

# CEE 5390 - Modeling and Simulation in CEE

*Man is made for something better than disturbing dirt*  
- Oscar Wilde

March 26, 2008

## Problem 1: The “disturbing dirt(y)” problem

You are given the following information about a dry-batch paving operation. See the attached diagram.

- You are going to use one mixer that has a service rate of 30 services per hour.
- The dry-batch trucks that you use to bring concrete to the paver have an arrival rate of 7.5 arrivals per hour
- Each truck carries 6 CY of concrete
- You have a total amount of 13,500 CY of concrete to pour
- You rent a truck at \$15 per hour and the paver at \$60 per hour.
- If the job takes more than 80 hours you pay a penalty of \$140 per hour owing to delays in completion.

Based on the above information answer the following questions.

- Develop an event graph for the operation
- Develop an activity cycle diagram for the operation
- Run a discrete event simulation for the problem using WebCYCLONE
- Discuss and interpret the results