| Case Number | 2 destination buses | Total Distance | Cost |
| --- | --- | --- | --- |
| **1** | BK69, AP69 | 12 | 9547200 |
| **2** | BK69, OAK69 | 19 | No solution |
| **3** | BK69, OAK138 | 19 | X |
| **4** | AP69, OAK69 | 19 |  |
| **5** | AP69, OAK138 | 19 | X |
| **6** | BK69, PIINE69 | 20 | 11193200 |
| **7** | BK69, PINE138 | 20 | X |
| **8** | AP69, PINE69 | 20 |  |
| **9** | AP69, PINE138 | 20 | X |
| **10** | BK69, MP69 | 21 |  |
| **11** | AP69, MP69 | 21 |  |
| **12** | OAK69, PINE69 | 27 |  |
| **13** | OAK69, PINE138 | 27 | X |
| **14** | OAK138, PINE69 | 27 | X |
| **15** | OAK138, PINE138 | 27 | X |
| **16** | OAK69, MP69 | 28 |  |
| **17** | OAK138, MP69 | 28 | X |
| **18** | PINE69, MP69 | 29 |  |
| **19** | PINE138, MP69 | 29 | X |

X means there is a bus with 138 kv

Case1:

Add 2 lines, both are rook, and replace OAK69 to BK69 with Crow.

Construction cost = 750000\*3 + 370000\*12 + 390000\*8 = 9810000

Saving in 5 years = 5\*365\*24\*60\*(10.7-10.6) = 262800

Total cost of addition = cc-savings = 9547200

Case2:

When adding these 2 lines, there is a violation at a line which is not in ROW table. It’s not worth to try further, because we already have case 1.

Case6:

Added 6km of Rook (NS69 to BK69) and 14km of Rook(NS69 to Pine69). Replaced 8km of Crow(OAK69 to BK69).

Construction Costs = 750000\*3 + 370000\*20 + 390000\*8 = 12770000$

Savings in 5 years = 60\*(10.7-10.1)\*24\*365\*\*5 = 1576800$

Total cost of an addition = cc - savings = 11193200$