VDOT'S PLAN FOR BALANCED MIX DESIGN APPROACH

VIRGINIA ASPHALT CONFERENCE & EXPO

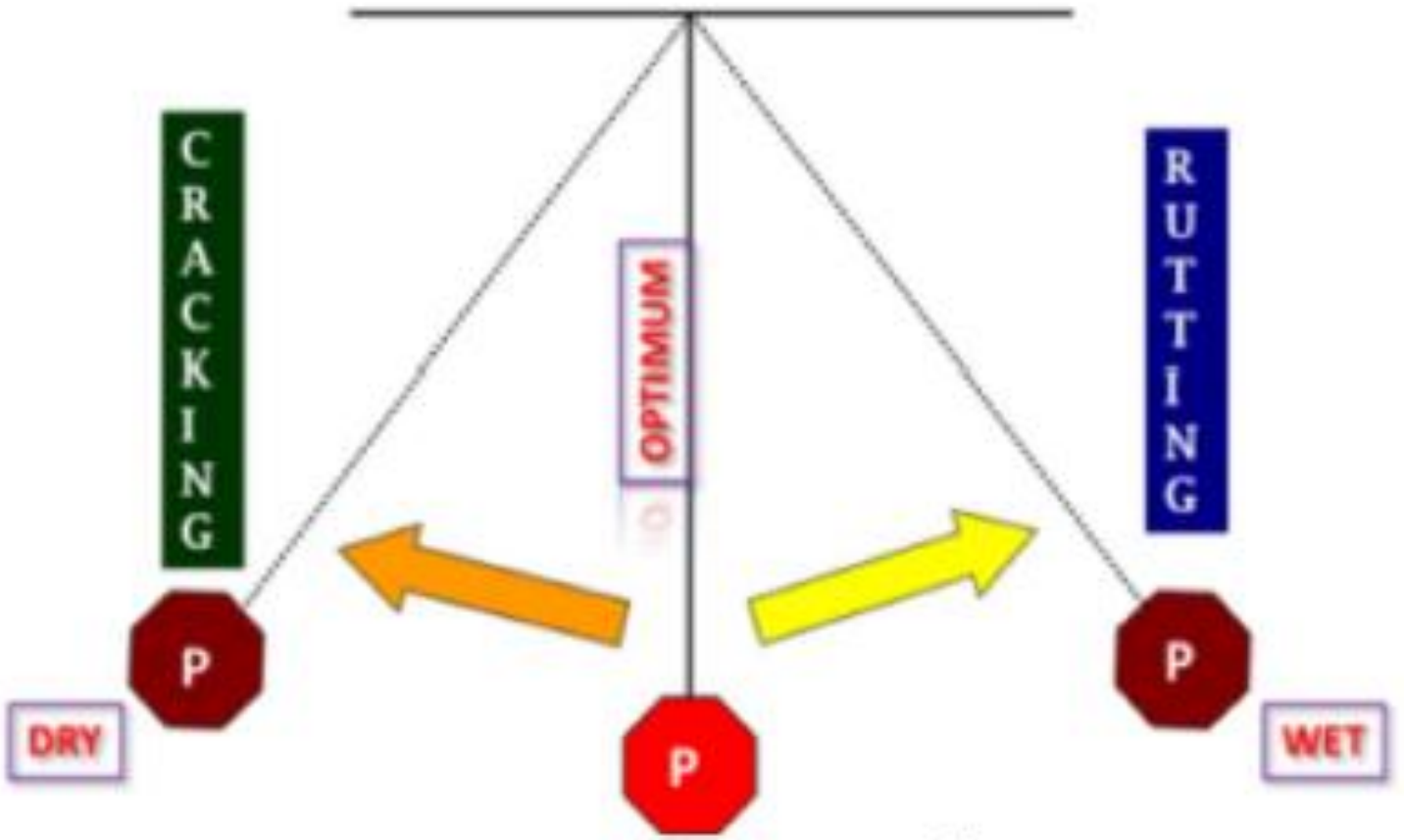
Andy Babish - VDOT CO Materials, December X, 2018

What is Balanced Mix Design (BMD) ?

BMD Task Force defined BMD as:

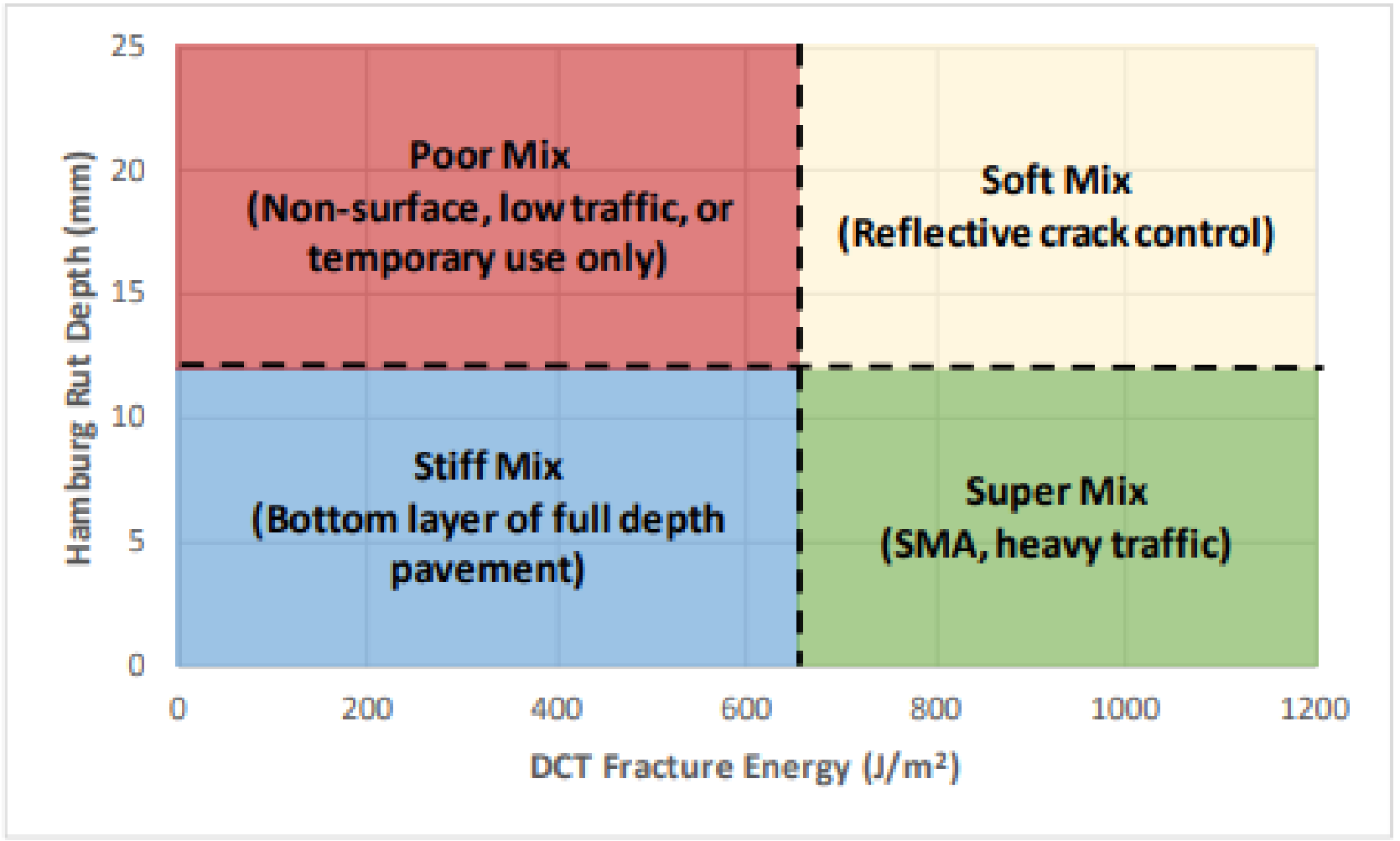
"Asphalt mix design using performance tests on appropriately conditioned specimens that address multiple modes of distress taking into consideration mix aging, traffic, climate and location within the pavement structure."

What is Balanced Mix Design (BMD) ?



Performance Pendulum
(Shane Buchanan,
Oldcastle)

What is Balanced Mix Design (BMD) ?



Anticipated Impacts of Balanced Mix Design (BMD) ?

- Higher asphalt contents
- Increased use of additives/modifiers
- Greater investment in lab equipment
- More time to complete mix design
- Over time, greater freedom to innovate
- Improved pavement performance
- Extended pavement service life

National Interest & Perspective

NCHRP 20-07 / Task 406:

Development of a Framework for Balanced Mix Design

NCAT – August 2018

National Interest & Perspective

Figure 2-19. U.S. map of state DOTs interested in constructing BMD trial projects.

National Interest & Perspective

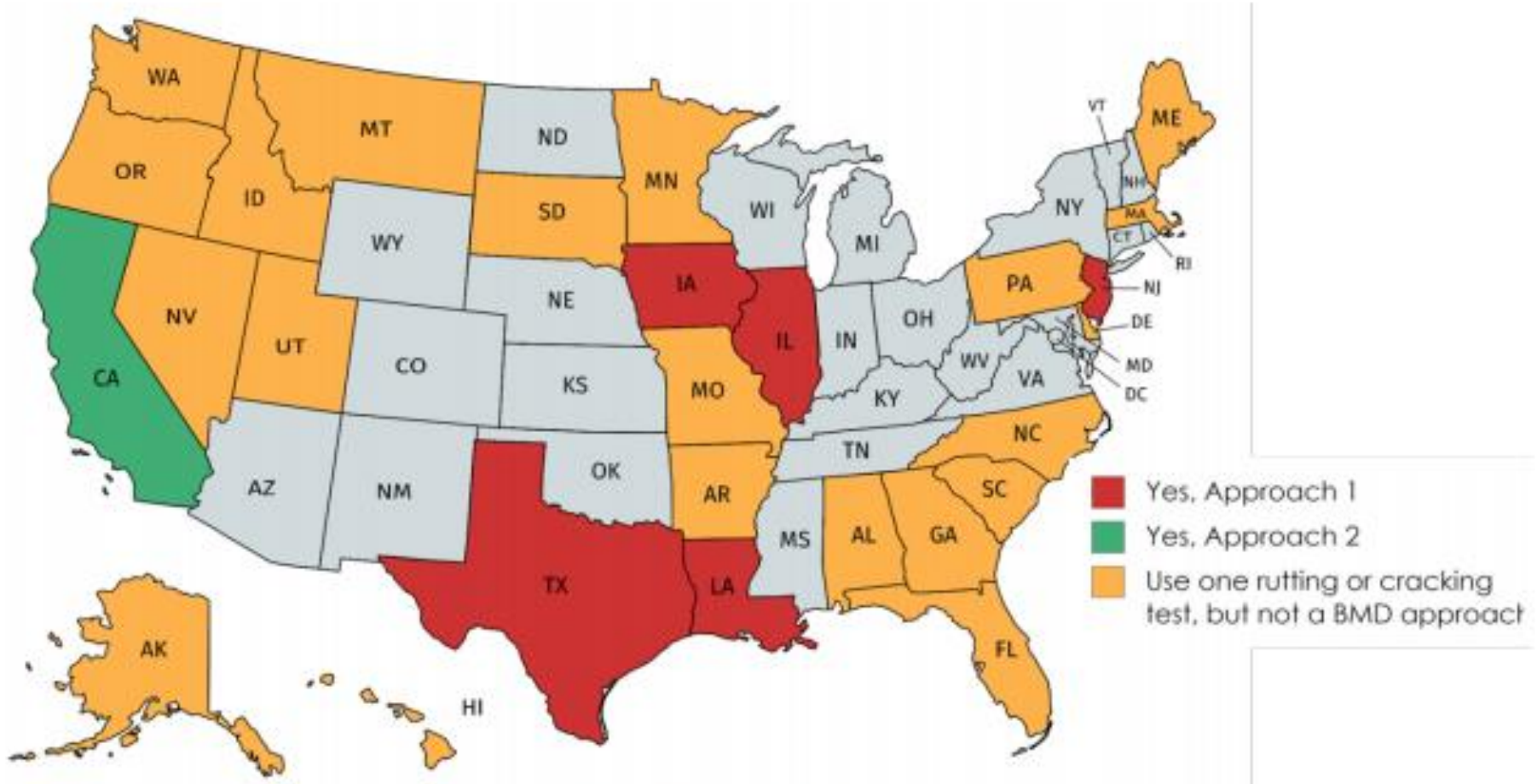


Figure 2-3. U.S. map of current use of BMD approaches.

National Interest & Perspective

Standard Practice for

Balanced Design of Asphalt Mixtures

AASHTO Designation: R xx-xx

Technical Section: 2d, Proportioning of Asphalt–Aggregate Mixtures

Standard Specification for

Balanced Mix Design

AASHTO Designation: M XXX-XX

Technical Section: 2d, Proportioning of Asphalt–Aggregate Mixtures

Virginia's approach to Implementation

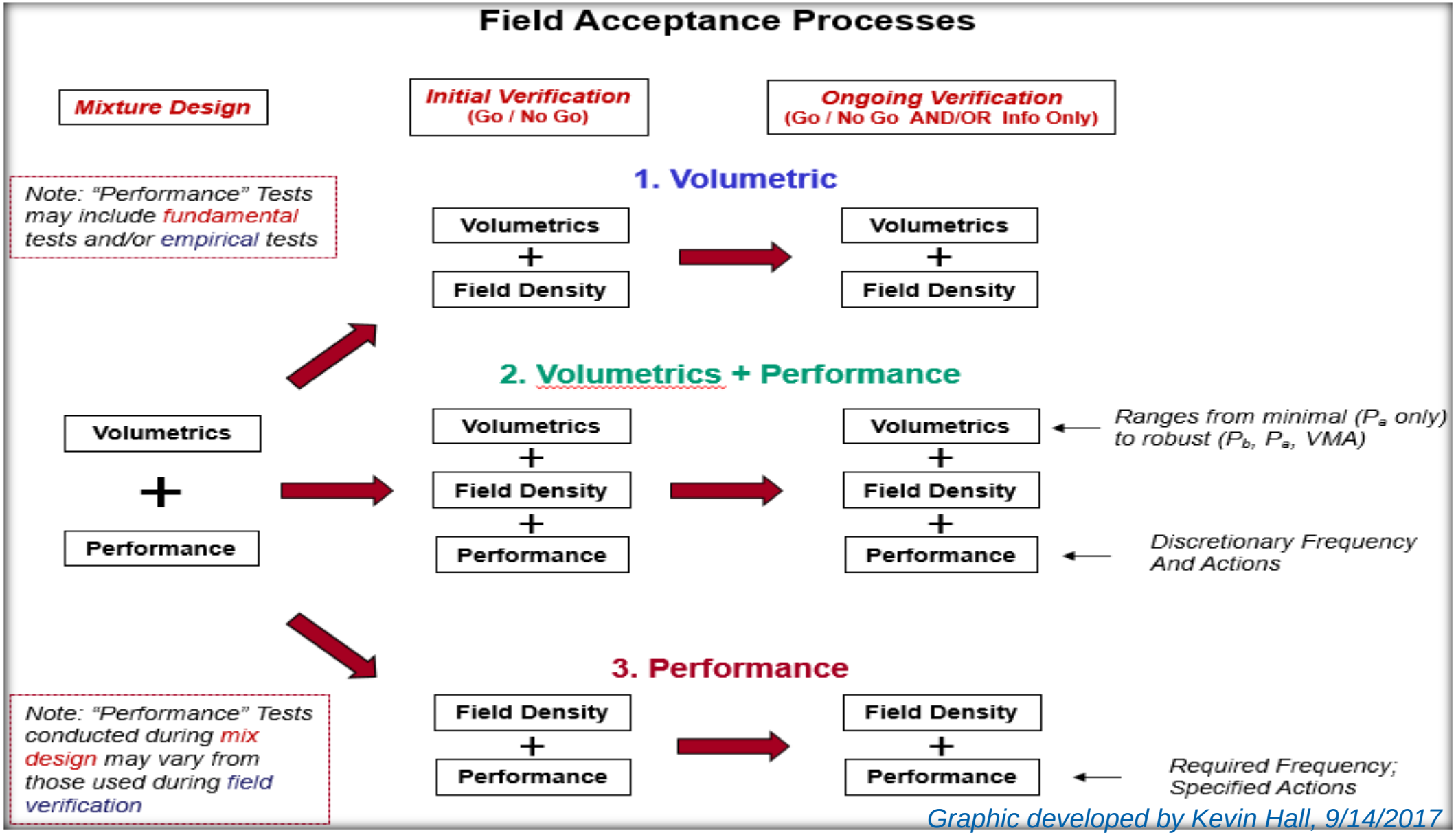
Advisory Committee – Provide oversight, input, communication briefs, monitor progress of technical subcommittee work

- VAA – Trenton Clark
- ODHCA – Ed Dalrymple
- VTCA – Tom Witt
- VDOT – Andy Babish
- VDOT – Rob Crandol (Project Manager)
- VTRC – Kevin McGhee

Virginia's approach to Implementation

Establish Laboratory testing protocol for cracking and rutting

- Pilot projects, NCAT facility, HVS at Va Tech
- Comparing to existing testing requirements; volumetrics, gradation, AC content
- Evaluating impacts of rejuvenators, softer binders, higher RAP contents
- Setting pass/fail thresholds for cracking and rutting tests



Graphic developed by Kevin Hall, 9/14/2017

Virginia's approach to Implementation

Communication Plan

- Keep stakeholders informed of progress and issues if any arise
- Keep VDOT Field forces and Leadership informed of progress
- Stay connected to national efforts

Laboratory Equipment Acquisition

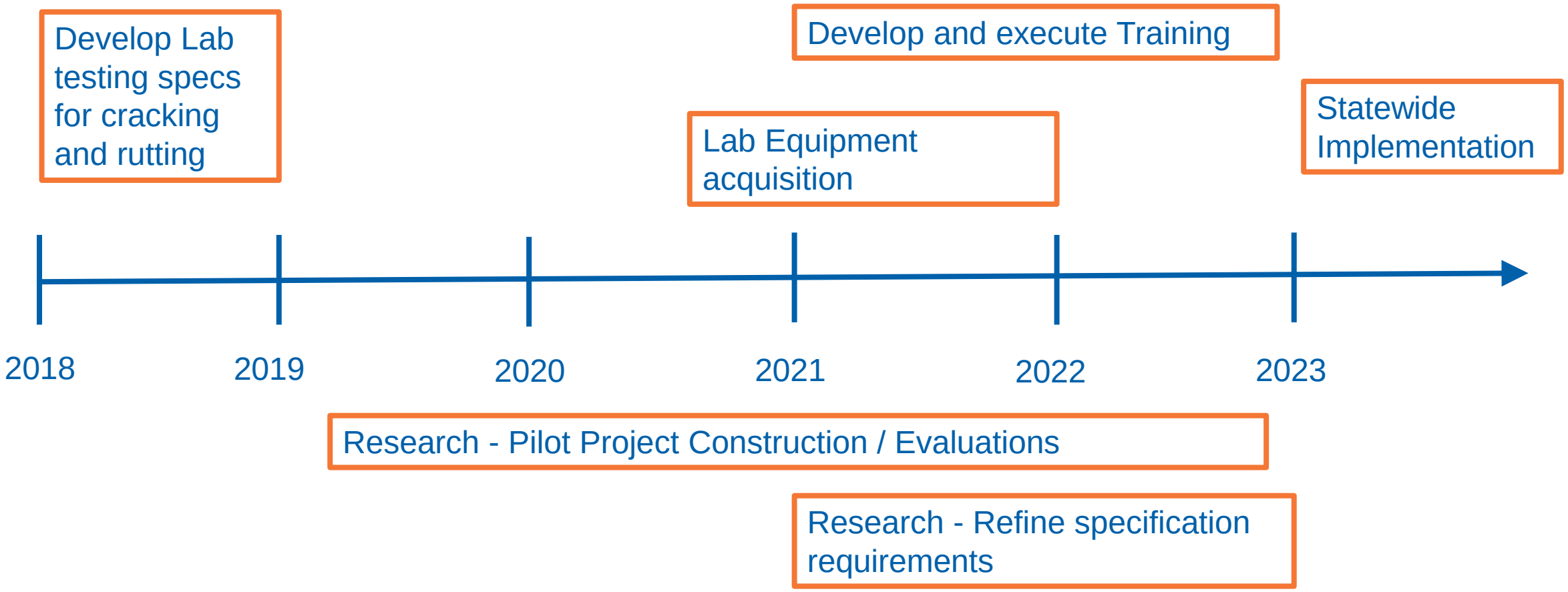
Production Level testing preparedness

Virginia's approach to Implementation

Training

- New mix design procedures
- New laboratory testing procedures
- Revisions to the VDOT Materials Certification Courses

Virginia's approach to Implementation



Closing Thoughts

- Long term approach; 5 year effort and beyond
- Paradigm shift within industry and DOT
- Achieve improved pavement performance; optimization of cracking and rutting resistance using Balanced Mix Design methodology.
- Foster innovation; mix performance approach vs. totally prescriptive specifications.

Thank you.