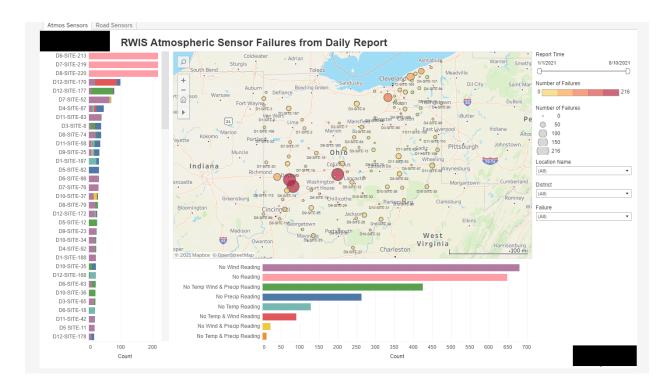
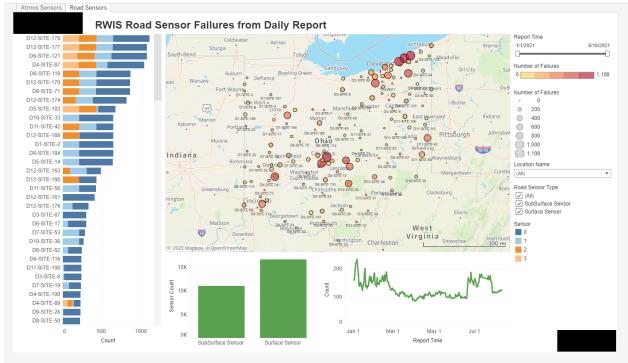
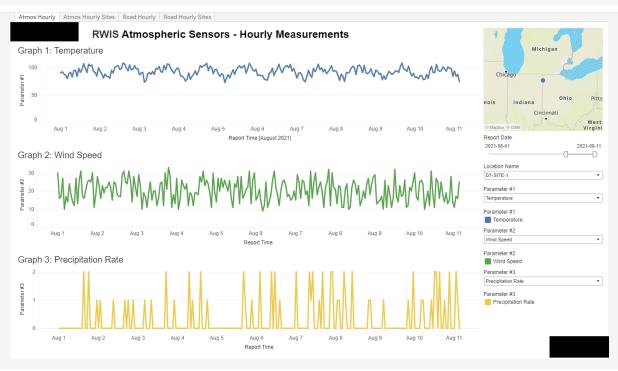
Kyle Vertin Internship for DTS May 2021 - August 2021

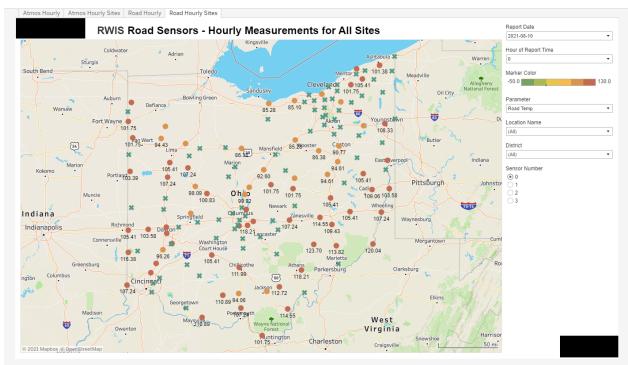
The main focus of my responsibilities were assisting in the ETL process for daily reports and RWIS API data. Both data sources came from a technology called RWIS (road weather information system); which recorded different variables related to road and atmospheric conditions that can be used for assessing their impact on traffic. This data is also useful for the managers and technicians out in the field who are responsible for the sensors when they are experiencing outages. We also used this data for cross referencing purposes with what ODOT was recording to make sure they weren't being overcharged so that DTS was getting paid properly for the contract work they were providing. All of the relevant data was cleaned and processed with specified time intervals and stored into a database. The data was used for Tableau visualizations and hosted on a server for stakeholders of interest to use.

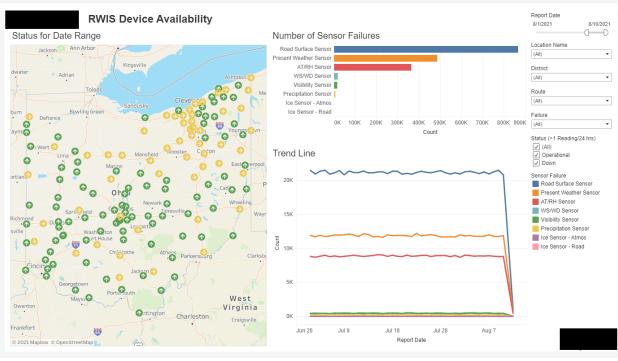
Dashboards:











Sample Code:

```
d_start <= c(1,11,71)
d_end <= c(10,70,255)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115falhar < publ'("19%", "No", 1150)
115faction number < na insport(Stocation number)
115faction for the state of the stat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     isput, files <- sont/int files/pattern = "tot", all files = THUE)
witage, flag <- 0
sensor, flag <- 0
sensek"./databose") \\ r\_failure <> rpal.cov("s\_failure.cos", stringsAcFactors = FALSE, na.strings = c("NA","")) \\ r\_failure <> subset(r\_failure, select = c(failure_id, failure_failure_datasource()) \\
         bettle in mps_(bo) |

\delta t l l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t l n = \log L \log l

\delta t 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SERVER ELECTRONIC STATE OF THE 
\label{lem:lemma:condition} $$ \int_{\mathbb{R}^n} du dyndros con^n, spings $AF actors = FALSE, na.strings = o("NA","")$$ $$ \int_{\mathbb{R}^n} du dyndros = condition = Conditio
                                                if[non(i,not(\underline{dailystnos}falkar)] > 0 \ \{ \ warning("daily_parse: The falkar in t_dailystnos in NA") \} \\ if[non(i,not(\underline{dailystnos}falkar)] > 0 \ \} \ warning("daily_parse: The location in t_dailystnos in NA") \}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (25dalysensor_inserted < (25seport_time
(25dalysensor_inserted_by < "daily_pane"
(25dalysensor_updated < (25seport_time
                                                \label{eq:control_to_description} $$ t_dislyatmos_{i}^*(\correction_number', "failure', "location_description', "neport_time', "dailyatmos_inserted_by', "dailyatmos_updated')]$$
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d_start <- a(1,11,71,81,131)
d_end <- a(10,70,80,130,255)
                                                \label{eq:control_control_control} c_{i}(x) = (x_{i}(x) + x_{i}(x)) + (x_{i}
                                      \label{eq:control_control_control_control} t_{ablysemed}(a) ``labeliand ``la
setwik",/uspat_files/daily_teport")
ispat_files %- Int files/patters = "tot", all files = TRUE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                start = whick(poph"NWIS ATMOSPHEREC REPCRIT*, nd5x()
red = whick(poph"NWIS SEREACE SENSOR REPCRIT*, nd5x()
f1 = ndf(mat/cn6-f1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Schooling such or - as integra Chiconia, mashed)
Chiconia - as integra Chiconia, mashed or - as integra Chiconia
Chiconia - as integra Chiconia
Chiconia - patter "8", "1 Chic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tl \leq tl[prph^{\infty}[0:8]^n, tlSe).] tlSepon_name \subseteq TRVS ATMOSPHERIC REPORT^n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (15dalystnos_inserted <-s5sepert_sine
(15dalystnos_inserted_by <-*daly_parse*
(15dalystnos_updated <-s5sepert_sine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \label{eq:continuous_polest} \begin{split} & \lim_{n\to\infty} \int_{\mathbb{R}^n} \max \left\{ \max_{i} \int_{\mathbb{R}^n} \sup_{x\in X_i} \int_{\mathbb{R}^n} \sup_{x\in X_i} \sup_{x\in X_i} \sup_{x\in X_i} \sup_{x\in X_i} \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} \int
                                                                             Oblahysmor_imeted < Obsport_time
Oblahysmor_imeted_by < "daily_pase"
Oblahysmor_updated < Obsport_time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    failure/num <- 1
fagg <- aggregate(num - attribute + StationEd, data = failure, num)
faggSattribute <- prob("1.","_","aggSattribute)
                                                                             d_start <- c(1,11,71,81,131)
d_ond <- c(10,70,88,130,255)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           First Interpretate December 1 (1997) and 10 (1998) and 10 
                                                                    Obscarion pumber — in integro/Obscarion pumber)
(Obscario — in integro/Obscario pumber)
(Obscario — in integro/Obscario — indication discription)
(Obscario discription — pumber 55°, "", Obscarios discription)
(Obscario — pumber 55°, "", Obscario — pumber 10°, "", Obscario — indication)

O — indication — pumber 10°, "", Obscario — indication)

O — indication — indicat
                                                                    chilyatmes <- joint)_dailyatmos, (_location, by = "location_number") %2%
joint_, (_failurdf_failurd.failure_datasourc="daily_rapor(_atmospheris",], by = "failure")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atons = join(atons, t_leadins, by = "no_leadins_name")
atons = atons(_atons_cole)
(_atons = rhold(_atons, atons)
(_atons_datons_d = 1 atons(_atons)
(_atons = (_atons_datons_d = 1 atons_datons)
(_atons = (_atons_datons_d = 1 atons_cole)
with abble(_atons, "_atons_cos", nor_names = FALSE, no
                                                          t_dailysensor <- join(t_dailysensor, t_location, by = "location_number") %>% 
join(, r_failure[r_failure]dailure_datasoucc=="daily_report_sensor",], by = "failure")
                                                t_j dailysems of dailysems or_j id \sim 1\, mos (t_j dailysems or)
                                      (dallysenser \leftarrow (dallysenser), n'(dallysenser), d'', 'location, 'd'', 'location, 'd'', 'location, 'description', ''senser', 'senser', '
```