

Syncing Traffic Incident Data Using FME

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Tessellations Inc.

- ▶ GIS services for the past 22 years
- ▶ Support full stack of Esri products – Desktop, Server, and Portal
- ▶ Software development, data management and manipulation, image processing, business intelligence and training
- ▶ Oil and Gas, Local and State government
- ▶ Partners – Esri, Safe software (FME), Planet and Microsoft





What is FME?

- ▶ FME – Feature Manipulation Engine
- ▶ Connect to over 450 formats and applications
- ▶ Transform and manipulate content
- ▶ Automate workflows to run on regular schedules





Tasks

- ▶ Download traffic incident data from Austin open data portal
- ▶ Spatialize data and update GIS Feature Class, keeping records of the past 45 days
- ▶ Create JSON files of all traffic accidents to be sent to Waze





Types of Traffic Incidents

- ▶ Crash/Collision
- ▶ Traffic Fatality
- ▶ Traffic Hazard
- ▶ Stalled Vehicle
- ▶ Vehicle Fire
- ▶ Blocked Drive
- ▶ Loose Livestock





Downloading The Data

- ▶ Connect to Austin's Open Data Portal via API
- ▶ Apply query on data – Date Range, Status
- ▶ Page through all data pages to ensure all data is captured
- ▶ Reformat from source format (JSON) to tabular rows





Spatialize and Update GIS Data

- ▶ Spatialize data from incoming attributes “Latitude” and “Longitude”
- ▶ Detect changes in incoming records against existing GIS data
- ▶ Identify “Updates”, “Inserts”, “Deletes”
- ▶ Update GIS Feature Class with these changes





Building JSON Data Package

- ▶ JSON data package should include collision crashes only
- ▶ New accidents are considered “Active”
 - ▶ Should remain “Active” until closed within data source
 - ▶ Report new accidents in JSON only once
- ▶ Accidents that are “Archived” are considered closed
 - ▶ Closed accidents should be sent in JSON file with End Time populated





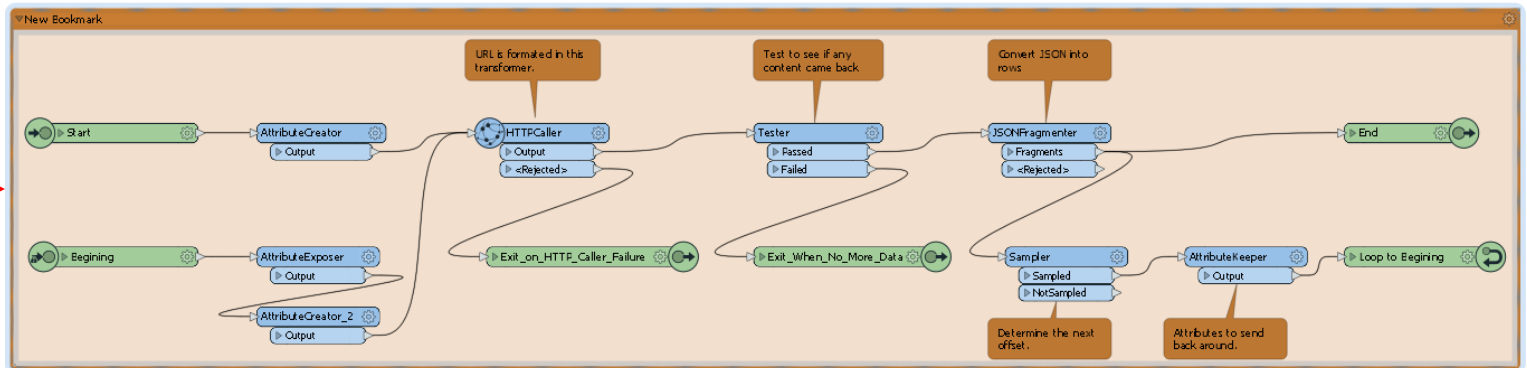
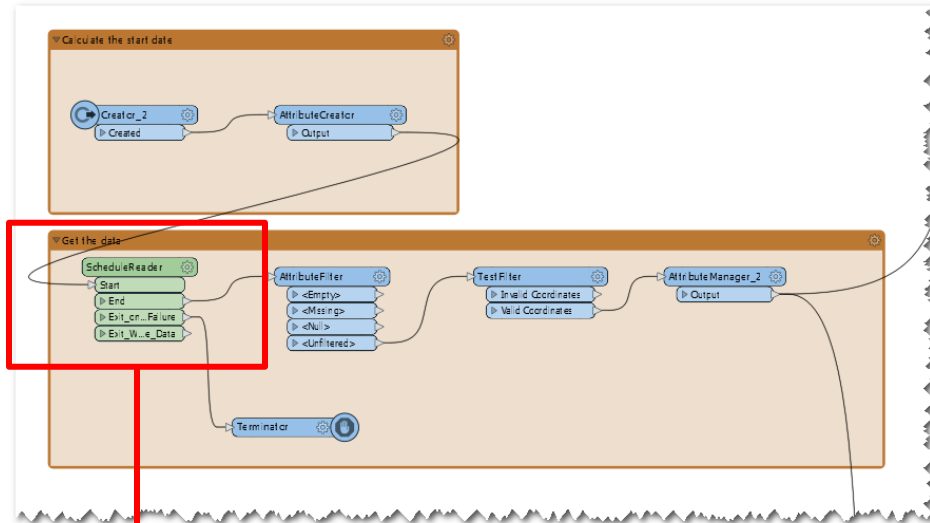
Keeping The Data Synced

- ▶ Automate the workflow - Desktop
 - ▶ Create .bat file to run the FME workbench
 - ▶ Set .bat to run on a regular schedule using Windows Task Scheduler
- ▶ Automate the workflow – FME Server
 - ▶ Publish work bench to FME server to run on a regular schedule

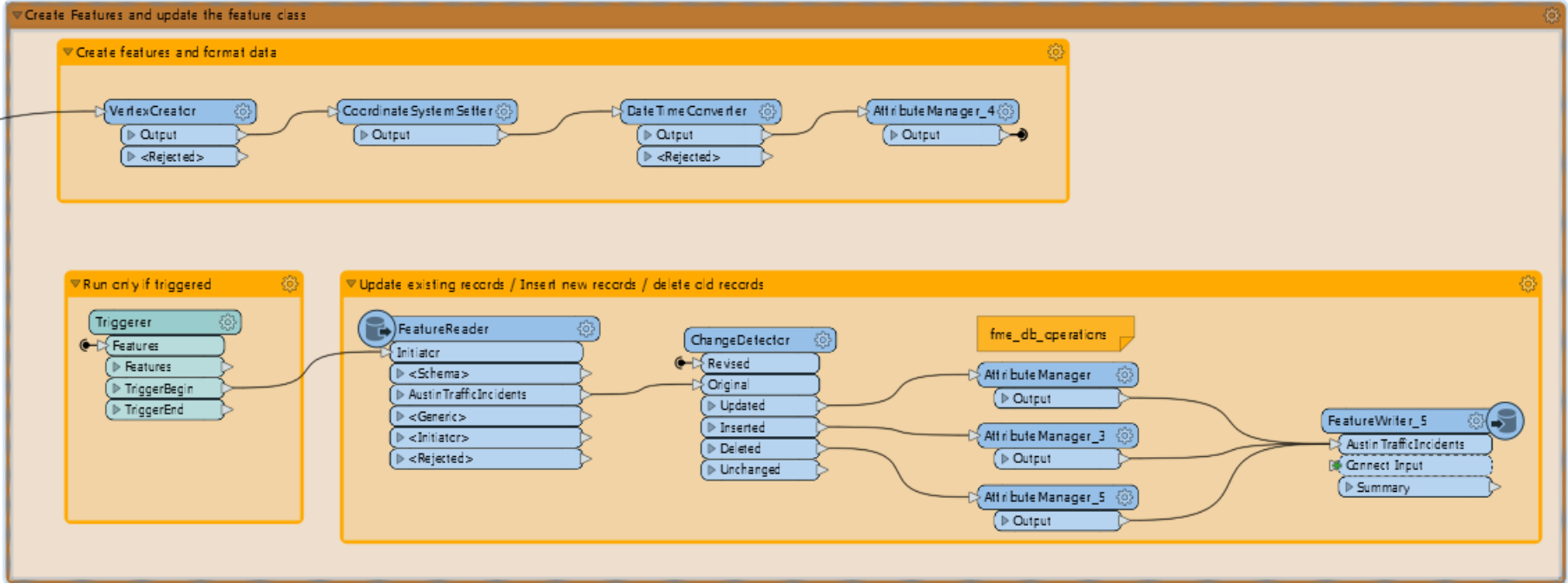




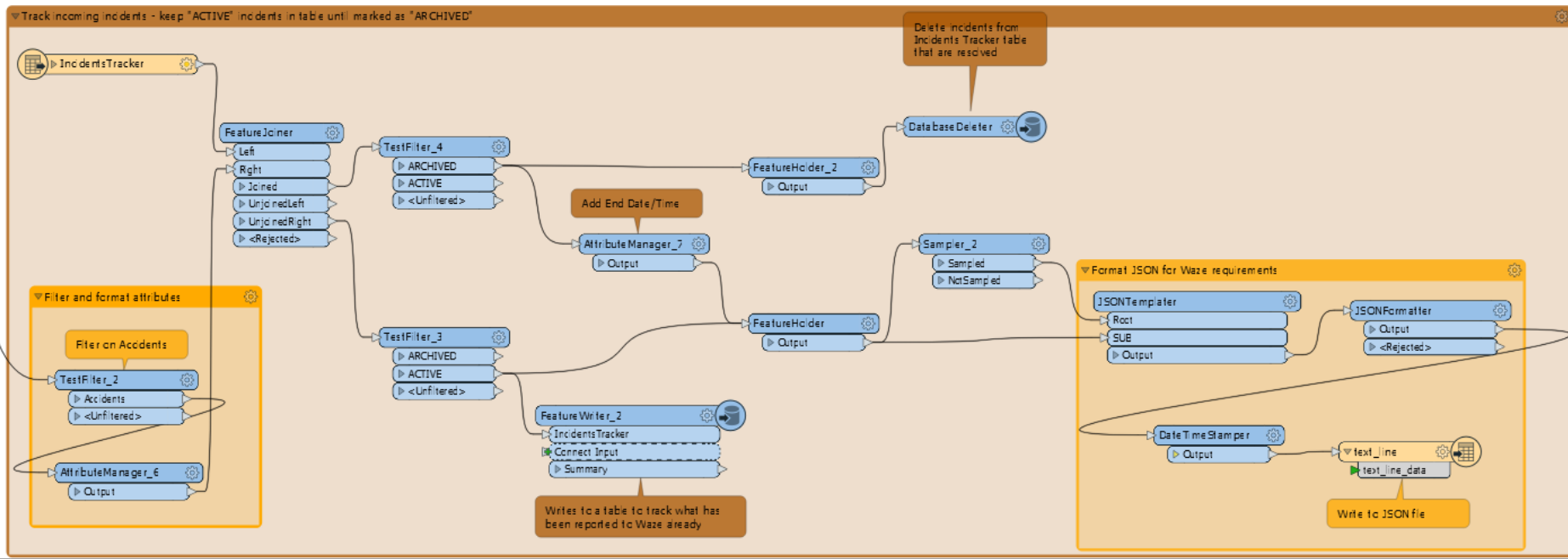
Download Data



Create Feature and Update Feature Class



Track Active Incidents






JSON – Update Closed Incidents with End Time

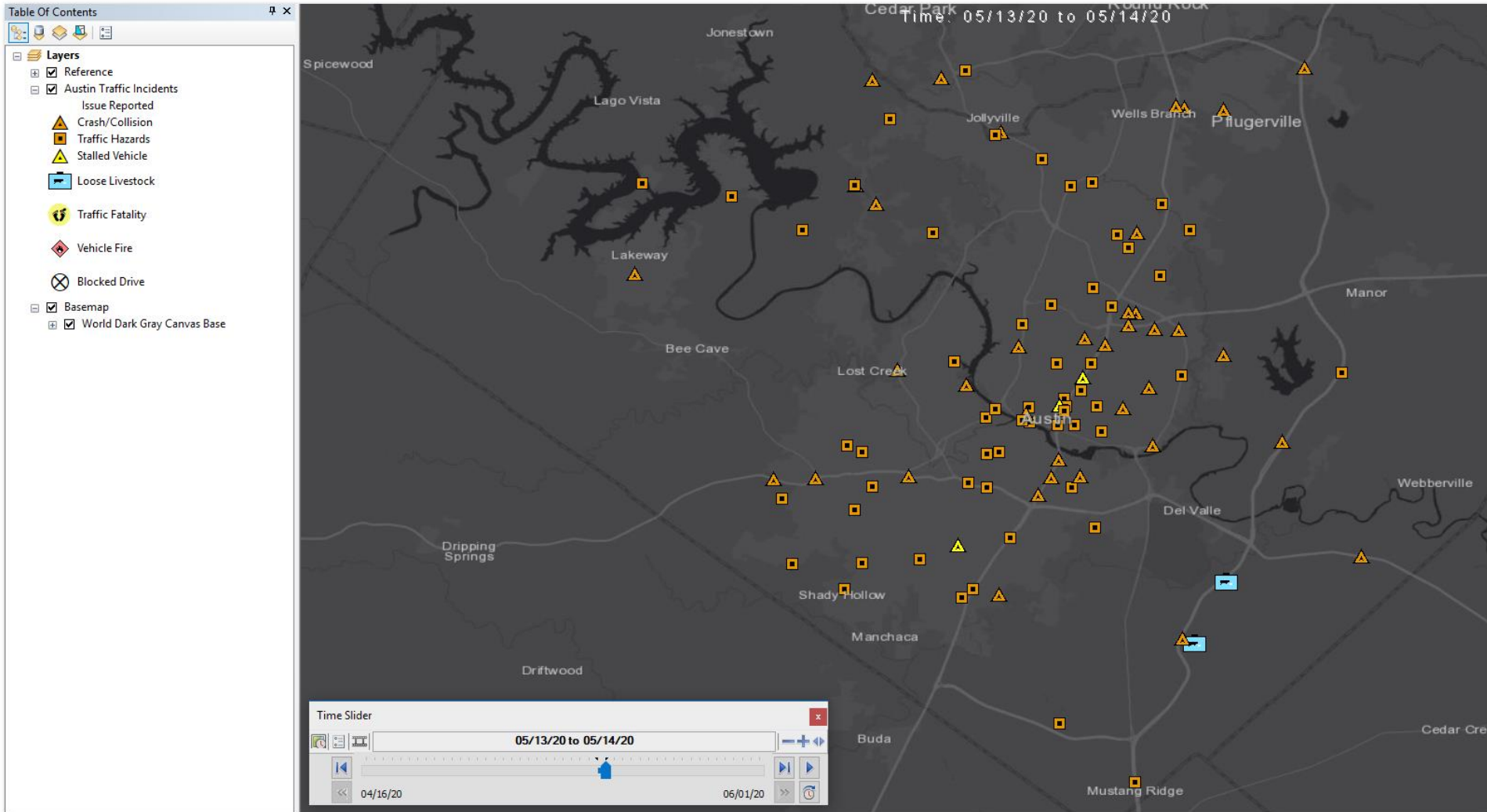
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  "id" : "0103B8C397F0C92E47D9D803B50740B2C6B015C3_1590771359",
  "type" : "ACCIDENT",
  "location" : {
    "street" : "(30.274611,-97.730983)",
    "direction" : "BOTH_DIRECTIONS",
    "polyline" : "-97.730983 30.274611 -97.730983 30.274611"
  },
  "starttime" : "2020-05-29T16:55:59Z",
  "description" : "Crash Urgent",
  "reference" : "TESSELLATIONS",
  "endtime" : null
}
```

```
{
  "id" : "0103B8C397F0C92E47D9D803B50740B2C6B015C3_1590771359",
  "type" : "ACCIDENT",
  "location" : {
    "street" : "(30.274611,-97.730983)",
    "direction" : "BOTH_DIRECTIONS",
    "polyline" : "-97.730983 30.274611 -97.730983 30.274611"
  },
  "starttime" : "2020-05-29T16:55:59Z",
  "description" : "Crash Urgent",
  "reference" : "TESSELLATIONS",
  "endtime" : "2020-05-29T17:14:22.713569Z"
}
```

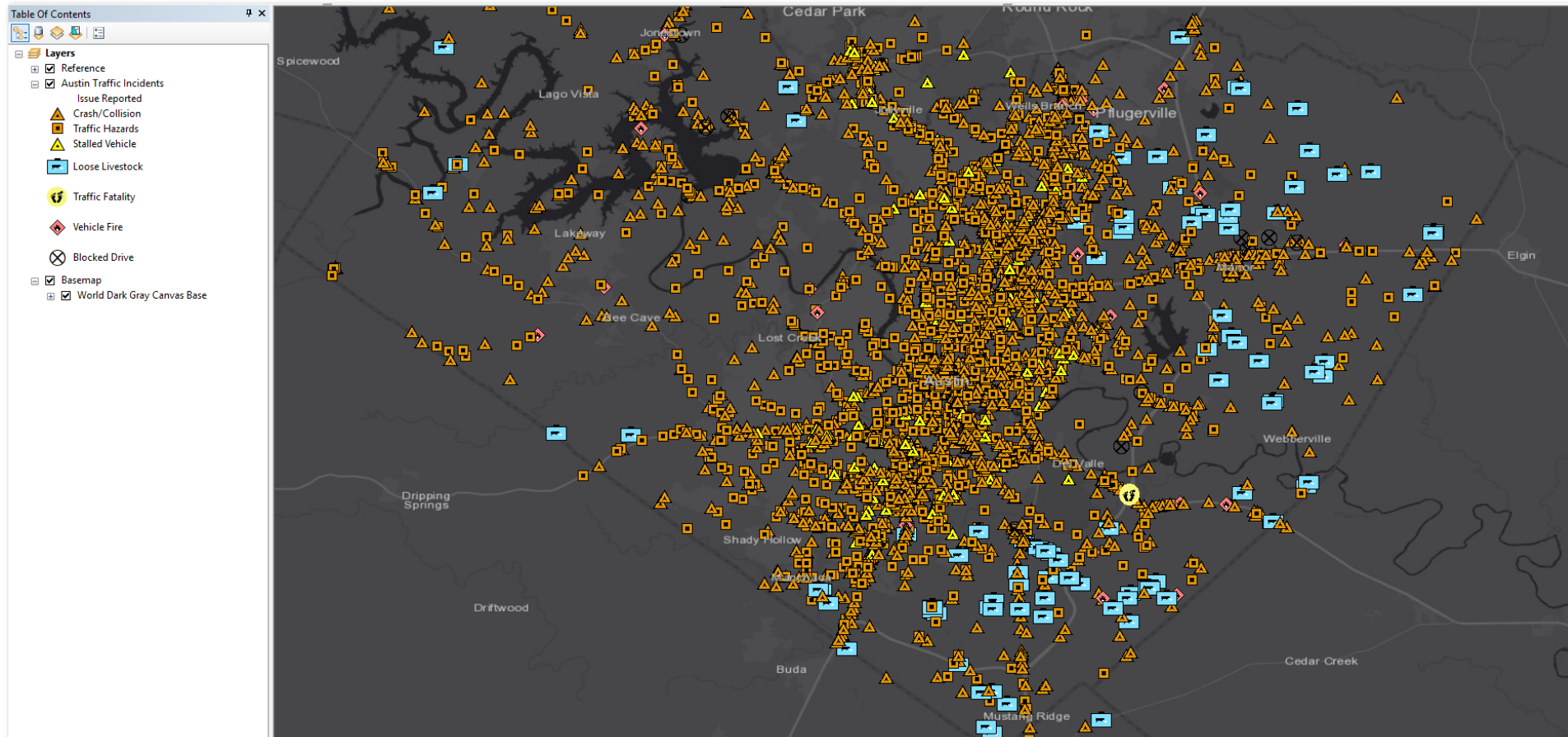




Incidents for one day



Incidents for 45 days





Q&A

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Launching....

Tessel Bytes 

Esri/FME/Python tutorials – short 2-5 minutes

Email Hugh if you want the link when it is released

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