 2016a) and the Virginia GIS Clearinghouse (VGIN and VITA, 2016b) provided statewide data that included coverage of the Richmond area. In addition, several Federal agencies provided data for the growing geographic dataset for the Richmond area.

### Acquisition

The specific method of obtaining data from each source varied. In some cases, data were simply downloaded from a Web site. In others, data were sent via e-mail. More than one jurisdiction placed data on an FTP site. In one case, data were written onto a CD-ROM disc and mailed.

In general, the ease of obtaining data from a jurisdiction was correlated with the population of the jurisdiction. More populous jurisdictions have larger GIS staffs in their local government and these jurisdictions are therefore more capable of making data readily available. By contrast, smaller jurisdictions have smaller GIS staffs or, in some cases, no staff; and the amount and variety of GIS data available from these smaller jurisdictions are noticeably more limited, and the data are more difficult to obtain.

Ultimately, data were obtained from 24 different sources including the VGIN, three Virginia State agencies, and several Federal agencies. Most of the data acquired were in the form of shapefiles or raster image files. A complete list of the files as they are classified and were compiled is included in appendix 2. The most important classes of geographic features (or "feature classes") for which data were acquired (features for which area-wide coverage was highly desirable) were as follows:

- Road and transportation networks;
- Water bodies and water courses;
- Parks (local, State, and Federal);
- Protected areas;
- Land-use data; and
- Land-cover data.

Some of the jurisdictions of the Richmond MSA require a monetary fee for some of their data. For this project, however, the only data collected were those that were provided free of charge, leaving it to a potential future project to supplement this collection of data for the Richmond area by purchasing additional data.

### Preliminary Compilation

Before attempting to combine and unify the data from various sources, it was necessary to examine and compare the files and folders provided by each source, to compare the systems of spatial reference used for the various datasets, and to compile lists of features and associated data (attributes) for the entire collection of datasets. This initial exploration resulted in a preliminary

plan for selecting the most important and uniformly available LULC data and organizing these data into a combined collection for the entire Richmond MSA.

Table 2. List of feature classes in the geographic dataset.

| Feature Class Type |
|---|
| Address points |
| Boundaries |
| Buildings |
| Contours and elevation (topography) |
| Flood plains |
| Forests |
| Future land use |
| Golf courses |
| Land cover |
| Landmarks |
| Land use |
| Parcels |
| Parks |
| Population |
| Protected areas |
| Railroads |
| Rivers |
| Roads |
| Schools |
| Slope |
| Soils |
| Streams |
| Topography |
| Transit (public transportation) |
| Tree coverage |
| Utilities |
| Water bodies |
| Watersheds |
| Wetlands and swamps |
| ZIP codes |
| Zoning |

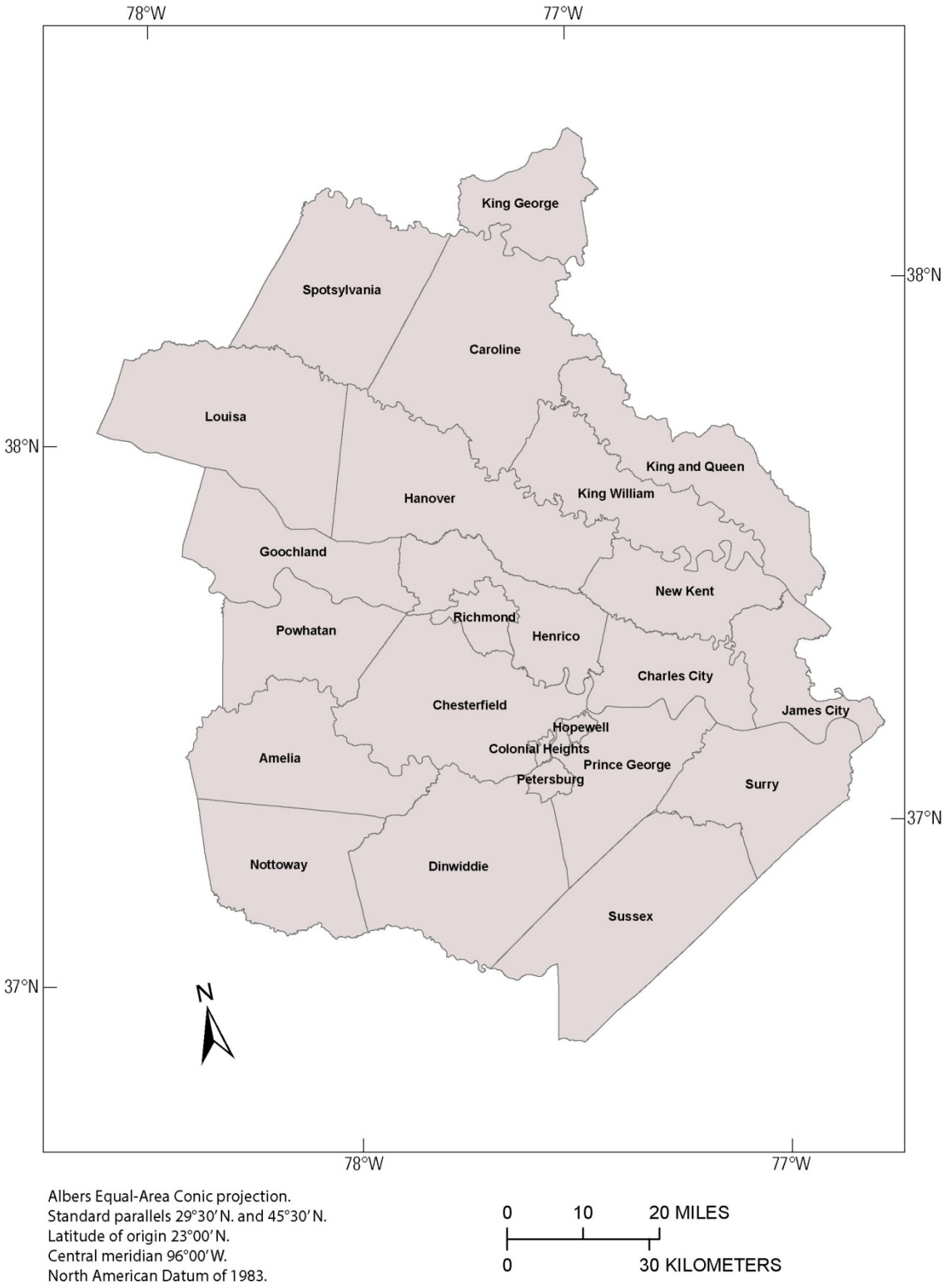


Figure 2. Map showing the 24 jurisdictions (cities and counties) in the Richmond, Va., area for which data were collected.

## Phase 2: Combining and Unifying the Data

As mentioned previously, the datasets provided by the many sources varied from one another in important respects. Consequently, combining and unifying these datasets required several steps.

The first step was to create an empty, hierarchical structure for the computer directories (folders) used to hold the combined and unified datasets as they became available for storage. The hierarchical structure consists of 3 or 4 classification levels, which allows the data to be aggregated and organized logically (figs. 3a and 3b; appendix 2). The top-level directory structure (classification level 1) chosen for this project is as follows:

- Data by feature classes;
- Data by jurisdictions;
- County boundaries;
- Nationwide data;
- Quantitative results (spatial statistics);
- Statewide data; and
- Merged data for the entire Richmond study area.

In the next step, with the general, top level of the target data classification hierarchy defined, standards and conventions were established for naming files and fields, and for coding attributes. A plan was prepared for clipping data from the broad-extent files provided by the State of Virginia and by Federal agencies. These broad extents would be clipped to the boundaries of the smaller spatial extents (the counties and cities). A plan was also established for merging data for smaller extents into files that would cover the entire Richmond area.

As another step in the course of organizing and combining the data, the data were reprojected as necessary into a common **system of geographic reference** (Zeiler, 2010). The common system of spatial reference chosen for this effort was the Albers Equal-Area Conic projection. Specifications of the spatial reference chosen are given below.

| | |
|---|---|
| Projection: | Albers Equal-Area Conic |
| Horizontal datum: | North American Datum of 1983 (NAD 83) |
| Standard parallel 1: | 29.5° |
| Standard parallel 2: | 45.5° |
| Central meridian: | -96.0° |
| Latitude of origin: | 23.0° |
| False easting: | 0.0 |
| False northing: | 0.0 |
| Linear unit: | meter |

The Albers Equal-Area Conic projection was chosen because it is the projection most frequently used in cell-based land-change modeling in USGS projects.

The combined data collection was intentionally designed to be redundant in order to assist users in finding and using the data they need as quickly and easily as possible. For those users who are most interested in specific features within the Richmond MSA, the collection organized by feature class provides ready access. The set of data by feature class also assists users by showing the available feature data for each of the jurisdictions within the MSA and letting users know when feature data of a particular type are not available for some of the

jurisdictions. As examples, forest data are available only for Louisa County and Richmond City; parks data are available for 18 out of the 24 jurisdictions; and roads data are available for all 24 jurisdictions. Users who are more interested in one or more specific jurisdictions will find it convenient to access the sub-collection of data organized by jurisdiction. Finally, those users who require seamless data for the entire MSA will benefit from the merged data that provide seamless and (in many cases) **wall-to-wall** coverage of the Richmond MSA.

For convenience, the collection retains the full statewide and nationwide datasets used in building the dataset for this MSA. The selection of feature types in the statewide and nationwide data collections is more limited than the feature types available from localities (counties, cities, or towns), but this limited set of features does fill in some data gaps within the MSA and also provides data for the geographic area surrounding the MSA. The nationwide data provide coverage for roads and population. The statewide data represent colleges, hospitals, wildlife management areas, and other features administered at the State level.

The work involved in merging heterogeneous data made up a major part of the effort of building a unified dataset for the Richmond area. There are two different data-merge processes, so it is important to understand in any context which is intended. The two processes are (1) creating mosaics of raster data, and (2) joining **vector data** across dataset boundaries.

For greater clarity, the term "**merge**" should generally be used in the narrow sense of joining vector data, while the creation of mosaics should be called "**mosaicking**." Of these two, the work with vector datasets required the greatest effort by far. In particular, the preparation of datasets for merging required a major commitment of time and effort. To prepare datasets for merging, the names of fields (columns) of attributes associated with geographic features needed to be made the same; and the data values used for attributes needed to be recoded into a single, consistent set of values (for example, Interstate Highway 95 needed to be designated with the same attribute value in all datasets for roads). Although the process of merging heterogeneous data could not be completely automated, Python programs were developed and proved effective in speeding up and facilitating this process, thus semi-automating the work of merging vector datasets.

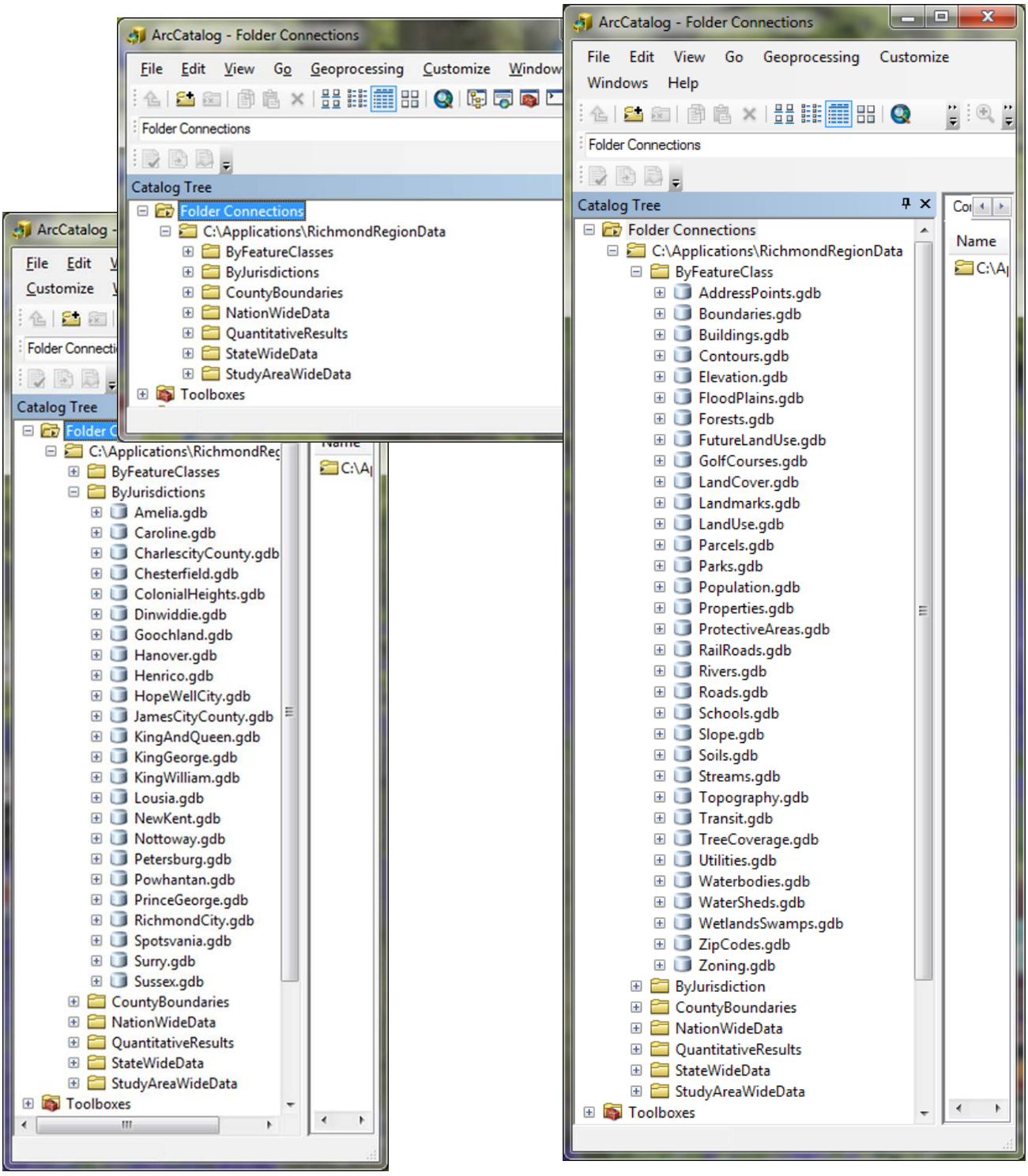


Figure 3a. Screenshot image showing the top-level directory structure and file geodatabases (.gdb) of the unified geographic dataset for the Richmond, Va., Metropolitan Statistical Area (MSA). The top-level directories correspond to what is called “Classification level 1” in appendix 2, and the next level of directories or geodatabases (such as the geodatabases shown for jurisdictions and feature classes) correspond to what is called “Classification level 2” in appendix 2.

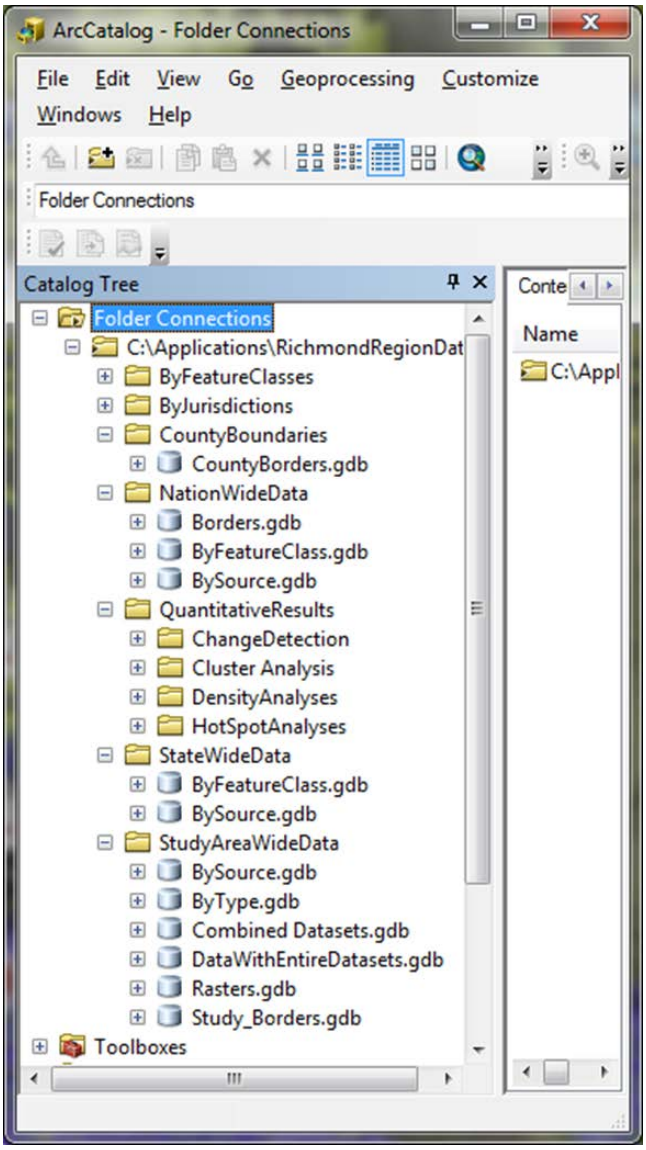


Figure 3b. Screenshot image showing the top-level structure and file geodatabases (.gdb) of the unified geographic dataset for the Richmond, Va., Metropolitan Statistical Area (MSA).

## Phase 3: Reformatting and Consolidating Data into Geodatabases

After compiling and unifying the dataset, most of the data were reformatted and consolidated into a collection of spatially referenced datasets that includes 69 file **geodatabases**[10] (.gdb files in figs. 3a and 3b and appendix 2). In appendix 2, "Classification level 2" mostly consists of these geodatabases, which serve to organize feature-class data. The file geodatabase is a proprietary format developed by Esri for its commercial GIS software. This format was chosen because of the following beneficial characteristics of the format:

[10]Although it may seem that there should be a specific technical term for a set or collection of geodatabases, the authors are not aware of any such term in widespread use. The definition in the "Glossary" for the term "geodatabase" distinguishes between its use in a general sense and the more widely used and specific meaning that refers to a file format introduced by Esri.

1. **Convenient packaging for sharing**—A file geodatabase consists of a single computer file-system folder (directory) and the files it contains. Because a file geodatabase folder does not contain subfolders, and because the files in the file geodatabase folder have the same format under the Windows, UNIX, and Linux operating systems, a file geodatabase can be readily packaged for sharing with the "zip" or "tar" archive facilities.
2. **Compression**—A file geodatabase can be displayed and edited with Esri's GIS software even while it is in its compressed form.
3. **Performance**—File geodatabases can be displayed and changed more quickly than the same data stored in other formats.
4. **Accessibility for various geographic information systems**—Although Esri's proprietary ArcGIS software product offers the most extensive features for working with file geodatabases, the application programming interface (API) for the file geodatabase format is available without charge for use with other software under the Windows and Linux operating systems, as is a higher-level programmer's interface included in the freely available and widely used Geospatial Data Abstraction Library (GDAL) (GDAL, 2016).

The file geodatabase format also has a few disadvantages including the following:

1. Not all GIS software is equipped to make full use of file geodatabases; and
2. A file geodatabase cannot be readily inspected through ordinary computer operating-system facilities.

## Summary of Methods

The methods developed for building the Richmond area dataset and geodatabase collection are summarized in this section. The methods apply to both vector and raster data, though most of the work involved in applying these methods involved vector data.

### Method 1: Unifying Data Names and Attribute Tables

Uniform naming and coding in feature-class files is a prerequisite for efficient and accurate merging. Conventions were developed and applied for file names, field names, and field types. First, all of the heterogeneous data for a feature-class type from the various jurisdictions (counties, cities, and towns) were reviewed in order to identify a common core of feature attributes. Then appropriate field names and conventions for attribute codes for features were selected or devised. Finally, the names and codes in all of the feature-class files were unified by deleting fields that were not common to all of the files, by recoding attributes, and by renaming fields (that is, columns) in these feature-class files. A Python program was developed that partially automates the changes in field names and attribute codes. In order to have a more complete set of data for the various jurisdictions, some feature classes from the statewide and nationwide datasets were clipped using jurisdictional boundaries.

### Method 2: Eliminating Data Overlaps

In a few cases, data for some feature classes of vector data overlapped. This often occurred when working with data from multiple sources for the same jurisdiction. In these cases, the ArcGIS "Detect Feature Changes" tool allowed the differences among overlapping data to be

detected quickly and easily. Use of this tool enabled the evaluation of overlapping or duplicate data, discrimination between matching data and conflicting data, and choice of the most accurate data within each area of overlap.

Although the "Detect Feature Changes" tool was designed for detecting change over time, it proved to be an effective tool for eliminating data duplication. The tool effectively selects the most consistent, and usually most accurate, data in the area of overlap. This tool also provides information that is useful in making decisions about how to remove duplications in the overlapping data. It reports matches, new features, changes of location, deletions of features, and changes in attributes within the overlapping data.

### Method 3: Merging Extents

In order to have seamless coverage of the Richmond MSA by the most important feature classes, the data for these feature classes for the individual jurisdictions were merged into MSA-wide seamless datasets. The ArcGIS commands for combining multiple datasets into one are "**merge**" and "**union**." The "merge" command is by far the most important in the work in the Richmond area.

A Python program processes lists of the files that should be merged and then it sequentially **calls** the merge process for these files within ArcGIS. The program runs this lengthy process without manual intervention. The automation of this procedure reduces errors by eliminating the repetitive manual selection of files and processes, instead requiring only the preparation of simple lists of input file names. The automated procedure also saves time by eliminating the delays that would occur between processes if ArcGIS were waiting for user input between **calls** to the merge command.

## Data Availability

Appendix 1 lists the restrictions on the distribution of the data collected and unified for the Richmond MSA. The data not subject to restrictions are available upon request.

## Summary and Recommendations

> A data infrastructure to support land change modeling would need to recognize the different thematic data that are necessary; recognize their heterogeneous semantic, spatial, and temporal referencing; and develop a structured system for access and integration in the form of a global integrated land information system.
>
> —National Research Council
> (2014, Advancing Land Change Modeling, p. 97)

The Richmond, Va., Metropolitan Statistical Area (MSA) is an area well suited for the development, testing, and validation of process-based land-change models. This report has presented a case study of an effort to build a unified set of geospatial data for this area from independently developed, heterogeneous datasets in order to provide data that meet the requirements of process-based land-change models for detailed coverage of numerous land-use and land-cover (LULC) features.

At the basic level of data discovery, acquisition, compilation, and processing, much of the work that went into building a unified dataset for the Richmond area was similar to what GIS users and analysts do every day. Even so, because of the scope of the problem of unifying

heterogeneous data across an entire metropolitan statistical area, and because of the scale of the effort of unifying 30 categories of geographic features across data files from 24 individual data providers, the work highlighted the systemic need for standardization among data producers, and the need for sharing tools and techniques among data consumers.

This case study of data unification for the area of Richmond, Va., resulted in the following findings:

1. Localities (counties, cities, and others) do not use common or standard data formats or conventions.
2. Inconsistencies in the use of technical terms among geospatial data users and consumers can lead to misunderstandings.
3. When data producers do not use common standards and conventions, the resulting heterogeneous data often cannot be completely unified later.
4. Software tools (including software that operates within existing geographic information systems such as ArcGIS and the Geographic Resources Analysis Support System (GRASS)) for at least partially automating the work of unifying heterogeneous data from independent sources are not readily available or are not easily found.
5. At this time, geographic information science and land-change modeling lack the common semantic framework and terminology (such as would be provided by an ontology) required for the development of effective data standards and conventions, which should be distributed and suggested to the many localities that currently produce geospatial data in a standards vacuum (National Research Council, 2014, p. 97).

The Eastern Geographic Science Center (EGSC) of the U.S. Geological Survey (USGS) has made the following contributions towards a geospatial data infrastructure for the USGS and national land-change modeling community:

1. An operational definition of data unification that establishes goals for other efforts similar to the building of a dataset for the area of Richmond, Va.;
2. The core of a new uncopyrighted glossary for producers, distributors, and consumers of geospatial data;
3. The first entry into a potential series of reports that document data compiled for land-change modeling studies and the evolving data infrastructure for land-change modeling; and
4. Descriptions of methods for handling heterogeneous geospatial data.

Based on our experience in building unified geospatial data for land-change modeling for the area of Richmond, Va., we offer the following technical recommendations to the USGS subject to coordination with the national land-change modeling (LCM) community:

- **Build an actual (virtual) LCM data repository**—The USGS should build an LCM-specific data repository with the intent to contribute it to a national LCM data repository. This repository would contain and distribute datasets or provide links to other sites that contain and distribute LCM data.
- **Develop and distribute data standards and data conventions**—In cooperation with other groups of users of geospatial data, consideration should be given to incrementally developing freely distributable standards, examples, and templates for geospatial datasets. These materials would be provided for the categories of data that are often used in LCM

and would consist of self-contained documents, exemplars, and **database** structures or schema. Whenever possible, standards and conventions provided by data-domain specialists, such as State and Federal transportation departments, should be adopted. Unlike the abstract geospatial standards available from standards organizations, these standards and conventions would be concrete and compact.

- **Develop and distribute standards for data documentation**—In cooperation with other groups of users of geospatial data, consideration should be given to incrementally developing formats for data documentation. Unlike metadata, these documents would be structured for human reading, not for machine processing.
- **Maintain an evolving glossary for geospatial and geographic information science**—The USGS LCM community should maintain an evolving glossary that would be applied in publishing reports and documentation.
- **Network with data producers and other communities of geospatial data users**—The USGS and national LCM communities need to engage with national and State associations of county and city governments in order to promote the use of standards and conventions for data and data documentation.
- **Publish reports on projects to build unified geospatial datasets**—Members of the national LCM community need to be encouraged to publish reports on any major efforts to build unified geospatial datasets from heterogeneous sources.
- **Publish computer code for data compilation and unification**—The USGS LCM community should set an example by publishing computer code for compilation and unification of geospatial data on a shared repository site such as https://github.com/usgs.

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[Data sources used in this report are provided in appendix 1 and are not listed here in the references cited.]


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# Glossary

[Terms in the "Glossary" are shown in bold type upon first occurrence in the report]

This report makes use of vocabulary and technical terms from the fields of geographic information science and computer database technology. Since there are variations in the usage of some of these terms in professional writing and speaking, this glossary defines and explains the technical terms used in this report that are most likely to be misconstrued or misunderstood. Some of these explanatory definitions include annotations and comments provided to clarify the usage and concepts associated with the terms. The following list of terms is not meant to be a complete glossary for geographic information systems and technology.

**Area** [noun] A connected two-dimensional part of the land surface. Examples include U.S. Census Bureau blocks, counties, and Metropolitan Statistical Areas (MSAs). In general, the terms "area," "spatial extent," and "region" are used semi-synonymously although some writers intend a region to be much larger than an area and a sub-region to be slightly larger than an area.
**Attribute** [noun] (1) A column or field in a relational database table; (2) a value associated with a cell in a raster grid or with a feature in a feature class; (3) a characteristic of a database table or data file; or (4) a value for a specific column and row (record) of a database table. Since the term "attribute" is used in many different senses, can be a synonym for "field," and can mean a value within a field in a specific table record, this term should only be used with adequate qualification. In ArcGIS, a relational table associated with a feature-class file is called an "attribute table," and this usage implies that each item of data that describes one feature of a feature class is an "attribute" of that feature.
**Call** [noun] The action of temporarily or permanently passing control to another process (in computer software). This is a specialized term used in computer programming. Programmers sometimes say that a computer program "makes a call to" some other program or part of a computer program, and that a line of code in a computer program "is a call to" another program or part of a program.
**Call** [verb] To pass control to another process in a computer program. Also see "call [noun]."
**Code** [noun] (1) A number or short character string that represents a longer item of data. Examples include "CA" to stand for California and "80014" to represent the area to which this ZIP code is assigned. (2) Statements and directives making up the human-readable (source) statements of a computer program.
**Column** [noun] The set of values in a fixed-field database table that occur in the same relative position in horizontal order in each record of the table. For example, all of the values that are third from the left in each row of a database table constitutes column. The terms "column" and "field" are synonyms in the context of relational database tables and other similar data files.
**Column name** [noun] The name applied to a column (or field) of a database table or file. The terms "column name" and "field name" are synonyms in the context of relational database tables.
**Cover** [noun] (1) The geographic features that occur over an area of the Earth's surface. This is also called "land cover." (2) A loose synonym for the term "coverage."
**Cover** [verb] To completely include a (two-dimensional) spatial extent. One spatial extent is said to "cover" a second extent if the second is completely included in the first spatial extent.

Coverage [noun] (1) The state or condition of being covered by an area, region, or other spatial extent; (2) a particular type of GIS file as defined by Esri for use with its ArcInfo and ArcGIS products; or (3) a set of geospatial data files that cover an area, region, or other spatial extent. When used without qualification, this term refers to sense (1) of this definition.
Database [noun] A collection of data organized according to a formal data model and stored in computer files that have specific formats and structures. Examples of types of databases are those based on the relational, hierarchical, or network data models.
Data collection [noun] An organized group of machine-readable data files; or a computer data file. This term is a near synonym for "dataset."
Data fusion [noun] See "fusion."
Data integration [noun] See "integration."
Dataset [noun] A collection or grouping of organized, machine-readable data. A dataset may be a single computer file such as a database table, or it may be a collection of multiple computer files. The latter meaning is used in this report, though some writers prefer "data collection" for the latter and reserve "dataset" for a single computer file of data. Note that some writers prefer "data set."
Data table [noun] Data organized into rows and a fixed number of columns; an attribute table. The columns of a data table are also called "columns" or "fields." Some data tables (but not all) are suited for use within a relational database.
Data type [noun] A general category of computer data. Examples include integer, Boolean, character, string, and binary large object.
Data unification [noun] See "unification" and "unified dataset."
Extent See "spatial extent."
Feature [noun] A discrete entity found on the land surface, such as a river, building, city, county, park, monument, road, or mountain.
Feature class [noun] A collection or set of features, or a computer file for use with GIS that includes more than one feature, usually of the same type. Examples include shape files that contain multiple features with the same geometric type, such as point or polygon.
Feature type [noun] A category or class of features with the same geometric or spatial characteristics. "Feature type" is not the same as "feature class," and is a broader and more abstract classification than "feature class." Feature types include the point type and the areal type. By contrast, a feature class contains references to actual entities (physical or conceptual features) located on the Earth's surface.
Field [noun] A location in a database or data table for a collection of data elements all of a specific type and meaning. For example, one field of a feature class for data about roads might have the data type "integer" and contain data for a particular variety of road, such as two-lane highways or private gravel roads. The term "field" can also be used to refer to one data element within a record. Also see "column" and "record."
Field name [noun] The name applied to a field of a database table, record, or file.
File [noun] An ordered repository of bytes that is named and accessible through a computer operating system. Some geographic information systems process collections of files as if they are single entities; for example, a shapefile is actually a collection of files as viewed through a computer operating system, such as Windows or Linux.

Fusion [noun] The act, process, or result of combining data or information in such a way as to create or synthesize a resulting set of data that are more consistent and compatible than the starting set. Although the term "data fusion" is used in varying senses that are context- or problem-domain-specific, in general, this term connotes the use of rules, transformations, and other processes that synthesize or derive new data or information from a starting set of data. By contrast, the term "data integration" connotes changes that retain the basic form and structure of .the starting data while changing names and codes to achieve consistency across the collection of data. The terms "data integration" and "data fusion" are not synonyms, but there is some overlap in their meanings. The term "information fusion" is a term of art in the field of satellite remote-sensing data.

Geodatabase [noun] A proprietary Esri format for storing and disseminating a consolidated collection of GIS data; or a dataset stored in the geodatabase format. The term "geodatabase" can be used in a general sense to refer to any complex spatial database, but the term is most often used to refer to the proprietary format developed by Esri.

Geographic information system [noun] A system of computer software designed and used for processing geospatial data and generating maps.

Geometry [noun] The abstract category of two- or three-dimensional figures to which a feature belongs. This term is used in expressions such as "the various features of a feature class usually share the same geometry." Examples of geometries for features represented in GIS data files are points, lines, open polygons, closed polygons, and areas.

Geospatial [adjective] Pertaining to, involving, or providing explicit coordinates for a specific location on the surface of the Earth.

GIS [adjective] Of or pertaining to one or more geographic information systems or the kinds of functions, processes, and data that are commonly encountered in the course of using a geographic information system. For example, the phrase "GIS data" refers to spatially referenced data in one or more of the (many) formats that are often processed with geographic information systems.

Heading [noun] A label or name for a field or column in a database table or file.

Information fusion [noun] See "fusion."

Integration [noun] The act, process, or result of combining data or software or both in such a way as to create more compatible, interoperable, and consistent data or software. This term is widely used in varying senses and contexts, so it does not have an agreed meaning or usage. Compare to "fusion" and "unify."

Land cover [noun] The geographic features that occur within an area of the Earth's surface. This is a synonym for one sense of the term "cover."

Layer [noun] A set or collection of features that are grouped for presentation on a map. This is a cartographic term derived from the preparation of maps for printing that is now also applied in GIS. In GIS, layers are often associated one-to-one with feature-class files. In referring to a group of features, the term "layer" is applied when referring to features grouped for cartographic presentation; the term "feature class" is used in most other GIS contexts.

Merge [verb] To join raster or vector GIS data files for adjacent spatial extents in such a way as to reconnect or reassemble linear and areal features that cross or span the boundary between the extents. For example, in merging two counties, a lake that spans the county boundary would be reassembled; or a river that passes from one county to the other would be reconnected in the merged (that is, resultant) file. Note that "merge" is a general term and "mosaic" is a more specialized term. One may say either that raster images for two adjacent extents were "merged" or that they were "**mosaicked**." The term "mosaic" does not, however, apply to vector data, nor to linear features such as road and rivers.

Metropolitan Statistical Area (MSA) [noun] An area as defined by the U.S. Census Bureau for a major city. An MSA consists of the major city and the surrounding area that is most strongly influenced by the city in population and economic activity.

Mosaic [verb] To create a raster GIS file by merging two or more adjacent raster GIS files. Related verbal forms of the term are "mosaicking" and "mosaicked."

Ontology [noun] A document or set of documents (and in some cases, data) that provide a consistent and nonredundant vocabulary, set of names and codes, and set of concepts for scholarly and intellectual work in a specific, circumscribed area of human knowledge or interest. An ontology can assist those who develop and work with geospatial data by eliminating conflicts in names, terms, and concepts, hence supporting the development of compatible data files that use identical names and codes for the same entities. The term "ontology" has a variety of meanings, so some specialists would not agree with the definition provided here.

Range [noun] The complete set of possible values that might occur within a column or field of a database table or data file. For example, the **range** of a field that identifies the State of the United States (excluding territories and the District of Columbia) might be an integer code ranging from 1 to 50, or it might be a two-letter code ranging from "AL" to "WY." The word "range" is also used in a non-technical sense meaning "array" or "variety."

Raster [noun] A raster-data file. See "raster data."

Raster [adjective] Of, being, or pertaining to an arrangement of data in association with an array of regularly spaced cells defined by a regular two-dimensional grid.

Raster data [noun] GIS data consisting of a representation of one or more elements of data for each member, cell, or pixel of an array of regularly spaced cells defined by a regular two-dimensional grid.

Raster image [noun] A file defining an image or picture that is stored as raster data.

Record [noun] A set of values corresponding to a single row of a database table or data file. (The word "record" is also used in a more general non-technical sense to refer to any of various documents and datasets.)

Reformat [verb ] To change the names, codes, and other values in one or more computer files without altering the basic structure or meaning of the file(s). Related verbal forms are "reformatting" and "reformatted."

Region [noun] See "area."

Regional [adjective] Of or pertaining to a geographic region.

Seamless [noun] Having no artificial boundaries persisting after the merge of data for adjacent spatial extents.

Shapefile [noun] A set of computer data files following a specific group of formats and conventions. The shapefile format was originally defined by Esri and is now widely used as a publicly specified format. Files in the shapefile format typically contain feature classes of vector data (such as points or polygons) along with attribute tables. While the term "shapefile," as used to describe a single shapefile, is grammatically singular, a single shapefile actually consists of multiple files within a computer file system (such as the New Technology File System (NTFS), the file system commonly used with Windows).

Spatial extent [noun] (1) Any connected, holeless, two-dimensional part of the land surface; or (2) the size or areal coverage of an area. Unlike the terms "area" and "region," the term "spatial extent" may be applied to a surface area of any size. A spatial extent might be a half-acre city parcel, or it might be the entire land area of a continent. In the second sense "(2)," the term is used as in "The number of parks depends on the spatial extent of the region being considered."

Spatial reference [noun] See "system of geographic reference" and "spatially referenced."

Spatially referenced [adjective] Having coordinates that link features to specific locations on the surface of the Earth. This adjectival phrase is often applied to geospatial datasets.

System of geographic reference [noun] The combination of map projection, geodetic datum, and projection zone[11] under which the coordinates of the points in a GIS dataset apply. See Zeiler (2010) for more information.

Unification [noun] The process or quality of being unified (of a dataset). See the entries for "unified" and "unified data set" in this glossary.

Unified [adjective] Having most of a set of desirable properties including (1) availability of documentation; (2) completeness of coverage of an area by essential features; (3) consistency in use of codes, descriptions, field names, and other values; (4) equivalence of level of detail; (5) seamlessness; (6) absence of unnecessary redundancy; and (7) uniformity of accuracy and spatial reference (of a geospatial dataset).

Unified[12] dataset [noun] A collection of GIS data files that share the same map projection and system of geographic reference as well as the same fields and codes for all vector and raster files. It is not correct, for example, to say that a dataset is unified if the data about roads in one part of the dataset use different classification codes than the codes used in another part of the dataset; nor may one say that a dataset is unified if there is an essential type of data available for one county covered by the set that is not available for other counties covered by the set.

Union [noun] The set or collection resulting from selecting all elements of two or more starting sets or collections without duplication. Related expressions include "the union of [specified] sets" referring to the set or collection that is the union of the specified starting sets; and "to take the union of" two or more sets, meaning to create the union of these sets.

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[11]The terms "map projection," "geodetic datum," and "projection zone" are not defined here because of the specialized nature and complexity of the topic of map projections and geographic reference. Definitions of these terms are not necessary for an understanding of this report, but interested readers may wish to consult the book cited in the definition for more information on this topic.

[12]The term "synoptic data collection" (with "collection" used here to mean "the act of collecting") has been used in professional writing to describe coordinated procedures intended to produce separate datasets in accordance with common standards and requirements so that these separate datasets, when finished, may be readily collected into a consistent and uniform aggregate dataset. The related term "synoptic data" has not, however, come into widespread use for describing aggregated data that have been made consistent, perhaps because the term carries a strong connotation of data that constitute a summary, or synopsis. Another related term, "integrated," has been used to describe aggregate datasets created by changing and compiling other (possibly heterogeneous) datasets. The term "integrated" would be an acceptable choice for use in this report, but it is arguably not the best choice because, in more widespread usage, this term does not clearly convey the idea of consistency down to the level of field names and attribute codes. The term "unified" has therefore been chosen and proposed for widespread use because it seems natural and appropriate, and because it is unencumbered by prior, conflicting usages.

Vector data [noun] GIS data that describe spatially referenced, one-dimensional or linear features in the form of sequences of geographic or other spatial coordinates. The term "vector" is used to distinguish data containing sequences of coordinates from raster data.
Vector dataset [noun] A dataset that contains vector data. See "dataset" and "vector data."
Wall-to-wall [adjective] An informal term used to describe GIS data that cover an entire area without gaps, holes, or discontinuities. Wall-to-wall coverage is not necessarily seamless, but it may be in some cases.

# Appendixes

# Appendix 1. Data Sources and Data Restrictions for the Richmond Area

Table A1–1 lists the data sources for the Richmond Metropolitan Statistical Area (MSA) used in this report to build the unified geographic dataset that consists of a set of spatially referenced land-use and (or) land-cover data for the Richmond, Va., area. This table also lists the restrictions on the distribution of these data. The final six columns of table A1–1 (formatted in a series of questions) pertain to the public availability and the restrictions on the distribution of these data and are explained as follows:

**Standing public access?**—Are these data readily available to the general public through a published source, such as a Web site?
**No restrictions?**—May these data be freely re-distributed without any limitations or constraints?
**No redistribution?**—Is redistribution of these data by a recipient prohibited by the original source?
**Includes proprietary data?**—Are some of these data derived from privately-owned or otherwise restricted data or information?
**Re-sale prohibited?**—Whether redistribution is entirely prohibited or not, is re-selling the data prohibited?
**Acknowledgment required?**—Must an acknowledgment of the originial source be included with redistributed data?

Table A1–1. Table of data sources and data restrictions for the Richmond Metropolitan Statistical Area (MSA).

[--, "No" or not applicable]

| Data provider | Contact information and (or) data location | Distribution method | Standing public access? | Restrictions on re-sale or re-distribution | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | No restrictions? | No redistribution? | Includes proprietary data? | Re-sale prohibited? | Acknowledgment required? |
| Charles City County | Web site: http://www.co.charles-city.va.us<br>Telephone: 804–652–4701 | Email | Yes | -- | Yes | Yes | Yes | -- |
| Chesterfield County | Web site: http://www.chesterfield.gov/content2.aspx?id=14776<br>Telephone: 804–748–1503 | Email | Yes | -- | Yes | Yes | Yes | Yes |
| Dinwiddie County | Data Company: World View Solutions<br>Web site: http://gis.worldviewsolutions.com/arcgis/rest/services/dinwiddie<br>Email: helpdesk@dinwiddieva.us | Contractor-provided email | -- | -- | -- | -- | -- | -- |

Table A1–1. Table of data sources and data restrictions for the Richmond Metropolitan Statistical Area (MSA).—Continued

[--, "No" or not applicable]

| Data provider | Contact information and (or) data location | Distribution method | Standing public access? | Restrictions on re-sale or re-distribution | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | No restrictions? | No redistribution? | Includes proprietary data? | Re-sale prohibited? | Acknowledgment required? |
| Esri | Web site: http://www.esri.com | Online down-load | Yes | -- | -- | -- | -- | -- |
| Goochland | Web site: http://www.co.goochland.va.us<br>Web site with GIS map request order form: www.goochlandva.us/DocumentCenter/View/156 | Email | Yes | -- | -- | Yes | Yes | -- |
| Hannover County | Web site: http://www.hanovercountygis.org<br>Telephone: 804–501–5769 | Email | Yes | -- | -- | Yes | Yes | -- |
| Henrico County | Web site: http://henrico.us/gis/<br>Email: gis@co.hanover.va.us<br>Telephone: 804–365–6811 | Email | -- | -- | Yes | Yes | Yes | -- |
| James City County | Web site: http://www.jamescitycountyva.gov/395/GIS-Mapping<br>Telephone: 757–253–6654 | Online down-load | -- | -- | -- | -- | -- | -- |
| Louisa County | Web site: http://www.louisacounty.com/LCcommdev/GIS.htm<br>Telephone: 540–967–3430 | Email | Yes | -- | -- | -- | -- | -- |
| National Park Service (NPS) | Web site: https://www.nps.gov/gis | Online down-load | -- | -- | -- | -- | -- | -- |

Table A1–1. Table of data sources and data restrictions for the Richmond Metropolitan Statistical Area (MSA).—Continued

[--, "No" or not applicable]

| Data provider | Contact information and (or) data location | Distribution method | Standing public access? | Restrictions on re-sale or re-distribution | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | No restrictions? | No redistribution? | Includes proprietary data? | Re-sale prohibited? | Acknowledgment required? |
| New Kent County | Web site: http://www.co.new-kent.va.us/index.aspx?nid=297<br>Telephone: 804–966–9861 | Email | Yes | -- | -- | Yes | Yes | -- |
| Powhatan County | Web site: http://www.powhatanva.gov/289/Geographic-Information-System-GIS | Email | Yes | -- | Yes | Yes | Yes | -- |
| Prince George County | Web site: http://www.princegeorgeva.org/business/gis_information/index.php<br>Email: gis@princegeorgecountyva.gov<br>Telephone: 804–722–8702 | Email | -- | -- | Yes | Yes | Yes | -- |
| Richmond City | Web site: http://www.richmondgov.com/GIS<br>FTP site: ftp://ftp.ci.richmond.va.us/<br>Telephone: 804–646–6440 | Online down-load | -- | -- | Yes | Yes | Yes | -- |
| Spotsylva-nia County | Web site: http://www.spotsylvania.va.us/GIS<br>Email: gis@spotsylvania.va.us<br>Telephone: 540–507–7432 | Online down-load | Yes | Yes | -- | -- | -- | -- |
| Surry County | Data Company: World View Solutions<br>Web site: http://gis.worldviewsolutions.com/arcgis/rest/services/Surry | Contractor-provided email | -- | -- | Yes | Yes | Yes | -- |
| The National Map | Web site: http://nationalmap.gov | Online down-load | Yes | -- | -- | -- | -- | -- |

Table A1–1. Table of data sources and data restrictions for the Richmond Metropolitan Statistical Area (MSA).—Continued

[--, "No" or not applicable]

| Data provider | Contact information and (or) data location | Distribution method | Standing public access? | Restrictions on re-sale or re-distribution | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | No restrictions? | No redistribution? | Includes proprietary data? | Re-sale prohibited? | Acknowledgment required? |
| U.S. Census Bureau | Web site: https://www.census.gov/geo/maps-data/data/tiger.html<br>Email: geo.geography@census.gov or geo.tiger@census.gov<br>Telephone: 301–763–1128 | Online down-load | -- | Yes | -- | -- | -- | Yes |
| U.S. Fish and Wildlife Service (USFWS) | Web site: http://www.fws.gov/gis/data/national/index.html | Online down-load | -- | -- | -- | -- | -- | -- |
| U.S. Depart-ment of Agricul-ture (USDA) Forest Service | Web site: http://data.fs.usda.gov/geodata/<br>Email: data@fs.fed.us<br>Telephone: 804–786–7951 | Online down-load | -- | -- | -- | -- | -- | Yes |
| Virginia Depart-ment of Conserva-tion and Recrea-tion (DCR) | Web site: http://www.dcr.virginia.gov/natural_heritage/clinfo.shtml | Online down-load | -- | -- | Yes | -- | -- | -- |
| Virginia Depart-ment of Forestry (VDOF) | Web site: http://www.dof.virginia.gov/gis/<br>Telephone: 434–977–6555 | Online down-load | -- | -- | Yes | -- | Yes | -- |

Table A1–1. Table of data sources and data restrictions for the Richmond Metropolitan Statistical Area (MSA).—Continued

[--, "No" or not applicable]

| Data provider | Contact information and (or) data location | Distribution method | Standing public access? | Restrictions on re-sale or re-distribution | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | No restrictions? | No redistribution? | Includes proprietary data? | Re-sale prohibited? | Acknowledgment required? |
| Virginia Department of Game and Inland Fisheries (VDGIF) | Web site: http://www.dgif.virginia.gov/gis/ | Online download | -- | -- | Yes | -- | Yes | -- |
| Virginia Geographic Information Network (VGIN) | Web site: https://www.vita.virginia.gov<br>FTP site: https://ftp.vgingis.com/Download/Historical_RCL/<br>Telephone: 866–637–8482 | FTP download/ email | -- | Yes | -- | -- | -- | -- |

## Appendix 2. Contents of the Richmond Unified Geographic Dataset

Table A2–1 lists all of the feature-class files, both vector and raster, included in the unified geographic dataset for the Richmond, Va., area. "Classification level 1" is the broadest classification of the feature-class files and "Classification level 2" is the next broadest. The entries in "Classification level 2" are all geodatabases except for some folders in the "QuantitativeResults" folder of "Classification level 1." Each cell of the "Classification level 3+" column lists either a single feature-class file name (with no dash "—") or it lists the name of a group of feature classes followed by a dash "—" and then a single feature-class file name, depending on whether the geodatabase at "Classification level 2" contains a layer consisting of one or more feature classes, or just a single raster file. As examples of records with a dash ("—"), the "Boundaries" file geodatabase contains a layer named "LU_BU" that contains nine feature-class files. Examples of records without dashes are provided by the 26 raster files contained in the "LandCover" file geodatabase. As defined in the "Glossary" of this report, "feature class" may refer to a group of actual geographic features (such as roads, lakes, or elevations), or it may refer to a geospatial computer file that includes more than one feature, usually of the same type. Examples include shapefiles that contain multiple features with the same geometric type, such as point or polygon.

Table A2–1 was generated by software from the files in the unified geographic dataset, so although it is not visually appealing, it is an accurate and readily searchable reference for the contents of the dataset. Figure A2–1 shows the Python code used to generate the contents of the table.

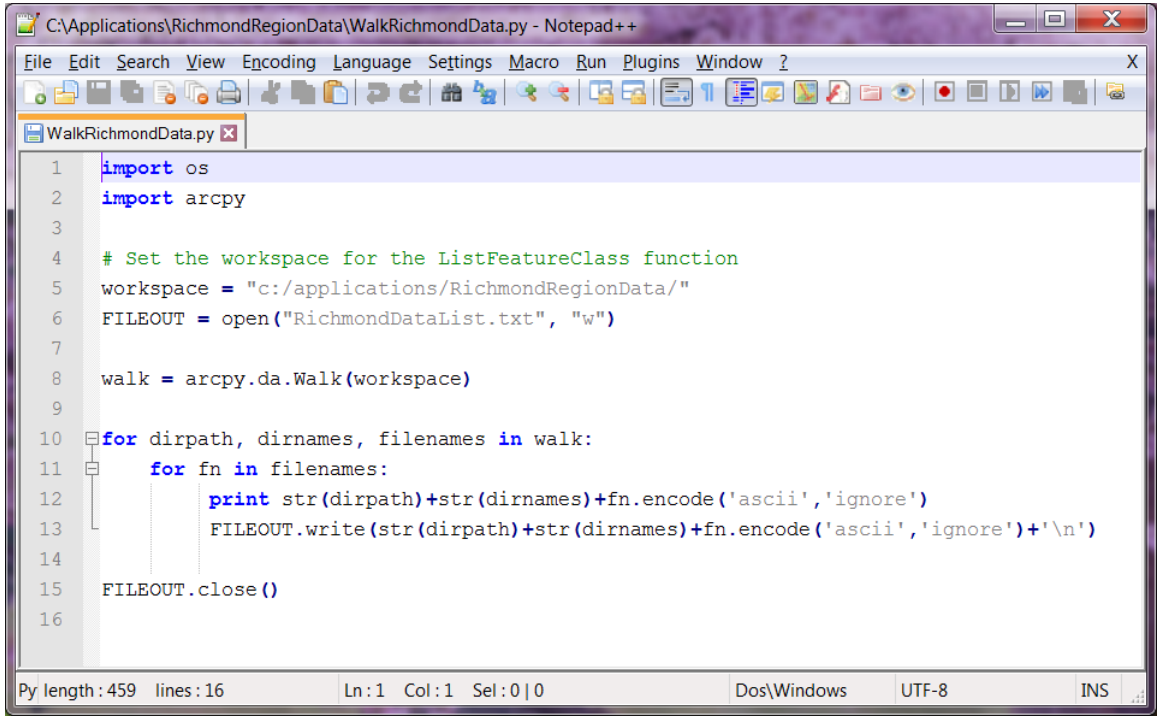


Figure A2–1. Screenshot image of the Python code used to create the list of the contents of the Richmond unified geographic dataset provided in table A2–1.

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | AddressPoints.gdb | DW_APts – DW_APts_C |
| ByFeatureClasses | AddressPoints.gdb | HN_APts – HN_APts_C |
| ByFeatureClasses | AddressPoints.gdb | LU_APts – LU_APts_C |
| ByFeatureClasses | AddressPoints.gdb | Study_APts – Study_APts_C |
| ByFeatureClasses | AddressPoints.gdb | NK_APts – NK_APts_C |
| ByFeatureClasses | AddressPoints.gdb | NW_APts – NW_APts_C |
| ByFeatureClasses | AddressPoints.gdb | RC_APts – RC_APts_C |
| ByFeatureClasses | Boundaries.gdb | RC_Bu – RC_Bu_C |
| ByFeatureClasses | Boundaries.gdb | NW_Bu – NW_Bu_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_FireDeptDistrict_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_HistoricGreenSpringsDistrict_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_louctyarea_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_MIN_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – Lu_Bu_Ply_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – Lu_Bu_PO_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_RescueSquadDistrict_C |
| ByFeatureClasses | Boundaries.gdb | LU_Bu – LU_Bu_TownOfLouisa_C |
| ByFeatureClasses | Boundaries.gdb | HN_Bu – HN_Bu_AshlandCorp_C |
| ByFeatureClasses | Boundaries.gdb | HN_Bu – HN_Bu_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_Fife_village_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_FifeVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_HadensvilleVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_ManakinVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_OilvilleVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_OLDVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_RiverRoadVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_SandyHookVillage_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_UrbanDevArea_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_VillageAll_C |
| ByFeatureClasses | Boundaries.gdb | GC_Bu – GC_Bu_VillageAllOLD_C |
| ByFeatureClasses | Buildings.gdb | SP_Bud – SP_Bud_Li_C |
| ByFeatureClasses | Buildings.gdb | SP_Bud – SP_Bud_Ply_C |
| ByFeatureClasses | Buildings.gdb | NK_Bud – NK_Bud_C |
| ByFeatureClasses | Buildings.gdb | LU_Bud – LU_Bud_C |
| ByFeatureClasses | Buildings.gdb | JCC_Bud – JCC_Bud_C |
| ByFeatureClasses | Buildings.gdb | HN_Bud – HN_Bud_C |
| ByFeatureClasses | Buildings.gdb | GC_Bud – GC_Bud_C |
| ByFeatureClasses | Buildings.gdb | Study_Bud – Study_Bud_Ply_C |
| ByFeatureClasses | Contours.gdb | RC_Co – RC_Co_C_Orig |
| ByFeatureClasses | Contours.gdb | LU_Co – LU_Co_C_Orig |
| ByFeatureClasses | Contours.gdb | HC_Co – HC_Co_C_Orig |
| ByFeatureClasses | Contours.gdb | GC_Co – GC_Co_C_2007 |
| ByFeatureClasses | Elevation.gdb | RC_Elv – RC_Elv_BaseFloodElevation_C |
| ByFeatureClasses | Elevation.gdb | JCC_Elv – JCC_Elv_Spot_C |
| ByFeatureClasses | FloodPlains.gdb | RC_FlPl – RC_FlPl_500_C |
| ByFeatureClasses | FloodPlains.gdb | RC_FlPl – RC_FlPl_100_C |
| ByFeatureClasses | FloodPlains.gdb | PW_FlPL – PW_FLPl_FloodHazard_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | FloodPlains.gdb | LU_FlPl – LU_FlPl_Flood100yr_C |
| ByFeatureClasses | FloodPlains.gdb | CF_FlPL – CF_floodp_C |
| ByFeatureClasses | Forests.gdb | LU_For – LU_For_VDF |
| ByFeatureClasses | Forests.gdb | RC_For – RC_For_C |
| ByFeatureClasses | FutureLandUse.gdb | LU_FLU – LU_FLU_C |
| ByFeatureClasses | FutureLandUse.gdb | Study_FLU – Study_FLU_C |
| ByFeatureClasses | FutureLandUse.gdb | PW_FLU – PW_FLU_C |
| ByFeatureClasses | FutureLandUse.gdb | RC_FLU – RC_FLU_C |
| ByFeatureClasses | GolfCourses.gdb | JCC_Gfc – JCC_Gfc_C |
| ByFeatureClasses | LandCover.gdb | AM_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | CC_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | CF_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | CH_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | CR_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | DW_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | GC_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | HC_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | HN_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | HW_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | JCC_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | KG_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | KQ_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | KW_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | LU_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | NK_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | NW_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | PB_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | PG_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | PW_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | RC_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | SP_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | SU_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | Study_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | SX_LC_CBP_2006 |
| ByFeatureClasses | LandCover.gdb | Study_LC_CBP_2006b |
| ByFeatureClasses | Landmarks.gdb | AM_Lm – AM_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | CR_Lm – CR_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | CC_Lm – CC_Lm_CN_2013 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Landmarks.gdb | CF_Lm – CF_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | CH_Lm – CH_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | DW_Lm – DW_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | GC_Lm – GC_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | HN_Lm – HN_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | HC_Lm – HC_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | HW_Lm – HW_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | JCC_Lm – JCC_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | KQ_Lm – KQ_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | KG_Lm – KG_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | KW_Lm – KW_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | LU_Lm – LU_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | NK_Lm – NK_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | NW_Lm – NW_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | PB_Lm – PB_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | PW_Lm – PW_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | PG_Lm – PG_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | RC_Lm – RC_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | SP_Lm – SP_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | SU_Lm – SU_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | Study_Lm – Study_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | SX_LM – SX_Lm_CN_2013 |
| ByFeatureClasses | Landmarks.gdb | SX_LM – SX_Lm_USBGN |
| ByFeatureClasses | LandUse.gdb | CC_LUs – CC_LUs_C |
| ByFeatureClasses | LandUse.gdb | Study_LUs – Study_LUs_C |
| ByFeatureClasses | LandUse.gdb | PW_LUs – PW_LUs_C |
| ByFeatureClasses | LandUse.gdb | RC_LUs – RC_LUs_C |
| ByFeatureClasses | Parcels.gdb | GC_Par – GC_Par_C |
| ByFeatureClasses | Parcels.gdb | HN_Par – HN_Par_C |
| ByFeatureClasses | Parcels.gdb | JCC_Par – JCC_Par_C |
| ByFeatureClasses | Parcels.gdb | LU_Par – LU_Par_C |
| ByFeatureClasses | Parcels.gdb | Study_Par – Study_Par_C |
| ByFeatureClasses | Parcels.gdb | NK_Par – NKa_Par_C |
| ByFeatureClasses | Parcels.gdb | NK_Par – NKb_Par_C |
| ByFeatureClasses | Parcels.gdb | NW_Par – NW_Par_C |
| ByFeatureClasses | Parcels.gdb | PG_Par – PG_Par_C |
| ByFeatureClasses | Parcels.gdb | RC_Par – RC_Par_C |
| ByFeatureClasses | Parcels.gdb | SP_Par – SP_Par_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Parks.gdb | CC_Pk – CC_Pk_C |
| ByFeatureClasses | Parks.gdb | CF_Pk – CFbp_Pk_C |
| ByFeatureClasses | Parks.gdb | CF_Pk – CF_Pk_C |
| ByFeatureClasses | Parks.gdb | CF_Pk – CF_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | CF_Pk – CF_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | CF_Pk – CF_Pk_Union |
| ByFeatureClasses | Parks.gdb | GC_Pk – GC_Pk_C |
| ByFeatureClasses | Parks.gdb | HC_Pk – HC_Pk_C |
| ByFeatureClasses | Parks.gdb | HC_Pk – HC_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | HC_Pk – HC_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | HC_Pk – HC_Pk_Union |
| ByFeatureClasses | Parks.gdb | JCC_Pk – JCC_Pk_C |
| ByFeatureClasses | Parks.gdb | JCC_Pk – JCC_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | JCC_Pk – JCC_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | JCC_Pk – JCC_Pk_Union |
| ByFeatureClasses | Parks.gdb | Study_Pk – Study_Pk_Ply_C |
| ByFeatureClasses | Parks.gdb | Study_Pk – Study_Pk_Pts_C |
| ByFeatureClasses | Parks.gdb | Study_Pk – Study_Pk_Ply_VDCR |
| ByFeatureClasses | Parks.gdb | Study_Pk – Study_Pk_Ply_VDCRb_1 |
| ByFeatureClasses | Parks.gdb | PG_Pk – PG_Pk_C |
| ByFeatureClasses | Parks.gdb | PG_Pk – PG_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | PG_Pk – PG_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | PG_Pk – PG_Pk_Union |
| ByFeatureClasses | Parks.gdb | PW_Pk – PWb_Pk_C |
| ByFeatureClasses | Parks.gdb | PW_Pk – PWa_Pk_C |
| ByFeatureClasses | Parks.gdb | PW_Pk – PW_Pk_Union |
| ByFeatureClasses | Parks.gdb | RC_Pk – RC_Pk_C |
| ByFeatureClasses | Parks.gdb | RC_Pk – RC_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | RC_Pk – RC_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | RC_Pk – RC_Pk_Union |
| ByFeatureClasses | Parks.gdb | SP_Pk – SP_Pk_C |
| ByFeatureClasses | Parks.gdb | SP_Pk – SP_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | SP_Pk – SP_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | SP_Pk – SP_Pk_Union |
| ByFeatureClasses | Parks.gdb | CR_Pk – CR_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | DW_Pk – DW_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | DW_Pk – DW_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | DW_Pk – DW_Pk_Union |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Parks.gdb | HN_Pk – HN_PK_VDCR |
| ByFeatureClasses | Parks.gdb | HN_Pk – HN_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | HN_Pk – HN_Pk_Union |
| ByFeatureClasses | Parks.gdb | HW_Pk – HW_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | HW_Pk – HW_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | HW_Pk – HW_Pk_Union |
| ByFeatureClasses | Parks.gdb | PB_Pk – PB_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | PB_Pk – PB_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | PB_Pk – PB_Pk_Union |
| ByFeatureClasses | Parks.gdb | SU_Pk – SU_Pk_VDCR |
| ByFeatureClasses | Parks.gdb | KG_Pk – KG_Pk_FromCensusLM_CN_2013 |
| ByFeatureClasses | Parks.gdb | Study_Combined_Pk – Study_Pk_Ply_Union |
| ByFeatureClasses | Parks.gdb | Study_Combined_Pk – Study_Pk_Ply_Unionb |
| ByFeatureClasses | Parks.gdb | SX_Pk – SX_Pk_CN_2013 |
| ByFeatureClasses | Parks.gdb | SX_Pk – SX_Pk_VDCR |
| ByFeatureClasses | Population.gdb | AM_Pop – AM_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | CC_Pop – CC_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | CF_Pop – CF_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | CH_Pop – CH_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | CR_Pop – CR_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | DW_Pop – DW_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | GC_Pop – GC_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | HC_Pop – HC_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | HN_Pop – HN_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | HW_Pop – HW_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | JCC_Pop – JCC_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | KG_Pop – KG_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | KQ_Pop – KQ_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | KW_Pop – KW_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | LU_Pop – LU_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | Study_Pop – Study_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | NK_Pop – NK_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | NW_Pop – NW_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | PB_Pop – PB_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | PG_Pop – PG_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | PW_Pop – PW_Pop_CN_2010 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Population.gdb | RC_Pop – RC_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | SP_Pop – SP_Pop_CN_2010 |
| ByFeatureClasses | Population.gdb | SU_Pop – SU_Pop_CN_2010 |
| ByFeatureClasses | Properties.gdb | GC_Prop – GC_Prop_VirginiaState_C |
| ByFeatureClasses | Properties.gdb | SX_Prop – SX_Prop_VEDP |
| ByFeatureClasses | ProtectiveAreas.gdb | CC_PA – CC_PA_C |
| ByFeatureClasses | ProtectiveAreas.gdb | CC_PA – CC_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | CF_PA – CF_PA_C |
| ByFeatureClasses | ProtectiveAreas.gdb | CF_PA – CF_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | JCC_PA – JCC_PA_C |
| ByFeatureClasses | ProtectiveAreas.gdb | JCC_PA – JCC_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | Study_PA – Study_PA_C |
| ByFeatureClasses | ProtectiveAreas.gdb | Study_PA – Study_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | Study_PA – Study_PA2_Ply_C |
| ByFeatureClasses | ProtectiveAreas.gdb | Study_PA – Study_PA_ESRIb |
| ByFeatureClasses | ProtectiveAreas.gdb | PW_PA – PW_PA_C |
| ByFeatureClasses | ProtectiveAreas.gdb | PW_PA – PW_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | RC_PA – RC_PA_C |
| ByFeatureClasses | ProtectiveAreas.gdb | RC_PA – RC_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | AM_PA – AM_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | CR_PA – CR_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | CH_PA – CH_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | DW_PA – DW_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | GC_PA – GC_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | HN_PA – HN_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | HC_PA – HC_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | HW_PA – HW_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | KQ_PA – KQ_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | KG_PA – KG_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | KW_PA – KW_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | LU_PA – LU_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | NK_PA – NK_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | NW_PA – NW_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | PB_PA – PB_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | PG_PA – PG_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | SP_PA – SP_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | SU_PA – SU_PA_ESRI |
| ByFeatureClasses | ProtectiveAreas.gdb | SX_PA – SX_PA_ESRI |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | RailRoads.gdb | AM_RR – AM_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | AM_RR – AM_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | AM_RR – AM_RR_combined |
| ByFeatureClasses | RailRoads.gdb | AM_RR – AM_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | CR_RR – CR_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | CR_RR – CR_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | CR_RR – CR_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | CR_RR – CR_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | CC_RR – CC_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | CC_RR – CC_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | CC_RR – CC_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | CC_RR – CC_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | CF_RR – CF_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | CF_RR – CF_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | CF_RR – CF_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | CF_RR – CF_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | CH_RR – CH_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | CH_RR – CH_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | CH_RR – CH_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | CH_RR – CH_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | DW_RR – DW_RR_C |
| ByFeatureClasses | RailRoads.gdb | DW_RR – DW_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | DW_RR – DW_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | DW_RR – DW_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | DW_RR – DW_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | GC_RR – GC_RR_C |
| ByFeatureClasses | RailRoads.gdb | GC_RR – GC_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | GC_RR – GC_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | GC_RR – GC_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | GC_RR – GC_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | HN_RR – HN_RR_C |
| ByFeatureClasses | RailRoads.gdb | HN_RR – HN_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | HN_RR – HN_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | HN_RR – HN_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | HN_RR – HN_RR_combined |
| ByFeatureClasses | RailRoads.gdb | HC_RR – HC_RR_C |
| ByFeatureClasses | RailRoads.gdb | HC_RR – HC_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | HC_RR – HC_RR_ESRI |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | RailRoads.gdb | HC_RR – HC_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | HC_RR – HC_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | HW_RR – HW_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | HW_RR – HW_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | HW_RR – HW_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | HW_RR – HW_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | JCC_RR – JCC_RR_C |
| ByFeatureClasses | RailRoads.gdb | JCC_RR – JCC_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | JCC_RR – JCC_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | JCC_RR – JCC_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | JCC_RR – JCC_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | KG_RR – KG_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | KG_RR – KG_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | KG_RR – KG_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | KG_RR – KG_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | KW_RR – KW_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | KW_RR – KW_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | KW_RR – KW_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | KW_RR – KW_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | LU_RR – LU_RR_C |
| ByFeatureClasses | RailRoads.gdb | LU_RR – LU_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | LU_RR – LU_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | LU_RR – LU_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | LU_RR – LU_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | NK_RR – NK_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | NK_RR – NK_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | NK_RR – NK_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | NK_RR – NK_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | NW_RR – NW_RR_C |
| ByFeatureClasses | RailRoads.gdb | NW_RR – NW_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | NW_RR – NW_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | NW_RR – NW_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | NW_RR – NW_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | PB_RR – PB_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | PB_RR – PB_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | PB_RR – PB_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | PB_RR – PB_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | PW_RR – PW_RR_CN_2013 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | RailRoads.gdb | PW_RR – PW_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | PW_RR – PW_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | PW_RR – PW_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | PG_RR – PG_RR_CN_2103 |
| ByFeatureClasses | RailRoads.gdb | PG_RR – PG_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | PG_RR – PG_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | PG_RR – PG_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | RC_RR – RC_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | RC_RR – RC_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | RC_RR – RC_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | RC_RR – RC_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | SP_RR – SP_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | SP_RR – SP_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | SP_RR – SP_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | SP_RR – SP_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | SU_RR – SU_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | SU_RR – SU_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | SU_RR – SU_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | Study_RR – Study_RR_C |
| ByFeatureClasses | RailRoads.gdb | Study_RR – Study_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | Study_RR – Study_RR_Combined |
| ByFeatureClasses | RailRoads.gdb | Study_RR – Study_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | Study_RR – Study_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | SX_RR – SX_RR_ESRI |
| ByFeatureClasses | RailRoads.gdb | SX_RR – SX_RR_TNM |
| ByFeatureClasses | RailRoads.gdb | SX_RR – SX_RR_CN_2013 |
| ByFeatureClasses | RailRoads.gdb | SX_RR – SX_RR_Combined |
| ByFeatureClasses | Rivers.gdb | NW_Riv – NW_RIV_Wb_C |
| ByFeatureClasses | Rivers.gdb | SX_Riv – SX_Riv_VDEQ |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_C |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_Combined |
| ByFeatureClasses | Roads.gdb | CC_Rds – CC_Rds_TNM |
| ByFeatureClasses | Roads.gdb | AM_Rds – AM_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | AM_Rds – AM_Rds_VD_1997 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Roads.gdb | AM_Rds – AM_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | AM_Rds – AM_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | AM_Rds – AM_Rds_Combined |
| ByFeatureClasses | Roads.gdb | AM_Rds – AM_Rds_TNM |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_C |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_combined |
| ByFeatureClasses | Roads.gdb | CF_Rds – CF_Rds_TNM |
| ByFeatureClasses | Roads.gdb | CH_Rds – CH_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | CH_Rds – CH_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | CH_Rds – CH_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | CH_Rds – CH_Rds_combined |
| ByFeatureClasses | Roads.gdb | CH_Rds – CH_Rds_TNM |
| ByFeatureClasses | Roads.gdb | Study_Rds – Study_Rds_C |
| ByFeatureClasses | Roads.gdb | Study_Rds – Study_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | Study_Rds – Study_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | Study_Rds – Study_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | Study_Rds – Study_Rds_VG_2014Q1b_1 |
| ByFeatureClasses | Roads.gdb | Study_Rds – Study_Rds_TNMb_1 |
| ByFeatureClasses | Roads.gdb | CR_Rds – CR_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | CR_Rds – CR_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | CR_Rds – CR_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | CR_Rds – CR_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | CR_Rds – CR_Rds_Combined |
| ByFeatureClasses | Roads.gdb | CR_Rds – CR_Rds_TNM |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_C |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_Combined |
| ByFeatureClasses | Roads.gdb | DW_Rds – DW_Rds_TNM |
| ByFeatureClasses | Roads.gdb | GC_Rds – GCa_Rds_C |
| ByFeatureClasses | Roads.gdb | GC_Rds – GCb_Rds_C |
| ByFeatureClasses | Roads.gdb | GC_Rds – GC_Rds_CN_2013 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Roads.gdb | GC_Rds – GC_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | GC_Rds – GC_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | GC_Rds – GC_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | GC_Rds – GC_Rds_Combined |
| ByFeatureClasses | Roads.gdb | GC_Rds – GC_Rds_TNM |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_C |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_Combined |
| ByFeatureClasses | Roads.gdb | HC_Rds – HC_Rds_TNM |
| ByFeatureClasses | Roads.gdb | HN_Rds – HNa_Rds_C |
| ByFeatureClasses | Roads.gdb | HN_Rds – HNb_Rds_C |
| ByFeatureClasses | Roads.gdb | HN_Rds – HN_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | HN_Rds – HN_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | HN_Rds – HN_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | HN_Rds – HN_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | HN_Rds – HN_Rds_Combined |
| ByFeatureClasses | Roads.gdb | HN_Rds – HN_Rds_TNM |
| ByFeatureClasses | Roads.gdb | HW_Rds – HW_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | HW_Rds – HW_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | HW_Rds – HW_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | HW_Rds – HW_Rds_Combined |
| ByFeatureClasses | Roads.gdb | HW_Rds – HW_Rds_TNM |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_C |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_Combined |
| ByFeatureClasses | Roads.gdb | JCC_Rds – JCC_Rds_TNM |
| ByFeatureClasses | Roads.gdb | KG_Rds – KG_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | KG_Rds – KG_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | KG_Rds – KG_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | KG_Rds – KG_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | KG_Rds – KG_Rds_Combined |
| ByFeatureClasses | Roads.gdb | KG_Rds – KG_Rds_TNM |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Roads.gdb | KQ_Rds – KQ_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | KQ_Rds – KQ_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | KQ_Rds – KQ_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | KQ_Rds – KQ_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | KQ_Rds – KQ_Rds_Combined |
| ByFeatureClasses | Roads.gdb | KQ_Rds – KQ_Rds_TNM |
| ByFeatureClasses | Roads.gdb | KW_Rds – KW_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | KW_Rds – KW_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | KW_Rds – KW_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | KW_Rds – KW_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | KW_Rds – KW_Rds_Combined |
| ByFeatureClasses | Roads.gdb | KW_Rds – KW_Rds_TNM |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_C |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_Combined |
| ByFeatureClasses | Roads.gdb | LU_Rds – LU_Rds_TNM |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_C |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_Combined |
| ByFeatureClasses | Roads.gdb | NK_Rds – NK_Rds_TNM |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_C |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_Combined |
| ByFeatureClasses | Roads.gdb | NW_Rds – NW_Rds_TNM |
| ByFeatureClasses | Roads.gdb | PB_Rds – PB_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | PB_Rds – PB_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | PB_Rds – PB_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | PB_Rds – PB_Rds_Combined |
| ByFeatureClasses | Roads.gdb | PB_Rds – PB_Rds_TNM |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_C |
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_Combined |
| ByFeatureClasses | Roads.gdb | PG_Rds – PG_Rds_TNM |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_C |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_Combined |
| ByFeatureClasses | Roads.gdb | PW_Rds – PW_Rds_TNM |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_C |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_Combined |
| ByFeatureClasses | Roads.gdb | RC_Rds – RC_Rds_TNM |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_C |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_Combined |
| ByFeatureClasses | Roads.gdb | SP_Rds – SP_Rds_TNM |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_C |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_VD_1997 |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_VG_2008Q3 |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_Combined |
| ByFeatureClasses | Roads.gdb | SU_Rds – SU_Rds_TNM |
| ByFeatureClasses | Roads.gdb | Study_Combined – Study_Rds_Combined |
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_FS |
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_TNM |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_VG_2014Q1 |
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_CN_2104 |
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_CN_2013 |
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_Combined |
| ByFeatureClasses | Roads.gdb | SX_Rds – SX_Rds_VG_2008Q3 |
| ByFeatureClasses | Schools.gdb | SP_Sch – SP_Sch_C |
| ByFeatureClasses | Schools.gdb | RC_Sch – RC_Sch_Public_C |
| ByFeatureClasses | Slope.gdb | GC_Sl – GC_Sl_SteepSlope_C |
| ByFeatureClasses | Soils.gdb | HN_So – HN_So_C |
| ByFeatureClasses | Soils.gdb | LU_So – LU_So_C |
| ByFeatureClasses | Soils.gdb | RC_So – RC_So_C |
| ByFeatureClasses | Streams.gdb | CF_St – CF_St_C |
| ByFeatureClasses | Streams.gdb | HC_St – HC_St_C |
| ByFeatureClasses | Streams.gdb | JCC_St – JCC_St_C |
| ByFeatureClasses | Streams.gdb | PG_St – PG_St_C |
| ByFeatureClasses | Streams.gdb | PW_St – PW_St_C |
| ByFeatureClasses | Streams.gdb | SU_St – SU_St_C |
| ByFeatureClasses | Streams.gdb | Study_St – Study_St_C |
| ByFeatureClasses | Topography.gdb | HN_Tp – HN_Tp_C |
| ByFeatureClasses | Transit.gdb | JCC_Tr – JCC_TransitLines_C |
| ByFeatureClasses | Transit.gdb | JCC_Tr – JCC_TransitStops_C |
| ByFeatureClasses | Transit.gdb | SX_Transit – SX_Apts_TNM |
| ByFeatureClasses | TreeCoverage.gdb | HN_TC – HN_TC_C |
| ByFeatureClasses | Utilities.gdb | Study_Ut – Study_Ut_C |
| ByFeatureClasses | Utilities.gdb | HN_Utility – HN_Ut_C |
| ByFeatureClasses | Utilities.gdb | LU_Ut – LU_Ut_C |
| ByFeatureClasses | Waterbodies.gdb | CC_Wb – CC_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | CC_Wb – CC_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | CC_Wb – CC_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | CF_Wb – CFb_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | CF_Wb – CFa_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | CF_Wb – CF_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | CF_Wb – CF_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | DW_Wb – DW_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | DW_Wb – DW_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | DW_Wb – DW_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | DW_Wb – DW_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | GC_Wb – GC_Wb_Li_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Waterbodies.gdb | GC_Wb – GC_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | GC_Wb – GC_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | GC_Wb – GC_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | HC_Wb – HC_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | HC_Wb – HC_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | HC_Wb – HC_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | HC_Wb – HC_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | JCC_Wb – JCC_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | JCC_Wb – JCC_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | JCC_Wb – JCC_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | LU_Wb – LU_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | LU_Wb – LU_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | LU_Wb – LU_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | Study_Wb – Study_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | Study_Wb – Study_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | Study_Wb – Study_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | Study_Wb – Study_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | NW_Wb – NW_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | NW_Wb – NW_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | NW_Wb – NW_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | NW_Wb – NW_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | PG_Wb – PG_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | PG_Wb – PG_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | PG_Wb – PG_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | PW_Wb – PWa_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | PW_Wb – PWb_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | PW_Wb – PW_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | PW_Wb – PW_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | SU_Wb – SU_Wb_Li_C |
| ByFeatureClasses | Waterbodies.gdb | SU_Wb – SU_Wb_Ply_C |
| ByFeatureClasses | Waterbodies.gdb | SU_Wb – SU_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | SU_Wb – SU_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | AM_Wb – AM_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | AM_Wb – AM_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | CH_Wb – CH_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | CH_Wb – CH_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | CR_Wb – CR_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | CR_Wb – CR_Wb_Ply_NHD_USGS |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | Waterbodies.gdb | HN_Wb – HN_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | HN_Wb – HN_WB_C_Orig |
| ByFeatureClasses | Waterbodies.gdb | HN_Wb – HN_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | HW_Wb – HW_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | HW_Wb – HW_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | KG_Wb – KG_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | KG_Wb – KG_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | KQ_Wb – KQ_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | KQ_Wb – KQ_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | KW_Wb – KW_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | KW_Wb – KW_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | NK_Wb – NK_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | NK_Wb – NK_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | PB_Wb – PB_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | PB_Wb – PB_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | RC_Wb – RC_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | RC_Wb – RC_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | SP_Wb – SP_Wb_Li_CN_2013 |
| ByFeatureClasses | Waterbodies.gdb | SP_Wb – SP_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | SX_Wb – SX_Wb_Ply_NHD_USGS |
| ByFeatureClasses | Waterbodies.gdb | SX_Wb – SX_Wb_Li_CN_2014 |
| ByFeatureClasses | Waterbodies.gdb | SX_Wb – SX_Wb_Li_CN_2013 |
| ByFeatureClasses | WaterSheds.gdb | RC_WaS – RC_WaS_Sub_C |
| ByFeatureClasses | WaterSheds.gdb | RC_WaS – RC_WaS_C |
| ByFeatureClasses | WaterSheds.gdb | GC_WaS – GC_WaS_MajorSub_C |
| ByFeatureClasses | WetlandsSwamps.gdb | CF_WS – CF_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | DW_WS – DW_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | JCC_WS – JCC_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | Study_WS – Study_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | PG_WS – PG_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | PW_WS – PW_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | RC_WS – RC_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | SU_WS – SUa_WS_C |
| ByFeatureClasses | WetlandsSwamps.gdb | SU_WS – SUb_WS_C |
| ByFeatureClasses | ZipCodes.gdb | RC_Zip – RC_Zip_C |
| ByFeatureClasses | ZipCodes.gdb | RC_Zip – RC_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | NW_Zip – NW_Zip_C |
| ByFeatureClasses | ZipCodes.gdb | NW_Zip – NW_Zip_CN_2013 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByFeatureClasses | ZipCodes.gdb | AM_Zip – AM_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | CC_Zip – CC_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | CF_Zip – CF_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | CH_Zip – CH_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | CR_Zip – CR_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | DW_Zip – DW_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | GC_Zip – GC_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | HC_Zip – HC_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | HN_Zip – HN_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | HW_Zip – HW_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | JCC_Zip – JCC_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | KG_Zip – KG_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | KQ_Zip – KQ_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | KW_Zip – KW_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | LU_Zip – LU_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | Study_Zip – Study_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | NK_Zip – NK_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | PB_Zip – PB_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | PG_Zip – PG_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | PW_Zip – PW_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | SP_Zip – SP_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | SU_Zip – SU_Zip_CN_2013 |
| ByFeatureClasses | ZipCodes.gdb | SX_Zip – SX_Zip_CN_2013 |
| ByFeatureClasses | Zoning.gdb | Study_Zo – Study_Zo_C |
| ByFeatureClasses | Zoning.gdb | DW_Zo – DW_Zo_C |
| ByFeatureClasses | Zoning.gdb | GC_Zo – GC_Zo_C |
| ByFeatureClasses | Zoning.gdb | HN_Zo – HN_Zo_C |
| ByFeatureClasses | Zoning.gdb | JCC_Zo – JCC_Zo_C |
| ByFeatureClasses | Zoning.gdb | LU_Zo – LUb_Zo_C |
| ByFeatureClasses | Zoning.gdb | LU_Zo – LUa_Zo_C |
| ByFeatureClasses | Zoning.gdb | Min_Zo – Min_Zo_C |
| ByFeatureClasses | Zoning.gdb | NK_Zo – NK_Zo_C |
| ByFeatureClasses | Zoning.gdb | RC_Zo – RC_Zo_C |
| ByJurisdictions | Amelia.gdb | AM_Rds – AM_Rds_CN_2013 |
| ByJurisdictions | Amelia.gdb | AM_Rds – AM_Rds_VD_1997 |
| ByJurisdictions | Amelia.gdb | AM_Rds – AM_Rds_VG_2008Q3 |
| ByJurisdictions | Amelia.gdb | AM_Rds – AM_Rds_VG_2014Q1 |
| ByJurisdictions | Amelia.gdb | AM_Rds – AM_Rds_TNM |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Amelia.gdb | AM_Rds – AM_Rds_Combined |
| ByJurisdictions | Amelia.gdb | AM_Lm – AM_Lm_CN_2013 |
| ByJurisdictions | Amelia.gdb | AM_PA – AM_PA_ESRI |
| ByJurisdictions | Amelia.gdb | AM_RR – AM_RR_CN |
| ByJurisdictions | Amelia.gdb | AM_RR – AM_RR_ESRI |
| ByJurisdictions | Amelia.gdb | AM_RR – AM_RR_TNM |
| ByJurisdictions | Amelia.gdb | AM_RR – AM_RR_combined |
| ByJurisdictions | Amelia.gdb | AM_Borders – AM_Border |
| ByJurisdictions | Amelia.gdb | AM_Wb – AM_Wb_Li_CN_2013 |
| ByJurisdictions | Amelia.gdb | AM_Wb – AM_Wb_Ply_NHD_USGS |
| ByJurisdictions | Amelia.gdb | AM_Zip – AM_Zip_CN_2013 |
| ByJurisdictions | Caroline.gdb | CR_Rds – CR_Rds_CN_2013 |
| ByJurisdictions | Caroline.gdb | CR_Rds – CR_Rds_VD_1997 |
| ByJurisdictions | Caroline.gdb | CR_Rds – CR_Rds_VG_2008Q3 |
| ByJurisdictions | Caroline.gdb | CR_Rds – CR_Rds_VG_2014Q1 |
| ByJurisdictions | Caroline.gdb | CR_Rds – CR_Rds_Combined |
| ByJurisdictions | Caroline.gdb | CR_Rds – CR_Rds_TNM |
| ByJurisdictions | Caroline.gdb | CR_Lm – CR_Lm_CN_2013 |
| ByJurisdictions | Caroline.gdb | CR_Pk – CR_Pk_VDCR |
| ByJurisdictions | Caroline.gdb | CR_PA – CR_PA_ESRI |
| ByJurisdictions | Caroline.gdb | CR_Borders – CR_Border |
| ByJurisdictions | Caroline.gdb | CR_Wb – CR_Wb_Li_CN_2013 |
| ByJurisdictions | Caroline.gdb | CR_Wb – CR_Wb_Ply_NHD_USGS |
| ByJurisdictions | Caroline.gdb | CR_Zip – CR_Zip_CN_2013 |
| ByJurisdictions | Caroline.gdb | CR_RR – CR_RR_CN_2013 |
| ByJurisdictions | Caroline.gdb | CR_RR – CR_RR_Combined |
| ByJurisdictions | Caroline.gdb | CR_RR – CR_RR_ESRI |
| ByJurisdictions | Caroline.gdb | CR_RR – CR_RR_TNM |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_C_Orig |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_C_New |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_CN_2013 |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_VD_1997 |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_VG_2008Q3 |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_VG_2014Q1 |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_TNM |
| ByJurisdictions | CharlescityCounty.gdb | CC_Rds – CC_Rds_Combined |
| ByJurisdictions | CharlescityCounty.gdb | CC_Wb – CC_Wb_Ply_C_Orig |
| ByJurisdictions | CharlescityCounty.gdb | CC_Wb – CC_Wb_Ply_C_New |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | CharlescityCounty.gdb | CC_Wb – CC_Wb_Li_CN_2013 |
| ByJurisdictions | CharlescityCounty.gdb | CC_Wb – CC_Wb_Ply_NHD_USGS |
| ByJurisdictions | CharlescityCounty.gdb | CC_LUs – CC_LUs_C_Orig |
| ByJurisdictions | CharlescityCounty.gdb | CC_LUs – CC_LUs_C_New |
| ByJurisdictions | CharlescityCounty.gdb | CC_Pk – CC_Pk_C_Orig |
| ByJurisdictions | CharlescityCounty.gdb | CC_Pk – CC_Pk_C_New |
| ByJurisdictions | CharlescityCounty.gdb | CC_PA – CC_PA_C_Orig |
| ByJurisdictions | CharlescityCounty.gdb | CC_PA – CC_PA_C_New |
| ByJurisdictions | CharlescityCounty.gdb | CC_PA – CC_PA_ESRI |
| ByJurisdictions | CharlescityCounty.gdb | CC_Other – CC_BND_C |
| ByJurisdictions | CharlescityCounty.gdb | CC_Lm – CC_Lm_CN_2013 |
| ByJurisdictions | CharlescityCounty.gdb | CC_RR – CC_RR_CN_2013 |
| ByJurisdictions | CharlescityCounty.gdb | CC_RR – CC_RR_ESRI |
| ByJurisdictions | CharlescityCounty.gdb | CC_RR – CC_RR_Combined |
| ByJurisdictions | CharlescityCounty.gdb | CC_RR – CC_RR_TNM |
| ByJurisdictions | CharlescityCounty.gdb | CC_Borders – CC_Border |
| ByJurisdictions | CharlescityCounty.gdb | CC_Zip – CC_Zip_CN_2013 |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_CN_2013 |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_VD_1997 |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_VG_2008Q3 |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_VG_2014Q1 |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_combined |
| ByJurisdictions | Chesterfield.gdb | CF_Rds – CF_Rds_TNM |
| ByJurisdictions | Chesterfield.gdb | CF_Pk – CFbp_Pk_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_Pk – CF_Pk_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_Pk – CF_Pk_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_Pk – CF_Pk_VDCR |
| ByJurisdictions | Chesterfield.gdb | CF_Pk – CFbp_Pk_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_Pk – CF_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | Chesterfield.gdb | CF_Wb – CF_lakesp_WB_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_Wb – CF_riverbdy_WB_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_Wb – CFa_Wb_Li_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_Wb – CFb_Wb_Li_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_Wb – CF_Wb_Li_CN_2013 |
| ByJurisdictions | Chesterfield.gdb | CF_Wb – CF_Wb_Ply_NHD_USGS |
| ByJurisdictions | Chesterfield.gdb | CF_Res – CF_Res_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Chesterfield.gdb | CF_PA – CF_PA_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_PA – CF_PA_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_PA – CF_PA_ESRI |
| ByJurisdictions | Chesterfield.gdb | CF_St – CF_St_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_St – CF_St_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_WS – CF_WS_C_Orig |
| ByJurisdictions | Chesterfield.gdb | CF_WS – CF_WS_C_New |
| ByJurisdictions | Chesterfield.gdb | CF_Lm – CF_Lm_CN_2013 |
| ByJurisdictions | Chesterfield.gdb | CF_RR – CF_RR_CN_2013 |
| ByJurisdictions | Chesterfield.gdb | CF_RR – CF_RR_ESRI |
| ByJurisdictions | Chesterfield.gdb | CF_RR – CF_RR_Combined |
| ByJurisdictions | Chesterfield.gdb | CF_RR – CF_RR_TNM |
| ByJurisdictions | Chesterfield.gdb | CF_Borders – CF_Border |
| ByJurisdictions | Chesterfield.gdb | CF_FlPL – CF_floodp_C |
| ByJurisdictions | Chesterfield.gdb | CF_Zip – CF_Zip_CN_2013 |
| ByJurisdictions | ColonialHeights.gdb | CH_Rds – CH_Rds_VG_2014Q1 |
| ByJurisdictions | ColonialHeights.gdb | CH_Rds – CH_Rds_CN_2013 |
| ByJurisdictions | ColonialHeights.gdb | CH_Rds – CH_Rds_VG_2008Q3 |
| ByJurisdictions | ColonialHeights.gdb | CH_Rds – CH_Rds_combined |
| ByJurisdictions | ColonialHeights.gdb | CH_Rds – CH_Rds_TNM |
| ByJurisdictions | ColonialHeights.gdb | CH_Lm – CH_Lm_CN_2013 |
| ByJurisdictions | ColonialHeights.gdb | CH_PA – CH_PA_ESRI |
| ByJurisdictions | ColonialHeights.gdb | CH_RR – CH_RR_CN_2013 |
| ByJurisdictions | ColonialHeights.gdb | CH_RR – CH_RR_ESRI |
| ByJurisdictions | ColonialHeights.gdb | CH_RR – CH_RR_Combined |
| ByJurisdictions | ColonialHeights.gdb | CH_RR – CH_RR_TNM |
| ByJurisdictions | ColonialHeights.gdb | CH_Borders – CH_Border |
| ByJurisdictions | ColonialHeights.gdb | CH_Wb – CH_Wb_Li_CN_2013 |
| ByJurisdictions | ColonialHeights.gdb | CH_Wb – CH_Wb_Ply_NHD_USGS |
| ByJurisdictions | ColonialHeights.gdb | CH_Zip – CH_Zip_CN_2013 |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_C_New |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_CN |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_VG_2014Q1 |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_VD_97 |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Ancillary_Rds_C |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_DBO_Auxillary_Rds_C |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_VG_2008Q3 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_Combined |
| ByJurisdictions | Dinwiddie.gdb | DW_Rds – DW_Rds_TNM |
| ByJurisdictions | Dinwiddie.gdb | DW_Wb – DW_Hydro_Wb_Ply_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_Wb – DW_Hydro_Wb_Li_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_Wb – DW_Wb_Li_C_new |
| ByJurisdictions | Dinwiddie.gdb | DW_Wb – DW_Wb_Ply_C_New |
| ByJurisdictions | Dinwiddie.gdb | DW_Wb – DW_Wb_Li_CN_2013 |
| ByJurisdictions | Dinwiddie.gdb | DW_Wb – DW_Wb_Ply_NHD_USGS |
| ByJurisdictions | Dinwiddie.gdb | DW_RR – DW_RR_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_RR – DW_RR_C_new |
| ByJurisdictions | Dinwiddie.gdb | DW_RR – DW_RR_CN |
| ByJurisdictions | Dinwiddie.gdb | DW_RR – DW_RR_ESRI |
| ByJurisdictions | Dinwiddie.gdb | DW_RR – DW_RR_Combined |
| ByJurisdictions | Dinwiddie.gdb | DW_RR – DW_RR_TNM |
| ByJurisdictions | Dinwiddie.gdb | DW_APts – DW_APts_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_APts – DW_APts_C_New |
| ByJurisdictions | Dinwiddie.gdb | DW_WS – DW_Swamps_WS_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_WS – DW_WS_C_New |
| ByJurisdictions | Dinwiddie.gdb | DW_Zo – Dw_Zo_C_Orig |
| ByJurisdictions | Dinwiddie.gdb | DW_Zo – DW_Zo_C_New |
| ByJurisdictions | Dinwiddie.gdb | DW_Lm – DW_Lm_CN_2013 |
| ByJurisdictions | Dinwiddie.gdb | DW_Pk – DW_Pk_VDCR |
| ByJurisdictions | Dinwiddie.gdb | DW_Pk – DW_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | Dinwiddie.gdb | DW_PA – DW_PA_ESRI |
| ByJurisdictions | Dinwiddie.gdb | DW_Borders – DW_Border |
| ByJurisdictions | Dinwiddie.gdb | DW_Zip – DW_Zip_CN_2013 |
| ByJurisdictions | Goochland.gdb | GC_Lm – GC_Lm_CN_2013 |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_C_New |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_FireRescue_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_FifeVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_FifeClip_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_FifeOLD_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_Hadensville_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_Manakin_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_Oilville_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_SandyHook_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_StateFarm_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_VillageAreasAll_C |
| ByJurisdictions | Goochland.gdb | GC_Par – GC_Par_VillageAreasAllOLD_C |
| ByJurisdictions | Goochland.gdb | GC_Pk – GC_Pk_C_New |
| ByJurisdictions | Goochland.gdb | GC_Pk – GC_Pk_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_Pk – GC_Pk_FutureParkAtRiver_C |
| ByJurisdictions | Goochland.gdb | GC_PA – GC_PA_ESRI |
| ByJurisdictions | Goochland.gdb | GC_RR – GC_RR_C_New |
| ByJurisdictions | Goochland.gdb | GC_RR – GC_RR_CN_2013 |
| ByJurisdictions | Goochland.gdb | GC_RR – GC_RR_ESRI |
| ByJurisdictions | Goochland.gdb | GC_RR – GC_RR_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_RR – GC_RR_Combined |
| ByJurisdictions | Goochland.gdb | GC_RR – GC_RR_TNM |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_CN_2013 |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_VD_1997 |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_VG_2008Q3 |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_VG_2014Q1 |
| ByJurisdictions | Goochland.gdb | GC_Rds – GCa_Rds_C_New |
| ByJurisdictions | Goochland.gdb | GC_Rds – GCb_Rds_C_New |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_CentervilleRoadCloverleaf_C |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_FutureTransportation_C |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_OilvilleRoadCloverleaf_C |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_OilvilleRoadsForCloverleaf_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_RiverRoad_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_TNM |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_Combined |
| ByJurisdictions | Goochland.gdb | GC_Rds – GC_Rds_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_Wb – GC_Wb_Li_C_New |
| ByJurisdictions | Goochland.gdb | GC_Wb – GC_Wb_Ply_C_New |
| ByJurisdictions | Goochland.gdb | GC_Wb – GC_Wb_Li_CN_2013 |
| ByJurisdictions | Goochland.gdb | GC_Wb – GC_Wb_Ply_NHD_USGS |
| ByJurisdictions | Goochland.gdb | GC_Zo – GC_Zo_C_New |
| ByJurisdictions | Goochland.gdb | GC_Zo – GC_Zo_C_Orig |
| ByJurisdictions | Goochland.gdb | GC_Other – GC_FireStation5MileBuffer_C |
| ByJurisdictions | Goochland.gdb | GC_Other – GC_FireStation5MileBuffer_Ply_C |
| ByJurisdictions | Goochland.gdb | GC_Other – Gc_GeorgesTavernFireStation_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_Fife_village_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_FifeVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_HadensvilleVillage_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_ManakinVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_OilvilleVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_OLDVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_RiverRoadVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_SandyHookVillage_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_VillageAll_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_UrbanDevArea_C |
| ByJurisdictions | Goochland.gdb | GC_Bu – GC_Bu_VillageAllOLD_C |
| ByJurisdictions | Goochland.gdb | GC_Co – GC_Co_C_2007 |
| ByJurisdictions | Goochland.gdb | GC_WaS – GC_WaS_MajorSub_C |
| ByJurisdictions | Goochland.gdb | GC_Sl – GC_Sl_SteepSlope_C |
| ByJurisdictions | Goochland.gdb | GC_LUs – GC_LUs_OLDOriginal_C |
| ByJurisdictions | Goochland.gdb | GC_SW – GC_SW_Li_C |
| ByJurisdictions | Goochland.gdb | GC_SW – GC_SW_Ply_C |
| ByJurisdictions | Goochland.gdb | GC_Borders – GC_Border |
| ByJurisdictions | Goochland.gdb | GC_Prop – GC_Prop_VirginiaState_C |
| ByJurisdictions | Goochland.gdb | GC_Bud – GC_Bud_C |
| ByJurisdictions | Goochland.gdb | GC_Zip – GC_Zip_CN_2013 |
| ByJurisdictions | Hanover.gdb | HN_APts – HN_APts_C_Orig |
| ByJurisdictions | Hanover.gdb | HN_APts – HN_APts_C_New |
| ByJurisdictions | Hanover.gdb | HN_Lm – HN_Lm_CN_2013 |
| ByJurisdictions | Hanover.gdb | HN_Par – HN_Par_C_New |
| ByJurisdictions | Hanover.gdb | HN_Par – HN_Par_C_Orig |
| ByJurisdictions | Hanover.gdb | HN_Pk – HN_PK_VDCR |
| ByJurisdictions | Hanover.gdb | HN_Pk – HN_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | Hanover.gdb | HN_PA – HN_PA_ESRI |
| ByJurisdictions | Hanover.gdb | HN_RR – HN_RR_C_New |
| ByJurisdictions | Hanover.gdb | HN_RR – HN_RR_CN_2013 |
| ByJurisdictions | Hanover.gdb | HN_RR – HN_RR_ESRI |
| ByJurisdictions | Hanover.gdb | HN_RR – HN_RR_C_Orig |
| ByJurisdictions | Hanover.gdb | HN_RR – HN_RR_TNM |
| ByJurisdictions | Hanover.gdb | HN_RR – HN_RR_combined |
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_CN_2013 |
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_VD_1997 |
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_VG_2008Q3 |
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_VG_2014Q1 |
| ByJurisdictions | Hanover.gdb | HN_Rds – HNa_Rds_C_New |
| ByJurisdictions | Hanover.gdb | HN_Rds – HNb_Rds_C_New |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_TNM |
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_Combined |
| ByJurisdictions | Hanover.gdb | HN_Rds – HN_Rds_C_Orig |
| ByJurisdictions | Hanover.gdb | HN_Ut – HN_Ut_C_New |
| ByJurisdictions | Hanover.gdb | HN_Ut – HN_Ut_C_Orig |
| ByJurisdictions | Hanover.gdb | HN_Zo – HN_Zo_C_New |
| ByJurisdictions | Hanover.gdb | HN_Zo – HN_Zo_C_orig |
| ByJurisdictions | Hanover.gdb | HN_Bu – HN_Bu_C |
| ByJurisdictions | Hanover.gdb | HN_Bu – HN_Bu_AshlandCorp_C |
| ByJurisdictions | Hanover.gdb | HN_Other – HN_row_arc_C |
| ByJurisdictions | Hanover.gdb | HN_Other – HN_fences_arc_C |
| ByJurisdictions | Hanover.gdb | HN_Other – HN_Election_Ply_C |
| ByJurisdictions | Hanover.gdb | HN_Other – HN_easement_C |
| ByJurisdictions | Hanover.gdb | HN_Other – HN_cuplines_C |
| ByJurisdictions | Hanover.gdb | HN_Other – HN_Cup_Ply_C |
| ByJurisdictions | Hanover.gdb | HN_So – HN_So_C |
| ByJurisdictions | Hanover.gdb | HN_TC – HN_TC_C |
| ByJurisdictions | Hanover.gdb | HN_Borders – HN_Border_Li_C |
| ByJurisdictions | Hanover.gdb | HN_Borders – HN_Border |
| ByJurisdictions | Hanover.gdb | HN_Bud – HN_Bud_C |
| ByJurisdictions | Hanover.gdb | HN_Tp – HN_Tp_C |
| ByJurisdictions | Hanover.gdb | HN_Wb – HN_WB_C_Orig |
| ByJurisdictions | Hanover.gdb | HN_Wb – HN_Wb_Li_CN_2013 |
| ByJurisdictions | Hanover.gdb | HN_Wb – HN_Wb_Ply_NHD_USGS |
| ByJurisdictions | Hanover.gdb | HN_Zip – HN_Zip_CN_2013 |
| ByJurisdictions | Henrico.gdb | HC_Lm – HC_Lm_CN_2013 |
| ByJurisdictions | Henrico.gdb | HC_Pk – HC_Pk_C_New |
| ByJurisdictions | Henrico.gdb | HC_Pk – HC_Pk_VDCR |
| ByJurisdictions | Henrico.gdb | HC_Pk – HC_Pk_C_Orig |
| ByJurisdictions | Henrico.gdb | HC_Pk – HC_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | Henrico.gdb | HC_PA – HC_PA_ESRI |
| ByJurisdictions | Henrico.gdb | HC_RR – HC_RR_C_New |
| ByJurisdictions | Henrico.gdb | HC_RR – HC_RR_CN_2013 |
| ByJurisdictions | Henrico.gdb | HC_RR – HC_RR_ESRI |
| ByJurisdictions | Henrico.gdb | HC_RR – HC_RR_C_Orig |
| ByJurisdictions | Henrico.gdb | HC_RR – HC_RR_TNM |
| ByJurisdictions | Henrico.gdb | HC_RR – HC_RR_Combined |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_C_New |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_CN_2013 |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_VD_1997 |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_VG_2008Q3 |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_VG_2014Q1 |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_TNM |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_Combined |
| ByJurisdictions | Henrico.gdb | HC_Rds – HC_Rds_C_Orig |
| ByJurisdictions | Henrico.gdb | HC_St – HC_St_C_New |
| ByJurisdictions | Henrico.gdb | HC_St – HC_St_C_Orig |
| ByJurisdictions | Henrico.gdb | HC_Wb – HC_Wb_Li_C_New |
| ByJurisdictions | Henrico.gdb | HC_Wb – HC_Wb_Ply_C_New |
| ByJurisdictions | Henrico.gdb | HC_Wb – HC_Wb_C_Orig |
| ByJurisdictions | Henrico.gdb | HC_Wb – HC_Wb_Li_CN_2013 |
| ByJurisdictions | Henrico.gdb | HC_Wb – HC_Wb_Ply_NHD_USGS |
| ByJurisdictions | Henrico.gdb | HC_Co – HC_Co_C_Orig |
| ByJurisdictions | Henrico.gdb | HC_Borders – HC_Border |
| ByJurisdictions | Henrico.gdb | HC_Zip – HC_Zip_CN_2013 |
| ByJurisdictions | HopeWellCity.gdb | HW_Lm – HW_Lm_CN_2013 |
| ByJurisdictions | HopeWellCity.gdb | HW_Pk – HW_Pk_VDCR |
| ByJurisdictions | HopeWellCity.gdb | HW_Pk – HW_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | HopeWellCity.gdb | HW_PA – HW_PA_ESRI |
| ByJurisdictions | HopeWellCity.gdb | HW_RR – HW_RR_CN_2013 |
| ByJurisdictions | HopeWellCity.gdb | HW_RR – HW_RR_ESRI |
| ByJurisdictions | HopeWellCity.gdb | HW_RR – HW_RR_TNM |
| ByJurisdictions | HopeWellCity.gdb | HW_RR – HW_RR_Combined |
| ByJurisdictions | HopeWellCity.gdb | HW_Rds – HW_Rds_CN_2013 |
| ByJurisdictions | HopeWellCity.gdb | HW_Rds – HW_Rds_VG_2008Q3 |
| ByJurisdictions | HopeWellCity.gdb | HW_Rds – HW_Rds_VG_2014Q1 |
| ByJurisdictions | HopeWellCity.gdb | HW_Rds – HW_Rds_TNM |
| ByJurisdictions | HopeWellCity.gdb | HW_Rds – HW_Rds_Combined |
| ByJurisdictions | HopeWellCity.gdb | HW_Borders – HW_Border |
| ByJurisdictions | HopeWellCity.gdb | HW_Wb – HW_Wb_Li_CN_2013 |
| ByJurisdictions | HopeWellCity.gdb | HW_Wb – HW_Wb_Ply_NHD_USGS |
| ByJurisdictions | HopeWellCity.gdb | HW_Zip – HW_Zip_CN_2013 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Lm – JCC_Lm_CN_2013 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Par – JCC_Par_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Par – JCC_Par_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Pk – JCC_Pk_C_New |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | JamesCityCounty.gdb | JCC_Pk – JCC_Pk_VDCR |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Pk – JCC_Pk_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Pk – JCC_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_PA – JCC_PA_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_PA – JCC_PA_ESRI |
| ByJurisdictions | JamesCityCounty.gdb | JCC_PA – JCC_PA_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_RR – JCC_RR_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_RR – JCC_RR_CN_2013 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_RR – JCC_RR_ESRI |
| ByJurisdictions | JamesCityCounty.gdb | JCC_RR – JCC_RR_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_RR – JCC_RR_TNM |
| ByJurisdictions | JamesCityCounty.gdb | JCC_RR – JCC_RR_Combined |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_CN_2013 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_VD_1997 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_VG_2008Q3 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_VG_2014Q1 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_TNM |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Rds – JCC_Rds_Combined |
| ByJurisdictions | JamesCityCounty.gdb | JCC_St – JCC_St_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Wb – JCC_Wb_Li_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Wb – JCC_Wb_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Wb – JCC_Wb_Li_CN_2013 |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Wb – JCC_Wb_Ply_NHD_USGS |
| ByJurisdictions | JamesCityCounty.gdb | JCC_WS – JCC_WS_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_WS – JCC_WS_Marsh_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Zo – JCC_Zo_C_New |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Zo – JCC_Zo_C_Orig |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Other – jcc_bmps_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Other – JCC_EdgeOfPavement_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Other – JCC_Subdivisions_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Other – jcc_afd_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Gfc – JCC_Gfc_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Tr – JCC_TransitLines_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Tr – JCC_TransitStops_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Borders – JCC_Border |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Bud – JCC_Bud_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | JamesCityCounty.gdb | JCC_Elv – JCC_Elv_Spot_C |
| ByJurisdictions | JamesCityCounty.gdb | JCC_Zip – JCC_Zip_CN_2013 |
| ByJurisdictions | KingAndQueen.gdb | KQ_Lm – KQ_Lm_CN_2013 |
| ByJurisdictions | KingAndQueen.gdb | KQ_PA – KQ_PA_ESRI |
| ByJurisdictions | KingAndQueen.gdb | KQ_Rds – KQ_Rds_CN_2013 |
| ByJurisdictions | KingAndQueen.gdb | KQ_Rds – KQ_Rds_VD_1997 |
| ByJurisdictions | KingAndQueen.gdb | KQ_Rds – KQ_Rds_VG_2008Q3 |
| ByJurisdictions | KingAndQueen.gdb | KQ_Rds – KQ_Rds_VG_2014Q1 |
| ByJurisdictions | KingAndQueen.gdb | KQ_Rds – KQ_Rds_TNM |
| ByJurisdictions | KingAndQueen.gdb | KQ_Rds – KQ_Rds_Combined |
| ByJurisdictions | KingAndQueen.gdb | KQ_Borders – KQ_Border |
| ByJurisdictions | KingAndQueen.gdb | KQ_Wb – KQ_Wb_Li_CN_2013_1 |
| ByJurisdictions | KingAndQueen.gdb | KQ_Wb – KQ_Wb_Ply_NHD_USGS |
| ByJurisdictions | KingAndQueen.gdb | KQ_Zip – KQ_Zip_CN_2013 |
| ByJurisdictions | KingGeorge.gdb | KG_Lm – KG_Lm_CN_2013 |
| ByJurisdictions | KingGeorge.gdb | KG_PA – KG_PA_ESRI |
| ByJurisdictions | KingGeorge.gdb | KG_RR – KG_RR_CN_2013 |
| ByJurisdictions | KingGeorge.gdb | KG_RR – KG_RR_ESRI |
| ByJurisdictions | KingGeorge.gdb | KG_RR – KG_RR_TNM |
| ByJurisdictions | KingGeorge.gdb | KG_RR – KG_RR_Combined |
| ByJurisdictions | KingGeorge.gdb | KG_Rds – KG_Rds_CN_2013 |
| ByJurisdictions | KingGeorge.gdb | KG_Rds – KG_Rds_VD_1997 |
| ByJurisdictions | KingGeorge.gdb | KG_Rds – KG_Rds_VG_2008Q3 |
| ByJurisdictions | KingGeorge.gdb | KG_Rds – KG_Rds_VG_2014Q1 |
| ByJurisdictions | KingGeorge.gdb | KG_Rds – KG_Rds_Combined |
| ByJurisdictions | KingGeorge.gdb | KG_Rds – KG_Rds_TNM |
| ByJurisdictions | KingGeorge.gdb | KG_Borders – KG_Border |
| ByJurisdictions | KingGeorge.gdb | KG_Wb – KG_Wb_Li_CN_2013 |
| ByJurisdictions | KingGeorge.gdb | KG_Wb – KG_Wb_Ply_NHD_USGS |
| ByJurisdictions | KingGeorge.gdb | KG_Zip – KG_Zip_CN_2013 |
| ByJurisdictions | KingGeorge.gdb | KG_Pk – KG_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | KingWilliam.gdb | KW_Lm – KW_Lm_CN_2013 |
| ByJurisdictions | KingWilliam.gdb | KW_PA – KW_PA_ESRI |
| ByJurisdictions | KingWilliam.gdb | KW_RR – KW_RR_CN_2013 |
| ByJurisdictions | KingWilliam.gdb | KW_RR – KW_RR_ESRI |
| ByJurisdictions | KingWilliam.gdb | KW_RR – KW_RR_TNM |
| ByJurisdictions | KingWilliam.gdb | KW_RR – KW_RR_Combined |
| ByJurisdictions | KingWilliam.gdb | KW_Rds – KW_Rds_CN_2013 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | KingWilliam.gdb | KW_Rds – KW_Rds_VD_1997 |
| ByJurisdictions | KingWilliam.gdb | KW_Rds – KW_Rds_VG_2008Q3 |
| ByJurisdictions | KingWilliam.gdb | KW_Rds – KW_Rds_VG_2014Q1 |
| ByJurisdictions | KingWilliam.gdb | KW_Rds – KW_Rds_Combined |
| ByJurisdictions | KingWilliam.gdb | KW_Rds – KW_Rds_TNM |
| ByJurisdictions | KingWilliam.gdb | KW_Borders – KW_Border |
| ByJurisdictions | KingWilliam.gdb | KW_Wb – KW_Wb_Li_CN_2013 |
| ByJurisdictions | KingWilliam.gdb | KW_Wb – KW_Wb_Ply_NHD_USGS |
| ByJurisdictions | KingWilliam.gdb | KW_Zip – KW_Zip_CN_2013 |
| ByJurisdictions | Lousia.gdb | DW_APts – LU_APts_C_Orig |
| ByJurisdictions | Lousia.gdb | DW_APts – LU_APts_C_New |
| ByJurisdictions | Lousia.gdb | LU_For – LU_For_VDF |
| ByJurisdictions | Lousia.gdb | LU_FLU – LU_FLU_C_New |
| ByJurisdictions | Lousia.gdb | LU_FLU – LU_FLU_TownOfLouisa_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_Lm – LU_Lm_CN_2013 |
| ByJurisdictions | Lousia.gdb | LU_Par – LU_Par_C_New |
| ByJurisdictions | Lousia.gdb | LU_Par – LU_Par_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_PA – LU_PA_ESRI |
| ByJurisdictions | Lousia.gdb | LU_RR – LU_RR_C_new |
| ByJurisdictions | Lousia.gdb | LU_RR – LU_RR_CN_2013 |
| ByJurisdictions | Lousia.gdb | LU_RR – LU_RR_ESRI |
| ByJurisdictions | Lousia.gdb | LU_RR – LU_RR_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_RR – LU_RR_TNM |
| ByJurisdictions | Lousia.gdb | LU_RR – LU_RR_Combined |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_C_New |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_CN_2013 |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_VD_1997 |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_VG_2008Q3 |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_VG_2014Q1 |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_MainRoads_C |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_Combined |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_TNM |
| ByJurisdictions | Lousia.gdb | LU_Rds – LU_Rds_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_Ut – LU_Ut_C_New |
| ByJurisdictions | Lousia.gdb | LU_Ut – LU_Ut_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_Wb – LU_Wb_Ply_C_New |
| ByJurisdictions | Lousia.gdb | LU_Wb – LUb_Wb_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_Wb – LUa_Wb_C_Orig |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Lousia.gdb | LU_Wb – LU_Wb_Li_CN_2013 |
| ByJurisdictions | Lousia.gdb | LU_Wb – LU_Wb_Ply_NHD_USGS |
| ByJurisdictions | Lousia.gdb | LU_Zo – LUa_Zo_C_New |
| ByJurisdictions | Lousia.gdb | LU_Zo – LUb_Zo_C_New |
| ByJurisdictions | Lousia.gdb | LU_Zo – LU_Zo_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_Zo – LU_Zo_MIN_C |
| ByJurisdictions | Lousia.gdb | LU_Zo – LUb_Zo_TownOfLouisa_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_AFD_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_AirStrip_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_Bridge_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_DRIVEWAY_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_FloodIndex_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_GrowthArea_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_Hydrants_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_PrecinctVotingLocations_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_TaxMapGrid_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_VotingDistricts_C |
| ByJurisdictions | Lousia.gdb | LU_Other – LU_VotingPrecincts_C |
| ByJurisdictions | Lousia.gdb | LU_Borders – LU_Border |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_FireDeptDistrict_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_HistoricGreenSpringsDistrict_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_louctyarea_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_MIN_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – Lu_Bu_Ply_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – Lu_Bu_PO_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_RescueSquadDistrict_C |
| ByJurisdictions | Lousia.gdb | LU_Bu – LU_Bu_TownOfLouisa_C |
| ByJurisdictions | Lousia.gdb | LU_Bud – LU_Bud_C |
| ByJurisdictions | Lousia.gdb | LU_Co – LU_Co_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_So – LU_So_C |
| ByJurisdictions | Lousia.gdb | LU_St – LU_St_C_Orig |
| ByJurisdictions | Lousia.gdb | LU_FlPl – LU_FlPl_Flood100yr_C |
| ByJurisdictions | Lousia.gdb | LU_Zip – LU_Zip_CN_2013 |
| ByJurisdictions | NewKent.gdb | NK_APts – NK_APts_C_Orig |
| ByJurisdictions | NewKent.gdb | NK_APts – NK_APts_C_new |
| ByJurisdictions | NewKent.gdb | NK_Lm – NK_Lm_CN_2013 |
| ByJurisdictions | NewKent.gdb | NK_Par – NK_Par_AFD_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | NewKent.gdb | NK_Par – NK_Par_Septic_C |
| ByJurisdictions | NewKent.gdb | NK_Par – NK_Par_Joined2VISION_C |
| ByJurisdictions | NewKent.gdb | NK_Par – NK_Par_C_Orig |
| ByJurisdictions | NewKent.gdb | NK_Par – NKa_Par_C_New |
| ByJurisdictions | NewKent.gdb | NK_Par – NKb_Par_C_New |
| ByJurisdictions | NewKent.gdb | NK_PA – NK_PA_C_Orig |
| ByJurisdictions | NewKent.gdb | NK_PA – NK_PA_ESRI |
| ByJurisdictions | NewKent.gdb | NK_RR – NK_RR_C_Orig |
| ByJurisdictions | NewKent.gdb | NK_RR – NK_RR_CN_2013 |
| ByJurisdictions | NewKent.gdb | NK_RR – NK_RR_ESRI |
| ByJurisdictions | NewKent.gdb | NK_RR – NK_RR_TNM |
| ByJurisdictions | NewKent.gdb | NK_RR – NK_RR_Combined |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_Scenic_C |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_Anno_C |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_C_New |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_CN_2013 |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_VD_1997 |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_VG_2008Q3 |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_VG_2014Q1 |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_TNM |
| ByJurisdictions | NewKent.gdb | NK_Rds – NK_Rds_Combined |
| ByJurisdictions | NewKent.gdb | NK_Zo – NK_Zo_C_Orig |
| ByJurisdictions | NewKent.gdb | NK_Zo – NK_Zo_OverlayDistricts_C |
| ByJurisdictions | NewKent.gdb | NK_Zo – NK_Zo_C_New |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BrickshireESAYellow_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BrickshireESAOrange_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BrickshireESARed_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BrickshireESAGreen_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BrickshireESABlue_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikeThreeQuarterCenturyRide_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_RrPDC_RCL_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_MileMarkers_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Impedence_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_FirestationBuff8_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_FirestationBuff6_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikeQuarterCenturyRide_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Driveway_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikesSigns_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikeMetricCenturyRide_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikeHalfCenturyRide_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikeFamilyFunRide_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BikeCenturyRide_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Bridge_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Ancillary_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_AddressGrid_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_AddressErrata_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_ESZ_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_AddressAnno_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_AddressAccess_Li_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_VBMP_2009_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_VA24kQuad_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_OrthoIndex_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_VADOQQ_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_CBay_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Index600Scale_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Index200Scale_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Subdivisions_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_BlockCuts_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Inserts_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Hooks_C |
| ByJurisdictions | NewKent.gdb | NK_Other – NK_Blocks_C |
| ByJurisdictions | NewKent.gdb | NK_Borders – NK_Border |
| ByJurisdictions | NewKent.gdb | NK_Bud – NK_Bud_C |
| ByJurisdictions | NewKent.gdb | NK_Wb – NK_Wb_Li_CN_2013 |
| ByJurisdictions | NewKent.gdb | NK_Wb – NK_Wb_Ply_NHD_USGS |
| ByJurisdictions | NewKent.gdb | NK_Zip – NK_Zip_CN_2013 |
| ByJurisdictions | Nottoway.gdb | NW_APts – NW_APts_C_New |
| ByJurisdictions | Nottoway.gdb | NW_APts – NW_APts_C_Orig |
| ByJurisdictions | Nottoway.gdb | NW_Lm – NW_Lm_CN_2013 |
| ByJurisdictions | Nottoway.gdb | NW_Par – NW_Par_C_New |
| ByJurisdictions | Nottoway.gdb | NW_Par – NW_Par_C_Orig |
| ByJurisdictions | Nottoway.gdb | NW_PA – NW_PA_ESRI |
| ByJurisdictions | Nottoway.gdb | NW_RR – NW_RR_C_New |
| ByJurisdictions | Nottoway.gdb | NW_RR – NW_RR_CN_2013 |
| ByJurisdictions | Nottoway.gdb | NW_RR – NW_RR_ESRI |
| ByJurisdictions | Nottoway.gdb | NW_RR – NW_RR_C_Orig |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Nottoway.gdb | NW_RR – NW_RR_TNM |
| ByJurisdictions | Nottoway.gdb | NW_RR – NW_RR_Combined |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_C_New |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_CN_2013 |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_VD_1997 |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_VG_2008Q3 |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_VG_2014Q1 |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_C_Orig |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_RightofWay_C |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_Unamed_C |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_Combined |
| ByJurisdictions | Nottoway.gdb | NW_Rds – NW_Rds_TNM |
| ByJurisdictions | Nottoway.gdb | NW_Wb – NW_Wb_Li_C_new |
| ByJurisdictions | Nottoway.gdb | NW_Wb – NW_Wb_Ply_C_New |
| ByJurisdictions | Nottoway.gdb | NW_Wb – NW_Wb_C_2 |
| ByJurisdictions | Nottoway.gdb | NW_Wb – NW_Wb_Lakes_C_Orig |
| ByJurisdictions | Nottoway.gdb | NW_Wb – NW_Wb_Li_CN_2013 |
| ByJurisdictions | Nottoway.gdb | NW_Wb – NW_Wb_Ply_NHD_USGS |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_Areas_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_Bridge_Pts_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_Cartography_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_CartographyInserts_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_CellL_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_Cemetery_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_Church_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_ESNS_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_Grid_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_GridInserts_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_HouseCompleteReverseGeocod_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_HouseGrid_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_LandHook_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_LotAnno_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_LotAnnoInserts_C |
| ByJurisdictions | Nottoway.gdb | NW_Other – NW_VbmpTiles_2009 |
| ByJurisdictions | Nottoway.gdb | NW_Borders – NW_Border |
| ByJurisdictions | Nottoway.gdb | NW_Bu – NW_Bu_C |
| ByJurisdictions | Nottoway.gdb | NW_Riv – NW_RIV_Wb_C |
| ByJurisdictions | Nottoway.gdb | NW_Zip – NW_Zip_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Nottoway.gdb | NW_Zip – NW_Zip_CN_2013 |
| ByJurisdictions | Petersburg.gdb | PB_Lm – PB_Lm_CN_2013 |
| ByJurisdictions | Petersburg.gdb | PB_Pk – PB_Pk_VDCR |
| ByJurisdictions | Petersburg.gdb | PB_Pk – PB_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | Petersburg.gdb | PB_PA – PB_PA_ESRI |
| ByJurisdictions | Petersburg.gdb | PB_RR – PB_RR_CN_2013 |
| ByJurisdictions | Petersburg.gdb | PB_RR – PB_RR_ESRI |
| ByJurisdictions | Petersburg.gdb | PB_RR – PB_RR_TNM |
| ByJurisdictions | Petersburg.gdb | PB_RR – PB_RR_Combined |
| ByJurisdictions | Petersburg.gdb | PB_Rds – PB_Rds_CN_2013 |
| ByJurisdictions | Petersburg.gdb | PB_Rds – PB_Rds_VG_2008Q3 |
| ByJurisdictions | Petersburg.gdb | PB_Rds – PB_Rds_VG_2014Q1 |
| ByJurisdictions | Petersburg.gdb | PB_Rds – PB_Rds_TNM |
| ByJurisdictions | Petersburg.gdb | PB_Rds – PB_Rds_Combined |
| ByJurisdictions | Petersburg.gdb | PB_Borders – PB_Border |
| ByJurisdictions | Petersburg.gdb | PB_Wb – PB_Wb_Li_CN_2013 |
| ByJurisdictions | Petersburg.gdb | PB_Wb – PB_Wb_Ply_NHD_USGS |
| ByJurisdictions | Petersburg.gdb | PB_Zip – PB_Zip_CN_2013 |
| ByJurisdictions | Powhantan.gdb | PW_FLU – PW_FLU_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_FLU – PW_FLU_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Lm – PW_Lm_CN_2013 |
| ByJurisdictions | Powhantan.gdb | PW_LUs – PW_LUs_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_LUs – PW_LUs_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Pk – PWb_Pk_PowhatanStatePark_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_Pk – PWa_Pk_FightingCreek_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_Pk – PWa_Pk_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Pk – PWb_Pk_C_New |
| ByJurisdictions | Powhantan.gdb | PW_PA – PW_PA_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_PA – PW_PA_C_New |
| ByJurisdictions | Powhantan.gdb | PW_PA – PW_PA_ESRI |
| ByJurisdictions | Powhantan.gdb | PW_RR – PW_RR_CN_2013 |
| ByJurisdictions | Powhantan.gdb | PW_RR – PW_RR_ESRI |
| ByJurisdictions | Powhantan.gdb | PW_RR – PW_RR_TNM |
| ByJurisdictions | Powhantan.gdb | PW_RR – PW_RR_Combined |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_CN_2013 |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_VD_1997 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_VG_2008Q3 |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_VG_2014Q1 |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_Combined |
| ByJurisdictions | Powhantan.gdb | PW_Rds – PW_Rds_TNM |
| ByJurisdictions | Powhantan.gdb | PW_St – PW_St_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_St – PW_St_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Wb – PWa_Wb_Li_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Wb – PWb_Wb_Li_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Wb – PW_Wb_Li_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_Wb – PW_Wb_Li_CN_2013 |
| ByJurisdictions | Powhantan.gdb | PW_Wb – PW_Wb_Ply_NHD_USGS |
| ByJurisdictions | Powhantan.gdb | PW_WS – PW_WS_C_Orig |
| ByJurisdictions | Powhantan.gdb | PW_WS – PW_WS_C_New |
| ByJurisdictions | Powhantan.gdb | PW_Other – PW_PWMA_C |
| ByJurisdictions | Powhantan.gdb | PW_Borders – PW_Border |
| ByJurisdictions | Powhantan.gdb | PW_FlPL – PW_FLPl_FloodHazard_C |
| ByJurisdictions | Powhantan.gdb | PW_Zip – PW_Zip_CN_2013 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Lm – PG_Lm_CN_2013 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Par – PG_Par_C_Orig |
| ByJurisdictions | PrinceGeorge.gdb | PG_Par – PG_Par_C_new |
| ByJurisdictions | PrinceGeorge.gdb | PG_Pk – PG_Pk_Pts_C_Orig |
| ByJurisdictions | PrinceGeorge.gdb | PG_Pk – PG_Pk_C_New |
| ByJurisdictions | PrinceGeorge.gdb | PG_Pk – PG_Pk_VDCR |
| ByJurisdictions | PrinceGeorge.gdb | PG_Pk – PG_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | PrinceGeorge.gdb | PG_PA – PG_PA_ESRI |
| ByJurisdictions | PrinceGeorge.gdb | PG_RR – PG_RR_CN_2103 |
| ByJurisdictions | PrinceGeorge.gdb | PG_RR – PG_RR_ESRI |
| ByJurisdictions | PrinceGeorge.gdb | PG_RR – PG_RR_TNM |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_C_Orig |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_C_New |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_CN_2013 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_VD_1997 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_VG_2008Q3 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_VG_2014Q1 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_TNM |
| ByJurisdictions | PrinceGeorge.gdb | PG_Rds – PG_Rds_Combined |
| ByJurisdictions | PrinceGeorge.gdb | PG_St – PG_St_C_Orig |
| ByJurisdictions | PrinceGeorge.gdb | PG_St – PG_St_C_New |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | PrinceGeorge.gdb | PG_Wb – PG_Wb_Ply_C_Orig |
| ByJurisdictions | PrinceGeorge.gdb | PG_Wb – PG_Wb_Ply_C_new |
| ByJurisdictions | PrinceGeorge.gdb | PG_Wb – PG_Wb_Li_CN_2013 |
| ByJurisdictions | PrinceGeorge.gdb | PG_Wb – PG_Wb_Ply_NHD_USGS |
| ByJurisdictions | PrinceGeorge.gdb | PG_WS – PG_WS_C_Orig |
| ByJurisdictions | PrinceGeorge.gdb | PG_WS – PG_WS_C_new |
| ByJurisdictions | PrinceGeorge.gdb | PG_Borders – PG_Border |
| ByJurisdictions | PrinceGeorge.gdb | PG_Zip – PG_Zip_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_APts – RC_APts_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_APts – RC_APts_C_new |
| ByJurisdictions | RichmondCity.gdb | RC_FLU – RC_FLU_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_FLU – RC_FLU_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Lm – RC_Lm_Pts_C |
| ByJurisdictions | RichmondCity.gdb | RC_Lm – RC_Lm_C |
| ByJurisdictions | RichmondCity.gdb | RC_Lm – RC_Lm_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_LUs – RC_LUs_2008_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_LUs – RC_LUs_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Par – RC_Par_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_Par – RC_Par_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Pk – RC_Pk_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_Pk – RC_Pk_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Pk – RC_Pk_VDCR |
| ByJurisdictions | RichmondCity.gdb | RC_Pk – RC_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_PA – RC_PA_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_PA – RC_PA_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_PA – RC_PA_ESRI |
| ByJurisdictions | RichmondCity.gdb | RC_RR – RC_RR_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_RR – RC_RR_ESRI |
| ByJurisdictions | RichmondCity.gdb | RC_RR – RC_RR_TNM |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_VD_1997 |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_VG_2008Q3 |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_VG_2014Q1 |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_TNM |
| ByJurisdictions | RichmondCity.gdb | RC_Rds – RC_Rds_Combined |
| ByJurisdictions | RichmondCity.gdb | RC_WS – RC_WS_C_Orig |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | RichmondCity.gdb | RC_WS – RC_WS_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Zo – RC_Zo_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_Zo – RC_Zo_C_New |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_VotingStations_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_VoterPrecinct_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_TrafficZone2000_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_Tract2000_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_StateSenateDistrict_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_StateHouseDistrict_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_SpecialUsePermit_Pts_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_SchoolZoneMiddle_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_SchoolZoneHigh_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_SchoolZoneElementary_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_RedevConservation_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_PoliceSector_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_PolicePrecinct_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_PlanningDistrict_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_NIBTarget_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_NIBImpact_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_Neighborhood_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_HousingOpportunityArea_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_HistoricDistrictNR_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_HistoricDistrictCity_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_FireDistrict_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_EnterpriseZone_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_DispatchZone_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_DesignOverlay_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CouncilDistrict_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CongressDistrict_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CommunityUnitPlan_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CodeInspection_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CivicAssociation_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CDBG_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CARE_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_BlockGroup2000_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_Block2000_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CommunityCenters_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_RMA_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_IDA_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_DFIRM_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_CrossSection_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_BikePath_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_WalkingPath_C |
| ByJurisdictions | RichmondCity.gdb | RC_Other – RC_ExportOutput_C |
| ByJurisdictions | RichmondCity.gdb | RC_So – RC_So_C |
| ByJurisdictions | RichmondCity.gdb | RC_Sch – RC_Sch_Public_C |
| ByJurisdictions | RichmondCity.gdb | RC_FlPl – RC_FlPl_500_C |
| ByJurisdictions | RichmondCity.gdb | RC_FlPl – RC_FlPl_100_C |
| ByJurisdictions | RichmondCity.gdb | RC_Zip – RC_Zip_C |
| ByJurisdictions | RichmondCity.gdb | RC_Zip – RC_Zip_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_Bu – RC_Bu_C |
| ByJurisdictions | RichmondCity.gdb | RC_Borders – RC_Border |
| ByJurisdictions | RichmondCity.gdb | RC_Co – RC_Co_C_Orig |
| ByJurisdictions | RichmondCity.gdb | RC_Elv – RC_Elv_BaseFloodElevation_C |
| ByJurisdictions | RichmondCity.gdb | RC_For – RC_For_C |
| ByJurisdictions | RichmondCity.gdb | RC_WaS – RC_WaS_Sub_C |
| ByJurisdictions | RichmondCity.gdb | RC_WaS – RC_WaS_C |
| ByJurisdictions | RichmondCity.gdb | RC_Wb – RC_Wb_Li_CN_2013 |
| ByJurisdictions | RichmondCity.gdb | RC_Wb – RC_Wb_Ply_NHD_USGS |
| ByJurisdictions | Spotsylvania.gdb | SP_APts – SP_APts_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Lm – SP_Lm_CN_2013 |
| ByJurisdictions | Spotsylvania.gdb | SP_Par – SP_Par_C_New |
| ByJurisdictions | Spotsylvania.gdb | SP_Par – SP_Par_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Pk – SP_Pk_C_New |
| ByJurisdictions | Spotsylvania.gdb | SP_Pk – SP_Pk_VDCR |
| ByJurisdictions | Spotsylvania.gdb | SP_Pk – SP_Pk_LakeAnnaStatePark_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Pk – SP_Pk_FromCensusLM_CN_2013 |
| ByJurisdictions | Spotsylvania.gdb | SP_PA – SP_PA_ESRI |
| ByJurisdictions | Spotsylvania.gdb | SP_PA – SP_PA_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_RR – SP_RR_CN_2013 |
| ByJurisdictions | Spotsylvania.gdb | SP_RR – SP_RR_ESRI |
| ByJurisdictions | Spotsylvania.gdb | SP_RR – SP_RR_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_RR – SP_RR_TNM |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_C_New |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_CN_2013 |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_VD_1997 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_VG_2008Q3 |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_VG_2014Q1 |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_Casings_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_Intersections_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_TNM |
| ByJurisdictions | Spotsylvania.gdb | SP_Rds – SP_Rds_Combined |
| ByJurisdictions | Spotsylvania.gdb | SP_Borders – SP_Border |
| ByJurisdictions | Spotsylvania.gdb | SP_Bud – SP_Bud_Li_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Bud – SP_Bud_Ply_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Other – SP_Cemeteries_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Other – SP_DevelopmentDistricts_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Other – SP_FireRescueStations_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Other – SP_MileMarkers_C |
| ByJurisdictions | Spotsylvania.gdb | SP_Other – SP_TAZ_C |
| ByJurisdictions | Spotsylvania.gdb | SP_FLU – SP_FLU_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Sch – SP_Sch_C |
| ByJurisdictions | Spotsylvania.gdb | SP_St – SP_St_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Wb – SP_Wb_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Wb – SP_Wb_Li_CN_2013 |
| ByJurisdictions | Spotsylvania.gdb | SP_Wb – SP_Wb_Ply_NHD_USGS |
| ByJurisdictions | Spotsylvania.gdb | SP_Zo – SP_Zo_C_Orig |
| ByJurisdictions | Spotsylvania.gdb | SP_Zip – SP_Zip_CN_2013 |
| ByJurisdictions | Surry.gdb | SU_Lm – SU_Lm_CN_2013 |
| ByJurisdictions | Surry.gdb | SU_Pk – SU_Pk_VDCR |
| ByJurisdictions | Surry.gdb | SU_PA – SU_PA_ESRI |
| ByJurisdictions | Surry.gdb | SU_RR – SU_RR_CN_2013 |
| ByJurisdictions | Surry.gdb | SU_RR – SU_RR_ESRI |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_C_New |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_CN_2013 |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_VD_1997 |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_VG_2008Q3 |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_VG_2014Q1 |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_C_Orig |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_TNM |
| ByJurisdictions | Surry.gdb | SU_Rds – SU_Rds_Combined |
| ByJurisdictions | Surry.gdb | SU_St – SU_St_C_New |
| ByJurisdictions | Surry.gdb | SU_St – SU_St_C_Orig |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Surry.gdb | SU_Wb – SU_Wb_Li_C_new |
| ByJurisdictions | Surry.gdb | SU_Wb – SU_Wb_Ply_C_New |
| ByJurisdictions | Surry.gdb | SU_Wb – SU_Wb_Ply_C_Orig |
| ByJurisdictions | Surry.gdb | SU_Wb – SU_Wb_Li_CN_2013 |
| ByJurisdictions | Surry.gdb | SU_Wb – SU_Wb_Ply_NHD_USGS |
| ByJurisdictions | Surry.gdb | SU_WS – SUa_WS_C_New |
| ByJurisdictions | Surry.gdb | SU_WS – SUb_WS_C_New |
| ByJurisdictions | Surry.gdb | SU_WS – SU_WS_Swamps_C_Orig |
| ByJurisdictions | Surry.gdb | SU_WS – SU_WS_Wetlands_C_Orig |
| ByJurisdictions | Surry.gdb | SU_Borders – SU_Border |
| ByJurisdictions | Surry.gdb | SU_Zip – SU_Zip_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_Lm – SX_Lm_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_Lm – SX_Lm_USBGN |
| ByJurisdictions | Sussex.gdb | SX_Borders – SX_Border |
| ByJurisdictions | Sussex.gdb | SX_PA – SX_PA_ESRI |
| ByJurisdictions | Sussex.gdb | SX_Pk – SX_Pk_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_Pk – SX_Pk_VDCR |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_TNM |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_VG_2014Q1 |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_FS |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_CN_2104 |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_Combined |
| ByJurisdictions | Sussex.gdb | SX_Rds – SX_Rds_VG_2008Q3 |
| ByJurisdictions | Sussex.gdb | SX_RR – SX_RR_ESRI |
| ByJurisdictions | Sussex.gdb | SX_RR – SX_RR_TNM |
| ByJurisdictions | Sussex.gdb | SX_RR – SX_RR_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_RR – SX_RR_Combined |
| ByJurisdictions | Sussex.gdb | SX_Wb – SX_Wb_Ply_NHD_USGS |
| ByJurisdictions | Sussex.gdb | SX_Wb – SX_Wb_Li_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_Wb – SX_Wb_Li_CN_2014 |
| ByJurisdictions | Sussex.gdb | SX_Zip – SX_Zip_CN_2013 |
| ByJurisdictions | Sussex.gdb | SX_Prop – SX_Prop_VEDP |
| ByJurisdictions | Sussex.gdb | SX_Res – SX_Res_VDEQ |
| ByJurisdictions | Sussex.gdb | SX_Riv – SX_Riv_VDEQ |
| ByJurisdictions | Sussex.gdb | SX_SWF – SX_SWF_VDEQ |
| ByJurisdictions | Sussex.gdb | SX_SWM – SX_SWM_VDCR |
| ByJurisdictions | Sussex.gdb | SX_St – SX_St_TNM |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| ByJurisdictions | Sussex.gdb | SX_Tr – SX_Apts_TNM |
| CountyBoundaries | CountyBorders.gdb | AMborder |
| CountyBoundaries | CountyBorders.gdb | CRBorder |
| CountyBoundaries | CountyBorders.gdb | CCBorder |
| CountyBoundaries | CountyBorders.gdb | CFBorder |
| CountyBoundaries | CountyBorders.gdb | CHBorder |
| CountyBoundaries | CountyBorders.gdb | DWBorder |
| CountyBoundaries | CountyBorders.gdb | GCBorder |
| CountyBoundaries | CountyBorders.gdb | HNBorder |
| CountyBoundaries | CountyBorders.gdb | HCBorder |
| CountyBoundaries | CountyBorders.gdb | HWBorder |
| CountyBoundaries | CountyBorders.gdb | JCCBorder |
| CountyBoundaries | CountyBorders.gdb | KQBorder |
| CountyBoundaries | CountyBorders.gdb | KGBorder |
| CountyBoundaries | CountyBorders.gdb | KWBorder |
| CountyBoundaries | CountyBorders.gdb | LUBorder |
| CountyBoundaries | CountyBorders.gdb | NKBorder |
| CountyBoundaries | CountyBorders.gdb | NWBorder |
| CountyBoundaries | CountyBorders.gdb | PBBorder |
| CountyBoundaries | CountyBorders.gdb | PWBorder |
| CountyBoundaries | CountyBorders.gdb | PGBorder |
| CountyBoundaries | CountyBorders.gdb | RCBorder |
| CountyBoundaries | CountyBorders.gdb | SPBorder |
| CountyBoundaries | CountyBorders.gdb | SUBorder |
| CountyBoundaries | CountyBorders.gdb | State_CountyBorders_GC |
| CountyBoundaries | CountyBorders.gdb | SXBorder |
| CountyBoundaries | CountyBorders.gdb | Study_countyborders |
| NationWideData | Borders.gdb | counties |
| NationWideData | ByFeatureClass.gdb | RailRoad – Nation_RR_CN_2013 |
| NationWideData | ByFeatureClass.gdb | Roads – Nation_Rds_FS |
| NationWideData | ByFeatureClass.gdb | ZipCode – Nation_Zip_CN_2013 |
| NationWideData | BySource.gdb | Census – Nation_RR_CN_2013 |
| NationWideData | BySource.gdb | Census – Nation_Zip_CN_2013 |
| NationWideData | BySource.gdb | USForestService – Nation_Rds_FS |
| QuantitativeResults | ChangeDetection | CC_Rds_CcgCN_VG_100.shp |
| QuantitativeResults | ChangeDetection | CC_Rds_C_CN_100.shp |
| QuantitativeResults | ChangeDetection | DW_VG_C_100.shp |
| QuantitativeResults | ChangeDetection | HC_VG2014Q1_VG2008Q3_100MChange.shp |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| QuantitativeResults | ChangeDetection | PW_CN_C_50M.shp |
| QuantitativeResults | ChangeDetection | PW_CN_VG2014Q1_1M.shp |
| QuantitativeResults | ChangeDetection | PW_CN_VG2014Q1_50M.shp |
| QuantitativeResults | ChangeDetection | PW_CN_VG2014Q1_5M.shp |
| QuantitativeResults | ChangeDetection | PW_C_VG2014Q1_50m.shp |
| QuantitativeResults | ChangeDetection | RC_VG2014Q1_VG2008Q3_50MChange.shp |
| QuantitativeResults | Cluster Analysis | HN_Par_C_Cluster.shp |
| QuantitativeResults | DensityAnalyses | densityrdscom |
| QuantitativeResults | DensityAnalyses | density_rds_c |
| QuantitativeResults | DensityAnalyses | dw_apts_dens |
| QuantitativeResults | HotSpotAnalyses | HN_Bud_C_Elevationheight.shp |
| QuantitativeResults | HotSpotAnalyses | HN_Par_C_Acres_HotSpot.shp |
| QuantitativeResults | HotSpotAnalyses | VGIN_speed_hotspot.shp |
| StateWideData | ByFeatureClass.gdb | Roads – State_Rds_VG_2014Q1 |
| StateWideData | ByFeatureClass.gdb | Roads – State_Rds_TNM |
| StateWideData | ByFeatureClass.gdb | Colleges – State_CL_VEDP |
| StateWideData | ByFeatureClass.gdb | RailRoads – State_RR_ESRI |
| StateWideData | ByFeatureClass.gdb | RailRoads – State_RR_TNM |
| StateWideData | ByFeatureClass.gdb | Hospitals – State_HP_VEDP |
| StateWideData | ByFeatureClass.gdb | Properties – State_Prop_VEDP |
| StateWideData | ByFeatureClass.gdb | ProtectedAreas – State_PA_ESRI |
| StateWideData | ByFeatureClass.gdb | Reserviors – State_Res_VDEQ |
| StateWideData | ByFeatureClass.gdb | Rivers – State_Riv_VDEQ |
| StateWideData | ByFeatureClass.gdb | SolidWasteFacilities – State_SWF_VDEQ |
| StateWideData | ByFeatureClass.gdb | StateWildlifeManagementArea – State_SWM_VDCR |
| StateWideData | ByFeatureClass.gdb | Parks – State_Pk_VDCR |
| StateWideData | ByFeatureClass.gdb | Parks – Parks_FromCensusLM_CN_2013 |
| StateWideData | ByFeatureClass.gdb | Landmarks – State_Lm_CN_2013 |
| StateWideData | ByFeatureClass.gdb | Landmarks – State_Lm_USBGN |
| StateWideData | ByFeatureClass.gdb | Structures_NationalMap – Struct_Point |
| StateWideData | ByFeatureClass.gdb | TransitFromNationalMap – State_Trail_NM |
| StateWideData | ByFeatureClass.gdb | TransitFromNationalMap – State_Airports_Pts_NM |
| StateWideData | ByFeatureClass.gdb | TransitFromNationalMap – State_Runways_NM |
| StateWideData | ByFeatureClass.gdb | Waterbodies – State_Wb_Ply_NHD_USGS |
| StateWideData | BySource.gdb | VGIN – State_Rds_VG_2014Q1 |
| StateWideData | BySource.gdb | VGIN – State_Rds_VG_2008Q3 |
| StateWideData | BySource.gdb | VGIN – Study_Rds_VG_2008Q3_Clip |
| StateWideData | BySource.gdb | VirginiaEconomicDevelopmentPartnership – State_CL_VEDP |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| StateWideData | BySource.gdb | VirginiaEconomicDevelopmentPartnership – State_HP_VEDP |
| StateWideData | BySource.gdb | VirginiaEconomicDevelopmentPartnership – State_Prop_VEDP |
| StateWideData | BySource.gdb | ESRI – State_PA_ESRI |
| StateWideData | BySource.gdb | ESRI – State_RR_ESRI |
| StateWideData | BySource.gdb | VirginiaDeptOfConservationAndRecreation – State_SWM_VDCR |
| StateWideData | BySource.gdb | VirginiaDeptOfConservationAndRecreation – State_NPS_VDCR |
| StateWideData | BySource.gdb | VirginiaDeptOfEnvironmentalQuality – State_Res_VDEQ |
| StateWideData | BySource.gdb | VirginiaDeptOfEnvironmentalQuality – State_Riv_VDEQ |
| StateWideData | BySource.gdb | VirginiaDeptOfEnvironmentalQuality – State_SWF_VDEQ |
| StateWideData | BySource.gdb | Census – State_Lm_CN_2013 |
| StateWideData | BySource.gdb | Census – Parks_FromCensusLM_CN_2013 |
| StateWideData | BySource.gdb | Census – State_Pop_CN_2010 |
| StateWideData | BySource.gdb | Census – State_Pop_CN_2010new |
| StateWideData | BySource.gdb | USBGN – State_Lm_USBGN |
| StateWideData | BySource.gdb | TheNationalMap – State_RR_TNM |
| StateWideData | BySource.gdb | TheNationalMap – State_Rds_TNM |
| StateWideData | BySource.gdb | USGS – State_Wb_Ply_NHD_USGS |
| StudyAreaWideData | BySource.gdb | County_City – Study_Zo_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_WS_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_PA_Li_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_PA2_Ply_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Ut_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Rds_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_RR_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_PA_Ply_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Pk_Ply_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Pk_Pts_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Par_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_LUs_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_FLU_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_APts_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_St_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Wb_Li_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Wb_Ply_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Bud_Ply_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| StudyAreaWideData | BySource.gdb | County_City – Study_FlPl_C |
| StudyAreaWideData | BySource.gdb | County_City – Study_Co_C |
| StudyAreaWideData | BySource.gdb | Census – Study_Rds_CN_2013 |
| StudyAreaWideData | BySource.gdb | Census – Study_RR_CN_2013 |
| StudyAreaWideData | BySource.gdb | Census – Study_Lm_CN_2013 |
| StudyAreaWideData | BySource.gdb | Census – Study_Wb_Li_CN_2013 |
| StudyAreaWideData | BySource.gdb | Census – Study_Pop_CN_2010 |
| StudyAreaWideData | BySource.gdb | Census – Study_Zip_CN_2013 |
| StudyAreaWideData | BySource.gdb | Census – Study_Zip_CN_2013b |
| StudyAreaWideData | BySource.gdb | VDOT – Study_Rds_VD_1997 |
| StudyAreaWideData | BySource.gdb | VGIN – Study_Rds_VG_2014Q1 |
| StudyAreaWideData | BySource.gdb | VGIN – Study_Rds_VG_2008Q3 |
| StudyAreaWideData | BySource.gdb | ESRI – Study_PA_ESRI |
| StudyAreaWideData | BySource.gdb | ESRI – Study_RR_ESRI |
| StudyAreaWideData | BySource.gdb | ESRI – Study_RR_ESRIb |
| StudyAreaWideData | BySource.gdb | VDCR – Study_Pk_Ply_VDCR |
| StudyAreaWideData | BySource.gdb | TheNationalMap – Study_RR_TNM |
| StudyAreaWideData | BySource.gdb | TheNationalMap – Study_Rds_TNM |
| StudyAreaWideData | BySource.gdb | USGS – Study_Wb_Ply_NHD_USGS |
| StudyAreaWideData | BySource.gdb | USGS – Study_Wb_Ply_NHD_USGSb |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_C |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_VD_1997 |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_TNM |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_Combined |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_VG_2014Q1 |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_TNMb_1 |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_2013_CN |
| StudyAreaWideData | ByType.gdb | Roads – Study_Rds_VG_2008Q3 |
| StudyAreaWideData | ByType.gdb | Roads – topology1 |
| StudyAreaWideData | ByType.gdb | AddressPoints – Study_APts_C |
| StudyAreaWideData | ByType.gdb | FutureLandUse – Study_FLU_C |
| StudyAreaWideData | ByType.gdb | LandUse – Study_LUs_C |
| StudyAreaWideData | ByType.gdb | ProtectiveAreas – Study_PA_Li_C |
| StudyAreaWideData | ByType.gdb | ProtectiveAreas – Study_PA_Ply_C |
| StudyAreaWideData | ByType.gdb | ProtectiveAreas – Study_PA2_Ply_C |
| StudyAreaWideData | ByType.gdb | ProtectiveAreas – Study_PA_ESRI |
| StudyAreaWideData | ByType.gdb | Parcels – Study_Par_C |
| StudyAreaWideData | ByType.gdb | Parks – Study_Pk_Ply_C |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| StudyAreaWideData | ByType.gdb | Parks – Study_Pk_Pts_C |
| StudyAreaWideData | ByType.gdb | Parks – Study_Pk_Ply_VDCR |
| StudyAreaWideData | ByType.gdb | Parks – Study_Pk_Ply_Union |
| StudyAreaWideData | ByType.gdb | RailRoads – Study_RR_C |
| StudyAreaWideData | ByType.gdb | RailRoads – Study_RR_CN_2013 |
| StudyAreaWideData | ByType.gdb | RailRoads – Study_RR_ESRI |
| StudyAreaWideData | ByType.gdb | RailRoads – Study_RR_TNM |
| StudyAreaWideData | ByType.gdb | RailRoads – Study_RR_Combined |
| StudyAreaWideData | ByType.gdb | RailRoads – Study_RR_Combined_b |
| StudyAreaWideData | ByType.gdb | Streams – Study_St_C |
| StudyAreaWideData | ByType.gdb | Utility – Study_Ut_C |
| StudyAreaWideData | ByType.gdb | Wetlands_Swamps – Study_WS_C |
| StudyAreaWideData | ByType.gdb | Zoning – Study_Zo_C |
| StudyAreaWideData | ByType.gdb | LandMarks – Study_Lm_CN_2013 |
| StudyAreaWideData | ByType.gdb | WaterBodies – Study_Wb_Ply_C |
| StudyAreaWideData | ByType.gdb | WaterBodies – Study_Wb_Li_C |
| StudyAreaWideData | ByType.gdb | WaterBodies – Study_Wb_Ply_NHD_USGS |
| StudyAreaWideData | ByType.gdb | WaterBodies – Study_Wb_Li_CN_2013 |
| StudyAreaWideData | ByType.gdb | Buildings – Study_Bud_Ply_C |
| StudyAreaWideData | ByType.gdb | Population – Study_Pop_CN_2010 |
| StudyAreaWideData | ByType.gdb | Contours – Study_Co_C |
| StudyAreaWideData | ByType.gdb | floodplains – Study_FlPl_C |
| StudyAreaWideData | ByType.gdb | ZipCodes – Study_Zip_CN_2013 |
| StudyAreaWideData | Combined Datasets.gdb | Study_Pk_Ply_Union |
| StudyAreaWideData | Combined Datasets.gdb | Study_Rds_Combined |
| StudyAreaWideData | Combined Datasets.gdb | Study_RR_Combined |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Pop_CN_2010 |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Rds_C |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Pk_Ply_VDCR |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Rds_VD_1997 |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Lm_CN_2013 |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_PA_ESRI |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Rds_2013_CN |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Rds_TNM |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Rds_VG_2014Q1 |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Zip_CN_2013 |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Wb_Ply_NHD_USGS |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Wb_Li_CN_2013 |

Table A2–1. Table listing the file names and classification levels of the Richmond unified geographic dataset.—Continued

| Classification level 1 | Classification level 2 | Classification level 3+ |
|---|---|---|
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_RR_TNM |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_RR_ESRI |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_RR_CN_2013 |
| StudyAreaWideData | DataWithEntireDatasets.gdb | Study_Rds_VG_2008Q3 |
| StudyAreaWideData | Rasters.gdb | Study_LC_CBP_2006 |
| StudyAreaWideData | Study_Borders.gdb | Study_countyborders |

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