



# **GIS DATA AT BRIDGE DIVISION**

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# Background

- The Bridge feature service is a public facing GIS dataset that is hosted over the internet via ArcGIS Online.
  - Updated every month with the most current inspection data from AssetWise (previously called InspectTech).
- Allows other TxDOT web applications to consume our bridge data along side other important datasets (Projects, AADT, NHS, etc.).
  - Currently consumed by the Statewide Planning Map and the TxDOT Open Data Portal.
- Publishing this dataset to ArcGIS Online allows any user to view and/or download Bridge Division's current inspection records.

# ArcGIS Online

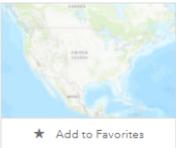
- Allows any GIS user to search, find, and download bridge data based on tags and key words.
- Users can manipulate data in the feature service for their own analysis, map creation, and configuration of web applications.
- The metadata section provides important information for the data
  - Data Last Updated, Bridge Coding Guide, Data Dictionary

The screenshot shows the ArcGIS Online metadata page for a feature service named 'TxDOT Bridges'. The page has a blue header with the title and an 'Edit' link. Below the header are tabs for 'Overview', 'Data', 'Visualization', 'Usage', and 'Settings'. The 'Overview' tab is active, showing a map thumbnail of Texas, a description of the dataset, and a list of actions. The description states that the dataset is a statewide point dataset of bridge locations maintained by the Bridge Division of TxDOT, including both on-system and off-system bridges. It also mentions that the data includes National Bridge Inspection (NBI) data fields. The 'Actions' list includes 'Open in Map Viewer', 'Open in Scene Viewer', 'Open in ArcGIS Desktop', 'Publish', 'Create View Layer', 'Export Data', 'Update Data', 'Share', and 'Metadata'. The 'Item Information' section shows a green progress bar indicating the data is valid as of September 2018. The 'Description' section includes a link to the 'Bridge Coding Guide' and the 'Bridge Data Dictionary', which are circled in red in the image.

**TxDOT Bridges** [Edit](#)

Overview Data Visualization Usage Settings

[Edit Thumbnail](#)

 A statewide point dataset of Bridge locations maintained by the Bridge Division of TxDOT. Data includes both On-system and Off-system bridges from the statewide asset inventory database with all National Bridge Inspection (NBI) data fields included.

Feature Layer (hosted) by BRG\_GIS

Created: Jun 19, 2018 Updated: Sep 20, 2018 View Count: 383

[Add to Favorites](#)

[Authoritative](#)

**Description** [Edit](#)

The Bridge dataset was developed using data provided by the computerized Bridge Inventory, Inspection and Appraisal Files. The Bridge Inspection Database contains a record for each Bridge Structure on public roadways in Texas. This includes Bridges maintained by TxDOT, Metropolitan Planning Organizations, Toll Authorities, Counties, and Municipalities. Bridge Inventory, Inspection and Appraisal data is the primary source used to update the National Bridge Inspection File (NBI) in Washington. For more information on Bridge attribute data, please consult the Bridge Inspection Coding Guide and the Bridge Data Dictionary found at the links below:

[Bridge Coding Guide](#)

[Bridge Data Dictionary](#)

Date valid as of: Septemeber 2018

[Open in Map Viewer](#)

[Open in Scene Viewer](#)

[Open in ArcGIS Desktop](#)

[Publish](#)

[Create View Layer](#)

[Export Data](#)

[Update Data](#)

[Share](#)

[Metadata](#)

Item Information [Learn more](#)

Low High

## Details

Source: [Feature Service](#)

Created from: [TxDOT Bridges](#), Service

Definition

Data Last Updated: Sep 20, 2018, 8:18:33 AM

Size: 73 MB

Shared with: Everyone (public)

★★★★★



## Owner



## Folder



[Move](#)

## Tags

[Edit](#)

[Bridges, On-System, Off-System, Operational Status, Infrastructure, Assets](#)

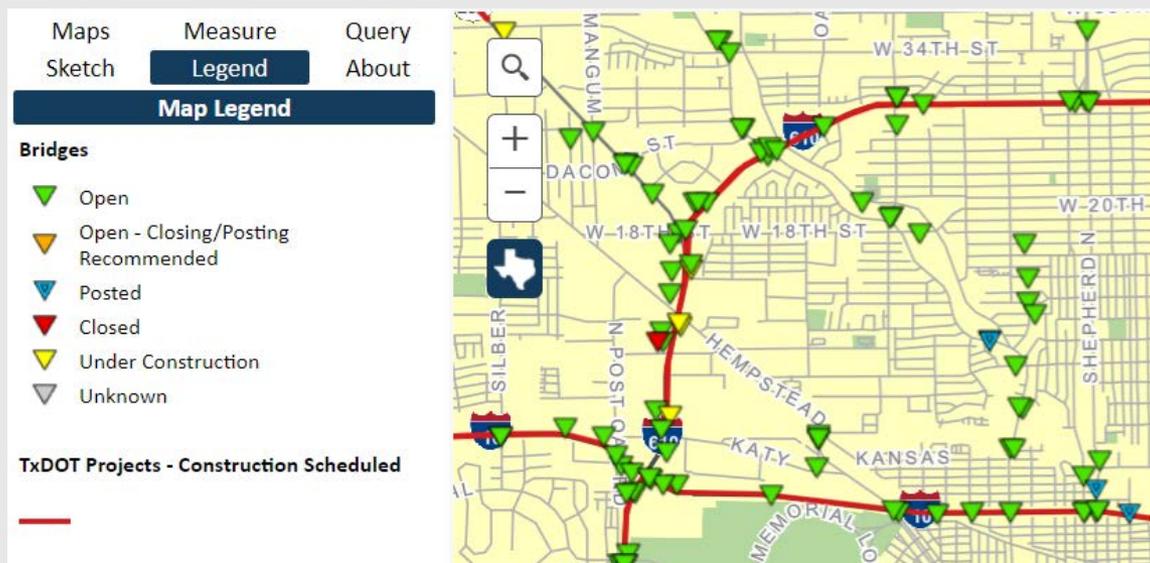
## Credits (Attribution)

[Edit](#)

Bridge Division - Field Operations Section -  
Bridge Information Management

# Statewide Planning Map

- References the TxDOT Bridge layer on AGO
- Structures are symbolized based on their current operational status.
- Users can view structures in relation to other features, such as construction scheduled projects.



Bridge: (1 of 2)

See the [Bridge Coding Guide](#) for descriptions of each coded domain value.

Bridge ID	142270B00425007
Operational Status	Open
Facility Carried	S CONGRESS AVE
Feature Crossed	LADY BIRD LAKE
Location	0.1 MI S OF CESAR CHAVEZ
Latitude	30.25990771
Longitude	-97.74576499999999
Deck	8
Superstructure	7
Substructure	6
Culvert	N
Structural Evaluation	6
Deck Geometry	2
Underclearances, Vertical and Horizontal	N
Waterway Adequacy	9
Approach Roadway Alignment	8
Year Built	1909
Year Reconstructed or Widened	1980
Structure Length	954
NBIS Bridge Length	Y

[Zoom to](#)

# Open Data Portal

- The Open Data Portal is the primary source for downloading TxDOT's official GIS datasets.
- All "Authoritative" datasets meet TxDOT's GIS governance standards.
- The complete Bridge NBI dataset is available for downloading at this location.
  - Spreadsheet, KML, Shapefile, File Geodatabase

The screenshot shows the TxDOT Open Data Portal interface. At the top, there is a search bar with 'bridges' entered and a 'My Data' button. Below the search bar is a map of Texas with various regions highlighted in green and blue. The 'Data' tab is selected, and the 'Bridges' dataset is displayed. The 'Download' button is circled in red. Below the map, there is a section titled 'TxDOT Bridges' with a 'Data' tab selected. The 'Download' button is circled in red. Below the 'Download' button, there is an 'About' section with the following text: 'Texas Department of Transportation Open Data. Shared By: BRG\_GIS. Data Source: services.arcgis.com. View Metadata. Create Webmap. Create a Story Map.' Below the 'About' section, there is an 'Attributes' section with a table of attributes.

Attribute Name	Attribute Type
ABUTMENT_PROT	Text
ADT	Number
ADT_TRK	Number
ADT_YR	Number
APPRS_RTNG_APRCH_RDWAY_ALGN	Text
APPRS_RTNG_BRDG_POST	Text
APPRS_RTNG_DECK_GMTRY	Text
APPRS_RTNG_STRUC_EVAL	Text

The screenshot shows the TxDOT Open Data Portal homepage. The header includes the TxDOT logo and the text 'TEXAS DEPARTMENT OF TRANSPORTATION'. The main heading is 'OPEN DATA PORTAL' with the subtitle 'YOUR GATEWAY TO TXDOT GIS DATA'. Below the heading is a search bar with the placeholder text 'Enter Search Criteria'. A welcome message reads: 'Welcome to the Texas Department of Transportation's open data portal. The portal is the agency's platform for exploring and downloading GIS datasets. Search for data using keywords or categories to quickly view and display content. The portal allows users to view datasets on a map, filter data using queries, and download data in various formats. Want to learn more? View our datasets using tools like the Statewide Planning Map and Project Tracker.' At the bottom, there is a navigation bar with icons for 'TxDOT.GOV', 'Statewide Planning Map', 'Project Tracker', 'Data Dictionary', 'Training', and 'Maps'.

The screenshot shows the 'EXPLORE GIS DATA' section of the TxDOT Open Data Portal. It features a grid of 10 categories, each with an icon and a brief description:

- ALL**: View all datasets.
- ASSETS**: Find roadway assets like reference markers and speed limits.
- BOUNDARIES**: View boundary datasets such as TxDOT districts, city limits, counties, legislative and congressional districts.
- HIGHWAY PERFORMANCE & REPORTS**: Explore the end-of-year roadway inventory, top 100 most congested roadways, and more.
- INFRASTRUCTURE**: Find datasets on infrastructure like facilities, airports, seaports, etc.
- PLANNING**: Explore planning datasets including projects, freight networks, and MPOs.
- PROJECTS**: Find planned and upcoming roadway projects.
- ROADWAYS**: View our roadway and network datasets, such as control sections, memorial highways, and national highway system.
- SAFETY**: Explore safety-related data including speed limits, guardrails, and hurricane evacuation routes.
- TRAFFIC**: Find traffic-related data such as permanent count stations, annual average daily traffic, and congestion.

# Comparison

## ArcGIS Online

- Allows GIS users inside and outside of TxDOT to search, find, and download Bridge data for their organization's benefit.
- Promotes data sharing between Divisions/Districts as this is an easy method for individuals outside of BRG to access our data.
- Provides an alternate source other than InspectTech for viewing Bridge data.

## Statewide Planning Map

- Allows a more generalized map view of structure locations and their operational status.
- Allows Bridge data to be viewed with other TxDOT spatial data.

## Open Data Portal

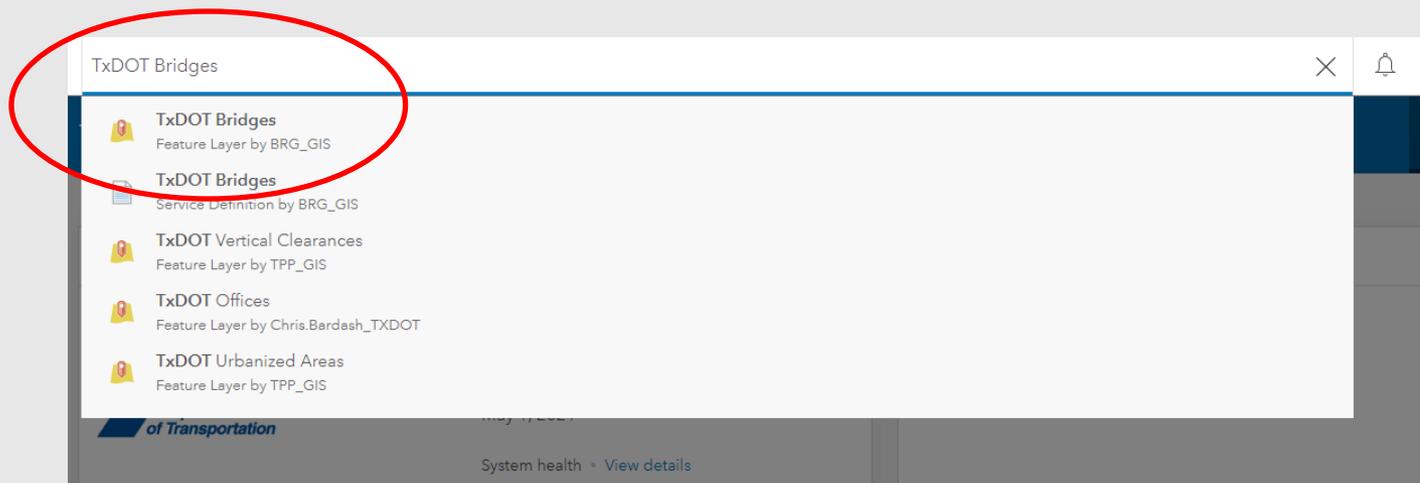
- Allows user to download complete NBI dataset.
- Provides a link to the Bridge Inspection Coding Guide for users to better interpret the data.
- Provides a link to a data dictionary that translates field names from items to descriptions.
- Available for download in a spreadsheet, shapefile, KML, or geodatabase format.

## Why is this important?

- Bridge data for the state of Texas is more accessible than ever before, thus, improving planning and coordination efforts for all TxDOT Divisions/Districts and other outside entities.

# Downloading Bridge Data – Option #1 (ArcGIS Online)

- Navigate to the following link:  
<https://www.arcgis.com/>
- Click the “Sign In” tab if you have already acquired a login
  - Follow the steps on the next slide for obtaining a login to ArcGIS Online
- Once signed in, click the search icon at the top of the screen and type “TxDOT Bridges”
- Click the option that reads “Feature Layer by BRG\_GIS”



# Downloading Bridge Data – Option #1 (ArcGIS Online)

- If you do not have a login to ArcGIS Online, you will need to complete the following steps:
  - Consultants will need to request a TxDOT account
  - Next, a network access request will need to be submitted in TxDOT Now
  - Finally, NTT Data will grant read-only access to TxDOT's ArcGIS Enterprise license
  - Note: Without a login, you will only be able to view the data without an option for downloading
- Primary contact for all GIS support is Jason Henderson with NTT Data
  - [Jason.Henderson@nttdata.com](mailto:Jason.Henderson@nttdata.com)

# Downloading Bridge Data – Option #1 (ArcGIS Online)

- You will find important information about the data layer on the “Overview” page:
  - Description provides a brief summary about how and where the data is published
    - Contains a link to the bridge coding guide
    - Contains a link to a data dictionary that will translate data fields into the familiar “Item” format
  - “Date valid as of” and “Updated” elements will tell you when the data was last updated (regularly updated monthly around the 15<sup>th</sup>)
  - “Tags” provide key words that will allow the data layer to be easily searchable
  - “Credits” tell you who owns the data
  - “URL” allows you to send/embed a link to the data
  - “Terms of Use”

**TxDOT Bridges** Edit

Edit Thumbnail

A statewide point dataset of Bridge locations maintained by the Bridge Division of TxDOT. Data includes both On-system and Off-system bridges from the statewide asset inventory database with all National Bridge Inspection (NBI) data fields included. Edit

Feature Layer (hosted) by BRG\_GIS

Created: Jun 19, 2018 Updated: Jul 15, 2019 View Count: 1,996

★ Add to Favorites

✔ Authoritative

**Description** Edit

The Bridge dataset was developed using data provided by the Bridge Inspection Database. The Bridge Inspection Database contains a record for each Bridge Structure on public roadways in Texas. This includes Bridges maintained by TxDOT, Toll Authorities, Counties, Municipalities, and other jurisdictions. Bridge Inspection data is the primary source used to update the National Bridge Inspection File (NBI) in Washington. For more information on Bridge attribute data, please consult the Bridge Inspection Coding Guide and the Bridge Data Dictionary found at the links below:

[Bridge Coding Guide](#)  
[Bridge Data Dictionary](#)

Date valid as of: July 2019

Publish Date: July 2019

Update Frequency: As needed

Security Level: Public

**Tags** Edit

Bridges, On-System, Off-System, Operational Status, Infrastructure, Assets

**Credits (Attribution)** Edit

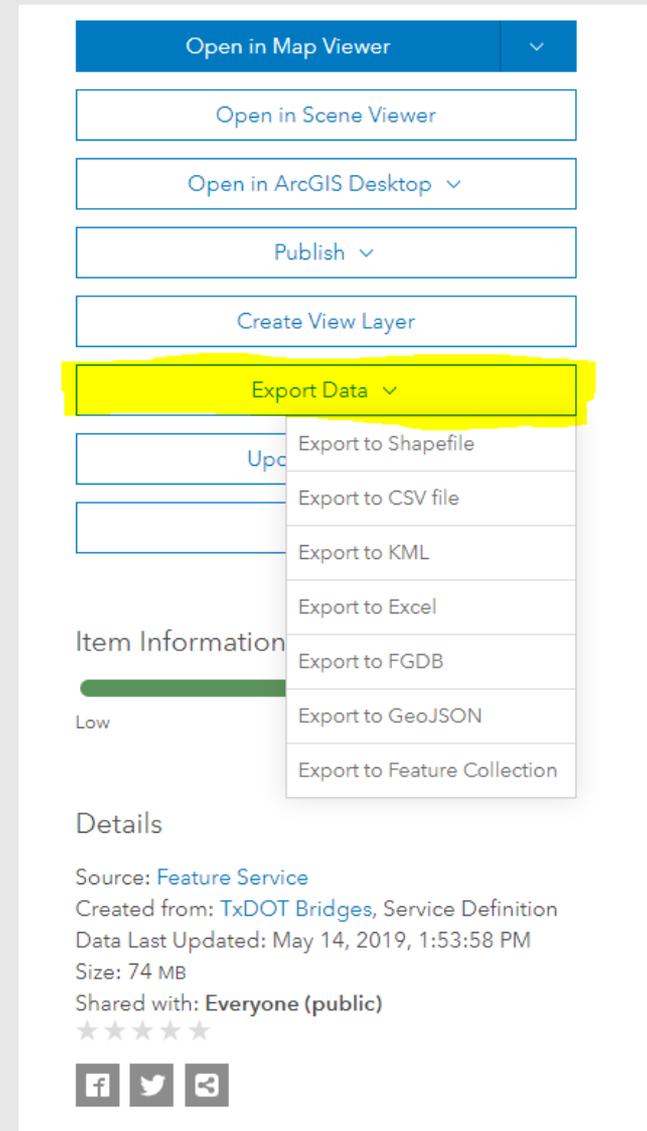
Bridge Division - Bridge Management Section - Information Management Group

**URL** View

<https://services.arcgis.com/KTcxITD9dsQv> 📄

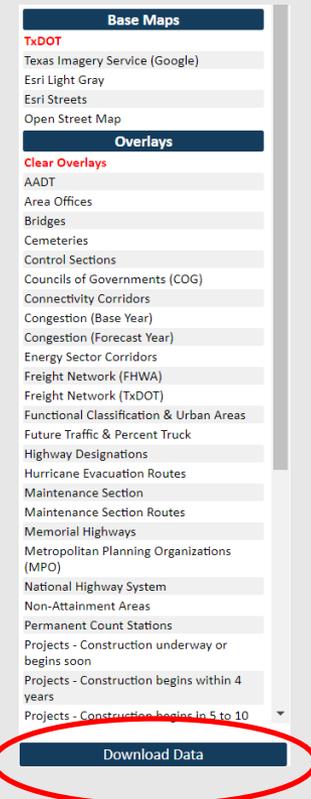
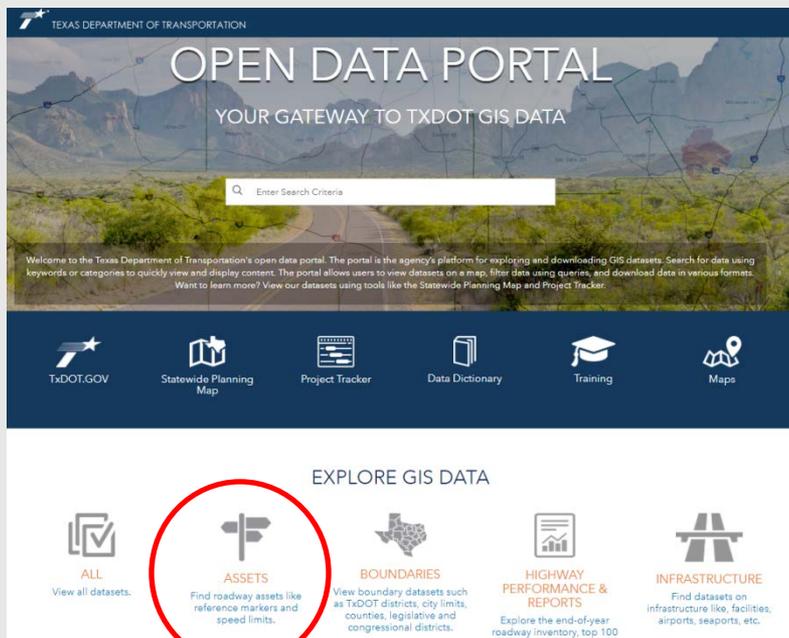
# Downloading Bridge Data – Option #1 (ArcGIS Online)

- In the top right of the page, you will find several options for viewing the data:
  - *Open in Map Viewer*: opens the data in an online map
  - *Open in Scene Viewer*: opens the data in an online 3D map
  - *Open in ArcGIS Desktop*: opens the data in an .mxd document
    - Must have ArcGIS Desktop installed on computer
- Under the viewing options, the option to download is available via “Export Data”. Click this option and choose the preferred data format:
  - Shapefile
  - CSV
  - KML
  - Excel
  - FGDB (File Geodatabase)
  - GeoJSON
  - Feature Collection



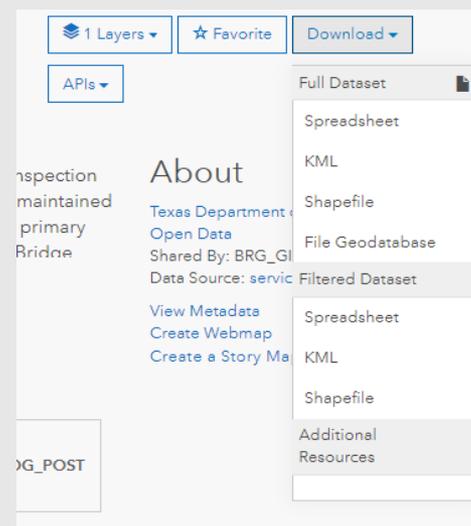
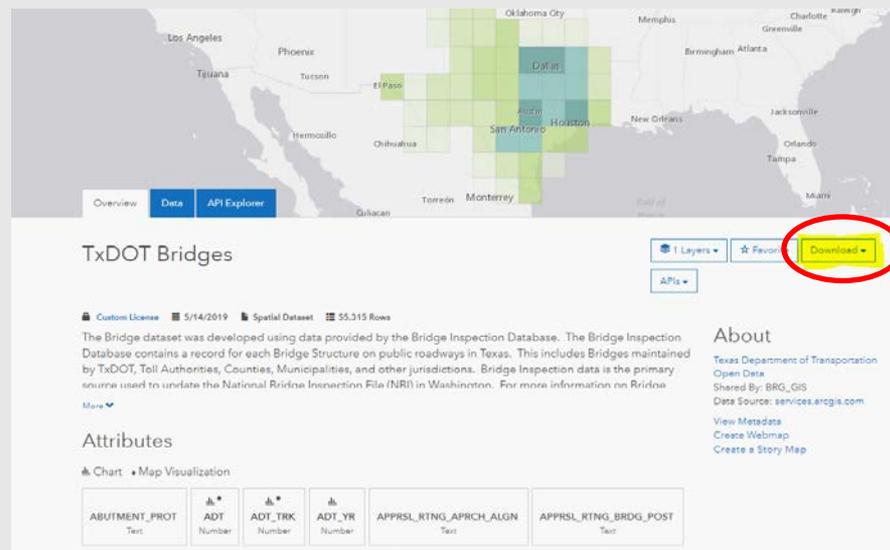
# Downloading Bridge Data – Option #2 (Open Data Portal)

- Navigate to the following link: <http://gis-txdot.opendata.arcgis.com/>
- Type “TxDOT Bridges” in the search box and click the result that matches the search criteria
- If this doesn’t work, you can find the data layer residing under “Assets”
  - Scroll down and click “TxDOT Bridges”
- You can also access the TxDOT Bridges layer on the Open Data Portal through the Statewide Planning Map’s left toolbar



# Downloading Bridge Data – Option #2 (Open Data Portal)

- Click the box with a dropdown arrow labeled “Download”
- There are four options for downloading the dataset:
  - *Spreadsheet* – provides the data in an excel document
    - If downloading as a spreadsheet, you will need to process the “Bridge ID” field to get it in familiar format
  - *KML* – provides the data in Google Earth format
  - *Shapefile* – provides the data in a shapefile to be consumed in GIS software
  - *File Geodatabase* – provides the data in a file geodatabase to be consumed in GIS software
- After downloading, the user will be able to query and manipulate the data to meet their needs



# Downloading Bridge Data – Option #2 (Open Data Portal)

- If you have downloaded the TxDOT Bridges dataset to a spreadsheet from the Open Data Portal, follow these steps:
  - The “BRDG\_ID” field loses its text format which incorrectly alters the structure ID’s
  - Highlight the “BRDG\_ID” column > right click and choose “Format Cells”
  - Choose the option for “Custom” located under the Category section

The screenshot shows an Excel spreadsheet with a 'Format Cells' dialog box open. The dialog box is set to the 'Custom' category, and the 'Type' field contains '00000000000000000000'. The spreadsheet background shows columns for BRDG\_ID, STATE\_HV, CNTY\_CD, CNTY\_RD, CITY\_ST\_N, INV\_RTE, PERM\_BR, DUP\_RTE, and STRUC\_FU DSGN.

	D	E	F
1	<b>BRDG_ID</b>	<b>STATE_HVY_DEPT_DIST</b>	<b>CNTY_CD</b>
2	011130001002122	1	113
3	011130001002123	1	113
4	011130001002124	1	113
5	011130001002125	1	113
6	011130AA0508001	1	113
7	011130AA0512001	1	113
8	011130AA0518001	1	113
9	011130AA0528002	1	113
10	011130AA0529001	1	113

- In the “Type” box, input “00000000000000000000”
  - (fifteen 0’s)
- This will fix the broken structure numbers

# Downloading Bridge Data – Option #2 (Open Data Portal)

You can also access all of TxDOT's authoritative datasets with the Open Data Portal downloading method!!

- Assets
- Boundaries
- Highway Performance & Reports
- Infrastructure
- Planning
- Projects
- Roadways
- Safety
- Traffic

**Data**

**TxDOT Texas Highway Freight Network**  
Texas Department of Transportation | TPP\_GIS

The Texas Highway Freight Network is designated by TxDOT, and it is not constrained by mileage limits or inclusion criteria set forth at the federal level. The foundation of the Texas Highway...

Type: Feature Layer  
Last Updated: February 11, 2019

Rows: 3,446  
Tags: TxDOT, Freight, Texas Highway Freight Network, Freil...

**Data**

**TxDOT Highway Designations**  
Texas Department of Transportation | TPP\_GIS

The Transportation Planning and Programming (TPP) Division of the Texas Department of Transportation (TxDOT) created and maintains this dataset as a repository for all highway...

Type: Feature Layer  
Last Updated: September 13, 2017

Rows: 995  
Tags: Highway Performance, Highway Referencing Systema...

**Data**

**TxDOT Projects**  
Texas Department of Transportation | TPP\_GIS

The TxDOT Planned Projects service layer is a dataset of roadway construction and maintenance projects that are either currently under construction, or are in some phase of the planning...

Type: Feature Layer  
Last Updated: May 31, 2019

Rows: 15,911  
Tags: TxDOT, TPP, Projects, TxDOT Projects, TxDOT Plann...

**Data**

**TxDOT Control Sections**  
Texas Department of Transportation | TPP\_GIS

A control section is a unique identifier for individual segments of a roadway. Historically control sections were only assigned to on-system, or state-maintained, highways, and were created as a...

Type: Feature Layer  
Last Updated: May 30, 2019

Rows: 518,134  
Tags: Texas, TxDOT, TPP, Control Section, Highway Referen...

**Data**

**TxDOT Median Width**  
Texas Department of Transportation | TPP\_GIS

The Median Width asset is the measured width (in feet) of a raised or grassy median. Medians are paved or landscaped areas in the middle of roadways that separate traffic traveling in opposite...

**Data**

**TxDOT Highway Designations**  
Texas Department of Transportation | TPP\_GIS

The Transportation Planning and Programming (TPP) Division of the Texas Department of Transportation (TxDOT) created and maintains this dataset as a repository for all highway...

Type: Feature Layer  
Last Updated: September 13, 2017

Rows: 995  
Tags: Highway Performance, Highway Referencing Systema...

**Data**

**TxDOT Top 100 Congested Roadways**  
Texas Department of Transportation | TPP\_GIS

Each year, the Transportation Planning and Programming (TPP) Division of the Texas Department of Transportation (TxDOT) contracts with Texas A&M Transportation Institute (TTI) to identify and...

Type: Feature Layer  
Last Updated: November 12, 2018

Rows: 100  
Tags: TxDOT, Planning, Traffic, Congestion, TPP, Texas, Hig...

**Data**

**TxDOT National Highway System**  
Texas Department of Transportation | TPP\_GIS

The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility (Interstates, Other Principal Arterials, Strategic Highway Network, Major...

Type: Feature Layer  
Last Updated: November 26, 2018

Rows: 1,540  
Tags: TxDOT, Texas, TPP, National Highway System, NHS, M...

**Data**

**TxDOT Future Congestion**  
Texas Department of Transportation | TPP\_GIS

Quantifying and communicating congestion on highways and local streets in Texas is challenging. A clear, replicable, and easily understandable method is required to help manage...

Type: Feature Layer  
Last Updated: September 17, 2018

Rows: 1,794  
Tags: Texas, TxDOT, Congestion, Traffic, AADT, Car Space, ...

**Data**

**TxDOT Functional Classification**  
Texas Department of Transportation | TPP\_GIS

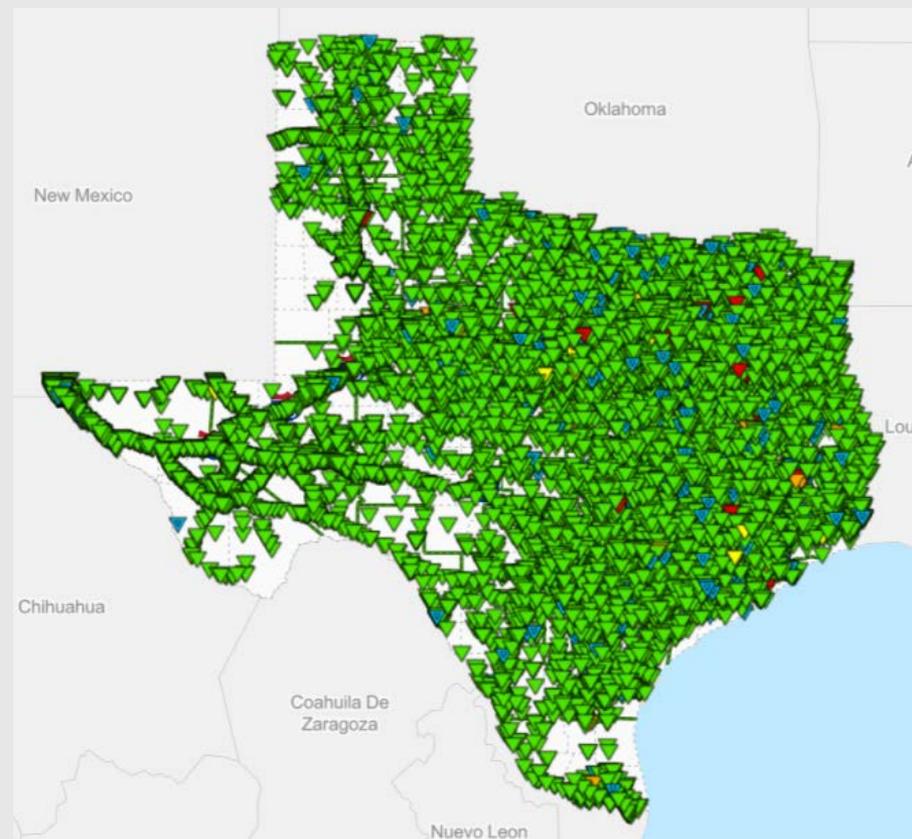
Roadways are evaluated and classified every ten years based on the level of traffic service and degree of access they provide. Updated July 2017 to reflect edits provided by the Federal...

EXPLORE GIS DATA

<b>ALL</b> View all datasets.	<b>ASSETS</b> Find roadway assets like reference markers and speed limits.	<b>BOUNDARIES</b> View boundary datasets such as TxDOT districts, city limits, counties, legislative and congressional districts.	<b>HIGHWAY PERFORMANCE &amp; REPORTS</b> Explore the end-of-year roadway inventory, top 100 most congested roadways, and more.	<b>INFRASTRUCTURE</b> Find datasets on infrastructure like facilities, airports, seaports, etc.
<b>PLANNING</b> Explore planning datasets including projects, freight networks, and MPOs.	<b>PROJECTS</b> Find planned and upcoming roadway projects.	<b>ROADWAYS</b> View our roadway and network datasets, such as control sections, memorial highways, and national highway system.	<b>SAFETY</b> Explore safety-related data including speed limits, guardrails, and hurricane evacuation routes.	<b>TRAFFIC</b> Find traffic-related data such as permanent count stations, annual average daily traffic, and congestion.

# Resources

- ArcGIS Online Bridge Feature Service
  - <https://www.arcgis.com/home/item.html?id=83af0d2957ca4c2eb340e4bd04a1046f>
- TxDOT Statewide Planning Map
  - [https://www.txdot.gov/apps/statewide\\_mapping/StatewidePlanningMap.html](https://www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html)
- TxDOT Open Data Portal
  - <http://gis-txdot.opendata.arcgis.com/datasets/txdot-bridges>
- Downloading Bridge GIS Data
  - [Step-by-Step Directions](#)



# Questions?

## Contact Information:

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512-416-2220