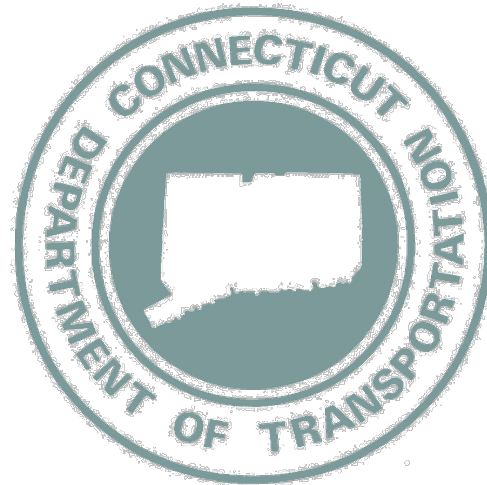


# Pavement Preservation in Connecticut

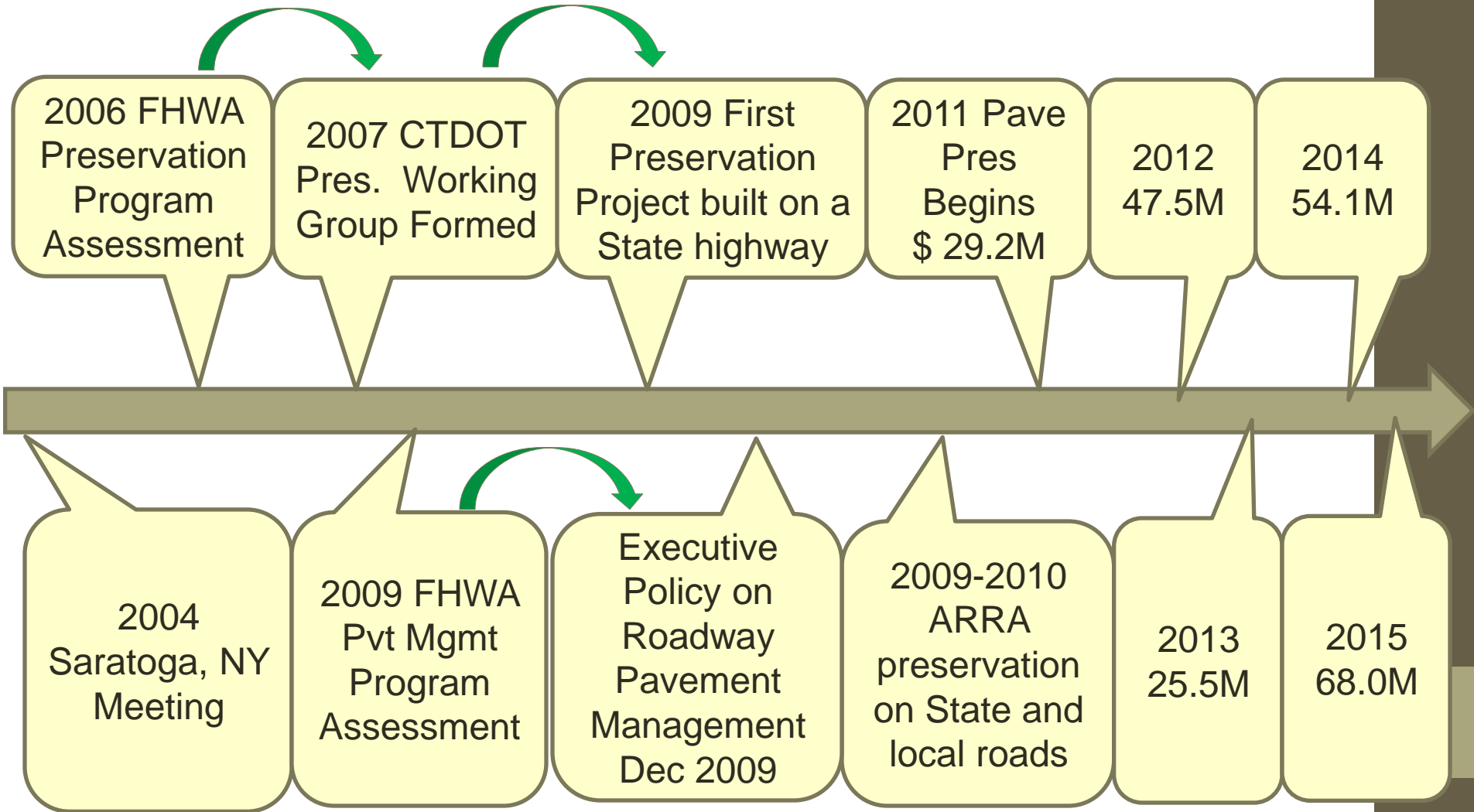


Steve Norton

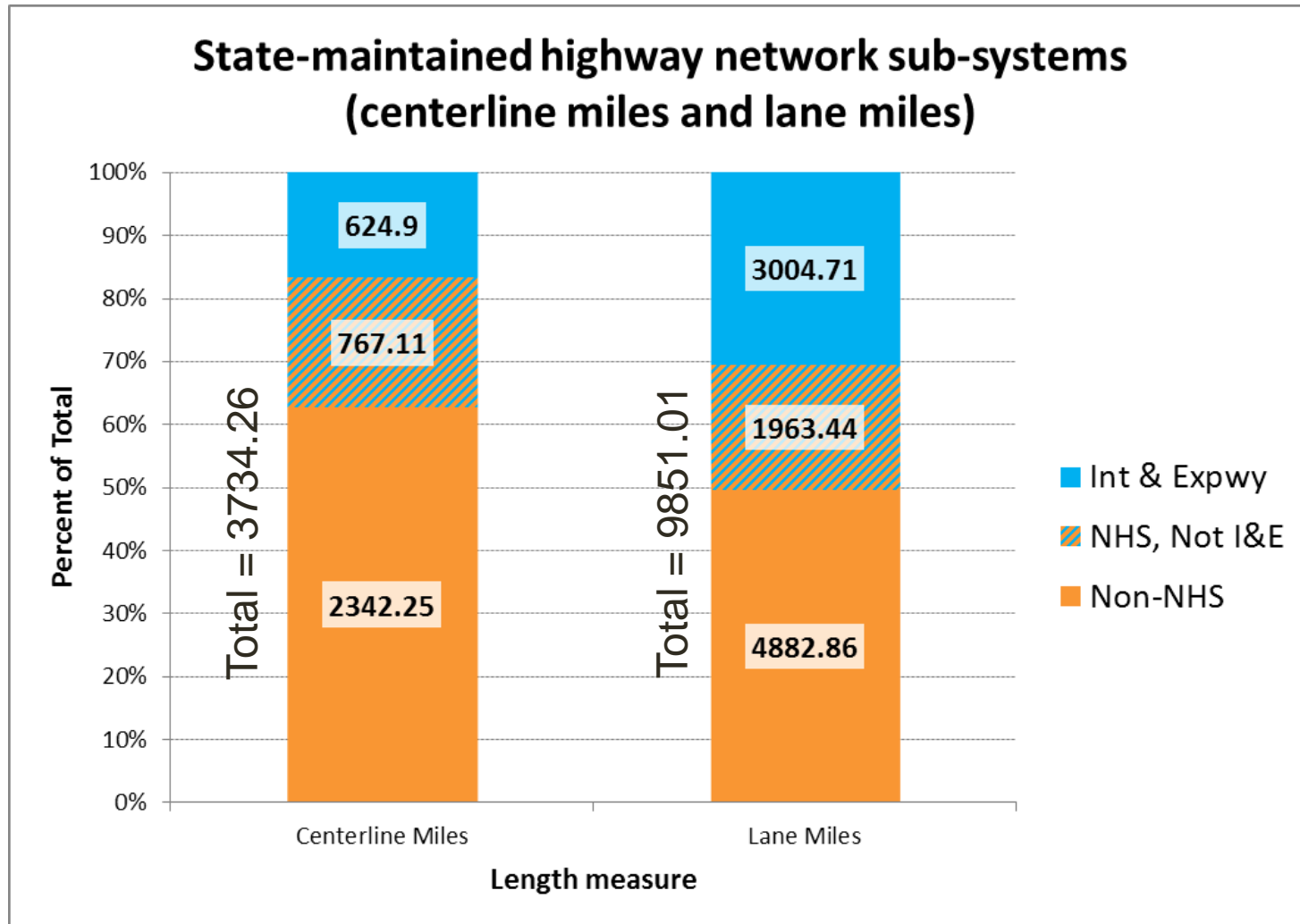
# Overview

- Implementation and Program Info
- Program Needs and Challenges
- Actions Taken and Next Steps
- Results and Looking Ahead

# Preservation Implementation Timeline:



# Inventory Information (Network Size)



**NOT INCLUDED: 424 centerline miles (459 lane-miles) of ramps**

# Preservation Program Features

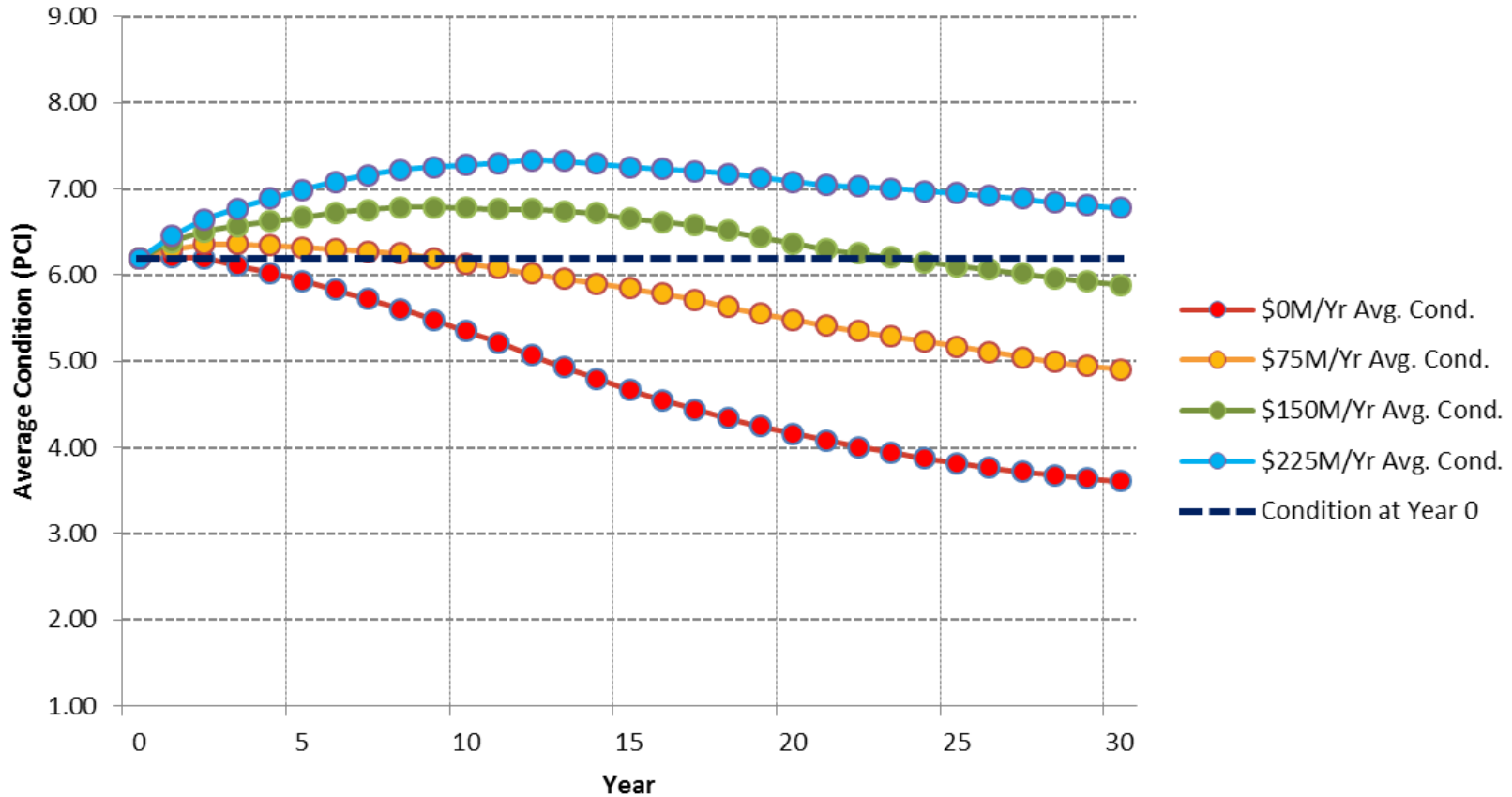
- Focused on High-Traffic Roadways
  - Primarily Mill & Fill and Ultra-thin bonded HMA
- Preliminary Engineering by the Office of Engineering; contract administered by Office of Construction
- Treatments used so far
  - Microsurfacing, Rubber Chip Seal, Mill/Fill, Ultra-thin bonded HMA, Ultra-thin bonded PMA, Cracksealing, High friction gap-graded thin lift (Mahoney Mix)

# Current State of Network

- Age of State Roadways
  - 35% Built Prior to 1950
  - 44% Built Between 1950 and 1980
  - 21% Built Since 1980
- Existing Condition of State Roadways
  - 53% Good or Excellent
  - 43% Fair
  - 4% Poor

# Average Pavement Condition of the State-maintained highway network over 30-year analysis period

at various funding levels



# Program Needs At this Stage

- Build Experience with Treatments
  - Create and maintain specifications
  - Inspector Training
  - Establish actual costs
- Accelerate project delivery
  - Takes DOT a year to get a project out through Office of Engineering (Prelim. Engineering has been 4.2% of construction costs)



# Program Needs At this Stage

- Improving project selection process
- Pavement Management System improvements
  - Raveling not apparent at network level
  - Better roadway sectioning
- Project delivery method for lighter treatments and unlimited access roadways
  - Crack sealing program 2013/2014 (\$2M) through commodity contract

# Challenges

- Funding levels are not sufficient to prevent growth in the backlog of poor pavements
  - Percentage of poor pavements is expected to grow by more than 5 times over the next 30 years
- Choosing candidate roadways early
  - Bridge needs
  - Coring efforts
  - Coordination with design

# Challenges

- Variability in roadway preparation for Ultra-thin
  - Time between project selection and construction
- Expanding to secondary roads
  - Ties up design staff for too long

# Actions Taken So Far

- Program ramped up to an average of \$48M a year between 2011 and 2014 and is being increased to \$68M for 2015.
- CTDOT also has a resurfacing program of about \$57M a year.
- This combined \$105-125M a year investment strategy is yielding an over 11% annual rate of return.

# Next Steps

- Streamlining project delivery
  - Simplify contract documents and admin.
- Continue to expand and refine treatment toolbox
  - Ultra-thin bonded w/ PMA; High Friction course (1")
- Improving PMS ability to generate great projects
  - New data-collection equipment (2015)
  - Data quality management plan implementation (2014-2015)

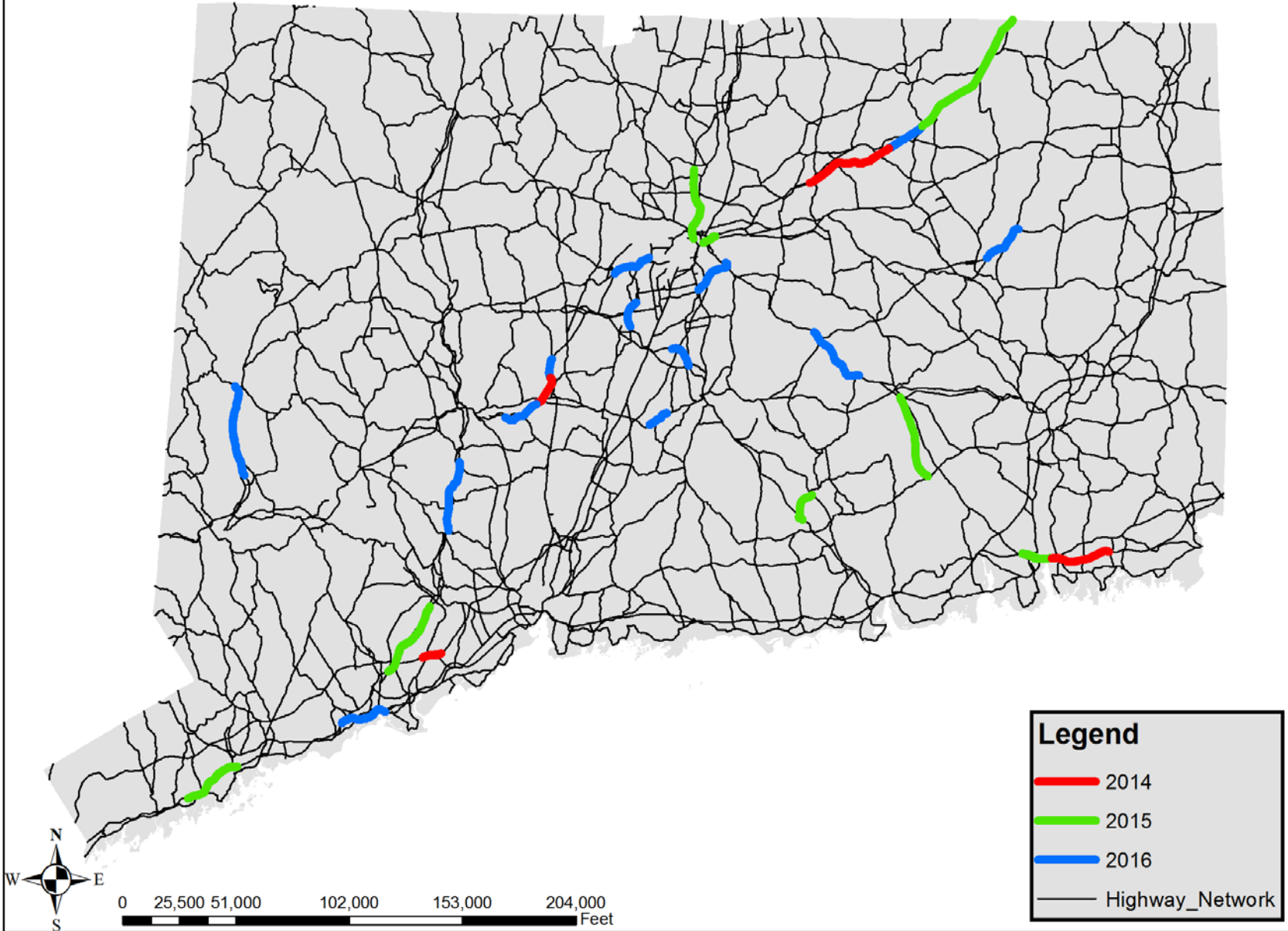
# Roadmap to Success

- Systematic preservation of our good pavements, which is the highest return on investment;
- Gradual elimination of the backlog through rehabilitation, reconstruction, and expansion projects;
- Subsequent preservation of these pavements; and
- Provisions to ensure safe and rideable surfaces for pavements awaiting rehabilitation.

# Results of Preservation

- Performance Metrics for Department (IRI) show positive impact for high-traffic roadways
  - % good up, % poor stable, % fair decreasing
  - Rest of the network: % poor up, % good stable, % fair decreasing
- Positive feedback from Office of Maintenance
- Executive and Managerial Support for Program
- Investment in preservation is yielding over an 11% annual return

# Pavement Preservation Projects





# 2015 Program

- 2015 Approximate Budget: 68M
- Treatment Types:
  - Ultra-thin bonded w/ PMA
  - Mill and Fill with HMA over Rubber Chip Seal
  - Mill and Fill with PMA
  - Microsurfacing
- Approximate Centerline Miles: 28.2

# Plans for 2016

- 2016 Tentative Budget: 100M
- Treatment Types:
  - Ultra-thin bonded w/ PMA
  - Mill and Fill with HMA
  - Mill and Fill with PMA
- Approximate Centerline Miles: 45.7

# Plans for 2017

- 2017 Tentative Budget: ???
- Treatment Types:
  - Ultra-thin bonded w/ PMA
  - Mill and Fill
  - Diamond grinding of PCC pavements
  - 1" Thick high friction gap graded mix (Mahoney Mix)
- Centerline Miles: ???

Thank You