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Transit Information Materials Guidebook Now Available

Printed transit information materials are the mainstay of every transit agency's service information strategy. System maps, route maps, and schedules are the traditional means for providing service information to transit users. Such materials are a valuable resource because they are:

- *portable*—for use in pre-trip planning and to check trip progress
- *accurate*—providing details for planning complex trips
- *independent*—so trips can be planned without interaction with another entity

Research has shown that many people find printed information aids like maps and schedules extremely difficult to use, for a variety of reasons, including the complexity of their travel needs and differing cognitive abilities, transit experience, and information needs.

The *Transit Information Materials Guidebook* was recently completed as the culmination of a series of studies conducted through CUTR's National Center for Transit Research. Previous market research identified the designs that maximize user comprehension and surveyed actual design practices among transit agencies across the country. The research



showed that the majority of transit agencies tend to develop their own approaches to designing schedules and transit service maps, resulting in a lack of recognized design standards and high levels of variability in the quality and readability of materials. It was concluded that there was a pressing need to provide design recommendations and example materials that illustrate best practices in the field.

The transit trip planning process generally involves five stages:

Stage 1: Locate trip origin and destination on system map (aid used: system map)

Stage 2: Select bus routes and transfer point(s) (aid used: system map)

Stage 3: Locate closest time points/transfer time points (aid used: route map)

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National Center for Transit Research

Center for Urban Transportation Research
 University of South Florida
 4202 E. Fowler Ave., CUT100
 Tampa FL 33620-5375
 Phone: 813/974-3120
 Fax: 813/974-5168
 E-mail: winters@cutr.usf.edu

We're on the web!
www.nctr.usf.edu

NCTR is located at the University of South Florida's Center for Urban Transportation Research and is a federally-designated University Transportation Center, receiving annual grant funding from the Research and Innovative Technology Administration of U.S. DOT, with matching funds from the Florida Department of Transportation.



The increased use of transit could be a positive sign associated with people who decided to try transit as a cost saving measure and have come to realize it as a workable alternative means of travel.

Director's Message

We are living in interesting times, to say the least. Both the United States' economy and the entire world economy are in uncharted waters. No one can say with complete confidence just what measures will work and what won't in terms of minimizing what appears to be a severe recession. The economic stimulus package that is being developed has a substantial amount of money dedicated to transportation projects, though advocates of the transportation industry would argue the amount is nowhere near enough. On the other hand, skeptics will argue that increasing debt and government spending is like trying to cure an addict by giving him more of the substance he abuses. Since President Harry Truman, we have searched in vain for the "one-handed economist."

In the midst of this economic turmoil, a steady trend has been in place for almost 18 months. People in the United States are driving less while transit ridership continues to rise. The increase in transit utilization appears to be continuing in spite of gas prices decreasing since the fourth quarter of 2008. This increased use of transit could be seen as a negative sign associated with higher unemployment and reduced income. Or the increase could be a positive sign associated with people who decided to try transit as a cost saving measure and have come to realize it as a workable alternative means of travel.

For many transit agencies, it has been described as the best of times and the worst of times. At a time when people are demanding more transit service, public transportation agencies are finding it difficult to secure financial resources due to reduced property and sales tax revenues. Many transit agencies are facing huge deficits and must

cut back service at a time when more capacity is needed. Could it be that the best opportunity to attract people to transit in 50 years is being lost? Will defeat be snatched from the jaws of victory?



NCTR's primary goal is to enhance the performance and relevance of public transit and other forms of alternative transportation, and never has the need been greater. Our research faculty and students continue to develop recommendations for improved performance, and we share this information as broadly as we can through conferences, webcasts, listservs, industry committees, and the NCTR website at www.nctr.usf.edu. We also are committed to contributing to the development of students who will become the future leaders within the transportation field.

This edition of *FLOW* provides summaries of research results that can be put to use today to make transit service more customer friendly and easy to use. Included is information on a newly-established national transportation certificate program in which NCTR is participating that offers new opportunities for transportation professionals to improve their knowledge and leadership skills. We hope this information will pique your interest and lead to actions to improve our nation's transportation system, our economy, and our environment.

Joel Volinski
 Director, NCTR

Stage 4: Identify correct section of schedule (aids used: route map, schedule)

Stage 5: Use schedule to get bus times (aid used: schedule)

These five stages require three different types of information aids:

- A **system map** shows the alignment of all the agency's transit routes and is designed to give customers an overview of the complete system and its relationship to the geography of the area.
- A **route map** illustrates the alignment of an individual bus route and is typically designed to be used with a schedule to allow customers to determine *where* to board and alight from each bus.
- A **schedule** (or **timetable**) provides timing information for the buses serving a specific route and is typically used in conjunction with a route map to enable a customer to determine *when* to board and alight from each bus and how long his/her journey will take.

The guidebook features a section on each of these topics, in addition to sections on general publication design and the design of instructions related to how to use the materials correctly.

General Publication Guidelines

The following general recommendations regarding basic design are based on best practices in publication design:

- **Typeface:** Use sans serif font for titles, sans serif or serif fonts for text.
- **Type case:** Use initial or all caps for titles/headers, lower case for text.
- **Type size:** Use 10 to 16 point type where possible for sans serif fonts (never below 8 point). Use 12 to 16 point where possible for serif fonts (never below 10 point).

- **Color:** Dark lettering on a light background is generally recommended.
- **Paper:** Flat, matte, or eggshell is generally recommended.

System Map Design

In general, a system map should include:

- all major **transit system elements**, including the basic alignment of each route, major transfer points, and transfer centers
- all major **topographical elements**, including major street names and points of interest/landmarks
- a **white or light colored background** with color coding used to identify different service routes
- **symbols** that are consistent with local conventions; a legend should be provided that identifies each symbol and the scale of the map and insets to allow service information to be presented in a manageable way



The guidebook features sections on general publication design and the design of instructions related to how to use the materials correctly.

Route Map Design

A route map should include:

- a **title** based on the area it serves, using either the name of the general area served by the route, or using the route's start and end points.
- an **illustration of the route alignment**, preferably in the same color as shown on the system map and, if possible, in the same orientation as on the system map
- **route variations**, denoted by a broken line
- the **route number**
- major **points of interest** (landmarks) in the vicinity of route, and corresponding **intersecting street names**



- **major streets and intersecting streets** in the route's vicinity
- **major topographical features** (rivers, lakes, parks, etc.), shown in their natural color, if possible

- **transfer points** with intersecting routes and with other transit modes
- **time points** spaced at 5 to 10 minute intervals, based on major destinations and transfer points; intersecting street names at each time point should be displayed if possible
- **bus stop locations**, if sufficiently limited in number
- **route direction** clearly indicated using an arrow where service is in one direction only
- a **legend** and **compass rose**

Schedule Design

Prior CUTR research showed that using a schedule was the most problematic aspect of the trip planning task, with only around 50 percent of the public able to use one correctly. Thus, a two-tier approach to the provision of service timing information is recommended:

- **Tier 1:** provide accurate service timing information using the tabular schedule format
- **Tier 2:** provide a simple headway-based summary of the service timing information for customers who do not need, or are unable to use, the tabular format

Other recommendations related to schedule design include the following:

- Provide the route map and schedule on the same spread.
- Group all service information pertaining to a particular direction of travel on the same spread. If necessary, show reverse direction on a separate spread, along with a separate route map.
- If different time points are employed in the reverse direction, a separate route map for this direction should be provided.
- Align time points horizontally. Avoid vertical time point alignments.
- Identify each time point by a unique number or letter that corresponds with that used on the route map. Time points should be labeled using an adjacent point of interest and/or adjacent intersecting street names.
- Orient time point labels horizontally or at 45° angle. Avoid perpendicular time point labeling.
- Shade alternate rows or provide horizontal line separators.
- Use the 12-hour clock and differentiate the AM and PM times by bolding the PM times and/or by providing AM/PM labels.
- Use “To/From” direction labeling. Avoid directions (e.g., “eastbound”).
- Use named days (“Monday to Friday”) rather than “Weekday” or “Weekend.”

Instruction Design

Good instructions provide both explanatory text and a graphic illustration of correct schedule use and should be placed in close proximity to the information aids they are describing. Depending on space availability, three different instruction levels are possible:

- *Schedule Use Instruction*—since schedule use is the most difficult part of the trip planning task for most customers, a clear depiction of correct schedule use is strongly recommended in close proximity to each published schedule.
- *Schedule and Map Use Instruction*—include a section on correct map use; recommended if materials are packaged in a Ride Guide, or if a separate “How To” pamphlet is provided.
- *Full Trip Instruction*—include other aspects of transit use besides trip planning, such as how to pay the fare and how to board and disembark for the bus; recommended if materials are packaged in a Ride Guide, or if a separate “How To” pamphlet is provided.

Conclusion

This project and the guidebook, published in January 2008, are part of an ongoing interest in the development of industry standards in informational materials design. The further development of such standards would benefit individual transit customers and the transit industry as a whole. As part of this ongoing process, feedback is welcomed on the guidebook’s contents or the impact of any of its recommendations.

The guidebook and supplementary Technical Memorandum can be downloaded from www.nctr.usf.edu/abstracts/abs77710.htm.

For more information or for a hard copy of the guidebook, contact CUTR Senior Research Associate Alasdair Cain, (813) 974-5036, cain@cutr.usf.edu.

Report Details Multimodal Approach to Development Review

Florida Department of Transportation (FDOT) staff and consultants participate in the review of developments of regional impact (DRIs) to evaluate impacts on the state transportation system using guidance in the “FDOT Site Impact Handbook.” This review allows for the consideration of transit and other alternative modes of transportation; however, because few applicants include a detailed multimodal analysis as part of their application, there is often little information available for FDOT review and comment. Further, there are no specific guidelines for FDOT staff regarding how to incorporate transit and other multimodal strategies into DRI reviews.

NCTR researchers recently completed “Guidelines and Performance Measures to Incorporate Transit and Other Multi-

modal Considerations” in response to this issue. The document provides both applicants and reviewers with guidance for considering multimodal transportation throughout the DRI process. Building on FDOT handbook criteria, this guidance suggests requesting additional information from the applicant to address all transportation modes.

Documenting existing multimodal conditions within the DRI study area, addressing land use and site design, and detailing multimodal access between the DRI and the surrounding community are essential to the process. This guidance also provides example comments taken verbatim from sufficiency review letters and development order recommendations. While the document is specific to Florida’s DRI review process, readers from



The document provides both applicants and reviewers with guidance for considering multimodal transportation throughout the DRI process.

any state will find the content applicable to all development review.

The report may be downloaded at www.nctr.usf.edu/abstracts/abs77703.htm.

For additional information, contact the document's authors, CUTR Senior Researchers Karen Seggerman, AICP, Sara Hendricks, AICP, or Ann Joslin, at (813) 974-3120.

NCTR a Partner in Transportation Graduate Certificate Program

The nation's Regional University Transportation Centers, in consultation and cooperation with leaders from the National Academy of Sciences' Transportation Research Board (TRB), the public and

private sectors, and transportation-related associations, have established a distance-learning-based Graduate Education Certificate program to assist in educating the transportation leaders of the 21st century.

"Transportation Policy, Management and Operations" will provide breadth

of knowledge and a more comprehensive understanding of the issues required to deal with multimodal transportation challenges in a complex world. In addition, it will assist in making a significant contribution in enhancing the profession by expanding the pool of professionals with essential competencies. The program's objective is to nurture those individuals with potential leadership qualities in both the public and private sectors to help them move from technical contributions to management responsibilities and leadership roles.

The program requires completion of four theme-related graduate courses taught by graduate faculty at outstanding universities. Courses are conducted via distance learning media and incorporate all modes

of transportation and topics such as transportation systems, policy, planning, operations, economics, safety and security, social and environmental considerations, program management, environmental and climate change, and future technologies. Those successfully completing the program will be awarded a certificate (not degree) endorsed by the U.S. DOT and leading public and private sector organizations, including NCTR. Completed courses will be eligible for transfer towards a graduate degree.

The "Transportation Policy, Management and Operations" certificate program will be of interest to people who are seeking enhanced credentials without being admitted to an advanced degree program. The program is unique in that it allows students to mix courses from different universities to meet certificate requirements.

The University of South Florida, which houses NCTR and the Center for Urban Transportation Research (CUTR), is a partner in this new national certificate program. Two courses will be offered by USF as part of the program—Transportation and Land Use (Fall 2009) and Public Transit (2010), both taught by nationally-known CUTR/NCTR researcher Dr. Steve Polzin.

NCTR fully and enthusiastically supports this initiative. For more details, visit www.transleader.org.



"Transportation Policy, Management and Operations" will provide breadth of knowledge and a more comprehensive understanding of the issues required to deal with multimodal transportation challenges in a complex world.

Eno Leadership Conference Highlights Transportation Issues

The following article was contributed by NCTR's 2008 Student of the Year Monique Ellis after she attended the 16th Annual Eno Leadership Development Conference.

The 16th Annual Eno Leadership Development Conference brought together a talented pool of 20 students from across the country to gain insight into national transportation policy issues. These Eno Fellows came from a variety of disciplines, including public administration, public policy, urban and regional plan-



Monique Ellis, 2008 NCTR Student of the Year, and Joe Toole, Associate Administrator for Safety, Office of Safety, Federal Highway Administration

ning, business administration and management, and civil and transportation engineering.

The Eno Transportation Foundation, which works to develop future leaders to promote and set national policies beneficial to the transportation industry, organizes this

annual leadership conference. Recently-appointed CEO of the Eno Transportation Foundation Dr. Stephen Van Beek helped facilitate more than 15 sessions that introduced the Fellows to various areas of transportation that are of national concern. Industry leaders spoke on a range of surface and air transportation modes and provided an inside look into how transportation policy is handled "inside the Beltway," an opportunity afforded few transportation students or professionals in their careers.

Speakers lamented the perceived lack of vision on the direction of America's transportation system. The funding crisis, failing infrastructure, increasing con-

gestion, emphasis on a single transportation mode, global climate change, and institutional obstacles were only some of the concerns brought to the attention of the Fellows. Several areas of immediate focus were identified:

Accountability: Recipients of federal funding must be held accountable. Outcome-based performance measures were called for to help institute a greater degree of accountability from local, regional, and state stewards.

Safety: Numerous speakers highlighted the dismal highway statistic of more than 41,000 annual fatalities, noting that the public would have little-to-no tolerance of such a statistic within the rail or aviation sectors. One solution suggested was to review formula programs that provide incentives based on worst safety ratings.

Funding: Most speakers felt the current funding bill was insufficient for future transportation system needs. Future transportation financing will require a mix of mechanisms, including traditional federal funding, public-private partnerships, private activity bonds, and congestion pricing (which will help reflect the true cost of transportation).

The Eno Leadership Development Conference was truly an enriching and insightful program. There were many transportation challenges emphasized to the Eno Fellows by the speakers, but we were encouraged by their willingness to guide us in addressing them. I am confident that the connections made within the leadership class will help us form strong collaborations as we work to solve some of the country's most pressing transportation issues.

NCTR hosts TRB Transit Maintenance listserv

NCTR is proud to announce it is now hosting the Transportation Research Board's Transit Fleet Maintenance Discussion Forum listserv. The purpose of this discussion forum is to share ideas, issues, and experiences related to transit fleet maintenance research. The forum currently has more than 200 members, including maintenance professionals from various transportation sectors, both public and private. Knowledge sharing is central to the NCTR philosophy, and this discussion group thrives on the communication offered by this medium.

The listserv has been invaluable in its ability to resolve technical issues, exchange best practices that result in cost savings while improving customer satisfaction, and garner consensus for problem statements that are relevant and of interest to transit professionals throughout the industry. A recent inquiry on the listserv about bus towing principles elicited 22 responses from around the country. Similarly, a query



into the reasons for a bus shutdown on a specific piece of equipment prompted 13 responses, including recommendations for troubleshooting the problem. With the forum exceeding 300 visitors monthly, the knowledge base available to professional transit technicians is vast. Few would disagree with the usefulness and practicality of being able to access the best and brightest for answers in real time.

The Transit Fleet Maintenance listserv welcomes all dedicated professionals who have a desire to improve the collective maintenance capabilities of the industry. For information on joining this growing forum, visit www.tmaarc.org and select the "Listserv" tab. Instructions regarding registration are self-explanatory, and further information will be emailed to those requesting membership.

NCTR hosts this listserv as a courtesy to the Transportation Research Board's Committee on Transit Fleet Maintenance (AP035).

The Transit Fleet Maintenance listserv welcomes all dedicated professionals who have a desire to improve the collective maintenance capabilities of the industry.

NCTR-Hosted Public Transportation Listservs

- **All CUTR/NCTR listservs** – access via http://lists.cutr.usf.edu/read/all_forums
- **BFM-General (transit maintenance)** – discussion forum; 239 subscribers
- **Bus Rapid Transit (BRT)** – discussion forum; 311 subscribers
- **Journal of Public Transportation (JPT)** – announcements sent by NCTR including calls for papers and availability of the online copies of NCTR's academic journal on public transportation; 394 subscribers
- **National Center for Transit Research (NCTR)** – announcements of new publications, conferences, etc.; 893 subscribers
- **Parking Management (Parking)** – discussion forum; 166 subscribers
- **Rural Transit Assistance Program (RTAP)** – discussion forum; 94 subscribers
- **Sustainable Transport Indicators** – 120 subscribers
- **Telework** – discussion forum; 194 subscribers
- **Transportation Demand Management (Transp-tdm)** – discussion forum; 1,381 subscribers
- **TRB Transit Maintenance**—visit www.tmaarc.org; 200 subscribers