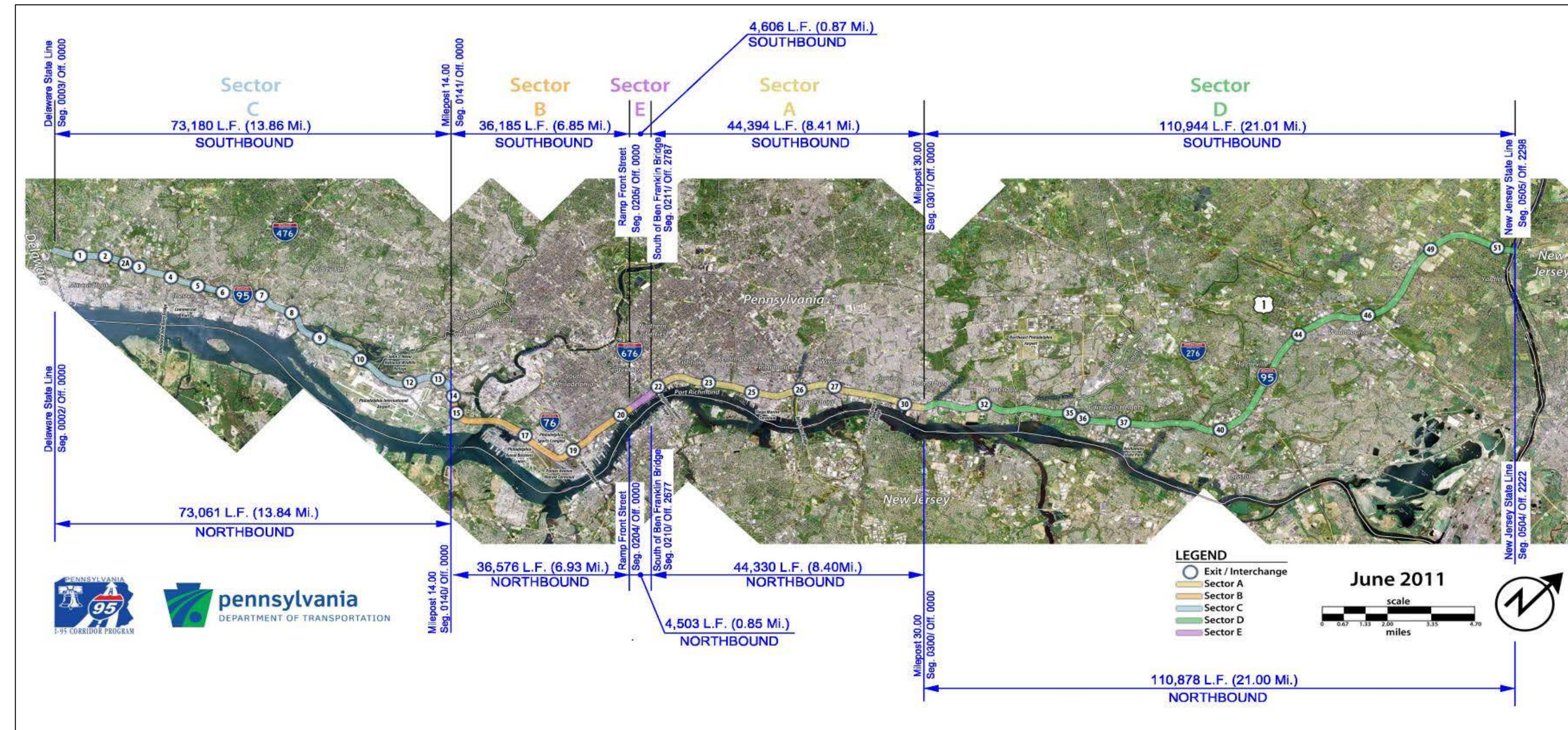


Long-Life Concrete Pavement applied to I-95 Corridor in Philadelphia, PA

Steven L. Koser, P.E., Pennsylvania DOT



I-95 Corridor in Pennsylvania

-51 Miles broken down:

Into Sectors A-E

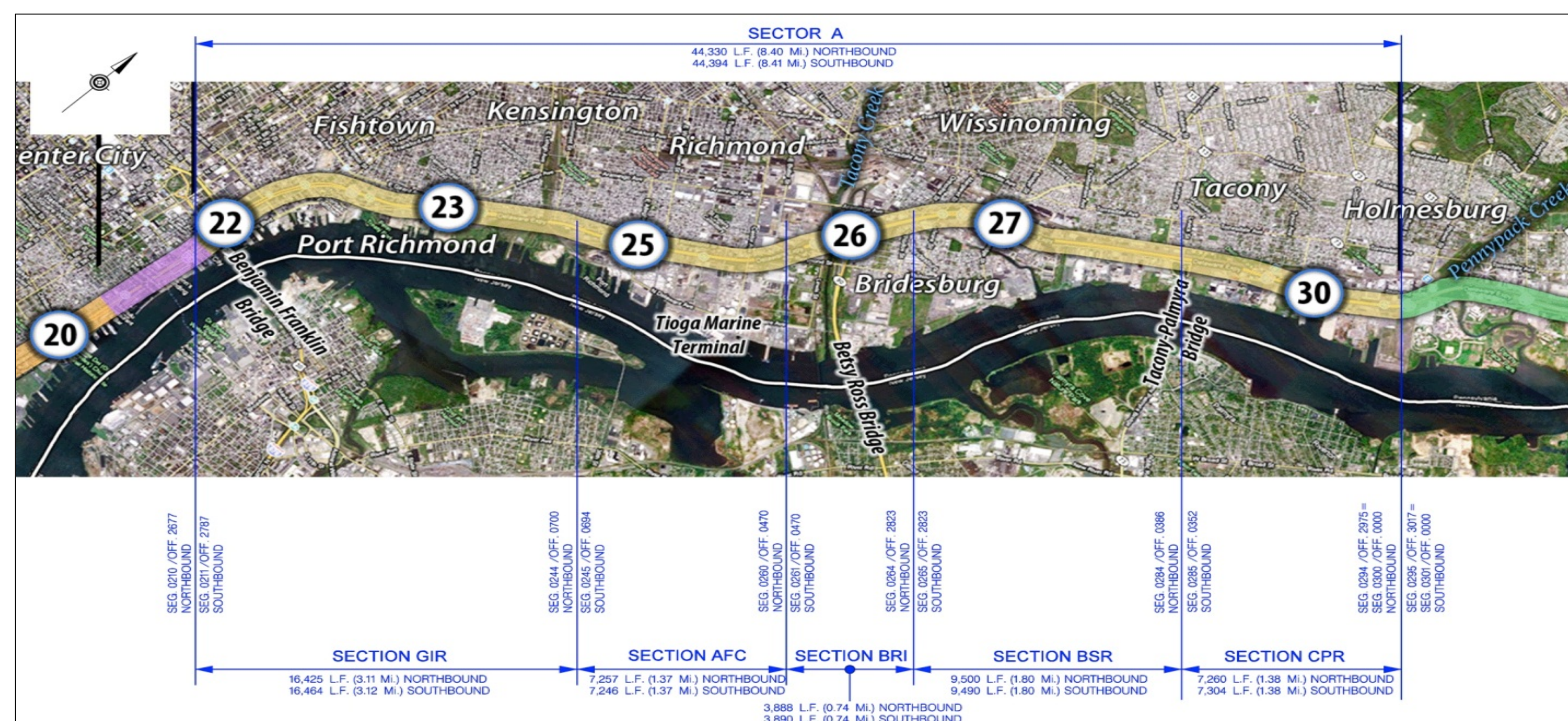
Sections within each Sector for Sector A

Projects within each Section for Sector A

Section and projects within B-E yet TBD

Reasons for choosing CP2 pavement design:

- Requires less frequent maintenance, repair and rehabilitation.
- Minimum maintenance contributes to highway safety and congestion mitigation.
- Reduces the User Roadway Delay cost produced by congestion of Maintenance and Protection of Traffic due to frequent construction/rehabilitation.
- Designed to last for 50 or more years of low-maintenance service life.
- Reduction in Permeability of High-Performance concrete pavements over standard PCCP mixes is considered to be an important factor of their potential longevity in extreme climates. Low Water/Cement ratio, decreases concrete permeability and therefore decreases Freeze-thaw damage and other Durability issues.
- Maintain a Safer, Smoother & Quieter ride and surface texture characteristics with minimal maintenance.



Sector A

Center Philadelphia
5 Design Sections – 16
Construction Projects
\$2 Billion construction
estimates

CPR – Cottman-Princeton
Interchange
From Bleigh Street to Leveck
Street

Length is approximately 3.5
miles

Benesch is the design
consultant

Intent of LLCP

- To increase longevity and performance of the pavement, therefore saving money on optimization of LLCP could be used to lengthen a project or provide additional safety features.

Design differences between CP2 concrete pavement design & typical designs

- Water to cement ratio
Typical PCCP W/C = 0.47 (According to PUB 408 Section 704.1 (b) Table A)
I-95/CP2 HPCP W/C = 0.42 (According to Special Provision a05031) – increasing strength and durability and decreasing opportunity for shrinkage cracking
- Use of stainless steel or stainless steel clad bars
Typical: Dowel Bar Coating changed from fusion-bonded epoxy coated steel
I-95/CP2: Use High Performance Dowel Bars sleeved or jacketed with 316 stainless steel tubes (ASTM A276) minimum Yield Strength of 60 ksi.



Sector CPR Projects

CP1 - Construction of new Ramp E (southbound on-ramp at Longshore Avenue); Rehabilitation of existing Ramp C (northbound on-ramp at Princeton Avenue); Construction of new Ramp C Spur from Milnor Street, and the removal of existing Ramp A (southbound on-ramp at Princeton Avenue); surface street work includes; Widening of Cottman Avenue (1 new eastbound lane being added between Torresdale Avenue and State Road) and State Road (1 additional southbound lane added between Cottman and Princeton Avenues) is included; Turning Lanes will be added; Accommodations will be made for 5-foot bike lanes eastbound and westbound on Princeton Avenue between Wissinoming Street and Torresdale Avenue

Notice to Proceed given to Tony DePaul and Son April 29, 2009 for \$31,404,048.72
Construction to be complete summer of 2012

CP2 – Section length is 3.5
miles from Leveck Street to
Bleigh Street;

Rehabilitation and widening of
northbound and southbound I-
95 lanes to 4 through traffic
lanes;

Significant ROW acquisition
required – 36 parcels, majority
of which are condemnations;

New drainage to be tied into
City storm water management
system;

No sound walls requested by
local neighborhoods.

NTP to Walsh Construction
Company August 15, 2012 for
\$212,325,000.00.

Construction to be complete
October 5, 2019

Life Expectancy

- 50+ Years

Cost per square foot

Approximately \$10.56 per Square Foot (Plain Cement Concrete Pavement, RPS, 15" Depth)
72,207 SQ YD @ \$95.00/SQ YD = Item Total \$6,859,665.00

Engineering District 6-0 contacts

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