

Research Digest

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TxDOT Research Publications

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Item 1

Materials for PVR Short Course and Training

UNIVERSITY OF TEXAS AT AUSTIN. CENTER FOR TRANSPORTATION RESEARCH (CTR)
CTR 6048-03-P2 • 2015

"The materials for the Project 5-6048-03 short course and training include a presentation that goes over the basics of the Potential Vertical Rise (PVR) method (Appendix A). The presentation is based on the work compiled over the course of 5-6048-03. Notes are included in the presentation for the instructors based on the recommendations from the research team, providing guidance on the aspects that should be emphasized. Appendix B includes a guidance manual outlining the typical steps for calculation of the PVR. Finally, Appendix C includes the main changes to current standard, Tex-124-E, outlining the revised steps used to calculate PVR as well as notes on recommendations by the research team."

(44, B-10, [5] pages)

CONTENTS

- Guide to the Materials Prepared for the PVE Short Course and Training
- Appendix A: TxDOT Training Materials (PowerPoint Presentation)
- Appendix B: Manual for PVR Calculations using Centrifuge Technique
- Appendix C: Revisions to Tex-124-E to Incorporate Centrifuge Test Approach

This report is available for free download (13.4 MB):

<http://library.ctr.utexas.edu/ctr-publications/5-6048-03-P2.pdf>

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Item 2

Phase III Texas Technology Task Force Activities Report

UNIVERSITY OF TEXAS AT AUSTIN. CENTER FOR TRANSPORTATION RESEARCH (CTR)
CTR 6803-01-1 (+P1-P6) • 2015

The state of transportation is experiencing disruptive technological, institutional, and cultural changes, prompting transportation agencies to respond to and anticipate the needs of future customers. The Texas Technology Task Force (TTTF) is a strategic initiative that supports the Texas Department of Transportation in navigating change and developing a common vision for the state's transportation system. Composed of thought leaders from public agencies, industry, and research, the TTTF provides insight into portfolio development, impact analysis, and strategic planning. The Emerging Technology Portfolio includes the following six major categories that may be combined to serve a multimodal purpose: 1) Next Generation Vehicles & Energy, 2) Information & Communications, 3) Infrastructure & Construction, 4) Service-Based Platforms, 5) Materials & Additive Manufacturing, and 6) Other Technologies.. Each technology is then analyzed along four dimensions: 1) Goals, 2) Barriers, 3) User-Groups, and 4) Modes. A primary focus of this phase of work was on developing technical papers on two core strategies, managing customer relationships with data and developing a communication plan, White papers were also developed for freight and logistics technologies, drones, and big data. These papers serve as background pieces for a Strategic Technology Business Plan.
(208 pages in various numberings)

CONTENTS

- Introduction
- Research Tasks and Methods
- Transition Plan
- Texas Technology Task Force Meetings
- Appendix A. Updated List of Task Force Members (0-6803-01-P1)
- Appendix B. Emerging Transportation Technology Portfolio (0-6803-01-P2)
- Appendix C. Critical Emerging Technologies (Preliminary Analysis) (0-6803-01-P3)
- Appendix D. White Papers [How the Age of Technology is Transforming Transportation Agencies] (0-6803-01-P4)
- Appendix E. Update to the Work Plan for the Completion of Strategic Business Plan (0-6803-01-P5)
- Appendix F. Transition Plan (0-6803-01-P6)
- Appendix G. TTTF Meeting Materials

This report is available for free download (15.9 MB):
<http://library.ctr.utexas.edu/ctr-publications/0-6803-01-1.pdf>

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Item 3

TTTF White Papers: How the Age of Technology is Transforming Transportation Agencies. Volumes 1-5

UNIVERSITY OF TEXAS AT AUSTIN. CENTER FOR TRANSPORTATION RESEARCH (CTR)
CTR 6803-01-P4 • 2015

Volume 1: How can transportation agencies leverage technology to enhance the customer experience and remain relevant in the wake of major demographic, cultural, and business changes? Volume 2: How can transportation agencies prepare for ‘the new normal’ in supply chain management and enhance their own competitiveness in the logistics market? Volume 3: How are drones changing the way transportation agencies do business and does Texas have the potential to become a leader in this space? Volume 4: How can transportation agencies develop a data-rich environment that generates valuable information for all of its stakeholders? Volume 5: How does a transportation agency connect with each of its customers while developing a message that resonates with its stakeholders?

(64 pages)

CONTENTS

- Volume 1. Understanding the Customer of the Future
- Volume 2. Revolutionizing the Global Logistics Industry
- Volume 3. Identifying Opportunities and Challenges of UAVs
- Volume 4. Managing Customer Relationships Using Big Data
- Volume 5. Formulating a Communications Strategy

This report is available for free download (5.1 MB):

<http://library.ctr.utexas.edu/ctr-publications/0-6803-01-p4.pdf>

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Item 4

Texas Gulf Intracoastal Waterway Master Plan: Technical Report

TEXAS A&M UNIVERSITY. TEXAS TRANSPORTATION INSTITUTE (TTI)

TTI 6807-1 • [2015]

"Ship channels and navigable waterways in the United States are constructed and maintained by the U.S. Army Corps of Engineers. In many cases, these navigation projects require a non-federal sponsor to participate in the planning, design, and funding of the project. This report focuses on the GIWW-T. The GIWW begins in St. Marks, Florida, and runs all the way to the Port of Brownsville, Texas. In the case of the GIWW-T, TxDOT is the non-federal sponsor. TxDOT's role is limited by statute to acquiring real estate that can be used by the Corps as dredged material placement areas for dredging activities in the main channel of the GIWW-T... This research establishes a baseline for the condition and utilization of the GIWW-T. Although the authorized dimensions of the GIWW-T are 12 ft deep and 125 ft wide, there are many portions of the channel that are not being maintained to those dimensions, primarily because of a lack of funding. Consequently, users that move freight on the waterway have to load barges at less than capacity, which raises the cost on a per-unit basis... This research looks at: [1] What is needed to restore and sustain the GIWW-T to its optimum level. [2] What the major operational concerns, the impacts of a lack of dredging and operational obstacles are. [3] How TxDOT might be able to play a more active role in achieving the goal of a highly efficient and safe GIWW-T. A separate master plan that provides the basis for TxDOT to evaluate potential courses of action accompanies this research report." --p.17 (197 pages)

CONTENTS

- Executive Summary
- Chapter 1. Introduction and Background
- Chapter 2. GIWW-T Dredging
- Chapter 3: GIWW-T-Related Infrastructure and Safety Issues
- Chapter 4: Economics and Funding Issues
- Chapter 5: Performance Metrics
- Chapter 6: Conclusions and Recommendations
- Appendix A: Selected Milestones and Legislative History of the GIWW
- Appendix B: Texas Administrative Code: GIWW Advisory Committee (GIWAC)
- Appendix C: The Effect of Light Loading
- Appendix D: Calculation of Towboat Costs
- Appendix E: Standard Operating Procedure—Department of the Army Permit Evaluation of Setbacks along the Gulf Intracoastal Waterway
- Appendix F: AICPA Dimensions of Tax Equity and Fairness
- Appendix G: History of the Florida Inland Navigation District (FIND)
- References

This report is available for free download (4.9 MB):

<http://ftp.dot.state.tx.us/pub/txdot-info/tpp/giww/technical-report-0814.pdf>

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Item 5

Master Plan for the Gulf Intracoastal Waterway in Texas

TEXAS A&M UNIVERSITY. TEXAS TRANSPORTATION INSTITUTE (TTI)

TTI 6807-1 suppl. • [2015]

"This document presents the issues surrounding the ongoing, unmet maintenance needs of the Texas portion of the Gulf Intracoastal Waterway (or GIWW-T). It also presents recommendations for next steps to address those needs. In short, increased coastal development—particularly in the energy sector resulting from development of the Eagle Ford Shale play in South/Central Texas—has made the GIWW-T more important than it has ever been to the economy of Texas. Though the U.S. Army Corps of Engineers (aka the Corps) is primarily responsible for maintaining the GIWW-T, reductions in federal funding have limited its ability to meet that responsibility. Over the long term, the net result of improperly maintaining the GIWW-T will be lost economic opportunity for Texas. Furthermore—beyond merely catching up in terms of maintaining the waterway—all indications are that the GIWW-T will need to accommodate an ever increasing volume of goods (especially petroleum and petrochemicals) to keep up with the shipping demands of the private sector. Texas Department of Transportation (TxDOT) Project 0-6807, Texas Gulf Intracoastal Waterway Master Plan, has produced recommendations that will help the GIWW-T provide the capacity needed by the Texas economy in the coming decades. This document summarizes those recommendations." --page 1

(36 pages)

CONTENTS

- Issues, Opportunities, and Challenges
- The Gulf Intracoastal Waterway in Texas
- What Is TxDOT's Role in the GIWW-T?
- Could TxDOT Share Maintenance Duties with the Corps?
- The GIWW-T's Most Pressing Maintenance Issues
- Funding Strategies to Address the GIWW-T's Most Pressing Issues
- Recommendations

This report is available for free download (1.6 MB):

<http://ftp.dot.state.tx.us/pub/txdot-info/tpp/giww/master-plan-0614.pdf>

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Item 6

Strategies for a Comprehensive Inventory and Management of Real Property Assets: White Paper
UNIVERSITY OF TEXAS AT AUSTIN. CENTER FOR TRANSPORTATION RESEARCH (CTR)
CTR 6827-WP1 • 2015

The Texas Department of Transportation (TxDOT) manages a significant amount of right-of-way (ROW) assets—around 1.1 million acres of land that provide ROW for nearly 80,000 centerline miles. Management of these ROW assets is crucial, as ROW issues often create a bottleneck during construction projects. The ROW portfolio also represents a significant revenue-generation opportunity, in terms of excess ROW assets. The challenge is to ensure that TxDOT is using current ROW assets as effectively as possible. Currently, effective ROW administration is hampered by the lack of a comprehensive, reliable inventory of excess parcels. Even if the inventory existed, a robust methodology for valuing those excess parcels is not in place. TxDOT has begun investing in a GIS-based system to catalog its ROW assets. This white paper outlines specific steps TxDOT can take to increase the capabilities of its information systems in order to automate ROW asset evaluation and identification of alternative uses, thus maximizing the public benefit.

(11 pages)

This report is available for free download (638 KB):
<http://library.ctr.utexas.edu/ctr-publications/0-6827-wp1.pdf>