Galway Traffic Analysis using Tableau

Galway City Council has given us some real traffic data on traffic on the N59 just before and at the junction outside the Insight building in the IDA Business park in Dangan. Those of us who work in this area know that this junction suffers severe congestion in the morning and evening.

The main road through the junction is the N59. Traffic coming from direction B is from the (North Western) townlands around the N59 and the larger towns of Clifden, Oughterard, and Moycullen.

Traffic turning into A is going to the IDA Business Park, including the Data Science Institute (Insight). Traffic turning towards C can head toward the central part of the university campus and Galway city. Traffic heading towards D can enter the northern part of the university campus at Corrib village. This traffic also goes to the city.

There are fairly infrequent public transport options on the N59 to and from its nearest town, Moycullen; the road is not terribly bicycle-friendly, as it does not have a bicycle path and is narrow with sharp turns in places. At the same time, Moycullen's population has significantly grown and contributes to the morning and evening commuter traffic.

Junction Data was prepared accordingly to avoid noisy data. The data is prepared and cleaned for visualization.

<u>Case 1: Periods of traffic congestion</u>

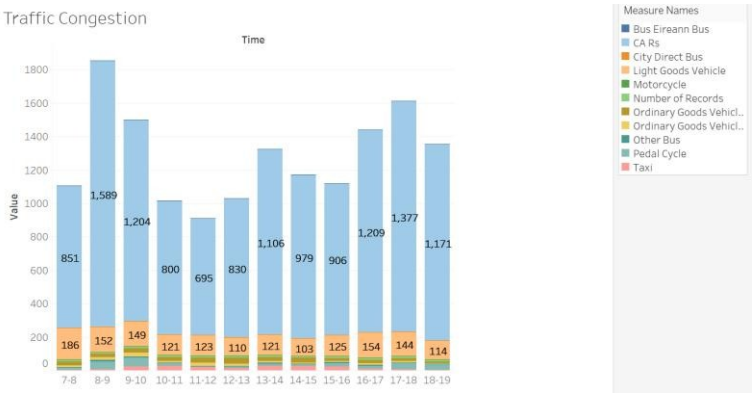

FIGURE:1.1

Traffic is a peak at morning hours from 8-9 AM, where there is more number of cars traveling from one place to another and it is peak again from 17:00 to 18:00 PM. We can interpret that the traffic is peak during office hours. People use cars more than other vehicles. The traffic congestion slowly decreases from 10 AM to 1 PM, traffic is at least at 12 PM. Hence Figure 1.1 we can conclude that the traffic peak hours depend on the office/School hours and the maximum population uses the car to traverse from one place to another.

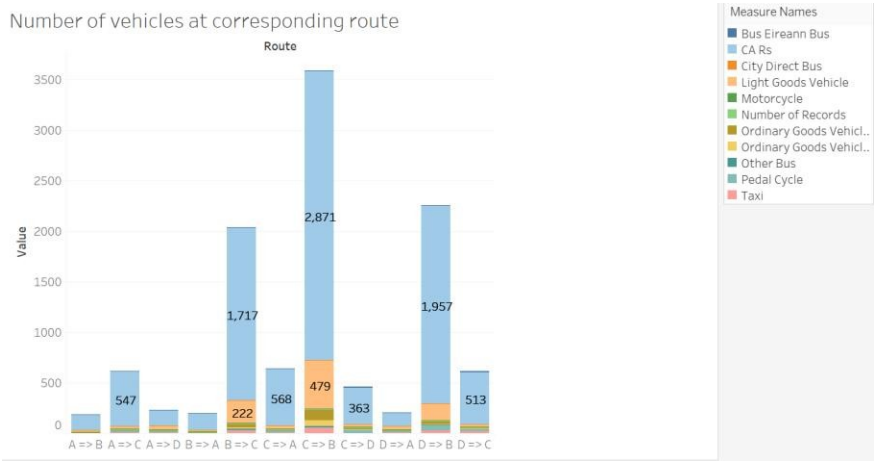

FIGURE:1.2

From Figure1.2 we can comprehend that the route which is always busy throughout is from route C to route B i.e Thomas Hynes Rd to Moycullen Rd(N59). All types of vehicles traverse from Thomas Hynes to Moycullen and most of the population use cars for traveling. Route D to route B i.e Upper Newcastle to Moycullen also has a lot of traffic. We can interpret that Moycullen is busy throughout the day because Route C Route D connects to university campus and Corrib village respectively. Since Route B is the larger towns of Clifden, Oughterard, and Moycullen.

<u>Case 2: The distributions of vehicle types contributing to daily traffic</u>

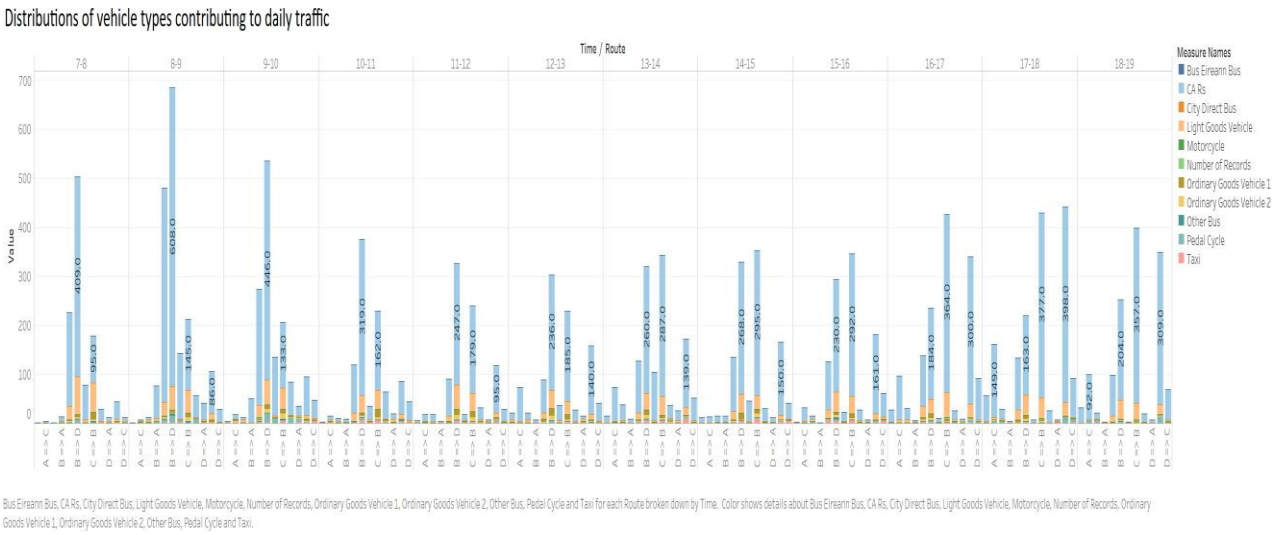

FIGURE:2.1

Figure 2.1 shows vehicles at daily traffic from which we can comprehend that there are very few vehicles traversing at 7 AM from route A to C and route B to A. Where at the same time

the traffic is peak at the route B to D. We can interpret that there are more number of cars traversing from Moycullen Rd to New Castle Road.

As time passes the traffic gets a peak at 8 AM in routes B to D and B to C. Population is traveling to New Castle and Thomas Road using Cars. The traffic slowly decreases at path B to D until 12 noon.

On the other hand, the traffic increases between Route C and B which is the path to the University. The traffic is peak at 8 AM in route B to C. The route C to B slowly increases and is at a peak in the evening at 17 hours. A maximum number of populations uses cars more than other modes of transports.

The traffic can be controlled at Route B i.e Moycullen Rd if the path is made bicycle friendly. Students traversing from Route B to university might use bicycles which can decrease the traffic congestion during peak hours. Increase in the number of bus services can reduce traffic congestion. Since Route B is used maximum throughout the day.

<u>Case 3: A case for providing regular bus service from Moycullen to the IDA park and the university. You should recommend the times and frequency of this service. E.g. as part of your analysis, you could estimate how many cars this might take off the road during peak period.</u>

FIGURE:3.1

Figure 3.1 depicts the traffic for route Moycullen (route B) to route A, C, and D with respect to time. The visualization shows traffic only for cars and buses. From the figure, we can interpret that predominantly there is the usage of cars in the city. There are hardly few buses that transit between the routes.

From the Galway-ATC site dataset, we can comprehend that on an average (7 days) there are only 3 buses from route B that traverses to eastbound and westbound. Whereas on the other hand, there are approximately 400 cars traversing between routes.

Let’s Assume that there are 40 seats in the Bus Eireann and City Direct. According to the above data, there are approximately 120 people traveling via buses. If we increase the number of buses to route D and route C during peak hours, traffic congestion can be reduced. Route D and route C are to university and Corrib village respectively.

If there are 5 buses on an average that traverse between the routes, the total number of passengers will be approximately 200. The number of cars will decrease to 200 which can reduce traffic congestion. The frequency of buses should be increased. The Galway city direct buses like 414 are available only once in an hour. Hence increasing the frequency of the buses can reduce traffic congestion during peak hours.

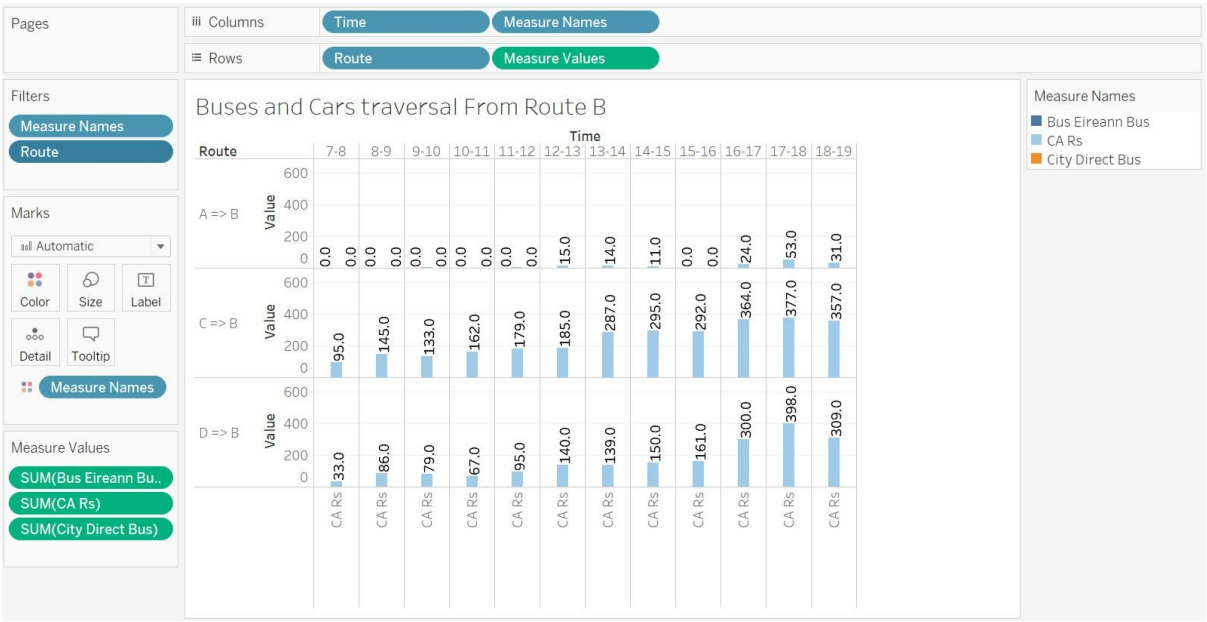

FIGURE 3.2

Likewise, Figure 3.2 depicts the traffic congestion from other routes to Moycullen Rd. Clearly, there is traffic in the evening from 17:00 hours. The same suggestion mentioned above can be used to reduce traffic.

The buses to westbound are more in number than the buses that traverse to eastbound. On the other hand, the number of cars traversing to eastbound is higher than the cars traversing to the westbound. Clearly, the traffic in westbound is lesser than the traffic congestion in the eastbound due to the bus services. Increasing the number of bus services can divert the population from using cars and adapting to buses.

Case4: The case for providing a greenway cycle path from Moycullen to Galway city via the IDA Business Park and the University

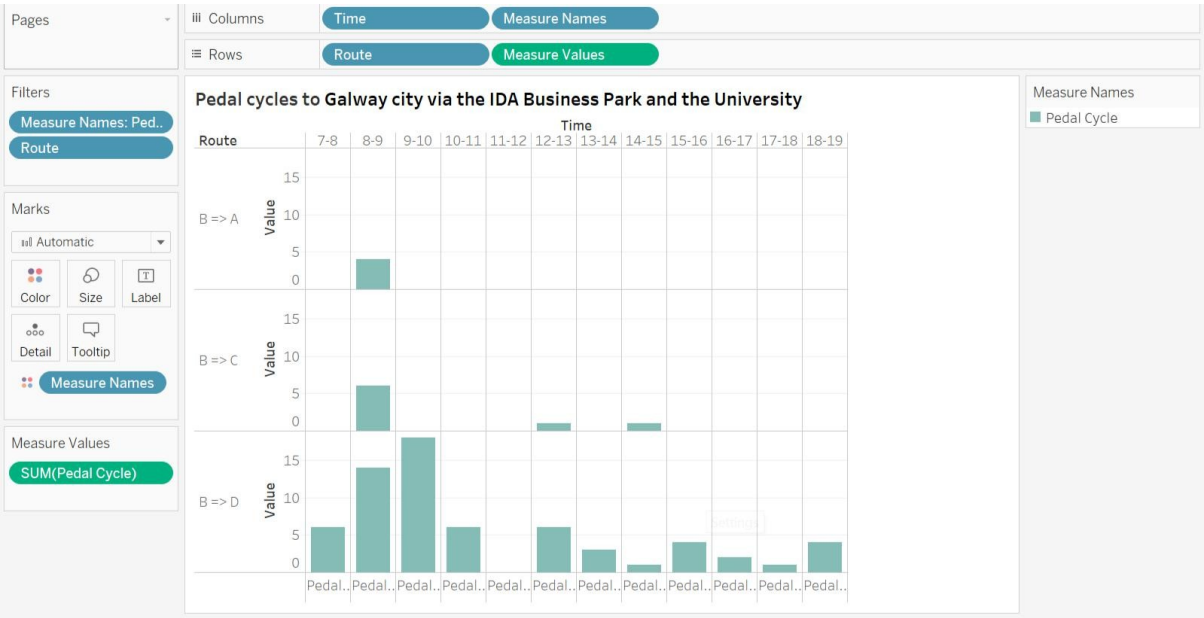

FIGURE 4.1

From figure 4.1, we can interpret that there is more usage of pedal cycles from route B to D which is Moycullen Rd to Upper Newcastle i.e University campus at Corrib village. The peak hours for pedal cycles is from 8 – 10 AM. But since we know that the Moycullen road is not bicycle friendly. The average number of cycles via that lane is very few.

Moycullen to Galway city takes approximately 15minutes by car. But if there are greenway path for cycles from Moycullen to Galway city via University then the journey is only 9 minutes. There won't be any traffic which will help in reaching the destination much faster.

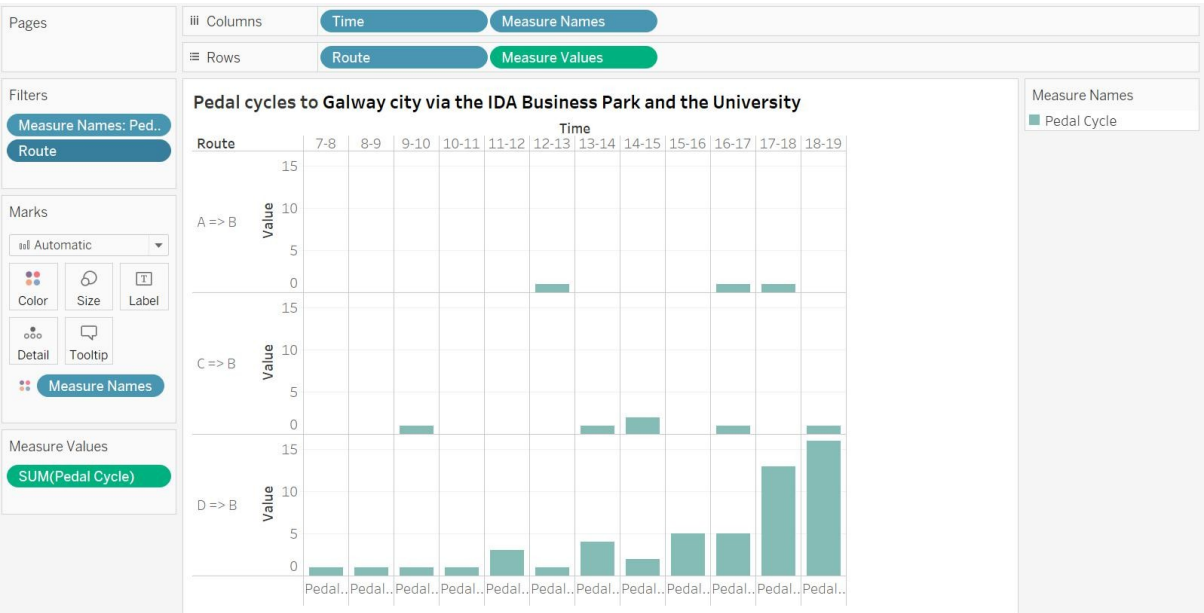

FIGURE 4.2

Figure 4.2 shows the traffic congestion for pedal cycles in the evening hours from other routes to Moycullen Rd.

The greenway path makes it much easier to traverse from Moycullen Rd to Galway city. There can be a path inside the university campus which makes it easier to reach the destination much faster. The greenway path is also much safer than the Main road. Short routes to the destination via University will be easier for the people to transit and reduces traffic congestion. There will be an increase in usage of pedal cycles since the population will adopt buses and cycles the traffic will be lesser comparatively.