# Geospatial Data Management Plan

## Feb 2019

**HOUSTON-GALVESTON AREA COUNCIL**

Community & Environmental Planning Department

*Prepared in cooperation with the*

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*under the authorization of the Texas Clean Rivers Act*

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# Introduction

The Data Management Plan (The Plan) outlines the standard policies and procedures for data management within the Community and Environmental Planning (C&E) Department. The Plan covers the management of both tabular (non-geographic) and spatial (geographic) datasets. Its primary purpose is to ensure the efficient access and maintenance of these datasets within the C&E Geospatial/Geographic Information Systems (GIS) environment.

GIS technology provides a systematic means to capture, manipulate, analyze, store and display spatially referenced data. GIS supports a wide variety of applications ranging from site assessments, environmental planning, urban planning, and spatial analysis to support organizational strategies. In general, GIS supports the overall departmental goals of guiding regional planning, enhancing the quality of the region's natural environment, and public education through outreach programs. The C&E GIS team supports various programs within the C&E department through data development, spatial analysis, geospatial applications development, cartography in support of departmental goals.

The Plan is considered a dynamic working document which responds to changing technology, funding, staffing, and project requirements. Consequently, the Plan is reviewed on an annual basis and amended as necessary.

# Geospatial Services

The following section explains the geospatial services provided by the H-GAC C&E GIS team as it relates to the sharing of data, development of geospatial applications, cartography, and underlying GIS resources. The C&E GIS team is responsible for the development of data and sharing of many publicly viable datasets, developing geospatial applications, cartography, and coordination of maintenance of underlying geospatial hardware and software for C&E.

The C&E GIS team maintains a centralized geospatial warehouse (C&E SDE), an online mapping platform for web-based geospatial applications (Mapping Application), and an FTP download site (Data Clearinghouse). The C&E SDE utilizes ESRI's ArcSDE software running on a Microsoft SQL Server RDBMS. The mapping application uses ESRI's ArcGIS.com & ArcGIS Server platform running on .NET. The Data Clearinghouse is an FTP server (h-gac.sharefile.com) that provides C&E with storage space where it can post publicly available datasets for downloading. The C&E SDE, Mapping Application, and Data Clearinghouse platforms are installed by the H-GAC Data Services department (Data Services), with Data Services maintaining only the lower-level technology components such as the physical hardware, software installation, and low-level server and RDBMS functions. All upgrades and maintenance are coordinated by the C&E GIS Manager. All geospatial content stored in the C&E SDE, the Data Clearinghouse, and Mapping Application, are the responsibility of the C&E GIS staff, which resides within the C&E Socio-Economic Modeling program. However,

Data Service department maintains some of the other GIS data such as transportation, 911 address, and workforce solutions, and stored in a separate SDE that everybody in H-GAC has access to them. A detailed schematic of the geospatial technical architecture and how the various systems are interconnected can be found in the *System Architecture* section below.

**Data Sharing**

The C&E SDE serves as the primary internal repository for geospatial data, metadata, and other information relevant to the activities and goals of the C&E department. All GIS users within C&E Socio-Economic Modeling program and users from other H-GAC departments are provided *Editor* access to data in the C&E SDE. All other users have only viewer access to data in the C&E SDE. H-GAC C&E staffs without *Editor* access to the C&E SDE server can access a copy of the geospatial data through a separate server that houses imported versions of the original SDE data to develop GIS layers for project specific editing. This system ensures that the original formatting of geospatial data on the C&E SDE remains unchanged. All user access privileges are assigned by the C&E GIS Manager based upon business needs, GIS skills, and role within the organization. No users outside of the C&E department have editor level access to any GIS data in the C&E SDE, and in some instances there are datasets that are viewable by only C&E GIS users. Instructions for connecting to the C&E SDE are provided to authorized users.

Datasets determined to be viable for publication to the public are exported to the Data Clearinghouse, thereby allowing the general public widespread access to this information via the internet. Members of the public may view metadata and download any of the datasets that are posted to the Data Clearinghouse. In some instances, these datasets are used in web-based interactive mapping applications and can be accessed online via the Mapping Server's services directory, or accessible via the Data Clearinghouse for downloading. The data sharing through downloading is facilitated through H-GAC's Sharefile system. All public C&E GIS data, applications, cartographic products, and the C&E map services directory can be accessed via "GIS, Imagery, & Online Mapping Tools" section of the H-GAC website. A screen shot of the website can be found in Appendix 7.

**Geospatial Applications**

The C&E department has made a strategic decision to incorporate internet-based mapping applications into its deliverables for many programs and projects. Before, the results of most projects consisted of a large-format map printed on a plotter up to 48"x36" in diameter. This form of cartography although still useful in many settings, did not allow programs to communicate results to the public or external organizations that had an interest in our analysis results. By taking results from C&E projects and coupling this with base map data and imagery, C&E has been able to share the results of projects to a far greater audience and

has created opportunities whereby map layers published on the C&E mapping server can be utilized in other organizations mapping applications.

Currently there are two platforms upon which C&E provides web-based mapping solutions.

The first platform is based on the JavaScript programming technology, and all mapping applications developed using this platform run on various operational systems including Windows, MacOS, ISO, and Android. This platform is intended to provide users with a graphics rich user interface whereby the map can be navigated, layers turned on/off, and information obtained on each feature. In some instances, features have links to additional resources such as photos of monitoring stations, external websites, and detailed reports. This mapping application technology allows the users to display its information on different screen-size devices including desktop, laptop, tablet, and mobile phone.

The second platform utilizes the capabilities of the ArcServer/Arcgis.com platform to allow users to directly access map layers published on the mapping server. This method of delivery is called 'streaming' and allows end users access to individual map layers and geoprocessing tools published on the server. Typical users of this method of delivery are other GIS users using ArcMap GIS, whereby they can connect directly to our ArcServer platform for read-only access and view our map layers. Other instances whereby Arcgis.com's users may utilize this method is where they are including our map layers in their own mapping applications.

**Mapping and Cartographic Products**

The C&E department produces a variety of static cartographic maps for the region because of project activities and for general usage. To facilitate the sharing of these maps in an electronic format, C&E has implemented a Map Book as part of their C&E GIS page. Maps can be downloaded in multiple formats. The C&E Map Book can be accessed via our C&E GIS page at https://www.h-gac.com/map-book/default.aspx.

**System Resources**

System Architecture
The C&E department uses an integrated architecture to support the development, analysis, and dissemination of spatial information. The diagram below illustrates this system architecture at a high level. The goal of the overall system is to allow for a streamlined workflow to develop/maintain data, optimize the data for use in online applications, and the consumption of applications via multiple platforms.

Currently the C&E GIS platform supports sharing of geospatial data via the ArcServer mapping server platform. This allows end users internally or externally to consume map layers and geoprocessing tools via GIS desktop, mobile, tablet, or interactive applications.

In some instances, applications are configured with public feedback and volunteer GIS workflows that allow the C&E GIS team to obtain information for the public on various geographic features in the region. This public feedback loop allows C&E to investigate feedback and verify its validity prior to incorporating the information into the data warehouse.
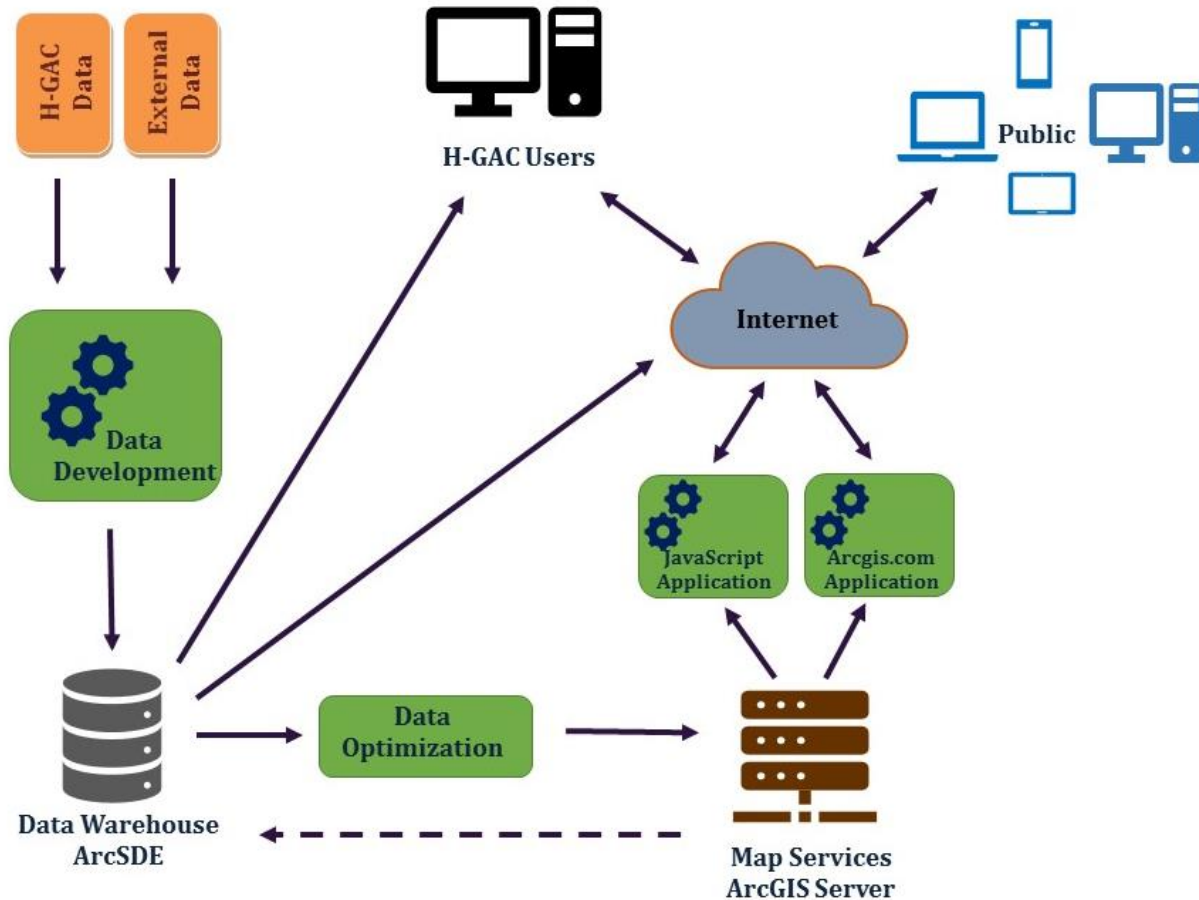


*Figure 1: H-GAC Geospatial System Architecture*

Hardware
The configuration of the hardware used by staff that performs GIS and data Management work is a distributed network. This network consists of several PC's which are connected to central file servers. The department also uses a central web mapping server for online mapping applications.

A complete listing of departmental hardware is found in Appendix 3.

Software
The C&E department relies upon the H-GAC Data Services department (Data Services) for its end user workstation configuration, installation, and maintenance. Each workstation for

users comes with the Microsoft Office software package which includes Outlook (e-mail), Word (word processing), Excel (spreadsheets), PowerPoint (presentations), and in some instances Access (desktop database) should the user require desktop database capabilities. Each workstation is pre-configured and setup to operate within the H-GAC internal network and has access to central servers for file storage.

The C&E GIS staff utilizes ESRI's ArcGIS 10.5 platform for all geospatial analysis and mapping needs. In addition, as needed, the staff also utilizes the SAS and ENVI software platforms for further analysis and data development as deemed necessary. The ESRI ArcGIS 10.5 platform includes integrated Python programming capabilities, which allows for the creation of programming scripts or batch programs to improve efficiency and documentation of processes. The Python programming language is an Open Source platform and is freely distributable.

The centralized SDE is also provided by ESRI and provided for a centralized geospatial database where GIS staff can store geospatial data for either read-only or editable access by GIS users in the C&E department. The C&E GIS staff maintains access privileges to the SDE datasets and assigns individual users to various SDE access groups to grant approved accessed to data in the SDE. The SDE is considered the central warehouse where GIS users can go to for geospatial data to use in their analysis or mapping projects.

The software products currently used to accomplish the department's data management objectives are listed in Appendix 4.

<u>Programming Languages</u>
Programming services will be provided on an as needed and resource available basis. All programming efforts will follow a standard procedure from needs assessment, program planning, development and testing, to refinement and documentation. The principal programming languages to be used in task automation and project customization will depend on the nature of the need and the current state of the technology. At this time, all web-based GIS applications are developed using the ESRI ArcGIS Server platform, and user interface components to that platform are developed using the ESRI JavaScript API. Automated data development and analysis workflows utilize the Python programming language and the SAS programming platform as needed.

<u>Data</u>
Department staff members will be consulted annually to determine priority needs for data management. Based on this consultation, specific data sets will be acquired or further developed for the various program areas represented in the department. The current list of department-specific data sets is shown in Appendix 5.

A separate database lists all datasets regularly obtained from external sources, contact information, as well as the frequency of the datasets availability, and its cost. This database is developed using Microsoft Excel and is available to the C&E GIS team for tracking when updates to dataset may be available.

Personnel

The Data Management staff will be responsible for the maintenance and development of the C&E SDE, mapping server, geospatial applications, C&E GIS page, and Data Clearinghouse. These data management responsibilities cover a wide range from original data creation, acquisition and integration, data archiving and distribution. Additional responsibilities include enhancing the geographic extent, feature attributes, and metadata of the datasets.

The C&E GIS team is comprised of 9 full-time GIS and data analysis professionals. The C&E GIS team supports all programs within the C&E department, which include Clean Rivers/Water Quality, Sustainability, Economic Development, Solid Waste, Ped/Bike, Socio-Economic Modeling, and special project. The C&E GIS team is part of the Socio-Economic Modeling program within C&E.

H-GAC's Data Services Department plays an indirect role in the implementation and maintenance of The Plan. The Data Services Department is responsible for managing the underlying hardware and network upon which C&E stores GIS data and implements GIS-based applications.

Training

Training for all users of the system is a critical part of The Plan. C&E staff directly responsible for data management will attend conferences, seminars, and software/hardware training courses as needed. H-GAC users of the system will be trained and/or receive technical support by the C&E GIS Manger and other C&E subject matter experts.

Budget

Budgetary requirements to sustain data management efforts will be reviewed annually.

## Data Maintenance, Manipulation, and Use

### Quality Assurance/Quality Control

QA/QC is designed to standardize screening, documentation, entry, output, analysis, correction, and updating of data in the system. QA/QC will document those responsible for data and system maintenance.

### Data Limitations

Prior to the integration of data within the C&E SDE and posting to the Data Clearinghouse, a review of the data set will be completed to determine predefined data limitations such as missing values, different sampling frequencies, multiple measurements, analytical uncertainty, censored or unavailable data, and duplicated data with existing data sets. After review of the data set, a report will be generated which records any errors detected and any corrections that may be necessary.

### Data Development Protocol

The C&E GIS staff works to update existing dataset, acquire new data, and perform geospatial analysis in support of various C&E programs. All new data generated from the result of an analysis is a candidate to be stored not only in the SDE as a new dataset, but also as a layer with a mapping application should the need arise. All data development and analysis are done internally to C&E, and at times leverages outside resources such as consultants, other non-profits whom H-GAC is partnering with, as well as with other H-GAC departments to obtain necessary data. Two datasets that the C&E department uses regularly outside the C&E SDE are the Data Services StarMap road centerline dataset and the Data Services aerial imagery database.

The C&E GIS staff uses a hybrid approach to conducting geospatial analysis. Much of the analysis being performed may need to be re-processed later as new versions of datasets become available, or as inputs to the analysis models are updated themselves. Thus, to minimize the time spent re-running analysis models, the C&E GIS staff utilizes the ESRI ArcGIS platform in conjunction with SAS and Python to develop repeatable and documented workflows. This approach saves more time than interactive methods whereby a user must remember the process to follow, and then execute each step in the analysis independently.

Documentation related to data management efforts such as system evolution, structure, and procedures for use will be compiled and made available for the end user. Documentation will be made available online and in hard copy format.

Data Input

Standard conventions for data input will be determined on a per project and/or individual data set basis. To ensure Year 2000 Compliance, all data sets with date/time fields will include a four-digit year (YYYY). Either of the following formats will be used: International Standard Date notation where the date field is represented as MM/DD/YYYY (Month/Day/Year), or an ordinal format where the date field is represented as YYYYDDD.

Data Dictionary

A list of all H-GAC data available in either the C&E SDE or other agency wide SDE can be found in Appendix 5.

Metadata

Metadata is data about the original source, quality, content, history, condition, and other characteristics of the geospatial data. All GIS datasets generated by H-GAC have been fully documented as per Federal Geographic Data Committee (FGDC) compliant metadata and follow Content Standards for Digital Geospatial Metadata (CSDGM) for all geospatial data. Similarly, data obtained from outside sources and used by H-GAC will include FGDC-compliant metadata from the source agency. Datasets without a known history and documented quality will be identified as provisional and used only when noted as such. The diagram below illustrates elements of the CSDGM standards. This standard is applied to all Point, Line, Polygon, Raster, and Tabular data that are stored in the C&E SDE. The C&E GIS data manager and/or point of contact (designee) has the authorized access to edit/change the metadata when a new dataset is created or updated in the SDE. Metadata for each dataset in the C&E SDE is stored with the datasets and can be viewed by GIS users via their GIS desktop software. Any data provided for public download via the Data Clearinghouse also has a metadata html page that can be viewed via internet browsers.
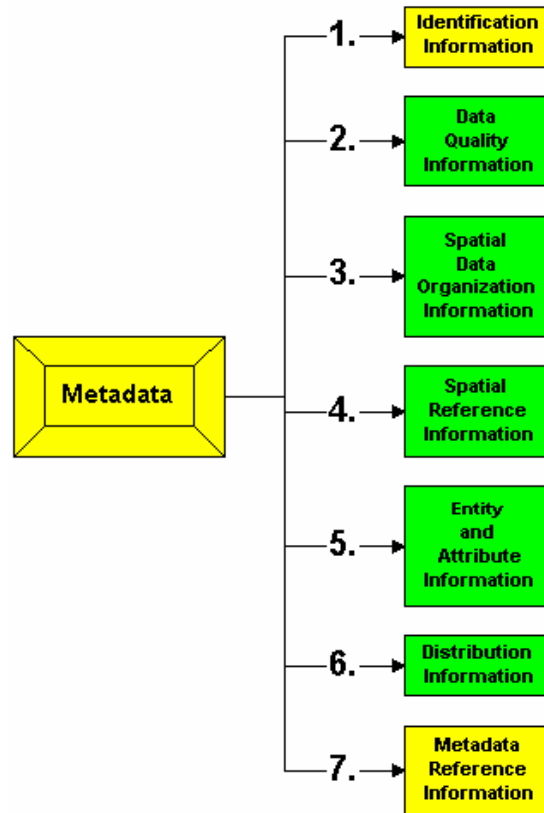
*Figure 2: Elements of CSDGM Standards*

Data Conversion
Data to be imported into the C&E SDE from hard copy, digital or by manual data entry, will follow a uniform conversion protocol to comply with the structure of current data sets. The type of data being converted will determine the protocol. All data is stored in ESRI geodatabase format within the C&E SDE, and when posted to the Data Clearinghouse the data is stored in the ESRI File Geodatabase file format, unless there is a specific requirement to provide the data in another format such as Shapefile or GIS Coverage.

Coordinate Systems
The Texas Stateplane Coordinate System, North American Datum 1983 (NAD83) will be the standard for geographic data at H-GAC. This coordinate system is based on the Cartesian coordinate system, or rectangular coordinates. When receiving geographic data from other sources the data will be transformed into the Stateplane Coordinate System to ensure compatibility with current data sets.

When publishing mapping services for use in web-based GIS mapping applications, the Web Mercator Auxiliary Sphere projection is used for all Data Frame projections. However, the underlying GIS data within these mapping services still use the Texas Stateplane Coordinate System, North American Datum 1983 (NAD83) projection.

**Data Validation**

Data Quality Control
When data are received from any source, documentation will be created to include the source name, date received, format of data and a brief description of the contents. Data will be loaded onto the system from the media received and a review of the data will be made along with any corrections being made to the source documentation. An analysis will be made to determine the means of data entry into the system whether it is only a stand-alone database, a number of linked tables, or a geographic database. The data will be converted to the appropriate format for integration with the current system whether it is a conversion into MS Access, Excel, SAS, or ESRI ArcGIS. The data will be visually examined to determine its validity and accuracy. If the data is invalid it will be corrected (if possible) otherwise the data will be incorporated into the C&E SDE, and then if applicable, posted to the Data Clearinghouse and used in conjunction with existing data. A QA/QC report of all procedures and a detailed description of how the data was incorporated into the current system (from the date received to the date of integration) will be generated.

Equipment Quality Control
All printers, workstations, and server hardware and operating systems are maintained by the Data Services department, unless otherwise noted in Appendix 3.

**Genealogy**

Upon receipt of data from outside sources, all data will be screened for integrity and completeness. After the preliminary evaluation of the data, a log of the data source, type and completeness is created and maintained with the associated data. A description of the data and the responsible personnel are documented.

**Migration/Transfer**

A copy of every C&E generated GIS dataset will be housed in the C&E SDE which C&E GIS staff manage the contents and structure of datasets. The underlying hardware and network connections for the C&E SDE are maintained by the Data Services Department. Datasets that are of public interest will be placed in the Data Clearinghouse for public access. Transfer from the C&E SDE to the Data Clearinghouse will occur on an as needed basis following department QA/QC measures and is handled by the C&E GIS team.

**Data Security & Access**

Data placed on the Data Clearinghouse will be available to those with Internet browsing and/or FTP capability. Data requests for non-public data from other agencies and the public will be evaluated on an individual basis. When the data requests are received, a preliminary

evaluation of the deliverable will be determined and a timeline and cost if applicable will be provided to the requesting agency or individual.

GIS and tabular data will be secure through directory permissions. H-GAC will employ Firewall or Proxy Server Technology to filter and severely restrict access to internal networks and database systems. Virus protection will be implemented to ensure system and data integrity.

**Archives/Backup**

Each week the C&E GIS team runs a schedule backup program to store a copy of all C&E SDE datasets on a portable hard drive with resides in a secure location within the H-GAC office. In addition, Data Services backs up and archives C&E SDE data and server configuration at regular intervals.

**Disaster Recovery**

In the event of a disaster, the C&E department will have access to all C&E SDE data which is stored on the portable hard drive. The C&E GIS team will restore or provide needed data to GIS users from this portable hard drive until such as time that Data Services can restore the C&E SDE onto either a new server or a temporary server.

# Appendices

**Appendix 1 Data Source Information Sheet**
Data Title:

Source Agency:
Contact:
Title:
Address
Phone:

Data Description:
Data source:
Date created:
Accuracy:
Media:
Data items:

Description of data:

Format (specify what software)
Map:
Tabular:
Image:
Text:

Retrieval Procedure:

Command(s):

**Appendix 2 Data Log Sheet**

Date received: _____

Report Prepared by: _____

Source Name and Phone: _____

Format: _____

Media: _____


Check the following steps to determine the validity of the data:

1. What is the extent of the geographic area? _____
_____

2. Structure (Circle One)     Vector                    Raster

3. Scale? _____

4. Projection and Datum? _____


1. Do any of the key fields have missing values?   If so which parameters have missing values?  Yes ___        No ___
_____
_____
_____

2. Any known duplicate records?   Yes ___ No ___

**Appendix 3 Hardware**

FTP Server
h-gac.sharefile.com

Mapping Application Servers
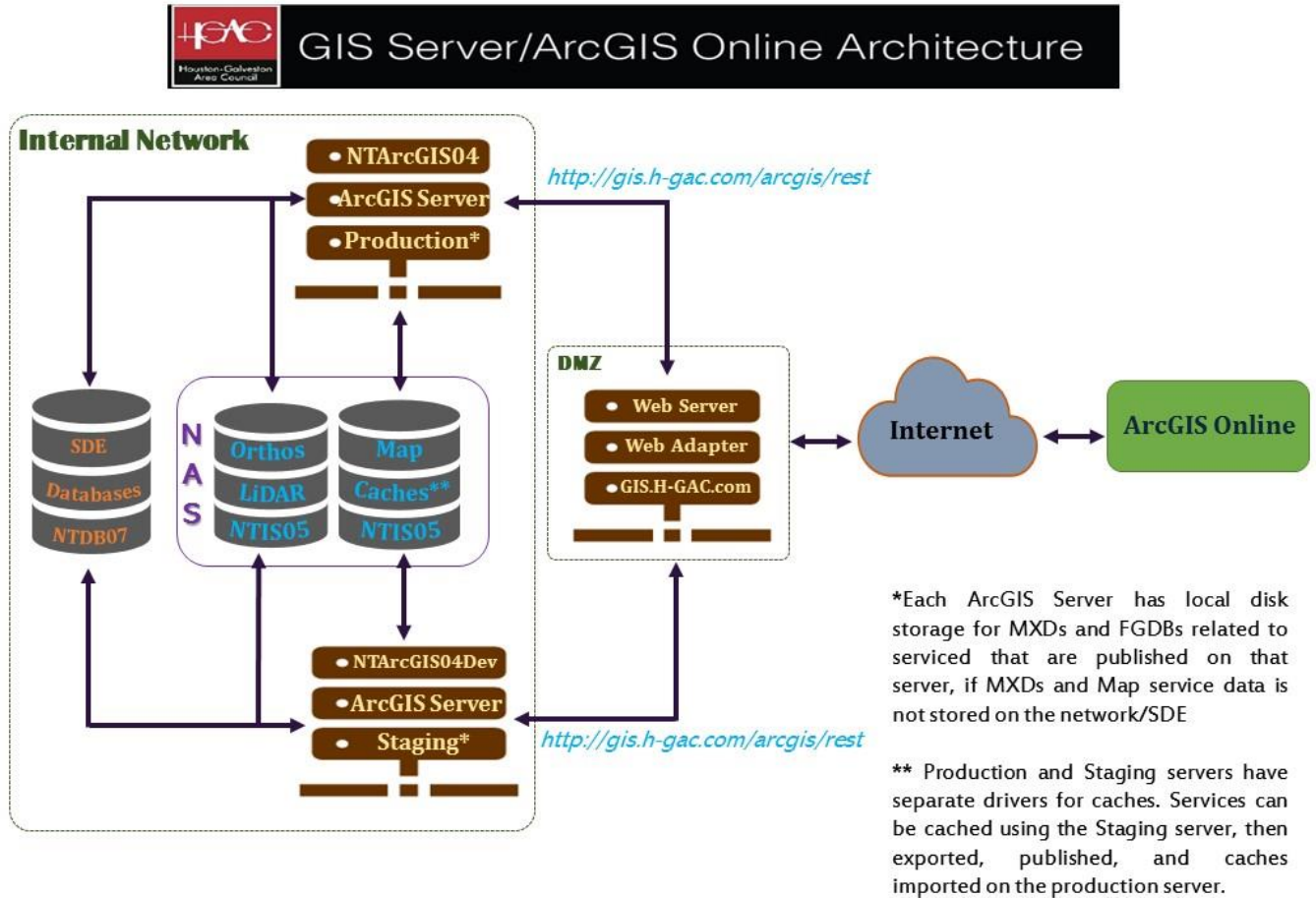


Plotters, Printers and Scanners
HP1055CM Plotter - Used by all H-GAC staff for large format printing of maps and schematics.
Xerox Workcenter 7845 and Cannon Advanced 4545 Printers and scanners. C&E maintains both printers.

Global Positioning System (GPS) Units
The C&E Department possesses two GPS units.

Fax Equipment
Brother Intellifax 4750e. The C&E Department owns one fax machine.

**Appendix 4 Software**

Office Productivity Software
Microsoft Office 365 - Word, Excel, Access, PowerPoint, publisher, InfoPath and Outlook.

Graphics and Desktop Publishing
Adobe Illustrator (ver 8.01) – Graphics
Adobe Photoshop (ver 5.0) – Graphics
Camtasia Studio (ver 7.0) – Screen capture and video tutorial production

Programming
Microsoft Visual Studio – Web Mapping Development Tool.
Web AppBuilder for ArcGIS (ver 1.8) – Web-based GIS application development tool
SAS (ver 9.4) – Data development and analytics.

Geographic Information Systems (GIS)
ESRI ArcGIS (ver 10.5) – Computer mapping and database manipulation capable of using ArcView, ArcInfo, and ArcEditor licenses as needed.
ESRI ArcGIS Server (ver 10.2, SP3) – Internet Mapping Application Server.
ESRI ArcSDE (ver 10.2, SP1) – Spatial data warehouse.
ENVI Remote Sensing Data Analysis Package – Harris Geospatial

Data Management
Microsoft Access (365) - Relational Database.
SQL Server (2012) - Relational Database.

Operating Systems
Windows 7 - PC working environment/Operating System
Windows 10 - PC working environment/Operating System
Windows 2012 & 2016 - Server Operating Systems

**Appendix 5 Data List**

<u>H-GAC Spatial Data Warehouse (SDE) Datasets</u>

| Dataset Name | Type |
|---|---|
| ACE_2017\ACE_HEX_2017 | Polygon |
| ACE_2017\ACE_HEX_2017_pt | Point |
| Apartment_Input | Point |
| Appraisal_2014\BZ_2014_org | Polygon |
| Appraisal_2014\CH_2013_org | Polygon |
| Appraisal_2014\FB_2014_org | Polygon |
| Appraisal_2014\GV_2014_org | Polygon |
| Appraisal_2014\HR_2014_org | Polygon |
| Appraisal_2014\LB_2014_org | Polygon |
| Appraisal_2014\MG_2013_org | Polygon |
| Appraisal_2014\WA_2014_org | Polygon |
| Austin_County_Commissioner_Precincts | Polygon |
| Barker_and_Addicks_Reservoir_Watersheds | Polygon |
| BlueMap \ActivityPopulationDensity | Polygon |
| BlueMap \EmploymentDensity | Polygon |
| BlueMap \HouseholdPopulationDensity | Polygon |
| BlueMap \IntersectionDensity | Polygon |
| BlueMap \Jobs_Household_Ratio_1500 | Polygon |
| BlueMap \Jobs_Household_Ratio_above_1500 | Polygon |
| BlueMap\RoadwayDensity | Polygon |
| BlueMap_2000\ActivityPopulation_2000 | Polygon |
| BlueMap_2000\Employment_2000 | Polygon |
| BlueMap_2000\HouseholdPopulation_2000 | Polygon |
| BlueMap_2000\Intersection_2000 | Polygon |
| BlueMap_2000\Job_HH_Ratio_2000 | Polygon |
| BlueMap_2015\ActivityPopulation | Polygon |
| BlueMap_2015\Employment | Polygon |
| BlueMap_2015\HouseholdPopulation | Polygon |
| BlueMap_2015\Intersection | Polygon |
| BlueMap_2015\Job_HH_Ratio_above_2000 | Polygon |
| BlueMap_2016\Accessibility_Score_2016 | Polygon |
| BlueMap_2016\ActivityPopulation_2016 | Polygon |
| BlueMap_2016\Amenity_Index_2016 | Polygon |
| BlueMap_2016\Employment_2016 | Polygon |
| BlueMap_2016\HouseholdPopulation_2016 | Polygon |
| BlueMap_2016\Intersection_2016 | Polygon |
| BlueMap_2016\Job_HH_Ratio_2016 | Polygon |

| | |
|---|---|
| BlueMap_ActivityPopulation | Polygon |
| BlueMap_Comparison\HP_2000 | Polygon |
| BlueMap_Comparison\HP_2016 | Polygon |
| BlueMap_Comparison\INT_2000 | Polygon |
| BlueMap_Comparison\INT_2016 | Polygon |
| BlueMap_Comparison\J_2000 | Polygon |
| BlueMap_Comparison\J_2016 | Polygon |
| BlueMap_Comparison\JP_2000 | Polygon |
| BlueMap_Comparison\JP_2016 | Polygon |
| BlueMap_Comparison\Ratio_2000 | Polygon |
| BlueMap_Employment | Polygon |
| BLUEMAP_HEX | Polygon |
| BLUEMAP_HEX_2015 | Polygon |
| BLUEMAP_HEX_2016 | Polygon |
| BLUEMAP_HEX_2016_Pedestrian_Demand_Index | Polygon |
| BLUEMAP_Property_Value_HEX | Polygon |
| Brazoria_County_Commissioner_Precincts | Polygon |
| Brazos_Transit_District_Bus_Routes | Polyline |
| Brazos_Transit_District_Park_and_Rides | Point |
| Buildings | Point |
| Cedar_Bayou_Watershed_Project_Monitoring_Sites | Point |
| CensusTracts_MB | Polygon |
| Chambers_County_Commissioner_Precincts | Polygon |
| City_of_Conroe_ETJ | Polygon |
| City_of_Huntsville_ETJ | Polygon |
| City_of_Missouri_City_ETJ | Polygon |
| City_of_Pearland_ETJ | Polygon |
| City_of_Texas_City_ETJ | Polygon |
| Clean_Rivers_Public_Feedback | Point |
| Clean_Rivers_Public_Feedback__ATTACH | Table |
| COH_Boundaries | Polygon |
| COH_Boundaries_census | Polygon |
| COH_Boundaries_census_new | Polygon |
| CoH_Council_Districts | Polygon |
| CoH_ETJ | Polygon |
| CoH_Historical_Districts | Polygon |
| CoH_Police_Districts | Polygon |
| CoH_Street_Pavement_Edges | Polyline |
| CoH_Traffic_Signals | Point |
| CoH_Traffic_Signs | Point |
| Colorado_County_Commissioner_Precincts | Polygon |

| | |
|---|---|
| Colorado_Valley_Transit_Bus_Routes | Polyline |
| Connect_Transit_Bus_Routes | Polyline |
| Conroe_Transit_Bus_Routes | Polyline |
| Critical_Facilities_2017 | Point |
| CRP_HUC12_RPS_updated | Polygon |
| CRP_MonitoringStations_Subwatersheds | Polygon |
| CRP_Project_Areas | Polygon |
| EPA_Eco_Regions | Polygon |
| FEMA_Floodplains_DFIRM_Q3_2010 | Polygon |
| FEMA_Floodplains_NFHL_2015 | Polygon |
| Fort_Bend_County_Commissioner_Precincts | Polygon |
| Fort_Bend_Transit_Bus_Routes | Polyline |
| Galveston_Bay_Estuary_Program_Watersheds | Polygon |
| Galveston_County_Commissioner_Precincts | Polygon |
| Gulf_Of_Mexico | Polygon |
| Harris_County_Commissioner_Precincts | Polygon |
| Harris_County_Constable_Precincts | Polygon |
| Harris_County_FCD_Sub_Watersheds | Polygon |
| Harris_County_FCD_Watersheds | Polygon |
| Harris_County_Sheriff_Districts | Polygon |
| Harris_County_Transit_Bus_Routes | Polyline |
| Harris_County_Zones_58 | Polygon |
| HGAC_13_County_ACS_2014\BGs_2014 | Polygon |
| HGAC_13_County_ACS_2014\Census_Places_2014 | Point |
| HGAC_13_County_ACS_2014\Census_Tracts_2014 | Polygon |
| HGAC_13_County_ACS_2014\Counties_2014 | Polygon |
| HGAC_13_County_ACS_2014\Zips_2014 | Polygon |
| HGAC_13_County_ACS_2015\BGs_2015 | Polygon |
| HGAC_13_County_ACS_2015\BGs_Vulnerable_2015 | Polygon |
| HGAC_13_County_ACS_2015\Census_Places_2015 | Polygon |
| HGAC_13_County_ACS_2015\Census_Places_pt_2015 | Point |
| HGAC_13_County_ACS_2015\CEnsus_Tracts_2015 | Polygon |
| HGAC_13_County_ACS_2015\Counties_2015 | Polygon |
| HGAC_13_County_ACS_2015\Places_poly_2015 | Polygon |
| HGAC_13_County_ACS_2015\Zips_2015 | Polygon |
| HGAC_13_County_ACS_2015_Blockgroup_summary | Polygon |
| HGAC_13_County_ACS_2016\BGs_2016 | Polygon |
| HGAC_13_County_ACS_2016\BGs_Veterans_2016 | Polygon |
| HGAC_13_County_ACS_2016\BGs_Vulnerable_2016 | Polygon |
| HGAC_13_County_ACS_2016\Counties_2016 | Polygon |
| HGAC_13_County_ACS_2016\Counties_TX_Veterans_2016 | Polygon |

| | |
|---|---|
| HGAC_13_County_ACS_2016\ISDs_2016 | Polygon |
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| HGAC_13_County_ACS_2017_Housing\ACS_Housing_Tracts_2017 | Polygon |
| HGAC_13_County_Airports | Point |
| HGAC_13_County_Airports_ParcelIDs | Table |
| HGAC_13_County_Brownfield_Sites | Point |
| HGAC_13_County_Closed_Landfill_Inventory | Point |
| HGAC_13_County_CRP_DO_Stations | Point |
| HGAC_13_County_CRP_Monitoring_Stations_2008 | Point |
| HGAC_13_County_CRP_Monitoring_Stations_2010 | Point |
| HGAC_13_County_CRP_Monitoring_Stations_2011 | Point |
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| HGAC_13_County_CRP_Monitoring_Stations_Historical | Point |
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| HGAC_13_County_Farmland | Polygon |
| HGAC_13_County_Federal_Aid_Roads | Polyline |
| HGAC_13_County_FoodWaste_Composters | Point |
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| HGAC_13_County_G3M | Polygon |
| HGAC_13_County_G5M | Polygon |

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| HGAC_13_County_Grocery_Stores | Point |
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| HGAC_13_County_Landfill_Areas_Historical | Polygon |
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| HGAC_13_County_Landfills_Historical | Point |
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| HGAC_13_County_OSSF_Permits | Point |
| HGAC_13_County_OSSF_Permits_2017 | Point |
| HGAC_13_County_OSSF_Permits_2018 | Point |
| HGAC_13_County_Parks | Point |
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| HGAC_13_County_Parks_Features | Table |
| HGAC_13_County_Parks_Parcels | Table |
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| HGAC_13_County_Recycle_Centers | Point |
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| HGAC_13_County_Service_Area_Boundaries_2014 | Polygon |
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| HGAC_13_County_Service_Area_Boundaries_Domestic_2018 | Polygon |
| HGAC_13_County_Soils | Polygon |
| HGAC_13_County_Superfund_NPL_Sites | Polygon |
| HGAC_13_County_Superfund_NPL_Sites_Pts | Point |
| HGAC_13_County_Wastewater_Outfall_Domestic_2018 | Point |
| HGAC_15_County_Aquifer_Recharge_Zones | Polygon |
| HGAC_15_County_Basins | Polygon |
| HGAC_15_County_Bio_Monitoring_Sites | Point |
| HGAC_15_County_CRP_Impairments | Table |
| HGAC_15_County_CRP_Lakes | Polygon |
| HGAC_15_County_CRP_Stream_End_Points | Point |
| HGAC_15_County_CRP_Streams | Polyline |
| HGAC_15_COUNTY_LAND_COVER_2015_10_CLASS | Raster |
| HGAC_15_COUNTY_LAND_COVER_2018_10_CLASS | Raster |
| HGAC_15_County_NHDPlusV2_Catchment_Boundary | Polygon |
| HGAC_15_County_Soils_2012 | Polygon |
| HGAC_15_County_Soils_2012_w_taxonomy | Polygon |
| HGAC_15_County_Wastewater_Outfalls | Point |

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| HGAC_15_County_Wastewater_Outfalls_Historical | Point |
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| HGAC_15_County_Watershed_Insets | Polygon |
| HGAC_15_County_Watershed_Signs | Point |
| HGAC_15_County_Watersheds | Polygon |
| HGAC_8_County_Bikeway_Needs | Polyline |
| HGAC_8_County_Bikeways | Polyline |
| HGAC_8_County_Comprehensive_Plan_2010_pts | Point |
| HGAC_8_County_Eco_Types | Polygon |
| HGAC_8_County_Forecast_Cities_h | Table |
| HGAC_8_County_Forecast_Cities_v | Table |
| HGAC_8_County_Forecast_Counties_h | Table |
| HGAC_8_County_Forecast_Counties_v | Table |
| HGAC_8_County_Forecast_G025M_h | Table |
| HGAC_8_County_Forecast_G1_h | Table |
| HGAC_8_County_Forecast_G10K_h | Table |
| HGAC_8_County_Forecast_G10K_v | Table |
| HGAC_8_County_Forecast_G1M_h | Table |
| HGAC_8_County_Forecast_G1M_v | Table |
| HGAC_8_COUNTY_FORECAST_LU_G1_H | Table |
| HGAC_8_County_Forecast_RAZ_h | Table |
| HGAC_8_County_Forecast_RAZ_v | Table |
| HGAC_8_County_Forecast_Region_v | Table |
| HGAC_8_County_Forecast_TAZ_h_2003 | Table |
| HGAC_8_County_Forecast_TAZ_v_2003 | Table |
| HGAC_8_County_Forecast_Tracts_h | Table |
| HGAC_8_County_Forecast_Tracts_v | Table |
| HGAC_8_County_Forecast_Zip_Codes_h | Table |
| HGAC_8_County_Forecast_Zip_Codes_v | Table |
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| HGAC_8_County_G1 | Polygon |
| HGAC_8_County_G10 | Polygon |
| HGAC_8_County_G1M | Polygon |
| HGAC_8_County_PedBike_Improvement_Areas | Polygon |
| HGAC_8_County_PedBike_Improvement_Locations | Point |
| HGAC_8_County_Pedestrian_Pathways | Polyline |
| HGAC_8_County_Sector_25 | Polygon |
| HGAC_8_County_Soils | Polygon |

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| HGAC_Art_of_Transportation | Point |
| HGAC_Bastrop_Bayou_Sub_Watersheds | Polygon |
| HGAC_Buy_Active_EndUsers | Point |
| HGAC_Buy_PO_EndUsers | Point |
| HGAC_City_Boundaries | Polygon |
| HGAC_City_Ordinance_Areas | Polygon |
| HGAC_COASTAL_VIGNETTE_RASTER | Raster |
| HGAC_Commissioner_Precincts | Polygon |
| HGAC_Contours_2_Feet | Polyline |
| HGAC_Contours_5_Feet | Polyline |
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| HGAC_Counties_Coastline_15C | Polygon |
| HGAC_Counties_Coastline_Boundary | Polygon |
| HGAC_Counties_Coastline_Boundary_15C | Polygon |
| HGAC_Counties_Political | Polygon |
| HGAC_Counties_Political_15C | Polygon |
| HGAC_Counties_Political_Boundary | Polygon |
| HGAC_Counties_Political_Boundary_15C | Polygon |
| HGAC_CRP_Watersheds | Polygon |
| HGAC_Dams | Point |
| HGAC_Election_Precincts_2010 | Polygon |
| HGAC_FM_Roads | Polyline |
| HGAC_HILLSHADE | Raster |
| HGAC_Hurricane_Dolly_Observations | Point |
| HGAC_Hurricane_Dolly_Track | Polyline |
| HGAC_Hurricane_Evacuation_Routes | Polyline |
| HGAC_Hurricane_Evacuation_Zip_Codes | Polygon |
| HGAC_Hurricane_Ike_High_Water_Measurements | Point |
| HGAC_Hurricane_Ike_Observations | Point |
| HGAC_HURRICANE_IKE_SALT_BURN_GULF_COAST | Raster |
| HGAC_Hurricane_Ike_Storm_Surge_Model | Polygon |
| HGAC_HURRICANE_IKE_STORM_SURGE_MODEL_RASTER | Raster |
| HGAC_Hurricane_Ike_Track | Polyline |
| HGAC_Lakes_AUs_2016 | Polygon |
| HGAC_Lakes_Segments_2016 | Polygon |
| HGAC_LAND_COVER_10_CLASS_2008 | Raster |
| HGAC_LAND_COVER_10_CLASS_ROADS_2008 | Raster |

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| HGAC_LAND_COVER_3X3_MODE_FILTERED_2008 | Raster |
| HGAC_LAND_COVER_MERGED_6_CLASS_2008 | Raster |
| HGAC_Learning_Centers | Point |
| HGAC_LiDAR_Breakline | Polyline |
| HGAC_LiDAR_Contours_1_Foot | Polyline |
| HGAC_LiDAR_Spot_Elevation | Point |
| HGAC_Main_Railroads | Polyline |
| HGAC_Major_Lakes_and_Reserviors | Polygon |
| HGAC_Major_Rivers | Polyline |
| HGAC_Major_Rivers_15C | Polyline |
| HGAC_Major_Roads | Polyline |
| HGAC_Major_Roads_15C | Polyline |
| HGAC_MSWF_Managed_Lanes | Polyline |
| HGAC_MSWF_Traffic_Management_Strategies | Point |
| HGAC_NWR_Areas | Polygon |
| HGAC_Other_CRP_Monitoring_Stations | Point |
| HGAC_Pipelines | Polyline |
| HGAC_Raster_Extext | Polygon |
| HGAC_RAZ | Polygon |
| HGAC_Region_WWTF_Outfalls_FY17 | Point |
| HGAC_Sea_Level_Rise | Polygon |
| HGAC_Seaports | Point |
| HGAC_Sidewalks_Preliminary | Polyline |
| HGAC_State_Highways | Polyline |
| HGAC_State_Parks | Polygon |
| HGAC_Streams_AUs_2016 | Polyline |
| HGAC_Streams_Segments_2016 | Polyline |
| HGAC_TAZ_2954 | Polygon |
| HGAC_TAZ_5217 | Polygon |
| HGAC_TIRZ | Polygon |
| HGAC_Water | Polygon |
| HGAC_Water_15C | Polygon |
| HGAC_Water_Detailed | Polygon |
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| HGAC_Workforce_Offices | Point |
| HGAC_Workforce_Solutions\HGAC_Career_Offices | Point |
| HGAC_Workforce_Solutions\HGAC_Parole_Offices | Point |
| HGAC_Workforce_Solutions\HGAC_Re_Entry_Resources | Point |
| HGAC_Workforce_Solutions\HGAC_Workforce_Centers | Point |
| HGAC_Workforce_Solutions\HGAC_Workforce_Solutions_Offices | Point |

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| HGAC_Workforce_Solutions\HGAC_Workforce_Solutions_Offices_5mi_Demographics | Polygon |
| HGAC_Workforce_Solutions\HGAC_Workforce_Solutions_VR_Offices | Point |
| HGAC_Workforce_Solutions\HGAC_Workforce_Solutions_VR_Offices_10mi_Demographics | Polygon |
| HGAC_Workforce_Solutions\HGAC_Workforce_Solutions_VR_Offices_5mi_Demographics | Polygon |
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| HGAC_Zip_Codes_2002 | Polygon |
| HGAC_Zip_Codes_2005 | Polygon |
| HGAC13_CountyTest | Polygon |
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| HR_Buildings_2013 | Table |
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| InfoGroup_Businesses_2014 | Point |
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| InfoGroup_Businesses_2016 | Point |
| InfoGroup_Businesses_2017 | Point |
| InfoGroup_Businesses_2018 | Point |
| InfoGroup_Businesses_Nix_2015 | Point |
| InfoGroup_Businesses_Nix_2016 | Point |
| InfoGroup_Businesses_Nix_2017 | Point |
| InfoGroup_Businesses_Nix_2018 | Point |
| InfoGroup_Businesses_Pre_2018 | Point |
| InfoGroup_Businesses_Suspect_2014 | Point |
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| InfoGroup_Businesses_Suspect_2018 | Point |
| InfoGroup_Consumers_2014 | Point |
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| InfoGroup_Consumers_2016 | Point |
| InfoGroup_Consumers_2017 | Point |
| InfoGroup_Consumers_2018 | Point |
| Island_Transit_Bus_Routes | Polyline |
| Lambert_Grid | Polygon |
| LEHD\County_LEHD_09_15 | Polygon |
| LEHD\HEX_H1M_09_15 | Polygon |
| LEHD\HEX_LEHD_09_15 | Polygon |
| LEHD\Place_LEHD_09_15 | Polygon |
| LEHD\Tract_LEHD_09_15 | Polygon |
| Liberty_County_Commissioner_Precincts | Polygon |

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| LID_Projects | Point |
| LiDAR_Grid_2008 | Polygon |
| LivableCenters | Polygon |
| Master_Parcels_Address_2014 | Point |
| Matagorda_County_Commissioner_Precincts | Polygon |
| Metro_Bus_Routes | Polyline |
| Metro_Bus_Stops | Point |
| Metro_LRT_Lines | Polyline |
| Metro_LRT_Stations | Point |
| Metro_MTA_Tax_Area | Polygon |
| Metro_Park_and_Rides | Point |
| METRO_Transit\METRO_Bus_Routes | Polyline |
| METRO_Transit\METRO_Bus_Routes_2018 | Polyline |
| METRO_Transit\METRO_LRT_Rail_Lines | Polyline |
| METRO_Transit\METRO_LRT_Rail_Lines_2018 | Polyline |
| METRO_Transit\METRO_Service_Area | Polygon |
| METRO_Transit\METRO_Service_Area_2018 | Polygon |
| METRO_Transit\METRO_Transit_Facilities | Point |
| METRO_Transit\METRO_Transit_Facilities_2018 | Point |
| Metro_Transit_Centers | Point |
| Model_Buildings | Point |
| Model_Buildings_2014 | Point |
| Model_Buildings_2017 | Point |
| Model_Buildings_2017_2 | Point |
| Model_Buildings_Rural | Point |
| Model_Buildings_Uses | Table |
| Model_Buildings_Uses_Rural | Table |
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| Model_Parcels_2014 | Polygon |
| Model_Parcels_2017 | Polygon |
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| Model_Parcels_AcctNums_Rural | Table |
| Model_Parcels_Addresses | Table |
| Model_Parcels_Addresses_Rural | Table |
| Model_Parcels_Features | Table |
| Model_Parcels_Features_Rural | Table |
| Model_Parcels_Forecast | Table |
| Model_Parcels_Forecast2020 | Table |
| Model_Parcels_Pts | Point |
| Model_Parcels_Removed_Merged | Polygon |

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| Model_Predictions_v2018\CH_Model_Predictions_v2018 | Polygon |
| Model_Predictions_v2018\FB_Model_Predictions_v2018 | Polygon |
| Model_Predictions_v2018\GV_Model_Predictions_v2018 | Polygon |
| Model_Predictions_v2018\HR_Model_Predictions_v2018 | Polygon |
| Model_Predictions_v2018\HR_Model_Predictions_v2018_p1 | Polygon |
| Model_Predictions_v2018\HR_Model_Predictions_v2018_p2 | Polygon |
| Model_Predictions_v2018\HR_Model_Predictions_v2018_p3 | Polygon |
| Model_Predictions_v2018\LB_Model_Predictions_v2018 | Polygon |
| Model_Predictions_v2018\MG_Model_Predictions_v2018 | Polygon |
| Model_Predictions_v2018\WA_Model_Predictions_v2018 | Polygon |
| Montgomery_County_Commissioner_Precincts | Polygon |
| Montgomery_County_Zones_4 | Polygon |
| ND\BZ_Parcels_2013 | Polygon |
| ND\CH_Parcels_2013 | Polygon |
| ND\FB_Parcels_2013 | Polygon |
| ND\GV_Parcels_2013 | Polygon |
| ND\HR_Parcels_2013 | Polygon |
| ND\LB_Parcels_2013 | Polygon |
| ND\MG_Parcels_2013 | Polygon |
| ND\WA_Parcels_2013 | Polygon |
| NGS_Control_Stations | Point |
| NLCD_IMPERVIOUSNESS_2001 | Raster |
| NLCD_IMPERVIOUSNESS_2006 | Raster |
| NLCD_IMPERVIOUSNESS_2011 | Raster |
| NLCD_IMPERVIOUSNESS_CHANGE_2001_TO_2006 | Raster |
| NLCD_IMPERVIOUSNESS_CHANGE_2006_TO_2011 | Raster |
| NLCD_LAND_COVER_1992_19_CLASS | Raster |
| NLCD_LAND_COVER_1992_19_CLASS_CORRECTED | Raster |
| NLCD_LAND_COVER_2001_15_CLASS | Raster |
| NLCD_LAND_COVER_2006_15_CLASS | Raster |
| NLCD_LAND_COVER_2011_15_CLASS | Raster |
| NLCD_LAND_COVER_CHANGE_1992_TO_2011_9_CLASS | Raster |
| NLCD_TREE_CANOPY_2001 | Raster |
| NOAA_LAND_COVER_1996_22_CLASS | Raster |
| NOAA_LAND_COVER_2001_22_CLASS | Raster |
| NOAA_LAND_COVER_2006_22_CLASS | Raster |
| NOAA_LAND_COVER_2011_15_CLASS | Raster |

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|---|---|
| NOAA_LAND_COVER_2011_22_CLASS | Raster |
| NOAA_LAND_COVER_CHANGE_1996_TO_2010 | Raster |
| NOAA_Surge_MOM_Galveston_Bay | Polygon |
| NOAA_Surge_MOM_Matagorda_Bay | Polygon |
| NTAD_Raillines | Polyline |
| Occupational_Analysis\BlockGroups_OccupationAnalysis | Polygon |
| Occupational_Analysis\Counties_OccupationAnalysis | Polygon |
| Occupational_Analysis\Tracts_OccupationAnalysis | Polygon |
| Parcels | Polygon |
| Parcels_2014 | Polygon |
| Ped_Bike_Destinations_2010 | Point |
| Ped_Bike_Destinations_2014 | Point |
| Ped_Bike_Destinations_2017 | Point |
| POHA_Ship_Channel | Polygon |
| RGF_2014_Q3\Census_Tracts | Polygon |
| RGF_2014_Q3\Nine_SQM_Grid | Polygon |
| RGF_2014_Q3\One_SQM_Grid | Polygon |
| RGF_2014_Q3\Transportation_Analysis_Zones_2954 | Polygon |
| RGF_2014_Q3\Transportation_Analysis_Zones_5217 | Polygon |
| RGF_2014_Q4\Census_Tracts_1 | Polygon |
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| RGF_2014_Q4\One_SQM_Grid_1 | Polygon |
| RGF_2014_Q4\Transportation_Analysis_Zones_2954_1 | Polygon |
| RGF_2014_Q4\Transportation_Analysis_Zones_5217_1 | Polygon |
| RGF_2016\Forecast_Census_Tracts | Polygon |
| RGF_2016\Forecast_H3M | Polygon |
| RGF_2016\Forecast_TAZ2954 | Polygon |
| RGF_2016\Forecast_TAZ5217 | Polygon |
| RGF_2017\Current_Future_Land_Use | Polygon |
| RGF_2017\Forecast_Census_Tracts_2017 | Polygon |
| RGF_2017\Forecast_H3M_2017 | Polygon |
| RGF_2017\Forecast_TAZ5217_2017 | Polygon |
| RGF_2018\Announced_Changes_v2018 | Polygon |
| RGF_2018\Forecast_Census_Tracts_v2018 | Polygon |
| RGF_2018\Forecast_H3M_v2018 | Polygon |
| RGF_2018\Forecast_TAZ5217_v2018 | Polygon |
| RGF_2018\Model_Predictions_v2018 | Polygon |
| RGF_2018\Parcel_Land_Use_2045_v2018 | Polygon |
| RGF_2018\Parcel_Land_Use_current_v2018 | Polygon |
| SEM_User_Input_Point | Point |
| SEM_User_Input_Polygon | Polygon |

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| SEM_User_Input_Polyline | Polyline |
| Solid_Waste\Closed_Landfill_Inventory | Point |
| Solid_Waste\HHW_Centers | Point |
| Solid_Waste\Landfill_Areas | Polygon |
| Solid_Waste\Landfills | Point |
| Solid_Waste\Recycling_and_HHW_Centers | Point |
| Solid_Waste\Recycling_Centers | Point |
| STARMap\HGAC_StarMap_Addresses | Point |
| STARMap\HGAC_StarMap_Centerlines | Polyline |
| STARMap\HGAC_StarMap_ZipCodes | Polygon |
| Strava_Bike_Usage | Polyline |
| TCEQ_Regions | Polygon |
| TEA_Education_Service_Regions | Polygon |
| TEA_School_Districts_2015 | Polygon |
| TEA_Schools_2015 | Point |
| Texas_Area_Codes | Polygon |
| Texas_Coastal_Bathymetry | Point |
| Texas_Coastal_Vignette | Polygon |
| Texas_Coastal_Zone_Boundary | Polygon |
| Texas_Coastline_Boundary | Polygon |
| Texas_COG_Boundaries | Polygon |
| Texas_Counties_Coastline | Polygon |
| Texas_Counties_Political | Polygon |
| Texas_Groundwater_Conservation_Districts | Polygon |
| Texas_Highways | Polyline |
| Texas_Hurricane_Evacuation_Routes | Polyline |
| Texas_Impairment_Streams_2008 | Polyline |
| Texas_Impairment_Waterbodies_2008 | Polygon |
| Texas_Major_Aquifers | Polygon |
| Texas_Major_Rivers | Polyline |
| Texas_Map_Extent | Polygon |
| Texas_Minor_Aquifers | Polygon |
| Texas_National_Forests | Polygon |
| Texas_National_Parks | Polygon |
| Texas_Natural_Regions | Polygon |
| Texas_Political_Boundary | Polygon |
| Texas_Senate_Board_of_Education_Districts | Polygon |
| Texas_Stream_Team_Monitoring_Sites_2016 | Point |
| Texas_Stream_Team_Monitoring_Sites_2018 | Point |
| Texas_Surface_Water_Rights_Diversion | Point |

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| TEXAS_TERRAIN_COLOR_MAP | Raster |
| Texas_Zip_Codes_2005 | Polygon |
| The_Woodlands_Pathways | Polyline |
| TMDL_Watersheds | Polygon |
| TPW_State_Parks | Polygon |
| TPWD_13_County_LWRCRP_conservation_and_recreation_lands | Polygon |
| TxDOT_Highway_Milemarkers | Point |
| TxDOT_State_House_Districts_2018 | Polygon |
| TxDOT_State_Senate_Districts_2018 | Polygon |
| TxDOT_US_House_Districts_2018 | Polygon |
| US_State_Boundaries | Polygon |
| USCB_ACS_2016_5Yr_Block_Groups | Polygon |
| USCB_ACS_2016_5Yr_Counties | Polygon |
| USCB_ACS_2016_5Yr_Places | Polygon |
| USCB_ACS_2016_5Yr_Tracts | Polygon |
| USCB_ACS_2016_5Yr_Zip_Codes | Polygon |
| USCB_BlockGroups_1990 | Polygon |
| USCB_BlockGroups_2000 | Polygon |
| USCB_BlockGroups_2010 | Polygon |
| USCB_Blocks_2000 | Polygon |
| USCB_Blocks_2010 | Polygon |
| USCB_Metropolitan_Statistical_Area | Polygon |
| USCB_Places_2000 | Polygon |
| USCB_Places_2000_Pts | Point |
| USCB_Places_2010 | Polygon |
| USCB_Places_2010_Pts | Point |
| USCB_PSAP_Prep_CDPs_and_Cities | Polygon |
| USCB_PSAP_Prep_Tracts | Polygon |
| USCB_School_Districts_2010 | Polygon |
| USCB_Texas_113th_Congressional_Districts | Polygon |
| USCB_Texas_Census_BlockGroups_1990 | Polygon |
| USCB_Texas_Census_BlockGroups_2000 | Polygon |
| USCB_Texas_Census_BlockGroups_2010 | Polygon |
| USCB_Texas_Census_Blocks_2000 | Polygon |
| USCB_Texas_Census_Blocks_2010 | Polygon |
| USCB_Texas_Census_School_Districts_2010 | Polygon |
| USCB_Texas_Census_Tracts_1990 | Polygon |
| USCB_Texas_Census_Tracts_2000 | Polygon |
| USCB_Texas_Census_Tracts_2010 | Polygon |
| USCB_Texas_Census_Urban_Areas_2009 | Polygon |
| USCB_Texas_State_House_Districts_2012 | Polygon |

| | |
|---|---|
| USCB_Texas_State_Senate_Districts_2012 | Polygon |
| USCB_Tracts_1970 | Polygon |
| USCB_Tracts_1980 | Polygon |
| USCB_Tracts_1990 | Polygon |
| USCB_Tracts_2000 | Polygon |
| USCB_Tracts_2010 | Polygon |
| USCB_Urban_Areas_1990 | Polygon |
| USCB_Urban_Areas_2000 | Polygon |
| USCB_Urban_Areas_2009 | Polygon |
| USCB_Urban_Areas_2010 | Polygon |
| USCB_Zip_Codes_2010 | Polygon |
| USFWS_15_County_Wetlands_2018 | Polygon |
| USFWS_Wetlands_2009 | Polygon |
| USFWS_Wetlands_2010 | Polygon |
| USFWS_Wetlands_2011 | Polygon |
| USFWS_Wetlands_2012 | Polygon |
| USGS_15_Minute_Quad | Polygon |
| USGS_24K_Quad | Polygon |
| USGS_DEM_10M | Raster |
| USGS_DOQQ_Grid | Polygon |
| USGS_HUC_10_Watersheds | Polygon |
| USGS_HUC_12_Sub_Watersheds | Polygon |
| USGS_HUC_6_Basins | Polygon |
| USGS_HUC_8_Sub_Basins | Polygon |
| USGS_River_Basins | Polygon |
| USGS_Stream_Gauges_2009 | Point |
| USGS_Stream_Gauges_2010 | Point |
| USGS_Stream_Gauges_2012 | Point |
| USGS_Stream_Gauges_2017 | Point |
| Walker_County_Commissioner_Precincts | Polygon |
| Waller_County_Commissioner_Precincts | Polygon |
| Wharton_County_Commissioner_Precincts | Polygon |
| World_Country_Boundaries | Polygon |

C&E Non-Spatial Data
Ambient Surface Water Quality Monitoring
Wastewater Self-reporting Data
Parcel-Based Land Use, Attributes, and Valuation (9 counties)
Census Data

**Appendix 6 Data Dictionary**

| Data Dictionary |
|---|
| **Houston-Galveston Area Council** |
| **Community and Environmental Planning Department** |

| General Information | | |
|---|---|---|
| Thematic Layer Name | | |
| Feature Class | | |
| Topology | | |
| Table Name | | |
| Data Source | | |
| Report Prepared by | | |
| Phone | Fax | E-Mail |

| Attribute Table | | | | |
|---|---|---|---|---|
| | | | | |
| Variable | Begin Column | Item Name | Alternate Name | Item Definition |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Data History |
|---|
| Source Agency |
| Originating Date |

| Originating Scale |
| --- |

| Status Information |
| --- |
| Percentage Complete |
| Planned Completion Date |
| Geographic Extent |
| Planned Enhancements |
| Known problems or limitations |

| Maintenance Information |
| --- |
| Maintaining Office/Division/Section |
| Contact Name |
| Contact Telephone Number |
| Type of updates performed |
| Frequency of Updates |

| Data Format Information |
| --- |
| |
| Data Format |
| Software/Version |
| Number of features/records |
| Total File Size |

| Projection |
|---|
| Geographic Projection: |
| Spheroid: |
| Zone: |
| Datum: |
| Units: |
| Fips Zone: |
| Quadrant: |
| X Shift: |
| Y Shift: |
| 1st Standard Parallel: |
| 2nd Standard Parallel: |
| Central Meridian: |
| Lat. of Projection Origin: |
| False Easting: |
| False Northing: |

| Additional Documentation |
|---|
| Quality Assurance Quality Control |
| Attribute Reports Available |
| Additional Documentation Available |

## Appendix 7 H-GAC GIS Data and Mapping Applications