

Feature Presentation

Use of BRIC by Camden County

Kevin Becica, PE, PP, CME
County Engineer



Making It Better, Together.

New Jersey State Innovation Council

December 15, 2021



Targeted Overlay Pavement Solutions (TOPS) Projects Using BRIC & SMA

Kevin Becica, PE, PP, CME
Camden County Engineer

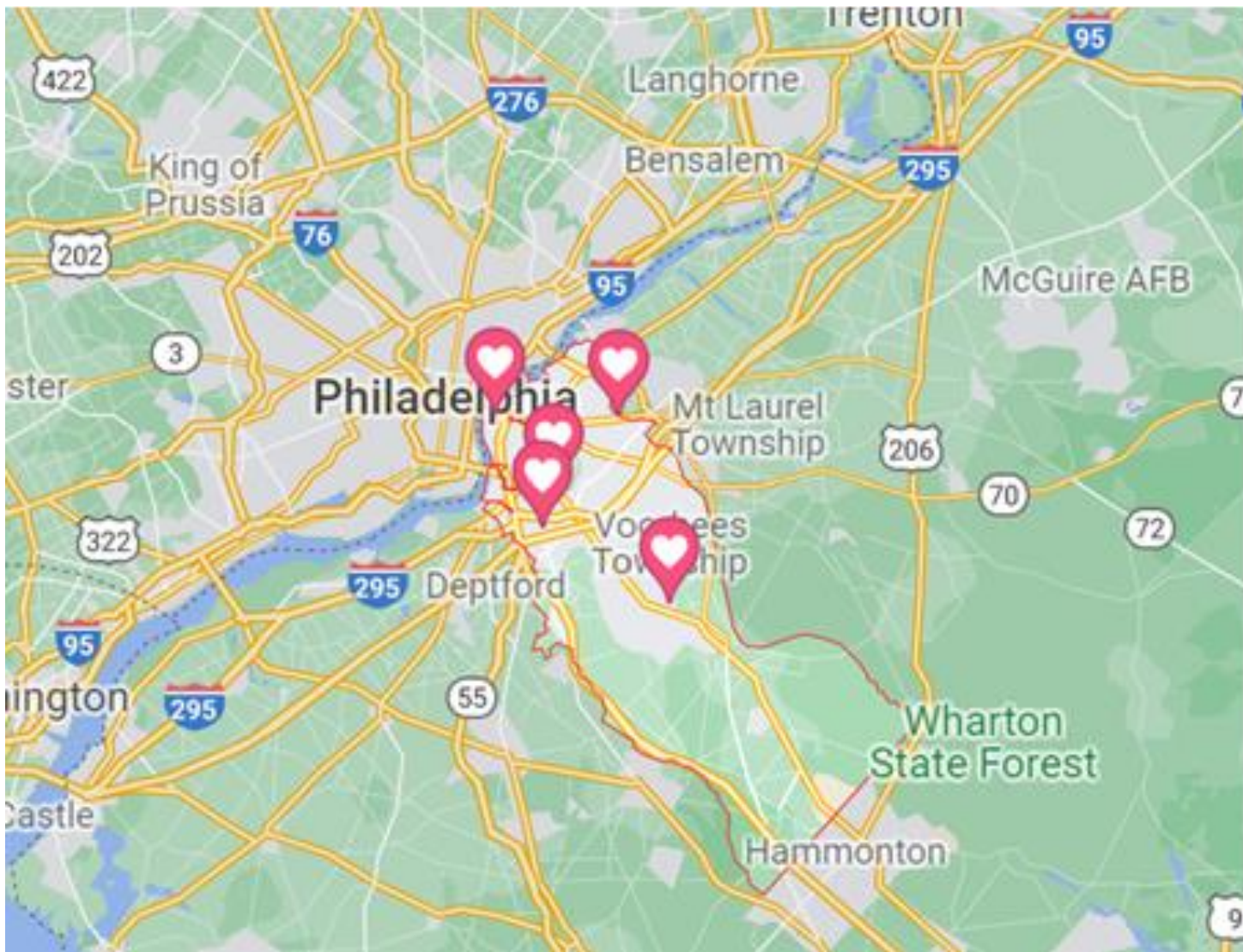
kevin.becica@camdencounty.com

856-566-2971

609-868-6243



Making It Better, Together.



CAMDEN COUNTY

POPULATION 523,485

227 SQUARE MILES

2,365 PERSONS/SQ. MILE



Making It Better, Together.



CAMDEN COUNTY

411 CENTERLINE MILES OF ROAD

2,500 LANE MILES OF ROADWAY

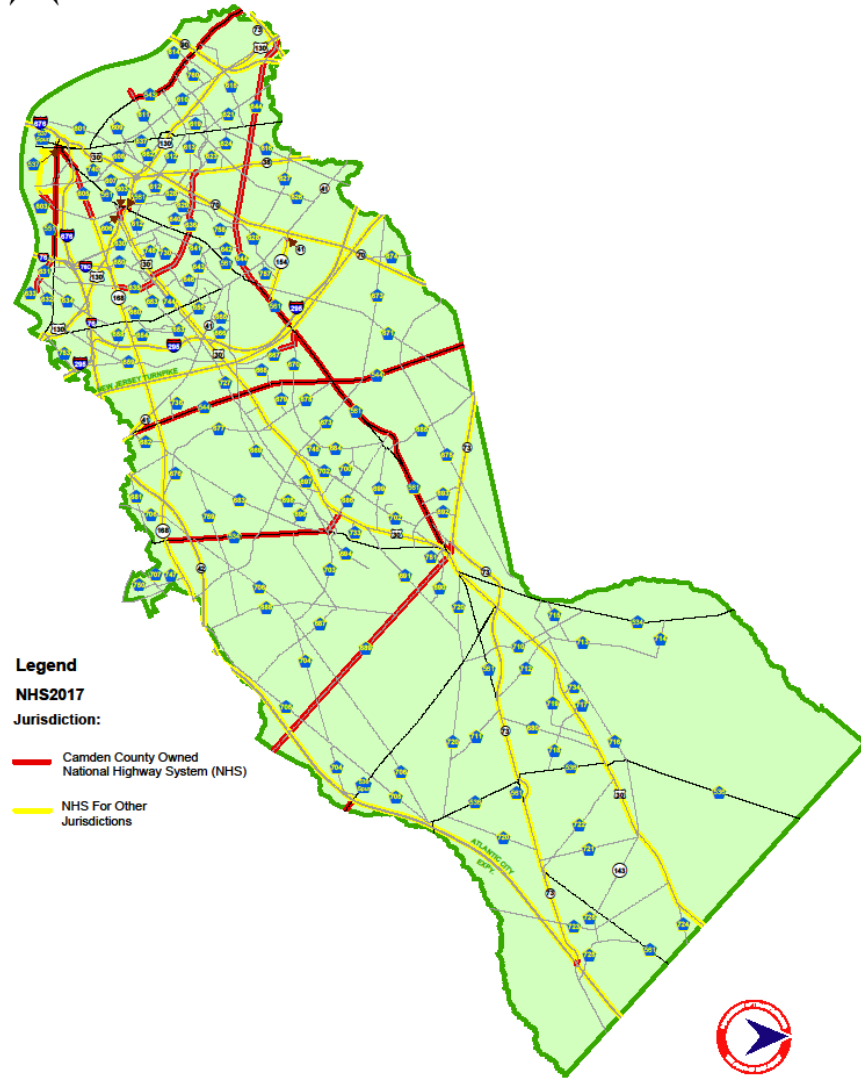
- **CONCRETE ROADWAYS**
- **COMPOSITE ROADWAYS**
- **ASPHALT ROADWAYS**



Making It Better, Together.



CAMDEN COUNTY NATIONAL HIGHWAY SYSTEM



Legend

NHS2017

Jurisdiction:

Camden County Owned
National Highway System (NHS)

NHS For Other
Jurisdictions



\\gisdev01\arc_folders\len_mxd\TAMP Requests.....
Creation Date: March, 2017
Data Source: Bureau of Transportation Data and Safety

0 1 2 4 Miles



STATE OF
NEW JERSEY

Governor Chris Christie

U.S. Governor Tim Wirth

MAINTAINED BY THE

NEW JERSEY DEPARTMENT OF

TRANSPORTATION

Commissioner Richard T. Hammer

DIVISION OF INFORMATION TECHNOLOGY

BUREAU OF INFORMATION MANAGEMENT

AND TECHNOLOGY PLANNING

GEOGRAPHIC INFORMATION SYSTEMS

IN COOPERATION WITH

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION



HISTORY

GROWTH OUT FROM CAMDEN CITY

- PRE-1950 ROADS – CONCRETE 20' TOTAL WIDTH
- MAIN N-S & E-W ARTERIALS - CONCRETE
- CONCRETE ROADS WIDENED AFTER 1950
 - WIDENED WITH CONCRETE CURB AND GUTTER
 - WIDENED WITH ASPHALT
- FABC OVERLAY ON CONCRETE POST 1954
- ASPHALT ROADS MOST SOUTH OF MID-COUNTY

CONCRETE ROADWAY



CR 561 HADDONFIELD

- 10' WIDE
- 20' – 30' LONG
- CONCRETE SLAB SHOULDERS
- UTILITY OPENINGS



CONCRETE ROADWAY

CR 561 CHERRY HILL Rt 295 Exit

- FULL CONCRETE SLAB REPLACEMENT
- 4.5' WIDE JOINT REPAIRS
- NO DIAMOND GRINDING



COMPOSITE ROADWAY

CR 627 COOPER LANDING ROAD CHERRY HILL

- TRANSVERSE JOINT FAILURE
- ASPHALT SUB-BASE SHOULDERS

REPAIR

- TRANSVERSE JOINT REPAIRS 4.5' WIDE
- SAW AND SEALED JOINTS
- FAILURE ADJACENT TO SAW AND SEAL IN 2 YEARS



WESTFIELD AVE - PH 1

**BID B7-17 PENNSAUKEN,
46TH TO BROWNING RD
0.47 MILES, \$1,130,400**

- 13,000 SY MILLING
- 525 SY CONCRETE
REPAIRS W/DOWELS
- 625 SY CONCRETE
- 11,840 LF SAW & SEAL
- 2,030 TONS 9.5M64

JUNE 6, 2018

MILLING

- RAILROAD BALLAST
- UTILITY OPENINGS

*** NOTE – CURB CONDITION**



JUNE 6, 2018

MILLING

- **TROLLEY TRACKS**
- **UTILITY OPENINGS**



FIELD MODIFICATION – JUNE 7, 2018

- Item #S2 - Binder Rich Intermediate Course: 1,000 tons at \$120/ton = \$120,000.00
- Item #19 - Concrete Base Course, 9" Thick: -517.3 SY at \$150/SY = -\$77,595.00
- Item #20 - Concrete Surface Course, 9" Thick: -625 SY at \$6/SY = -\$3,750.00
- Item #21 - Partial Depth Concrete Repair: -1,240 SY at \$6/SY = -\$7,440.00
- Item #23 - Sawing and Sealing of Joints in HMA Overlay: -11,840 LF at \$2.50/LF = -\$29,600.00

Total Change Order = \$1,615.00

Previously Adjusted Contract Price = \$1,130,800.00

Newly Adjusted Contract Price = \$1,132,415.00

0.14% increase in the contract amount.



Making It Better, Together.



6/18/18 Binder Rich Intermediate Course
between Browning Road and Tinsman Avenue

Installation of HMA 9.5M64 surface course

WESTFIELD AVE - PH 2



**BID B1-19 PENNSAUKEN,
BROWNING RD TO 130**

1.4 MILES, \$2,031,211

COMMERCIAL AREA

- 1,840 BRIC 4.5MM
@ \$150/TON

\$276,000.00

INDUSTRIAL AREA

- 3,920 SMA
@ \$125/TON,

\$490,000.00

WESTFIELD CR 610 - PHASE 2



WESTFIELD PH 2 - BRIC



6/12/2020 & 6/15/2020



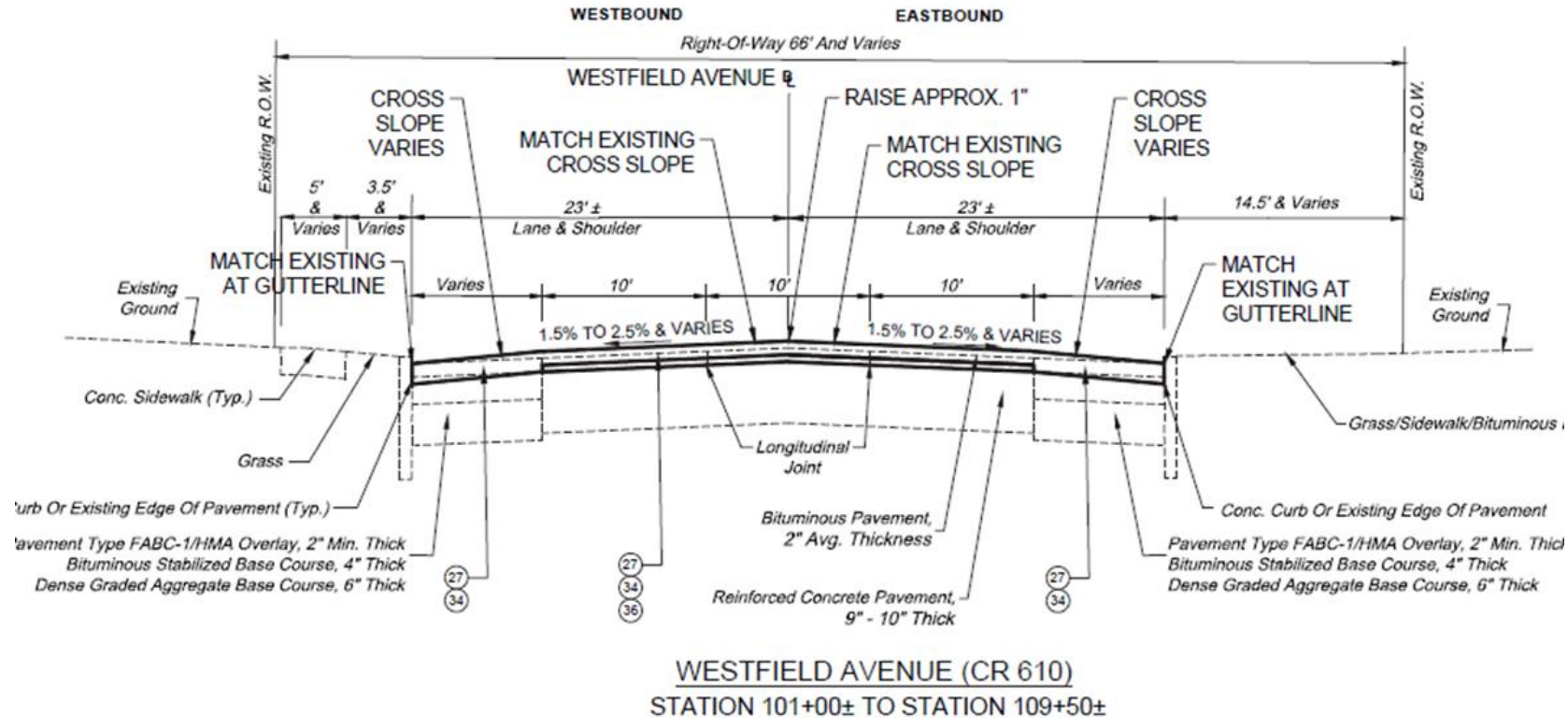
WESTFIELD PH 2 - SMA



NIGHT WORK

LEVELING COURSE

GOOD PLANS



BID ITEM 34- 9.5M64 2" MIN & VARIES
BID ITEM 36 – BRIC 4.5MM, 1" MIN



Making It Better, Together.

BRIC & SMA SPEC

- NJDOT STANDARD SPEC
- SUBMITTALS FOR BRIC & SMA REVIEWED BY DESIGNER
- INSPECTOR AT THE PLANT
- INSPECTOR IN THE FIELD
- PREP CONDITIONS AND TACK COAT



Making It Better, Together.

BRIC & SMA COSTS

- COST COMPARISON
 - 9.5 M 64 – 2019 \$80.00 - \$90.00/ TON
 - BRIC – 2019 \$150.00 / TON
 - SMA – 2019 \$125.00/ TON

COST CONSIDERED A DETRIMENT



Making It Better, Together.



RE ROAD OPENINGS

FUTURE OPENINGS NOT IN BRIC OR SMA - CONSIDERED A DETRIMENT

BRIC & SMA BENEFITS

SERVICE LIFE – COMPOSITE ROADWAY

- BRIC DURABILITY – 15+ YEARS
- STANDARD OVERLAY – 10 YEARS

IRI- COMPOSITE ROADWAY

- BRIC-SMA- NO SAW AND SEAL, SMOOTH
- STANDARD OVERLAY – TRANSVERSE CRACKING,
THUMP, THUMP, THUMP

SERVICE LIFE IN BRIC OR SMA - CONSIDERED A BENEFIT



Making It Better, Together.

BRIC & SMA BENEFITS

COMPOSITE VS EXPOSED CONCRETE

PAVEMENT MARKINGS

- COMPOSITE – MORE DURABLE, MORE VISIBLE
- CONCRETE ROAD – LESS VISIBLE – REQ. PROPER PREP

AESTHETICS

- BRIC-SMA COMPOSITE- NO SAW AND SEAL, SMOOTH
- CONCRETE W/ REPAIRS – NOT APPRECIATED

VISUAL SURFACE W/BRIC OR SMA – CONSIDERED A BENEFIT



Making It Better, Together.

BRIC & SMA BENEFITS

COMPOSITE VS FULL ASPHALT

CONCRETE REMOVAL

- 9" THICK CONCRETE VS 14" THICK ASPHALT
- MATERIAL HANDLING LSRP CONSIDERATIONS
- SOIL CONDITIONS, HIGH WATER TABLE
- SOIL CONDITIONS, POOR SOILS REQUIRE 12"-18" DGA
- TRANSITION BETWEEN CONCRETE & ASPHALT, HEAVING

COMARISON BRIC & SMA TO FULL SUBBASE
REMOVAL – CONSIDER A BENEFIT



Making It Better, Together.

SUMMARY

**NEED CURB REVEAL FOR
3" COMPOSITE ROADWAY**

**BENEFITS OUTWEIGH
DETRIMENTS**

**NEED POLITICAL
UNDERSTANDING OF
BENEFIT / DETRIMENT
RATIO**



NEXT – KINGS HIGHWAY



camden*count*y

Making It Better, Together.

Any Questions?

Kevin Becica, PE, PP, CME
Camden County Engineer

kevin.becica@camdencounty.com

856-566-2971

609-868-6243



Making It Better, Together.



camden*count*y

Making It Better, Together.