Pavement Surface Evaluation And Rating Study Paser

Under the CAREC 2030 framework, a regional trade strategy will provide a more coherent approach to strengthen trade and enhance growth potential of CAREC countries. The CAREC Integrated Trade Agenda (CITA) 2030 aims to support CAREC countries in integrating further with the global economy through trade expansion from increased market access, greater diversification, and stronger institutions for trade. Taking into consideration the countries' capacities and varying levels of progress, CITA 2030 will be implemented in a phased and pragmatic approach including through a three-year rolling strategic action plan.

This directory brings together training resource data as reported from technology transfer centers, state highway agencies, professional organizations, universities and the Federal Highway Administration. It gives specific information on available training resources on bridges, drainage, engineering, equipment, management, other resources, road surface, roadside, safety, subgrade, traffic control and winter.

This specific research article is aimed to compare & conclude which type of road is feasible & is good to have on a particular situation. The comparison of the study shows that the white topping of both types of roads improves the life span of the road & its withstanding capability. In this research paper the comparison of bitumen road & RCC white topping is carried out followed by series of tests to prove the proposed technology. In this we are considering the road section from Peeli Kothi to Dimple Petrol Pump which is 1.9 km stretched and serves a main connecting road for commercial vehicles. Finally the proposed technology is proved as a better & feasible option for such roads. Keywords: Comparison on Bitumen & Asphalt Roads, White topping, Bitumen road etc.

Asphalt Pavements

Primer and Guidebook

Unsurfaced Road Maintenance Management

Transportation Planning Resource Guide

Proceedings of the 5th GeoChina International Conference 2018 – Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability, held on July 23 to 25, 2018 in HangZhou, China

PAVEMENT MAINTENANCE AND MANAGEMENT

Bearing Capacity of Roads, Railways and Airfields includes the contributions to the 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA 2017, 28-30 June 2017, Athens, Greece). The papers cover aspects related to materials, laboratory testing, design, construction, maintenance and management systems of transport infrastructure, and focus on roads, railways and airfields. Additional aspects that concern new materials and characterization, alternative rehabilitation techniques, technological advances as well as pavement and railway track substructure sustainability are included. The contributions discuss new concepts and innovative solutions, and are concentrated but not limited on the following topics: · Unbound aggregate materials and soil properties · Bound materials characteritics, mechanical properties and testing · Effect of traffic loading · In-situ measurements techniques and monitoring · Structural evaluation · Pavement serviceability condition · Rehabilitation and maintenance issues · Geophysical assessment · Stabilization and reinforcement · Performance modeling · Environmental challenges · Life cycle assessment and sustainability Bearing Capacity of Roads, Railways and Airfields is essential reading for academics and professionals involved or interested in transport infrastructure systems, in particular roads, railways and airfields.

This draft manual describes an unsurfaced road maintenance management system for use on military installations. This system is available in either a manual or computerized mode (Micro PAVER). The maintenance standards prescribed should protect Government property with an economical and effective expenditure of maintenance funds commensurate with the functional requirements and the planned future use of the facilities. Because of limited maintenance funds, timely and rational determination of maintenance and repair (M and R) needs and priorities are very important factors. These factors can be determined by using the system as described in this draft manual. The use of the unsurfaced road maintenance management system by personnel who have the responsibility for unsurfaced road maintenance should assure uniform, economical, and satisfactory unsurfaced area maintenance and repair.

The continued loss of rail network infrastructure and rail service throughout the US has most instances resulted in the modal shift of rail freight back to truck. Rail freight converted to truck may have significant impact on pavement maintenance costs and activities due to the increased highway traffic volumes. This study will investigate three short-line rail routes in Minnesota, Wisconsin and the Upper Peninsula of Michigan and will determine the potential impacts of diverting rail freight flows to truck. A logistics flow routing will be created illustrating the new truck flows by highway classification and usage. The targeted highways current conditions and asset management techniques will be documented. A pavement maintenance model will be used to determine the incremental pavement maintenance cost per ton-mile if additional freight moved over various classes of highway and their impact on highway funding.

A Guide to Preparing the Transportation Element of a Local Comprehensive Plan

Distress Manifestations

PASER Manual

Asset and Infrastructure Management for Airports

Gravel-PASER Manual

Guide for Pavement Friction

Rating of highway pavement surface condition is used by highway system authorities as a measure of the ability of the pavement to continue to provide required service to the public. Ratings are based on riding quality and distress manifestations which currently apply only to those roads surfaced with asphaltic concrete and Portland-cement concrete. There is also a network of bituminous surface-treated roads for smaller and more remote population centres which has, to date, had no scheme designed and developed specifically to address their performance pattern. This manual presents a pavement surface condition rating scheme for such roads, based on the same interrelated measures used on the highway system. The manual describes the scheme, and gives a procedure for evaluation, defines riding quality, and details such distress manifestations as surface defects and deformation and cracking, shoulder distress, and maintenance treatments.

Pavement evaluation techniques which involve the use of state-of-art technologies and tools for functional and structural evaluation of pavements have become necessity today for health monitoring of road infrastructure and to take appropriate decisions for maintenance, planning and budgeting of road network based on scientific tools. The state-of-art infrastructure facilities available at CSIR-Central Road Research Institute motivates us to write this manual which concisely covers all the major equipment of pavement evaluation, so that the students and field practitioners understand the methodology and follow the correct procedure for functional and structural evaluation of pavement for various purposes. The first chapter of the manual deals with the evaluation of pavement surface roughness for rating the roads as per riding quality criteria. Apart from the methodology for roughness measurement using various equipment, this chapter will help the readers for deciding the appropriate technology depending upon the location and type of the road under study. Second chapter of the manual is related to the micro and macro level assessment of pavement surface characteristics which are related to the measurement of pavement surface texture, skid resistance and polish stone value, to ensure the safe riding pavement surface. Third chapter covers the details about distresses observed on flexible pavements and their measurement techniques. Details of most dominating distresses along with illustrating photographs and severity levels are also given in this chapter. Fourth chapter gives details of axle load surveys using static and weigh-in-motion systems which are required to know the current loading pattern on the project roads for their upgradation and various maintenance needs. Calculation of vehicle damage factor with examples has also been included in this chapter. The fifth chapter deals with the structural health monitoring of roads using Benkelman Beam and Falling Weight Deflection techniques. The details of these two methods and their measurements techniques are given in details with example for estimating the overlay needs using Falling Weight Deflectometer Technique. The use of Network Survey vehicle has also become necessity for road asset and pavement condition monitoring for development of pavement maintenance management systems at network level. The details of a typical network survey vehicle system including its calibration and validation details are given in chapter six. This chapter also includes the tentative specifications of Network Survey Vehicle System to meet the requirements of road asset management systems. We are hopeful that the readers will find the book useful as the procedures of pavement evaluation using equipment have been demonstrated in a simplified way. Suggestion and observations for further improvement of the manual are welcome.

Engineering Standards for Forensic Application presents the technologies and law precedents for the application of engineering standards to forensic opinions, discussing Fundamentals, Disciplines, Engineering Standards, The Basics and the Future of Forensics. The book explores the engineering standard and how it is used by experts to give opinions that are introduced into evidence, and how they are assumed to be the best evidence known on the topic at hand. Final sections include coverage of NFL Brain Injuries and the Flint Water Crisis. Examples of the use of engineering standards are shown and discussed throughout the work. Addresses a wide variety of forensic engineering areas, including relevant law Provides a new approach of study that includes the work of both engineers and litigators Contains contributions from over 40 experts, offering the reader examples of general forensic methods that are based on reliable engineering practice

Evaluation of Crack Sealing Techniques in Alaska’s Asphalt Concrete Pavements

ntegrated Asset Management for Corridor Infrastructure

Implementation of the video image processing technique for evaluating pavement surface distress in the state of ohio

Rail to Truck Modal Shift

Public Roads

Pavement Surface Evaluation and Rating

"TRB's National Cooperative Highway Research Program (NCHRP) Report 759: Effective Removal of Pavement Markings aids in the selection of safe, cost-effective, and environmentally acceptable practices for the removal of work zone and permanent pavement markings. The practices highlighted in this report emphasize minimal damage to the underlying pavement or visible character of the surface course." -- Publisher's description

Asphalt Pavements provides the know-how behind the design, production and maintenance of asphalt pavements and parking lots. Incorporating the latest technology, this book is the first to focus primarily on the design, production and maintenance of low-volume roads and parking areas. Special attention is given to determining the traffic capacity, required thickness and asphalt mixture type for parking applications. Topics covered include: material information such as binder properties, testing grading and selection; construction information such as mixing plant operation, proportioning, mixture placement and compaction; and design information such as thickness and mixture design methods and guidelines on applying these to highways, city streets and parking Areas. It is an essential practical guide aimed at those engineers and architects who are not directly involved in the asphalt industry, but who nonetheless need to have a good general knowledge of the subject. Asphalt Pavements provides a novice with enough information to completely design, construct and specify an asphalt pavement.

This book was written by academic's and practitioners who have lead the implementation of highway management processes and tools at several major corporations. The contents of this book have been presented in an interesting and enjoyable way, enhanced by real pictures of highway projects and pavement maintenance. This book contains five chapters, the first chapter entitled MAINTENANCE MANAGEMENT: It was to clarify the concept and importance of maintenance and management professionally and smoothly, While the title of the second chapter is the HIGHWAY PROJECTS, and provided a detailed explanation of the management and implementation of highways, while reviewing the types and importance in the construction sector. The third chapter, entitled PAVEMENT DETERIORATION: The researchers reviewed the types of DETERIORATION in the riged and asphalt pavement, and explained the methods of treatment and maintenance necessary for each type. While the fourth chapter was entitled HIGHY WAY MAINTENANCE OPERATIONS: It reviewed the methods of maintenance and importance in highway project, the fifth chapter entitled: PAVEMENT MAINTENANCE MANAGEMENT SYSTEM: This chapter reviewed the most important global strategies in the management of pavement maintenance.

Impact of Increased Freight Traffic on Pavement Maintenance Costs

Concrete-PASER Manual

Maintenance and Design Manual

Capital Preventive Maintenance

Manual for Condition Rating of Gravel Surface Roads

Joint Participating Intermodal Surface Transportation Planning & Research Work Program

This book presents new studies dealing with the attempts made by the scientists and practitioners to address contemporary issues in pavement engineering such as aging and modification of asphalt binders, performance evaluation of warm mix asphalt, and mechanical-based pavement structure analysis, etc.. Asphalt binder and mixture have been widely used to construct flexible pavements. Mechanical and Chemical characterizations of asphalt materials and integration of these properties into pavement structures and distresses analysis are of great importance to design a sustainable flexible pavement. This book includes discusses and new results dealing with these issues. Papers were selected from the 5th GeoChina International Conference 2018 – Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability, held on July 23 to 25, 2018 in HangZhou, China.

Asphalt-PASER ManualPavement Surface Evaluation and RatingPavement Surface Evaluation and RatingPASER ManualConcrete-PASER ManualPavement Surface Evaluation and RatingSealcoat PASER ManualPavement Surface Evaluation and RatingGravel-PASER ManualPavement Surface Evaluation and RatingAirfield Pavement Surface Evaluation and Rating ManualsManual for Condition Rating of Surface-treated PavementsDistress Manifestations[Downsview] : Research and Development Branch, Ministry of Transportation of Ontario

The purpose of this manual is to provide clear and helpful information for maintaining gravel roads. Very little technical help is available to small agencies that are responsible for managing these roads. Gravel road maintenance has traditionally been "more of an art than a science" and very few formal standards exist. This manual contains guidelines to help answer the questions that arise concerning gravel road maintenance such as: What is enough surface crown? What is too much? What causes corrugation? The information is as nontechnical as possible without sacrificing clear guidelines and instructions on how to do the job right.

Evaluation of Performance and Cost-effectiveness of Thin Pavement Surface Treatments

Manual on Pavement Evaluation Techniques

Engineering Standards for Forensic Application

Bearing Capacity of Roads, Railways and Airfields

Final Report

Testing and Characterization of Asphalt Materials and Pavement Structures

The key project objective was to assess and evaluate the feasibility and accuracy of custom software used in smartphones to measure road roughness from the accelerometer data collected from smartphones and compare results with PASER (Pavement Surface and Evaluation Rating System) and IRI (International Roughness Index) measurement values collected from the same roadway segments. This project is MDOT's first large implementation of a customized Android smartphone to collect road roughness data using a methodology developed from previous research work performed by UMTRI. Accelerometer data collection was performed via Android-based smartphones using a customized software application called DataProbe. During the project's initial phase smartphones were installed in each of nine Michigan Department of Transportation (MDOT) vehicles driven by MDOT employees. These same vehicles also were used during 2012 and 2013 to June, 2015 to collect data on road distress using PASER Ratings for comparison. The DataProbe software application was used to collect data and transmit it to a University of Michigan Transportation Research server, where it was sorted, stored, and analyzed. All MDOT regions are represented in this analysis that compares road roughness ratings for nearly 6000 one tenth of a mile road segments. For the second phase of the project, road distress (PASER Rating) data was collected in 2014 simultaneously with an MDOT vehicle equipped with an IRI device and two DataProbe smartphones and two UMTRI vehicles equipped with five DataProbe smartphones. The analysis of the 2012 and 2013 data found that there were a number of significant predictors of IRI road roughness including: the phone and the vehicle used to collect the data, the speed of the vehicle collecting the data, the type of road surface, date of data collection, and accelerometer variance. By including quadratic terms to adjust for non-linear relationships and interactions among the predictors studied in this project, the multiple regression model predicted nearly 45 percent and 43 percent of the variance in IRI values, respectively. An analysis of commonly used IRI categories (3 level/5 level) using ordinal logistic regression found that DataProbe accurately predicted these categories 68/71 percent of the time (2012 data), 77/76 percent of the time (2013 data). Analysis of the data collected in 2014 showed multiple regression models with variance among accelerometer measurements and speed accounting for 37 percent of the variance, while the ordinal logistic regression accurately predicted the IRI (3 level/5 level) categories 86/83 percent of the time. These results are promising when considering the near term application of the DataProbe technology for smaller locales that drive over their local roads more often, generating web-based road roughness visuals of each of the roads in their jurisdiction. In the longer term, statewide road roughness measurement may be performed through the crowd-sourcing model available through Connected Vehicle initiatives, where all vehicles will be equipped with devices that support safety applications as well as other applications such as those that measure road roughness.

Thermal cracking is one of the most prevalent asphalt concrete (AC) pavement distresses in northern states and countries. Every year in Alaska, a substantial amount of funding is spent on sealing cracks according to the practices of the Alaska Department of Transportation and Public Facilities (ADOT&PF) Maintenance and Operations (M&O) division. However, to date there are no specific guidelines available that clearly outline the best timing for crack sealing or even what conditions necessitate crack sealing in a consistent manner. There is a need to evaluate the effectiveness and best practices for using the crack sealing techniques on AC pavements in Alaska. In response to this research need, a pavement preservation project was conducted and found that although crack sealing is a very common practice in Alaska, it is unclear how and why M&O decides to seal cracks since some are sealed and some are not. This motivated further evaluation of 91 field sections that represent the various climate regions of Alaska. A new survey method, “special thermal crack evaluation (STCE) ”, was developed to answer critical questions related to road thermal cracks and to provide guidance for crack sealing practices. The new STCE method was conducted along with two other field survey methods, the Long Term Pavement Performance (LTPP) program and the Pavement Surface and Evaluation Rating (PASER). Results between methods were then correlated. Finally, regression analyses were conducted to determine factors that significantly influence crack development and crack sealing practices in Alaska. Significant influencing factors on crack development include pavement temperature, freezing index, and rut depth. Crack frequency, freezing index, pavement age, PASER rating, PASER transverse crack severity level, and certain STCE questions can significantly contribute to the decision making for current sealing practices. It was found that the STCE method could generate direct recommendations on crack sealing practices. STCE, in combination with the LTPP and PASER methods, provides specific analysis about asphalt thermal cracking and sealing of these cracks so that informed decisions can be made for a positive impact on ADOT&PF’s maintenance budget. It is recommended to use STCE along with the LTPP and PASER methods and to use the findings of influencing factors of this study to develop more specific plans for future crack sealing practices.

This report contains guidelines and recommendations for managing and designing for friction on highway pavements. The contents of this report will be of interest to highway materials, construction, pavement management, safety, design, and research engineers, as well as others concerned with the friction and related surface characteristics of highway pavements.

Road Asset Management Systems and Performance-Based Road Maintenance Contracts in the CAREC Region

Manual for Condition Rating of Surface-treated Pavements

Sealcoat PASER Manual

EXPERIMENTAL ANALYSIS OF WHITE TOPPING & BITUMEN ROADS IN SAGAR

Symposium on Road and Paving Materials-1959

Evaluating Roadway Surface Rating Technologies

This guidebook addresses asset and infrastructure management applicable to all areas of the operation of an airport. The primer portion of the report includes an overview of an asset and infrastructure management program and explores the benefits and costs of implementation. The guidebook portion of the report provides examples from various airports and is designed to be a reference for integrating proven asset and infrastructure management practices and techniques at airports of all sizes. The report defines an asset and infrastructure management program and its components and how a program relates to daily operations and longer-term planning. In addition, the project that developed ACRP Report 69 also produced a PowerPoint presentation, which can be used to present the benefits of a program to stakeholders--

The existing pavement condition rating systems used in Ontario are designed only for hard surfaced roads. To date, there has been no system designed and developed specially to address the unique performance pattern of gravel surface roads. This document was prepared to meet this need and to present a roadway surface condition rating system for gravel surface roads. The manual covers the rating system, distress manifestations, procedures for roadway evaluation, surface defects, surface deformation, and shoulder distress manifestations.

The two volume set CCIS 775 and 776 constitutes the refereed proceedings of the First International Conference on Computational Intelligence, Communications, and Business Analytics, CICBA 2017, held in Kolkata, India, in March 2017. The 90 revised full papers presented in the two volumes were carefully reviewed and selected from 276 submissions. The papers are organized in topical sections on data science and advanced data analytics; signal processing and communications; microelectronics, sensors, intelligent networks; computational forensics (privacy and security); computational intelligence in bio-computing; computational intelligence in mobile and quantum computing; intelligent data mining and data warehousing; computational intelligence.

Current Application and Successful Implementation of Local Agency Pavement Management in the United States

Computational Intelligence, Communications, and Business Analytics

First International Conference, CICBA 2017, Kolkata, India, March 24 – 25, 2017, Revised Selected Papers, Part II

Proceedings of 2021 International Conference on Autonomous Unmanned Systems (ICAUS 2021)

Gravel Roads

Airfield Pavement Surface Evaluation and Rating Manuals