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<p>15. Abstract</p> <p>The purpose of this research is to analyze the flowline data and relate it to the degradation of the river bed at bridge locations in the river. This information may then be used to replace or rehabilitate those bridges that experienced severe degradation.</p> <p>This report evaluates channel degradation in 463.85-mile reach of North Canadian River in Oklahoma. In this study, the 463.85 mile river length is divided into three Reaches: Reach 1- river station (RS) 1 (Bridge Key 16523) to Canton Dam, Reach 2- Canton Dam to Overholser Dam, and Reach 3- Overholser Dam to river station (RS) 40 (Bridge Key b15585). The flowlines of North Canadian River in Oklahoma were observed over a long period. RS 2 in reach 1 shows the maximum degradation of 4.63 feet from 1965 to 2000. In reach 2, RS 9 shows the maximum degradation of 5.83 feet in 58 years. Similarly, in reach 3, RS 33 shows the maximum degradation of 17.67 feet in 38 years. The maximum aggradation of 9.75 in 20 years is observed at RS 21.</p> <p>The North Canadian River in Oklahoma has experienced degradation over 10 feet at three river stations which have been serving more then 10 years. River station (RS 23) at S.H. 270, RS 33 at I-40, and RS 39 at S.H. 84 have experienced degradation of 15.6 feet in 11 years, 17.67 feet in 38 years, and 15.0 feet in 47 years, respectively. These bridges are defined as critical and recommended for rehabilitation or replacement in the replacement cycle. A detailed hydraulic and geotechnical analysis should be performed before reconstruction.</p> <p>It is recommended that degradation of tributaries is evaluated to determine the structures where flowline is severely degrading in North Canadian River basin.</p>			
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