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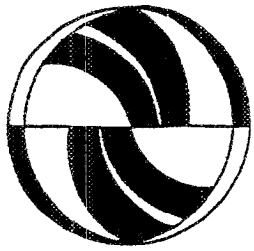

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Working Paper
UCTC No 479

The University of California
Transportation Center

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# The Impact of Information Access on Travel Behavior of Blind or Vision Impaired People

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University of California at Berkeley

# The Impact of Information Access on Travel Behavior of Blind or Vision Impaired People

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To date, most attention and compliance to the ADA mandates for equal access to transportation has been focused on the non-ambulatory/wheelchair bound traveler. These modification costs have been tremendous Buses and trains have had to be retrofitted or new equipment purchased to provide wheelchair lifts and designated seating areas. Much transit infrastructure has been totally rebuilt to allow for elevators to bypass stairs, level access boarding and other costly structural modifications Not so subtle grumbling is heard when few wheelchair users are seen in these facilities or on the expensive retrofitted buses. The blind and visually impaired in this country represent a significantly large group of disabled persons (almost three times the number of wheelchair users) who also need help with transportation modifications The good news, uncovered in the empirical analysis resulting from our survey, is that their needs do not seem to require anywhere near the massive financial outlays required by the adaptations for wheelchair users Traveling for visually impaired people means moving through a world lacking many or all of the visual cues that sighted travelers, and many transit providers, take for granted. The absence of visual cues such as bus stop signs, bus numbers, bus schedules, and street signs are the main barriers to equal access to transportation reported in this study This group's main need is simply more and better INFORMATION. Thus.

1 The single most important characteristic of public transit use for blind and vision impaired people is not related to hardware improvement but rather to improving access to information.

2 The type of information most needed consists of
(a) Brailled or large print timetables and schedules
(b) Larger signs on transit vehicles to identify their routes.
(c) Information at transit stops regarding whether or not a vehicle has just passed and wait time for next vehicle
(d) Clearer PA systems in terminals and on board vehicles
(e) Announcements of stops - either mechanical or verbal.
(f) Auditory messages and signals at lights when change of vehicle or route necessitates crossing the street
(g) Talking signs on transit vehicles and in terminals
(h) Joint auditory/tactile information in terminals (e g , talking tactual maps)
(i) Transit HOT LINES with human operators, not touch-tone access to pre-recorded messages

3 Survey results indicate that improving information access should relieve many of the frustrations blind and vision impaired people experience when having to use public transit

4 Auditory messages are needed to complement the abundance of visual messages currently available to sighted travelers

5 For relatively little outlay, it may be possible to improve the attractiveness of public transit for this group

Our respondents indicated that they needed more information about services for disabled travelers, that transit information was not always easy to obtain and that it was not always easy to understand and use. Some of these needs can be addressed simply with better enforcement of existing procedures. Our respondents heaped praise on the local bus drivers for their assistance with their required stops, but a common theme was that bus stops and streets were not always announced, leading to missed stops and confusion. Also mentioned was the poor quality of announcements at the hub terminal Both of these concerns could be addressed with stricter enforcement, or if needed, a taped announcement, either manual or automatic Another problem that is easily addressed is that seats reserved for disabled, located near the door and the driver, were not always kept

available for their intended patrons Again stricter enforcement of existing rules would alleviate this problem Our blind and visually impaired travelers also rated the telephone hotline, with human operators, as very valuable Some travelers, however, were not aware of this service When asked to rate difficulties when using transit the problems were not with entering or exiting, paying the fare or other design issues The most difficulty was lack of information issues like knowing which bus to enter, knowing their location on a moving bus and dealing with transfers and crossing the street More easily provided information was shown by their desire for timetables in suitable format, large print or Braille, available onboard

The few technological helps they desired are certainly not as costly as infrastructure or equipment retrofitting They showed a preference for auditory prompts at terminals and bus stops giving bus numbers and times of arrival of the next bus. Given the inability of many in the general public to read or understand transit schedules, these investments in auditory information systems would likely increase ridership in the total population High preference was also shown for "talking signs," identifying output from a bus or sign that is transmitted to a hand held auditory device They also indicated concern when crossing streets and therefore requested auditory traffic signals These requests are the only technological aid requested that would be used only by the visually impaired.

In this paper we discuss how GIS can help solve some of these problems In particular, we examine how GIS might be used to simplify schedules, to find where vehicles are currently located, to help plan new routes, to help disabled people find home locations near transport routes, and so on. We also explore the possible use of different visualization methods and user interfaces

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**Brief Biographical Sketch:**

Reginald G Golledge is a Professor of Geography at the University of California, Santa Barbara. His interests includes spatial cognition, the acquisition and use of spatial knowledge across the life-span, cognitive mapping, individual decision-making, household activity patterns, and gender issues in spatial cognition Legally blind, some of his current research includes comparison of spatial abilities of blind and sighted persons; development of a Personal Guidance System (PGS) for blind travelers, disposable and tactual strip maps for blind travelers, evaluation of auditory / tactual information systems as travel planning aids; and travel needs of the non-driving disabled.

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