Appendix I: Geospatial Data Management Plan

Geospatial Data Management Plan

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HOUSTON-GALVESTON AREA COUNCIL

Community & Environmental Planning Department

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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.
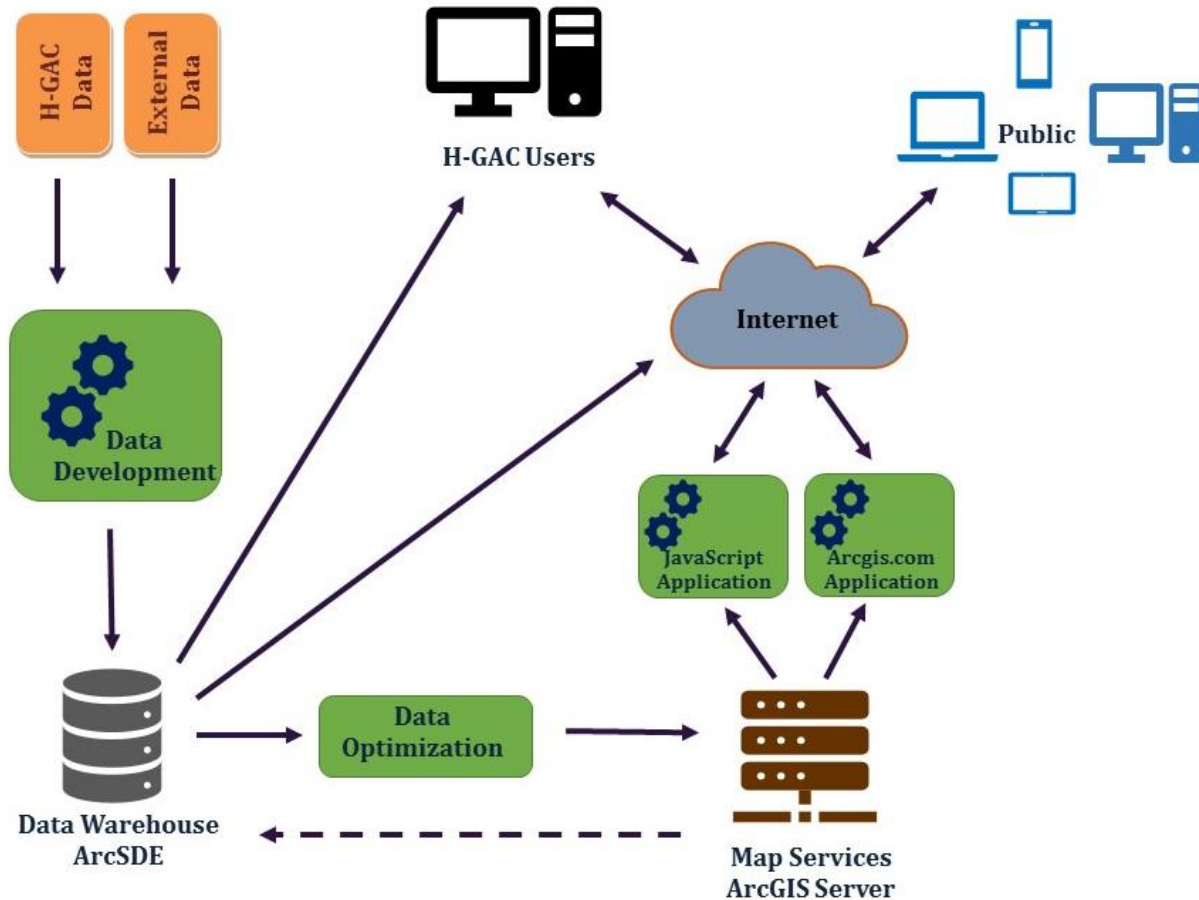

Figure 1: H-GAC Geospatial System Architecture

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.

Programming Languages
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.

Data
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.

<u>Personnel</u>
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.

<u>Training</u>
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.

<u>Budget</u>
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.
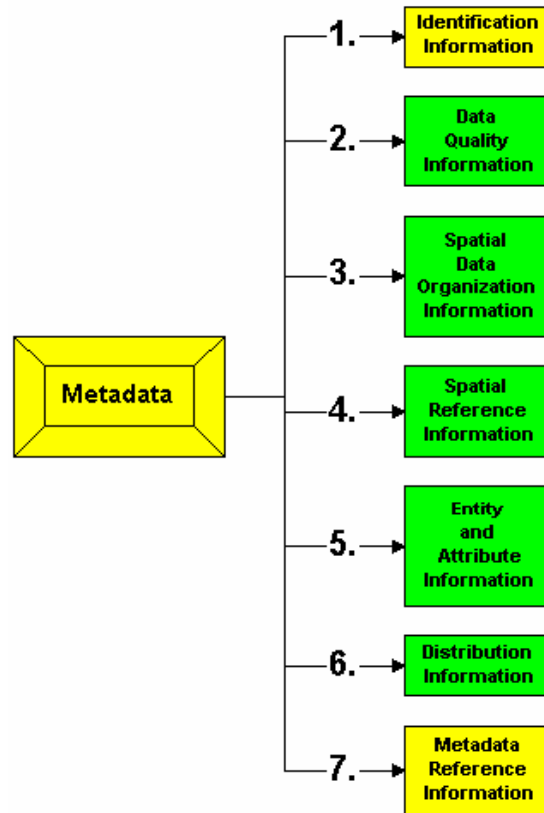
Figure 2: Elements of CSDGM Standards

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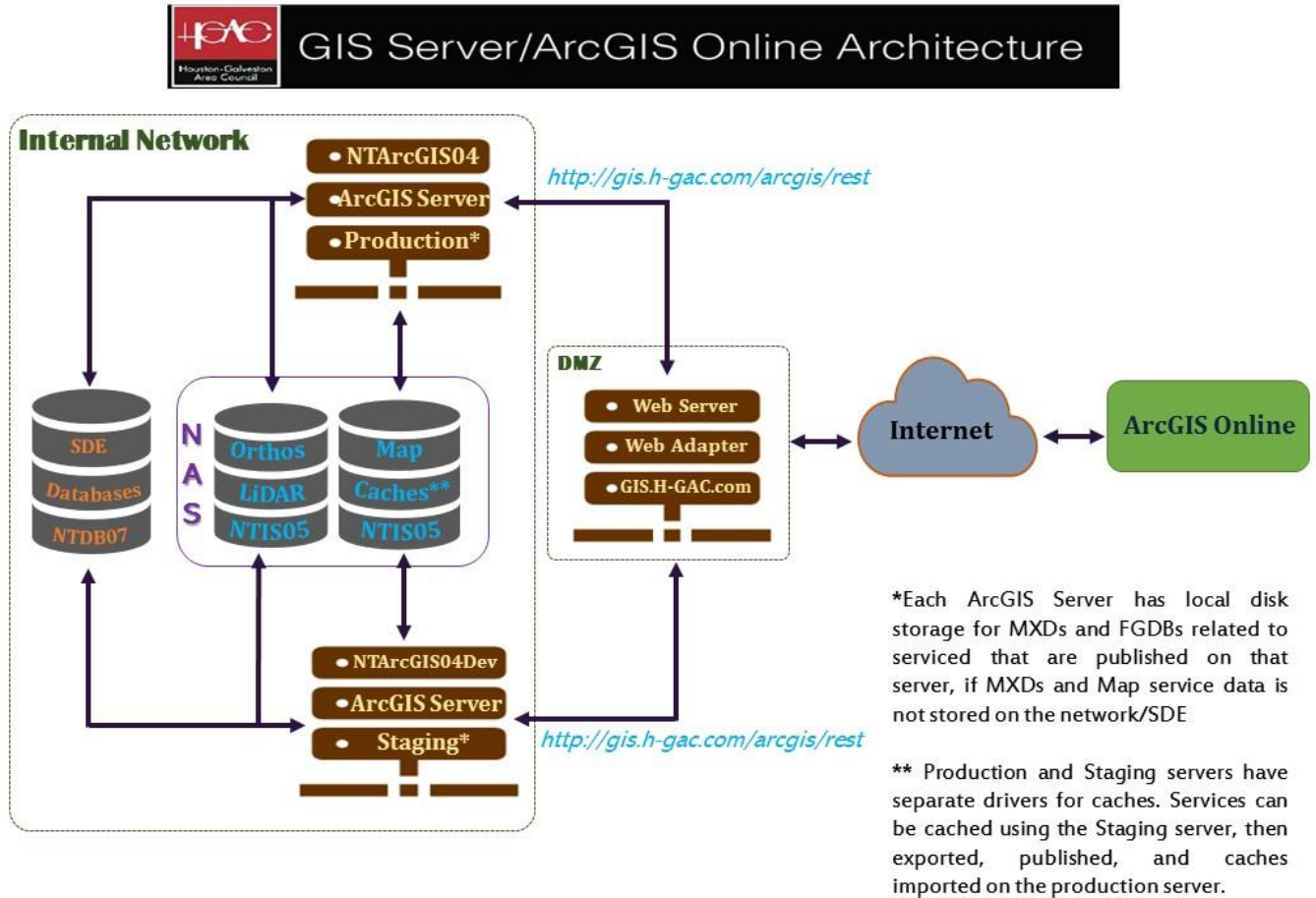
Plotters, Printers and Scanners
HP1055CM Plotter - Used by all H-GAC staff for large format printing of maps and schematics.
Xerox Workcenter 7845 and Cannon Advanced 4545 Printers and scanners. C&E maintains both printers.

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
HGAC_13_County_ACS_2016\Places_poly_2016	Polygon
HGAC_13_County_ACS_2016\Places_pt_2016	Point
HGAC_13_County_ACS_2016\Tracts_2016	Polygon
HGAC_13_County_ACS_2016\Zips_2016	Polygon
HGAC_13_County_ACS_2016_Blockgroup_summary	Polygon
HGAC_13_County_ACS_2017\BGs_2017	Polygon
HGAC_13_County_ACS_2017\BGs_Vulnerable_2017	Polygon
HGAC_13_County_ACS_2017\Counties_2017	Polygon
HGAC_13_County_ACS_2017\ISDs_2017	Polygon
HGAC_13_County_ACS_2017\Places_poly_2017	Polygon
HGAC_13_County_ACS_2017\Places_pt_2017	Point
HGAC_13_County_ACS_2017\Tracts_2017	Polygon
HGAC_13_County_ACS_2017\Zips_2017	Polygon
HGAC_13_County_ACS_2017_Housing\ACS_Housing_Counties_2017	Polygon
HGAC_13_County_ACS_2017_Housing\ACS_Housing_Places_2017	Polygon
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
HGAC_13_County_CRP_Monitoring_Stations_2012	Point
HGAC_13_County_CRP_Monitoring_Stations_2013	Point
HGAC_13_County_CRP_Monitoring_Stations_2014	Point
HGAC_13_County_CRP_Monitoring_Stations_2015	Point
HGAC_13_County_CRP_Monitoring_Stations_2016	Point
HGAC_13_County_CRP_Monitoring_Stations_2017	Point
HGAC_13_County_CRP_Monitoring_Stations_Historical	Point
HGAC_13_County_Districts	Polygon
HGAC_13_County_Ecological_Mapping_System_TPWD_2015	Polygon
HGAC_13_County_Farmland	Polygon
HGAC_13_County_Federal_Aid_Roads	Polyline
HGAC_13_County_FoodWaste_Composters	Point
HGAC_13_County_G1M	Polygon
HGAC_13_County_G3M	Polygon
HGAC_13_County_G5M	Polygon

HGAC_13_County_Grocery_Stores	Point
HGAC_13_County_Landfill_Areas	Polygon
HGAC_13_County_Landfill_Areas_Historical	Polygon
HGAC_13_County_Landfills	Point
HGAC_13_County_Landfills_Historical	Point
HGAC_13_County_Libraries	Point
HGAC_13_County_Libraries_Parcel_Xref	Table
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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
HGAC_13_County_Parks_Awards	Table
HGAC_13_County_Parks_Features	Table
HGAC_13_County_Parks_Parcels	Table
HGAC_13_County_Plats	Polygon
HGAC_13_County_Recycle_Centers	Point
HGAC_13_County_Service_Area_Boundaries	Polygon
HGAC_13_County_Service_Area_Boundaries_2013	Polygon
HGAC_13_County_Service_Area_Boundaries_2014	Polygon
HGAC_13_County_Service_Area_Boundaries_2015	Polygon
HGAC_13_County_Service_Area_Boundaries_2017	Polygon
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

HGAC_15_County_Wastewater_Outfalls_2017	Point
HGAC_15_County_Wastewater_Outfalls_Historical	Point
HGAC_15_County_Wastewater_Outfalls_Info	Table
HGAC_15_County_Water_Detailed_2018	Polygon
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

HGAC_8_County_Water	Polygon
HGAC_Airport_Runways	Polygon
HGAC_Airport_System	Point
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
HGAC_Counties_Coastline	Polygon
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

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_Res700reviors	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
HGAC_Workforce_DARS	Point
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

HGAC_Workforce_Solutions\HGAC_Workforce_Solutions_Offices_10mi_Demographics	Polygon
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
HGAC_Zip_Codes_2000	Polygon
HGAC_Zip_Codes_2002	Polygon
HGAC_Zip_Codes_2005	Polygon
HGAC13_CountyTest	Polygon
Houston_Bcycle_Stations_2018	Point
HR_Buildings_2013	Table
HR_Parcels_2014	Polygon
InfoGroup_Businesses_2014	Point
InfoGroup_Businesses_2015	Point
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
InfoGroup_Businesses_Suspect_2015	Point
InfoGroup_Businesses_Suspect_2016	Point
InfoGroup_Businesses_Suspect_2017	Point
InfoGroup_Businesses_Suspect_2018	Point
InfoGroup_Consumers_2014	Point
InfoGroup_Consumers_2015	Point
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

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
Model_Parcels	Polygon
Model_Parcels_2014	Polygon
Model_Parcels_2017	Polygon
Model_Parcels_AcctNums	Table
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

Model_Parcels_Rural	Polygon
Model_Predictions_2018	Polygon
Model_Predictions_v2018\BZ_Model_Predictions_v2018	Polygon
Model_Predictions_v2018\CH_Model_Predictions_v2018	Polygon
Model_Predictions_v2018\FB_Model_Predictions_v2018	Polygon
Model_Predictions_v2018\GV_Model_Predictions_v2018	Polygon
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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

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
RGF_2014_Q4\Nine_SQM_Grid_1	Polygon
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

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

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