

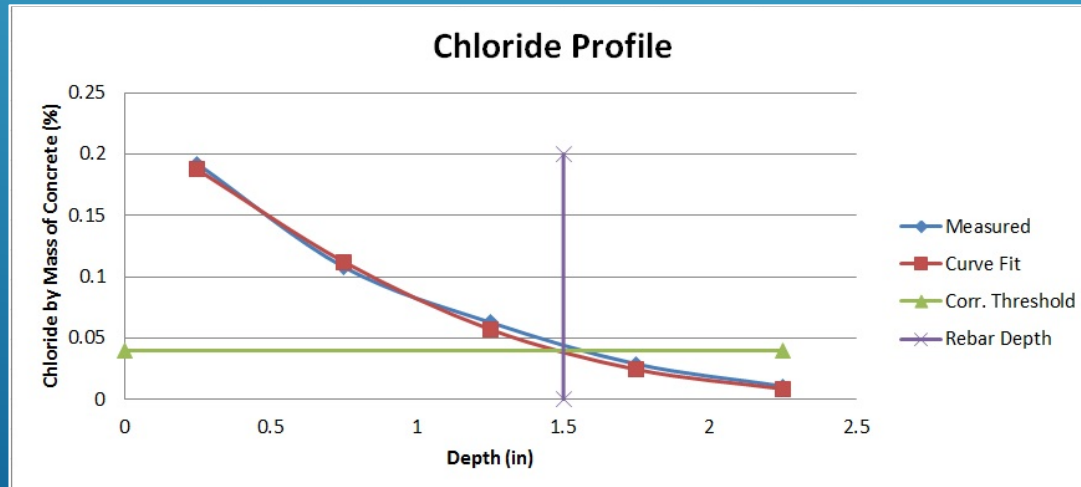
BRIDGE DECK CHLORIDE TESTING

TSP-2 National Working Group



BACKGROUND

- ▶ Came up as a technical topic during the WBPP monthly conference calls.
- ▶ Several states are interested/doing chloride testing, but there seems to be a lot of variation in how it is being performed.



SCOPE OF WORK

- ▶ Develop a NBPP sponsored Guide on Bridge Deck Chloride Sampling
- ▶ Develop specifications and contract template.



First	Last	Organization
Andrew	Blower	ODOT
Becky	Nix	Utah DOT
Chris	Long	CA FHWA
Jeff	Milton	Virigina DOT
Marcus	Berlin	ODOT
Paul	Pilarski	Minnesota DOT
Thad	Pinkerton	Utah DOT
Travis	Kinney	ODOT

WORKING GROUP: OWNERS



WORKING GROUP: INDUSTRY

First	Last	Organization
Brian	Pailes	Vector Corrosion Services
Brian	Merrill	WJE
Curt	McDonald	HDR
Ed	Welch	NCPP
Eric	Shoyer	Elzly
John	Hooks	NCPP
Keith	Kruse	Coordinated Systems Consulting

First	Last	Organization
Michael	Brown	WSP
Nick	Fabritiis	Elzwood Technology
Pat	Martens	Bridge Pres & Inspect
Paul	Krauss	WJE
Regis	Doucette	Durable Solutions
Siva	Venugopalan	Siva Corrosion Services
Stuart	Mundith	Siva Corrosion Services

Published on TSP-2

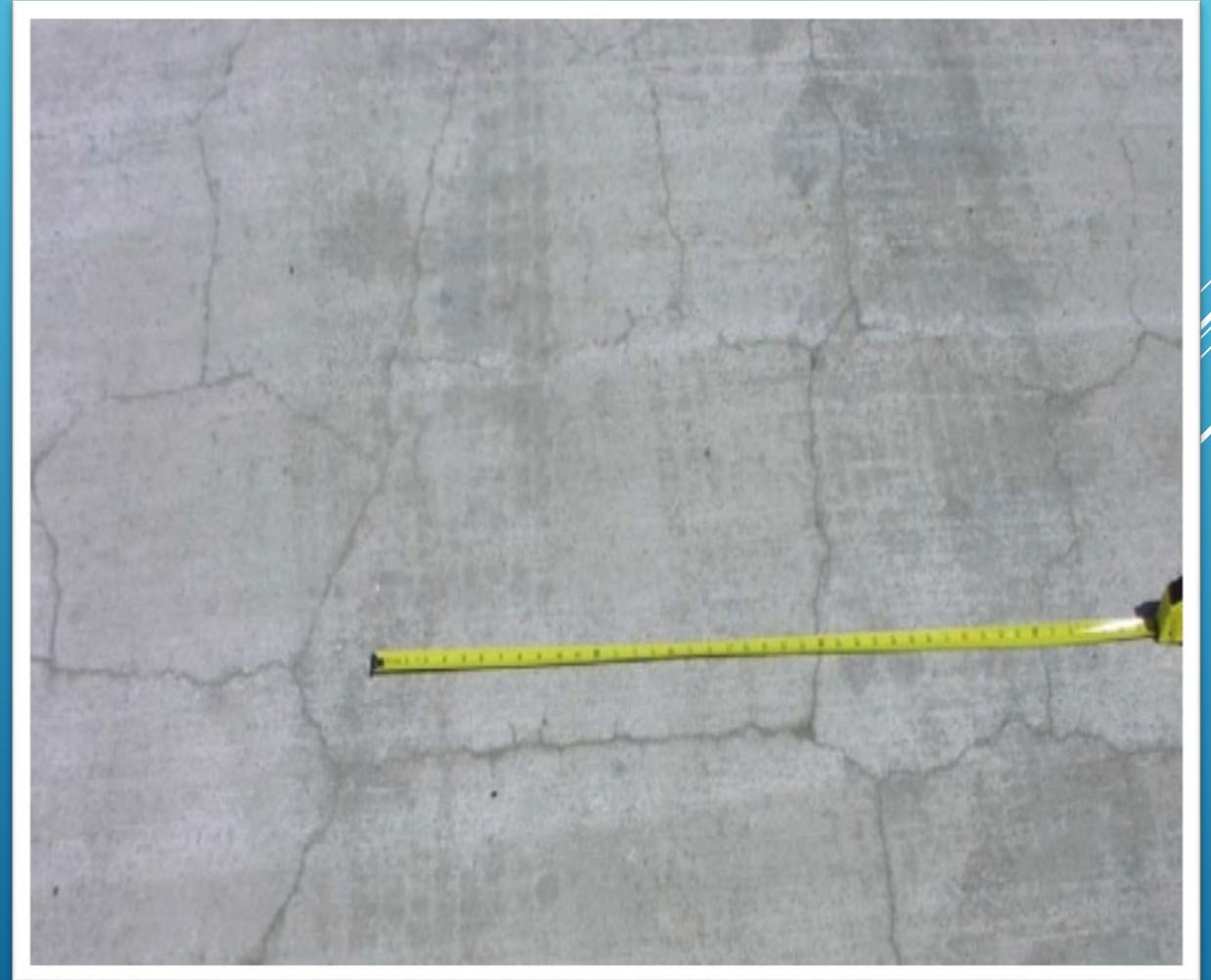
CURRENT
PROGRESS

- ▶ <https://tsp2bridge.pavementpreservation.org/files/2020/04/TSP2-Bridge-Deck-Chloride-Testing-Guide.pdf>



► Chapter 1: Overview of chloride deterioration and discussion on Preservation vs Rehabilitation

BRIDGE DECK CHLORIDE GUIDE OVERVIEW



▶ Chapter 2: Network Level Chloride Sampling

▶ Condition Based Sampling Criteria

- ▶ Deck Condition
- ▶ Environmental Factors
- ▶ Maintenance and Project History

▶ Importance Based Sampling

- ▶ Daily Vehicle Operating Cost
- ▶ Bridge Significance
- ▶ Structural Features

▶ Program Management

- ▶ Managing the sampled data
- ▶ Extrapolating data points to corridors.

BRIDGE
DECK
CHLORIDE
GUIDE
OVERVIEW



▶ Chapter 3: Project Level Sampling

▶ Deck Sampling

- ▶ Methods of sampling
- ▶ Number of Samples
- ▶ Location to take sample

▶ Chloride Testing

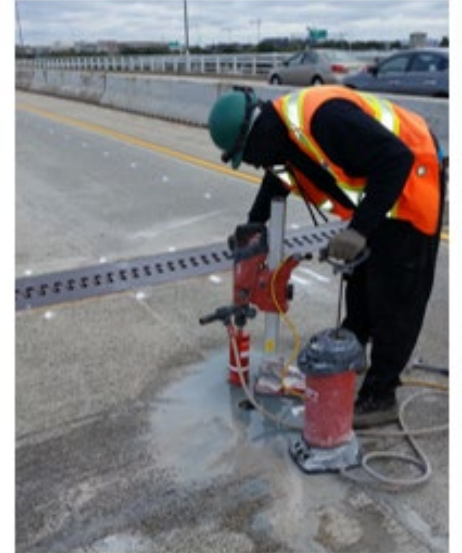
- ▶ Field Testing
- ▶ Laboratory Testing

▶ Effect of Sulfate Contents

▶ Other Factors that Impact Sampling



Powder Sampling on a Bridge Deck



Coring on a Bridge Deck



► Chapter 4: Modeling Test Results

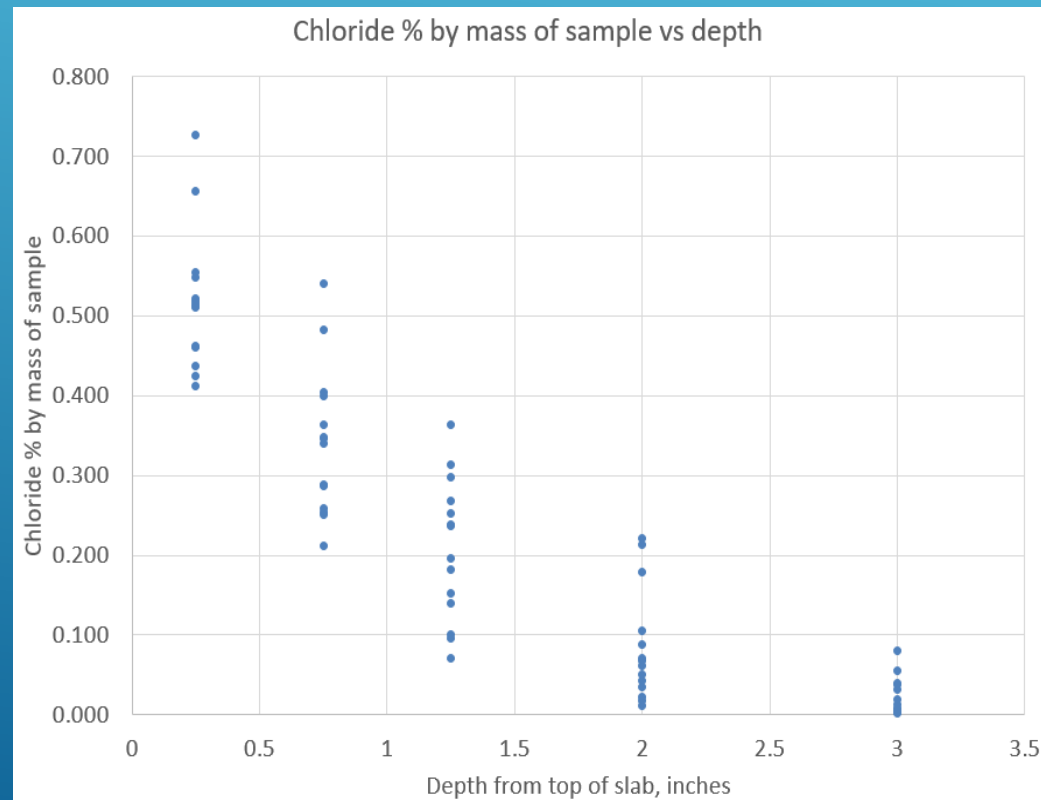
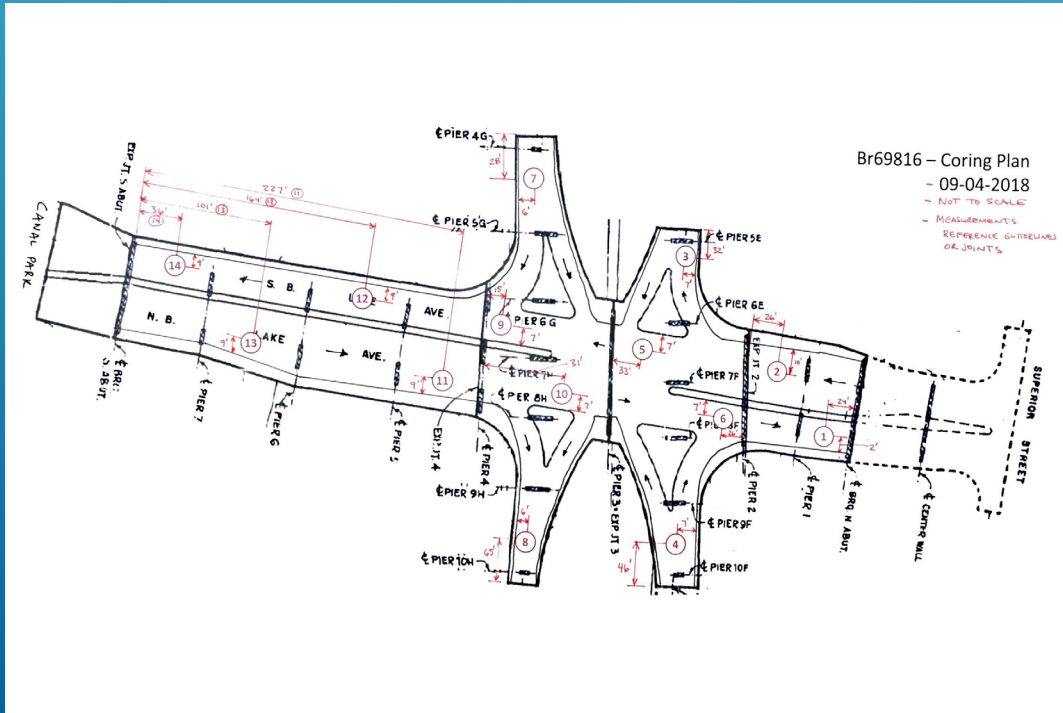
- How to process the data obtained from chloride testing to obtain diffusion coefficients and service life prediction.
- Service life prediction will be kept basic. The intent is to provide the user an idea if the bridge is in need of rehabilitation or preservation.
- Programming Future Work

BRIDGE DECK
CHLORIDE
GUIDE
OVERVIEW



► Appendix A: Example Projects

- ▶ Several DOT's have offered sample projects where testing was conducted on bridge decks. The results and project recommendations are summarized and shared.



► Appendix B: Boilerplate Statement of Work

- Provided to assist DOT's with contracting the sampling and testing for chloride contamination.
- Setup to be consistent with report guidance.
- Should really help owners get work moving out the door and help provide national consistency in how the work is contracted.

BRIDGE DECK
CHLORIDE
GUIDE
OVERVIEW



- ▶ Additional factors that affect deck deterioration could significantly expand the conversation.
- ▶ Developing a 30 minute presentation detailing report content.
- ▶ Service Life and Future project recommendations were intentionally kept short. These topics could be future reports.

FUTURE
WORK



QUESTIONS? COMMENTS?

