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14. Supplementary Notes			
15. Abstract <u>Purpose and Need</u> "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. There is a need to determine if there is a rehabilitation method that will slow "D" cracking in PCC pavement. <u>Objective</u> The objective was to evaluate and compare the effect of silane and various HBP overlay thicknesses would have on slowing "D" cracking on PCC pavement. <u>Scope</u> In 1992, The North Dakota Department of Transportation (NDDOT) implemented an experimental project designed to study the above objectives. Test sections consisting of applications of silane and various overlay thicknesses of HBP were constructed on select North Dakota roadways. These roadways were limited to surfaces composed of PCC that had also been suffering from "D" cracking. The project was located on Interstate 94, near reference point 193 which is near Steele, ND in the east and west bound roadways. Evaluations were made annually to determine how effective silane and the various HBP thicknesses are in stopping the advancement of "D" cracking. Evaluations on the HBP sections included items such as crack counts as well as rut and ride performance. Evaluations made on the silane section included monitoring the difference in progression, if any, between that section and the corresponding control section. The HBP and silane test sections were monitored for five years on an annual basis. <u>Summary</u> It appears the amount of full length transverse cracks found in the various HBP overlay test sections decreased as the thicknesses increased. Most of the cracks appeared tight in the HBP test sections, however, some cracks appeared slightly wider in one of the 4" test sections. The silane sections appeared to perform slightly better than the corresponding control section in slowing the progression of "D" cracking.			
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