

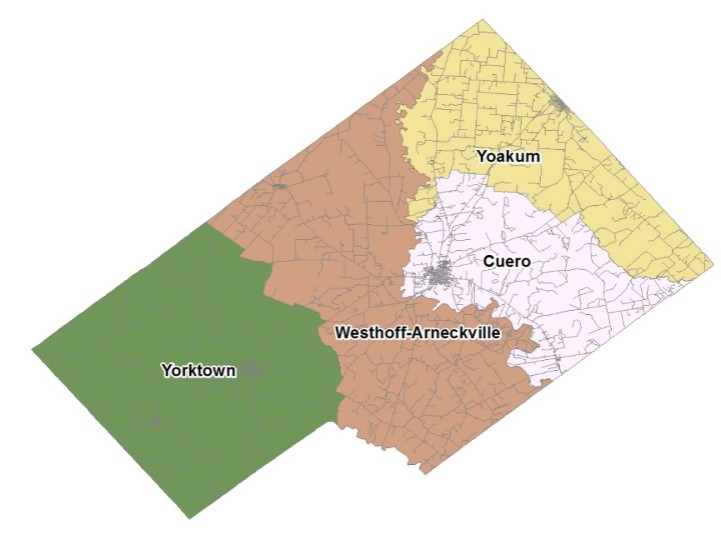
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Matt Ahrens (Assistant Manager)

George Caracostis (GIS Analyst)

EMERGENCY HANDBOOK for DEWITT COUNTY



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**I. Introduction**

BACKGROUND

Due to the increased drilling because of the Eagle Ford shale phenomena in DeWitt County, Texas, there has been an increased risk of chemical fires and spills putting people and the environment at risk. DeWitt County is a small rural county in South Eastern Texas containing 4 major towns and holding an estimated population of 20,500 throughout the entire county (DeWitt County Profile, 2013). The term “Eagle Ford Shale” refers to the town of Eagle Ford, Texas, “where the shale outcrops at the surface in clay form” (Eagle Ford Shale, 2015). It is the “largest oil & gas development in the world based on capital invested” (Eagle Ford Shale, 2015).

The problem lies in the storage of Extremely Hazardous Substances (EHS) at facilities and the transport of these chemicals on the roads, to and from the facilities. EHS chemicals are defined by the Environmental Protection Agency (EPA), as any substances that has toxicity and potential, in an event of a spill, to become airborne (EPCRA Guide, 2015). Each facility storing EHS chemicals is required by the EPA to file a Tier II report, listing an index of EHS chemicals with amounts (usually in pounds) stored at the facility.

The second issue with this project is that DeWitt County is largely a rural county, meaning that cell phone coverage and internet access is limited. With that information, we needed to come up with a solution that could be independent of the internet yet be fully capable of providing accurate information about the facilities and access points to them.

Third, there are only 7 volunteer fire departments county wide to cover 910 square miles of territory. That means the number of fire departments and available response resources is limited. In January 2015, our team, South Texas Emergency Consulting, was recruited to help solve the problem.

PURPOSE

The purpose of the project was to build a guidebook, using GIS technology, to help in dealing with these chemical disasters including: fires, spills and contamination.

The nature of these emergencies is spatial, so it was logical for us to use GIS tools to analyze and create the handbook. GIS tools would allow us to create tables and databases with point and polygon data and draw spatial correlations between them in order to present the data in a visual and understandable way. The handbook will then be distributed to emergency responders, in the oil and gas industries, throughout the county.

GIS technology has been used before in implementing emergency management. Cova, T. (1999) used it to examine and create 4 phases of mitigation, preparedness, response and recovery in order to build a Comprehensive Emergency Management (CEM) guide; to lessen the effects of disasters. Another researcher used similar data to Cova in developing a comprehensive guide, but to also include information on the importance of having a plan in place and the importance of having resources available in an event of a disaster (Emrich et al, 2011). The literature information was useful in guiding our design and build of the reference guide to be used in a chemical emergency. It is of utmost importance for responders to be able to contact facility managers and have correct information about the chemical facilities when responding to an event.

SCOPE

The scope of the project was done in DeWitt County, Texas. All analysis was done using EHS chemical facilities found within the county.

**II. Data**

Data used for the project for the project was obtained primarily from Rosie Ybarra, Emergency Management Coordinator of DeWitt County. Information about chemicals and chemical facilities was retrieved from the DeWitt County Tier II data files.

1. DeWitt County Tier II data provided by the Texas Department of State Health Services provided the following:

* Street addresses and decimal degree coordinates of all chemical-holding facilities in DeWitt County.
* Chemical Inventory list for all facilities including means of storage, physical properties, EHS categorization, and corresponding facility reference codes for each chemical.
* Facility contact information including E-mail, phone numbers of onsite/offsite managing personnel, and corresponding contact reference codes.

1. Texas State Data Center website provided:

* Shape files for DeWitt and adjacent counties including city boundaries, roads, rivers, and lakes.

1. United States Geological Survey provided:

* Client provided USGS shapefiles that included an index grid used to organize individual facility maps by quadrant.
* USGS aerial orthophotographic imagery was downloaded from the Texas National Resources Information System website for facility gate access location, and final guide book map display.

4.) Microsoft Excel: Used initially to edit, organize, and complete Tier II data.

5.) Cameo Chemicals: chemical information database used to research chemical properties and hazards.

6.) Areal Locations of Hazardous Atmospheres (ALOHA): Used to calculate chemical/quantity specific threat zone distances for each EHS facility.

7.) ArcMap 10.2: Used for map production, table joins, simple overlay, and final map output.

SOFTWARE

Some of the additional software the team used that was outside the norm and had to be learned was the Cameofm suite. The suite included Cameofm, Cameo Chemicals, Marplot and Aloha. This was a free open-source program downloaded from the National Ocean and Atmospheric Administration (NOAA), Office of Response and Restoration.

Cameofm and Cameo Chemicals is an extensive database that provides emergency responders with information on chemical, response recommendations, and information on how to respond to chemical fires or explosions. Marplot was used in conjunction with Cameo Chemicals to provide satellite images of facilities and of roads to the facilities. Aloha was used to draw calculated buffer zones around the facilities based on the wind direction, toxicity, chemical form (solid, liquid, or gas) and the average amount of time from release in relation to response times. The buffers were used to show where roadblocks should be placed. ArcGIS was 10.2 was used for table joins, overlays and for the final map output.

**III. Methodology**

The purpose of this project was to create a visual reference guide showing individual EHS chemical and hydrocarbon holding facilities. Each facility map was to include visual display of a calculated chemical release threat zone radius along with facility entrance and contact information. The Tier II dataset we received from the client included Excel spreadsheets of three varieties all linked through record identification codes:

1. Facilities
2. Chemical Inventories
3. Facility Contacts

The following general process took place:

The first step was to organize, edit, and complete the Tier II data. Many data fields had inconsistencies in field expressions, empty values, and incorrect or unnecessary data.

Once we felt comfortable with the completeness and consistency of our data, our next step was to make necessary use of the 3 categorizations of data. The Facilities table was imported into ArcMap as an XY Layer to create a county base map of all facilities.

After completion of the county base map, the next step was to sort through the chemical inventory data and research chemical properties to define our classification of an extremely hazardous substance. EPA requires all extremely hazardous chemical holding facilities to file a Tier II report of their inventory every year if inventories are within a chemical specific reportable quantity. The chemical inventory data included EHS classification for chemicals of this reportable quantity for over a hundred facilities. However, our definition of extremely hazardous for the scope of this project was to include hydrocarbons, which although required on the list by reportable quantities by “hazardous” reportable quantities, might not require “extremely hazardous” classification. Produced hydrocarbons, crude oil, diesel, natural gas, and condensates include chemical combinations of extremely hazardous substances that may fall below the required reportable quantity for EHS categorization. For instance, crude oil contains trace amounts of benzene and hydrogen sulfide (H2S). Large inventories of crude oil, although below the reporting threshold of the trace amounts of EHS, still pose great environmental risks. We needed to include these substances in our EHS classification and begin calculating our chemical release threat zones.

Calculations of chemical release distances were performed with ALOHA software. ALOHA has a chemical database that along with highly specific inputs for atmospheric conditions and chemical quantities allow users to calculate threat zones. This program is typically used during a chemical release event to predict directional threat zones based upon wind speed and direction. Instead of importing visual displays, we simply calculated release distances and manually imported them into our Excel sheet. Criteria for hydrocarbon inclusion and quantities for chemical input were determined by a maximum amount code classification system. Chemical weight in pounds ranging from 0 to greater than 10 million is classified into 13 ordinal weight ranges. Our criteria for hydrocarbon inclusion were a value of 8 (50,000 lb.-74,999 lb.) or above.

Weight in Pounds

 Value              From                To

01                    0                      99

02                    100                  499

03                    500                  999

04                    1,000               4,999

05                    5,000               9,999

06                    10,000             24,999

07                    25,999             49,999

**08**                    50,000             **79,999**

**09**                    75,000             **99,999**

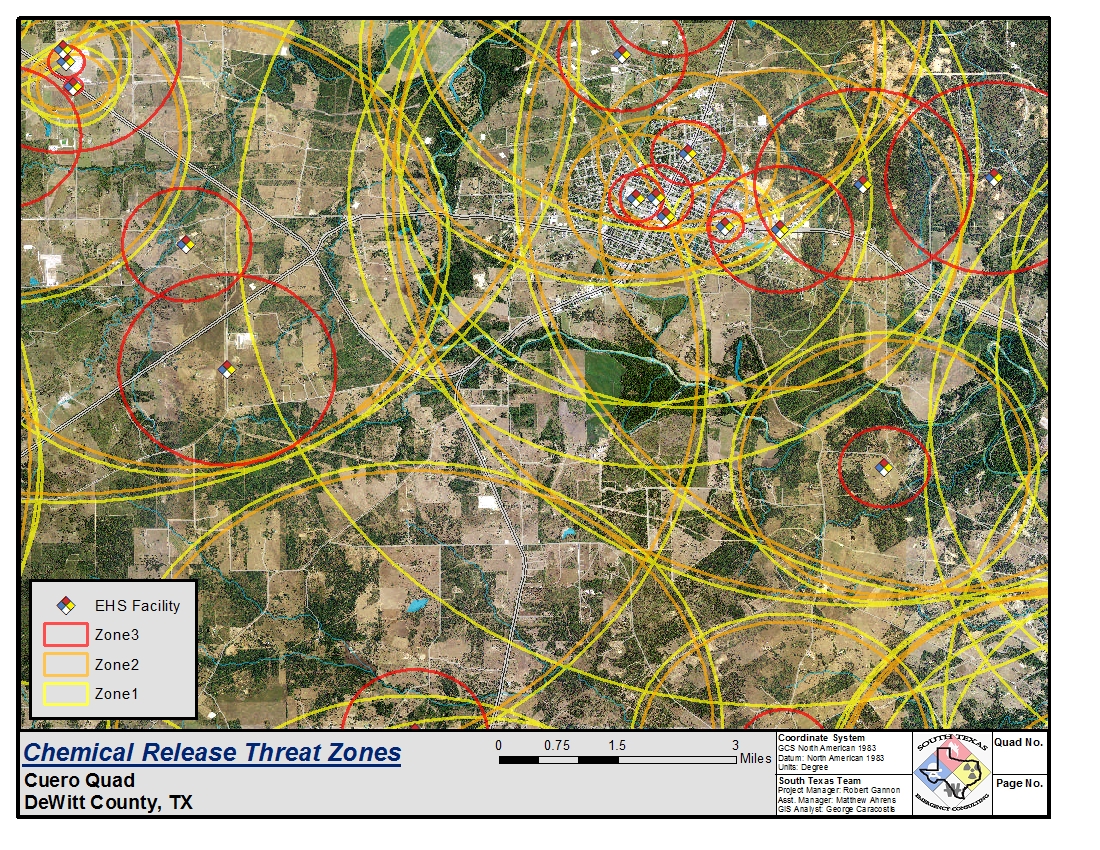
**10**                    100,000           **499,999**

**11**                    500,000           **999,999**

**12**                    1,000,000**10,000,000**

**13**                    Greater Than  **10,000,000**

The quantity input was generalized to the highest value of the chemical’s code range. Distances are calculated into 3 protective action criteria (PAC) categories or zones. Once these were calculated, we input 3 distance values in miles for each EHS chemical in our spreadsheet and selected records with PAC values to create an EHS list to be joined to our facilities layer. For facilities with multiple EHS chemicals, we assigned the chemical with the greatest PAC distance. Individual buffers were then created for each EHS facility and then merged, forming a three ringed threat zone. PAC-3 is the immediate blast area and is identified in the maps as the red circle. PAC-2 is the evacuation/shelter area and is identified by an orange circle. PAC-1 is the greatest distance and refers to the monitor/notify area.



After our threat zones were completed, facility contact information was assigned to all of the facilities through table joins. Contact identification codes were used to connect contact names, phone numbers, and email addresses to the facilities through a contact link table.

This information will later be added to corresponding individual EHS facility maps and indexed in the back of the guide book.

Once we joined the contact information to the facilities, we began the mapmaking process. The idea was to make the series of 307 individual maps systematic, functional, and easy to recreate if information changes. At our client’s request, we added aerial orthographic .jpeg rasters to our map display. This also helped us to identify facility gate entry locations manually. We chose not to perform any network analysis or geocoding due to the high probability of error. Many of the facility entrances are located off of a series of unnamed private roads. Any given facility’s XY location may be closer to a road with no entry to it and miles away from the actual entry point. Data driven pages were utilized to create individual maps for each EHS facility with all of the necessary associated information. We created a mask layer for the data driven pages with the Zone 1 feature class to ensure the proper extent for each facility map. Each map contains a general description of facility access location, EHS chemical inventory, facility contact list, and a list of all nearby facilities within the map extent.

**IV. Results and Discussion**

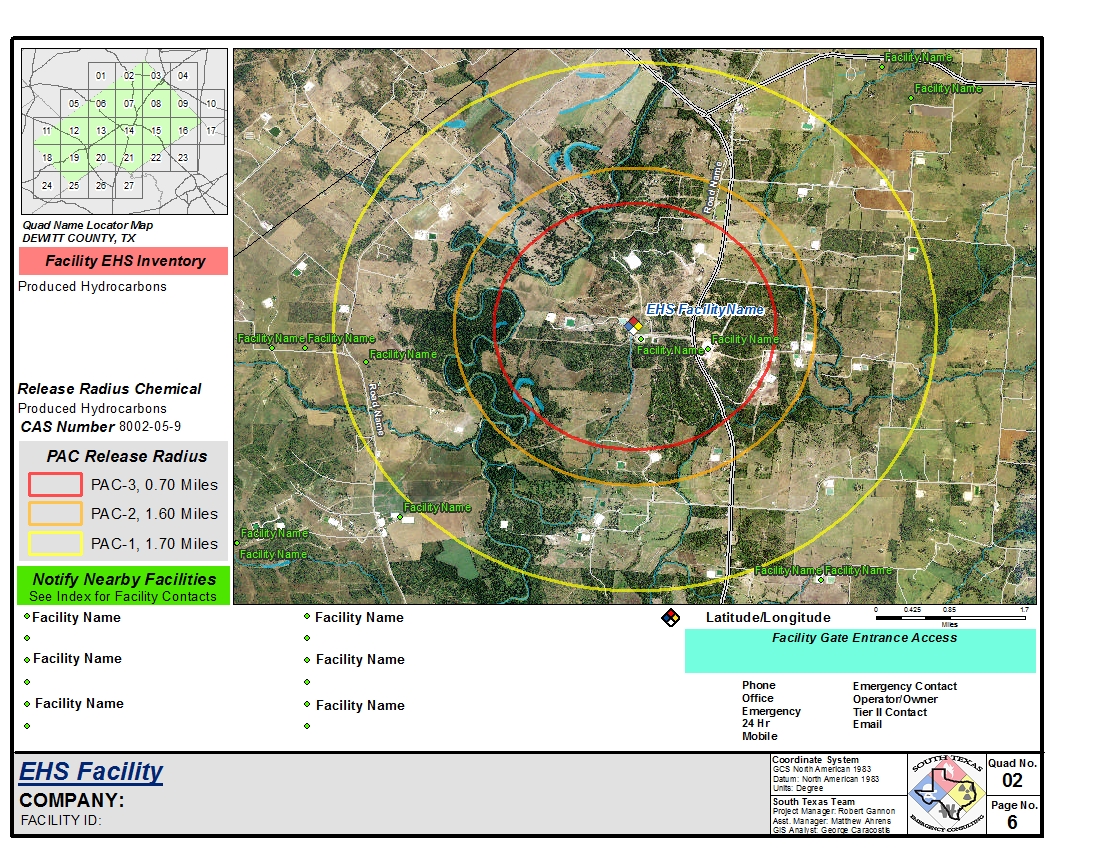
Our findings during our project were very similar to the expected results. There was not a massive amount of actual data analysis that needed to be done on both the data that was given to us by the county and the data that was retrieved by ourselves. We came into this project expecting to make maps for DeWitt County to help emergency responders in the event of a chemical spill, and that is exactly what we did.

We found the most potentially dangerous chemical facilities located throughout the county and focused on those when doing the analysis. After including facilities holding hydrocarbons into our EHS categorization, we found that 307 of the 374 total chemical facilities in the county were to be assigned as EHS facilities. This number calculated to approximately 84 percent of all the facilities in the county as being categorized as EHS facilities. These locations pose the biggest threat to the community, the environment, and other chemical facilities nearby.



Our results have created a useful guide for the emergency first responders of the area to be better suited to deal with chemical disasters and spills in their county. With our maps and guide we have created a resource that gives them the valuable tool of information. When they get an emergency call out to a chemical facility, they now have the ability to see exactly where it is in relation to other chemical facilities and how those facilities may be effected by the spill. The maps show buffered areas surrounding the EHS facilities that will allow them to know who is in danger depending on the magnitude of the emergency. This will help them make decisions in the managing of these emergencies, including where to implement road blocks. The guide will assist responders in making the calls as to which streets to block off and give a more accurate representation of the potential dangers of the emergency. They can now have an accurate representation of what areas of civilians will be in as well as the danger from the chemicals released.

Now that they have this guide they will know exactly what EHS chemicals are located within each facility in DeWitt County, and which ones of these chemicals are considered extremely hazardous. The guide book also provides gate access information that is crucial when first responders are attempting to get to the facility in the quickest manor possible.



There is also valuable contact information in the guidebook so responders will be able to contact the correct managers in the event of an emergency. This will allow the emergency officials a better understanding of the situation at the location of the emergency and will give them a number to call to warn nearby facilities about the situation that is taking place. This can help in saving the lives of both those within the facility that is having the emergency and the surrounding facilities of DeWitt County.

One of the obstacles that our group had to overcome was learning how to use a new suite of software to complete the project. We downloaded and used the Cameo Software Suite. This suite includes Cameo FM, Cameo Chemicals, Aloha, and Marplot. Nobody in our group had ever used any of these programs before so there was a bit of a learning curve that needed to be overcome to get our project on the right path. These programs did prove to be useful tools at our disposal. Along with ArcMap, we used these programs to load and analyze the data, find information on chemicals, and create useful maps for DeWitt county first responders.

One way that the effectiveness of our work could be improved would be by having the availability of the internet to the first responders who are going to be using our maps. In DeWitt County there are many areas with little to no internet connection. This is the main reason why we couldn’t create any type of online database that would be constantly updated and that would then feed the information into the GIS model. For this reason we were instructed by our DeWitt county representative to make a physical reference guide book to help them identify, analyze, and address the problems within each facility to assist if there is a chemical release on site. This is going to be very helpful to them, but in a perfect world, we could improve upon our project by having dynamic maps available. This way we could not have only static maps, but it would be able to be constantly adjusted and changed to new circumstances. For example, a facility could have gained or lost a given amount of one chemical since the time that our handbook was created, which would be incorrect information that the responders would be using. To combat this problem we will be giving the county all of the data and methodology that was used in our mapmaking and analysis so that they can recreate the same type of product again and again as they see to be fit. With this information they can maintain the data and attempt to keep it as accurate as possible throughout the years. This should keep our project in circulation for many years to come.

**V. Conclusions**

This project will create a product that will be very beneficial for the communities within DeWitt County and for the emergency responders who protect them from harm every day. By creating this guide we can help them do their jobs to the fullest extent. It is a pleasure and an honor to our group to be allowed the opportunity to make an impact with this project. Nothing is better than knowing the work you are doing will be helping improve the lives of other people. We hope to make the responders feel more comfortable responding to chemical spill situations than they would have without our handbook at their disposal.

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**Appendix I: Group Members Contribution**

Robert Gannon – Project Manager:

* Managed overall progress of project
* Turned in all completed reports and presentations
* Project Proposal: Completed and organized cover page, table of contents, introduction, budget, and bibliography. Edited final document
* Progress Report: Completed and organized cover page, table of contents, introduction, and deliverables
* Worked on PowerPoint presentation slides and presented presentations
* Final Report: Completed the introduction, bibliography and references.
* Assisted in organizing website documents
* Assisted in company logo creation
* Helped create and design poster
* Created and designed the guidebook in InDesign

Matt Ahrens – Project Assistant:

* Project Proposal: Completed literature review, implications, activities, and timeline excel sheet
* Progress Report: Completed and organized tasks (completed and future), timeline excel sheet and pie chart, and conclusion
* Worked on PowerPoint presentation slides and presented presentations
* Final Report: Completed results, discussion and conclusion. Organized Appendix I
* Designed and created company logo
* Lead organization and creation of website documents
* Helped create and design poster
* Created and designed the guidebook in InDesign

George Caracostis – GIS Analyst:

* Conducted GIS data analysis to generate desired build
* Managed Data and shapefiles given by the county
* Organized and designed maps for layout of handbook
* Progress Report: Completed the dataset, software, and methodology, including the methodology flowchart
* Worked on PowerPoint presentation slides and presentation of slides
* Final Report: completed the data and methods portions
* Helped create and design poster
* Organized and added Metadata for Appendix II

**Appendix II. Metadata**

Identification\_Information:

Citation:

Citation\_Information:

Originator:

U.S. Department of Commerce, U.S. Census Bureau, Geography

Division

Publication\_Date: 2014

Title: TIGER/Line Shapefile, 2014, nation, U.S., Current County and Equivalent National Shapefile

Edition: 2014

Geospatial\_Data\_Presentation\_Form: vector digital data

Online\_Linkage: http://www2.census.gov/geo/tiger/TIGER2014/COUNTY/tl\_2014\_us\_county.zip

Description:

Abstract:

The TIGER/Line shapefiles and related database files (.dbf) are an extract of selected geographic and cartographic information from the U.S. Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database (MTDB). The MTDB represents a seamless national file with no overlaps or gaps between parts, however, each TIGER/Line shapefile is designed to stand alone as an independent data set, or they can be combined to cover the entire nation.

The primary legal divisions of most states are termed counties. In Louisiana, these divisions are known as parishes. In Alaska, which has no counties, the equivalent entities are the organized boroughs, city and boroughs, municipalities, and for the unorganized area, census areas. The latter are delineated cooperatively for statistical purposes by the State of Alaska and the Census Bureau. In four states (Maryland, Missouri, Nevada, and Virginia), there are one or more incorporated places that are independent of any county organization and thus constitute primary divisions of their states. These incorporated places are known as independent cities and are treated as equivalent entities for purposes of data presentation. The District of Columbia and Guam have no primary divisions, and each area is considered an equivalent entity for purposes of data presentation. The Census Bureau treats the following entities as equivalents of counties for purposes of data presentation: Municipios in Puerto Rico, Districts and Islands in American Samoa, Municipalities in the Commonwealth of the Northern Mariana Islands, and Islands in the U.S. Virgin Islands. The entire area of the United States, Puerto Rico, and the Island Areas is covered by counties or equivalent entities.

The boundaries for counties and equivalent entities are mostly as of January 1, 2013, primarily as reported through the Census Bureau's Boundary and Annexation Survey (BAS). However, some changes made after January 2013, including the addition and deletion of counties, are included.

Purpose: In order for others to use the information in the Census MAF/TIGER database in a geographic information system (GIS) or for other geographic applications, the Census Bureau releases to the public extracts of the database in the form of TIGER/Line Shapefiles.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: No changes or updates will be made to this version of the TIGER/Line Shapefiles. Future releases of TIGER/Line Shapefiles will reflect updates made to the Census MAF/TIGER database.

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -179.231086

East\_Bounding\_Coordinate: 179.859681

North\_Bounding\_Coordinate: 71.441059

South\_Bounding\_Coordinate: -14.601813

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: None

Theme\_Keyword: Nation

Theme\_Keyword: Polygon

Theme\_Keyword: County

Theme\_Keyword: Borough

Theme\_Keyword: Parish

Theme\_Keyword: Municipio

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115 Topic Categories

Theme\_Keyword: Boundaries

Place:

Place\_Keyword\_Thesaurus:

ANSI INCITS 38:2009 (Formerly FIPS 5-2),

ANSI INCITS 31:2009 (Formerly FIPS 6-4),ANSI

INCITS 454:2009 (Formerly FIPS 8-6), ANSI INCITS

455:2009(Formerly FIPS 9-1), ANSI INCITS 446:2008 (Geographic Names Information System (GNIS))

Place\_Keyword: United States

Place\_Keyword: U.S.

Access\_Constraints: None

Use\_Constraints:

The TIGER/Line Shapefile products are not copyrighted however TIGER/Line and Census TIGER are registered trademarks of the U.S. Census Bureau. These products are free to use in a product or publication, however acknowledgement must be given to the U.S. Census Bureau as the source.

The boundary information in the TIGER/Line Shapefiles are for statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement and they are not legal land descriptions.Coordinates in the TIGER/Line shapefiles have six implied decimal places, but the positional accuracy of these coordinates is not as great as the six decimal places suggest.

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization:

U.S. Department of Commerce, U.S. Census Bureau,

Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: Accurate against National Standard Codes, Federal Information Processing (FIPS) and the Geographic Names Information System (GNIS) at the 100% level for the codes and base names. The remaining attribute information has been examined but has not been fully tested for accuracy.

Logical\_Consistency\_Report:

The Census Bureau performed automated tests to ensure logical consistency and limits of shapefiles. Segments making up the outer and inner boundaries of a polygon tie end-to-end to completely enclose the area. All polygons are tested for closure.

The Census Bureau uses its internally developed geographic update system to enhance and modify spatial and attribute data in the Census MAF/TIGER database. Standard geographic codes, such as FIPS codes for states, counties, municipalities, county subdivisions, places, American Indian/Alaska Native/Native Hawaiian areas, and congressional districts are used when encoding spatial entities. The Census Bureau performed spatial data tests for logical consistency of the codes during the compilation of the original Census MAF/TIGER database files. Most of the codes for geographic entities except states, counties, urban areas, Core Based Statistical Areas (CBSAs), American Indian Areas (AIAs), and congressional districts were provided to the Census Bureau by the USGS, the agency responsible for maintaining the Geographic Names Information System (GNIS). Feature attribute information has been examined but has not been fully tested for consistency.

For the TIGER/Line Shapefiles, the Point and Vector Object Count for the G-polygon SDTS Point and Vector Object Type reflects the number of records in the shapefile attribute table. For multi-polygon features, only one attribute record exists for each multi-polygon rather than one attribute record per individual G-polygon component of the multi-polygon feature. TIGER/Line Shapefile multi-polygons are an exception to the G-polygon object type classification. Therefore, when multi-polygons exist in a shapefile, the object count will be less than the actual number of G-polygons.

Completeness\_Report: Data completeness of the TIGER/Line Shapefiles reflects the contents of the Census MAF/TIGER database at the time the TIGER/Line Shapefiles were created.

Lineage:

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: U.S. Department of Commerce, U.S. Census Bureau, Geography Division

Publication\_Date: Unpublished material

Title: Census MAF/TIGER database

Type\_of\_Source\_Media: online

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Source\_Currentness\_Reference: Publication Date

Source\_Citation\_Abbreviation: MAF/TIGER

Source\_Contribution: All line segments

Process\_Step:

Process\_Description: TIGER/Line Shapefiles are extracted from the Census MAF/TIGER database by nation, state, county, and entity. Census MAF/TIGER data for all of the aforementioned geographic entities are then distributed among the shapefiles each containing attributes for line, polygon, or landmark geographic data.

Source\_Used\_Citation\_Abbreviation: MAF/TIGER

Process\_Date: 2014

Spatial\_Data\_Organization\_Information:

Indirect\_Spatial\_Reference: Federal Information Processing Series (FIPS), Geographic Names Information System (GNIS), and feature names.

Direct\_Spatial\_Reference\_Method: Vector

Point\_and\_Vector\_Object\_Information:

Spatial\_Reference\_Information:

Horizontal\_Coordinate\_System\_Definition:

Geographic:

Latitude\_Resolution: 0.000458

Longitude\_Resolution: 0.000458

Geographic\_Coordinate\_Units: Decimal degrees

Geodetic\_Model:

Horizontal\_Datum\_Name: North American Datum of 1983

Ellipsoid\_Name: Geodetic Reference System 80

Semi-major\_Axis: 6378137

Denominator\_of\_Flattening\_Ratio: 298.257

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: COUNTY.shp

Entity\_Type\_Definition: Current County and Equivalent National

Entity\_Type\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: OBJECTID\_12

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: OBJECTID\_1

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

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Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute:

Attribute\_Label: STATEFP

Attribute\_Definition: Current state Federal Information Processing Series (FIPS) code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: National Standard Codes (ANSI INCITS 38-2009), Federal Information Processing Series (FIPS) - States/State Equivalents

Codeset\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: COUNTYFP

Attribute\_Definition: Current county Federal Information Processing Series (FIPS) code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: National Standard Codes (ANSI INCITS 31-2009), Federal Information Processing Series (FIPS) - Counties/County Equivalents

Codeset\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: COUNTYNS

Attribute\_Definition: Current county GNIS code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: INCITS 446:2008 (Geographic Names Information System (GNIS)), Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas, and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone

Codeset\_Source: U.S. Geological Survey (USGS)

Attribute:

Attribute\_Label: GEOID

Attribute\_Definition: County identifier; a concatenation of Current state FIPS code and county FIPS code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: The GEOID attribute is a concatenation of the state FIPS code followed by the county FIPS code. No spaces are allowed between the two codes. The State FIPS code is taken from "National Standard Codes (ANSI INCITS 38-2009), Federal Information Processing Series (FIPS) - States". The county FIPS code is taken from "National Standard Codes (ANSI INCITS 31-2009), Federal Information Processing Series (FIPS) - Counties/County Equivalents".

Attribute:

Attribute\_Label: NAME

Attribute\_Definition: Current county name

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: National Standard Codes (ANSI INCITS 31-2009), Federal Information Processing Series (FIPS) - Counties/County Equivalents

Codeset\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: NAMELSAD

Attribute\_Definition: Current name and the translated legal/statistical area description for county

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: The NAMELSAD attribute is a concatenation of the county name followed by the translated legal/statistical area description. No spaces are allowed between the two codes.

Attribute:

Attribute\_Label: LSAD

Attribute\_Definition: Current legal/statistical area description code for county

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 00

Enumerated\_Domain\_Value\_Definition: Blank

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 03

Enumerated\_Domain\_Value\_Definition: City and Borough (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 04

Enumerated\_Domain\_Value\_Definition: Borough (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 05

Enumerated\_Domain\_Value\_Definition: Census Area (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 06

Enumerated\_Domain\_Value\_Definition: County (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 07

Enumerated\_Domain\_Value\_Definition: District (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 10

Enumerated\_Domain\_Value\_Definition: Island (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 12

Enumerated\_Domain\_Value\_Definition: Municipality (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 13

Enumerated\_Domain\_Value\_Definition: Municipio (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 15

Enumerated\_Domain\_Value\_Definition: Parish (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: 25

Enumerated\_Domain\_Value\_Definition: city (suffix)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: CLASSFP

Attribute\_Definition: Current Federal Information Processing Series (FIPS) class code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: C7

Enumerated\_Domain\_Value\_Definition: An incorporated place that is independent of any county

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H1

Enumerated\_Domain\_Value\_Definition: An active county or equivalent feature

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H4

Enumerated\_Domain\_Value\_Definition: An inactive county or equivalent feature

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H5

Enumerated\_Domain\_Value\_Definition: A statistical county equivalent feature

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H6

Enumerated\_Domain\_Value\_Definition: A county that is coextensive with an incorporated place, part of an incorporated place, or a consolidated city and the governmental functions of the county are part of the municipal government

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: MTFCC

Attribute\_Definition: MAF/TIGER feature class code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: G4020

Enumerated\_Domain\_Value\_Definition: County or Equivalent Feature

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: CSAFP

Attribute\_Definition: Current combined statistical area code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 100

Range\_Domain\_Maximum: 599

Attribute:

Attribute\_Label: CBSAFP

Attribute\_Definition: Current metropolitan statistical area/micropolitan statistical area code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 10000

Range\_Domain\_Maximum: 49999

Attribute:

Attribute\_Label: METDIVFP

Attribute\_Definition: Current metropolitan division code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 10004

Range\_Domain\_Maximum: 49994

Attribute:

Attribute\_Label: FUNCSTAT

Attribute\_Definition: Current functional status

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: A

Enumerated\_Domain\_Value\_Definition: Active government providing primary general-purpose functions

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: B

Enumerated\_Domain\_Value\_Definition: Active government that is partially consolidated with another government but with separate officials providing primary general-purpose functions

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: C

Enumerated\_Domain\_Value\_Definition: Active government consolidated with another government with a single set of officials

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: F

Enumerated\_Domain\_Value\_Definition: Fictitious Entity created to fill the Census Bureau geographic hierarchy

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: G

Enumerated\_Domain\_Value\_Definition: Active government that is subordinate to another unit of government

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: N

Enumerated\_Domain\_Value\_Definition: Nonfunctioning legal entity

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: S

Enumerated\_Domain\_Value\_Definition: Statistical Entity

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: ALAND

Attribute\_Definition: Current land area

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0

Range\_Domain\_Maximum: 9,999,999,999,999

Attribute:

Attribute\_Label: AWATER

Attribute\_Definition: Current water area

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0

Range\_Domain\_Maximum: 9,999,999,999,999

Attribute:

Attribute\_Label: INTPTLAT

Attribute\_Definition: Current latitude of the internal point

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: -90.000000

Range\_Domain\_Maximum: 90.000000

Attribute:

Attribute\_Label: INTPTLON

Attribute\_Definition: Current longitude of the internal point

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: -180.000000

Range\_Domain\_Maximum: 180.000000

Attribute:

Attribute\_Label: Shape\_Leng

Attribute:

Attribute\_Label: Shape\_Le\_1

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape\_Area

Attribute\_Definition: Area of feature in internal units squared.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Distribution\_Liability: No warranty, expressed or implied is made with regard to the accuracy of these data, and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau in specific as to the spatial or attribute accuracy of the data. The act of distribution shall not constitute any such warranty and no responsibility is assumed by the U.S. government in the use of these files. The boundary information in the TIGER/Line Shapefiles is for statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes do not constitute a determination of jurisdictional authority or rights of ownership or entitlement and they are not legal land descriptions.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: TGRSHP (compressed)

File\_Decompression\_Technique: PK-ZIP, version 1.93 A or higher

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: http://www2.census.gov/geo/tiger/TIGER2014/COUNTY/tl\_2014\_us\_county.zip

Fees: The online copy of the TIGER/Line Shapefiles may be accessed without charge.

Ordering\_Instructions: To obtain more information about ordering TIGER/Line Shapefiles visit http://www.census.gov/geo/www/tiger

Technical\_Prerequisites: The TIGER/Line shapefiles contain geographic data only and do not include display mapping software or statistical data. For information on how to use the TIGER/Line shapefile data with specific software package users shall contact the company that produced the software.

Metadata\_Reference\_Information:

Metadata\_Date: 20140601

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: FGDC-STD-001-1998

Facilities\_EHS

Point data

Tier II facility xy locations

OBJECTID\_12\_13

Internal feature number.

Esri

Sequential unique whole numbers that are automatically generated.

CompanyName2

Company name

Tier II

Company

George Caracostis

Facility Na

FacilityRe

OBJECTID

Internal feature number.

Esri

facilities

George Caracostis

Sequential unique whole numbers that are automatically generated.

20150201

20150503

009

FacilityName2

Facility Name

Tier II

Facility Name

George Caracostis

West

Y Coordinates with positive values

George Caracostis

LongW

George Caracostis

CiCAS

EnteredChe

Fire

Gas

Liquid

MaxAmountC

Mixture

Pressure

Pure

Reactive

Solid

distance\_1

distance\_2

distance\_3

Shape

Feature geometry.

Esri

shape

Tier II

Coordinates defining the features.

OBJECTID\_1

FacilityNameGIS

Latitude

X coordinates

Tier II

Latitude

Tier II

CompanyNameGIS

Longitude

Y coordinates

Tier II

longitude

Tier II

FacilityRecordID

Facility Record ID for linking facility contact and chemical inventory data

Tier II

FacilityRecordID

George Caracostis

FZip

Zip codes

Tier II

Zip code

Tier II

FFireDistrict

FStreetAddress

Latitude\_1

Longitude\_1

FCity

City location

Tier II

city

Tier II

MaxNumOccupants

SubmittedBy

FMailAddressFMailCity

FMailCountry

FMailState

FMailZip

FState

OBJECTID\_12

Acute

AveAmountCode

FacilityRecordID\_1

ChemInvRecordID

CiCAS\_1

EHSH2S

EnteredChemName

Fire\_1

Gas\_1

Liquid\_1

MaxAmountCode

Mixture\_1

Pressure\_1

Pure\_1

Reactive\_1

Solid\_1

PAC3

PAC2

PAC1

FID\_1

QUAD\_ID

QUAD\_NM

SOURCE\_CIT

County

Spatial\_Data\_Organization\_Information:

Point\_and\_Vector\_Object\_Information:

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: Facilities

Entity\_Type\_Definition: Point data

Entity\_Type\_Definition\_Source: Tier II facility xy locations

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: facilities

Codeset\_Source: George Caracostis

Beginning\_Date\_of\_Attribute\_Values: 20150201

Ending\_Date\_of\_Attribute\_Values: 20150503

Attribute\_Measurement\_Frequency: 009

Attribute:

Attribute\_Label: FacilityName2

Attribute\_Definition: Facility Name

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Facility Name

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: CompanyName2

Attribute\_Definition: Company name

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Company

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: FacilityRecordID

Attribute\_Definition: Facility Record ID for linking facility contact and chemical inventory data

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: FacilityRecordID

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: FCity

Attribute\_Definition: City location

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: city

Codeset\_Source: Tier II

Attribute:

Attribute\_Label: FZip

Attribute\_Definition: Zip codes

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Zip code

Codeset\_Source: Tier II

Attribute:

Attribute\_Label: Latitude

Attribute\_Definition: X coordinates

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Latitude

Codeset\_Source: Tier II

Attribute:

Attribute\_Label: Longitude

Attribute\_Definition: Y coordinates

Attribute\_Definition\_Source: Tier II

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: longitude

Codeset\_Source: Tier II

Attribute:

Attribute\_Label: West

Attribute\_Definition: Y Coordinates with positive values

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: LongW

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: shape

Codeset\_Source: Tier II

Identification\_Information:

Citation:

Citation\_Information:

Originator:

U.S. Department of Commerce, U.S. Census Bureau, Geography

Division

Publication\_Date: 2014

Title: TIGER/Line Shapefile, 2014, county, DeWitt County, TX, Area Hydrography County-based Shapefile

Edition: 2014

Geospatial\_Data\_Presentation\_Form: vector digital data

Online\_Linkage: http://www2.census.gov/geo/tiger/TIGER2014/AREAWATER/tl\_2014\_48123\_areawater.zip

Description:

Abstract: The TIGER/Line shapefiles and related database files (.dbf) are an extract of selected geographic and cartographic information from the U.S. Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database (MTDB). The MTDB represents a seamless national file with no overlaps or gaps between parts, however, each TIGER/Line File is designed to stand alone as an independent data set, or they can be combined to cover the entire nation. The Area Hydrography Shapefile contains the geometry and attributes of both perennial and intermittent area hydrography features, including ponds, lakes, oceans, swamps (up to the U.S. nautical three-mile limit), glaciers, and the area covered by large rivers, streams, and/or canals that are represented as double-line drainage.

Single-line drainage water features can be found in the Linear Hydrography Shapefile (LINEARWATER.shp). Linear water features includes single-line drainage water features and artificial path features, where they exist, that run through double-line drainage features such as rivers, streams, and/or canals, and serve as a linear representation of these features.

Purpose: In order for others to use the information in the Census MAF/TIGER database in a geographic information system (GIS) or for other geographic applications, the Census Bureau releases to the public extracts of the database in the form of TIGER/Line Shapefiles.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: No changes or updates will be made to this version of the TIGER/Line Shapefiles. Future releases of TIGER/Line Shapefiles will reflect updates made to the Census MAF/TIGER database.

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -97.75511

East\_Bounding\_Coordinate: -96.976378

North\_Bounding\_Coordinate: 29.384488

South\_Bounding\_Coordinate: 28.8133

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: None

Theme\_Keyword: County or equivalent entity

Theme\_Keyword: Polygon

Theme\_Keyword: Hydrography

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115 Topic Categories

Theme\_Keyword: InlandWaters

Place:

Place\_Keyword\_Thesaurus:

ANSI INCITS 38:2009 (Formerly FIPS 5-2),

ANSI INCITS 31:2009 (Formerly FIPS 6-4),ANSI

INCITS 454:2009 (Formerly FIPS 8-6), ANSI INCITS

455:2009(Formerly FIPS 9-1), ANSI INCITS 446:2008 (Geographic Names Information System (GNIS))

Place\_Keyword: United States

Place\_Keyword: U.S.

Place\_Keyword: County or Equivalent Entity

Place\_Keyword: DeWitt

Place\_Keyword: 48123

Access\_Constraints: None

Use\_Constraints:

The TIGER/Line Shapefile products are not copyrighted however TIGER/Line and Census TIGER are registered trademarks of the U.S. Census Bureau. These products are free to use in a product or publication, however acknowledgement must be given to the U.S. Census Bureau as the source.

The boundary information in the TIGER/Line Shapefiles are for statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement and they are not legal land descriptions.Coordinates in the TIGER/Line shapefiles have six implied decimal places, but the positional accuracy of these coordinates is not as great as the six decimal places suggest.

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization:

U.S. Department of Commerce, U.S. Census Bureau,

Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: Accurate against National Standard Codes, Federal Information Processing (FIPS) and the Geographic Names Information System (GNIS) at the 100% level for the codes and base names. The remaining attribute information has been examined but has not been fully tested for accuracy.

Logical\_Consistency\_Report:

The Census Bureau performed automated tests to ensure logical consistency and limits of shapefiles. Segments making up the outer and inner boundaries of a polygon tie end-to-end to completely enclose the area. All polygons are tested for closure.

The Census Bureau uses its internally developed geographic update system to enhance and modify spatial and attribute data in the Census MAF/TIGER database. Standard geographic codes, such as FIPS codes for states, counties, municipalities, county subdivisions, places, American Indian/Alaska Native/Native Hawaiian areas, and congressional districts are used when encoding spatial entities. The Census Bureau performed spatial data tests for logical consistency of the codes during the compilation of the original Census MAF/TIGER database files. Most of the codes for geographic entities except states, counties, urban areas, Core Based Statistical Areas (CBSAs), American Indian Areas (AIAs), and congressional districts were provided to the Census Bureau by the USGS, the agency responsible for maintaining the Geographic Names Information System (GNIS). Feature attribute information has been examined but has not been fully tested for consistency.

For the TIGER/Line Shapefiles, the Point and Vector Object Count for the G-polygon SDTS Point and Vector Object Type reflects the number of records in the shapefile attribute table. For multi-polygon features, only one attribute record exists for each multi-polygon rather than one attribute record per individual G-polygon component of the multi-polygon feature. TIGER/Line Shapefile multi-polygons are an exception to the G-polygon object type classification. Therefore, when multi-polygons exist in a shapefile, the object count will be less than the actual number of G-polygons.

Completeness\_Report: Data completeness of the TIGER/Line Shapefiles reflects the contents of the Census MAF/TIGER database at the time the TIGER/Line Shapefiles were created.

Lineage:

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: U.S. Department of Commerce, U.S. Census Bureau, Geography Division

Publication\_Date: Unpublished material

Title: Census MAF/TIGER database

Type\_of\_Source\_Media: online

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Source\_Currentness\_Reference: Publication Date

Source\_Citation\_Abbreviation: MAF/TIGER

Source\_Contribution: All line segments

Process\_Step:

Process\_Description: TIGER/Line Shapefiles are extracted from the Census MAF/TIGER database by nation, state, county, and entity. Census MAF/TIGER data for all of the aforementioned geographic entities are then distributed among the shapefiles each containing attributes for line, polygon, or landmark geographic data.

Source\_Used\_Citation\_Abbreviation: MAF/TIGER

Process\_Date: 2014

Spatial\_Data\_Organization\_Information:

Indirect\_Spatial\_Reference: Federal Information Processing Series (FIPS), Geographic Names Information System (GNIS), and feature names.

Direct\_Spatial\_Reference\_Method: Vector

Point\_and\_Vector\_Object\_Information:

Spatial\_Reference\_Information:

Horizontal\_Coordinate\_System\_Definition:

Geographic:

Latitude\_Resolution: 0.000458

Longitude\_Resolution: 0.000458

Geographic\_Coordinate\_Units: Decimal degrees

Geodetic\_Model:

Horizontal\_Datum\_Name: North American Datum of 1983

Ellipsoid\_Name: Geodetic Reference System 80

Semi-major\_Axis: 6378137

Denominator\_of\_Flattening\_Ratio: 298.257

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: AREAWATER.shp

Entity\_Type\_Definition: Current Area Hydrography County-based

Entity\_Type\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute:

Attribute\_Label: ANSICODE

Attribute\_Definition: Current official code for the water body for use by federal agencies for data transfer and dissemination, if applicable

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: INCITS 446:2008 (Geographic Names Information System (GNIS)), Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas, and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone

Codeset\_Source: U.S. Geological Survey (USGS)

Attribute:

Attribute\_Label: HYDROID

Attribute\_Definition: Area hydrography identifier

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Values for this attribute are composed of a set of area hydrography IDs. As such, they do not exist in a known, predefined set.

Attribute:

Attribute\_Label: FULLNAME

Attribute\_Definition: Concatenation of expanded text for prefix qualifier, prefix direction, prefix type, base name, suffix type, suffix direction, and suffix qualifier (as available) with a space between each expanded text field

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Values for this attribute are composed of a set of names. As such, they do not exist in a known, predefined set.

Attribute:

Attribute\_Label: MTFCC

Attribute\_Definition: MAF/TIGER feature class code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H1100

Enumerated\_Domain\_Value\_Definition: Connector

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2025

Enumerated\_Domain\_Value\_Definition: Swamp/Marsh

Enumerated\_Domain\_Value\_Definition\_Source: US. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2030

Enumerated\_Domain\_Value\_Definition: Lake/Pond

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2040

Enumerated\_Domain\_Value\_Definition: Reservoir

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2041

Enumerated\_Domain\_Value\_Definition: Treatment Pond

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2051

Enumerated\_Domain\_Value\_Definition: Bay/Estuary/Gulf/Sound

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2053

Enumerated\_Domain\_Value\_Definition: Ocean/Sea

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2060

Enumerated\_Domain\_Value\_Definition: Gravel Pit/Quarry filled with water

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H2081

Enumerated\_Domain\_Value\_Definition: Glacier

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H3010

Enumerated\_Domain\_Value\_Definition: Stream/River

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H3013

Enumerated\_Domain\_Value\_Definition: Braided Stream

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H3020

Enumerated\_Domain\_Value\_Definition: Canal, Ditch or Aqueduct

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: ALAND

Attribute\_Definition: Current land area (square meters)

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0

Range\_Domain\_Maximum: 9,999,999,999,999

Attribute:

Attribute\_Label: AWATER

Attribute\_Definition: Current water area (square meters)

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: 0

Range\_Domain\_Maximum: 9,999,999,999,999

Attribute:

Attribute\_Label: INTPTLAT

Attribute\_Definition: Current latitude of the internal point

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: -90.000000

Range\_Domain\_Maximum: 90.000000

Attribute:

Attribute\_Label: INTPTLON

Attribute\_Definition: Current longitude of the internal point

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Range\_Domain:

Range\_Domain\_Minimum: -180.000000

Range\_Domain\_Maximum: 180.000000

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape\_Area

Attribute\_Definition: Area of feature in internal units squared.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Distribution\_Liability: No warranty, expressed or implied is made with regard to the accuracy of these data, and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau in specific as to the spatial or attribute accuracy of the data. The act of distribution shall not constitute any such warranty and no responsibility is assumed by the U.S. government in the use of these files. The boundary information in the TIGER/Line Shapefiles is for statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes do not constitute a determination of jurisdictional authority or rights of ownership or entitlement and they are not legal land descriptions.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: TGRSHP (compressed)

File\_Decompression\_Technique: PK-ZIP, version 1.93 A or higher

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: http://www2.census.gov/geo/tiger/TIGER2014/AREAWATER/tl\_2014\_48123\_areawater.zip

Fees: The online copy of the TIGER/Line Shapefiles may be accessed without charge.

Ordering\_Instructions: To obtain more information about ordering TIGER/Line Shapefiles visit http://www.census.gov/geo/www/tiger

Technical\_Prerequisites: The TIGER/Line shapefiles contain geographic data only and do not include display mapping software or statistical data. For information on how to use the TIGER/Line shapefile data with specific software package users shall contact the company that produced the software.

Metadata\_Reference\_Information:

Metadata\_Date: 20140601

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: FGDC-STD-001-1998

Spatial\_Data\_Organization\_Information:

Point\_and\_Vector\_Object\_Information:

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: Quads

Entity\_Type\_Definition: Polygon

Entity\_Type\_Definition\_Source: George Caracostis

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: id

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: shape

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: QUAD\_ID

Attribute\_Definition: Number to assign ordinance to data driven pages

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: id number

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: QUAD\_NO

Attribute\_Definition: Alphanumeric id number

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Alphanumeric id number

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: QUAD\_NM

Attribute\_Definition: Name of quadrant for data driven pages

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Quad Name

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: SOURCE\_CIT

Attribute\_Definition: NA

Attribute\_Definition\_Source: NA

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Source\_Cit

Codeset\_Source: NA

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape\_Area

Attribute\_Definition: Area of feature in internal units squared.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Identification\_Information:

Citation:

Citation\_Information:

Originator:

U.S. Department of Commerce, U.S. Census Bureau, Geography

Division

Publication\_Date: 2014

Title: TIGER/Line Shapefile, 2014, county, DeWitt County, TX, Linear Hydrography County-based Shapefile

Edition: 2014

Geospatial\_Data\_Presentation\_Form: vector digital data

Online\_Linkage: http://www2.census.gov/geo/tiger/TIGER2014/LINEARWATER/tl\_2014\_48123\_linearwater.zip

Description:

Abstract:

The TIGER/Line shapefiles and related database files (.dbf) are an extract of selected geographic and cartographic information from the U.S. Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database (MTDB). The MTDB represents a seamless national file with no overlaps or gaps between parts, however, each TIGER/Line shapefile is designed to stand alone as an independent data set, or they can be combined to cover the entire nation.

Linear Water Features includes single-line drainage water features and artificial path features that run through double-line drainage features such as rivers and streams, and serve as a linear representation of these features. The artificial path features may correspond to those in the USGS National Hydrographic Dataset (NHD). However, in many cases the features do not match NHD equivalent feature and will not carry the NHD metadata codes. These features have a MAF/TIGER Feature Classification Code (MTFCC) beginning with an "H" to indicate the super class of Hydrographic Features.

Purpose: In order for others to use the information in the Census MAF/TIGER database in a geographic information system (GIS) or for other geographic applications, the Census Bureau releases to the public extracts of the database in the form of TIGER/Line Shapefiles.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: No changes or updates will be made to this version of the TIGER/Line Shapefiles. Future releases of TIGER/Line Shapefiles will reflect updates made to the Census MAF/TIGER database.

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -97.75511

East\_Bounding\_Coordinate: -96.976378

North\_Bounding\_Coordinate: 29.384488

South\_Bounding\_Coordinate: 28.8133

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: None

Theme\_Keyword: County or equivalent entity

Theme\_Keyword: LinearFeature

Theme\_Keyword: Hydrography

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115 Topic Categories

Theme\_Keyword: InlandWaters

Place:

Place\_Keyword\_Thesaurus:

ANSI INCITS 38:2009 (Formerly FIPS 5-2),

ANSI INCITS 31:2009 (Formerly FIPS 6-4),ANSI

INCITS 454:2009 (Formerly FIPS 8-6), ANSI INCITS

455:2009(Formerly FIPS 9-1), ANSI INCITS 446:2008 (Geographic Names Information System (GNIS))

Place\_Keyword: United States

Place\_Keyword: U.S.

Place\_Keyword: County or Equivalent Entity

Place\_Keyword: DeWitt

Place\_Keyword: 48123

Access\_Constraints: None

Use\_Constraints:

The TIGER/Line Shapefile products are not copyrighted however TIGER/Line and Census TIGER are registered trademarks of the U.S. Census Bureau. These products are free to use in a product or publication, however acknowledgement must be given to the U.S. Census Bureau as the source.

The horizontal spatial accuracy information present in these files is provided for the purposes of statistical analysis and census operations only. No warranty, expressed or implied is made with regard to the accuracy of the spatial accuracy, and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau, specifically as to the spatial or attribute accuracy of the data. The TIGER/Line Shapefiles may not be suitable for high-precision measurement applications such as engineering problems, property transfers, or other uses that might require highly accurate measurements of the earth's surface.Coordinates in the TIGER/Line shapefiles have six implied decimal places, but the positional accuracy of these coordinates is not as great as the six decimal places suggest.

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization:

U.S. Department of Commerce, U.S. Census Bureau,

Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: Accurate against National Standard Codes, Federal Information Processing (FIPS) and the Geographic Names Information System (GNIS) at the 100% level for the codes and base names. The remaining attribute information has been examined but has not been fully tested for accuracy.

Logical\_Consistency\_Report:

There may be some inconsistencies in feature names along features. An anomaly exists with the sporadic occurrence of road segments comprising a complete chain with different MAF/TIGER Feature Census Class Code (MTFCC) values assigned. This problem could affect applications that use the MTFCC values for network analysis, routing, or for assigning symbology to a feature when creating a map.

The Census Bureau performed automated tests to ensure logical consistency and limits of shapefiles. Node/geometry and topology relationships are collected or generated to satisfy topological edit requirements. These requirements include:

(1) Complete chains must begin and end at nodes.

(2) Complete chains must connect to each other at nodes.

(3) Complete chains do not extend through nodes.

(4) Left and right polygons are defined for each complete chain element and are consistent throughout the extract process.

(5) The chains representing the limits of the files are free of gaps.

Completeness\_Report: Data completeness of the TIGER/Line Shapefiles reflects the contents of the Census MAF/TIGER database at the time the TIGER/Line Shapefiles were created.

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report: The Census Bureau uses Global Positioning System (GPS) coordinates at road centerline intersections to evaluate the horizontal spatial accuracy of source files that may be used to realign road features in the MAF/TIGER database and test the horizontal spatial accuracy of the road features in the TIGER/Line Shapefiles. The test compares a survey-grade GPS coordinate to its associated road centerline intersection in the TIGER/Line Shapefiles. The test is based on an independent collection of GPS coordinates for a random sample of road intersections from a centerline file that meet certain criteria. The points are referred to as the sample points and are gathered through a private contractor working for the Census Bureau. Since the collection method uses survey-quality GPS-based field techniques, the resulting control points are considered 'ground truth' against which the TIGER road centerline intersection coordinates are compared. The distances between the coordinates are calculated and the Census Bureau determines the Circular Error 95% (CE95). That is, the accuracy of the file in meters with 95% confidence. The CE95 can be calculated from the mean and standard deviation by using the formula: mean of differences plus (2.65 times the standard deviation). CE95 results reported for each file tested are determined using a spreadsheet with embedded statistical formula. The use and applicability of the spreadsheet and its embedded formula have been verified by Census Bureau statisticians. The basis of the calculation is the use of the root mean square error (RMSE). This is the method as stated in the U.S. Government's Federal Geographic Data Committee Standard FGDC-STD-007.3-1998, Geospatial Positioning Accuracy Standards. Part 3: National Standard for Spatial Data Accuracy. The results of using this measure of accuracy are in compliance with Federal Spatial Data requirements. In terms of the Census Bureau application, the dataset coordinate values are those taken from the centerline file and the coordinate values from an independent source of higher accuracy are those acquired through the Census Bureau's contractor. Please note that the horizontal spatial accuracy, where reported, refers only to the realigned road features identified as matched to the positionally accurate source file with that accuracy. It is not the spatial accuracy of the TIGER/Line Shapefile as a whole.

Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:

Horizontal\_Positional\_Accuracy\_Value: 5.899 meters for 955

Horizontal\_Positional\_Accuracy\_Explanation: The Census Bureau uses root mean square error (RMSE) as stated in the FGDC-STD-007. 3-1998, Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy.

Lineage:

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: U.S. Department of Commerce, U.S. Census Bureau, Geography Division

Publication\_Date: Unpublished material

Title: Census MAF/TIGER database

Type\_of\_Source\_Media: online

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Source\_Currentness\_Reference: Publication Date

Source\_Citation\_Abbreviation: MAF/TIGER

Source\_Contribution: All line segments

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator:

955

Texas

TNRIS

Publication\_Date: 20000101

Title: DeWitt Co TX - GIS dataset

Type\_of\_Source\_Media: FTP

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 20000101

Ending\_Date: 20000101

Source\_Currentness\_Reference: Publication Date

Source\_Citation\_Abbreviation: None

Source\_Contribution: Coordinates to realign selected road features in the Census MAF/TIGER database.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator:

1399

USGS - National Hydrography Dataset

Coordination and Requirements (C&R)

Publication\_Date: Unknown

Title: National Hydrography Dataset - High Res.

Type\_of\_Source\_Media: Internet Download

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: Unknown

Ending\_Date: Unknown

Source\_Currentness\_Reference: Unknown

Source\_Citation\_Abbreviation: None

Source\_Contribution: Coordinates to realign selected hydrographic features in the Census MAF/TIGER database.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator:

4114

USGS - National Hydrography Dataset

Coordination and Requirements (C&R)

Publication\_Date: Unknown

Title: National Hydrography Dataset - High Res.

Type\_of\_Source\_Media: Internet Download

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: Unknown

Ending\_Date: Unknown

Source\_Currentness\_Reference: Unknown

Source\_Citation\_Abbreviation: None

Source\_Contribution: Coordinates to realign selected hydrographic features in the Census MAF/TIGER database.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator:

7190

Census Bureau - Geography Division

US Census Bureau - Geo Div - LFGPB

Publication\_Date: Unknown

Title: 2010 ADCAN GPS Feature Updates

Type\_of\_Source\_Media: Unknown

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: Unknown

Ending\_Date: Unknown

Source\_Currentness\_Reference: Unknown

Source\_Citation\_Abbreviation: None

Source\_Contribution: Coordinates to realign selected road features in the Census MAF/TIGER database.

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator:

7191

Census Bureau - Geography Division

US Census Bureau - Geo Div - LFGPB

Publication\_Date: Unknown

Title: 2010 ADCAN Manual Feature Updates

Type\_of\_Source\_Media: Unknown

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: Unknown

Ending\_Date: Unknown

Source\_Currentness\_Reference: Unknown

Source\_Citation\_Abbreviation: None

Source\_Contribution: Coordinates to realign selected road features in the Census MAF/TIGER database.

Process\_Step:

Process\_Description: TIGER/Line Shapefiles are extracted from the Census MAF/TIGER database by nation, state, county, and entity. Census MAF/TIGER data for all of the aforementioned geographic entities are then distributed among the shapefiles each containing attributes for line, polygon, or landmark geographic data.

Source\_Used\_Citation\_Abbreviation: MAF/TIGER

Process\_Date: 2014

Spatial\_Data\_Organization\_Information:

Indirect\_Spatial\_Reference: Federal Information Processing Series (FIPS), Geographic Names Information System (GNIS), and feature names.

Direct\_Spatial\_Reference\_Method: Vector

Point\_and\_Vector\_Object\_Information:

Spatial\_Reference\_Information:

Horizontal\_Coordinate\_System\_Definition:

Geographic:

Latitude\_Resolution: 0.000458

Longitude\_Resolution: 0.000458

Geographic\_Coordinate\_Units: Decimal degrees

Geodetic\_Model:

Horizontal\_Datum\_Name: North American Datum of 1983

Ellipsoid\_Name: Geodetic Reference System 80

Semi-major\_Axis: 6378137

Denominator\_of\_Flattening\_Ratio: 298.257

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: LINEARWATER.shp

Entity\_Type\_Definition: Linear Hydrography County-based

Entity\_Type\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute:

Attribute\_Label: ANSICODE

Attribute\_Definition: Current official code for the landmark for use by federal agencies for data transfer and dissemination

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: INCITS 446:2008 (Geographic Names Information System (GNIS)), Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas, and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone

Codeset\_Source: U.S. Geological Survey (USGS)

Attribute:

Attribute\_Label: LINEARID

Attribute\_Definition: Linear feature identifier

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Values for this attribute are composed of a set of Linear feature IDs. As such, they do not exist in a known, predefined set.

Attribute:

Attribute\_Label: FULLNAME

Attribute\_Definition: Concatenation of expanded text for prefix qualifier, prefix direction, prefix type, base name, suffix type, suffix direction, and suffix qualifier (as available) with a space between each expanded text field

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Values for this attribute are composed of a set of names. As such, they do not exist in a known, predefined set.

Attribute:

Attribute\_Label: ARTPATH

Attribute\_Definition: Artificial path indicator

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: C

Enumerated\_Domain\_Value\_Definition: Census or Local Artificial Path

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: N

Enumerated\_Domain\_Value\_Definition: Not an Artificial Path (default)

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: U

Enumerated\_Domain\_Value\_Definition: USGS Artificial Path or Connector Inside Water

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: MTFCC

Attribute\_Definition: MAF/TIGER feature class code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H1100

Enumerated\_Domain\_Value\_Definition: Connector

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H3010

Enumerated\_Domain\_Value\_Definition: Stream/River

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: H3013

Enumerated\_Domain\_Value\_Definition: Braided Stream

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: C3020

Enumerated\_Domain\_Value\_Definition: Canal, Ditch or Aqueduct

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau Entity\_and\_Attribute\_Information:

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Distribution\_Liability: No warranty, expressed or implied is made with regard to the accuracy of these data, and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau in specific as to the spatial or attribute accuracy of the data. The act of distribution shall not constitute any such warranty and no responsibility is assumed by the U.S. government in the use of these files. The boundary information in the TIGER/Line Shapefiles is for statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes do not constitute a determination of jurisdictional authority or rights of ownership or entitlement and they are not legal land descriptions.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: TGRSHP (compressed)

File\_Decompression\_Technique: PK-ZIP, version 1.93 A or higher

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: http://www2.census.gov/geo/tiger/TIGER2014/LINEARWATER/tl\_2014\_48123\_linearwater.zip

Fees: The online copy of the TIGER/Line Shapefiles may be accessed without charge.

Ordering\_Instructions: To obtain more information about ordering TIGER/Line Shapefiles visit http://www.census.gov/geo/www/tiger

Technical\_Prerequisites: The TIGER/Line shapefiles contain geographic data only and do not include display mapping software or statistical data. For information on how to use the TIGER/Line shapefile data with specific software package users shall contact the company that produced the software.

Metadata\_Reference\_Information:

Metadata\_Date: 20140601

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: FGDC-STD-001-1998

Spatial\_Data\_Organization\_Information:

Point\_and\_Vector\_Object\_Information:

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: RoadLabelMask

Entity\_Type\_Definition: Road lines

Entity\_Type\_Definition\_Source: USGS

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: ID

Codeset\_Source: USGS

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Line

Codeset\_Source: USGS

Attribute:

Attribute\_Label: TRANS\_ID

Attribute\_Definition: Road type ID

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road type ID

Codeset\_Source: USGS

Attribute:

Attribute\_Label: TRANS\_TYP

Attribute\_Definition: Road Type

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road type

Codeset\_Source: USGS

Attribute:

Attribute\_Label: RD\_STAT

Attribute\_Definition: State road located in

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: State

Codeset\_Source: USGS

Attribute:

Attribute\_Label: PREFIX

Attribute\_Definition: Road prefix

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road prefix

Codeset\_Source: USGS

Attribute:

Attribute\_Label: FEAT\_NM1

Attribute\_Definition: Road name 1

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road name 1

Codeset\_Source: USGS

Attribute:

Attribute\_Label: NM\_TYP

Attribute\_Definition: Road name type

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road name type

Codeset\_Source: USGS

Attribute:

Attribute\_Label: SUFFIX

Attribute\_Definition: road type

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road type

Codeset\_Source: USGS

Attribute:

Attribute\_Label: FEAT\_NM2

Attribute\_Definition: Road name 2

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Road name 2

Codeset\_Source: USGS

Attribute:

Attribute\_Label: FEAT\_NM3

Attribute\_Definition: Road name 3

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: road name 3

Codeset\_Source: USGS

Attribute:

Attribute\_Label: SOURCE\_CIT

Attribute\_Definition: Citation

Attribute\_Definition\_Source: USGS

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: citation

Codeset\_Source: USGS

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Identification\_Information:

Citation:

Citation\_Information:

Originator:

U.S. Department of Commerce, U.S. Census Bureau, Geography

Division

Publication\_Date: 2014

Title: TIGER/Line Shapefile, 2014, state, Texas, Primary and Secondary Roads State-based Shapefile

Edition: 2014

Geospatial\_Data\_Presentation\_Form: vector digital data

Online\_Linkage: http://www2.census.gov/geo/tiger/TIGER2014/PRISECROADS/tl\_2014\_48\_prisecroads.zip

Description:

Abstract:

The TIGER/Line shapefiles and related database files (.dbf) are an extract of selected geographic and cartographic information from the U.S. Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database (MTDB). The MTDB represents a seamless national file with no overlaps or gaps between parts, however, each TIGER/Line shapefile is designed to stand alone as an independent data set, or they can be combined to cover the entire nation.

Primary roads are generally divided, limited-access highways within the interstate highway system or under State management, and are distinguished by the presence of interchanges. These highways are accessible by ramps and may include some toll highways. The MAF/TIGER Feature Classification Code (MTFCC) is S1100 for primary roads. Secondary roads are main arteries, usually in the U.S. Highway, State Highway, and/or County Highway system. These roads have one or more lanes of traffic in each direction, may or may not be divided, and usually have at-grade intersections with many other roads and driveways. They usually have both a local name and a route number. The MAF/TIGER Feature Classification Code (MTFCC) is S1200 for secondary roads.

Purpose: In order for others to use the information in the Census MAF/TIGER database in a geographic information system (GIS) or for other geographic applications, the Census Bureau releases to the public extracts of the database in the form of TIGER/Line Shapefiles.

Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Currentness\_Reference: Publication Date

Status:

Progress: Complete

Maintenance\_and\_Update\_Frequency: No changes or updates will be made to this version of the TIGER/Line Shapefiles. Future releases of TIGER/Line Shapefiles will reflect updates made to the Census MAF/TIGER database.

Spatial\_Domain:

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -106.645646

East\_Bounding\_Coordinate: -93.508039

North\_Bounding\_Coordinate: 36.500704

South\_Bounding\_Coordinate: 25.837164

Keywords:

Theme:

Theme\_Keyword\_Thesaurus: None

Theme\_Keyword: State or equivalent entity

Theme\_Keyword: Linear Feature

Theme\_Keyword: Address Range

Theme\_Keyword: Street Centerline

Theme\_Keyword: Road Feature

Theme\_Keyword: Roads

Theme:

Theme\_Keyword\_Thesaurus: ISO 19115 Topic Categories

Theme\_Keyword: Transportation

Place:

Place\_Keyword\_Thesaurus:

ANSI INCITS 38:2009 (Formerly FIPS 5-2),

ANSI INCITS 31:2009 (Formerly FIPS 6-4),ANSI

INCITS 454:2009 (Formerly FIPS 8-6), ANSI INCITS

455:2009(Formerly FIPS 9-1), ANSI INCITS 446:2008 (Geographic Names Information System (GNIS))

Place\_Keyword: United States

Place\_Keyword: U.S.

Place\_Keyword: State or Equivalent Entity

Place\_Keyword: Texas

Place\_Keyword: TX

Place\_Keyword: 48

Access\_Constraints: None

Use\_Constraints:

The TIGER/Line Shapefile products are not copyrighted however TIGER/Line and Census TIGER are registered trademarks of the U.S. Census Bureau. These products are free to use in a product or publication, however acknowledgement must be given to the U.S. Census Bureau as the source.

The horizontal spatial accuracy information present in these files is provided for the purposes of statistical analysis and census operations only. No warranty, expressed or implied is made with regard to the accuracy of the spatial accuracy, and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau, specifically as to the spatial or attribute accuracy of the data. The TIGER/Line Shapefiles may not be suitable for high-precision measurement applications such as engineering problems, property transfers, or other uses that might require highly accurate measurements of the earth's surface.Coordinates in the TIGER/Line shapefiles have six implied decimal places, but the positional accuracy of these coordinates is not as great as the six decimal places suggest.

Point\_of\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization:

U.S. Department of Commerce, U.S. Census Bureau,

Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Data\_Quality\_Information:

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: Accurate against National Standard Codes, Federal Information Processing (FIPS) and the Geographic Names Information System (GNIS) at the 100% level for the codes and base names. The remaining attribute information has been examined but has not been fully tested for accuracy.

Logical\_Consistency\_Report:

There may be some inconsistencies in feature names along features. An anomaly exists with the sporadic occurrence of road segments comprising a complete chain with different MAF/TIGER Feature Census Class Code (MTFCC) values assigned. This problem could affect applications that use the MTFCC values for network analysis, routing, or for assigning symbology to a feature when creating a map.

The Census Bureau performed automated tests to ensure logical consistency and limits of shapefiles. Node/geometry and topology relationships are collected or generated to satisfy topological edit requirements. These requirements include:

(1) Complete chains must begin and end at nodes.

(2) Complete chains must connect to each other at nodes.

(3) Complete chains do not extend through nodes.

(4) Left and right polygons are defined for each complete chain element and are consistent throughout the extract process.

(5) The chains representing the limits of the files are free of gaps.

Completeness\_Report: Data completeness of the TIGER/Line Shapefiles reflects the contents of the Census MAF/TIGER database at the time the TIGER/Line Shapefiles were created.

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report: The Census Bureau uses Global Positioning System (GPS) coordinates at road centerline intersections to evaluate the horizontal spatial accuracy of source files that may be used to realign road features in the MAF/TIGER database and test the horizontal spatial accuracy of the road features in the TIGER/Line Shapefiles. The test compares a survey-grade GPS coordinate to its associated road centerline intersection in the TIGER/Line Shapefiles. The test is based on an independent collection of GPS coordinates for a random sample of road intersections from a centerline file that meet certain criteria. The points are referred to as the sample points and are gathered through a private contractor working for the Census Bureau. Since the collection method uses survey-quality GPS-based field techniques, the resulting control points are considered 'ground truth' against which the TIGER road centerline intersection coordinates are compared. The distances between the coordinates are calculated and the Census Bureau determines the Circular Error 95% (CE95). That is, the accuracy of the file in meters with 95% confidence. The CE95 can be calculated from the mean and standard deviation by using the formula: mean of differences plus (2.65 times the standard deviation). CE95 results reported for each file tested are determined using a spreadsheet with embedded statistical formula. The use and applicability of the spreadsheet and its embedded formula have been verified by Census Bureau statisticians. The basis of the calculation is the use of the root mean square error (RMSE). This is the method as stated in the U.S. Government's Federal Geographic Data Committee Standard FGDC-STD-007.3-1998, Geospatial Positioning Accuracy Standards. Part 3: National Standard for Spatial Data Accuracy. The results of using this measure of accuracy are in compliance with Federal Spatial Data requirements. In terms of the Census Bureau application, the dataset coordinate values are those taken from the centerline file and the coordinate values from an independent source of higher accuracy are those acquired through the Census Bureau's contractor. Please note that the horizontal spatial accuracy, where reported, refers only to the realigned road features identified as matched to the positionally accurate source file with that accuracy. It is not the spatial accuracy of the TIGER/Line Shapefile as a whole.

Lineage:

Source\_Information:

Source\_Citation:

Citation\_Information:

Originator: U.S. Department of Commerce, U.S. Census Bureau, Geography Division

Publication\_Date: Unpublished material

Title: Census MAF/TIGER database

Type\_of\_Source\_Media: online

Source\_Time\_Period\_of\_Content:

Time\_Period\_Information:

Range\_of\_Dates/Times:

Beginning\_Date: 201306

Ending\_Date: 201405

Source\_Currentness\_Reference: Publication Date

Source\_Citation\_Abbreviation: MAF/TIGER

Source\_Contribution: All line segments

Process\_Step:

Process\_Description: TIGER/Line Shapefiles are extracted from the Census MAF/TIGER database by nation, state, county, and entity. Census MAF/TIGER data for all of the aforementioned geographic entities are then distributed among the shapefiles each containing attributes for line, polygon, or landmark geographic data.

Source\_Used\_Citation\_Abbreviation: MAF/TIGER

Process\_Date: 2014

Spatial\_Data\_Organization\_Information:

Indirect\_Spatial\_Reference: Federal Information Processing Series (FIPS), Geographic Names Information System (GNIS), and feature names.

Direct\_Spatial\_Reference\_Method: Vector

Point\_and\_Vector\_Object\_Information:

Spatial\_Reference\_Information:

Horizontal\_Coordinate\_System\_Definition:

Geographic:

Latitude\_Resolution: 0.000458

Longitude\_Resolution: 0.000458

Geographic\_Coordinate\_Units: Decimal degrees

Geodetic\_Model:

Horizontal\_Datum\_Name: North American Datum of 1983

Ellipsoid\_Name: Geodetic Reference System 80

Semi-major\_Axis: 6378137

Denominator\_of\_Flattening\_Ratio: 298.257

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: PRISECROADS.shp

Entity\_Type\_Definition: Primary and Secondary Roads State-based

Entity\_Type\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: OBJECTID\_1

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute:

Attribute\_Label: LINEARID

Attribute\_Definition: Linear feature identifier

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Values for this attribute are composed of a set of linear feature ID's. As such, they do not exist in a known, predefined set.

Attribute:

Attribute\_Label: FULLNAME

Attribute\_Definition: Concatenation of expanded text for prefix qualifier, prefix direction, prefix type, base name, suffix type, suffix direction, and suffix qualifier (as available) with a space between each expanded text field

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Values for this attribute are composed of a set of names. As such, they do not exist in a known, predefined set.

Attribute:

Attribute\_Label: RTTYP

Attribute\_Definition: Route type code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: C

Enumerated\_Domain\_Value\_Definition: County

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: I

Enumerated\_Domain\_Value\_Definition: Interstate

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: M

Enumerated\_Domain\_Value\_Definition: Common Name

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: O

Enumerated\_Domain\_Value\_Definition: Other

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: S

Enumerated\_Domain\_Value\_Definition: State recognized

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: U

Enumerated\_Domain\_Value\_Definition: U.S.

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: MTFCC

Attribute\_Definition: MAF/TIGER feature class code

Attribute\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: S1100

Enumerated\_Domain\_Value\_Definition: Primary Road

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute\_Domain\_Values:

Enumerated\_Domain:

Enumerated\_Domain\_Value: S1200

Enumerated\_Domain\_Value\_Definition: Secondary Road

Enumerated\_Domain\_Value\_Definition\_Source: U.S. Census Bureau

Attribute:

Attribute\_Label: STATEFP

Attribute:

Attribute\_Label: COUNTYFP

Attribute:

Attribute\_Label: Shape\_Leng

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Distribution\_Information:

Distributor:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Distribution\_Liability: No warranty, expressed or implied is made with regard to the accuracy of these data, and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau in specific as to the spatial or attribute accuracy of the data. The act of distribution shall not constitute any such warranty and no responsibility is assumed by the U.S. government in the use of these files. The boundary information in the TIGER/Line Shapefiles is for statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes do not constitute a determination of jurisdictional authority or rights of ownership or entitlement and they are not legal land descriptions.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Format\_Name: TGRSHP (compressed)

File\_Decompression\_Technique: PK-ZIP, version 1.93 A or higher

Digital\_Transfer\_Option:

Online\_Option:

Computer\_Contact\_Information:

Network\_Address:

Network\_Resource\_Name: http://www2.census.gov/geo/tiger/TIGER2014/PRISECROADS/tl\_2014\_48\_prisecroads.zip

Fees: The online copy of the TIGER/Line Shapefiles may be accessed without charge.

Ordering\_Instructions: To obtain more information about ordering TIGER/Line Shapefiles visit http://www.census.gov/geo/www/tiger

Technical\_Prerequisites: The TIGER/Line shapefiles contain geographic data only and do not include display mapping software or statistical data. For information on how to use the TIGER/Line shapefile data with specific software package users shall contact the company that produced the software.

Metadata\_Reference\_Information:

Metadata\_Date: 20140601

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch

Contact\_Address:

Address\_Type: mailing

Address: 4600 Silver Hill Road, Stop 7400

City: Washington

State\_or\_Province: DC

Postal\_Code: 20233-7400

Country: United States

Contact\_Voice\_Telephone: 301-763-1128

Contact\_Facsimile\_Telephone: 301-763-4710

Contact\_Electronic\_Mail\_Address: geo.tiger@census.gov

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata\_Standard\_Version: FGDC-STD-001-1998

Spatial\_Data\_Organization\_Information:

Point\_and\_Vector\_Object\_Information:

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: Zone1Mask

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute:

Attribute\_Label: FacilityNa

Attribute:

Attribute\_Label: distance\_1

Attribute:

Attribute\_Label: distance\_2

Attribute:

Attribute\_Label: distance\_3

Attribute:

Attribute\_Label: BUFF\_DIST

Attribute:

Attribute\_Label: PAC

Attribute:

Attribute\_Label: FacilityName2

Attribute:

Attribute\_Label: CompanyName2

Attribute:

Attribute\_Label: PAC3

Attribute:

Attribute\_Label: PAC2

Attribute:

Attribute\_Label: PAC1

Attribute:

Attribute\_Label: OBJECTID\_1

Attribute:

Attribute\_Label: FacilityNa\_1

Attribute:

Attribute\_Label: CompanyNam

Attribute:

Attribute\_Label: FacilityRe

Attribute:

Attribute\_Label: FZip

Attribute:

Attribute\_Label: FacilityName2\_1

Attribute:

Attribute\_Label: FStreetAddress

Attribute:

Attribute\_Label: FZip\_1

Attribute:

Attribute\_Label: Latitude\_1

Attribute:

Attribute\_Label: Longitude\_1

Attribute:

Attribute\_Label: West

Attribute:

Attribute\_Label: County

Attribute:

Attribute\_Label: QUAD\_ID\_1

Attribute:

Attribute\_Label: QUAD\_NO

Attribute:

Attribute\_Label: QUAD\_NM\_1

Attribute:

Attribute\_Label: distance\_12

Attribute:

Attribute\_Label: distance\_23

Attribute:

Attribute\_Label: distance\_34

Attribute:

Attribute\_Label: BUFF\_DIST\_1

Attribute:

Attribute\_Label: PAC\_1

Attribute:

Attribute\_Label: F24hour

Attribute:

Attribute\_Label: Emergency

Attribute:

Attribute\_Label: Mobile

Attribute:

Attribute\_Label: Other

Attribute:

Attribute\_Label: Emgcy

Attribute:

Attribute\_Label: Operator

Attribute:

Attribute\_Label: TierII

Attribute:

Attribute\_Label: CoEmail

Attribute:

Attribute\_Label: CoMailAddr

Attribute:

Attribute\_Label: CoMailCity

Attribute:

Attribute\_Label: CoMailCoun

Attribute:

Attribute\_Label: CoMailStat

Attribute:

Attribute\_Label: CoMailZip

Attribute:

Attribute\_Label: AveAmountCode\_1

Attribute:

Attribute\_Label: ChemInvRecordID\_1

Attribute:

Attribute\_Label: CiCAS\_12

Attribute:

Attribute\_Label: EHSH2S\_1

Attribute:

Attribute\_Label: EnteredChemName\_1

Attribute:

Attribute\_Label: Fire\_12

Attribute:

Attribute\_Label: Gas\_12

Attribute:

Attribute\_Label: Liquid\_12

Attribute:

Attribute\_Label: MaxAmountCode\_1

Attribute:

Attribute\_Label: Mixture\_12

Attribute:

Attribute\_Label: Pressure\_12

Attribute:

Attribute\_Label: Pure\_12

Attribute:

Attribute\_Label: Reactive\_12

Attribute:

Attribute\_Label: Solid\_12

Attribute:

Attribute\_Label: Chem2

Attribute:

Attribute\_Label: Chem3

Attribute:

Attribute\_Label: Chem4

Attribute:

Attribute\_Label: Chem

Attribute:

Attribute\_Label: OBJECTID\_12

Attribute:

Attribute\_Label: OtherRecordID

Attribute:

Attribute\_Label: Office

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape\_Area

Attribute\_Definition: Area of feature in internal units squared.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Spatial\_Data\_Organization\_Information:

Point\_and\_Vector\_Object\_Information:

Entity\_and\_Attribute\_Information:

Detailed\_Description:

Entity\_Type:

Entity\_Type\_Label: ThreatLayer1

Entity\_Type\_Definition: Polygon

Entity\_Type\_Definition\_Source: George Caracostis

Attribute:

Attribute\_Label: OBJECTID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: id

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: shape

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: FacilityNa

Attribute\_Definition: associated facility name

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: facility name

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: distance\_1

Attribute\_Definition: PAC zone 1 distance

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC1

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: distance\_2

Attribute\_Definition: PAC zone 2

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC2

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: distance\_3

Attribute\_Definition: PAC zone 3

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC3

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: BUFF\_DIST

Attribute\_Definition: Buffer Distance

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: Buffer distance

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: PAC

Attribute\_Definition: PAC distance

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC distance

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: FacilityName2

Attribute\_Definition: Associated facility name

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: facility name

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: CompanyName2

Attribute\_Definition: Associated company name

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: company name

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: PAC3

Attribute\_Definition: PAC zone 3

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC3

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: PAC2

Attribute\_Definition: PAC zone 2

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC2

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: PAC1

Attribute\_Definition: PAC zone 1

Attribute\_Definition\_Source: George Caracostis

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: PAC1

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: Shape\_Length

Attribute\_Definition: Length of feature in internal units.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: buffer length

Codeset\_Source: George Caracostis

Attribute:

Attribute\_Label: Shape\_Area

Attribute\_Definition: Area of feature in internal units squared.

Attribute\_Definition\_Source: Esri

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Positive real numbers that are automatically generated.

Attribute\_Domain\_Values:

Codeset\_Domain:

Codeset\_Name: buffer area

Codeset\_Source: George Caracostis