

CHAPTER V.

RECOMMENDATIONS

5.1 Recommendations

Since cold temperature cycling appears to be most detrimental to system integrity in terms of watertightness and bond testing, it should be the primary focus of any existing or proposed system performance criteria. Based on the results of testing on the Creekside Drive Bridge, bond strength should be at least 25 psi after 200 low temperature exposure cycles. Though the impedance values for the specimens taken from the Creekside Drive bridge indicate a value greater than 1.1 M Ω , these measurements represent only one year of service. Given the results of watertightness testing for the laboratory constructed specimens, it appears that an impedance value greater than 1.1 M Ω after 200 cycles can be practically constructed.

5.2 Future Research Needs

If possible, follow up cores should be taken from the Creekside Drive bridge as well as other available bridges to assist in determining watertightness and bond strength criteria based on field performance. At minimum, further core samples should be taken when observable failure occurs in the bridge deck (i.e., cracking, shoving, water transport through deck). In addition, systems using other membranes should be tested in the laboratory.

For the watertightness test developed in this research, it may be advantageous to use a coloring agent in the saturating solution to assist in determining whether or not, and where, system failure has taken place. Further, modifying the specimen design to allow the placement of electrodes within the materials in each lift closer to the membrane could significantly limit the effects of global material moisture content on impedance test results.

Finally, the effects of a lack of any significant bond between base course asphalt and a wooden bridge deck in the proposed system should be investigated in terms of pavement shoving.