

Alternate Bids in Kentucky



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Introduction

- Kentucky has tried some rather innovative and unique approaches to contracting (including alternate bids and extended warranties)
- Some of our attempts have been successful... some unsuccessful
- The goal today is to share experiences...some may work in your state... others may not

A Little Perspective on KY

- Kentucky is primarily an asphalt state... 90% to 95% of the Transportation Cabinet pavement dollars are spent on asphalt pavement bid items
 - In 2003, KYTC let over 6 million tons (\$243M) of HMA and about 200,000 square yards (\$9M) of PCC pavement
- Hot mix asphalt is utilized on all routes (major and minor), including coal haul routes (US 23) which legally allow 120,000 pounds (frequently loaded to over 200,000 pounds) with estimated 40-year ESALs of 175 million

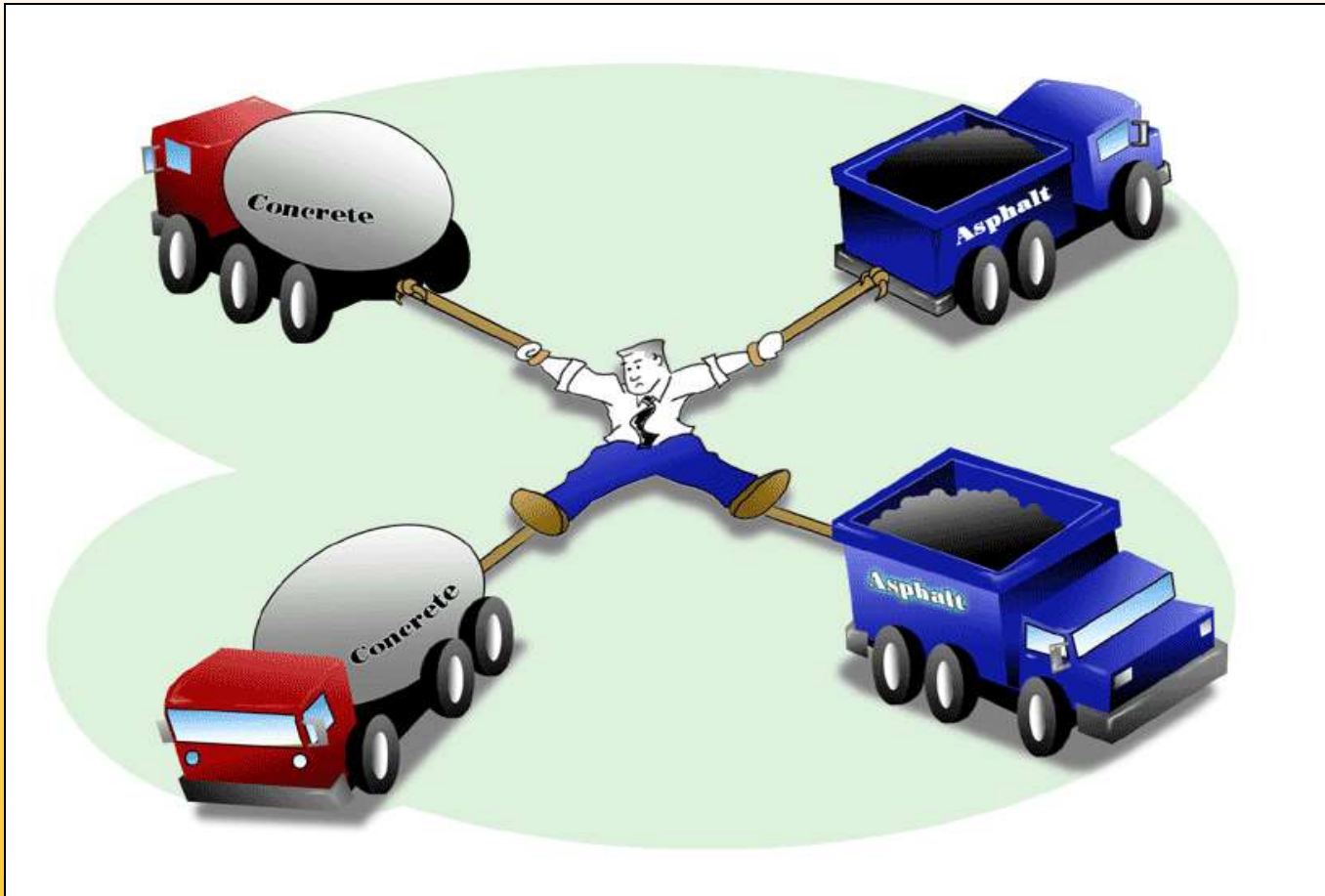
Asphalt Industry in Kentucky



Presentation Outline

1. Discuss Pavement Type Selection Process
 - How, when, and why Kentucky bids pavement alternates
 - Industry position on issues
2. Review recent projects and results
3. The future of alternate bids

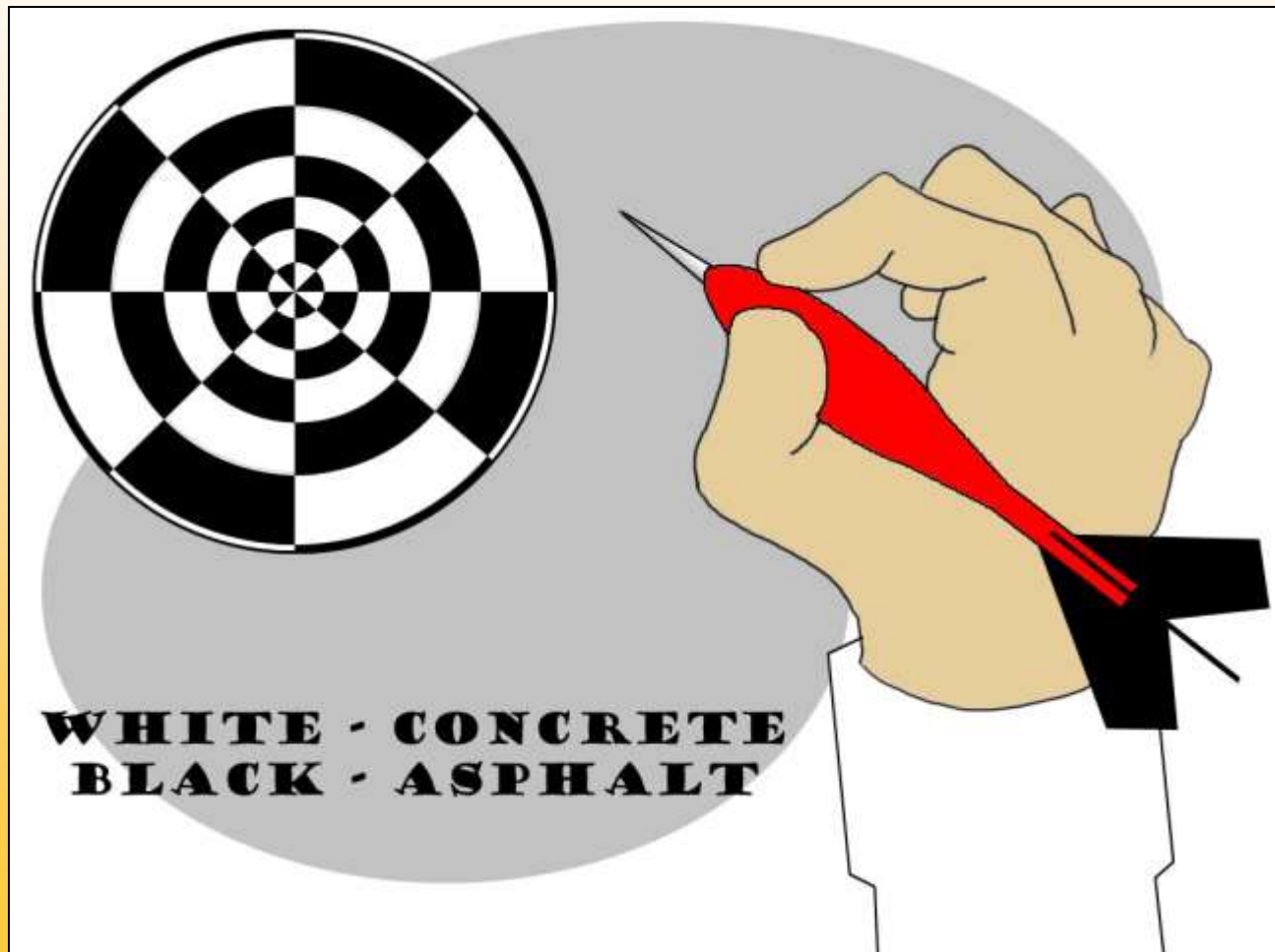
Black & White Issue



Black & White Issue

- The concrete versus asphalt issues in Kentucky began heating up in 1999-2000 when Kentucky was declared a “target” state by the ACPA
- They formed a local chapter in Kentucky, hired staff and lobbyists and began a very aggressive marketing campaign and legislative agenda
- It was the concrete industry that first advocated the use of alternate bids in Kentucky
- Forced KYTC to review policies and procedures

Pavement Type Selection Process

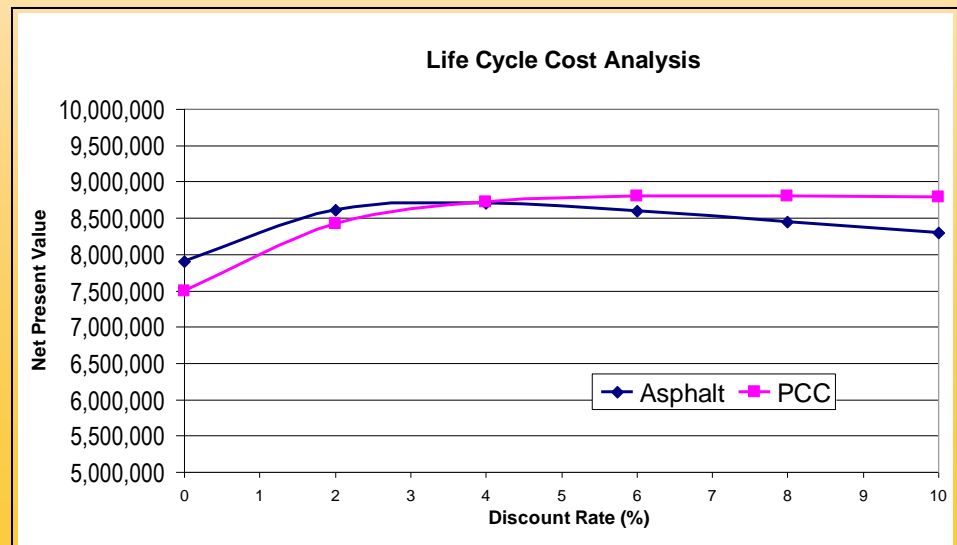


Pavement Type Selection Process



Pavement Selection in KY

- Perform structural pavement design to establish thickness and quantities
- Performed life cycle cost analysis and review results



Pavement Working Group

- A Pavement Working Group was established and determined four primary goals as they relate to pavement type selection
 1. Cost Effective Pavements
 2. Stimulate Competition
 3. Fair And Equitable Treatment Between Industries
 4. Provide Well Performing, Durable Pavements
- The working group recommended that a Pavement Type Selection Committee be formed to evaluate individual projects

“PTS” Process in Kentucky

1. For projects over 1 million ESALs, Engineers within the Pavement Design Branch or District Office perform Life Cycle Cost Analysis
2. Pavement Design Engineers utilize AASHTO 93' Appendix “B” make recommendations to the “Pavement Type Selection Committee”
3. The committee consists of Kentucky Transportation Cabinet (“DOT”) officials and one representative from FHWA
4. The committee directs the Division of Design to proceed with asphalt, concrete, or alternates

Committee Structure

- Membership
 - State Highway Engineer
 - Director-Division of Highway Design
 - Director-Division of Construction
 - Director-Division of Operations
 - Director-Division of Materials
 - FHWA Representative
- *No industry representation*



Pavement Selection Issues

- The previous threshold was 5 million ESALs before a detailed analysis was performed
- KYTC reduced the threshold in the past year to 1 million ESALs at the urging of the ACPA
- ACPA also tried to introduce a bill that would legislate/mandate that Life Cycle Cost Analysis be performed on nearly all projects... this attempt resulted in opposition from KYTC and was not successful

Bid Alternate Pavements?

- When?
 - If LCCA For Alternates Within Specified Range (10%?)
 - No Other Overriding Considerations
- PAIKY has concerns about many of the Life Cycle Cost Assumptions – most analysis will result in similar Net Present Worth values for asphalt and concrete... making alternate bids more likely

Bid Alternate Pavements?

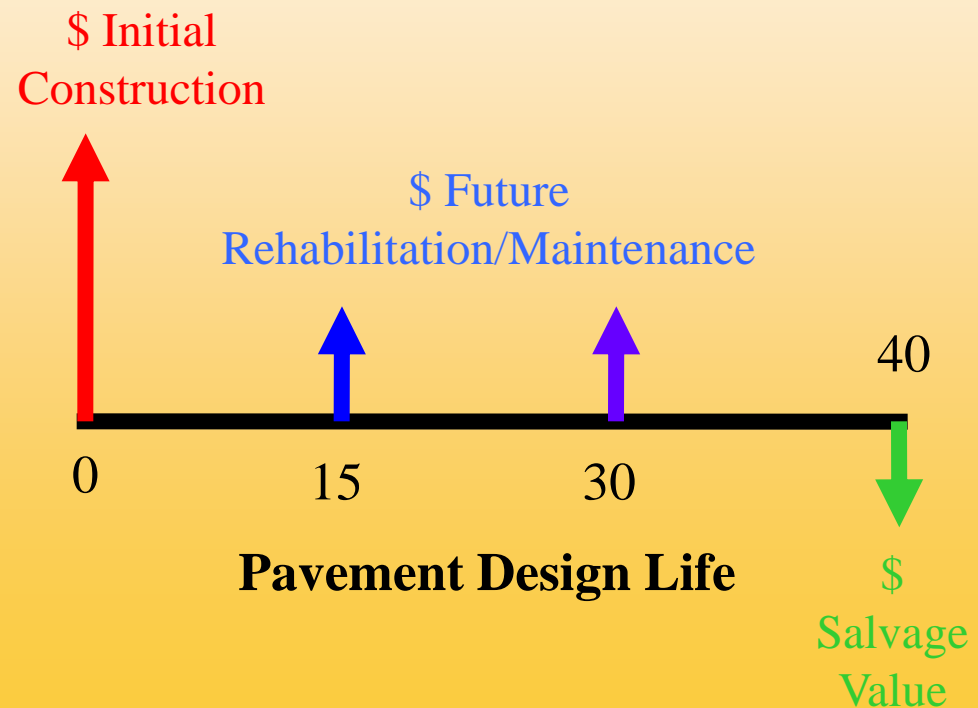
- How?
 - $A+B-C$ Where “B” is an adjustment for Time and “C” is an adjustment for extended Warranty
 - $A-C$ Where “C” is an adjustment for extended Warranty
 - $A+B+C$ Where “C” is an Adjustment For the Variation in Life-Cycle Costs Between Alternates Being Considered
 - $A+B$ With No Adjustment For Life Cycle Costs

Industry Concerns/Issues

LCCA Assumptions

- Analysis Period
- Rehabilitation Cycles
- Discount Factors
- Salvage Values
- Unit Bid Prices
- User Costs

Life Cycle Cost Schematic



Warranties

- To date, KYTC has utilized warranties with all alternate bid projects to date
- Concrete industry was initially in favor of warranties – recently have expressed opposition
- Warranty provisions include an evaluation team, details thresholds for distress parameters, ongoing condition monitoring, and WIM detectors
- Concerns from bonding companies
- Conservative Bids from contractors (based on Engineer's Estimates)

Warranty Parameters

- Asphalt Pavement Thresholds
 - Cracks
 - Rutting
 - Open/Raveling Joints
 - Potholes
 - Patching
 - Raveling/Flushing/Bleeding
 - Roughness (IRI)
 - Initial IRI with threshold values for each year of the warranty
- PCC Pavement Thresholds
 - Cracks
 - Faulting at Joints and Cracks
 - Spalling and Deterioration at Joints and Cracks
 - Scaling and Map Cracking
 - Blowups and Shattered Panels
 - Joint Sealant
 - Patching
 - Popouts
 - Roughness

Tons Versus Square Yards

- For Warranty projects, KYTC has bid asphalt and concrete pavements by the square yard
- All other projects (and non-warranty pavements within those projects) are bid by the ton
- Asphalt pavement is not constructed in square yards so record keeping, accounting, and payments are extremely complicated
- This process resulted in major changes to materials specs... eliminated volumetric pay bonuses and ride quality incentive (per ton basis)

Ride Quality

- In Kentucky, the required ride quality is not the same for concrete and asphalt
- Asphalt pavements must meet a higher standard than PCC for the same pay factor
- We have urged KYTC to require equal ride standards for PCC and HMA on alternate bids... the public doesn't know or care if a pavement is black or white but does know the difference between one that is smooth versus one that is bumpy

Example of Ride Inequity

- Consider two projects – one asphalt and one concrete. If both measure an IRI value of 47, the asphalt contractor gets 100% of pay. However, the pay factor for the concrete contractor is 1.03. Thus, the concrete pavement gets a 3% bonus for a ride quality expected from asphalt?
- For one project (I-65 in Bowling Green), KYTC did require equal standards... all other projects have utilized the standard specifications (lower standard for PCC)

Pavement Thickness

- Structural thickness design has been an issue on some projects (KY Mechanistic-Empirical)
- At times, we feel the HMA thickness is excessive and this puts at a competitive disadvantage
- For one project (I-64 Louisville), PAIKY hired Dr. Marshall Thompson to perform a perpetual pavement design – his design was thinner (by about 2 inches) than the design proposed by KYTC

Review of Alternate Bid Projects

Recent Alternate Bid Projects

- *Pre-2000... numerous alternate bid projects – all went asphalt*
 1. I-275 in Northern Kentucky (Cincinnati Airport)
 2. I-64 in Louisville
 3. I-65 in Bowling Green
 4. Natcher Parkway in Owensboro
 5. US 27 in Pulaski County (near Somerset)

I-275 in Northern Kentucky

- “A + B – C” Bidding where B=time and C=warranty
- PCC contractor bid a very aggressive work schedule (7 days a week, 24 hours a day)
- Low bid was from a PCC contractor
- Other issues: first time bidding a warranty (10 years), workload of contractors, traffic patterns (crossovers, etc.)

I-275 Project

- Following the bid and award of this project the concrete industry was energized and pushed harder for opportunities to bid PCC only and alternate bids
- The project became (and still is) the “poster child” for the concrete paving industry
- Details from this project have been extrapolated and used to market PCC pavements in the state

I-64 in Louisville

- Advertised in June 2001 with PCC and Asphalt alternates and a 10-year warranty
- Weekend work only – returned to traffic during week
- A + B with heavy incentives and disincentives

Total Asphalt Bid
= \$34,630,000

Total PCC Bid
= \$47,100,000

Engineers Estimate = \$28,589,088

Noise Became an Issue...



I-64 Continued...

- Bids rejected and readvertised as Asphalt Only (PCC considered non competitive)... Warranty Removed (for cost savings)
- “A + B” Bidding where “B” = time
- Low Bidder was Gohmann Asphalt
 - “A” Component = \$20,943,000
 - “B” Component = \$9,000,000
 - Total Bid = \$29,943,000
- Project was completed 7 weeks ahead of schedule

I-65 Bowling Green

- Began as an asphalt-only project with a 10-year warranty but both bids were over the Estimate and rejected
- Concrete industry made a strong push for PCC only/alternate bids since the job was over the Estimate
- Readvertised as a alternate bid with “A-C” approach

1-65 Bowling Green (A-C)

- Years of Warranty
 - 5 years (required)
 - 6
 - 7
 - 8
 - 9
 - 10
- “C” Value
 - \$ 0
 - \$250,000
 - \$800,000
 - \$1,500,000
 - \$2,150,000
 - \$3,350,000

“C” values calculated based on user delay costs
(extrapolation) in these future years

I-65 in Bowling Green

- Both bidders (concrete and asphalt) chose the 10-year option
- Results of the second bid....

Total Asphalt Bid
= **\$18,779,194**

Total PCC Bid
= **\$21,374,000**

Asphalt Wins by \$2.6 Million

2005 Sheldon G. Hays Finalist!

Natcher Parkway (Owensboro)

- Overlay of existing PCC Pavement with options for PCC Overlay or HMA Overlay
- **No concrete bidders**
- **Asphalt Wins Again!**

US 27 “A-C” Project

• Years of Warranty	• “C” Value
– 0	– \$ 0
– 5	– \$375,000
– 6	– \$460,000
– 7	– \$550,000
– 8	– \$655,000
– 9	– \$770,000
– 10	– \$890,000
– 11	– \$1,025,000
– 12	– \$1,170,000
– 13	– \$1,320,000
– 14	– \$1,485,000
– 15	– \$1,655,000

US 27 Pulaski County

- Many factors weighted in favor of PCC (bidding per square yard which resulted in no volumetric bonus for HMA, no payment for MTV, no ride quality bonus combined with a mediocre ride quality spec)
- Low asphalt bidder was \$31,885,482 versus low concrete bidder of \$36,948,493 (**\$5 million difference**)
- Asphalt unit price (for entire section, including DGA) was \$24.50/sy versus PCC unit price of \$37.50/sy
- Concrete bid NO WARRANTY whereas asphalt bid an 8-year warranty
- On pavement bid items alone, asphalt was **\$3.4 million** less than PCC

Kentucky Alternate Bid Summary

- Pre-2000..... **Asphalt**
- I-275 in Northern, Kentucky..... *PCC*
- I-64 in Louisville..... **Asphalt**
- I-65 in Bowling Green..... **Asphalt**
- Natcher Parkway in Owensboro... **Asphalt**
- US 27 in Pulaski County..... **Asphalt**

Future of Alternate Bids

- KYTC has indicated that they want to try 5 or 6 alternate bids in 2005
- However, with changes in KYTC administration (state highway engineer & deputy state highway engineers)... anything is possible
- The pavement type selection committee established a few years ago has not met in months
- Over the past few weeks, we've learned that the Pavement Type Selection process is likely to change

Conclusions

- Kentucky has a Pavement Type Selection process in place but it will likely undergo revisions in the near future
- Kentucky has utilized alternate bids on several projects – most have resulted in HMA
- KYTC needs to evaluate the issue of warranties – both the concrete and asphalt industry oppose them (bonding companies too)
- With 10-year warranty projects on the ground... we still need time to gather data and evaluate our efforts

Thank You!

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