# Preserve Your Roadway Network

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Federal Highway Administration
RESOURCE CENTER

**Pavement & Materials**
**Technical Service Team**

npmc16

# Presentation Objectives

- Establishing A Program
- Cost Effectiveness
- Project Prioritization
- IDIQ Contracting
- Every Day Counts (EDC-4)
- Free Web-based Training

# Establishing A Program

- Pavement Preservation Definitions (2012)
  - Pavement Preservation
  - Rehabilitation
  - Routine Maintenance
- Pavement Maintenance Manual (2013)

2015

# National Park Service Pavement Condition Report

U.S. Department of Transportation
Federal Highway Administration

FHWA Report FFLS-NPS04
Prepared By the Eastern Federal Lands Pavements Section
March 2016

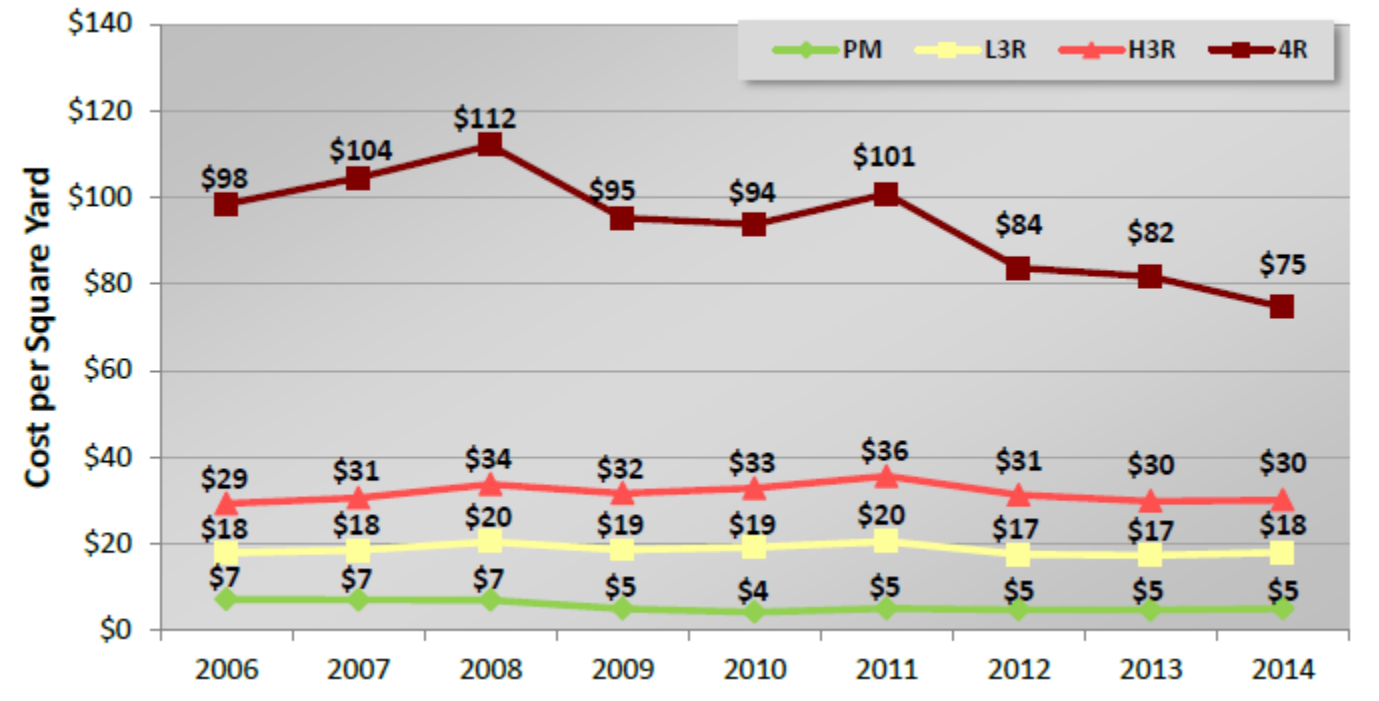
# Common Treatment Options

| Treatment Category | Activity Type Examples |
|---|---|
| Preventive Maintenance (PM) | Includes non-structural surface treatments such as Crack Sealing, Fog Seal, Chip Seal, Slurry Seal or Micro-Surfacing, Cape Seal, Ultra-thin Bonded Wearing Course, and Thin Asphalt Concrete (AC) Overlays <1.5" or for the repair of joints and cracks on Concrete Pavements |
| Light Rehabilitation (L3R) | Includes pavement rehabilitation without grade improvement such as Single-lift AC Overlays, Mill with Single-lift AC Overlays, Wedge & Level with Single-Lift AC Overlay |
| Heavy Rehabilitation (H3R) | Includes pavement rehabilitation with grade improvement such as Multiple-Lift AC Overlays, Mill with Multiple-Lift AC Overlays, Cold-in-Place Recycling with AC Overlay, Full Depth Reclamation (Pulverizing) or PCC Slab Replacement on Concrete Pavements |
| Reconstruction (4R) | Includes removal and replacement of all structural layers for either Asphalt or Concrete pavements |

# Summary of Activity Types

| Treatment Type | Treatment Activity | Activity Description | 2014 Cost (per sqyd) |
|---|---|---|---|
| Preventive Maintenance (PM) | Crack Sealing | Sealing Cracks in Asphalt Pavement | $1.14 |
| | PCC Jt & Crk Repair | Repair and Seal Joints in Portland Cement Concrete Pavement | $3.48 |
| | Surf Treat - 1 | Fog Seal, Chip Seal, Slurry Seal or Micro-Surfacing | $3.95 |
| | Surf Treat - 2 | Double Chip Seal, Cape Seal, Ultrathin Bonded Wearing Course, Asphalt overlay <1.5" | $7.46 |

# Average Unit Cost Trends



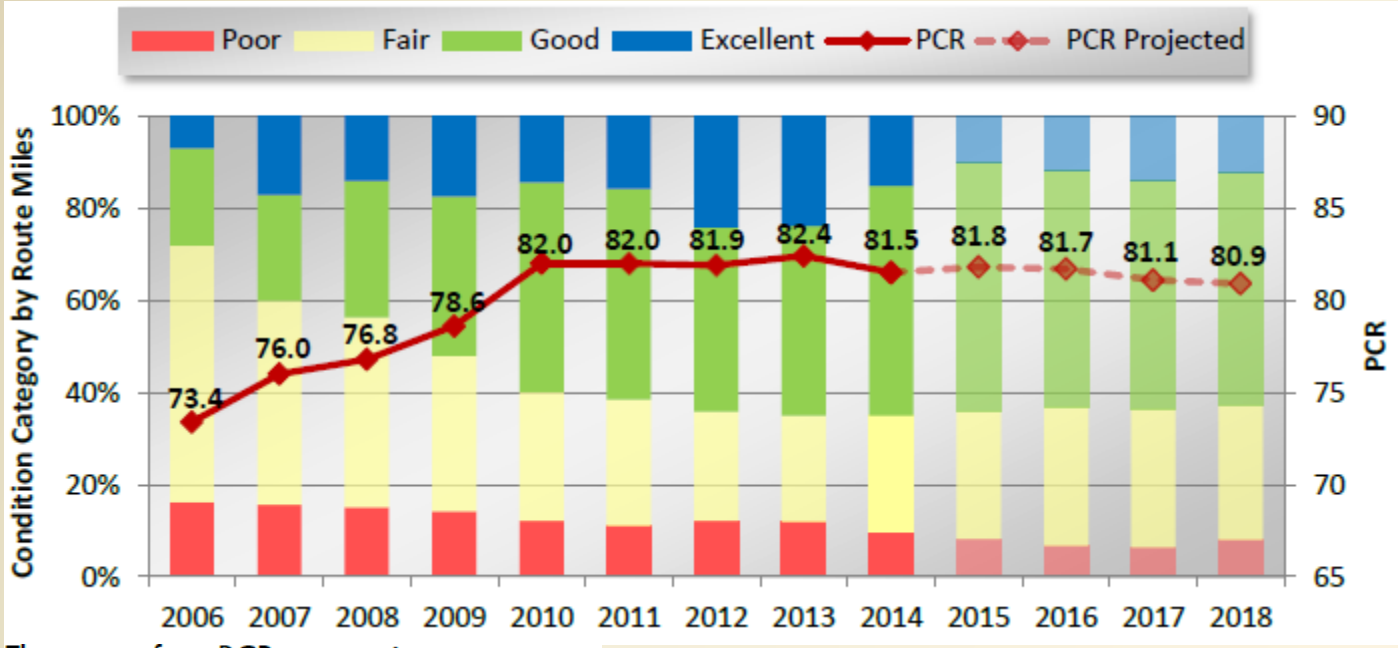
# Cost Effectiveness

- Principal objective of NPS pavement management program is to deliver acceptable performance at the lowest life-cycle cost
- Cost Effectiveness evaluates the cost of strategies to deliver this acceptable performance

# HPMA Recommendations Output

| HPMA Section Data | | | | | Prior Activities | | Future Activities | | 2012-2016 HPMA Recommendations | | | 2017-2021 HPMA Recommendations | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Route Name | From | To | Pave Type | 2010 PCR | Work Type | Year | Work Type | Year | Treatment Type | Section Cost | CE SCORE | Treatment Type | Section Cost | CE SCORE |
| EAST ENTRANCE ROAD | 19.2 | 24.2 | ACP | 90.6 | H3R | 2006 | PM | 2012 | 2012 PM Programmed Project | | | PM | $480,000 | 50 |
| EAST ENTRANCE ROAD | 24.2 | 25.99 | ACP | 89.51 | H3R | 2006 | PM | 2012 | 2012 PM Programmed Project | | | PM | $171,840 | 60 |
| EAST ENTRANCE ROAD | 25.99 | 26.01 | CON | 80.64 | | | PM | 2012 | 2012 PM Programmed Project | | | PM | $1,920 | 100 |
| EAST ENTRANCE ROAD | 26.01 | 26.16 | ACP | 83.62 | | | PM | 2012 | 2012 PM Programmed Project | | | L3R | $72,300 | 70 |
| SOUTH ENTRANCE ROAD | 0 | 0.47 | ACP | 74.16 | | | | | H3R | $268,370 | 90 | L3R | $226,540 | 40 |
| SOUTH ENTRANCE ROAD | 0.47 | 0.49 | CON | 72.42 | | | | | H3R | $11,420 | 20 | H3R | $12,460 | 20 |
| SOUTH ENTRANCE ROAD | 0.49 | 0.76 | ACP | 76.81 | | | | | H3R | $154,170 | 80 | L3R | $130,140 | 40 |
| SOUTH ENTRANCE ROAD | 0.76 | 0.8 | CON | 73.78 | | | | | PM | $3,520 | 50 | H3R | $24,920 | 20 |
| SOUTH ENTRANCE ROAD | 0.8 | 2 | ACP | 74.58 | | | | | PM | $105,600 | 90 | L3R | $578,400 | 40 |
| SOUTH ENTRANCE ROAD | 2 | 3.14 | ACP | 87 | PM | 2009 | PM | 2011 | L3R | $444,600 | 100 | PM | $109,440 | 100 |
| SOUTH ENTRANCE ROAD | 3.14 | 3.94 | ACP | 85.45 | PM | 2009 | PM | 2011 | L3R | $312,000 | 100 | PM | $76,800 | 100 |
| SOUTH ENTRANCE ROAD | 3.94 | 4.6 | ACP | 85.91 | PM | 2009 | PM | 2011 | L3R | $257,400 | 100 | PM | $63,360 | 100 |
| SOUTH ENTRANCE ROAD | 4.6 | 6.06 | ACP | 86.03 | PM | 2009 | PM | 2011 | L3R | $569,400 | 100 | PM | $140,160 | 100 |
| SOUTH ENTRANCE ROAD | 6.06 | 7 | ACP | 81.55 | PM | 2009 | PM | 2011 | PM | $82,720 | 100 | PM | $90,240 | 100 |
| SOUTH ENTRANCE ROAD | 7 | 8.54 | ACP | 84.25 | PM | 2009 | PM | 2011 | L3R | $600,600 | 100 | PM | $147,840 | 100 |
| SOUTH ENTRANCE ROAD | 8.54 | 11.38 | ACP | 88.83 | PM | 2009 | PM | 2011 | PM | $249,920 | 90 | L3R | $1,368,880 | 70 |
| SOUTH ENTRANCE ROAD | 11.38 | 11.43 | CON | 94.3 | PM | 2009 | PM | 2011 | No Treatment Selected | | | PM | $4,800 | 100 |

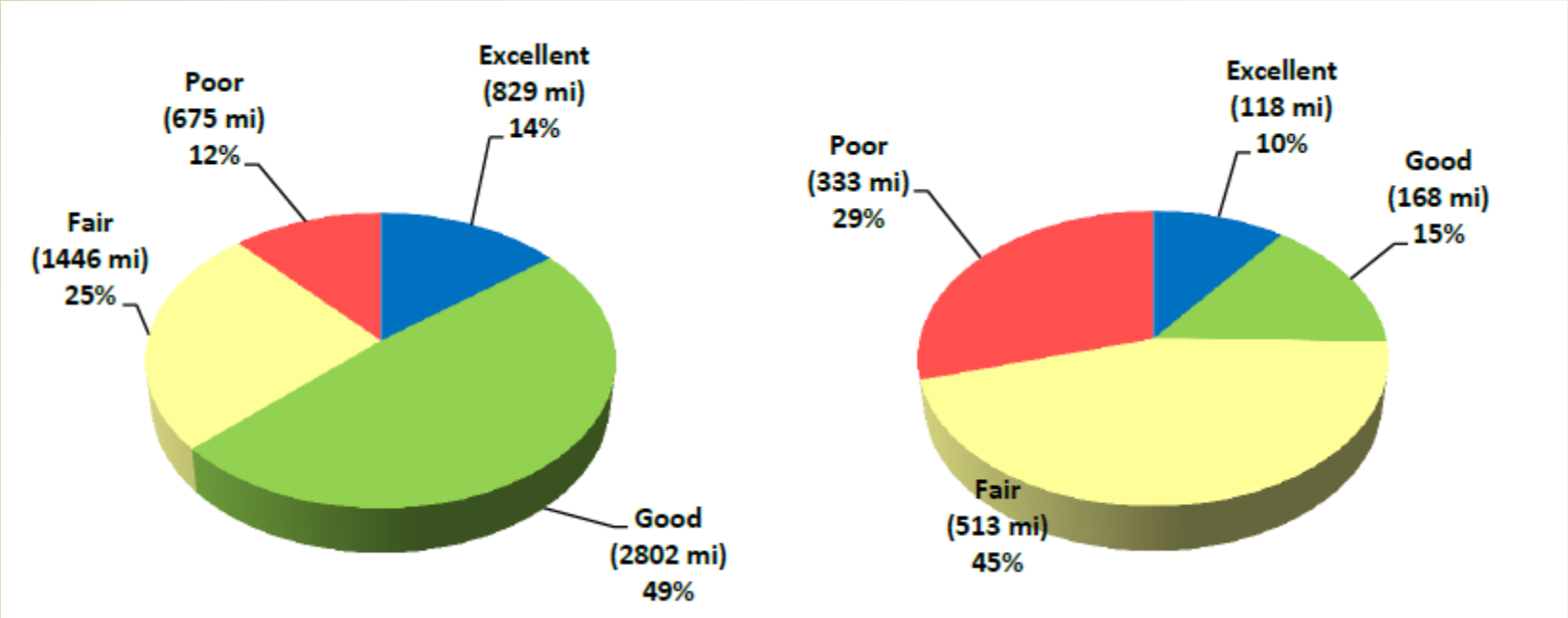
# Condition Category Breakdown



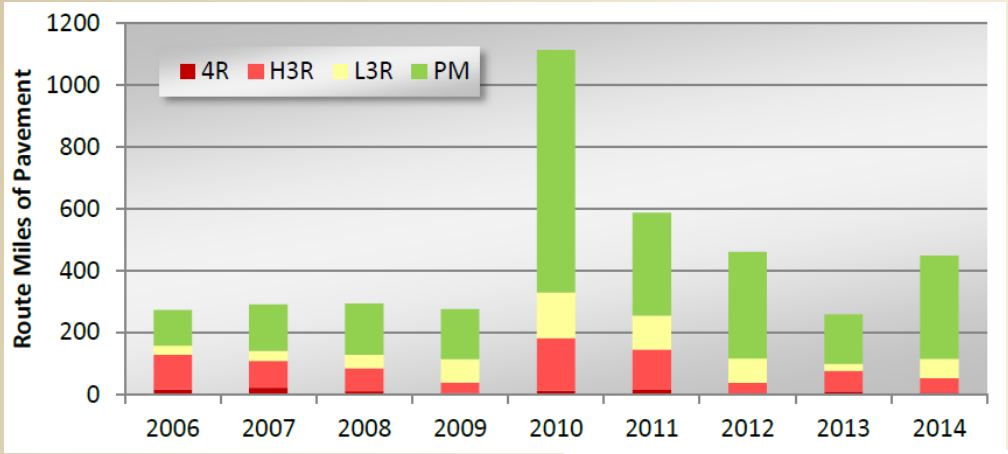

There are four PCR categories:

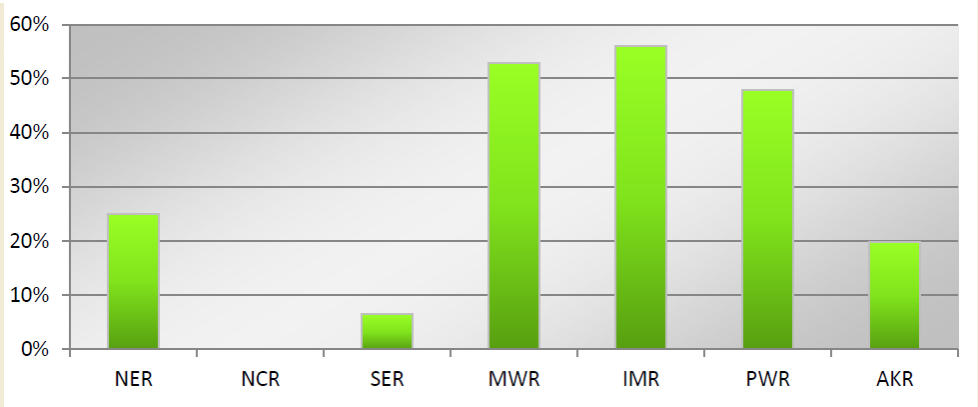
- Excellent – PCR of 95 and above
- Good – PCR from 85 to 94
- Fair – PCR from 61 to 84
- Poor – PCR of 60 and below

# Condition Breakdown for Roads and Parking Lots (Route-Miles)



# Completed Construction



Federal Lands Transportation Program

National Park Service
U.S. Department of the Interior

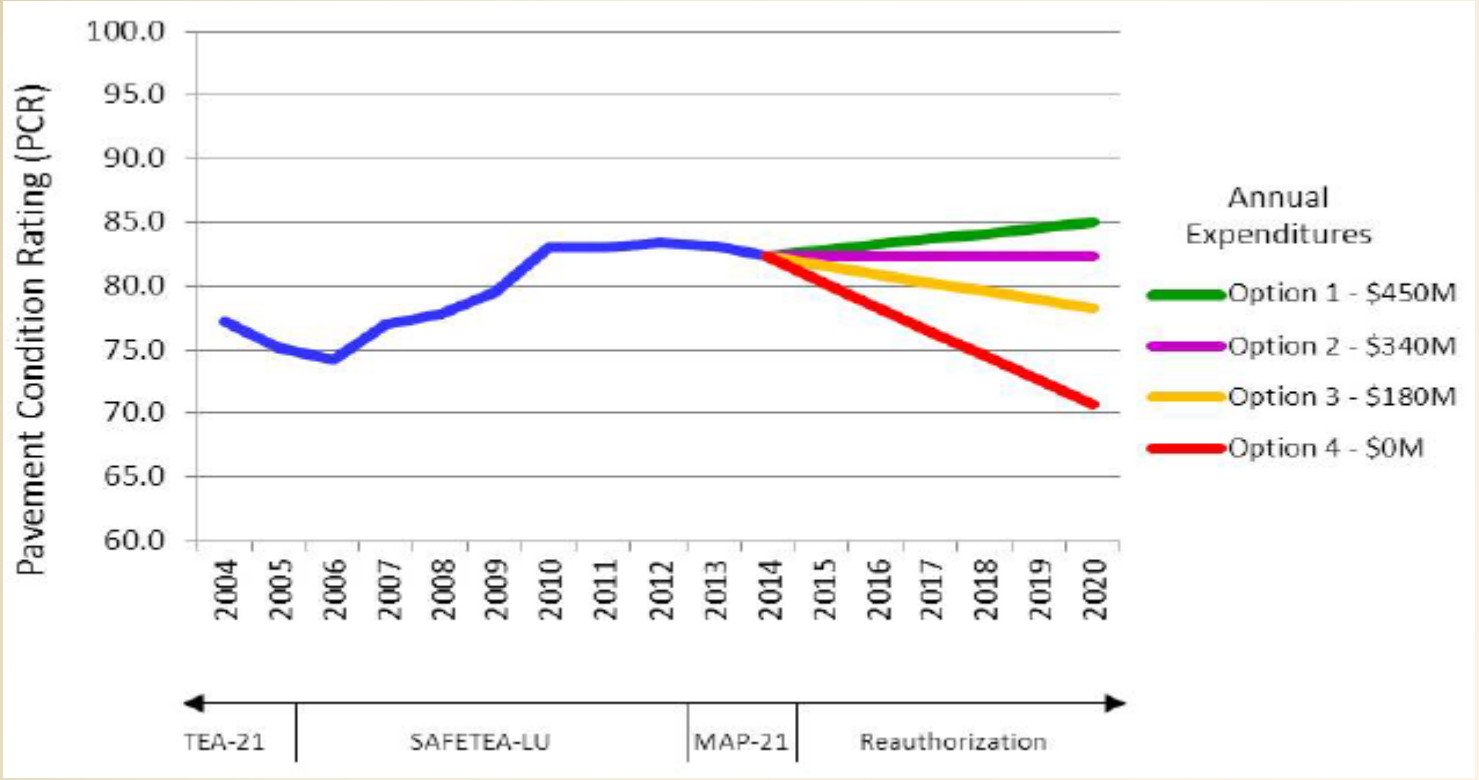
# National Park Service
# Transportation Reauthorization Resource Paper

30 May 2013

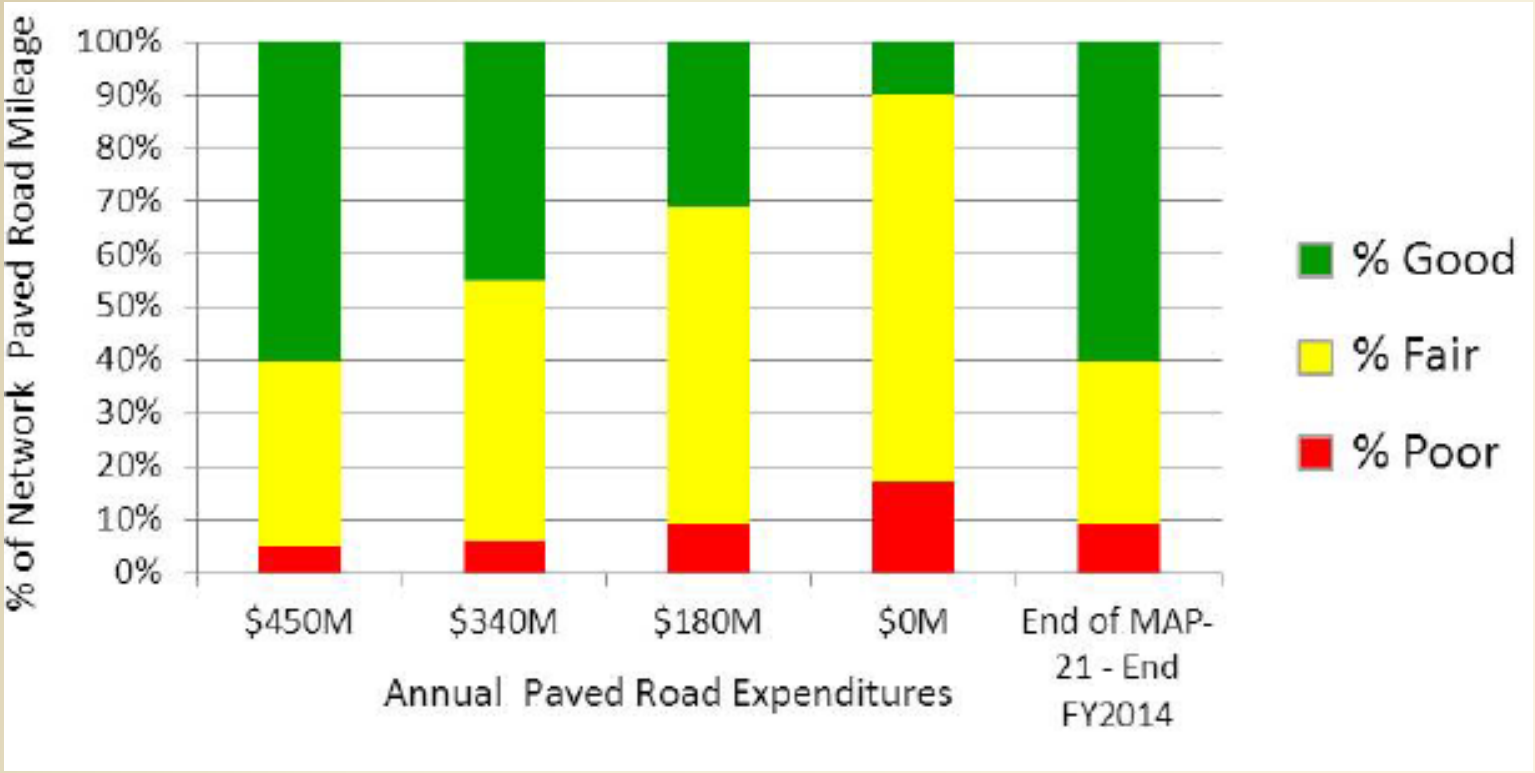
# Options for Improving Roadway Conditions

| Pavement Funding Options | Annual Funding Level | Six Year Total Funding | Performance Measures in 2020 | | | Condition Rating Distribution in 2020 (percent of miles) | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average PCR | Pavement FCI | Pavement DM | Good % | Fair % | Poor % |
| 1 | $450M | $2.70B | 85 | 0.08 | $2.0B | 60 | 35 | 5 |
| 2 | $340M | $2.04B | 82 | 0.12 | $3.0B | 45 | 49 | 6 |
| 3 | $180M | $1.08B | 78 | 0.14 | $3.5B | 31 | 60 | 9 |
| 4 | $0M | $0 | 71 | 0.19 | $4.8B | 10 | 73 | 17 |
| End FY2014 | | | 82 | 0.12 | $3.0B | 60 | 31 | 9 |

# Pavement Condition Under Varying Scenarios



# Pavement Condition In 2020 for Varying Scenarios



# Challenges

- Shifting from a worst-first strategy when funding is tight
  - Parks tend to have many requests
- Quantifying the benefits of pavement preservation
  - Inconsistencies in treatment use
  - Lack of adequate distress information

# Complete and Credible Data

- Reliable cost effectiveness analysis requires reliable inputs.  Therefore, success at NPS is driven by:
  1. Annual condition assessment
  2. Robust construction history
  3. Good economic records

# Project Prioritization

- Regions propose projects, with a goal of 5-10 years worth of needs identified
- All regions reviewed every two years until programmed to ensure treatment is at the right time and right location
- Once verified by regions, Parks coordinators choose the prioritized projects

# Challenges

- Aligning Park project selection with agency performance targets
- Allocating funding based on need (i.e. conditions)
  - Parks or Regions using preservation are seeing improvement

# Indefinite Delivery/Indefinite Quantity (IDIQ) Contracting

- Eligible for federal-aid
- Experienced contractors for 3-5 years
- Able to bring experienced contractors to areas where contractors don’t have the experience
- Ability to bundle projects

# IDIQ Contracts

- Definition – “An IDIQ contract provides for and indefinite quantity of supplies and/or services whose performance and delivery scheduling is determined by placing work orders with one or multiple contractors during a fixed period of time”
- Also know as “job order, task order, area-wide, continuing” contracts
- Selection based on the lowest bid or bid factor for given estimated scope

# NYSDOT Sample Job Order Projects

- Culvert Replacement
- Culvert Lining
- Replace Bridge Joints
- Concrete Pier Repair
- Replace Bridge Bearings
- Replace Bridge Deck
- Slope Failures
- Shoulder Repair

# IDIQ Contracts

- NCHRP Synthesis 473

TABLE 3.1 IDIQ Policies and Procedures

| Policies and Procedures | Answers and Observations | Frequency of Observations (out of 41) | Frequency % |
|---|---|---|---|
| Delivery Method used for IDIQ Contracts | DBB | 17 | 51% |
| | DB | 5 | 12% |
| | CMGC | 4 | 10% |
| Type of Work | Design | 38 | 93% |
| | Construction | 24 | 59% |
| | Maintenance | 32 | 78% |
| Average Number of IDIQ Contracts Awarded per Year | 1-2 | 3 | 7% |
| | 3-5 | 5 | 12% |
| | 6-10 | 3 | 7% |
| | >10 | 15 | 37% |
| Classification by Location(s) | City-wide | 1 | 2% |
| | County-wide | 5 | 12% |
| | District-wide | 18 | 44% |
| | State-wide | 19 | 46% |
| | Other | 4 | 10% |
| Use of Multiple Award IDIQ Contracts | Yes | 17 | 41% |
| | No | 9 | 22% |
| | Unknown | 15 | 37% |
| Use of IDIQ Contracts in Emergency Situations | Yes | 13 | 32% |
| | Unknown | 28 | 68% |

# IDIQ Contracts

- Bids based on estimated quantities – contractors bid unit prices, task orders issued based on bid prices; (MN)
- Same as above, but multiple awards made, tasks orders issued based on lowest bid for quantities in task order (DE)
- Construction Task Catalogue – contractors bid markup rates for defined tasks;  job orders issued based on markup rates (NY, NJ, MO)

# Every Day Counts (EDC-4)

- When and Where
  - This initiative promotes a network level approach to managing pavements that consider the whole-life costs of the assets to reduce annual preservation costs without sacrificing performance.

# Every Day Counts (EDC-4)

- Introduced over 3 months in 2 webinars and 7 in person summits
  - Introduce technology
  - Hear from owner agencies
  - Develop Implementation Plan
- 2017 and 2018
  - Deliver Implementation Plan activities

# When and Where Will Focus On?

- Whole life cost analysis
- Network level project selection strategies
- Performance based measures to quantify pavement preservation benefits

# How Will Focus On?

- Quality construction and material practices of pavement preservation treatments.

# EDC-4 Funding Opportunities:

- Accelerated Innovation Deployment (AID) Demonstration
  - *New* Notice of Funding Opportunity under FAST Act > GOAL: $10 million per year [23 U.S.C. 503(c)(2)(B)]
- State Transportation Innovation Council Incentive
  - Up to $100,000 per STIC per year [under AID]
- Increase Federal Share for Project Level Innovation
  - Increase federal share up to 5 percent of the total project cost [23 U.S.C. 120(c) (3)]

# For EDC-4 Additional Information

http://www.fhwa.dot.gov/innovation/everydaycounts/

http://www.fhwa.dot.gov/asset/

# Free Web-based Training

FHWA/ISSA partnership

- Flexible surfaced
  - Chip Seal, Micro Surfacing, Slurry Seal Boxes, http://slurry.org/Docs/WBTPhase1/ISSA_WBT_Login_Instructions.pdf
- Rigid surfaced (under contract)

# What questions do you have?

# Thank you!
# For Questions/Comments:

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