# CONCRETE PROJECTS

***(TRANSPORTATION PROBLEM)***

*Justice Inkoom*

# SCENARIO

The Osbourne Concrete Company has plants in three locations and is currently working on three major construction projects, each located at a different site. The shipping cost per truckload of concrete, daily plant capacities, and daily project requirements are provided in the table below.

Determine the least-cost way for Osbourne Concrete to meet their requirements.

| | Project A | Project B | Project C | Capacity |
|---|---|---|---|---|
| Plant 1 | 10 | 4 | 9 | 80 |
| Plant 2 | 12 | 6 | 8 | 40 |
| Plant 3 | 8 | 9 | 5 | 30 |
| Requirements | 50 | 40 | 60 | |

# T. TEMPLATE

| | | Projects | | | |
|---|---|---|---|---|---|
| | Data table: | Project A | Project B | Project C | Capacity |
| locations | Plant 1 | 10 | 4 | 9 | 80 |
| | Plant 2 | 12 | 6 | 8 | 40 |
| | Plant 3 | 8 | 9 | 5 | 30 |
| | Requirements | 50 | 40 | 60 | |

| | | Projects | | | |
|---|---|---|---|---|---|
| | Shipment table: | Project A | Project B | Project C | Capacity |
| locations | Plant 1 | 40 | 40 | 0 | 80 |
| | Plant 2 | 0 | 0 | 40 | 40 |
| | Plant 3 | 10 | 0 | 20 | 30 |
| | Requirements | 50 | 40 | 60 | |

**Total Shipment cost (Min):** $1,060

# QUESTIONS

1. How many truckloads of concrete should Plant 1 ship to each project?
**Answer:** 40 truckloads to Project A, 40 truckloads to Project B, and no shipment to Project C.

2. How many truckloads of concrete should Plant 2 ship to each project?
**Answer:** No shipment to Project A, no shipment to Project B, and 40 truckloads to Project C.

3. How many truckloads of concrete should Plant 3 ship to each project?
**Answer:** 10 truckloads to Project A, no shipment to Project B, and 20 truckloads to Project C.

4. What is the total minimal shipping cost?
**Answer:** $1060

# SUMMARY

This project was set up with one of the transportation problem templates. The Solver Add-in was used to show that the minimal shipping cost for the concrete is $1060. This minimum cost was achieved with the following plan:

1. Send 40 truckloads of concrete from Plant 1 to Project A and send 40 truckloads from Plant 1 to Project B. Nothing goes from Plant 1 to Project C.

2. Send 40 truckloads of concrete from Plant 2 to Project C. Nothing goes from Plant 2 to either of the other projects.

3. Send 10 truckloads of concrete from Plant 3 to Project A and send 20 truckloads from Plant 3 to Project C. Nothing goes from Plant 3 to Project B.

# THANK YOU