Nattapong Angsuphankosol 2010: Comparison of Rutting Resistance of Asphalt Mixtures Using 3 Types of Asphalt Binders by Wheel Tracker. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Piphat Sornwong, M.Eng. 135 pages.

Many pavements in Thailand are currently subjected to high volume of traffic and especially heavy trucks. As a result, those pavements deteriorate at a very fast rate. Of all the distresses, rutting was found to be the major failure made of flexible pavements in Thailand. Rutting resistance of asphalt concrete mixes were evaluated in this study using. Wheel tracker. The specimens were prepared by roller compactor. Were conducted in this research to simulate the actual rutting condition in the pavement with the vertical load from traffic. Limestones used in two construction projects; Highway No.3 Cholburi By pass and Highway No.9 Bang Pa-in - Bangplee. And granite aggregates used in the Suvarnabhumi-Chonburi section 5 highway contruction project. were used in this study with the same gradations as they were used in the three projects. There types of asphalt binder; AC 40-50, AC 60-70 and polymer modified asphalt (PMA) were used together with the limestones to produce asphalt concrete mixes. were used to produce asphalt concrete materials in this study.

Results of Rutting resistance test indicated that in asphalt mixtures Limestones aggregates used in Highway No.9 Bang Pa-in – Bangplee had the highest Rutting resistance. At 40 degree celcius asphalt concrete materials with AC 40-50 and asphalt concrete materials with PMA had the higher Rutting resistance than asphalt concrete materials with AC 60-70 is 42.55 % and 79.57 % At 60 degree celcius asphalt concrete materials with AC 40-50 and asphalt concrete materials with PMA had the higher Rutting resistance than asphalt concrete materials with AC 60-70 is 90.73 % and 95.23 %

Based on the test results of asphalt concrete materials in the research, it can be concluded that asphalt concrete materials with AC 40-50 and PMA have superior properties of rutting resistance are almost the same and better than asphalt concrete materials with AC 60-70. Since the costs of AC 40-50 and AC 60-70 are indifferent, it is suggested in this study that the binder type of asphalt concrete materials in Thailand should be changed from AC 60-70 to AC 40-50.

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