



## Experiment No. 3

### Singly Constrained Gravity Model (Origin)

June 12, 2013, 12:34 pm

Input Values :

| Base Year Origin-Destination Cost Matrix |    |    |    |
|--|----|----|----|
| Zone                                     | 1  | 2  | 3  |
| 1  | 3  | 10 | 15 |
| 2  | 10 | 5  | 10 |
| 3  | 15 | 10 | 5  |

| Future Year Origins Total |    |    |   |
|---------------------------|----|----|---|
| Zone                      | 1  | 2  | 3 |
|                           | 10 | 15 | 8 |

| Future Year Destinations Total |  |  |  |
|--------------------------------|--|--|--|
|--------------------------------|--|--|--|



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| Zone | 1 | 2  | 3  |
|------|---|----|----|
|      | 7 | 16 | 10 |

Selected Impedence Functions : Power Function [ $F_{ij} = C_{ij}^B$ ]

B value = -2

Calculations :

| Impedance Matrix Calculations (Fij) |        |      |        |
|-------------------------------------|--------|------|--------|
| Zone                                | 1      | 2    | 3      |
| 1                                   | 0.1111 | 0.01 | 0.0044 |
| 2                                   | 0.01   | 0.04 | 0.01   |
| 3                                   | 0.0044 | 0.01 | 0.04   |



| Dij*Fij |        |      |        |             |
|---------|--------|------|--------|-------------|
| Zone    | 1      | 2    | 3      | Sum Dij*Fij |
| 1       | 0.7778 | 0.16 | 0.0444 | 0.9822      |
| 2       | 0.07   | 0.64 | 0.1    | 0.81        |
| 3       | 0.0311 | 0.16 | 0.4    | 0.5911      |

| Interaction Probabilities (Pij) |        |        |        |
|---------------------------------|--------|--------|--------|
| Zone                            | 1      | 2      | 3      |
| 1                               | 0.7919 | 0.1629 | 0.0452 |
| 2                               | 0.0864 | 0.7901 | 0.1235 |
| 3                               | 0.0526 | 0.2707 | 0.6767 |

Final Result



| Origin Destination Matrix Tij |        |         |        |                    |                           |
|-------------------------------|--------|---------|--------|--------------------|---------------------------|
| Zone                          | 1      | 2       | 3      | Sum $D_j * F_{ij}$ | Future year Origins Total |
| 1                             | 7.9186 | 1.629   | 0.4525 | 10                 | 10                        |
| 2                             | 1.2963 | 11.8519 | 1.8519 | 15                 | 15                        |
| 3                             | 0.4211 | 2.1654  | 5.4135 | 8                  | 8                         |