**Assignmnet #3: TRAFFIC SIGNAL DESIGN and SIGNAL SYNCHRONISATION**

Due January 4, 2025 11:59 PM

**Instructions**

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Given:

***Traffic Signal Configuration Data Sheets***

The data is represented as a RESOURCE that will be seen on this main page. The data can be down loaded from here.

<https://discover.data.vic.gov.au/dataset/traffic-signal-configuration-data-sheets>

In VicRoads these are known as **OP SHEETS.** The op sheets are the operational design criteria for the traffic signals across Victoria, Each traffic signal requires this information for signal phasing. These can be used with the Traffic Signal Volume Data and the Turning Movement Volume Surveys for site performance reports or intersection redesign.

***Traffic Signal Volume Data***

This dataset is the traffic signal volume data. The data is shown as a resource on the main page. The data can be down loaded from here. Each file contains all of the 15 minute traffic volumes for traffic signals by detector for years 2014 - 2024 aggregated by years. The data for 2024 is aggregated by month into a zip file. All months for 2024 are shown. An automated process loads the data as it becomes available for each month. All months for the current year are shown. Only those months up to the current will have data available. A detector is a loop of wire installed into the road surface and is activated when a vehicle passes over it and sends a pulse to the traffic signal.

<https://discover.data.vic.gov.au/dataset/traffic-signal-volume-data>

***Vicroad Traffic Lights Site Map:***

https://vicroadsopendata-vicroadsmaps.opendata.arcgis.com/datasets/1f3cb954526b471596dbffa30e56bb32\_0?geometry=136.630%2C-39.812%2C153.318%2C-36.795

YOUR TASK:

Each of you make an individual data file of 4 or more closely located (ideally on the same corridor) traffic lights from the downloaded data available on the above site. You need to use the traffic signal configuration data sheets, traffic signal volume data sheets and traffic light site location map on the above websites for this. Now design the 3 or more-traffic light timing plan as individual signals and estimate individual approach average vehicular delay and total junction delay as learned from relevant lecture math on traffic signal.

Subsequently, you will explore the feasibility of signal coordination among the selected junctions. For a selected suitable cycle time for all, find out optimum offset of cycle onset for creating maximum bandwidth situation. Present the result in suitable graphics as shown in relevant lecture.

Finally, comment on bandwidth efficiency and operation improvement by signal synchronization as above.