

TABLEAU

CONFERENCE



#TC18

Bayou Tapestry | Mapping Threats to the Louisiana Coast

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Aerial video by the New York Times, produced by Grant Gold and Tim Wallace



William Widmer for The New
York Times

Hand-crafted 'spatial spreadsheet'

	A	B	C	D	E	F
1	City	State	Latitude	Longitude	StreetView	
2	New Orleans	Louisiana	29.9500	-90.0800	https://goo.gl/maps/FyWo3Yviwjx	
3	Cocodrie	Louisiana	29.2469	-90.6614	https://goo.gl/maps/f8J6RytRh1o	
4	Delacroix Island	Louisiana	29.7686	-89.7889	https://goo.gl/maps/Rv69dQ9tLYK2	
5	Grand Isle	Louisiana	29.2330	-90.0000	https://goo.gl/maps/RfABumWHzsj	
6	Isle de Jean Charles	Louisiana	29.3877	-90.4831	https://goo.gl/maps/jCu6YYBWFXr	
7	Kraemer	Louisiana	29.8669	-90.6969	https://goo.gl/maps/rrvyoiLTf182	
8	Leeville	Louisiana	29.2496	-90.2119	https://goo.gl/maps/cjFXB5fuWAq	
9	Paradis	Louisiana	29.8778	-90.4356	https://goo.gl/maps/rxLptu37giv	
10	Pointe-aux-Chenes	Louisiana	29.4909	-90.5200	https://goo.gl/maps/4BbLRJzTV1m	
11	Venice	Louisiana	29.2769	-89.3547	https://goo.gl/maps/nFictGTzptT2	
12	Jean Lafitte	Louisiana	29.7361	-90.1267	https://goo.gl/maps/hjjyHWBqeHM2	
13						

Well-curated, freely downloadable data



Coastal Protection and Restoration Authority

DOWNLOAD DATA - COASTAL MASTER PLAN GIS DATA



Datasets for the 2017 Coastal Master Plan include land change, flood risk, economic damage, coastal vegetation, social vulnerability, as well as the 2017 recommended restoration projects, structural protection projects, and nonstructural risk reduction projects.

2012 Master Plan

2017 Master Plan

Layer Order: ☒ Default ☐ Alphabetical



Nonstructural Projects

Download:

The intended use of this dataset is to provide the locations for nonstructural project areas and counts of associated mitigation measures recommended by the 2017 Coastal Master Plan. Mitigation measures include non-residential floodproofing, residential elevation, and residential voluntary acquisition. This dataset is meant to be used for generalized project location and aggregate structure...(more)

Extent: -93.907903 -89.351157 30.507601 29.188061

[More Info](#)

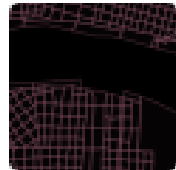
Tilesets in Mapbox, from CPRA shape files

17 tilesets



LA-as-Line-6po722

537 KB • Modified 15 days ago • Private



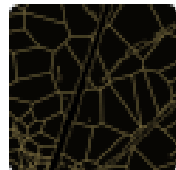
MP2012_Flood_Depths_1

21 MB • Modified a month ago • Private



JeanLafitteRingLevee-dl4zz0

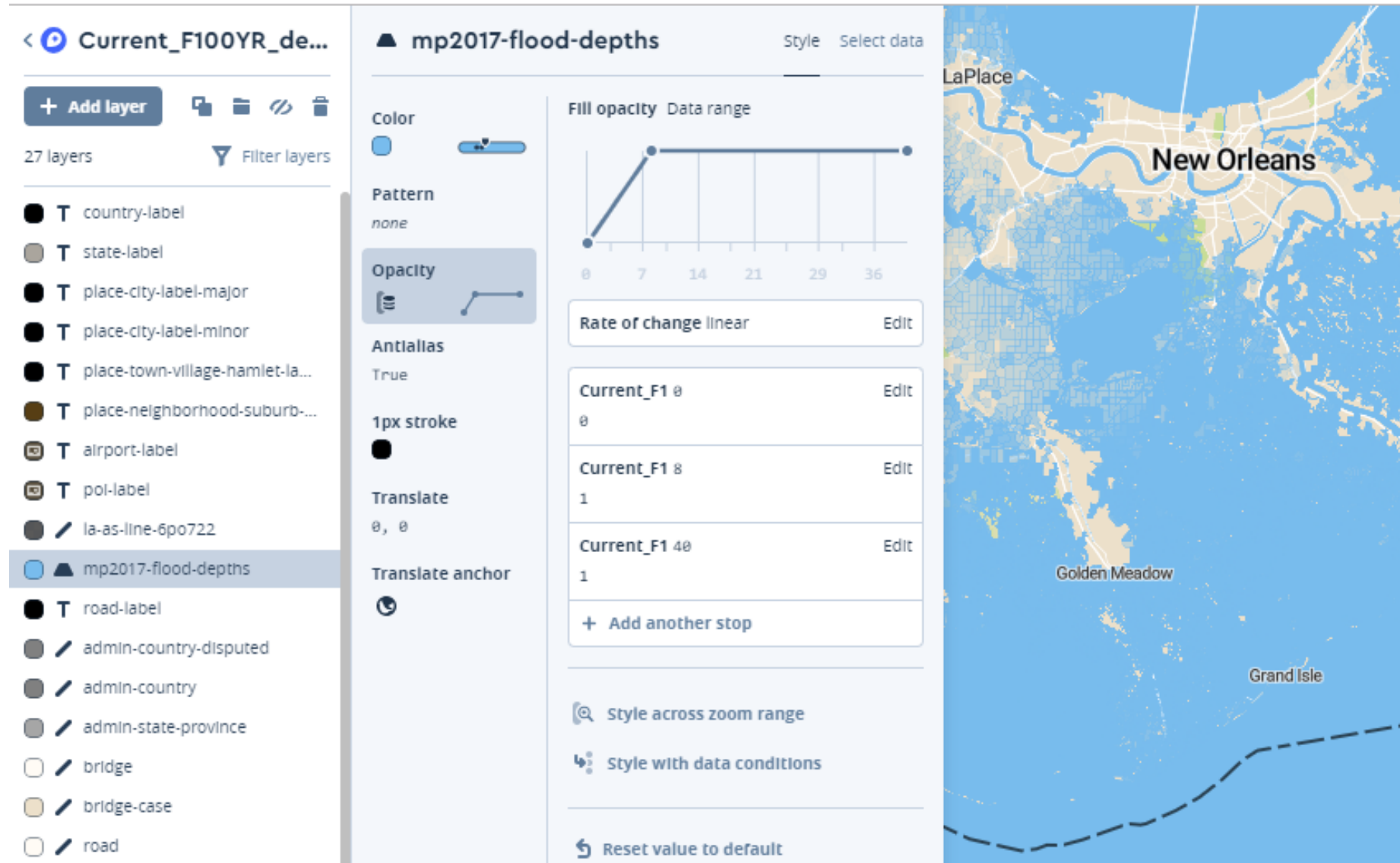
7 KB • Modified on Aug 30 • Private



MP2017_Flood_Depths_2

52 MB • Modified on Aug 29 • Private

In Mapbox Studio



Bing Maps, AI, machine learning -> buildings

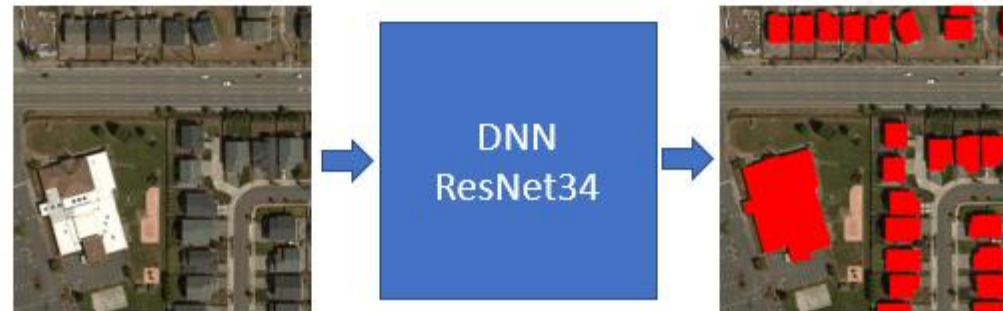
JUNE
28
2018

Microsoft Releases 125 million Building Footprints in the US as Open Data


Bing has made very significant investments in the area of deep learning, computer vision and artificial intelligence to support a number of different search scenarios. The Bing Maps team has been applying these techniques as well with the goal to increase the coverage of building footprints available for [OpenStreetMap](#). As a result, today we are announcing that we are releasing 124 Million building footprints in the United States to the OpenStreetMap community.

The Maps team has been relying on the Open Source [CNTK Unified Toolkit](#) which was developed by Microsoft. Using CNTK we apply our Deep Neural Networks and the ResNet34 with RefineNet up-sampling layers to detect building footprints from the Bing imagery.

First stage - Semantic Segmentation



500 megabytes of raw spatial data

Name	Date modified	Type	Size
 Louisiana.geojson	8/29/2018 10:36 AM	GEOJSON File	458,322 KB

Step 1 – Load **southern** Louisiana into SQL Server (1,140,000 rows)

```
ogr2ogr.exe -f "MSSQLSpatial" "MSSQL:server=my-mssql2016;database=MySpatial;trusted_connection=yes;"  
"Louisiana.geojson" -t_srs "EPSG:4326" -a_srs "EPSG:4326" -lco "GEOM_TYPE=geography" -lco  
"GEOM_NAME=Geometry" -progress -clipsrc -93.911601 28.909162 -88.950615 30.485868
```

Step 2 – Compose custom SQL command to create **points** with attributes

```
SELECT  
C.ogr_fid as id,  
C.Geometry.MakeValid().ReorientObject().EnvelopeCenter() as geom,  
C.Geometry.MakeValid().ReorientObject().STArea() as area  
FROM [TestSpatial].[dbo].[louisiana] C
```

Custom SQL

The screenshot shows the Tableau interface with a data source named "Custom SQL Query" connected to two files: "MP2017_Flood_Depths.shp" and "MP2017_Projects_Additional...". A blue arrow points from the "Custom SQL Query" box to the "Edit Custom SQL" dialog box.

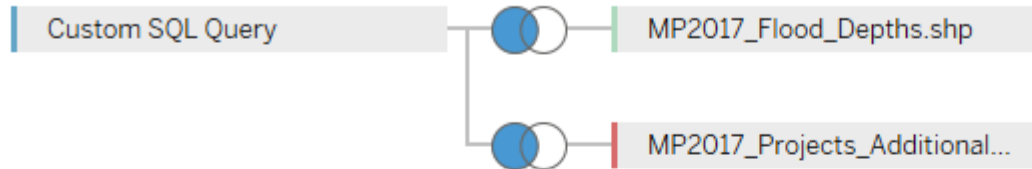
Edit Custom SQL

```
SELECT
C.ogr_fid as id,
C.Geometry.MakeValid().ReorientObject().EnvelopeCenter() as point_
NULL as line_geom,
C.Geometry.MakeValid().ReorientObject().STArea() as area,
NULL as prj_no
FROM [TestSpatial].[dbo].[louisiana] C
UNION ALL
SELECT
L.ogr_fid as id,
NULL as point_geom,
L.Geometry as line_geom,
NULL as area,
L.prj_no as prj_no
FROM [TestSpatial].[dbo].[mp2017_g500_structural_lines] L
```





The dialog box has a "Preview Results..." button, an "Insert Parameter" dropdown, and "OK" and "Cancel" buttons.

Below the dialog box, the Tableau interface shows a "Sort fields" button and a table with columns "id" and "point_geom". The table has a header row with "id" and "point_geom" and a data row with "id" and "point_geom".

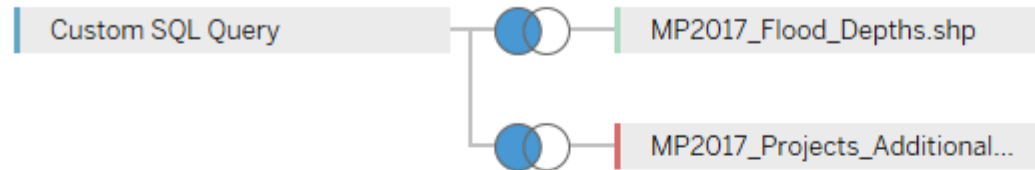
Spatial join







Join ✕

			
Inner	Left	Right	Full Outer
Data Source		MP2017_Flood_Depths...	
point_geom	Intersects	Geometry	
<i>Add new join clause</i>			

'Equals' Join



Join

Join Type			
 Inner	 Left	 Right	 Full Outer
Data Source		MP2017_Projects_Addi...	
prj_no	=	Project No	
<i>Add new join clause</i>			

Clipping data to a boundary

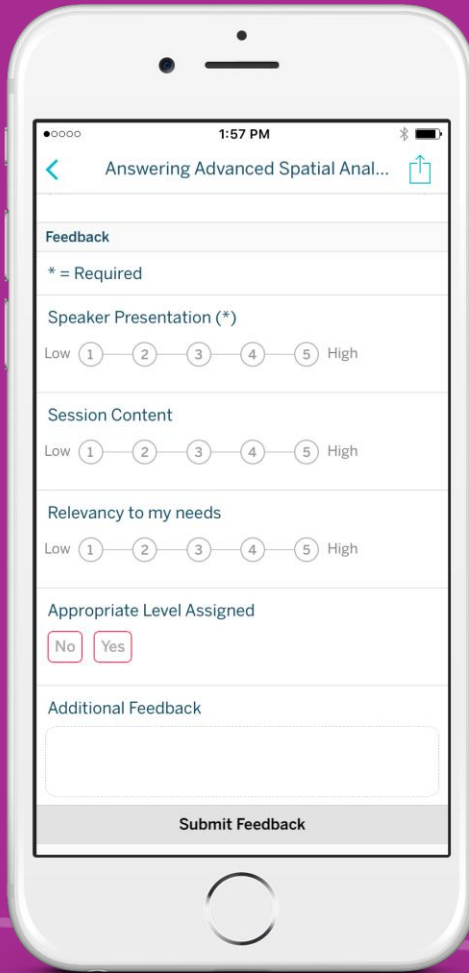
```
SELECT
C.ogr_fid as id,
C.Geometry.MakeValid().ReorientObject() as geom,
C.Geometry.MakeValid().ReorientObject().STArea() as area
FROM [TestSpatial].[dbo].[Louisiana] C
WHERE C.Geometry.MakeValid().ReorientObject().STIntersects(geography::STGeomFromText('POLYGON ((-90.1045 29.6503,-90.1036 29.6514, ...
29.6513,-90.1048 29.6498,-90.1045 29.6503))', 4326).STBuffer(1000))=1
AND C.Geometry.MakeValid().ReorientObject().STArea() < 10000
```



Thank you!

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Please complete the
session survey from the
Session Details screen
in your TC18 app

SESSION REPEAT

Bayou Tapestry | Mapping Threats to the Louisiana Coast

Thursday, October 25 | 10:45am – 11:45am | L2 - 270

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