**Objective**
Assist King County Metro management team in optimally implementing battery-electric buses in the Seattle area by ranking routes and stops with the highest dwelling times.

**Current System**
Serving 400,000 passengers a week on 1500 buses
No electric buses yet, plan to implement forty by Fall 2022

**Scope**
Analyze one year of data from March 2019 to February 2020, King County Metro has 197 routes and 7147 stops, during this period.

**Impact**
Environmental: Reducing carbon emissions
Economic: Battery-electric buses are more fuel-efficient
Customer: Standardized model to analyze dwelling time for future battery-electric bus replacements

**Implementation**
Allow King County Metro employees to access and update visualizations and code with relevant data. To eventually roll out a fully electric fleet, expanding beyond South base.

**Statistical Model of Bus Dwelling Time**

**Cleaner Commute Team:** Isabel Bernstein, Adam Cheng, Andy Kim, Matthew Shull, Hao Zhu
With Special Thanks to Patty Buchanan, Dr. Yi Mi, and Valerie Harris

**Output Visualizations**

- **Takeaways:**
  - Filling is slightly better than dropping
  - All the datasets show statistical significance

- **Output Visualizations**
  - **Ribbon Chart**
    Top ribbons = highest dwelling time per line, suggested for replacement
  - **Geospatial Route Map**
    Color coded top 10 routes with the highest dwelling times, suggested for replacement

- **Geospatial Heat Map**
  Larger circles = higher dwelling time per stop, suggested for replacement

**Next Steps**
The reusable robust model will allow King County Metro to reach its battery-electric fleet goals in an iterative process. The team’s visualizations clearly show routes and stops with the most dwelling time.