***Public Transportation Optimization***

1. *Study of demand*: This step involves studying the demand that travels from different origins to different destinations in the city.
2. *Modal split*: This step involves determining the proportion of travelers who use different modes of transportation.
3. *Design of lines or routes*: This step involves designing the lines or routes that will be used to transport passengers.
4. *Frequency determination*: This step involves determining the frequency of service for each line based on the number of passengers.
5. *Determining schedules*: This step involves determining the schedules for each line.
6. *Vehicle scheduling*: This step involves scheduling vehicles for each line based on the schedules and frequency determined in previous steps.
7. *Crew scheduling*: This step involves scheduling crews for each vehicle.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mode | Average Car | Compact Car | Electric Car | Van OR Pickup |
| Average Occupancy | 1.5 | 1.5 | 1.5 | 1.5 |
| Vehicle Ownership | 0.272 | 0.237 | 0.387 | 0.354 |
| Vehicle Operation | 0.169 | 0.239 | 0.234 | 0.345 |
| Operating Subsidy | 0 | 0.123 | 0.304 | 0.035 |
| Travel Time | 0.234 | 0.456 | 0 | 0.087 |
| Internet Crash | 0.23 | 0.45 | 0 | 0.509 |
| External Crash | 0.245 | 0.453 | 0.345 | 0.303 |
| Internal Health Ben | 0.089 | 0.098 | 0.879 | 0.345 |
| External Health Ben | 0.344 | 0.034 | 0.341 | 0.562 |
| Internal Parking | 0.786 | 0.304 | 0.234 | 0.345 |
| External Parking | 0.346 | 0.345 | 0.555 | 0.987 |
| Congestion | 0.445 | 0.478 | 0.658 | 0.056 |
| Road Facilities | 0.654 | 0.405 | 0.675 | 0.044 |
| Land value | 0.124 | 0.452 | 0.456 | 0.34 |
| Traffic service | 0.055 | 0.785 | 0.675 | 0.558 |
| Transport Diversity | 0.323 | 0.421 | 0.278 | 0.054 |
| Air Pollution | 0.345 | 0.321 | 0.513 | 0.095 |
| GHG | 0.476 | 0.702 | 0.712 | 0.088 |
| Noise | 0.345 | 0.432 | 0.345 | 0.345 |
| Resource Extemalitie | 0.123 | 0.457 | 0.675 | 0.675 |
| Land Yse Impacts | 0.478 | 0.564 | 0.132 | 0.658 |
| Water Pollution | 0.378 | 0.872 | 0.358 | 0.488 |
| Waste | 0.0004 | 0.0004 | 0.0004 | 0.0004 |
| ***TOTALS*** | 6.4614 | 8.6284 | 8.7564 | 7.2734 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Rideshare Passenger | Diesel Bus | Electric Trolley | Motor-cycle | Bicycle | Walk |
| 1 | 8 | 10 | 1 | 1 | 1 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0.333 | 0.066 | 0 |
| 0.008 | 0 | 0 | 0.264 | 0.066 | 0 |
| 0.011 | 1.982 | 1.802 | 0.000 | 0.654 | 0.654 |
| 0.201 | 2.675 | 3.828 | 0.000 | 0.098 | 0.673 |
| 0.022 | 0.564 | 0.098 | 0.000 | 0.43 | 0.613 |
| 0.452 | 0.345 | 0.054 | 0.000 | 0.985 | 0.912 |
| 0.562 | 0.786 | 0.986 | 0.000 | 0.543 | 0.431 |
| 0.709 | 0.431 | 0.134 | 0.000 | 0.621 | 0.312 |
| 0.034 | 0.109 | 0.431 | 0.000 | 0.342 | 0.412 |
| 0.345 | 0.054 | 0.543 | 0.988 | 0.612 | 0.324 |
| 0.785 | 0.0435 | 0.456 | 0.543 | 0.154 | 0.813 |
| 0.203 | 0.765 | 0.123 | 0.903 | 0.041 | 0.512 |
| 0.098 | 0.085 | 0.034 | 0.043 | 0.812 | 0.432 |
| 0.034 | 0.097 | 0.564 | 0.000 | 0.564 | 0.442 |
| 0.352 | 0.453 | 0.564 | 0.094 | 0.513 | 0.221 |
| 0.766 | 0.0954 | 0.435 | 0.654 | 0.543 | 0.012 |
| 0.456 | 0.564 | 0.054 | 0.765 | 0.754 | 0.412 |
| 0.76 | 0.675 | 0.453 | 0.432 | 0.342 | 0.812 |
| 0.705 | 0.543 | 0.321 | 0.675 | 0.614 | 0.221 |
| 0.321 | 0.648 | 0.45 | 0.000 | 0.142 | 0.612 |
| 0.781 | 0.546 | 0.876 | 0.875 | 0.531 | 0.342 |
| 0.0000 | 0.0004 | 0.0004 | 0.000 | 0.0000 | 0 |
| 7.605 | 11.4613 | 12.2064 | 6.5694 | 9.427 | 9.162 |

|  |  |  |  |
| --- | --- | --- | --- |
| Telework | Internet | Fixed | Market |
| 1 |  |  |  |
| 0.264 | 100% | 100% | 100% |
| 0.264 | 100% | 100% | 100% |
| 0.000 | 0% | 0% | 100% |
| 0.000 | 100% | 100% | 0% |
| 0.000 | 100% | 0% | 20% |
| 0.000 | 0% | 0% | 20% |
| 0.000 | 100% | 0% | 20% |
| 0.000 | 0% | 0% | 20% |
| 0.000 | 100% | 0% | 100% |
| 0.000 | 0% | 0% | 100% |
| 0.000 | 0% | 100% | 50% |
| 0.001 | 0% | 0% | 100% |
| 0.000 | 0% | 0% | 100% |
| 0.000 | 0% | 0% | 100% |
| 0.000 | 0% | 0% | 0% |
| 0.000 | 0% | 100% | 0% |
| 0.004 | 0% | 0% | 0% |
| 0.000 | 0% | 0% | 0% |
| 0.000 | 0% | 0% | 50% |
| 0.000 | 0% | 100% | 0% |
| 0.083 | 0% | 0% | 50% |
| 0.0000 | 0% | 0% | 0% |
| 0.616 | | | |