

## Editorial Issue 16(4)

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Corrosion of steel bridges in a marine environment is a rapid process that requires regular maintenance to mitigate the effects of deterioration. In its simplest form, corrosion of steel results from exposure to oxygen and moisture. Corrosion is accelerated in the presence of salt from roadway deicing, and salt water. Although steel corrodes readily in the presence of oxygen and moisture, the rate of corrosion is accelerated in the presence of chloride ions or other corrosive chemicals. Chloride ions result mainly from the use of deicing agents composed of materials with readily soluble chloride ions. These ions generate an atmosphere in which unprotected steel corrodes very quickly. In order to improve durability, paintings are used as coatings for protecting steel from the impact of the environment. In “Effects of corrosion on a steel bowstring bridge in marine environment: a case-study of assessment and retrofit”, Granata introduces a case-study of a steel bowstring bridge set in a marine environment and highly damaged by corrosion. The paper presents assessment of the bridge and retrofit measures, including replacement of the hangers and galvanization through thermal spray coating technology, in order to increase its service life. The reliability of condition assessment of bridges obtained from analysis of visual inspection data is always a big concern among bridge engineers. Visual assessment is subjective and can convey limited information to the end user. To finalize and verify the reported condition rating, inspectors and bridge owners have mainly been relying on images. It is known that the images alone may not be sufficient to adequately provide the condition of the bridge. Shaban et al. propose “Integration of practical supplemental measurements into bridge condition visual inspection grading” to minimize the errors in visual inspection. Measurement of vehicle induced vibrations through wireless accelerometers are proposed to determine the natural frequencies of the bridge that can be reported at each inspection. The change in frequencies is postulated as an indication of deterioration in stiffness of bridge over the years. Freight transportation utilizing trucks is critical for fostering the economic growth of Texas, as well as the United States (U.S.) as a whole. Though trucks comprise just 4% of the vehicles on the road, they enable the movement of nearly 70% of the nation’s freight. This accounts for more than \$725 billion in revenue on an annual basis with fuel representing 38% of the operational costs, consuming 20% of U.S. transportation fuel. The trucking industry is expected to grow by over 40% by 2045 in order to cater to the growing U.S. economy. Accordingly, autonomous truck platoons shall soon be traveling the highway system with greater frequency. Thulaseedharan and Yarnold propose “Prioritization of Texas Prestressed Concrete Bridges for Future Truck Platoon Loading”. The objective of the study is to conduct an evaluation of the Texas concrete bridge inventory when subjected to potential truck platoon loading. In “Mechanical properties of steel fiber reinforced concrete material in construction of road bridge deck”, Luo studies the effect of steel fiber reinforced concrete (SFRC) in road bridge construction. The SFRC specimens with 0%, 0.5%, 1%, 1.5% and 2% fiber content are designed, and the mechanical properties are tested. The author draws conclusion with regard to the variation of compressive strength and tensile strength with the content of SFRC.

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