


***The Economic Impacts of Coal Fly Ash Use in Transportation
Construction***

***Use of Industrial Materials in Highway and Road Construction
Conference***



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ARTBA-TDF Coal Fly Ash Study

- “The Economic Impacts of Prohibiting Coal Fly Ash Use in Transportation Infrastructure Construction:”
 - Released September 2011
 - ARTBA – Nation’s primary transportation construction advocate since 1902.
 - TDF – Sponsors scholarships, awards programs, professional development, safety training and other educational initiatives.
 - Headwaters Resources – Sponsored study, largest manager of coal ash resources in the U.S.

What Did the Study Examine

- Current use of coal fly ash in transportation construction
- Benefits of coal fly ash use
- What would the effects be if coal fly ash were not available
 - Regulatory prohibition
 - Legislative prohibition
 - Other developments that may restrict coal fly ash use

Methodology



- Used bid tab data from 48 states and D.C.
 - Same data used by FHWA to calculate National Construction Cost Index
- U.S. Census Bureau transportation construction market data
- Extensive interviews with state DOTs and coal fly ash supply company executives
 - Individual state-by-state breakdowns of coal fly ash use and potential effects of prohibition

Why Use Coal Fly Ash in Concrete?



- It makes concrete stronger
- It is easier to work with
- It lasts longer – less water penetration
- It costs less – 17% less according to FHWA
- It prevents road and bridge deterioration
- It is an environmental success story

How Much Coal Fly Ash Used in Infrastructure?

Table 3: National Use of Concrete & Estimated Fly Ash (FA) Value (\$ Millions)

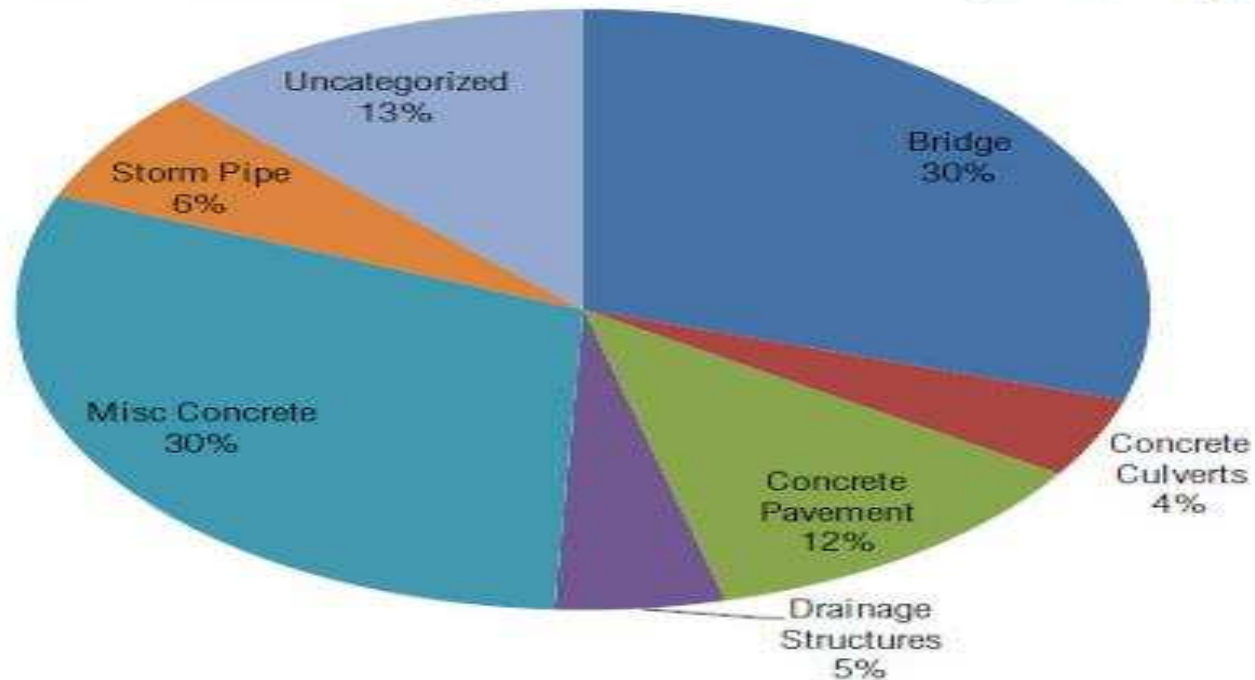
Year	Total value of concrete materials	Value of total bids	Concrete cost as % of total bids	Estimated FA concrete as % of total bids	Estimated value of FA concrete
2005	\$5,503	\$28,822	19.1%	15%	\$4,237.59
2006	\$6,201	\$33,284	18.6%	14%	\$4,774.61
2007	\$5,325	\$30,230	17.6%	14%	\$4,100.29
2008	\$5,043	\$28,120	17.9%	14%	\$3,883.41
2009	\$6,095	\$33,873	18.0%	14%	\$4,693.30
2010	\$6,628	\$31,717	20.9%	16%	\$5,103.41
Average	\$5,799	\$31,008	18.7%	14%	\$4,465.43

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Note: This table assumes an average of 77 percent of all concrete utilizes fly ash.

Where is Coal Fly Ash Used in Infrastructure?

National Average Concrete Usage by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Coal Fly Ash Successes

- Indiana - 42 percent used as recycled construction material;
- North Carolina - saves \$5 to \$10 million annually on transportation projects;
- Texas - saving an estimated at \$16 million annually;
- Minnesota - used in the new I-35 bridge replacement;
- Nationally – reduces GHGs between 12.5 and 25 million tons and oil consumption of between 26.8 and 53.6 million barrels.

Coal Fly Ash Regulatory History – Part 1

- 1950 – Found beneficial by the Bureau of Public Roads
- 1988 – EPA reports to congress coal fly ash does not have the characteristics of a hazardous material
- 1993 – EPA publishes regulatory determination that coal fly ash is not a hazardous waste
- 1999 – EPA reports to congress a second time that coal fly ash does not have hazardous characteristics

Coal Fly Ash Regulatory History – Part 2

- 2000 – EPA issues “Final Regulatory Determination” that coal fly ash should not be regulated as hazardous
- 2008 – Kinston Valley Tennessee TVA spill occurs
- 2010 – EPA issues regulations with option of regulating coal ash as hazardous

So, What Happens if Coal Fly Ash Becomes “Hazardous”?

Table 1: Cost of Banning Fly Ash Concrete (\$ Billions)

Additional annual cost of materials	\$2.5
Additional annual cost due to accelerated road & bridge repair needs	\$2.73
Total additional annual cost from fly ash ban	\$5.23
20-year total cost of fly ash ban	\$104.60

\$5.23 Billion Annually - Put In Perspective

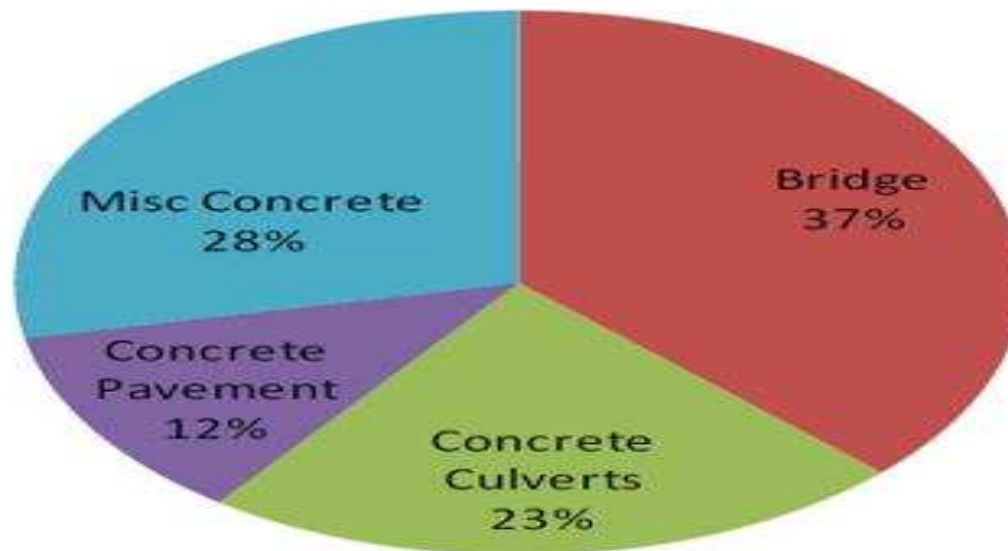
- Per year, the cost is \$2 billion more than the federal government currently invests in the entire Airport Improvement Program.
- Per year, this is about 13% of the federal government's current total annual aid to the states for highway and bridge work.
- Ultimately, taxpayers would bear this incredible cost
 - Paying more for the same level of transportation improvements or
 - Dealing with the consequences of a scaled back program

Additional Opportunity Costs - \$65.4 Billion Over 20 Years

- Prohibition of coal fly ash would also lead to additional opportunity costs from states being denied the opportunity to increase coal ash use.
- Currently roadways are designed with materials lasting an average of 22.5 years
 - Increasing this to 35 years with coal fly ash would save \$25 billion over 20 years
 - An increase to 40 years would save \$33.5 billion over the same period
 - An increase to 50 years would save \$51.5 billion over the same period
 - An increase to 60 years would save \$65.4 billion over the same period

State Profile Example Pt. 1

Average Texas Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

State Profile Example Pt. 2

Concrete Use by Type in Texas Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$293.0	\$429.9	\$218.9	\$181.4	\$216.0	\$249.4
Concrete Culverts	\$181.1	\$255.7	\$163.8	\$28.4	\$156.2	\$189.8
Concrete Pavement	\$140.1	\$45.8	\$78.6	\$121.1	\$24.4	\$86.1
Misc. Concrete	\$309.2	\$164.0	\$250.1	\$214.1	\$129.9	\$137.1
Total	\$923.5	\$895.3	\$711.3	\$545.1	\$526.5	\$662.4

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

White House Promise of “Regulatory Reform”

- Executive Order issued January 18, stating regulations must:
 - Allow for “public participation and the open exchange of ideas”
 - Identify and use the “best, most innovative and least burdensome tools”
 - Account for “benefits and costs, both quantitative and qualitative”
 - ARTBA brought up coal fly ash issue at 3 separate regulatory reviews – EPA, DOT, SBA

Legislative Update

- H.R. 2273 passed House 267-144 with 37 D's supporting
 - Bill focuses on storage, takes "hazardous" off of the table
 - One of the best examples of bipartisanship on an environmental issue this congress
- Senate companion bill, S. 1751, has been introduced
 - Bipartisan - 5 R's, 5 D's as original co-sponsors
- Administration does not support but has **NOT** threatened a veto.

Next Steps



- EPA has re-opened the docket until November 14
 - Indications are a final decision will not be reached until 2013
- Focus is on passage of Senate measure
- Regulatory certainty is needed
 - Effects are already being felt, some counties will not use coal fly ash until all is resolved
 - Many businesses cannot last until 2013
 - Long term stability and predictability is essential for transportation improvements

Questions, Comments or Additional Information



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