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14. Supplementary Notes			
15. Abstract <u>Purpose and Need</u> Western North Dakota has many aging highways that have very weak subgrades. Most of the local aggregates are either depleted or not suitable for road construction. The normal practice to improve areas of weak subgrade is to remove the weak soils and replace them with granular material. The North Dakota Department of Transportation is looking for ways to improve the pavement performance, decrease costs, and conserve aggregate resources. <u>Objective</u> The objective of this study is to evaluate the effectiveness of geogrid in reducing the amount of subcut needed and cost through an area of weak soil. <u>Scope</u> The experimental section is located on project ACF-5-085(026)102. The project begins north of Gorham on US 85 to Grassy Butte. This study will compare the performance of an asphalt roadway where a geogrid has been placed to reduce the amount of excavation to a section where the soils have been excavated and replaced with granular material to a control section. Performance evaluations will be conducted and reported annually for five years. Items to be studied are: <u>Construction Details</u> (A) Method and ease of construction (B) Equipment required (C) Construction sequence <u>Performance Measurements</u> (A) Rutting (B) Cracking (C) Deflections. <u>Summary</u> There is no appreciable difference in the average rut data between the test and control sections. All sections were near the border where the rut rating changes from fair to good. The deflection and modulus data indicate that the subgrade is acting uniformly. The variability of the data is insignificant. The slight variations in data may be related to differences in base and sub-base thickness. The aggregate used on top of geogrids in subcut areas must meet the optimum gradation specified for geogrid use. On this project, a section thickness of 24 inches of aggregate was needed in a soft subcut where a geogrid was not used. If a geogrid was used the section thickness could be reduced an average of 6 inches. The cost of geogrid has decreased since 1991. Geogrid should be considered in a design where base or subgrade reinforcement is desired. <u>Recommendation</u> Geotextile use has increased steadily in roadway design and roadway rehabilitation. Woven fabrics are used in subgrade and base reinforcement. In subgrade reinforcement applications, Geogrids can be an effective alternative to deep subcutting. It is important to use a material that closely follows the optimum gradation for placement on geogrids. Although many problems have been encountered during the installation process of geogrids on this project, especially on soft subgrades, we recommend that consideration be given to the use of geogrid instead of deep subcuts. Valuable experience has been gained on the use of geogrid. Each project must be evaluated as to the gradation and quality of aggregate available to complete the roadway reconstruction.			
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