Module 13: Optimization: Part Five

Total Cost = \_\_\_\_\_$541,000\_\_\_\_\_\_\_

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| **From** | **To** | **Flow (1000 Tons)** |
| New York | C1 | 100 |
| New York | C6 | 40 |
| New Jersey | Brooklyn | 100 |
| New Jersey | Queens | 110 |
| New Jersey | Staten Island | 80 |
| Brooklyn | C2 | 20 |
| Brooklyn | C4 | 70 |
| Brooklyn | C5 | 10 |
| Queens | C5 | 110 |
| Staten Island | C4 | 80 |

Summary:

The minimum shipping cost to all throughput depots and landfills is **$541,000** for total demand. This is the objective of this model; to minimize shipping costs.

To achieve this, the depots are only used for shipments from New Jersey. Shipments from New York go directly to two landfills: C1 (100 ktons- max capacity) and C6 (40 Ktons – max capacity). Shipments from New Jersey go through 3 out of the 4 available depots only: Brooklyn, Queens, and Staten Island. Brooklyn then gets distributed to three landfills: C2 (20ktons – max capacity), C4 (70ktons – max capacity), and C5 (10Ktons). Queens only goes through to C5 (110 ktons – now at max capacity), and Staten Island depot only goes through to C3 (80ktons – max capacity). All landfills receive maximum capacity in this model.

Brooklyn and Staten Island are utilized at maximum capacity, while Queens is a little over half and Bronx is not utilized at all in this model. This model seeks to minimize shipping costs, while respecting the maximum capacities of depots and landfills. In other models with other objectives than to minimize shipping costs, these capacities could change.