Durability of Treatment: Maintenance of Flushed Chip Seals using the Ultra High Pressure Water Cutter

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87th Annual Transportation Short Course
Texas A&M University, College Station, TX
Materials II
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The Problem: FLUSHED PAVEMENTS
The Solution: ULTRA HIGH PRESSURE WATER CUTTING

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Q1. DOES IT WORK? (effectiveness)
SUMMARY

DOES IT WORK?

- **Texture Data**
  - SP: +46 to +344
  - Avg +189%
  - CTM: +36 to +401
  - Avg +204%

- **Friction Data**
  - SN: +0 to +351
  - Avg +129%
  - DFT: +15 to +348
  - Avg +143%

**YES**

Initial treatment showed improvement in both macrotexture and friction
Texture EFFECTIVENESS

% Increase in Texture Depth due to UHP Water Cutter Treatment

SP CTM

BRY2 BRY4 BRY5 BRY7 BRY9 BMT1 BMT2 BMT3 AMA1 AMA2 AMA3 LRD2 LRD3

283 277 250 267 209 171 212 269 337 401 294 263 246 181 159

0 50 100 150 200 250 300 350 400 450

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Q2. DOES IT LAST? (durability)
SUMMARY

DOES IT LAST?

- **Survivability** at 12 to 18 months
  - 12 of 13 sites… maintenance threshold
  - 7 of 13 sites… desirable threshold

- **Life Expectancy**
  - ~11 of 12 sites… ≥ 1 year
  - ~7 of 12 sites… ≥ 3 years
Survivability
Durability Method One
Life Expectancy
Durability Method Two
CTM

LIFE EXPECTANCY

Life Expectancy in years

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<th>AMA2</th>
<th>AMA3</th>
<th>BMT1</th>
<th>BMT2</th>
<th>BMT3</th>
<th>BRY2</th>
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Q3. WHAT'S IT COST? (affordability)
Unit Costs for UHP Water Cutting (Flushing)

- **SUB-CONTRACT**
  (UHP Water Cutting - No Support Services)
  - MIN: $0.90/SY
  - MAX: $1.15/SY

- **GENERAL CONTRACT**
  (Turn Key UHP Water Cutting)
  - MIN: $1.40/SY
  - MAX: $1.65/SY

2011-12 COSTS REPORTED BY UHP CONTRACTOR
CONCLUSIONS

UHP Water Cutting

- UHP Water Cutting for treatment of flushed pavement surfaces:
  - **Works**... treatment is effective
  - **Lasts**... survivability and life expectancy are positive
  - **Costs**... less than currently-available maintenance methods
THANK YOU!

TECHMRT
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