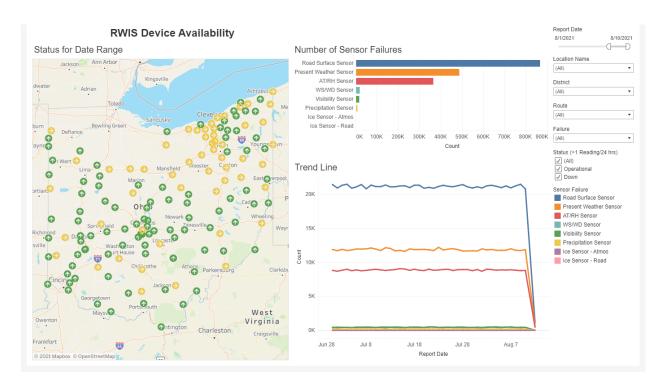
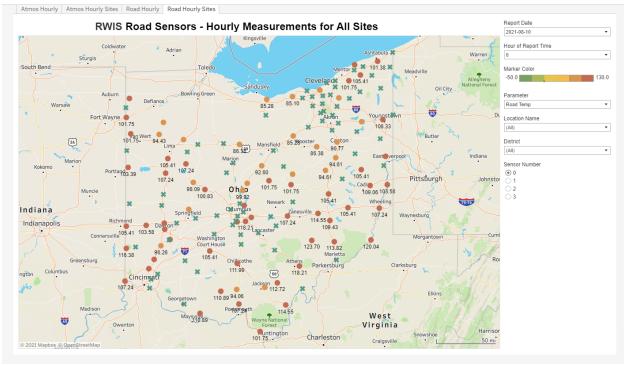
Kyle Vertin Internship for DTS May 2021 - August 2021

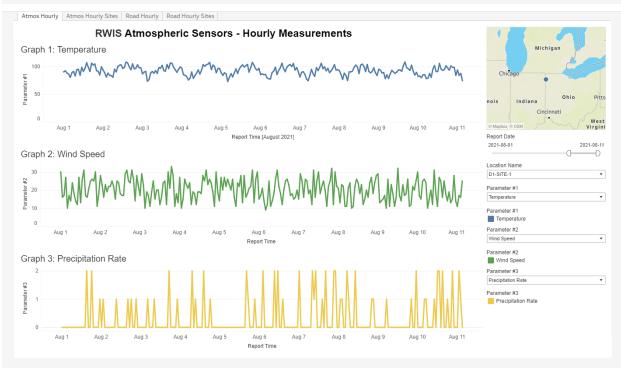
## **Summary:**

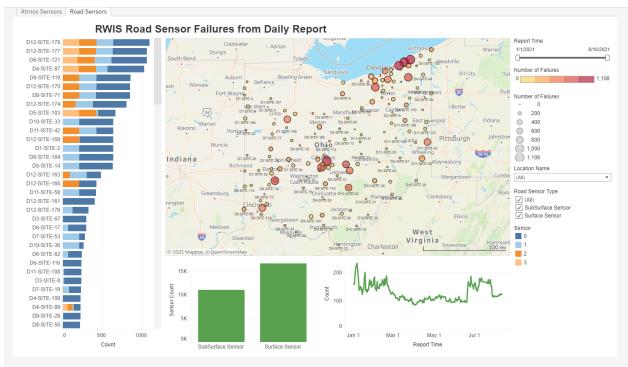
The main focus of my responsibilities were assisting in the ETL process for daily reports and RWIS API data. Both data sources came from a technology called RWIS (road weather information system); which recorded different parameters related to road and atmospheric conditions that can be used for assessing 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 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. The images and work below were modified for confidentiality purposes.

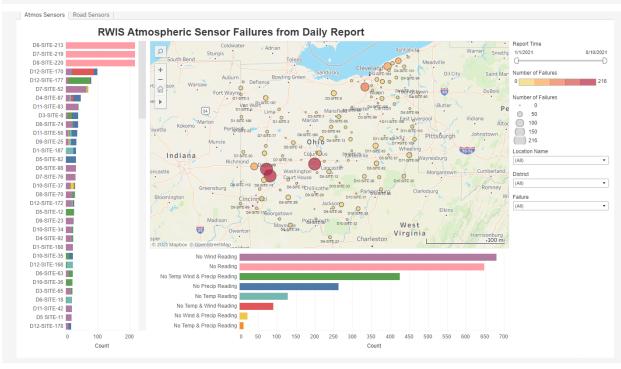
## **Dashboards:**











## **Sample Code:**

```
d_start < c(1,11,71)
d. end <- c(10,70,255)
study", Sidulors",

"Lister or "studyof seem * DASE, see study of seem * Asia * 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seeser, Eng <-1
8 MAGE
state <-shockgroup("RWIS SURFACE SENSOR REPORT", s65%)
end <-shockgroup("RWIS SURFACE SENSOR REPORT", s65%)
ed <-shockgroup("RWIS SURFACE SENSOR REPORT", s65%)
ed <-shockgroup("RWIS SURFACE SENSOR REPORT"
Ed <- Company, and ed <- Company
              \label{eq:continuous_property} $$ L_{\rm delystros.cov^*, stringsAoFactors = FALSE, na strings = c("NA","!)$$ $$ L_{\rm delystrosc < ned cov("L_{\rm delystrosc cos", stringsAoFactors = FALSE, na strings = c("NA","!)$$ $$
                                                    t_idallyatnos \leftarrow join(\_dailyatnos, t_idalun(t_idalunddalun_idataouscu-^daily_supert_atmospheric^i,), by = "failure_id^i)_i NoN join(\_l_location_by-^*location_id^i)_i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Selection and to SA 
Selection Service SA 
Selection SA 
S
                                                    if(sum(is,net(:,dailystmocStalser))) = 0 \ | \ warning('daily_purse: The failure in t_dailystmoc in NA') \} \\ if(sum(is,net(:,dailystmocStacation)) > 0 \ | \ warning('daily_purse: The location in t_dailystmoc in NA') \} \\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (25dailysensor_inserted < (25report_inne
(25dailysensor_inserted_by < "daily_pane"
(25dailysensor_updated < (25report_inne
                                            \label{eq:continuous} $$ $$ L_dailyatnos_{\mathcal{S}}^* Section_number', "failure', "location_description', "report_time',  $$ "dailyatnos_inserted', "dailyatnos_inserted_by', "dailyatnos_updated')]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d_start <- c(1,11,71,81,131)
d_end <- c(10,70,80,130,255)
                                            \label{lem:converse_delta} $$ t_i delty error, r_i faller (faller Stalter, datasource—"daly_spoot_somer", by = "labor, id") % $$ int(J_i boxion, by "location, id") $$
                                            \label{eq:control_control} (dilysomed_{i})^{*}location_{i}member', 'laber', 'location_description', 'smoor', 'smoor_name', 'suport_time', 'dadysomed_ported_i' 'dadysomed_porte
                      setwik", 'input_files/daily_report")
input_files <- list_files/patters = ".txt", all_files = TRUE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Silvación, somber « se insegrat/Silvación, mulher)
Silvación « se insegrat/Silvación, mulher)
Silvación « se insegrat/Silvación, description)
Silvación, se insegration « se insegration » (Silvación, description)
Silvación « punde " h" » « Cilvación, description » (Silvación » punde " h" » « Cilvación » (Silvación » punde " h" » « Cilvación » (Silvación » (Silvación » punde " h" » « Cilvación » (Silvación 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \begin{split} & (l \leq t) \big( propl_{l}^{\infty}[0:8]^{n}, t(S_{l}) \big) \\ & t(Supor_{l} name \leq TRWIS ATMOSPHERIC REPORT^{n}) \end{split}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (15dalyatnos_inserted < 45erport_sime
(15dalyatnos_inserted_by < "daily_puns"
(15dalyatnos_updated < 45erport_sime
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \label{eq:constraints} \begin{split} & (\operatorname{trace}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}') \\ & \operatorname{quast}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}', \\ & \operatorname{quast}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}', \\ & (\operatorname{trace}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}'\operatorname{part}') \end{split}
                                                                          (15dailysensor_inserted = (15erport_time
(15dailysensor_inserted_by = "daily_purse"
(15dailysensor_updated = (15erport_time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d_start <- o(1,11,71,81,131)
d_stad <- o(10,70,80,130,255)
                                                                          t2 <- subset(t2, select =-e(x,report_name))
t3 <- subset(t3, select =-e(x,report_name))
                                                                   claifyatmes <- join()_daifyatmos, (_location, by = "location_number") % % join(, _failure[cfailurefailure_datasousce="daify_report_atmospheris",], by = "failure")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atton to pinistense, Lisotaini, by "an, loutine, name? 

atton to executation, and 

(_emes = fooded__imes, attent)
(_emes = fooded__imes, attent)
(_emes = __imes)
(_emes = __i
                                                                                                               atmos = (_dalpatmos()ta.nat_dalpatmos(bioaston_sh)_

atmos(dalpatmos_de'=12000(_dalpatmos)

atmos = (_dalpatmos_de'+biopatmos_de'*)tocaton_de'*/biolom_de'*/baston_deceterion*,

"dalpatmos_ments" "dalpatmos_ments" "phi (atmos_ments)", "dalpatmos_palado")
                                                           (_dailysonor <- joint)_dailysonor, (_location, by = "location_number") %>%
joint, _r_failure(_failuref.failure_datasonor=="daily_report_sonor",], by = "failure")
                                                    (_dailysensorldailysensor_id <- 1 zeow()_dailysensor)
                                                    \label{localization} $$ t_{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x)=(x)^{i}(x
```