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14. Supplementary Notes			
15. Abstract  <b>Purpose and Need</b> "D" Cracking is a freeze-thaw deterioration of concrete pavements observed in some pavements after three or more years of service. "D" cracks are closely spaced crack formations parallel to transverse and longitudinal joints that later multiply outward from the joints toward the center of the pavement panel. "D" Cracking varies with the pore properties of certain types of aggregate particles and the environment in which the pavement is placed. Due to the natural accumulation of water under pavements in the base and subbase structures, the aggregate may eventually become saturated. When aggregates are exposed to freeze and thaw cycles, cracking of the concrete starts in the saturated aggregate. One method to control "D" Cracking may be to seal the surface with a silane. Silane is a clear, penetrating, water-based alkylalkoxysilane sealer. The silane solution is a white milky liquid. The purpose of applying silane is to protect the PCC surface from surface moisture entering through open cracks and pores. It is hoped silane will penetrate at least 1/4" into the PCC. Placing the silane sealer on the concrete surface may slow or reduce the continued progress of "D" Cracking. <b>Objective</b> The objective of this study is to evaluate the effect a silane sealer has on preventing further deterioration of existing "D" Cracking in a Portland Cement Concrete (PCC) pavement surface. <b>Scope</b> In 1992, The North Dakota Department of Transportation (NDDOT) implemented an experimental project designed to study the above objective. Test sections were installed on certain North Dakota roadways having surfaces composed of PCC and also suffering from varying degrees of "D" Cracking. The project was located on Interstate 29, near reference point 45 which is near the Kindred interchange in the south and north bound roadways. Silane would then be applied to the test sections and compared with their corresponding control sections. Evaluations will be made annually to determine how effective (visual inspection) silane is in stopping the advancement of "D" Cracking at various stages and last for a period of five years on an annual basis. This study may ultimately determine, if effective, what optimum stage of "D" Cracking silane should be applied at, and at what stage treatment should be implemented. <b>Summary</b> At this point in the evaluation period it appears the "D" Cracking present in the test sections and their corresponding control sections is progressing similarly. This statement is true for all levels of severity in the "D" Cracking. In general the dark coloring or staining of the cracking patterns is slightly more apparent in the control sections than in the test sections. However, this does not necessarily conclude that the roadway, in question, is any worse off. All of the sections whether test or control, have had patching done in an effort to control the progression of "D" Cracking. <b>Recommendation</b> The use of silane as a retardant in the progression of "D" cracking on a PCC pavement surface is questionable and is not recommended for use on North Dakota roadways.			
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