

CHANGING PRACTICES IN HIGHWAY ENGINEERING: INDIA AND AWAY

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ABSTRACT

Main topics include transportation engineering practice, airport and highway pavements and materials, design and safety, planning and operations, pipelines, technology, and education. In conclusion, future directions in transportation engineering as a result of advances in technology and the attendant changing need of the transportation engineering profession in the 21st century are addressed. The paper introduced the research and application of the highway construction management information integrated system. The purpose of this paper is to review the areas where advanced technologies can significantly affect the way transportation engineering is practiced. Strategies for implementation of the necessary changes in practice are also discussed, along with the expected impact on civil engineering curriculum.

Keywords: Highway, GIS, Traffic, Transportation system

1.Introduction

Explained the development and application of highway survey applet run on mobile telephone supporting Java and the technique of transmitting engineering data by GPRS wireless network technology. And expounded the development and application of highway engineering construction field data collecting software run on Pocket-PC. Especially expatiated on the research on the platform of highway construction management information integrated system adopting geography information system (GIS) technique, database technique and network technique. And said all to subsystem about bid manage, contract management, engineering design drawing, engineering survey calculation, measure and pay, data processing on engineering experiment, quantity assessing, project plan and progress, engineering document management etc. This paper proposes a design load concept that treats capacity and traffic flow as random variables. This contrasts with the nth-hourly-volume concept (e. g. 30th hourly volume), which neglects the highest traffic volumes, which produce a disproportionate share of the social or generalised costs of any facility. It involves planning, design, construction, maintenance, and operation of transportation facilities. Advanced technologies in the area of information systems, automation, and telecommunications have the potential of achieving cost savings and productivity improvements as well as enabling new developments in transportation.

With the infrastructure construction investment enlarging in China for the traffic increasing continuously, the highway traffic construction, especially highway construction, came into vigorous developing period. Beside for new theory, technology, material and technique, the more important thing is requirement in the aspect of management for high grade.

1.1 The GIS and network technique

The GIS technique: GIS (Geographic Information System) is a kind of information handling and management system, can combination of graph management system with data management system organically, collect and stock for various spatial information, analysis and visual expression.

Network technique: 21 century is the times of information, the times of network. Along with the unceasing development of computer technology and network technology, interconnection network abruptly rise in the sphere of whole world develop quickly.

Overview Of Some Advanced Technologies And Transportation Applications

Knowledge-Based Expert Systems

Knowledge-based expert systems (KBES) evolved from research in artificial intelligence with the overall objective of producing intelligent behavior with computers (Harmon 1985). Numerous artificial intelligence research areas exist, including theorem proving, automatic programming, vision, learning, natural language processing, and others. Transcontinental railroads, national highways, canals, petroleum and natural gas pipelines, as well as major urban transit systems, are testimonials to the achievement of civil engineers.

Computer-Aided Planning and Design

Computer-aided planning and design system are evolving to incorporate a constellation of analysis, evaluation, and synthesis application programs with shared data and interprocess communication (Rehak 1985). Graphic displays, knowledge-based expert systems, and databases, as well as conventional analysis programs, are all important components.

Strategies For Implementation

Organizational Strategies

Transportation-related organizations face both challenges and opportunities in responding to the role of advanced technologies in transportation engineering. The challenges concern adjusting organizational frameworks to best choose and implement new tools, and the opportunities relate to tremendous increases in productivity.

About HSIS

HSIS is a safety database that contains crash, roadway inventory and traffic volume data for a select group of agencies. The participating states of California, Illinois, Maine, Minnesota, North Carolina, Ohio and Washington and the city of Charlotte were selected based on the quality of their data, the range of data available and their ability to merge the data from various files. The HSIS database also contains historic data from Michigan and Utah. The HSIS is used by FHWA staff, contractors, university researchers and others to study current highway safety issues, direct research efforts and evaluate the effectiveness of crash countermeasures.

The concepts and methods of traffic engineering are similar to those used for typical traffic engineering or operation analysis studies. The primary differences being the degree of effort, the level of detail, and the use of the results. In the case of operational studies, just enough data is gathered to permit a decision-maker to answer a question by making assumptions and supplying judgment. This information is compared to known principles and standards and applied to real-time problems. The researcher, on the other hand, must gather sufficient data to satisfy statistical tests to prove that his conclusions are correct.

2. Conclusion

Highway construction visible management system, which is visual engineering management software platform, is based on the actual needs of the Guangqing freeway project, by use of modern popular GIS technical, network technology and database technical development. It has offered effective evidence and means for the macroscopic management of the project, has raised the level of project management. Highway construction management system and project OA integration based on GIS graph platform will be a new direction of the engineering project management system research. This growing dichotomy between the generalist and specialist has been aided by contemporary transportation education. Although universities have often broadened their curriculum programs, they are increasingly theoretical, stems from a growing emphasis on training for research rather than practice.

3. References

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