**ADT – Average Daily Traffic Volume**:

Traffic data for 2018 was obtained using data from the magnetometers installed in some intersections within the City of Sugar Land.

In order to identify the 24h traffic volume for the Williams Trace Blvd roadway, we observed the up and downstream volume for four (4) intersections:

1. Sweetwater @ Alcorn Oaks;
2. Sweetwater @ Elkins;
3. Sweetwater @ Lexington; and
4. Sweetwater @ Town Center.

In order to identify the most up-to-date 2018 volume data for a typical weekday, we averaged the values from October 22 (Mon) through October 26 (Fri).

We then chose to use the highest Weekday Average ADT since this would represent the heaviest segment within the roadway of interest. Therefore, we identified the Average Weekday 2018 ADT as 33,566 vehicles - based on Sweetwater @ Town Center volumes, as can be seen in the table below:



**2018 24h ADT = 33,566 vehicles** *[based on accurate magnetometer data]*

The actual 24h volume reports are attached, highlighting the volumes considered in the analysis.

For simplification purpose, the “2018 Peak Period Volume” was calculated based on the H-GAC model’s proportion related to the “2018 24h Volume” – roughly 50%.

**Estimated Traffic Volume for 2025 and 2045**

Unfortunately, the data forecasted by the H-GAC travel demand model actually shows a decrease in the amount of traffic along this roadway, for both 2025 and 2045. Hence, we did not have a “reasonable” number to back-calculate and adjust the traffic volume for those years.

In order to deal with this limitation, we considered the average yearly growth of the other nearby locations that – according to the H-GAC model - presented an increased traffic volume for future years.

The yearly growth rate for future years was calculated according to Equation 1:

$$i= \left(\frac{Volume\_{fYear}}{Volume\_{2018}}\right)^{t^{-1}}$$

(1)

Whereas the “corrected” volume for future years was calculated using Equation 2:

(2)

$$Volume\_{fYear}=Volume\_{2018}×\left(1+i\right)^{t}$$

Where:

Volume fYear = Volume in future year

Volume 2018 = Volume for 2018

*i* = yearly growth rate

*t* = difference between future and present, in years

As can be seen in the Table below, the average yearly growth considered was 0.4%, for both 2025 and 2045:



The “corrected” volume for future years are shown below, highlighted in yellow:



The spreadsheet containing all formulas and calculations is also submitted with this application, called “P5\_P10 – City of Sugar Land – Input Data for BCA”.