

# Recovering Lost Productivity Damages in Pennsylvania

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# Typical Project Scenario

- Project with multiple items of work or single item of work in multiple locations
- Prices based on anticipated productivity
- Events and conditions encountered in the work adversely affect time and progress of the work
- Productivity decreases
- Cost of performance increases
- Owner liability can be established
- How to prove and recover damages?

# Types of Damages

## Delay Damages

- Field overhead/supervision
- Extended general conditions
- Wage escalation
- Material escalation
- Home office overhead

## Lost Productivity Damages

- Inefficient labor
- Inefficient equipment

# Analysis of Potential Claims

- Contract Provisions – review contract for claims procedures, any waivers of delay or lost productivity claims
- Exculpatory Clauses
- Example: PennDOT Pub. 408, Section 111 Delay Claims
- Comply with contract terms for claim preservation and prosecution
- Evaluate grounds for exceptions to exculpatory clauses
- In all cases:

**NOTICE NOTICE NOTICE**

# Causes of Lost Productivity

- Examples:
  - Unknown/unforeseen conditions
  - Design errors
  - Changes in the work
  - Extra work
  - Untimely responses/reviews
  - Withholding of information/constructive fraud
  - Interference by other contractors
  - Lack of access to work
  - Directed acceleration of work
  - Constructive acceleration of work

# PROVING LOST PRODUCTIVITY DAMAGES

#1 MEASURED MILE CALCULATION

#2 ALTERNATIVE METHODOLOGIES

# Measured Mile Calculation in Pennsylvania

## James Corp. v. North Allegheny School District Commonwealth Court of Pennsylvania 2008

- School renovation project (multi-prime).
- Multiple delay events to contractor: delayed NTP; changes in the work; unforeseen conditions; environmental conditions; interference by other contractors on the project.
- Excusable delays to contractor.
- Construction Manager recommends time extension.
- School District to CM:

*“ . . . don't tell them we know they need more time because that will open [School District] to claims.”*

# Measured Mile Calculation in Pennsylvania

## James Corp. v. North Allegheny School District Commonwealth Court of Pennsylvania 2008

- Commonwealth Court: response was "*significant*"; "*smoking gun*."
- Project completed on time.
- Contractor claim for acceleration of work – refusal to extend time and potential liability for delay damages (constructive acceleration).
- Owner defenses:
  1. No damage for delay clause – Rejected
  2. Lack of notice – Rejected



# Measured Mile Calculation in Pennsylvania

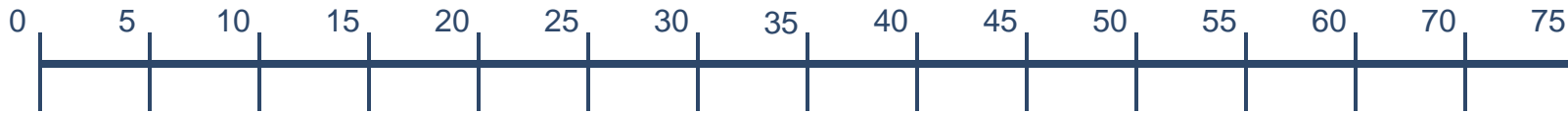
## James Corp. v. North Allegheny School District Commonwealth Court of Pennsylvania 2008

- Measured Mile Theory:  
“Compares the cost of completing work not subject to delay or acceleration with Costs of completing work during period of impact, the difference representing the measure of damages.”
- Measured mile is the preferred method of computing lost productivity damages
- Calculation in James Corp. case:
  - Project analyzed in two phases
  - Comparison of total hours during first time period (unimpacted) v. total hours during second time period (impacted).
  - Calculation of total “inefficient” labor hours during impacted period
  - Earned value factor: 61% of labor hrs. during impact period were inefficient.
  - Total inefficient hours x ave. rate = \$\$\$\$

# Measured Mile Calculation

1. Work item – Installation of soldier piles.
  - Two types
  - W12 piles
  - W14 piles
2. W12 piles – installed without problems.
3. W14 piles – contractor unable to install as planned because of design error.
  - Specified diameter of drilled shaft did not provide sufficient clearance to install W14 piles.
4. Solution – contractor had to perform additional work to install W14 piles.
  - Substantial increase in labor hours and equipment to perform W14 pile work
  - Work pushed into winter weather
5. Calculation: Productivity Comparison
  - Base Period: W12 pile installation
  - Impact Period: W14 pile installation

## Work Days



### Base Period (W12 Piles)



- 31 works days
- 88 piles drilled/set/paved
- 2.84 piles/work day

### Impact Period (W14 Piles)



- 74 works days
- 73 piles drilled/set/paved
- 0.99 piles/work day

# Labor Productivity Calculation

**Base Period:**

- 1,729 man-hours
- 1,856 total pile length installed
- Productivity: 0.93 mh/ft of shaft

**Impact Period:**

- 3,724 man-hours
- 1,177 total pile length installed
- Productivity: 3.16 mh/ft of shaft

**Without Impacts:**

1,177 x 0.93 mh/ft. = 1,096.5 man hours

**Man Hours Lost:**

3,724 – 1,096.5 = 2,627.5 man hours lost

**Labor Inefficiency**

**Damages:**

2,267.5 mh x \$115/hr. (ave. rate) = \$302,162.50

# Alternatives to Measured Mile Calculation

## Why Necessary?

1. Evidence insufficient for measured mile analysis.
  - Insufficient recordkeeping (time and production records).
2. No unimpacted period to compare.
  - Least impacted period?
3. Multiple and extensive delays make measured mile analysis impossible or too speculative.
4. Productivity fluctuations – lack of representative sample.
5. Compensable vs. non-compensable disruptions to productivity.
6. Many reasons cited to reject measured mile – for example, not comparable work; no cause and effect; not really a measured mile analysis; difference in length of unimpacted and impacted periods.

# Alternatives to Measured Mile Calculation

## Bid-Based Alternatives

### 1. Total Cost

- Depends on accurate bid (contrast to measured mile which is divorced from bid).
- Comparison of bid costs vs. actual costs.
- Lack of documentation to prove damages with greater certainty – loss of productivity can be equated to lack of accurate and precise record-keeping.
- Pennsylvania: Harkins v. Phila. School Dist.: Four factors: (1) nature of losses makes its impossible or highly impractical to determine losses with a reasonable degree of certainty; (2) bid or estimate was realistic; (3) actual costs were reasonable; and (4) claimant not responsible for added expenses.
- Not favored by the courts – imprecise and inaccurate.
- But, if no other mode available and evidence supports, PA will recognize.
- Very fact specific for recovery: liability; causation and damages.

# Alternatives to Measured Mile Calculation

## Bid-Based Alternatives

### 2. Modified Total Cost

- Total costs are adjusted downward for any costs that are claimant's responsibility.
  - ▶ Contractor errors; Contractor inefficient work.
- Bid is adjusted upward for bid errors.
  - ▶ Unrealistic estimate items.
- Difference is modified total cost.
- Same four Harkins factors.
- **Caution:** Failure to apportion damages among multiple causes; failure to attribute damages to causation and responsibility

# Alternatives to Measured Mile Calculation

## Bid-Based Alternatives

3. Earned Value
4. Similar Project

- Can be more akin to quasi-measured mile, but bid influence.
- Compare planned performance with actual performance over a specific period of time to a different time period.
- Earned Value = expected revenue per labor hour expended as compared to actual revenue per actual labor expended or percent complete of line item compared to labor per line item over given period.
- Compare other work on project.
- Compare other project.



# Alternatives to Measured Mile Calculation

## Data/Industry Alternatives

5. General
6. Specific

- Use of industry studies or data to obtain efficiency rates.
- Estimate inefficient hours based on industry data/studies.
- No actual costs exist – estimates of productivity losses.

# Alternatives to Measured Mile Calculation

## Judgment

7. Expert

8. Jury Verdict - Causation established, but damages uncertain.

- Past experience
- Site observations
- Project interviews
- Educated guess

# Project Documentation

## From Least to Most Documentation



# Complexity

## From Least to Most Complex



# Acceptance

## From Least to Most Accepted



Questions?

# Thank You!



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