Free reading Intelligent transportation systems functional design for effective traffic management Copy

Intelligent Transportation Systems Functional Design for Economical and Efficient Traffic Management. The author explains how functional design alternatives can meet project objectives and requirements with optimal cost effectiveness and clarifies how transportation planning and traffic diversion principles relate to functional device selections and equipment locations. Methodologies for translating objectives to functional device types, determining device deployment densities and determining the best placement of CCTV cameras and message signs are provided. The author explains how to reduce recurrent congestion, improve incident clearance time in non-recurrent congestion, provide real-time incident information to motorists, and leverage transportation management center data for lane control through important new active transportation and demand management ATDM methods. Finally, the author examines exciting developments in connected vehicle technologies exploring their potential to greatly improve safety, mobility, and energy efficiency. This resource will greatly benefit all its designers and managers and is of pivotal importance for operating agencies performing evaluations to justify operational funding and system expansions.

Traffic Management 1990

planned electronic traffic control measures for Los Angeles freeways. Early detection and rapid removal of incidents. Electronic surveillance service for stranded motorists. Ramp control, central decision making, and effective real-time information for the motorist.

Traffic Management 1987

all way or multiway stop signs are perhaps the most controversial form of residential traffic control. Residents are likely to request all way stop signs more frequently than any other form of control. Stop signs are thought of as panaceas for many traffic problems. The Virginia Department of Transportation (VDOT) receives requests for all way stop control (AWSC) on residential streets primarily to slow traffic but also to reduce cut through traffic. The objective of this study was to evaluate the effectiveness of AWSC for residential traffic management. The study was limited to the use of AWSC on local residential streets. A comprehensive review of the literature and a questionnaire survey of selected traffic engineering agencies were conducted to identify current use of AWSC. Three case studies using a series of AWSC intersections to reduce cut through traffic on local residential streets were analyzed. The majority of traffic engineering agencies use AWSC warrants from the Manual on Uniform Traffic Control Devices (MUTCD). Several agencies use modified MUTCD warrants or a rating system because the MUTCD warrants appear inappropriate for residential streets with lower traffic volumes. When installed at a series of intersections, AWSC was effective in reducing cut through volumes at the three locations. VDOT should continue to use a series of AWSC intersections as one tool to decrease cut through traffic on local residential streets.

Developing an Effective Freeway Traffic Management System for Los Angeles 1970

This traffic control systems handbook updates the 1985 edition FHWA IP 85-11 TRIS 00475445 and broadens the scope to include intelligent transportation systems' technology and concepts. The handbook recommends decision making processes in selection, implementation, and operations of a traffic control system and describes its plans and programs. The traffic control systems handbook serves as a basic reference in planning designing and implementing effective traffic control systems. Provides an updated compendium of existing traffic control technology for the advanced designer and user. Describes existing and evolving traffic control system technology and aids understanding and facilitates training in the traffic control system field.
Using All-way Stop Control for Residential Traffic Management

1996

An intelligent transportation system its offers considerable opportunities for increasing the safety efficiency and predictability of traffic flow and reducing vehicle emissions sensors or detectors enable the effective gathering of arterial and controlled access highway information in support of automatic incident detection active transportation and demand management traffic adaptive signal control and ramp and freeway metering and dispatching of emergency response providers as traffic flow sensors are integrated with big data sources such as connected and cooperative vehicles and cell phones and other bluetooth enabled devices more accurate and timely traffic flow information can be obtained the book examines the roles of traffic management centers that serve cities counties and other regions and the collocation issues that ensue when multiple agencies share the same space it describes sensor applications and data requirements for several its strategies sensor technologies sensor installation initialization and field testing procedures and alternate sources of traffic flow data the book addresses concerns related to the introduction of automated and connected vehicles and the benefits that systems engineering and national its architectures in the us europe japan and elsewhere bring to its sensor and data fusion benefits to traffic management are described while the bayesian and dempster shafer approaches to data fusion are discussed in more detail its sensors and architectures for traffic management and connected vehicles suits the needs of personnel in transportation institutes and highway agencies and students in undergraduate or graduate transportation engineering courses

Workshop on traffic management through effective signing 1979

Traffic congestion has been imposing a tremendous burden on society as a whole for decades the most widely applied solution has been building more roads to better accommodate traffic demand which turns out to be of limited effect active traffic and demand management atdm is getting more attention recently and is considered here as it leverages market ready technologies and innovative operational approaches to manage traffic congestion within the existing infrastructure the key to a successful active traffic and demand management strategy is to effectively induce travelers behavior to change in spite of the increased attention and application throughout the u s even the world most atdm strategies were implemented on site through small scale pilot studies a systematic framework for analysis and evaluation of such a system in order to effectively track the changes in travelers behavior and the benefit brought about by such changes has not been established nor has the effect of its strategies been quantitatively evaluated in order to effectively evaluate the system benefit and to analyze the behavior changes quantitatively a systematic framework capable of supporting both macroscopic and microscopic analysis should be established such system should be carefully calibrated to reflect the traffic condition in reality as only after the calibration can the baseline model be used as the foundation for other scenarios in which alternative design or management strategies are incorporated so that the behavior changes and system benefit can be computed accurately by comparing the alternative scenarios with the baseline scenario any effective traffic management strategy would be impossible if the traveler route choice behavior in the urban traffic network has not been fully understood theoretical research assumes all users are homogeneous in their route choice decision and will always pick the route with the shortest travel cost which is not necessarily the case in reality researchers in minnesota found that only 34 of drivers strictly traveled on the shortest path drivers decision is made usually based on several dimensions and a full understanding of the travel route choice behavior in the urban traffic network is essential the existence of most current advanced traveler information systems atis offer the capability to provide pre trip and or en route real time information allowing travelers to quickly assess and react to unfolding traffic conditions the basic design concept is to present generic information to drivers leaving drivers to react to the information their own way this passive way of managing traffic by providing generic traffic information has difficulty in predicting outcome and may even incur adverse effect such as overreaction aka herding effects furthermore other questions remain on how to utilize the real time information better and guide the traffic flow more effectively towards a better solution and most current research fails to take the traveler s external cost into consideration motivated by those concerns in this research a behaviorally
induced system optimal model is presented aimed at further improving the system level traffic condition towards system optimal through incremental routing as well as establishing the analysis methodology and evaluation framework to calibrate quantitatively the behavior change and the system benefits in this process the traffic models involved are carefully calibrated first using a two stage calibration model which is capable of matching not only the traffic counts but also the time dependent speed profiles of the calibrated links to the best of our knowledge this research is the first with a methodology to incorporate the use of field observed data to estimate the origin destination od matrices departure profile also proposed in this dissertation is a constrained k shortest paths algorithm cksp that addresses route overlap and travel time deviation issues this proposed algorithm can generate k shortest paths between two given nodes and provide sound route options to the drivers in order to assist their route choice decision process thirdly a behaviorally induced system optimal model includes the development of a marginal cost calculation algorithm a time dependent shortest path search algorithm and schedule delay as well as optimal path finding models is present to improve the traffic flow from an initial traffic condition which could be user equilibrium ue or any other non ue or non system optimal so condition towards system optimal case studies are conducted for each individual research and show a rather promising result the goal of establishing this framework is to better capture and evaluate the effects of behaviorally induced system optimal traffic management strategies on the overall system performance to realize this goal the three research models are integrated in order to constitute a comprehensive platform that is not only capable of effectively guiding the traffic flow improvement towards system optimal but also capable of accurately evaluating the system benefit from the macroscopic perspective and quantitatively analyzing the behavior changes microscopically the comprehensive case study on the traffic network in tucson arizona has been conducted using dynust dynamic urban simulation for transportation dynamic traffic assignment dta simulation software the outcome of this study shows that our proposed modeling framework is promising for improving network traffic condition towards system optimal resulting in a vast amount of economic saving

Street Traffic Management for Los Angeles 1948

periodic resurfacing rehabilitation restoration and reconstruction work is needed on the aging highway system in the state of ohio to maintain a desired level of service for the traveling public however temporary work zones on highways disrupt the normal flow of traffic and reduce the level of service freeway work zones have become a major source of traffic congestion and travelers delays which result in reduced freeway capacity increased driver frustration increased traffic accident increased road user delay cost and increased fuel consumption and vehicle emissions thus highway agencies are facing with the challenging problem of effectively planning and managing the work zone to ameliorate its effects on the vehicular traffic the increasing demand in maintaining an efficient highway system provides the impetus to develop rational and rigorous computer models for reliable estimation of the work zone capacity and traffic queue delay and length to help work zone engineers create effective work zone traffic plans

Effective Freeway Traffic Management System 1971

offers policy oriented research based recommendations for effectively managing traffic and cutting excess congestion in large urban areas

Military Traffic Management Command Strategic Plan 19??

this handbook which was developed in recognition of the need for the compilation and dissemination of information on advanced traffic control systems presents the basic principles for the planning design and implementation of such systems for urban streets and freeways the presentation concept and organization of this handbook is developed from the viewpoint of systems engineering traffic control studies are described and traffic control and surveillance concepts are reviewed hardware components are outlined and computer concepts and communication concepts are stated local and central controllers are described as well as display television and driver information systems available systems technology and candidate system definition evaluation and implementation are also covered the management of traffic control systems is discussed
Traffic Control Systems Handbook 1996

The economic importance of effective traffic management becomes more and more evident as traffic demands increase faced with the negative effects of traffic congestion including higher transport costs greater energy consumption and increased driver delays. Transportation agencies around the world have responded by building new roads and enhancing their traffic management systems. However, the high costs associated with these projects and the possibility that improvements in different parts of a complex traffic management system may give rise to unforeseen interactions have prompted many metropolitan areas to invest in the creation of metro wide simulation systems. That support the evaluation of alternative traffic management scenarios across an entire traffic network. Such undertakings are far from simple even small scale microscopic simulations require large amounts of high quality data. The objectives of this project were to evaluate the feasibility of developing a traffic simulation system for the Minneapolis St Paul metropolitan area and to propose the most appropriate methodology for the design and implementation of such a system taking into account local needs and capabilities.

ITS Sensors and Architectures for Traffic Management and Connected Vehicles 2017-08-07

Seminars paper from the year 2012 in the subject organisation and administration course institute of governance studies. Language English. Abstract: Modern day cities mug with dual hitches explicitly traffic congestion along with urban decay or unplanned urbanization. Traffic congestion creates loss of precious man hours and reduces productivity of both the states and organizations. Road traffic congestion poses a challenge for all large cities. Is key concern throughout the world some of the countries through effective transport system have acquired an appreciable level of development when effectively managed experts on this subject have so far suggested a range of measures to lessen traffic congestion in our country but results are not encouraging. Even it is spiraling day by day in Dhaka city due to policy malfunction that is for lack of political will as well as public awareness. The state be worthy of effective urban governance for a careful balancing between the benefits of agglomeration and the impacts of excessive traffic congestion. This report provides an overview of the state of urban governance in Bangladesh. That discussed about the present status of traffic congestion in Dhaka city and will put forward policy oriented recommendations for effective traffic congestion to smooth livelihood. It also provides a fundamental overview of nature scope of congestion necessary for effective congestion management. Policy this report aims to provide policy makers technical staff and policy implementers with the strategic vision conceptual frameworks and guidance that necessary to manage congestion to reduce its overall impact on individuals families communities and societies.


Part 3 traffic analysis is concerned with the collection and analysis of traffic data for the purpose of traffic management and traffic control within a network. It serves as a means to ensure some degree of consistency in conducting traffic studies and surveys. It provides guidance on the different types of traffic studies and surveys that can be undertaken their use and application and methods for traffic data collection and analysis. Part 3 updates previous Austroads guidance on traffic studies and capacity analysis. It covers applications of the theory presented in part 2 of the guide and provides guidance on traffic analysis for uninterrupted and interrupted flow facilities and for various types of intersections. It outlines sound methods of analysis for effective traffic management design and control. Summary.

Developing the Analysis Methodology and Platform for Behaviorally Induced System Optimal Traffic Management 2013

The selection of the most appropriate traffic control actions to solve non recurrent traffic congestion is a complex task which requires significant expert knowledge and experience in this
thesis we develop and investigate the application of an intelligent traffic control decision support system for road traffic management to assist the human operator to identify the most suitable control actions in order to deal with non recurrent and non predictable traffic congestion in a real time situation our intelligent system employs a fuzzy neural networks fnn tool that combines the capabilities of fuzzy reasoning in measuring imprecise and dynamic factors and the capabilities of neural networks in terms of learning processes in this work we present an effective learning approach with regard to the fnn tool which consists of three stages initializing the membership functions of both input and output variables by determining their centres and widths using self organizing algorithms employing an evolutionary genetic algorithm ga based learning method to identify the fuzzy rules tune the derived structure and parameters using the back propagation learning algorithm we evaluate experimentally the performance and the prediction capability of this three stage learning approach using well known benchmark examples experimental results demonstrate the ability of the learning approach to identify all relevant fuzzy rules from the training data a comparative analysis shows that the proposed learning approach has a higher degree of predictive capability than existing models we also address the scalability issue of our intelligent traffic control decision support system by using a multi agent based approach the large network is divided into sub networks each of which has its own associated agent finally our intelligent traffic control decision support system is applied to a number of road traffic case studies using the traffic network in riyadh in saudi arabia the results obtained are promising and show that our intelligent traffic control decision support system can provide an effective support for real time traffic control

Some Conditions of Effective Industrial Traffic Management 1954

master s thesis from the year 2019 in the subject economy transport economics grade 3 asia pacific university of technology and innovation lord buddha education foundation course m sc language english abstract the continuous growth in vehicle numbers has increased the congestion of traffic in maximum urban places in the world the insufficient space to further expand the road and also the budget to further construct new roads in every city means the country must think about other method to solve this issue rather than following the traditional way of just expanding the roads a system should be adopted that can help reduce the traffic problems in this research future scope of stms in the context of kathmandu nepal is explained in order to collect the information related to the existing traffic system and the objectives related to the subject matter quantitative approach of research follows also the benefits of adopting stms in the current scenario of kathmandu are described various technical challenges need to be overcome in order to adopt stms those challenges are described in this research with proper references to the information collected from the vehicle owners as well as the traffic policemen of kathmandu through questionnaire

An Intelligent Decision Support System for Work Zone Traffic Management and Planning 2004

despite the strong safety record of the national airspace system serious disruptions occasionally occur often as a result of outdated or failed equipment under these circumstances safety relies on the skills of the controllers and pilots and on reducing the number of aircraft in the air the current and growing pressures to increase the capacity to handle a greater number of flights has led to a call for faster and more powerful equipment and for equipment that can take over some of the tasks now being performed by humans increasing the role of automation in air traffic control may provide a more efficient system but will human controllers be able to effectively take over when problems occur this comprehensive volume provides a baseline of knowledge about the capabilities and limitations of humans relative to the variety of functions performed in air traffic control it focuses on balancing safety with the expeditious flow of air traffic identifying lessons from past air accidents the book discusses the function of the national airspace system and the procedures for hiring training and evaluating controllers decisionmaking memory alertness vigilance sleep patterns during shift work communication and other factors in controllers performance research on automation and human factors in air traffic control and incorporation of findings into the system the federal aviation administration s management of the
air traffic control system and its dual mandate to promote safety and the development of air commerce this book also offers recommendations for evaluation the human role in automated air traffic control systems and for managing the introduction of automation into current facilities and operations it will be of interest to anyone concerned about air safety policymakers regulators air traffic managers and controllers airline officials and passenger advocates

Three Years of Progress in Street Traffic Management, Los Angeles 1952

this authored book investigates network traffic classification solutions by proposing transport layer methods to achieve better run and operated enterprise scale networks

Managing Urban Traffic Congestion 2007-05-31

the age of advanced air mobility aam is upon us and in ushering new ways to connect and travel this wave of technology has been compared to gps and cloud computing however new technologies like aam require tools to build expand and understand the capabilities this book describes an effective and efficient complete solution to the large scale unmanned aircraft systems was traffic management problem the authors present a detailed perspective and solutions to some of the major problems involved in coordinating thousands of autonomous vehicles including virtual highway lane creation strategic deconfliction of flights dynamic deconfliction was agent behavior learning anomalous trajectory detection and classification as well as a set of simulation results for a variety of scenarios city package delivery earthquake supply delivery coalition force coordination through the lane reservation system etc

Traffic Control Systems Handbook 1976

presents 10 strategies used in both the united states and europe to create transit friendly streets the strategies are followed by case studies of five communities that have pursued different initiatives to improve their livability by making their streets more transit friendly

Access to Destinations 2008

this book presents an overview of air traffic management and control chapters cover such topics as human factors in quality control behavioral modeling of electric aircraft aviation english radar target classification occupational health and safety and terminal airspace sector capacity


despite the strong safety record of the national airspace system serious disruptions occasionally occur often as a result of outdated or failed equipment under these circumstances safety relies on the skills of the controllers and pilots and on reducing the number of aircraft in the air the current and growing pressures to increase the capacity to handle a greater number of flights has led to a call for faster and more powerful equipment and for equipment that can take over some of the tasks now being performed by humans increasing the role of automation in air traffic control may provide a more efficient system but will human controllers be able to effectively take over when problems occur this comprehensive volume provides a baseline of knowledge about the capabilities and limitations of humans relative to the variety of functions performed in air traffic control it focuses on balancing safety with the expeditious flow of air traffic identifying lessons from past air accidents the book discusses the function of the national airspace system and the procedures for hiring training and evaluating controllers decisionmaking memory alertness vigilance sleep patterns during shift work communication and other factors in controllers performance research on automation and human factors in air traffic control and incorporation of findings into the system the federal aviation administration s management of the air traffic control system and its dual mandate to promote safety and the development of air commerce this book also offers recommendations for evaluation the human role in automated air traffic control systems and for managing the introduction of automation into current facilities
Urban Governance in Relation to Traffic Congestion of Dhaka City 2015-01-23

This publication which describes reconstruction experiences gives case studies which document the varied projects and gives specific ideas for the management of major highway reconstruction. This report also discusses the use of incentive disincentive provisions for early contract completion ways to expedite expressway and bridge rehabilitation are summarized and a policy statement is provided on the application of traffic management actions. Abstracts and summaries are given of recently published literature on the area of corridor traffic management for temporary flow disruptions.

Guide to Traffic Management 2013

Road accidents caused by impaired and distracted driving as well as traffic congestion are on the rise with the numbers increasing dramatically every day. Intelligent transportation systems aim to improve the efficiency and safety of traveling by consolidating vehicle operations managing vehicle traffic and notifying drivers with alerts and safety messages in real-time. Vehicular cloud computing for traffic management and systems provides innovative research on the rapidly advancing applications of vehicle to vehicle and vehicle to infrastructure communication. It also covers the need to fully utilize vehicular ad hoc network VANET resources to provide updated and dynamic information about the conditions of road traffic so that the number of road accidents can be minimized. Featuring research on topics such as identity management, computational architecture, and resource management, this book is ideally designed for urban planners, researchers, policy makers, graduate level students, transportation engineers, and technology developers seeking current research on vehicle computational design architecture, security, and privacy.

Traffic Congestion 2003

Intelligent Real-time Decision Support Systems for Road Traffic Management 2010

Air Traffic Control 1989

A Study of Effective Traffic Control and Management Schemes Based on Traffic Measurement for VBR Traffic Sources on ATM Networks 2001

Traffic Management for High-Speed Networks 1997-06-19

Technical Challenges and Future Scope of Smart Traffic Management System Adoption in Kathmandu, Nepal 2020-04-17
Effective Traffic Calming Applications and Implementation 1998

Flight to the Future 1997-02-11

Network Classification for Traffic Management 2020-03-23

Auction Based Traffic Management 2008

Lane-Based Unmanned Aircraft Systems Traffic Management 2022-05-09

Transit-friendly Streets 1998

Air Traffic Management and Control 2021-12-15

Planning Traffic Management and Accident Prevention for the Capital City, Salem, Oregon 1945

Flight to the Future 1997-01-28

Corridor Traffic Management for Major Highway Reconstruction 1986

Transportation Proceedings 1967
