

# Savings Per Cubic Yard For Central Mix

## Central Mix Equipment Cost

Initial Investment = \$490,000.00 amortized over 30 years.

|  |                             |
|--|-----------------------------|
| Equipment cost per year (30 yr mixer life) | \$16,333.33                 |
| Electricity consumption per year*          | \$18,000.00                 |
| Maintenance cost per year**                | <u>\$12,000.00</u>          |
| <b>Total</b>                               | <b>\$46,333.33 per year</b> |

\* Based on \$0.12 per kWh

\*\*Reserved for liner/maintenance

Divide by average annual production of 100,000 cubic yards per year to get

**CENTRAL MIX EQUIPMENT COST = \$0.46 per cubic yard**

### 1. MIXING TIME SAVINGS

When the central mixer finishes loading the truck and the driver has hosed it off – a wash that takes just seconds – the truck is ready to leave the yard. The batch plant operator has already checked the slump with an amp meter and visually observed the concrete while loading. Central mix ends the driver’s adjustment of the mix, a time-consuming and error-prone procedure. Some operators believe that this reason alone justifies the central mix option, regardless of time savings.

Transit mixer mixing time based on 90 revolutions at 18 RPM:

5 minutes at truck and driver costs of \$0.73/min\* \$3.63

Divided by average load size  $\div 10$

**Net Mixing Time Savings \$0.36 per cubic yard**

\*Per-minute salary and truck operating costs are derived from annual figures shown below:

|   |                 |
|---|-----------------|
| Truck initial cost = \$130,000 (assuming 7 year life) |                 |
| Truck cost per year                                   | \$18,572        |
| Insurance cost per year                               | \$ 1,800        |
| Maintenance cost per year                             | <u>\$ 5,000</u> |
| <b>Annual truck cost</b>                              | <b>\$25,372</b> |
| <br>  |                 |
| Driver salary per year                                | \$40,000        |
| Driver benefits per year                              | <u>\$13,000</u> |
| <b>Annual driver cost</b>                             | <b>\$53,000</b> |
| <b>Annual truck plus driver cost</b>                  | <b>\$78,372</b> |
| <b>*Per-minute truck-plus-driver cost</b>             | <b>\$ 0.73</b>  |

### 2. LOADING TIME SAVINGS

If a dry batch plant takes 4 minutes to load a 10 cubic yard load at \$.73 per minute, and a central mix plant takes 2.5 minutes, the potential savings are:

1.5 minutes at truck and driver costs of \$0.73/min = 1.09

Divided by average load size  $\div 10$

**Net loading time savings = \$ 0.11 per cubic yard**

### 3. DRUM WEAR SAVINGS

Replacement truck mixer drums historically last 60% longer with central mix. If drums now last 35,000 cubic yard for transit mix, drums will last 56,000 cubic yards with central mix. Drum replacement cost = \$8,300.

|   |            |
|---|------------|
| Nat'l average drum replacement cost, rear discharge | \$ 8,300   |
| Dismount and mount                                  | + \$ 1,000 |
| Paint   | + \$ 1,000 |
| Total   | = \$10,300 |

Dry batch drum wear: \$10,300 @ 35,000 cubic yards \$0.29 per cubic yard  
Central mix drum wear: \$10,300 @ 56,000 cubic yards -\$0.18 per cubic yard  
**Net Drum Wear Savings = \$0.11 per cubic yard**

### 4. FEWER TRANSIT MIXERS

Under #1 above, we figure annual truck and driver cost (not including fuel) at \$25,372 + \$53,000 = \$78,372.

\$78,372 divided by 100,000 cubic yards per year = \$0.78.

**Net savings from eliminating one truck = \$0.78 per cubic yard**

### 5. FUEL SAVINGS

Mack 355HP truck engines burn 20.5 gallons per hour. Mixing speed is 17 – 19 RPM. Five minutes mixing time in truck @ 20.5 gallons per hour = 1.71 gallons.

Cost for 1.71 gal. fuel to mix for 5 minutes @ \$4.75 per gal. = \$8.11

Divided by average load (10 cubic yards) **Fuel savings = \$0.81/cubic yard**

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### TOTAL SAVINGS

|                          |                                |
|--------------------------|--------------------------------|
| Mixing Time -            | \$0.36 per cubic yard          |
| Loading Time -           | \$0.11 per cubic yard          |
| Drum Wear -              | \$0.11 per cubic yard          |
| Fewer Transit Mixers -   | \$0.78 per cubic yard          |
| Fuel Savings -           | \$0.81 per cubic yard          |
| Savings subtotal -       | \$2.18 per cubic yard          |
| Less central mixer cost- | \$0.46 per cubic yard          |
| <b>Net savings</b>       | <b>= \$1.71 per cubic yard</b> |

Based on 100,000 yards per year, savings would be \$171,000 per year.

## Additional Profit Potential with Central Mix

The savings estimated above are not the whole picture when considering a central mix plant. During the crucial 2½ hour rush period in the morning, time saved by sending trucks out more frequently lets you serve more customers.

Assume hypothetically that an efficient dry batch operation with multiple wash stations sends out a truck every 4 minutes. Within 41 minutes, ten trucks are on the street (see below). With a central mix plant sending out trucks every 2.5 minutes, you'll put 17 trucks on the street in the same 41 minutes\*.

When a customer calls between 7 and 9 in the morning, a dry batch plant may be capacity-bound, prompting him to make a choice: reschedule for tomorrow, or call somebody else.

Central mix lets you put at least 50 percent more jobs into the peak operating 2½-hour period in the morning and keep that customer.

### TRANSIT MIX

|            |  |
|------------|--|
| 1st mixer  | 0 minutes                                    |
| 2nd mixer  | 4 min+5 min slump adjust/rinse = 9 minutes   |
| 3rd mixer  | 8 min+5 min slump adjust/rinse = 13 minutes  |
| 4th mixer  | 12 min+5 min slump adjust/rinse = 17 minutes |
| 5th mixer  | 16 min+5 min slump adjust/rinse = 21 minutes |
| 6th mixer  | 20 min+5 min slump adjust/rinse = 25 minutes |
| 7th mixer  | 24 min+5 min slump adjust/rinse = 29 minutes |
| 8th mixer  | 28 min+5 min slump adjust/rinse = 33 minutes |
| 9th mixer  | 32 min+5 min slump adjust/rinse = 37 minutes |
| 10th mixer | 36 min+5 min slump adjust/rinse = 41 minutes |

### CENTRAL MIX

|             |                                      |
|-------------|--------------------------------------|
| 1st mixer   | 0 minutes                            |
| 2nd mixer   | 2.5 min +1 min rinse = 3.5 minutes   |
| 3rd mixer   | 5.0 min +1 min rinse = 6.0 minutes   |
| 4th mixer   | 7.5 min +1 min rinse = 8.5 minutes   |
| 5th mixer   | 10.0 min +1 min rinse = 11.0 minutes |
| 6th mixer   | 12.5 min +1 min rinse = 13.5 minutes |
| 7th mixer   | 15.0 min +1 min rinse = 16.0 minutes |
| 8th mixer   | 17.5 min +1 min rinse = 18.5 minutes |
| 9th mixer   | 20.0 min +1 min rinse = 21.0 minutes |
| 10th mixer  | 22.5 min +1 min rinse = 23.5 minutes |
| 11th mixer  | 22.5 min +1 min rinse = 26.0 minutes |
| 12th mixer  | 22.5 min +1 min rinse = 28.5 minutes |
| 13th mixer  | 22.5 min +1 min rinse = 31.0 minutes |
| 14th mixer  | 22.5 min +1 min rinse = 33.5 minutes |
| 15th mixer  | 22.5 min +1 min rinse = 36.0 minutes |
| 16th mixer  | 22.5 min +1 min rinse = 38.5 minutes |
| *17th mixer | 22.5 min +1 min rinse = 41.0 minutes |

## **CONCLUSION**

**How many more yards of concrete could you sell in a year if you had more of it to sell when customers want it? It's not unreasonable to speculate about annual production increases of 25% or more when converting to central mix.**

**We don't know your business nearly as well as you do, but if you have an issue with turning customers away, central mix can help alleviate that bottleneck, giving you a tactical advantage in your local market.**

**###**