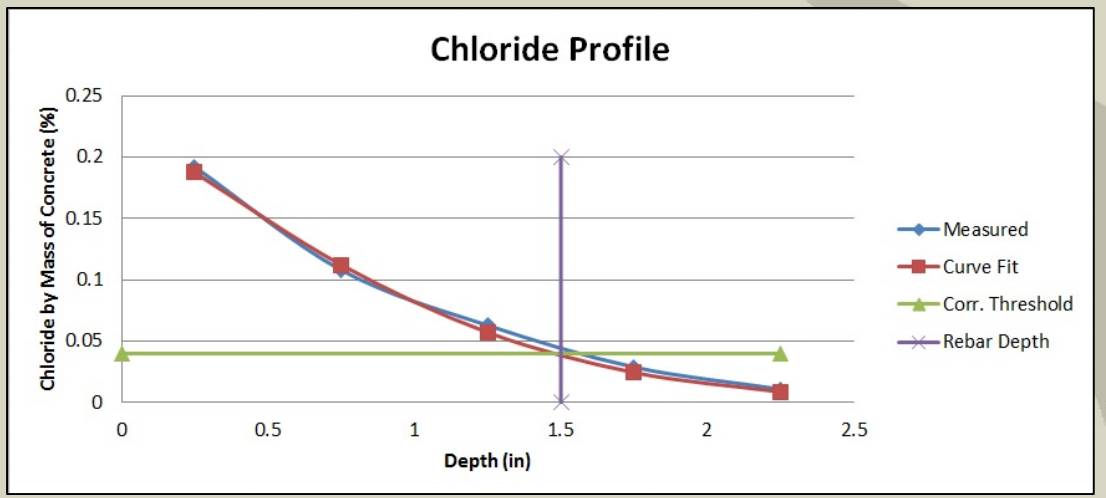
Bridge Deck Chloride Testing

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.

Working Group: Owners

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: 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

Bridge Deck Chloride Guide Overview

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

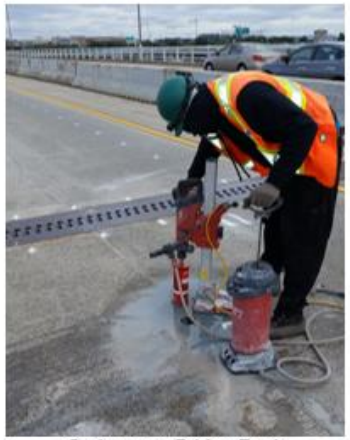
Bridge Deck Chloride Guide Overview

- 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 cooridors.

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



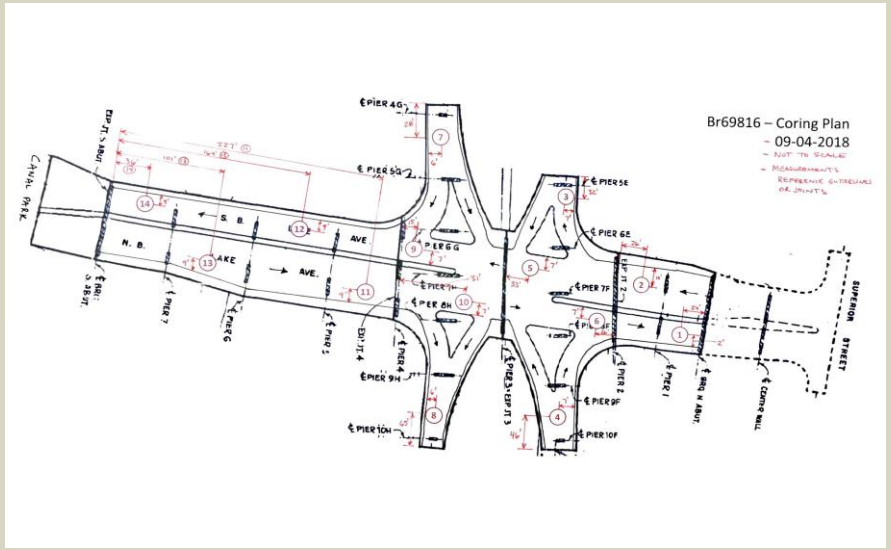
Coring on a Bridge Deck

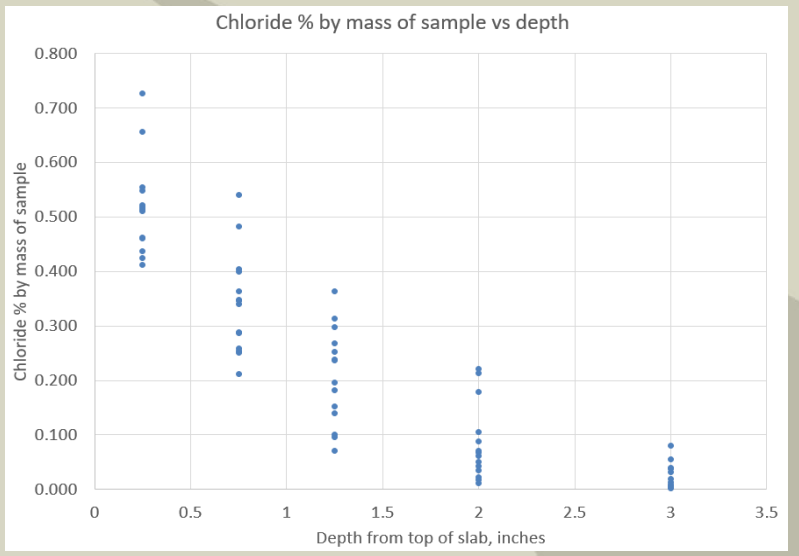
Bridge Deck Chloride Guide Overview

- 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.





Bridge Deck Chloride Guide Overview

- 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.

Current Progress

- Draft Report is 99% complete.
- Working Group Review has identified sections that require finalizing and are currently working toward publishing
- Document will be distributed to 4 Regional partnerships for review and approval (2 Months).
- Published through TSP-2.
- Coordinate with MaC for distribution through AASHTO.

Future Work

- 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.

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