

Research Digest

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Item 1

Guidebook on Integrating GIS in Emergency Management at Airports

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 88 / CRP-CD-139 • 2013

This report is designed to help airports identify needs and assess current capabilities with respect to using geographical information systems (GIS) in emergency management (EM). The report discusses GIS and emergency management and provides a roadmap for airports to move from their current state of GIS implementation (even if they do not yet have any form of GIS) to the point of integrating into emergency management and coordinating with mutual aid partners. Airports that follow the guidebook and complete the worksheets will have developed their own GIS-EM implementation plan. The guidebook contains a CD-ROM with case studies and key lessons learned from airports that have integrated GIS into EM. The guidance concludes with a checklist of how to maintain and keep EM plans relevant and current.

- Accompanying CD-ROM contains "Tool Set for Integrating GIS in Emergency Management at Airports"

This report is available for free download (Website with PDF and CD-ROM download):

<http://www.trb.org/Publications/Blurbs/169302.aspx>

Item 2

Infectious Disease Mitigation in Airports and on Aircraft

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 91 • 2013

This report provides practical guidance for mitigating the risk of disease spread via droplet, airborne, and contact transmission modes. The guidebook identifies 24 recommended actions to mitigate disease transmission at airports and aboard aircraft that are classified into three broad categories to assist managers with identifying actions that are specific to their area of oversight: buildings, airplanes, and people.

CONTENTS

- Introduction
- Buildings
- Airplanes
- People

This report is available for free download (1.5 MB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_091.pdf

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Item 3

Guidebook to Creating a Collaborative Environment Between Airport Operations and Maintenance

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 92 • 2013

The safe operation of an airport relies on the professionalism and coordination of many airport personnel, but none so much so as the individuals in the operations and maintenance departments. They must rely on each other to ensure a safe, secure, and efficient operation, yet they do not always have a good understanding of each other's responsibilities, which can lead to strained working relationships. This report provides tools and strategies that can be used to increase and improve collaboration between operations and maintenance staffs at airports. The tools include exercises, case studies, and other resources. The report also provides methods to identify warning signs of collaboration issues between operations and maintenance staffs. This guidebook will be useful to front-line supervisors, managers, or senior leaders who wish to increase or improve collaboration between operations and maintenance departments. The tools and strategies are applicable to be applied with other departments as well.

This report is available for free download (2.8 MB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_092.pdf

Item 4

Operational and Business Continuity Planning for Prolonged Airport Disruptions

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 93 / CRP-CD-140 • 2013

"This report provides a guidebook and software tool for airport operators to assist, plan, and prepare for disruptive and catastrophic events that have the potential for causing prolonged airport closure resulting in adverse impacts to the airport and to the local, regional, and national economy. This guidebook and the accompanying software tool (CRP-CD-140) include concise guidelines to provide operators of all sizes and types of airports with a resource to assess, plan, and prepare for a recovery that includes infrastructure, managerial, business, and operational sustainability and continuity. This resource identifies industry practices and develops a critical path framework to identify immediate and long-term needs and establish recovery priorities in the preparation for catastrophic events."-- TRID

- Accompanying CD-ROM contains "Airport Business Continuity Planning Software Tool"

This report is available for free download (Website with report and CDROM download links):

<http://www.trb.org/main/blurbs/169246.aspx>

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Item 5

Apron Planning and Design Guidebook

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 96 • 2014

This report provides best practices for planning, designing, and marking apron areas for all sizes and types of airports in the United States. This guidebook is intended to be used by airport operators, tenants, and planning and design consultants. The apron planning and design considerations include facility geometrics, aircraft maneuvering, apron/airfield access points, operational characteristics, markings, lighting, and aircraft fleets. In addition, the types of aprons include terminal area, deicing, general aviation, cargo, maintenance, and remote aprons and helipads. The guidebook summarizes apron planning and design best practices for incorporating flexibility, increasing efficiency, and enhancing safety of apron facilities.

This report is available for free download (10 MB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_096.pdf

Item 6

Understanding airline and passenger choice in multi-airport regions

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 98 • 2013

TRB's Airport Cooperative Research Program (ACRP) Report 98: Understanding Airline and Passenger Choice in Multi-Airport Regions examines the business models airlines use to establish service in regions with multiple airports and explores how passengers select an airport within a multi-airport region.

CONTENTS

- Background
- Multi-airport regions in the United States
- Review of relevant literature
- Passenger choice factors
- Airline choice factors
- Regional case studies
- Findings and conclusions
- Appendix A. Glossary of terms, abbreviations, and acronyms
- Appendix B. Literature reviews
- Appendix C. Case study selection
- Appendix D. Industry contacts

This report is available for free download (2 MB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_098.pdf

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Item 7

Recycling Best Practices: A Guidebook for Advancing Recycling from Aircraft Cabins

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 100 • 2014

"[This report] is a simple-to-use guidebook of recycling strategies, including a set of recycling best practices summary sheets targeted to specific airport-industry recycling practitioners (summary sheets are available in Appendix B or can be downloaded from www.trb.org/Main/Blurbs/169528.aspx). The guidebook targets airport operators, airlines, flight kitchens, and others that may have an interest in recycling. The report describes procedures for recycling airport, airline, and flight kitchen waste and recommends action plans to improve recycling and reduce waste disposal costs for airports of varying sizes and characteristics." --Foreword

This report is available for free download (8.3 MB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_100.pdf

Item 8

Guidelines for Ensuring Longevity in Airport Sound Insulation Programs

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Report 105 • 2014

"Sound insulation programs have been in existence since the 1980s and have successfully improved the quality of life for homeowners living near airports. There have been significant improvements in materials, treatments, and techniques in the last 30 years and many lessons learned. However, there isn't a single reference that documents best practices, nor an evaluation of the continuing effectiveness of those early programs. Wyle, as part of ACRP Project 02-31, was tasked with evaluating the degree and causes of any deterioration in the acoustic performance of homes and buildings from those early sound insulation programs and with providing guidance to airports to ensure the durability and attenuation performance for current and future sound insulation programs. The results of their research are provided in [this report]. In addition, the results of their field studies, which involved recreating the testing process in homes from those early programs, can be found in the Contractor's Final Report for ACRP Project 02-31 on the TRB website." --p. 1

This report is available for free download (2.3 MB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_105.pdf

Item 9

Environmental Assessment of Air and High Speed Rail Corridors: A Synthesis of Airport Practice

TRANSPORTATION RESEARCH BOARD (TRB)

ACRP Synthesis 43 • 2013

There is significant experience and research on the competition of air and high-speed rail (HSR) modes. The existing research covers areas including system structure and environmental effects. The objective of this synthesis report is to bring together research and other findings related to air and HSR environmental assessments and to understand where additional research can improve the ability to assess the environmental outcomes of these two systems. A literature review is the primary tool for collecting data for this synthesis of current practice. In synthesizing the body of literature, reviewers focused on government-driven environmental comparisons and academic literature. Both government environmental reviews and academic studies have provided valuable insight into comparative assessments of air and HSR systems; however, institutional mechanisms coupled with methodological advances and tool development are needed to ensure that future long-distance transportation systems are deployed in ways that minimize impacts while improving mobility..

This report is available for free download (944 KB):

http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_043.pdf

Item 10

Long-Term Performance of Epoxy Adhesive Anchor Systems

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Report 757 • 2013

Adhesive anchor systems are used to anchor both threaded rods and reinforcing bars into hardened concrete. Common transportation structure applications for adhesive anchor systems include bridge widening, structure-mounted signs and appurtenances, luminaires and light poles, concrete repair and rehabilitation, barrier retrofitting, utility installation on existing structures, and tunneling finishing. The objective of National Cooperative Highway Research Project 4-37, "Long-Term Performance of Epoxy Adhesive Anchor Systems," was to develop proposed standard test methods, materials specifications, design specifications and guidelines, construction specifications and guidelines, and quality assurance guidelines for the use of adhesive anchor systems in transportation structure applications. Development of these standards was founded on the results of a comprehensive program of laboratory experiments to determine, predict, and verify the long-term performance of adhesive anchors under sustained load in their typical service applications and environments. The research investigated the effects of various parameters on the long-term bond strength of adhesive anchors in hardened concrete. Testing was conducted on three adhesives of different chemistries that had passed current product evaluation criteria requiring sustained load testing at 110°F. A stress versus time-to-failure approach was used to evaluate the effects of various parameters on the sustained load performance of adhesive anchors. Within the range of parameters studied, only elevated service temperature (>120°F) and manufacturer's minimum cure time were shown to influence the sustained load performance beyond that predicted by short-term tests of fully cured adhesive. Rheological analysis of the adhesives alone was conducted to investigate any correlation with anchor testing in concrete, but no consistent relationships were discovered that applied to all three adhesives investigated. Additionally the effect of early-age concrete on the bond strength of adhesive anchors was investigated. This report, along with seven appendixes available [online], fully documents the research.

This report is available for free download (60.3 MB):

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_757.pdf

Item 11

Effective Removal of Pavement Markings

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Report 759 • 2013

"Traffic pattern changes can be problematic if the markings are not completely removed or the removal technique produces scarring of the roadway surface which, in darkness or rain, can be confusing to drivers and create an unsafe driving environment. This report presents field evaluation results of five removal methods applied to eight pavement marking material types on multiple pavement surfaces using a number of performance measures. The performance measures included evaluation based on marking removal, pavement condition, cost effectiveness, and environmental impact. These field observations, combined with results from a survey of 55 state and local agencies, yielded recommendations to aid in the selection of pavement marking removal techniques. This report will be of interest to state and local highway agency construction managers and contractors engaged in removal of pavement markings."-- TRID

This report is available for free download (55.8 MB):

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_759.pdf

Item 12

Continuing Project to Synthesize Information on Highway Problems, 2014

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP RRD 286 • 2014

"TRB's National Cooperative Highway Research Program (NCHRP) Research Results Digest 386: Continuing Project to Synthesize Information on Highway Problems is a digest of the progress and status of NCHRP Project 20-5, "Synthesis of Information Related to Highway Problems."

This report is available for free download (525 KB):

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_386.pdf

Item 13

Practices for unbound aggregate pavement layers: A Synthesis of Highway Practice

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Synthesis 445 • 2013

Properly designed and constructed unbound aggregate layers have the potential to improve pavement performance and longevity. This study gathers information on the current state of practice and research on unbound aggregate. Information for this study was acquired through a literature review and surveys of state and Canadian transportation agencies. The study finds that no common practice exists among state transportation agencies. Accordingly, the report summarizes important aspects and effective practices related to material selection, design, and construction of unbound aggregate layers. Prevalent agency practices are summarized and key lessons learned from research studies are highlighted.

This report is available for free download (24.1 MB):

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_445.pdf

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Item 14

Non-Nuclear Methods for Compaction Control of Unbound Materials: A Synthesis of Highway Practice

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Synthesis 456 • 2014

Proper compaction of unbound materials, such as soils, aggregate, and recycled materials, is a critical component in the performance of highway pavements and embankments. The most commonly used device to test for proper compaction is the nuclear density gauge. However, due to the costs associated with regulatory compliance and radiation safety training, there is an increased effort to find acceptable non-nuclear devices. This synthesis documents information on national and international experience with non-nuclear devices and methods for measuring compaction of unbound materials. Information used in this study was gathered through a literature review, a survey of state departments of transportation (DOTs) and Canadian provincial transportation agencies, and interviews with selected state DOTs.

This report is available for free download (8.7 MB):

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_456.pdf

Item 15

Building a Sustainable Workforce in the Public Transportation Industry: A Systems Approach

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

TCRP Report 162 • 2013

This report provides a guidebook that addresses contemporary issues in workforce development, retention, and attraction, and public transportation image management. The guidebook provides practical tools to transit agencies on a variety of workforce issues, including workforce strategies that enhance organizational processes, performance metrics to evaluate the impact of workforce strategies, image management techniques that improve perceptions of the public transportation industry, and benchmarking processes that allow for continuous organizational improvement. The guidebook is separated into modules that may be used independently or together in the form of the fully integrated guidebook. The modules address the following areas: strategies for recruitment, retention, training and development, and professional capacity building (Module 1); metrics to evaluate the effectiveness of human resource practices adopted or contemplated (Module 2); reflections and strategies that pertain to image management (Module 3); and a framework for an ongoing benchmarking process (Module 4). In addition, separate editable metrics scorecards are included that allow for input of metrics ratings tailored to match the specific situation of the organization using the scorecards. Information across the modules is in the form of example successful programs, state-of-the-art initiatives, industry effective practices, and directions to implement and measure those practices. The results of this research may be used by human resource professionals and transportation policy makers in implementing more effective human resource business-planning processes.

This report is available for free download (3.2 MB):

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_162.pdf

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Item 16

Synthesis of Information Related to Transit Problems, 2014

TRANSPORTATION RESEARCH BOARD (TRB). TRANSIT COOPERATIVE RESEARCH PROGRAM (TCRP)
TCRP RRD 108 • 2014

TRB's Transit Cooperative Research Program (TCRP) Research Results Digest 108: Synthesis of Information Related to Transit Problems is a digest of the progress and status of TCRP Project J-7, "Synthesis of Information Related to Transit Problems," for which the Transportation Research Board is the agency conducting the research.

This report is available for free download (474 KB):

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rrd_108.pdf

Item 17

Transit Bus Operator Distraction Policies: A Synthesis of Transit Practice

TRANSPORTATION RESEARCH BOARD (TRB). TRANSIT COOPERATIVE RESEARCH PROGRAM (TCRP)
TCRP Synthesis 108 • 2013

TRB's Transit Cooperative Research Program (TCRP) Synthesis 108: Transit Bus Operator Distraction Policies is designed to help transit agencies develop policies and programs to address and prevent distracted driving incidents.

CONTENTS

- Summary
- Introduction
- Literature review
- Survey findings
- Case examples
- Conclusions

This report is available for free download (18.7 MB):

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_108.pdf