Reducing Trucking Costs
Reducing Trucking Costs

Areas of Discussion

- Basic Fundamentals
- Opportunities Overlooked
- New Areas to Explore for Improvements
Reducing Trucking Costs

Lean is the Elimination of Waste

What are the 7 elements of Waste?

- Over Production
- Transportation
- Motion
- Waiting
- Unnecessary Processing
- Inventory
- Defects and Rework
Reducing Trucking Costs

How do we attack the 7 elements of waste?

1. Sort & Remove Unnecessary Items
2. Simplify Work Procedures
3. Standardize Work Procedures
4. Sweep & Clean Work Areas
5. Stick to Process – Follow-up – Continuously Improve (Requires much Discipline)
6. Be Safe! Eliminate loss time due to unnecessary accidents
HMAT – Trucking Articles

• Balancing Production Rates in Hot Mix Operations

• Dump Truck Diligence: Keeping your Work Zone and Workers Safe

• Truck Management is Crucial to a Successful Paving Operation
Transportation Costs

Transportation Mode – Cost Per Ton Mile

- 12 - 18 Cents / Ton Mile
- 4 - 8 Cents / Ton Mile
- 1 - 2 Cents / Ton Mile
- .4 - 1.2 Cents / Ton Mile

- 20 tons per truck
- 100 tons per rail car
- 1,800 tons per barge
- 45,000 tons per ship

Martin Marietta Materials
What is your Cost of Trucking?

- Lack of Understanding Current Cost
- General feeling that nothing can be done to Improve the Operations
- Methods to Improve are not Pursued
- Lack of effort to find New Methods to improve overall effectiveness
Asphalt Production Cost Categories

- Material - 70% of Cost
- Plant Production - 10% of Cost
- Trucking - 15% of Cost
- Lay Down - 5% of Cost
Factors that Increase Trucking Costs

- Higher Fuel cost & Fuel Tax
- Higher Equipment cost
- Higher License fees
- Higher Insurance cost
- Regulations limiting Driver hours
- Higher Labor cost
- Lack of Training for Drivers
- Congestion
- Delays in Trucking Cycle
October 3, 2007
Retail diesel prices advanced for the fifth consecutive week, settling at 304.8 cents per gallon. The price is 1.6 cents more than last week and 50.2 cents per gallon higher than last year. All regions of the country recorded an increase in price. The largest rise occurred in the Rocky Mountains where the price jumped 7.2 cents to 310.0 cents per gallon, the highest in the country. The East Coast increased 1.5 cents to 305.2 cents per gallon. The Midwest price rose 0.7 cent to 306.1 cents per gallon. The Gulf Coast was the only region below the $3 mark, settling at 297.5 cents per gallon. The West Coast price grew to 309.0 cents per gallon, gaining 3.6 cents. California prices were up 5.0 cents to 314.3 cents per gallon.
Rising Cost Of Fuel

U.S. Average All-Types Diesel Fuel Prices

Cents per Gallon

Nov  Feb  May  Aug  Nov

2005-06  2006-07
Rising Cost Of Fuel

US 48 State Average Retail Price Per Gallon

January 2004  $ 1.55
January 2006  $ 2.46
October 2007  $3.05

97% Increase Since Jan 2004

- Control Excess Engine Idling
- Maintain Truck Engine Performance
- Insure Tire Pressure Levels - Lower Rolling Resistance
- Shorten Haul Cycles - Minimize Stop & Go’s
- Find Most Economical Haul Route in relation to Grade
<table>
<thead>
<tr>
<th>OEM Corp</th>
<th>Price Increase</th>
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<tr>
<td>Paccar Corp. (Kenworth-Peterbilt)</td>
<td>19%</td>
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<td>Volvo – Mack</td>
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<td>Freightliner</td>
<td>21%</td>
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</table>
- Production: 240 tons per hour = 2,400 tons per day
- 20 Tons per Truck
- Truck Cost: $60 per hour = $1.00 per minute

- Delay at Plant                    15 Min.
- Loading Time                      5 Min.
- Ticket, Tarp, Sampling            5 Min.
- Haul to Lay Down                  20 Min.
- Delay at Job                      15 Min.
- Truck Exchange                    2 Min.
- Dump                              3 Min.
- Return to Plant                   20 Min.

Total Cycle Time 85 Min.

Cost Cycle           $85.00
Cost / Ton           $ 4.25
Trucks Required      17
• Production: 240 tons per hour = 2,400 tons per day
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Delay Time can be Improved To as Little 2 minutes

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Cost Cycle $85.00
Cost / Ton $4.25
Trucks Required 17
Delays at Plant

- Automatic spray system
Locate Spray System in line with Plant
Delays at Plant

- Automatic spray system
- Bed liners
QuickSilver outlasts aluminum — and steel in many cases. QuickSilver is a specially formulated UHMW to achieve a super slick, tough surface. It handles hot asphalt up to 350°F. Its impact strength has been tested to -100°F without cracking or breaking.
Delays at Plant

- Automatic spray system
- Bed liners
- Stagger truck start time
Trucks Start the Day in a Group and Stay in a Group
• Start Time Each Day Should be Managed
• Staggering Start Times eliminates wait
• Production: 240 tons per hour = 2,400 tons per day
• 20 Tons per Truck
• Truck Cost: $60 per hour = $1.00 per minute

- Delay at Plant: 15 Min.
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Total Cycle Time: 85 Min.

Cost Cycle: $85.00
Cost / Ton: $4.25
Trucks Required: 17
• Poor Loading Time Is Directly related to how well Silos are managed
• Loading time can be increased with better knowledge of Silo Systems
• Think of Silo Systems as Storage Bins instead of Surge Bins
• Modern Storage Bins seal like a Thermos Bottle
Storage Bin Bottom Liquid Seal

OIL FILLS WELL TO SEAL BIN

OIL IN RESERVOIR

FILTER

PUMP
Storage Bin Top Grease Seal

OPEN

CLOSED
End The Day With Silos Full

• Less labor cost through out day

• Time to do maintenance on the plant in the afternoon

• 95% of all plant breakdowns occur at start-up in the morning
• Well managed Silos eliminate long truck loading times through out the day
- Production: 240 tons per hour = 2,400 tons per day
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- Delay at Plant: 15 Min.
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Cost Cycle: $85.00
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Ticket, Tarp, & Sampling Time can be improved to as little as 2 minutes.
Improving Ticket, Tarp, & Sampling

- Remote Ticket Printing System
Remote Printing is Faster than Conventional Vacuum Ticket Tube Delivery System
Start Time Each Day Should be Managed
Staggering Start Times eliminates wait
Improving Ticket, Tarp, & Sampling

- Remote Ticket Printing System
- Automatic Tarping
Get better Tarping System on all Trucks
Driver operates from the cab. No climbing or dangling off the truck. No out-of-control flying cranks to break hands or arms. No chain guard to block rear vision.

Help increase productivity because you can tarp and un-tarp while on the move.

Just turn a switch mounted inside the cab. Includes circuit breaker and indicator light.
Improving Ticket, Tarp, & Sampling

- Remote Ticket Printing System
- Automatic Tarping
- Automatic Sampling
Automatic Truck Sampling System
• Production: 240 tons per hour = 2,400 tons per day
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- Delay at Plant 15 Min.
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- Return to Plant 20 Min.

Total Cycle Time 85 Min.

Cost Cycle $85.00
Cost / Ton $ 4.25
Trucks Required 17

Haul to Lay Down & Return to Plant Time can be Improved 20%
Better Management of Trucking

• Assign Supervision to Trucking Operations

Make a Interested person Truck Foreman to Identify Opportunities
  • Best Truck Driver
  • Young Engineer

Supervisors Responsibilities

• Monitor & Improve Driver Skills
• Ride Frequently with Drivers
• Define Route for Drivers before shift starts
• Teach Technique on Paving Trucking
• Lowering the Amount of Over Trucking
Rule of Thumb for Determining Amount of Trucks on Haul
• Production: 240 tons per hour = 2,400 tons per day
• 20 Tons per Truck
• Truck Cost: $60 per hour = $1.00 per minute

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Cost Cycle $85.00
Cost / Ton $4.25
Trucks Required 17

Delay At Job Time can be Improved To as Little 4 minutes
Eliminating Delays at Lay Down

- Space Trucks to Correlate with Coverage
- Utilize Shuttle Buggy as Surge
• Space Trucks to correlate with Coverage
• Do not Over Truck
Shuttle Buggy Material Transfer Vehicle
Paving Operation using MTV as Surge
MTV feeds Paver over String Lines
The Shuttle Buggy allows increased Paver maneuverability

Increases Lay Down production on Cul-de-sac’s and Approaches
Find ways to increase Double Hauling
### Production Calculations

- **Production:** 240 tons per hour = 2,400 tons per day
- **20 Tons per Truck**
- **Truck Cost:** $60 per hour = $1.00 per minute

### Delays and Costs

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### Savings

**Eliminating 7 Trucks / Day = $4200 Savings**
Gross Loading

• Find methods to increase the load on each and every Truck

• Use truck scales to maximize the GVW of each Truck
### Production: 240 tons per hour = 2,400 tons per day
- **20 Tons per Truck**
- **Truck Cost: $60 per hour = $1.00 per minute**

**Delay at Plant**: 15 Min.
**Loading Time**: 5 Min.
**Ticket, Tarp, Sampling**: 5 Min.
**Haul to Lay Down**: 20 Min.
**Delay at Job**: 15 Min.
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**Return to Plant**: 20 Min.
**Total Cycle Time**: 85 Min.

**Cost Cycle**: $85.00
**Cost / Ton**: $4.25
**Trucks Required**: 17

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### Increase Truck Load To 21.5 Tons Per Truck

**Delay at Plant**: 2 Min.
**Loading Time**: 2 Min.
**Ticket, Tarp, Sampling**: 2 Min.
**Haul to Lay Down**: 16 Min.
**Delay at Job**: 4 Min.
**Truck Exchange**: 2 Min.
**Dump**: 3 Min.
**Return to Plant**: 16 Min.
**Total Cycle Time**: 47 Min.

**Cost Cycle**: $47.00
**Cost / Ton**: $2.18
**Trucks Required**: 10

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**Additional $42,500 a year savings at 250,000 tons**
Review Truck Specs

• Trucks are typically overspec’d for use
• Consider using lighter trucks for increased hauling weight
• Most often trucks have higher HP than required, structural components made of steel instead of lighter alloys
• Trade trucks more often to get increased hauling loads to offset costs
Conclusion

• Do not Over-Truck
• Have an alternate use for the trucks, during slow times of day
• Double-haul when possible
• Eliminate all delay...keep the trucks moving
• Keep the Drivers in the Trucks
• Take a Ride with Drivers yourself
Reducing Trucking Costs