**CE 45000: Transport Policy and Planning**

**Homework 1**

**Due: Thuraday, September 6, 2018**

1. Using dataset 1, create a table showing percentage of miles and Vehicle Miles Travelled by Functional System.

Table 1: Summary of Miles by Functional Classification of Roadways

|  |  |  |
| --- | --- | --- |
| **Functional Classification of Roadways** | **Total Length** | **Percentage** |
| Arterial | 15.4 | 15% |
| Collector | 36.1 | 35% |
| Local | 52 | 50% |
| **Grand Total** | **103.5** | **100%** |

**VMT is calculated by multiplying the amount of daily traffic on a roadway segment by the length of the segment**

Table 2: Summary of Vehicles Miles Travelled (VMT) by Functional Classification of Roadways

|  |  |  |
| --- | --- | --- |
| **Functional Classification of Roadways** | **Total Length** | **Percentage** |
| Arterial |  2,504  | 14% |
| Collector |  8,422  | 46% |
| Local |  7,369  | 40% |
| **Grand Total** |  **18,295**  | **100%** |

1. Using dataset 2, summarize the total miles by functional classification.

Table 3: Summary of Miles by Functional Classification of Roadways

|  |  |  |
| --- | --- | --- |
| **Functional Classification of Roadways** | **Total Length** | **Percentage** |
| Interstate |  3,118,812  | 2.0% |
| Local |  104,009,880  | 65.5% |
| Major Collector |  21,478,222  | 13.5% |
| Minor Arterial |  9,036,751  | 5.7% |
| Minor Collector |  15,225,116  | 9.6% |
| Principal Arterial - Other |  5,261,480  | 3.3% |
| Principal Arterial - Other Freeways or Expressways |  724,000  | 0.5% |
| **Grand Total** |  **158,854,261**  | **100.0%** |

1. Using dataset 3, show detail calculations of following parameters:
	1. Average daily traffic
	2. 50% speed
	3. 85% speed
	4. Average speed
	5. Peak hour traffic counts
2. ADT: 53
3. 50% Speed: 25 mph
4. 85% speed: 31 mph

Table 4: Calculation of 50% and 85% Speed

|  |  |  |  |
| --- | --- | --- | --- |
| ***Bin*** | ***Frequency*** | **% Freq. in Group** | **Cum. %** |
| 15 | 0 | 0% | 0% |
| 17 | 0 | 0% | 0% |
| 19 | 5 | 9% | 9% |
| 21 | 0 | 0% | 9% |
| 23 | 0 | 0% | 9% |
| 25 | 11 | 21% | 30% |
| 27 | 25 | 47% | 77% |
| 29 | 1 | 2% | 79% |
| 31 | 5 | 9% | 89% |
| 33 | 1 | 2% | 91% |
| 35 | 1 | 2% | 92% |
| 37 | 0 | 0% | 92% |
| 39 | 0 | 0% | 92% |
| 41 | 0 | 0% | 92% |
| 43 | 1 | 2% | 94% |
| 45 | 3 | 6% | 100% |
| 47 | 0 | 0% | 100% |

Figure 1: 50% and 85% Speed

1. Average speed: 26.705 mph
2. Peak hour traffic counts: 9 for 70 am to 8 am, 9 for 6 pm to 7 pm