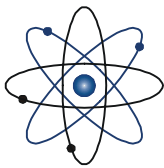




REGIONAL TRAVELER INFORMATION
KIOSK PROJECT
FEASIBILITY STUDY

Presented by:



CATALYST CONSULTING GROUP, INC.

211 W. Wacker Drive, Suite 400
Chicago, IL 60606
Phone: 312.629.0750
Fax: 312.629.0751
www.catconsult.com

May 22, 2003

Table of Contents

Table of Contents.....	2
Section 1 - Executive Summary.....	3
1.1. Background and Purpose.....	3
1.2. Scope.....	3
1.3. Content Providers Study.....	4
1.4. User Needs Analysis.....	4
1.5. Logo.....	7
1.6. Site Selection.....	8
Section 2 - Background and Purpose.....	10
2.1. Background.....	10
2.2. Purpose.....	11
Section 3 - User Needs Analysis.....	13
3.1. Overview and Purpose.....	13
3.2. Scope and Methodology.....	13
3.3. Benchmarking.....	14
3.4. User Research.....	26
3.5. Usability and User Interface Design Guidelines.....	32
Section 4 - Logo.....	36
4.1. Overview and Purpose.....	36
4.2. Scope and Methodology.....	36
4.3. RTIK System Name.....	36
4.4. Color Scheme.....	40
4.5. Logo Design.....	41
Section 5 - Site Selection.....	46
5.1. Overview and Purpose.....	46
5.2. Scope and Methodology.....	46
5.3. Findings and Analysis.....	46
5.4. Recommendations.....	49
References.....	51
Appendix A – Transit Related Kiosk Projects.....	53
Appendix B – Benchmarking Questionnaire.....	60
Appendix C – Structured Interview Questionnaire.....	67

Section 1 - Executive Summary

1.1. Background and Purpose

Chicago is one of the world's great cities. It is famous for its architecture, its history, its food, its festivals, its shopping, its museums, and its numerous superlatives—the nation's tallest skyscraper, largest office building, busiest airport, and largest illuminated fountain, to name a few. The Chicago area is home to approximately eight million people and is visited by over 32 million tourists each year (City of Chicago Convention and Tourism Bureau, City of Chicago website, 2003).

Many Chicago area travelers use taxi cabs and their own automobiles as the preferred mode of transport out of convenience, when lower cost, environmentally friendly, public transit options are available. The Regional Transportation Authority's (RTA) combined public transit agencies of the Chicago Transit Authority, Metra, and Pace operate the second largest public transit system in the country with over 529 million riders a year (RTA website, 2003).

The Metropolitan Planning Council, in close alliance with a steering committee comprised of the RTA, the Chicago Convention and Tourism Bureau, the City of Chicago, and the Lakefront Alliance for Transportation Planning commissioned a pilot project for the design and development of the Regional Traveler Information Kiosk (RTIK) System to provide attractions, events, and public transit data through web-based kiosks to increase the use of public transit for travelers to get from place to place within the Chicago area.

The RTIK System will be an innovative way finding system that emphasizes Chicago-area events and attractions. It will facilitate the use of transit to cultural attractions as well as seasonal and annual events. It will accomplish this by presenting the kiosk user with a visually attractive, easy to use interface that lets the user identify and select a destination and the means to get there via public transit.

The purpose of this Feasibility Study is to lay the foundation for the successful development of the RTIK System and to promote the use of public transit by Chicago area travelers. The RTIK project is centered on combining the attractions and events that make Chicago one of the world's great cities with the region's numerous easy, fast, safe, and affordable mass transit options.

1.2. Scope

This Feasibility Study report lays out the initial approach for the early steps of the RTIK project and provides a brief survey of similar projects nationwide. The study is broken into the following four major components.

- Content Providers Study – This is a review and analysis of available attractions, events, and transit data from the Illinois Bureau of Tourism, Chicago Convention and Tourism Bureau, RTA Itinerary Planning System (IPS), and RTA Multi-model Information Kiosk databases.
- User Needs Analysis – This is a study of the needs of Chicago area travelers that is comprised of a benchmarking study, user research, and usability and user interface best practices guidelines.

- Logo Development – This involves the creation of an easily recognizable symbol for the RTIK System.
- Site Selection – The Site Selection Study focuses on identifying site selection criteria for strategic placement of kiosks with site recommendations for five pilot kiosks.

1.3. Content Providers Study

The Content Providers Study is outlined in a separate Content Providers Study document.

1.4. User Needs Analysis

The purpose of the User Needs Analysis is to gain insight into the needs of Chicago area resident and non-resident travelers, learn from other organizations who have developed public transit and/or tourism kiosk systems, and to identify kiosk system best practices guidelines early in the RTIK Project.

1.4.1. Benchmarking

The purpose of this effort is to help identify, understand, and adapt outstanding practices from other relevant kiosk projects, while avoiding costly mistakes by applying lessons learned from these other projects.

This effort consisted of secondary research of available literature on relevant kiosk systems and primary research on five kiosk projects located in the following cities: New York, Washington DC, Portland, Cambridge, and Phoenix. We selected projects from these cities because they had geographic and demographic qualities similar to Chicago, and all five projects involved kiosk systems that provide transit and some level of tourism or other information.

Catalyst distilled the following compact list of essential “lessons learned” from the benchmarked systems:

- Try to get and use real-time data as much as possible
- Make the kiosk fast, interesting, relevant, and easy (FIRE)
- Keep kiosk content short and sweet (KISS)
- Incorporate tutorials for users
- Use touchscreens and thermal printers
- Locate the kiosks at tourist areas (site location is key)
- Plan ahead to avoid vandalism
- Streamline maintenance procedures and agreements as much as possible
- Utilize system diagnostics for kiosk upkeep
- Marketing may be of great help in establishing high usage early on

Research suggests that transit information kiosks that are located in areas with high foot traffic, are convenient to transit system nodes, and that provide riders with useful information are likely to be successful. Overall, conclusions based on our research suggest that Chicago has the ideal qualities for a successful kiosk implementation.

1.4.2. User Research

Successful kiosk implementation depends on obtaining a solid understanding of the needs of the potential users and incorporating these needs into the design and development of the kiosk system. While there are several different “target” user groups, all of these audiences can be summed in one word: “travelers”. “Travelers” is a word that includes all of our potential users—domestic tourists; international tourists; and Chicago area residents traveling through the area for leisure, tourism, or business purposes. While the RTIK System intends to satisfy user needs for all types of travelers in Chicago, the two major audiences are the 30 million annual domestic leisure visitors and residents.

The purpose of the user research is to identify and document the user’s goals, which we accomplished by employing qualitative research methods and contextual inquiry. The main technique we used was qualitative ethnographical research. This consisted of a series of structured, contextual discussions, or interviews, with “expert informants.” Expert informants are defined as people that deal with the target users on a regular basis, who included hotel concierges, a hostel director, hostel front desk employees, a hotel director of guest services, two head concierges, the director of the City’s visitor information centers, City visitor center employees, Navy Pier information desk employees, and a transit center information desk employee. The group of industry experts interviewed had a combined 98 years of experience fielding and answering questions from travelers in Chicago.

In our interviews, we learned that most Chicago travelers are perceived as falling into the 30 to 60 year old age group. Independent studies indicate that this is in fact the case for tourism related activities, with the age groups of 31 to 65 years best represented. Statistics indicate that it is usually the youngest and eldest age groups that are dominant users of public transit. Therefore, providing integration of business and tourism information services to the 31 to 65 year old age group should help drive non-traditional public transit customers to use public transit.

Data gleaned from the respondents indicate the items and activities that the RTIK Project’s target audience is particularly interested. The following list details the main Catalyst recommendations:

- Have immediate (main menu) focus on inexpensive or free activities
- Provide access to information on the free trolley operated by the City, even though there is no link to the trolley in the RTA Itinerary Planning System
- A section that focuses on activities or events that provide a true “Chicago” experience will likely be of great interest to users
- There should ideally be immediate access to dining and entertainment content
- Provide an easy to understand “How to use Transit” selection on the main menu
- An orientation map of the kiosk area should be immediately available to the user, possibly as part of the first menu screen
- Other maps should also be readily available and easy to find when using the kiosk
- Ideally, maps will be printed to go with itinerary directions
- The dates and times of special events such as the Taste of Chicago should be readily available and always up-to-date

1.4.3. Usability Guidelines

There are two important factors for user acceptance of any system, perceived usefulness and perceived ease of use. The *user needs research*, outlined above, addresses the RTIK functionality necessary to be perceived by its audience as useful. In this section, we identify usability best practices guidelines that will make the RTIK System easier to use. After reviewing relevant literature, Catalyst identified the following best practices:

- General Comments:
 - Kiosk placement must be carefully considered to allow for the most visibility and access without blocking pedestrian traffic
 - Kiosks must be designed to cater to those with limited computer/kiosk skills or experience
 - Present a free running demonstration of the kiosk functionality as part of the attract loop
 - Kiosk systems should be as self explanatory as possible
 - Printer reliability is critical
- Text-based Content
 - Cut content button choices down to a maximum of six
 - The number of new information areas provided on each individual screen should not vary by more than 40 percent between each page
 - Presenting the user with an overwhelming number of choices and excessive verbiage is counterproductive
- Page Layouts
 - Keep the flow of the information and the menus clear and logical
 - The format and structure of information should be similar between each page
 - The world is predominantly right-handed and people find it harder to move their hand across their body in order to make a selection from a left-hand column
 - Gray out (or even remove) unused buttons; when kiosks have navigation buttons located on the screen, only show those that are "active"
 - Buttons must be accompanied by audio and visual feedback to instantly inform the user that the selection has been recognized and accepted by the kiosk
 - When people access the Internet on the kiosk, it is vital that they know the system is working; give some kind of indication, such as a watch face or hourglass
 - The project logo should be present on each content page
- Speed of Information Delivery
 - Kiosks must be capable of producing information or services quickly
 - Customers have every right to expect that they will be connected to the desired location just as soon as they touch the screen
 - Deliver pages and new screens of information in five seconds or less. The ideal time is no more than two to three seconds
 - Consider offering images in thumbnail form to decrease download time
- Navigation

- Instructions should be short and presented at each stage of the interaction
- The system should have a single starting point, which the user can return to when desired
- The system must be understandable at all stages of the interaction process, and return automatically to its initial state after the user is finished
- The system should try to show the path followed by the user, or their position in a path
- Most kiosk users do not like to page down, scroll down, or even use the arrow keys
- Kiosk interfaces need a good search feature, because even the best navigation support will never be enough
- The help instructions for the kiosk should be easy to find on the user interface, and easy to read and understand once found

1.4.4. Conclusion

Following the recommendations outlined above will ensure that the RTIK System avoids mistakes made in other kiosk implementations; is easy-to-use; provides good value to its audience; and most importantly, achieves the project purpose set forth in the beginning, which is to increase the use of public transit by travelers as they journey to Chicago area attractions and events.

1.5. Logo

Catalyst understands the value of a well-designed logo, which is why we follow a proven, client driven methodology to design logos. Our logo design methodology employs a three-part strategy that includes choosing a name, examining color schemes, and finally designing the logo.

1.5.1. Naming

The major naming criteria that we agreed to were to use: a name to convey the entire area covered by the RTIK System, which is the entire Chicago metropolitan area; a single word to convey the users of the system; and a word or words to convey the purpose of the system.

Originally, Catalyst and the MPC believed that a shorter (1 to 3 words) name might be “catchy,” and thus likely to stay in people’s memories after seeing or hearing about the kiosk project. However, the purpose and underlying function of the name is to accurately indicate the scope and reason for the kiosk. Longer names inevitably lead to the use of acronyms. The project team felt that any acronym used in the kiosk project name had to be a real word that is relevant to the intended use or purpose of the RTIK System.

Using the list of names, the MPC identified five finalists. The final five were put to a vote at the KPAC meeting on April 30, 2003. The winner was Chicagoland TRIPS (Traveler Resource and Itinerary Planning System). Chicagoland TRIPS fit all of the naming criteria outlined above and the use of the acronym, TRIPS, is catchy.

1.5.2. Color Scheme

The Catalyst Team explored some color theory fundamentals as part of the logo development process. We briefly examined overall symbolism, perception, and the use and theory of color in design work and documented our research by listing out various colors along with their perceptions and use. We want the logo to be eye-catching, welcoming, friendly, and have appeal to a broad spectrum of potential users. Weighing these factors, we recommend the use of the following colors for the Chicagoland TRIPS logo design:

- Blue for main logo components
- Gray or charcoal gray, also for main components and as a main contrasting color
- White to fill in and possibly soften some areas
- Orange or golden yellow for highlighting or contrast

1.5.3. Logo Design

By using the selected name, Chicagoland TRIPS, the recommended color scheme, and considering several themes that define Chicago, transit, and tourism, we designed several logo concepts that were refined into the following final Chicagoland TRIPS logo:



1.6. Site Selection

The purpose of the Site Selection component of the Feasibility Study is to provide recommended locations for the five pilot kiosks. For the pilot project, the KPAC decided to focus on downtown Chicago locations, due to the density and numbers of potential transit users. Downtown Chicago locations also have the greatest access to multiple public transit options and the proximity between kiosks will help to reduce maintenance costs.

The goals and objectives of the site selection study are to:

- Identify General Site Selection Criteria
- Identify Specific Kiosk Location Criteria (to determine the actual physical location of the kiosk within the selected site)
- Identify Categories of Site Locations

- Recommend five site locations along with alternative sites

Since this is a pilot study, the MPC and the KPAC desire to place the five kiosks in a variety of location types (e.g., attraction, public building, hotel, etc.) to help with the evaluation of the kiosks on the merits of different types of site locations. This will aid in future decision making for a potential large-scale rollout of kiosks after the completion of the pilot study.

The Catalyst Team outlined the following set of general site location criteria:

- Number of Visitors
- Proximity to Public Transit
- Origination and Destination
- Steady Flow of Visitors
- Year Round
- Hours per Day

Based on the results of applying the criteria listed above to a list of potential locations in five categories of site location types, we recommend that locations such as the following be chosen for placing the five pilot kiosks. Note: site attendance statistics listed below were gathered from the City of Chicago website and from the sites themselves.

- Navy Pier (Attraction) – With 9.1 million visitors it has the most visitors of any attraction.
- Shedd Aquarium (Attraction) – 1.72 million visitors per year and center building of three building museum campus, which gets a combined annual visitor flow of 4.8 million.
- Water Tower Visitor's Center (Public Building) – 233,000 visitors a year, all expressly looking for information on things to do in Chicago and how to get there.
- Water Tower Place (Shopping Area) – 20 million shoppers a year.
- Palmer House Hilton (Hotel) – Second highest number of rooms of all City hotels, extremely convenient to public transit options.
- Union Station (Transit) – Amtrak terminal, highest number of Metra train lines (6), and terminal for the busiest line (BNSF).
- Portable (Festivals/Event) – The top nine Grant Park festivals bring in 8.5 million attendees per year. This does not even take into consideration other events such as the Auto Show at McCormick Place or events at the Merchandise Mart. A mobile kiosk would provide an excellent marketing opportunity for the project, and would be able to remain in almost continuous operation for a large part of the year.

Although this pilot project calls for the deployment of five kiosks, MPC and the KPAC are not limited to only deploying the five kiosks that will be purchased and installed as part of this project. The RTIK solution is a web-based product that can be easily deployed on other purchased or pre-owned kiosks.

Section 2 - Background and Purpose

2.1. Background

2.1.1. One of the World's Great Cities

Chicago is one of the world's great cities. It is famous for its architecture, its history, and its numerous superlatives—the nation's tallest skyscraper, largest office building, busiest airport, and largest illuminated fountain, to name a few. There are over 60 museums located in the region, including the Art Institute, the Field Museum, Adler Planetarium, Shedd Aquarium, and the Museum of Science and Industry. Chicago is also home to 25 colleges and universities, 5 major league sports teams, one of the world's largest marathons, and a lakefront park that stretches for over 16 miles of bike paths, beaches, harbors, soccer fields, and even a golf course. In the warmer months, there are hundreds of festivals, including the world-famous Jazz and Blues Festivals, the Air and Water Show, and the Taste of Chicago, as well as smaller neighborhood festivals and block parties. Shopping on Michigan Avenue's "Magnificent Mile" is world-renowned, and Chicago is home to all kinds of great food—ribs, the "red hot," and Chicago-style deep-dish pizza. The Chicagoland greater metropolitan area is home to nearly eight million people from all over the world, and it is no surprise that Chicago is visited by over 32 million domestic and international tourists each year (City of Chicago Convention and Tourism Bureau, City of Chicago website, 2003).

2.1.2. Public Transit in Chicago

The origins of the public transit system in Chicago date back over one hundred years. In 1893, Chicago hosted the World's Columbia Exposition, which attracted nearly 26 million visitors during its six-month run. In order to provide transportation to the fair, the Chicago Transit Authority introduced the first elevated trains to Chicago. Today, the Regional Transportation Authority's (RTA) combined transit agencies of Pace Suburban Bus, Metra Commuter Rail, and the Chicago Transit Authority (CTA) serve over 529 million riders a year. The RTA operates the United States' second largest public transportation system, and covers the northeastern Illinois six-county region with over 700 miles of track and almost 2,600 buses serving fixed routes (RTA website, 2003). The CTA's "el" (short for elevated) train encircles the City's central business district, referred to as "the Loop". The "el" also services the City's neighborhoods and makes commuting hassle-free for a majority of City residents. The CTA's rapid transit system provides quick, safe rail service to and from both O'Hare International and Midway airports. The CTA's efficient citywide bus system is also supplemented with the Chicago Department of Transportation's free trolleys that provide shuttle service between Navy Pier, downtown destinations, and shopping along Michigan Avenue, and a new dedicated busway for fast, non-stop transportation between downtown and the City's convention center, McCormick Place. Metra and Pace provide suburban access to the central business district, connect suburbs, and aid in reverse commute transit. Getting around the region on public transit is easy, fast, safe, and affordable.

2.2. Purpose

2.2.1. RTIK Project

Many Chicago area travelers use taxi cabs and their own automobiles as the preferred mode of transport for business, leisure, and tourism activities out of convenience, when lower cost, environmentally friendly, ubiquitous public transit options abound. Over-reliance on the automobile has resulted in the city becoming the third worst congested area in the nation (2002 Mobility Study, Texas Transportation Institute). As tourism and leisure travel continues to grow, sustainable transportation strategies must leverage public transit. The promotion of transportation methods that can carry growing numbers of travelers, while simultaneously providing an environmentally friendly alternative to the automobile, is especially desirable for Chicago.

The Metropolitan Planning Council, in close alliance with a steering committee comprised of the City of Chicago, the Chicago Convention and Tourism Bureau, the RTA, and the Lakefront Alliance for Transportation Planning commissioned a pilot project for the design and development of the Regional Traveler Information Kiosk (RTIK) System to provide attractions, events, and public transit data through web-based kiosks to increase the use of public transit for travelers to get from their origination to their destination within the Chicago area. Funded through the RTA's Regional Technical Assistance Program, this demonstration project will link data on special events and tourist attractions to real-time transit information, making transit use easier and more appealing for visitors and residents alike.

The RTIK system will be an innovative way finding system that emphasizes Chicago-area events and attractions. It will facilitate the use of transit to cultural attractions as well as seasonal and annual events. It will accomplish this by presenting the kiosk user with a visually attractive, easy to use interface that lets the user identify and select a destination and the means to get there via public transit. Users seeking attractions will be able to drill down to specific attraction/event sub types, then touch an attraction to see detailed information on it. They will then be able to request a transit itinerary to the attraction with a single touch, and print it with another. They will also be able to choose among schedules, trip planning, and transit orientation material.

The RTIK system will draw on transit information and tools from the RTA, along with events and attractions data from the City of Chicago, the Chicago Convention and Tourism Bureau, and the Illinois Bureau of Tourism. It is essential that these components smoothly and seamlessly link together in the kiosk application to give kiosk users a quick transit solution for event and attraction trips.

While the RTIK system concept is oriented toward visitors and others who are not familiar with Chicago transit and entertainment options, Chicago residents will also be able to find new information from the system, or utilize it as a convenient way to get up to date information on familiar trips or destinations.

2.2.2. Feasibility Study

The purpose of this Feasibility Study is to lay the foundation for the successful development of the RTIK system to promote the use of public transit by Chicago area travelers. The RTIK project is centered on combining the attractions and events that make Chicago one of the world's great

cities with the region's numerous easy, fast, safe, and affordable mass transit options. The RTIK project is intended to result in a web-based, interactive traveler information database system.

This Feasibility Study report lays out the initial approach for the early steps of the RTIK project and provides a brief survey of similar projects nationwide. The study is broken into the following four major components.

- Content Providers Study (provided in a separate document) – This is a review and analysis of available attractions, events, and transit data from the following sources:
 - Illinois Bureau of Tourism Database – a list of both permanent attractions and events for the entire State of Illinois
 - Chicago Convention and Tourism Bureau Events Database - a list of City events maintained in conjunction with Chicago's new web portal
 - Itinerary Planning System (IPS) – the RTA's multi-modal way-finding system based on the ATIS product from Trapeze software, which provides travel directions to selected locations via public transit
 - Multi-modal Information Kiosk – the forthcoming RTA system that will provide real-time transit data for the Chicago Transit Authority, Metra, and Pace
- User Needs Analysis – This is a study of the needs of Chicago area travelers that is comprised of the following:
 - Benchmarking Study
 - User Research
 - Usability and User Interface Guidelines
- Logo Development – This involves the creation of an easily recognizable symbol for the RTIK system. The development of the logo involves the following:
 - Developing a name for the RTIK system
 - Identifying a color scheme
 - Developing the graphic logo
- Site Selection – RTIK is a pilot project that calls for the deployment of the RTIK system on five kiosks. The Site Selection Study focuses on identifying site selection criteria for strategic placement of the five kiosks with recommendations for the five sites as well as alternative sites.

Section 3 - User Needs Analysis

3.1. Overview and Purpose

The purpose of the User Needs Analysis is to gain insight into the needs of Chicago area resident and non-resident travelers; learn from other organizations that have developed public transit and/or tourism kiosk systems; and to identify kiosk system best practices guidelines early in the RTIK project process. Having an understanding of user needs and kiosk system best practices will allow the project team to draw on that knowledge to design and develop a kiosk-based solution that will meet user needs and thus help drive public transit use.

The user needs analysis section of the feasibility study is divided into the following segments:

- Scope and Methodology
- Benchmarking
- User Research
- Usability and User Interface Guidelines

3.2. Scope and Methodology

The scope of the User Needs Analysis is to conduct comprehensive research that documents study goals and objectives, identifies and reviews existing research materials, conducts benchmarking research of similar kiosk systems, develops and administers user research, and provides recommendations for the RTIK project.

The methodology that we employed for the User Needs Analysis followed the steps outlined below:

- Conduct Benchmarking Research
 - Identify and review literature
 - Select kiosk systems to benchmark
 - Develop benchmarking questionnaire
 - Conduct interviews and document results
 - Analyze results and provide recommendations
- Perform User Research
 - Identify goals and objectives
 - Define the target audience
 - Review and select research methods
 - Conduct research
 - Document and analyze results
 - Provide recommendations
- Identify Usability and User Interface Design
 - Identify and review best practices research
 - Document results and provide recommendations

3.3. Benchmarking

3.3.1. Overview and Purpose

We conducted the benchmarking component of the user needs research to learn from others who have performed similar efforts—namely the development of tourism and/or transit kiosk systems. The purpose of this effort is to help identify, understand, and adapt outstanding practices from other relevant kiosk projects while avoiding costly mistakes.

3.3.2. Literature Survey

Our initial review of the kiosk literature included:

- The US Department of Transportation Federal Transit Administration's *Review and Assessment of Information Kiosk Systems* (Eric Hill, 1997)
- The FTA's *Advanced Public Transportation Systems: The State of the Art Update 2000* (Casey, et al, 2000)
- *Internet Kiosks: Best Practices* (Francine Mendelsohn, 2003)
- *Review of Current Passenger Information Systems* (Infopolis 2, 1998)

The first document reviewed for benchmarking was *Review and Assessment of Information Kiosk Systems* (Eric Hill, 1997). This report reviews state-of-the-art information kiosks and assesses the progress that is being made in kiosk information systems at eleven US transit agencies (see the table in Section 3.3.3, Selected Kiosk Systems below). The transit agencies were surveyed using a set of structured questions to gather information about kiosk technology. The next item surveyed was the FTA's *Advanced Public Transportation Systems: The State of the Art Update 2000* (Casey, et al, 2000). This report documents the work performed under the FTA's APTS program, a program structured to undertake research and development of innovative applications of advanced technologies that benefit public transportation. The next report surveyed was *Internet Kiosks: Best Practices* (Francine Mendelsohn, 2003), a report published yearly by Summit Research Associates, members of the RTIK project team. Mendelsohn is an internationally recognized expert in the kiosk field. Although much of the material in her report is more directly applicable to the usability/user interface section of this study, main points to consider while benchmarking kiosk systems are:

- Site locations
- Attractiveness of kiosk enclosures
- Printing and audio issues
- Design goals (FIRE - Fast, Interesting, Relevant, and Easy)

Our last literature assessment was *Review of Current Passenger Information Systems* (Infopolis 2, 1998). This piece is part of the Infopolis 2 project results, a study conducted in Europe for the European Communities (DG XIII - 4th Framework Programme). This document provides an overall view of European public transport information systems currently in operation or in the process of being implemented. Although nine different system families are evaluated in the report, we looked most closely at the part of the report concerning Public Interactive Terminals (PIT), which are what we refer to as kiosks here in the United States.

3.3.3. Selected Kiosk Systems

There are currently hundreds of informational kiosk installations either planned or in operation throughout the United States. Conducting a survey of all, or even most of these would not only prove infeasible, but would not provide us with relevant data. The ideal benchmarking candidates are kiosks that provide both tourism and transit data.

To benchmark kiosk systems that would provide us with relevant data for the RTIK System, we sought out kiosk systems that provide transit and/or tourism data, which are located in regions with geographic and demographic qualities similar to Chicago. The characteristics that we assessed to identify attractive candidates for benchmarking include a metro area that has:

- Suburbs whose residents travel into the city for entertainment, business, shopping, etc.
- A public transit system that uses both trains and buses
- Significant amount of tourism-related activity (although the area does not have to be a major city)
- A large regional or national airport, preferably an international airport

After determining the types of municipalities that would be well-suited to provide us with useful comparison information, we developed a first round list of cities to check for kiosk projects. The initial list included New York, Boston, Seattle, Washington DC, Minneapolis, Portland, San Francisco, and Denver. All of these areas fit most of the criteria listed above. The exceptions are that Portland and Denver both have smaller light rail and commuter train systems than some of the larger cities in the list, and Minneapolis's light rail line is not scheduled for deployment until April of 2004. However, all of these areas have extensive bus transit available, with Minneapolis also employing bus rapid transit (BRT).

We then contacted Robert Casey of the Volpe National Transportation Systems Center and obtained a detailed list of transit-related kiosk projects. This list (see Appendix A – Transit Related Kiosk Projects) is further categorized into transit agencies whose kiosk projects are currently operational and agencies that plan to deploy kiosks at some point in the future. The list functioned as a useful big-picture tool in the benchmarking selection process. The main disadvantage of the list is that it only highlights kiosk projects that are directly connected to transit agencies. Therefore, it is not an aid in locating tourism or other informational kiosks in all situations.

In order for our investigation to examine the widest possible range of projects, we determined that the benchmarking candidates we chose for primary research should not be kiosk systems already reviewed in *Review and Assessment of Information Kiosk Systems* (Eric Hill, 1997). Those kiosk systems reviewed in the Hill paper are presented in the table below.

Table 1
List of Kiosk Projects

Project Description	Responsible Agency	Contact Person
Information Kiosk	Ann Arbor Transportation Authority, Ann Arbor MI	Greg Cook (313) 677-3902
TraveLink	Metropolitan Atlanta Rapid Transit Authority, Atlanta GA/ Georgia Department of Transportation	Todd Long (404) 651-8475
Traveler Assistance Network	Baltimore Mass Transit Administration, Baltimore, MD	David Hill (410) 333-3437
Information Kiosks	Regional Transportation District, Denver, CO	Lou Ha (303) 299-6265
Houston Smart Commuter	Metropolitan Transit Authority of Harris County (Houston Metro), Houston, TX	S. Venkat Raman (713) 881-3030
Los Angeles Smart Traveler	California Department of Transportation, Public Transit Branch Los Angeles, CA	Cliff Loveland (916) 654-9970
Travlink Project	Minnesota Department of Transportation, Minneapolis/St. Paul, MN	Marilyn Remer (612) 582-1601
Multimedia Kiosks	New Jersey Transit, Newark, NJ	Lou Wassong (201) 378-6906
Smart Interactive Kiosks	Metropolitan Transportation Authority - New York City Transit, New York, NY	Angelita Hutchinson (718) 694-3232
Information Kiosks	Seattle Metro, Seattle, WA	Catherine Bradshaw (206) 684-1770
National Capital Region Traveler Information Showcase	Washington Area Metro Agency, Washington, D.C., et al.	Karen Lamb (202) 962-2790

As seen in the table above, projects from Denver, Minneapolis, New York, Seattle, and Washington DC were all part of *Review and Assessment*. Although this fact would seem to eliminate five metropolitan regions from our initial list of candidates, that was not in fact the case. The kiosk systems listed above were all developed directly by transit agencies and do not necessarily include any integration of tourism data. Thus, even though the specific projects listed in the above table might not be good choices to survey for the RTIK project, those metropolitan areas might still have other kiosk projects that would be good choices for benchmarking.

We did find during our research that there were not as many kiosk projects fully integrating transit and tourism as we had hoped, especially for trip planning purposes. The majority of kiosks that have integrated information only provide static data for transit, local events, and/or attractions. This held true for most of the municipal areas we originally identified as suitable candidates for study. Further inquiry revealed that some of the metropolitan regions we originally identified have other projects not strictly under the direction of transit agencies, and some of these are more related to the RTIK Project than information kiosks containing only transit content, or with a limited integration of tourism data.

We did find that the Portland Transit Authority (Tri-Met) has two kiosks and a web application that does exactly what the RTIK project hopes to do, and indeed even uses the same software program for itinerary planning that the RTA employs. The senior management at Tri-Met was also extremely receptive to our requests for information.

After integrating these facts, we defined the following kiosk systems and/or transit agencies as benchmarking candidates to contact:

- TRANSCOM TRIPS123 / SATIN NYC Kiosks, New York, NY
- Portland Tri-Met, Portland, OR
- WashCOG InfoExpress, Washington, DC, Metropolitan Council of Government
- Cambridge TriPS, Cambridge, MA Community Development Office
- AZTech, Maricopa County (Phoenix), AZ

The various project managers, management, and program directors for these agencies were contacted and asked if they would be willing to participate in our benchmarking research. All parties contacted were receptive to the idea, although with some reservations expressed about issues such as time expenditure, whether or not the information was already available, or if the contact was knowledgeable enough about the system in question.

3.3.4. Benchmarking Questionnaire

We developed a questionnaire to administer to a system owner for each of the five chosen kiosk systems. We wanted the questions to address the entire scope of each respondent's project, with particular emphasis on determining where their project mirrored the RTIK, to maximize the benefits and "lessons learned." We were also interested in ascertaining project costs and finding out about any expansion plans the respondent might have in the works. A copy of the questionnaire is located in Appendix B – Benchmarking Questionnaire.

3.3.5. Results from Benchmarking Surveys

Catalyst conducted the benchmarking interviews during April and May 2003. They were done by telephone or with some additional research done through email correspondence. In most situations, the researcher spoke with the project manager for a combined total of two to three hours. Several respondents also provided us with additional written materials, such as project white papers and evaluation tests.

We surveyed the following kiosk systems: (1) TRIPS123 itinerary planning system upgrade for the SATIN kiosks in New York; (2) WashCOG InfoExpress; (3) Portland Tri-Met Trip Planner Kiosks; (4) Cambridge TriPS; and (5) AZTech. These five projects, in combination with the numerous projects examined in Catalyst's review of informational kiosk literature, supply a comprehensive picture of the transit-related informational kiosk field as it exists today. Below is a brief introduction to each of the five projects. Following is a summary table of benchmarking questionnaire results.

SATIN kiosks / TRIPS123 in New York

We spoke with Rob Bamford of TRANSCOM, which is a jointly funded consortium of highway, transit, and other agencies in the New York City tri-state region. An extremely successful TRANSCOM initiative is the Service Area Traveler Information Network (SATIN) project. Twenty-four

information kiosks (with the same number to be installed during summer 2003) have been deployed in various public locations to provide information on traffic, transit schedules, weather, emergency services, tourism information, and park and ride conditions. The kiosks include LED readouts at the top of the enclosures to disseminate real-time data on traffic incidents, etc.

TRANSCOM is also implementing the TRIPS123 initiative, which is an Intelligent Transportation System (ITS) Metropolitan Model Deployment Initiative (MMDI). TransitAdvisor, a web-based trip itinerary planning capability and part of TRIPS123, is in the process of being added to the SATIN kiosk program and should be online sometime in 2003. TransitAdvisor uses the Transtar itinerary planning software developed by the Southern California Association of Governments (SCAG). The TRIPS123 development team and SCAG made some key modifications to the software to allow for the complex nature of the area's transit network.

WashCOG InfoExpress

Nicholas W. Ramfos, Chief of Alternative Commute Programs for Commuter Connections for the Metropolitan Washington Council of Governments (WashCOG), spoke with our team about their InfoExpress kiosks located in thirteen locations around the metropolitan DC area. The project's purpose was to reduce vehicle trips and reduce emissions in order to meet regional air quality requirements. The image below shows the kiosk main menu page.



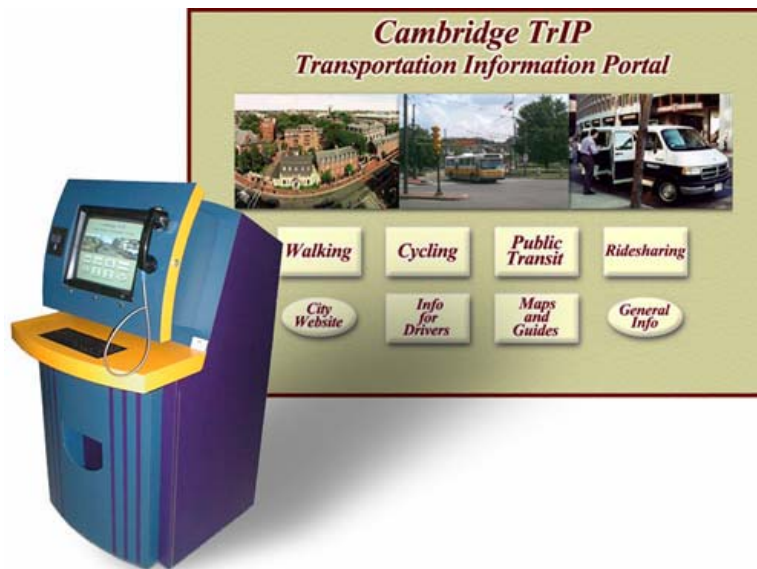
Portland Tri-Met Trip Planner Kiosks

The next project we benchmarked was the Internet-based Portland Tri-Met Trip Planner Kiosks in Portland, Oregon. The Catalyst researcher conducted a phone interview with Ken Turner, Senior Manager, Operations Project Development, and used the benchmarking questionnaire with Jeff Frane, the project manager for the Trip Planner Kiosks. Their project was of great interest to us, because Tri-Met uses the same trip planning software, ATIS from Trapeze, that the RTA uses for its web-based travel itinerary planning service. In October 2001, two Internet-based kiosks were installed, one at the Portland airport and one at the Tri-Met Customer Assistance Office in downtown Portland. The kiosks were put in with the light rail line from the airport and their intention is to increase ridership and also to provide more information to riders. The kiosks provide a dedicated Internet connection to Tri-Met's existing web-based trip itinerary planner. The kiosks run dedicated lines to the trip planning server and allow the user to access almost the same information, with a few scripting changes because of the kiosk interface. The following is a picture of the kiosk in the airport light rail terminal.



Cambridge TrIP

We spoke with the project director of the Cambridge TrIP kiosk program, Stephanie Anderberg of the Cambridge Community Development Office. Cambridge TrIP is a four-unit project started in 2001 with joint funding from Transport Demand Management (TDM) and Congestion Mitigation and Air Quality (CMAQ) state and federal sources. The web-based kiosks are located on various city property sites and offer static information on walking and bicycling and links to the city's main website and different regional public transit agencies, city maps and guides, and other community information. The following image shows the kiosk enclosure for the project, as well as a shot of the main menu page.



AZTech

We spoke with Faisal Saleem of the Maricopa County (Phoenix) Department of Transportation about the kiosk deployment done in conjunction with the AZTech program. AZTech is a transportation partnership of public agencies and private corporations who integrate travel and communication systems within the Phoenix metropolitan area. Their goal is to provide Arizona travelers with information such as real-time traffic and transit conditions, related road closures, and accidents. Under the administration of AZTech and as part of Phoenix's MMDI, twenty-seven information kiosks, dedicated to providing real-time, multi-modal traveler information, were deployed in 1998. The kiosks have touchscreen interfaces and are web-based in that the content is written as HTML pages, although dynamic kiosk content is accessed through several different servers and can take up to fifty seconds to retrieve (this is the single worst aspect of the project, according to Saleem). The kiosks provide static information including transit schedules and fares, tourism information, customized information for each participating jurisdiction, and real-time information such as traffic congestion and incidents, weather, etc. The images below show several of the kiosk enclosures followed by a screenshot of the main menu page.



Benchmarking Questionnaire Responses

The following chart is a summary of responses to benchmarking questions for the five benchmarked kiosk systems.

<i>Benchmarking Questions</i>	<i>New York</i>	<i>DC</i>	<i>Portland</i>	<i>Cambridge</i>	<i>Arizona</i>
<i>General questions</i>					
When did program start?	1999	1997	2001	2001	1998
Number of kiosks in operation?	24	13	2	4	27
Are your kiosks multi-lingual?	N	N	N	N	N
Did you do benchmarking studies?	Not for overall system	Y	N	Y	Y
Did you do a user needs analysis?	Same as above	N	N	Y	N
<i>Site Selection</i>					
Did you use specific criteria to select sites?	Y	Y	N	N	Y
What site attributes lowered the probability of selection?	Low foot traffic	Transit hub	N/A	N/A	Low foot traffic
What site attributes increased the probability of selection?	> 1 m foot traffic	Non-transit center	N/A	N/A	Transit hub, retail center
<i>Content</i>					
Transit data?	Y	Y	Y	Y	Y
Tourism data?	Y	N	Y	Y	Y
Where do you get attractions information?	Transit Agencies and States	N/A	In house	In house	State
How is tourism data freshness and accuracy maintained?	By Agencies	N/A	In house	In house	By Vendor
Do you have a trip planner?	Y	N	Y	N	N
Are locations geocoded in system or street addresses fed to planner instead?	Both	N/A	Geocoded	N/A	N/A
Do you provide composite journey maps for transit trips?	N	N/A	Planned fall 2003	N/A	N/A
Do you provide fare information on the kiosk?	Y	Y	Y	Y	Y
Do you provide real-time transit data?	Y	N	Y	N	N
If yes, what is the source for this information?	TRANSCOM	N/A	In house	N/A	N/A
Do you include "How to use transit" content?	Y	Y	Y	Y	Y
Did you design kiosk content or outsource?	By Vendor, in house	By Vendor, in house	In house	By Vendor, in house	By Vendor, in house
Does your kiosk dispense fare cards?	N	N	N	N	N
Orientation map to the surrounding area?	Y	Y	Y	Y	Y
<i>Functionality</i>					
Attraction loop running on the kiosks?	Y	Y	Y	Y	Y
Number of buttons on opening screen?	9	7	Web page	8	8
Is the software available for other uses (PDA, web portal, etc.)?	Y	N	Y	N	N
Did you buy a commercial browser wrapper or develop your own?	Bought off the shelf	Bought off the shelf	Bought off the shelf	Bought off the shelf	Bought off the shelf

What data sources are you using to support the kiosk?	State, city, transit, vendor	State, city, transit, vendor	Transit and city	Transit and city	State, city, transit, vendor
Are there multiple owners of the data?	Y	Y	N	Y	Y
Did you have to get interagency agreements?	Y	Y	N	Y	Y
Who has administration rights for the kiosks?	In house, vendor	In house	In house	In house	In house, vendor
Methods used to bring data from source to the kiosk application?	Internet and static content	Internet and static content	Internet and static content	Internet and static content	Multiple servers, static
Have data integration issues come up (e.g., multiple transit agencies)?	Y	N	N/A	N	Y
Hardware					
Touch Screen:	Y	Y	N	Y	Y
Printer:	Y	Y	Y	N	Y
Keyboard:	Y	Y	Y	Y	N
Pointing device:	Y	Y	Y	N	Y
ADA					
What steps did you take for ADA compliance?	wheelchair accessible, speech recognition	wheelchair accessible, handsets	wheelchair accessible	wheelchair accessible, handsets	wheelchair accessible
Maintenance					
Who maintains app and data?	Vendor, in house	In house	In house	In house	Vendor
Staff assigned to data update, problem solving?	Y	Y	Y	Y	Y
Who is responsible for physical maintenance of kiosks?	Vendor	In house	In house	In house	Local sites, vendor
Do you employ watchdog monitoring?	Y	Y	N	N	Y
Do you have other means for system tracking?	Y	Y	Y	Y	Y
What are your strategies for systems failure?	Online monitoring	Site staff calls in	Site staff calls in	Site staff calls in	Online monitoring
Evaluation and expansion					
What was the cost of your project, per kiosk?	\$30,000	\$60,000	---	---	---
How did you get funding for your project?	Public and Private	State and Federal	Capital funding	State and Federal	Federal funding
Did you consider private partners?	Y	Y	Y	N	N
Is this a pilot program?	N	N	N	N	N
Do you plan to expand the program?	Y	Y	Y	N	N
How do you plan to fund the expansion?	Vendor	In house	In house	N/A	N/A
What was the number one worst thing that has happened in your project?	Vendors kept going under	Upkeep	Tri-met dislikes design	Staff changes	Too many info sources
What was the number one best thing?	Finding the right team	Initial usage promising	Kiosks are popular	Kiosks are popular	Custom content for each site

3.3.6. Analysis and Recommendations

Literature Survey

The literature survey for benchmarking provided a clear indication of the most common trends in informational kiosks. The main points can be categorized as falling into two types: trends to follow and obstacles to avoid. Most successful kiosk projects exhibit a great deal of similarity in their main design aspects. A summary of main project design points from the literature survey is listed below:

- General
 - Conducting surveys of potential users was seen as valuable
 - If possible, develop agreements for maintenance, security, cost-sharing, etc.
 - Site location is key; safety, good light, and lots of foot traffic are all crucial
- Functionality
 - Few kiosks provide trip planning software
 - None of the kiosks allow financial transactions
 - Most projects have attempted some type of ADA compliance
 - Try to get and use real-time data as much as possible
- Kiosk Enclosure
 - Most units are placed inside for security reasons
 - Utilize system diagnostics for kiosk maintenance
 - Use touchscreens and thermal printers
 - Avoid on-screen glare
 - Tailor enclosures to fit a budget, but make the kiosk attractive
- Design Considerations
 - Use “attract loops”
 - Use attractive colors throughout design
 - Employ audio as part of feedback to users, but keep others who’ll be near the kiosk in mind
 - Make kiosk fast, interesting, easy, and relevant (FIRE)
 - Keep kiosk content short and sweet (KISS)
 - Incorporate tutorials for users as part of the content design

The following is a summary of the main issues and challenges mentioned in the literature:

- General
 - Finding the right sites takes time
 - Coordinating communication among project stakeholders can be tough
 - Lack of marketing may limit usage
 - Developing effective public/private partnerships is difficult
 - Maintenance and repairs are challenging
 - Some believe that kiosks are an ineffective communication medium
- Design Considerations

- User-friendliness in design is hard to achieve
- Avoiding outdated content is a constant challenge

Benchmarking

The results from our primary research supported what we found previously in our investigations. Again, the main points taken from the responses can also be categorized as trends to follow and obstacles to avoid. In general, kiosks have been successful when specific design best practices guidelines are followed. The following is a summary of major design guidelines from our benchmarking primary research:

- General
 - Site location must be well-thought out and planned
 - Malls, metro centers, and tourist areas are most likely to be successful sites
 - Be sure to secure interagency agreements early in the process and maintain good communication throughout the program lifecycle
 - Marketing will help greatly facilitate awareness and use of the kiosks and may be crucial to achieve high usage rates
- Design Considerations
 - Provide real-time data – this is what users want
 - User-friendliness of system is key

The following is a summary of the main issues identified in the primary research:

- General
 - Gauging the success of a project can be difficult
 - Communication among all parties involved is hard to accomplish
 - Overall usage of kiosks has been disappointing
- Maintenance
 - Vandalism can be a problem, even indoors
 - Ongoing maintenance is constant and challenging

Major Lessons Learned

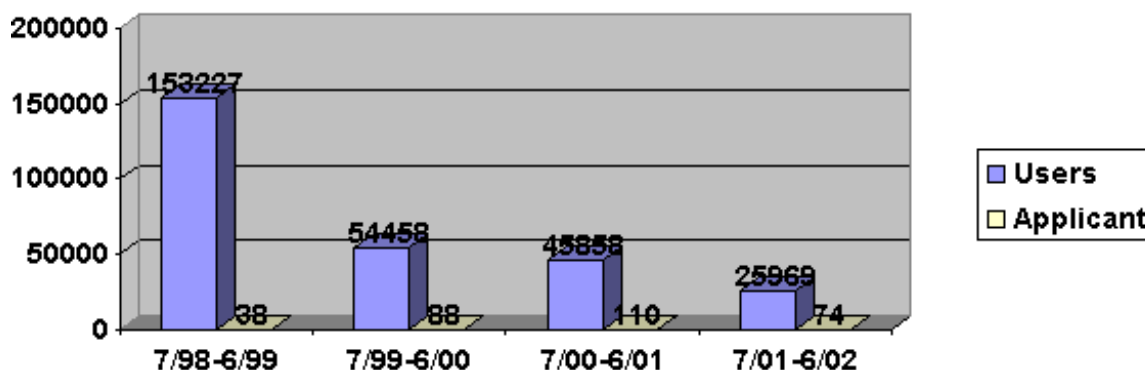
Catalyst found that there is a compact list of essential “lessons learned” from the data revealed during the benchmarking component of the study. The Catalyst RTIK project design team sees the following list as crucial to keep in mind in order to design a superior kiosk program:

- Try to get and use real-time data as much as possible
- Make kiosk fast, interesting, easy, relevant (FIRE)
- Keep kiosk content short and sweet (KISS)
- Incorporate tutorials for users
- Use touchscreens and thermal printers
- Locate the kiosks at tourist areas – site location is key
- Plan ahead to avoid vandalism
- Streamline maintenance procedures and agreements as much as possible

- Utilize system diagnostics for kiosk upkeep
- Marketing may be of great help in establishing high usage early on

The fact that overall kiosk usage has been disappointing is troubling, and Catalyst explored this matter to see what lessons could be learned as a result. Below we discuss this in more detail.

InfoExpress Kiosk Summary



As seen in the graph above, WashCOG InfoExpress kiosk use has declined over time. This decline has been in direct correlation with decreased marketing expenditures. Additionally, Portland has low numbers for observed use in their evaluation study but not on usage logs. Arizona has also experienced lower than hoped for use for their kiosks. The effectiveness of their kiosks has been questioned. Saleem of AZTech notes that success for traveler information kiosks has been reported in some metropolitan areas such as Seattle and New York, which have more complicated multi-modal commuter scenarios. Those metropolitan areas are usually able to integrate various ITS systems and produce real-time traveler information across different transportation modes.

These details underscore that there are many factors that may influence kiosk usage and success. In an analysis of kiosk implementations, it is helpful to consider not only what we have learned concerning specific projects, but also more general data concerning the public's overall desires for transit-related information. Although the RTIK project is not solely transit in nature, the stated mission of the project is to increase transit ridership, and thus this data becomes particularly applicable. Several papers written by Jane Lappin of the Volpe National Transportation Systems Center speak directly to these issues and were of great help to the Catalyst Team during the writing of this report.

Lappin's research indicates that the transit "audience" wants services that provide real-time information through all phases of their journey, a high-quality user interface, and convenient access to detailed system information. A high-demand traveler information market appears to be a function of regional factors and the quality of the provided services, more so than any individual transit customer characteristics. The largest numbers of transit users will be found in places with the following characteristics:

- Traffic network conditions that place stress on individual drivers
- Public transit system density

- High quality traveler information services

This finding bodes well for potential success in a Chicago kiosk implementation. As did other sources consulted in our study, Lappin finds that travelers believe that successful kiosks provide accurate, timely, and reliable information in easy to use interfaces, in safe and convenient locations. For kiosks, problems have included poor placement in relation to the trip decision, unreliable performance, and a challenging user interface. Kiosk-based transit services also suffered from nonexistent marketing. Again, this data corresponds with the other information gleaned from our benchmarking process.

Research suggests that transit information kiosks located in areas with high foot traffic, convenient to transit system nodes, and that provide riders with useful information are likely to be successful. Overall, Lappin's conclusions bode well for the potential success of a Chicago kiosk implementation, and alleviate some of the concerns raised by low usage in other projects.

In conclusion, we find that although there may be significant obstacles to overcome in quality kiosk implementations, by following well-accepted standards, and given the right situation (which Chicago has every indicator of being), successful projects are not only possible, but highly likely.

3.4. User Research

3.4.1. Overview, Goals, and Objectives

This section of the feasibility study details the concepts, methodologies, processes, and results of the user research study undertaken by Catalyst during the preliminary stages of the RTIK Project. The Catalyst Team drew on the work of several influential usability experts in order to best realize a successful course for ascertaining user needs. Some of these included: *Contextual Design: Defining Customer-Centered Systems*, (Beyer, Hugh, and Karen Holtzblatt, 1998); *The Humane Interface*, (Raskin, 2000), and *A Review of User-Interface Design Guidelines for Public Information Kiosk Systems*, (Maguire, M.C, 1998).

Successful kiosk implementation depends on understanding the needs of the kiosk's potential users. The kiosk project must meet peoples' needs and ensure that they are able to achieve their desired tasks. User-centered design aims to accomplish these objectives. User-centered design can be viewed as taking into consideration the background and characteristics of the people who will use the system. This approach facilitates designing a structure from the user's perspective, and thus designing a successful system that meets a genuine need and which people are motivated to use.

When initiating information technology-based projects, the early goals are:

- Define the purpose of the project
- Define the user population who it will serve
- Understand their task goals

The RTIK is defined as a demonstration project that will link data on special events and tourist attractions to transit information, making transit use easier and more appealing for tourists and residents alike. With RTIK's goals clearly defined, the next logical steps to be undertaken are defining the user population and what they want to accomplish. This is the purpose of this user research study.

3.4.2. The Target Audience

There are several different but not unconnected “target” user groups for the kiosks. These target audiences can be summed in one word, “travelers.” We say this because the term is all-encompassing and tells us that we will be creating content for both visitor and resident users of public transit. However, we can divide the traveler audience into smaller categories. These categories are composed of the two main groups of visitor and resident, and can then be further divided into subgroups.

The subgroups in the visitor category are those of domestic and international visitors. These subgroups are also subdivided as business and leisure visitors. Out of the total number of Chicago visitors in 2000 (slightly over 32 million), domestic visitors accounted for 96%, or 30 million people. Leisure visitors comprised 58% of the 2000 total, or just over 18 million (City of Chicago Convention and Tourism Bureau, City of Chicago website, 2003). International visitors number approximately 4% of total visitors and business visitors account for 42% of people staying in Chicago.

Residents can also be divided into two groups, roughly defined as city and suburban, and also further designated as business (commuter) and leisure. The resident numbers are equally large; 2.8 million residents in the city of Chicago itself, and over 8 million residents in the six-county Chicago region that consists of Cook, Dupage, Kane, Lake, McHenry, and Will counties (US Bureau of the Census website, 2003).

There is some overlap in the visitor and resident definitions, as a significant portion of domestic visitors to Chicago come from within the State of Illinois, and actually even from within the Chicago area. This overlap means that some of the visitors to the area will have a certain amount of familiarity with the Chicago area and its available public transit options. Even so, it is likely that very few visitors know the public transit system well enough to devise their own itineraries at any given place and time.

From this information we can infer that while the RTIK intends to satisfy user needs for all types of travelers in Chicago, the two major audiences are the 30 million annual domestic leisure visitors (whether from within the metropolitan region, from instate, or from another region of the country) and residents. We say this because while the total number of visitors dwarfs the number of residents, when one considers that the average visitor stay is less than one week and the average resident is here for 50 weeks per year, one can clearly see the significance of the resident user to the RTIK System. Although other user groups should be kept in mind during the design process, the two groups listed above is where the bulk of the user’s task goals should be drawn from as “user profiles” are constructed to aid in the user-centered design process of the RTIK project.

3.4.3. Research Methods

Our user research methodology was determined with one main objective in mind: KNOW THE USER. The importance of this simple statement cannot be overemphasized, as the success or failure of the RTIK project hinges predominantly on whether or not the kiosks are of value to their users. Cool graphics, lightning-quick data access, and clear itineraries are useless if users don’t feel as if they received the information they were looking for when they used the kiosk.

The following steps were taken to design an appropriate user needs analysis:

- Approaches to Assess User Needs – We examined the differing approaches to user needs assessment and determined which types make the most sense in relation to the RTIK project. One line of study in this field is that of contextual design. Contextual design seeks to define systems design as an integrated process. This process centers on collecting data directly from that system's proposed (or current) users, and makes that collected data the primary factor in deciding what the system should do and how it should operate. This method is particularly attractive in informational kiosk design, as it is imperative that the kiosk be useful to the target audience.
- Qualitative and Quantitative Research Methods – We compared qualitative and quantitative research methods. Qualitative techniques involve investigating knowledgeable respondents ("experts") in small samples to understand the "why" of behavior. Quantitative techniques involve investigating large samples of respondents regarding the "what, when, where, and how" of behavior. While the results of qualitative research are valuable on their own merits, they are most powerful when combined with quantitative research. It is with this consideration that our user needs study initially applied qualitative research methods. We used these answers to determine the "why" and estimate the "who, what, and when" factors that will be quantitatively measured later during the evaluation phase of the project.

Large-scale sampling is often impractical; and in any case, is largely irrelevant since qualitative research is not tightly bound by the principles of statistical sampling that apply only to quantitative survey research. This fact is especially meaningful in the case of the RTIK Project, since the potential size of the user audience is in excess of 40 million people per year (visitors and residents).

Generally, qualitative research techniques include any or all of these methods:

- Group discussions and focus groups
- Personal interviews
- Expert opinion techniques

We employed two of the above methods in our research, personal interviews and expert opinion techniques. Both of these methods were put into operation as a subtype of contextual design known as contextual inquiry, which in this case was talking with people possessing expert knowledge of potential system users' tendencies. Using contextual inquiry methods positioned us to be more fully immersed in the particular environments we wanted to learn about during the course of our research, and was exceptionally useful to us as we conducted the user needs investigation.

3.4.4. Research

The established purpose of the research, to identify and document the user's goals, was accomplished by employing qualitative research methods and contextual inquiry. The main technique we used was qualitative ethnographical research. This consisted of a series of structured, contextual discussions, or interviews, with "expert informants."

Expert informants are defined as people that deal with the target users on a regular basis. This category includes hotel concierges, visitor center employees, information desk employees, tour

operators, bus or trolley drivers, etc. By speaking with expert informants, it is possible to gain a broad, thorough understanding of their experiences and knowledge in regards to Chicago-area travelers, who are the RTIK project's main target audiences. Each person interviewed for the survey deals with many hundreds or even thousands of Chicago travelers every year. Their thoughts and opinions on what those travelers want to know when they are traveling through the area are of major importance to us as designers and developers of an informational kiosk.

We constructed a structured interview document (see Appendix C – Structured Interview Questionnaire) to use in meetings with the expert informants. This interview document has both multiple choice and short answer questions. The multiple choice questions were tabulated in a spreadsheet format to provide for clear analysis.

We desired to consult the widest possible range of hospitality industry professionals in order to cover the broad socio-economic variety of travelers in Chicago. The seventeen respondents included hotel concierges, a hostel director, hostel front desk employees, a hotel director of guest services, two head concierges, the director of the City's visitor information centers, City visitor center employees, Navy Pier information desk employees, and a transit center information desk employee. The group of industry experts interviewed had a combined 98 years of experience fielding and answering questions from travelers in Chicago.

The research was conducted during April and May 2003. Each visit to an interview site was conducted at a time of day where the researcher was able to observe the staff as they interacted with travelers, as well as spend time in individual conversation with the various staff members. The observations of staff-traveler interactions backed up what the researcher learned during the interviews in every situation, and thus served to positively corroborate research findings.

3.4.5. Findings and Analysis

In our interviews, we learned that most Chicago travelers are perceived as falling into the 30 to 60 years old age group. Independent studies indicate that this is in fact the case for tourism related activities, with the age groups of 31 to 65 years best represented. Statistics indicate that it is usually the youngest and eldest age groups that are dominant users of public transit. Therefore, providing integration of leisure and tourism information services to the 31 to 65 age group should help drive non-traditional public transit customers to use public transit. It is particularly important in these groups to improve the image of public transit. The RTIK Project is a great opportunity for increasing the overall positive impression and use of public transit.

Qualitative Findings and Analysis

The major findings from the user needs interviews are summarized in this section. The number one finding can best be described in one sentence, "What is it going to cost me?"

- People REALLY like free stuff, especially the free trolley, free festivals and events, coupon books, and museum free days; they are very concerned about costs
- People want to find out about cheaper shopping than Michigan Avenue; they often seem overwhelmed by the Michigan Avenue prices

The main points discovered in regards to finding out where to go and how best to accomplish the process are listed below:

- Visitors want maps and directions more than planned itineraries; they often already know the name of the place where they want to go
- They want to hear personal recommendations about their choices
- Visitors are very receptive to taking public transit for their travel needs
- A large number of travelers are concerned about personal safety, especially the suburban travelers

Although many people come to Chicago with a specific list of places to see, most of them also want to do something that signifies the City:

- Number one quote: "What should everyone that comes to Chicago do while they are here?"
- People want to be told about authentic "Chicago" experiences
- People want the "local's" scoop, things that are unique or off-the-beaten-path
- Even if the visitors are too young to go to bars, they are still interested in "hip" urban experiences
- There is a great deal of interest in special events such as the Taste of Chicago

As far as specific types of activities, we found the following main points:

- Visitors want to go to sporting events even if they are unfamiliar with American sports
- There is a lot of interest in blues and jazz, especially from international visitors
- Foreign visitors seem to be the most interested in gangster tours
- People ask about neighborhood guides
- People really love the lakefront—they are surprised that there is such a large and clean public space in such a large metropolitan area
- There is a huge amount of interest in the architecture tours, especially the ones on the Chicago River or Lake Michigan

There are definitely seasonal demographic changes, the main ones of which are highlighted below:

- More families visit the Chicago area in the summer
- People travel from farther away in the summer
- Lots of foreign visitors come to the Chicago area in the fall
- Lots of Chicagoland residents visit the central city during the winter
- Most of the foreign visitors seem to speak English or Spanish

The following are some of the main issues and items of concern for visitors mentioned by the expert informants:

- There should be a direct transit and/or free trolley link between the Museum Campus and Navy Pier
- People want the trolley to run seven days a week year-round, instead of only on weekends during off-season periods
- The RTA trip planner (IPS) does not give enough information about the bus and train routes; the IPS should show maps of the itineraries

- The CTA train and bus schedules are not integrated with Chicago street maps (like the CTA's system maps), so it is difficult to see if the chosen line will go where the person wants to go

Interview Statistics

Below we have provided a brief summary of the tabulated responses to the interview questionnaire.

General:

- 77% say that visitors are an even mix of domestic and foreign
- 75% say most domestic visitors seem to be from instate, or even within Chicagoland region
- 58% say most visitors are totally unfamiliar with the City
- 76% say most visitors are vacationers
- 47% say most visitors are in 30 to 60 age range
- 29% say most visitors are evenly spread across age ranges
- 73% say there are demographic changes from winter and summer
- 71% said most or all visitors just want directions, rather than detailed itineraries for the day's activities
- 64% said they spend five minutes or less with a guest
- 94% say their guests ask for maps

Costs – 88% say some or most visitors are concerned about costs

Shopping – 94% say some or most visitors are interested in shopping

Zoos and nature walks:

- 47% say very few visitors are interested in these
- 29% say some visitors are interested

Sporting events – 76% say some or most visitors are interested in these

Architecture tours – 95% say some or most visitors are interested in these

Restaurants, clubs, bars, theater, music, and dancing:

- 100% say most or all visitors are interested in dining and restaurants
- 88% say some or most visitors are interested in nightlife options
- 99% say some or most visitors are interested in blues and jazz
- 89% say some or most visitors are interested in plays, operas, or concerts

Physical activities:

- 47% say very few visitors are interested in these
- 30% say some visitors are interested in these

Transportation:

- 53% say very few visitors are interested in parking, traffic, or driving concerns
- 29% say some visitors are interested in parking, traffic, or driving concerns
- 41% say very few visitors are interested in taking cabs
- 35% say some visitors are interested in taking cabs
- 88% say some or most visitors are interested in walking
- 94% say some or most visitors are interested in taking public transit

100% say some, most, or all visitors are interested in the free trolley

3.4.6. Recommendations

Data gleaned from the respondents indicate items and activities in which the RTIK Project's target audience is particularly interested. These main points provide much useful input as we develop the concept plans, kiosk content, menu choices, and system architecture. The Catalyst Team sees a number of items as highly desirable in order to design kiosk content that will be useful to the target audience.

The following list details the main Catalyst recommendations:

- Have immediate (main menu) focus on inexpensive or free activities
- Provide access to information on the free trolley operated by the city, even though there is no link to the trolley in the RTA Itinerary Planning System
- A section that focuses on activities or events that provide a true "Chicago" experience will likely be of great interest to users
- There should ideally be immediate access to dining and entertainment content
- Provide an easy to understand "How to use Transit" selection on the main menu
- An orientation map of the kiosk area should be immediately available to the user, possibly as part of the first menu screen
- Other maps should also be readily available and easy to find when using the kiosk
- Ideally, maps will be printed to go with itinerary directions
- The dates and times of special events such as Taste of Chicago should be readily available and always up-to-date

3.5. Usability and User Interface Design Guidelines

3.5.1. Overview and Purpose

There are two important beliefs for user acceptance of any system, perceived usefulness and perceived ease of use. The user needs research, outlined in *Section 3.4. User Research*, addresses the RTIK functionality necessary to be perceived by its audience as useful. In this section, we identify usability best practices guidelines that will make the RTIK System easier to use.

3.5.2. Literature Survey

Catalyst surveyed several expert sources to aid in the determination of best practices for kiosk user interface guidelines. These sources included:

- *Evaluation of Rural Kiosks* (Clark and Barlow, 2000) – This paper examines two different rural kiosk installations, one along I-40 in northern Arizona and the other in Branson, MO. These kiosks were part of an FTA-funded project to increase ITS in rural areas.
- *A Review of User-Interface Design Guidelines for Public Information Kiosk Systems* (Maguire, M.C, 1998) – This paper reviews general guidelines on user interface design for self service and public information kiosk systems, based on the author's research and existing literature. The guidelines are divided into: defining user requirements, location and

encouraging use, physical access, introduction and instruction, help, input, output, and structure and navigation.

- *Internet Kiosk Best Practices* (Mendelsohn, Francine, 2003) – The yearly report published by Summit Research Associates. Summit is also a member of the Catalyst Team.
- *Georgia User Acceptance Test Report* (Thornton, Coleen, 1997) – This report details user acceptance of an ATIS Kiosk System that was developed and installed for use in Atlanta, GA during the Summer Olympics held there in 1996.

3.5.3. Findings and Recommendations (Best Practices)

After review of the literature, Catalyst divided the main findings for user interface guidelines into five main categories. These categories are:

- General comments
- Content
- Page layouts
- Speed of delivery
- Navigation

General Comments

The following are general recommendations and basic design tips:

- A kiosk system has to be noticed by passers-by and the purpose of the system must be clear.
- Kiosk placement must be carefully considered to allow for the most visibility and access without blocking pedestrian traffic.
- Measures to prevent freestanding kiosks from toppling over should be taken.
- Kiosks must be designed to cater to those with limited computer/kiosk skills or experience.
- A leaflet or poster is a useful way of stating what the system provides, the main facilities available, and simple step-by-step instructions on how to use it.
- Present a free running demonstration of the kiosk functionality as part of the attract loop.
- Kiosk systems should be as self explanatory as possible.
- Keep all aspects of design as simple as possible. This includes layout, user inputs, navigation, etc.
- Printer reliability is critical. The print function is vital to the usefulness of this system. This function is particularly important when directions are requested.

Content

The following are recommendations for text-based content:

- Cut content button choices down to a maximum of six.
- The number of new information areas provided on each individual screen should not vary by more than 40 percent between each page.

- Presenting the user with an overwhelming number of choices and excessive verbiage is counterproductive.
- A notation on each kiosk content page that indicates the most recent content update for listed events and attractions is a useful addition.

Page Layouts

The following are page layout recommendations:

- Keep the flow of the information and the menus clear and logical.
- The format and structure of information should be similar between each page.
- Since the world is predominantly right-handed and people find it harder to move their hand across their body in order to make a selection from a left-hand column, the menu choices should be on the right.
- Gray out (or even remove) unused buttons; when kiosks have navigation buttons located on the screen, only show those that are "active."
- It is important to create a large sweet spot; an activation region that significantly extends the area/size of the active button.
- Buttons must be accompanied by audio and visual feedback to instantly inform the user that the selection has been recognized and accepted by the kiosk.
- When people access the Internet on the kiosk, it is vital that they know the system is working; give some kind of indication, such as a watch face or hourglass.
- Turn off the cursor; a blinking cursor gives the impression that data can be entered.
- Each screen should also have a clear, short, and distinctive title.
- A good approach is to split the screen up into a number of fixed panel areas containing different types of information (e.g., a 'control panel' containing the main control buttons, a 'menu panel' to display choices, and an 'information panel' to display information from the system).
- The project logo should be present on each content page.

Speed of Delivery

The following are response time recommendations:

- Kiosks must be capable of producing information or services quickly.
- Customers have every right to expect that they will be connected to the desired location just as soon as they touch the screen.
- Deliver pages and new screens of information in five seconds or less. The ideal time is no more than two to three seconds.
- Consider offering images in thumbnail form to decrease download time.

Navigation

The following are navigation recommendations:

- Instructions should be short and presented at each stage of the interaction.
- The system should have a single starting point, which the user can return to when desired.

- The system must be understandable at all stages of the interaction process, and return automatically to its initial state after the user is finished.
- The system should try to show the path followed by the user, or their position in a path.
- Most kiosk users do not like to page down, scroll down, or even use the arrow keys.
- Make sure that the user is provided with visual and auditory feedback whenever a button is touched or some process is initiated (e.g., going to a website, printing directions, etc.).
- Provide a site map and let users know where they are and where they can go.
- Kiosk interfaces need a good search feature, because even the best navigation support will never be enough.
- The help instructions for the kiosk should be easy to find on the user interface, and easy to read and understand once found.
- For help categories with more than several pages, such as directions, it may be useful to have listings of information topics that provide page numbers or links to the specific information.
- If the system prompts the user with "More Time?" while on a help screen and "yes" is touched, the system should return the user to the point that the system was before "More Time?" appeared, rather than return the user to the main menu.

One additional and vitally important guideline to keep in mind is that it is important to consider the needs of kiosk users other than the general public. For example, it may be necessary for a staff member at an information center to use a system on behalf of a member of the public. Such users may need short cuts through the system, or the results of frequent inquiries saved, so that they can call them up easily whenever such inquiries are made. It is also important to consider the needs of the people maintaining the information in the system. If it is not easy to update the information, then the tendency is for it to be left undone, and the information will become outdated.

Following the best practices set forth above and in previous sections of this report will ensure that the RTIK kiosks:

- Avoid mistakes made in other kiosk implementations;
- Are easy-to-use;
- Provide good value to their audience;
- Achieve the project purpose set forth in the beginning: increase the use of public transit for travelers as they journey to Chicago area attractions and events.

Section 4 - Logo

4.1. Overview and Purpose

Catalyst understands that a logo becomes a critical asset for any product. The logo reinforces a mental association between the product and its users whenever they see it. The purpose of the Logo portion of the Feasibility Study is to create a logo that will easily identify the RTIK System.

4.2. Scope and Methodology

The scope of the Logo design component of the feasibility study is to create a name and logo for the RTIK System based on a methodology that takes into account products, services, and major themes of the kiosk stakeholders. Catalyst will develop the final logo utilizing Macromedia Freehand and Adobe Illustrator, which produce vector graphics. Catalyst understands the value of a well-designed logo, which is why we follow a proven, client driven methodology to design logos. Our logo design methodology employs a three-part strategy that includes choosing a name, examining color schemes, and finally designing the logo. The steps are as follows:

- Identify Name
 - Identify naming criteria
 - Design and populate naming matrix
 - Identify name choices
 - Select name
- Review Color Scheme
 - Research color use in design
 - Recommend color scheme
- Design Logo
 - Identify major themes of Chicago and stakeholders
 - Develop concept logos
 - Review concept logos and define final concept
 - Develop final logo options and iterate
 - Select final logo

4.3. RTIK System Name

4.3.1. Name Criteria

In discussions with MPC, Catalyst wanted to specifically define the concepts the RTIK System name should convey. Several points became clear during these discussions. The name needed to accurately indicate the scope and reason for the kiosks as much as possible, and all of the stakeholders should feel ownership in the project name. Whatever name was eventually chosen would also be instrumental in characterizing the logo design. It was highly probable that if the

project team selected a longer name, it would be abbreviated to an acronym. The team decided that if an acronym was used, it should spell a real word that is as applicable to the kiosks as possible.

The discussions also served to clarify some of the kiosk project parameters. The kiosks provide both transit and tourism information, and they are for all types of users, not exclusively tourists. If possible, the name should accurately reflect the nature of the RTIK System and try to include as many potential users of the system as possible. That way more kiosk users are attracted, and therefore, there are more potential public transit users.

The major naming criteria agreed to were as follows:

- Spatial Reference – using a name to convey the entire area covered by the RTIK System, which is the entire Chicago metropolitan area
- User – using a word to convey the users of the system, which includes domestic and international business travelers and tourists, as well as people who live and work in the Chicago metro area, who also visit places of interest in the area for business and tourism purposes
- Descriptor of System Purpose – using a word or words to convey the purpose of the system, which is to provide information on tourism and City events, and directions from the kiosk to those events using public transit

4.3.2. Naming Matrix

Using the naming criteria defined above, the team designed a naming matrix. The naming matrix includes ten categories of word types derived from the naming criteria. Within each category, the team created a non-inclusive list of five to sixteen words. The ten categories are as follows:

- Three categories of “spatial reference” types
 - Specific metropolitan area names
 - General metropolitan area names
 - Other spatial references
- Three descriptors
 - Users
 - Event adjectives
 - Travel terms
- Two delivery related terms that explain what is delivered and the delivery mechanism
 - Data
 - Delivery method
- Two transition categories
 - Action verbs
 - Other – articles, pronouns, prepositions, adverbs

<i>Spatial Reference</i>			<i>Descriptor</i>			<i>Delivery</i>		<i>Transitions</i>	
Specific	General	Other	User	Event	Travel	Data	Method	Verb	Other
Chicago	Metropolitan	Regional	Traveler	Direct	Tour	Information	Kiosk	Touch	To
Chicagoland	City	District	Explorer	Reliable	Trip	Knowledge	Platform	View	The
Great Lakes	Urban	Area	Voyager	Connected	Excursion	Data	Network	See	On
Northeastern Illinois	Municipal	Local	Tourist	Fits Together	Journey	Guide	Guidebook	Sight	In
Midwest	Metropolis	Surrounding	Adventurer	Seamless	Expedition	Guidebook	Net	Get	At
Windy City		Nearby	Visitor	Informed	Destination	Conductor	System	Explore	Around
Greater Chicago		Proximity	Guest	Custom	Odyssey	Tour Guide	Pavilion	Find	By
		Lakefront	Vacationer	Interactive	Voyage	Schedule	Stand	Pulse	Near
			Insider	Real Time	Passage	Map	Terminal	Engage	Above
			Commuter	Information	Flight	Itinerary	Station	Immerse	All
			Client	Planned	Adventure	Info	Vista	Enter	Through
			Customer	Customized		Plan	Planner	Stop	My
			Passenger			Planning	Site	Stage	Our
						Resource	Portal	Choose	Now
							Entrance	Welcome	Next
								Visit	It
									And

The naming matrix was designed to allow anyone using it to quickly see a wide range of potential word choices to aid in compiling possible RTIK System names. The goal was not necessarily to use every word in the list, but to come up with a sizable list to prompt thought.

4.3.3. Name Choices

The next step was to involve the stakeholders in the process. During initial meetings, both with MPC and the KPAC, the team presented all participants with tools designed to make the naming process easier and possibly even fun. At the kickoff meeting, KPAC members were given a copy of the naming matrix and a set of magnets that had all of the words from the naming matrix. The project stakeholders were to review the naming matrix and/or magnets to develop and submit a list of potential RTIK System names to the MPC. The following is the complete list of suggestions:

- Chicagoland TRIPS (Traveler Resource and Itinerary Planning System)
- Destination Chicago
- Destination Chicagoland
- Chicagoland Information Center
- Chicagoland Tourism and Events Travel Center
- Chicagoland Traveler Touch and Go
- Chicagoland Trip Guide
- Chicagoland Traveler Gateway
- Chicagoland Information Terminal
- Chicago Area Traveler Info (CATI)
- Metropolitan Interactive Travel Planner
- Chicagoland Insider's Tour of Transit and Events (CITTE)
- Chicagoland Regional Traveler's Terminal
- Chicagoland Regional Traveler's Information
- Chicagoland Travel Terminal
- Destination Chicago: Tourism and Travel Information
- Destination Chicagoland: Tourism and Transit Information
- My Chicagoland Adventure
- Chicagoland Explorer
- ChicaGO
- Touch-N-Go
- Touch N' Go Chicagoland
- Chicago Explorer System
- Destination Data System
- Chicago Interactive Travel Kiosk
- Chicago Travel Data Terminal
- Chicago Adventurers Travel Kiosk
- Chicago Travel Kiosk
- Chicago Explorer Kiosk
- Chicago Explorer Station
- Chicago Explorer Terminal
- Chicagoland Interactive Tourist Guidebook
- Urban Explorer Interactive Kiosk
- Chicagoland Interactive Traveler Information System
- Destination Chicagoland: Traveler Info Gateway
- Voyager Chicago: Real Time Information Guide

- Chicagoland Insider's Guide to Transit and Events (CIGTE)
- Travel Expedition Guide
- Travel Data Terminal
- Interactive Excursion Guide
- Traveler Excursion Guide
- Regional Traveler Information System

4.3.4. Name Selection

Originally, Catalyst and MPC believed that a shorter (1 to 3 words) name might be "catchy," and thus likely to stay in people's memories after seeing or hearing about the kiosk project. However, the purpose and underlying function of the name is to accurately indicate the scope and reason for the kiosk. These factors made it apparent that the name might need to be longer to convey all of the functionality of the RTIK System. It then followed that many of the names on the original list did not successfully communicate the intentions of the RTIK System. For example, one of the earliest names used by Catalyst in the proposal as a placeholder in mockup screen designs was Kiosk Chicago. This name was seen as simple, straightforward, and memorable, but ultimately it was also recognized as the type of name whose connotations were simply too vague. The name mentioned Chicago, but fails to indicate the intended use or purpose of the kiosk.

Longer names inevitably lead to the use of acronyms. The project team felt that any acronym used in the kiosk project name had to be a real word that is relevant to the intended use or purpose of the RTIK System. There was a strong desire to avoid forced, meaningless acronyms.

Using the list of names, the following were identified:

- CATI (Chicago Area Traveler Info)
- Interactive Excursion Guide
- Chicagoland TRIPS (Traveler Resource and Itinerary Planning System)
- Touch-n-Go Chicagoland
- Destination Chicagoland: Traveler Information System

The final five were put to a vote at the KPAC meeting on April 30, 2003. The voting was scored using a five-point scale, with one as the lowest score and five as the highest. Voters ranked all five, with no duplicate scores allowed. The winner was Chicagoland TRIPS (Traveler Resource and Itinerary Planning System). The following table highlights the results of the vote.

<i>Rank</i>	<i>Name</i>	<i>Total Score</i>	<i>Avg. Score</i>
1	Chicagoland TRIPS	58	4.5
2	Touch-n-Go Chicagoland	40	3.0
3	Destination Chicagoland: Traveler Information System	38	2.9
4	CATI (Chicago Area Traveler Info)	34	2.6
5	Interactive Excursion Guide	25	1.9

Chicagoland TRIPS fits the desired results for several reasons. First, Chicagoland implies the entire metropolitan region, not just the city limits. The kiosks provide regional tourism and transit information, so using the term Chicagoland is accurate. Second, users are not just one particular group, such as tourists or city commuters, so "traveler" is a good adjective to describe all of the targeted audiences for the RTIK System. Next, the kiosks are designed to provide both information on events and locations, and travel plans for getting to these destinations. The phrase "Resource

and Itinerary Planning System” precisely conveys this message. And finally, TRIPS is an acronym that all stakeholders agreed expresses a major part of the kiosk project’s functionality—taking a trip from one place to another.

4.4. Color Scheme

4.4.1. Introduction

There is an extensive amount of material available on color theory and its use in design. Most of this data is for website creation, but much holds true for kiosk design as well, especially when it is understood that Chicagoland TRIPS will be deployed on web-enabled kiosks and as an Internet website. The Catalyst team explored some color theory fundamentals as part of the logo development process. We briefly examined overall symbolism, perception, and the use and theory of color in design work and documented our research by listing out various colors along with their perceptions and use. Then we recommended a set of colors to use for the Chicagoland TRIPS logo.

4.4.2. General Use of Color in Design

Color is non-verbal communication. Colors have symbolism and meanings that can create physical reactions (e.g., red has been shown to raise blood pressure) or at other times cultural reactions (e.g., in the U.S. white is used for weddings, but in some Eastern cultures, white is the color for mourning and funerals). The following is a brief summary on the symbolism of different colors:

<i>Color</i>	<i>Notes</i>
Red	Red can have a physical effect, increasing respiration and raising blood pressure. Use red to grab attention.
Blue	Blue is cool and calming. Blue is considered a 'corporate' color; associated with intelligence, stability, unity, and conservatism.
Yellow	Yellow is a warm color. Glittery gold denotes money, while an orange gold can suggest more emotional riches from family and friends.
Green	Green is abundant in nature and signifies growth, renewal, health, and environment. It is important to remember that for all the positive attributes of green there are many strong negatives.
Purple	Purple is associated with both nobility and spirituality. Purple suggests something unique, but with an air of mystery.
Brown	Pure deep brown conveys a wholesome earthiness, while brown's darkest and lightest shades are rich, refined, and elegant. Some positive attributes of brown are simplicity, friendliness, and dependability.
Gray	Gray is a neutral, balanced color. Gray is cool and conservative and seldom evokes strong emotion. Dark gray carries some of the strength and mystery of black, without its negative attributes.
Silver	Silver denotes riches, just as gold does. Silver is sleek and elegant.
Black	Considered the negation of color, black is conservative, and goes well with almost any light or bright color. It has conflicting connotations. It can be serious and conventional, or sexy and sophisticated.
White	White is cleanliness and innocence. White goes well with almost any color, especially dark colors such as red, blue, or purple.

<i>Color</i>	<i>Notes</i>
Orange	Orange is a vibrant and warm. It denotes energy, warmth, and the sun. Orange has less aggression than red. If you want to get noticed without screaming, consider orange. Orange is mentally stimulating and sociable. Use it to get people thinking or talking.

Human perceptions of colors may change due to other surrounding colors, the proximity of the colors to each other, and the amount of light. Light colors appear lighter when they are adjacent to dark colors. Two similar colors side by side may appear distinct, but placed far apart they start to look the same.

One important design concept is to not rely on color as the core of the logo. There are six basic and equally important elements that make up effective design: line, shape, value (lightness, darkness, shading), blank space, texture/pattern, and color. One excellent way to see if a layout works well is to remove the color altogether. If it looks good in black and white, then it is probably a good design that will only improve with the use of color. The goal of the selected colors will be to draw the eye toward the most important piece of the logo.

4.4.3. Color Recommendations

Color speaks to the subconscious, evokes meanings, feelings and moods, and has the ability to influence behavior. The style and the feel the logo design should convey and the characteristics of the Chicagoland TRIPS target audience must be considered as colors are chosen for the logo.

The logo should be eye-catching, welcoming, friendly, and have appeal to a broad spectrum of potential users. Since the target audience does range across a wide variety of social, economic, and cultural values, it is important to stay on the conservative side with the color choices. However, even though this will mean that the colors need to be somewhat on the neutral side, they should still be friendly and sociable.

Weighing all of these factors, Catalyst recommends the use of the following colors for the Chicagoland TRIPS logo design:

- Blue for main logo components
- Gray or charcoal gray, also for main components and as a main contrasting color
- White to fill in and possibly soften some areas
- Orange or golden yellow for highlighting or contrast

4.5. Logo Design

4.5.1. Introduction

By using the selected name, Chicagoland TRIPS, and the recommended color scheme, Catalyst used the following steps to design the TRIPS logo:

- Identify major themes
- Develop concept logos
- Review concept logos and define final concept
- Develop final logo options and iterate

- Select final logo

Catalyst used Macromedia Freehand and Adobe Illustrator to create the final logo, which produce vector graphics rather than raster graphics. Raster graphics look fine on a computer screen, but when they are produced on a high-resolution printer or are blown up to a large scale, they appear blotchy or pixilated. By producing vector graphics, these problems are avoided and the images can be converted to any other format, including raster formats such as TIFF, GIF, and JPEG.

4.5.2. Major Themes

The Catalyst team identified several potential themes that the logo could capture. The logo needs to have elements that show that the visitor is here in the Chicago area, such as the Chicago skyline, depictions of signature Chicago attractions, or a map of the area. The logo should have elements that indicate travel or navigation, such as trains, buses, globes, or maps. It might also include motion indicators such as lines and arrows. The following table highlights theme categories and theme items within each category.

<i>Travel</i>	<i>Attractions</i>	<i>Navigation</i>	<i>Motion</i>
<ul style="list-style-type: none"> • CTA Bus • CTA "El" Train • Metra Train • Trolley • Train Tracks • Boat 	<ul style="list-style-type: none"> • Skyline • Lake Michigan • Sue • Navy Pier Ferris Wheel • Art Institute Lions • Chicago Cubs/Sox • Chicago Bears • Chicago Bulls • Chicago Blackhawks 	<ul style="list-style-type: none"> • Globe • Map • Area Map 	<ul style="list-style-type: none"> • Lines • Arrows • Wind

4.5.3. Concept Logos

The following are the original thirteen concept logos the Catalyst design team created:







4.5.4. Final Logo

MPC reviewed the concept logos, and specified several iterative design changes that included the introduction of public transit elements into the design graphics. A new series of logo concepts were developed, as shown below:



With input from KPAC, the final logo was chosen and is shown below. The logo will be formatted with slight differences, such as size or text positioning, depending on where it is placed; for example in brochures, on the kiosk touchscreen pages, or on the kiosk enclosures.



Section 5 - Site Selection

5.1. Overview and Purpose

The purpose of the Site Selection component of the Feasibility Study is to provide recommended locations for the five pilot kiosks. The goals and objectives of the site selection study are to:

- Identify General Site Selection Criteria – This is a set of general criteria to determine the overall site location of the five kiosks (e.g., Navy Pier).
- Identify Specific Kiosk Location Criteria – This is a specific set of criteria to determine the actual physical location of the kiosk within the selected site (e.g., next to the information desk at Navy Pier).
- Identify Categories of Site Locations – Since this is a pilot study, MPC and the KPAC desire to place the five kiosks in a variety of locations to help with the evaluation of the kiosks on the merits of different types of site locations. This will aid in future decision making for a potential large-scale rollout of kiosks after the completion of the pilot study.

For the pilot project, the KPAC decided to focus on downtown Chicago locations, due to the density and numbers of potential transit users. Downtown Chicago locations also have the greatest access to multiple public transit options. Finally, using downtown locations will reduce the cost to maintain the kiosks, which is a major concern identified in the benchmarking study.

5.2. Scope and Methodology

The scope of the Site Location Study is to perform the following:

- Develop criteria to determine the location of the five kiosks
- Present location rankings to the KPAC
- Publish the final locations, ranking, and decision criteria in the feasibility report.

The following represents the methodology that we followed to complete the Site Selection Study:

- Define the purpose of the site selection study
- Develop a set of general and specific location criteria
- Identify categories of locations and several potential sites within each category
- Collect information on each potential site and analyze the data
- Provide recommendations

5.3. Findings and Analysis

The table below represents five categories of potential sites with anywhere from four to thirteen specific locations within each category. Data in the table was collected from the potential site's web pages, managers, or employees. The following is a list of general site location criteria and their definitions.

- **Number of Visitors** – This is an estimate of the number of people who visit the site location on an annual basis. In some cases it refers to other statistics (see note at bottom of table). This is an important criterion, because the more people who visit the location, the greater the potential for the use of public transit to and from the location.
- **Proximity to Public Transit** – This category is comprised of the number of transit options (CTA Bus, CTA Rail, and Metra) to and from the site location within walking distance (4 city blocks – ½ mile). This category is important, because the overall goal of the RTIK project is to increase the use of public transit and people will be less likely to use public transit to and from the site location if there are no transit options within walking distance to the location.
- **Origination and Destination** – This category identifies whether the site is typically an origination point for visitors, destination point, or both. Ideally a site would be both an origination point and a destination point. For example, a visitor to the Field Museum will typically go to the museum during the day, and after walking a considerable distance looking at exhibits, will likely want to go to a restaurant to eat after they leave. This is important, because more visitors to a site will use the kiosk if they are trying to find another destination from that site.
- **Steady Flow of Visitors** – This is a yes/no category that identifies whether or not the site location has a steady flow of visitors to the location or whether it is an event-based site in which the majority of the site’s visitors go to and from the location at a set time. This is important because a site with a steady flow of traffic is more conducive to kiosk use throughout the duration of time that the location is open. An event based site will have the majority of traffic coming at a set time (right before the event) and leaving at a set time (right after the event), which will minimize the potential time in which people can use the kiosks, because people will not want to wait in line to use a kiosk.
- **Open Year Round** – This is a yes/no category that indicates whether or not the site is open year round. A site is more likely to attract more kiosk users if it is open year round.
- **Hours of Operation** – This category lists the number of hours per day that a site is open to the visiting public. A site is more likely to attract more kiosk users if the site is open more hours per day than fewer hours per day.

Sites	Annual Visitors*	Proximity to Public Transit**			Orig. & Dest.	Steady Flow of Visitors	Open Year Round	Hours of Operation
		CTA Rail	CTA Bus	Metra				
Hotels and Shopping Areas								
Palmer House Hilton	2,019	6	>3	2	O&D	Y	Y	24
Hyatt Regency	1,639	6	>3	1	O&D	Y	Y	24
Chicago Hilton and Towers	1,543	6	>3	1	O&D	Y	Y	24
Sheraton Hotel	1,594	6	>3	1	O&D	Y	Y	24
Water Tower Place	20,000,000	1	>3	0	O&D	Y	Y	9
Chicago Youth Hostel	600	6	>3	2	O&D	Y	Y	24
Attractions								
Navy Pier	9,100,000	0	>3	1	O&D	Y	Y	9-14

Sites	Annual Visitors*	Proximity to Public Transit**			Orig. & Dest.	Steady Flow of Visitors	Open Year Round	Hours of Operation
		CTA Rail	CTA Bus	Metra				
Shedd Aquarium	1,720,174	0	>3	1	O&D	Y	Y	9-13
Field Museum	2,363,752	0	>3	1	O&D	Y	Y	8
Art Institute	1,543,915	6	>3	2	D	Y	Y	6-10
Museum of Science and Industry	2,187,475	0	>3	2	D	Y	Y	5-8
Lincoln Park Zoo	3,000,000	0	>3	0	O&D	Y	Y	9-10
Sears Tower	1,500,000	5	>3	10	D	Y	Y	10-12
DuSable Museum	147,453	1	>3	0	D	Y	Y	5-7
United Center	1,590,205	2	>3	0	D	N	N	Varies
Wrigley Field	2,734,511	3	>3	0	D	N	N	Varies
McCormick Place	---	0	>3	2	D	N	N	Varies
Merchandise Mart	---	6	>3	3	D	N	Y	Varies
Public Buildings								
Water Tower Visitor's Center	233,806	1	>3	0	O&D	Y	Y	12
Chicago Cultural Center	201,745	6	>3	1	O&D	Y	Y	8
City Hall	---	6	>3	12	O	Y	Y	7
Washington Library	---	6	>3	2	D	Y	Y	8-10
Transit Stations								
Union Station	18,200,000	4	>3	6	O&D	Y	Y	20
Ogilvie Station	13,400,000	5	>3	3	O&D	Y	Y	20
Randolph Station	6,500,000	6	>3	2	O&D	Y	Y	20
O'Hare Airport	66,000,000	1	>3	0	O&D	Y	Y	24
Midway Airport	13,000,000	1	>3	0	O&D	Y	Y	24
Festivals								
Taste of Chicago	3,600,000	6	>3	3	D	Y	N	Varies
Air and Water Show	2,200,000	Varies	>3	Varies	D	Y	N	Varies
Blues Festival	585,000	6	>3	3	D	Y	N	Varies
Jazz Festival	310,000	6	>3	3	D	Y	N	Varies
Venetian Night	550,000	Varies	>3	Varies	D	Y	N	Varies

* May also refer to number of rooms (for hotels and hostel), annual passenger trips (for airports), or annual boarding passengers (for train stations).

**Number of stations within 1/2 mile of location.

The following is a list of specific site selection criteria to be used to determine the actual physical location of a kiosk within a selected site.

- High Foot Traffic – The kiosk should be located where multiple foot traffic paths intersect or in a main lobby area where most visitors will walk within site distance of the kiosk during their visit to the site. Locating the kiosk in a place where more people walk by and may notice the kiosk, will increase kiosk use.
- Secure Location – The kiosk should be located near a place with a constant human presence to minimize the potential for vandalism to the kiosk and ideally to have a person whom can

answer general questions about kiosk use. Potential locations could be near a security or information desk or near an obvious place where there is a surveillance camera.

- Broadband Connection – The kiosk should be located near a place where it can hook into an existing local area network (LAN) connection, or where it can get a clear signal in cases where a wireless modem is used.
- Electricity – The kiosk should be located near a power source.
- Ease of Installation and Maintenance – The kiosk should be located in a place that will simplify installation and maintenance of the kiosk.
- Proximity to Other Information Sources – Ideally, the kiosk will be located in a place where site visitors go to find information. This will increase the use of the kiosk.

5.4. Recommendations

Based on the results in the table above, Catalyst recommends that MPC and the KPAC select five kiosk site locations based on the recommended site locations below. Each location also includes the category in parentheses behind its name. Note: site attendance statistics listed below were gathered from the City of Chicago website and from the sites themselves.

- Navy Pier (Attractions) – with 9.1 million visitors it has the most visitors of any attraction by three fold, it is both an origination and destination, there is a steady flow of foot traffic throughout the day and night, it's open year round, and open 9 to 14 hours per day.
- Shedd Aquarium (Attractions) – 1.72 million visitors per year, part of museum campus, which gets a combined visitor flow of 4.8 million. Shedd is in the center of the three attractions on the campus, which makes it convenient to all the visitors.
- Water Tower Visitor's Center (Public Buildings) – 233,000 visitors a year, all expressly looking for information on things to do in Chicago and how to get there.
- Water Tower Place (Shopping area) – 20 million shoppers a year.
- Palmer House Hilton (Hotel) – Second highest number of rooms of all City hotels, extremely convenient to public transit options.
- Union Station (Transit) – Amtrak terminal (2,054,293 annual passenger trips), highest number of Metra annual passenger boardings of any city station, highest number of train lines (6), terminal for the busiest commuter rail line (BNSF). Ogilvie Station is also an attractive choice because all riders pass through one entrance area to the trains, but the superiority of numbers for Union Station establish it as the top choice.
- Portable (Festivals/Event) – The top nine Grant Park festivals bring in 8.5 million attendees per year. This does not even take into consideration other events such as the Auto Show at McCormick Place or events at the Merchandise Mart. A mobile kiosk would provide an excellent marketing opportunity for the project, and would be able to remain in almost continuous operation for a large part of the year.

While the above list includes the top choices for the pilot kiosks based on the identified criteria, the second and third choices within each category are also strong site locations. If there are problems while negotiating with the five selected locations, the project team can always negotiate with one or more of these other locations. As part of the negotiation process with the final five selected site locations, the project team will work with the site location coordinator to determine

the actual physical location of the kiosk within the site location. The project team will use the specific location criteria defined in the prior section to help determine this precise location.

Although this pilot project calls for the deployment of five kiosks, MPC and the KPAC are not limited to only deploying Chicagoland TRIPS to the five kiosks that will be purchased and deployed as part of this project. The Chicagoland TRIPS solution is a web-based product that can be easily deployed on other purchased or pre-owned kiosks.

References

- About.com website. <http://desktoppub.about.com/library/weekly/aa103000a.htm>, 2003.
- Anderberg, Stephanie. Personal conversation, April 2003.
- Applegate, Thomas. Personal conversation, March 2003.
- Bamford, Rob. Personal conversation, April 2003.
- Beyer, Hugh, and Karen Holtzblatt. *Contextual Design: Defining Customer-Centered Systems*, San Francisco: Morgan Kaufman, 1998.
- Casey, Labell, Moniz, Royal, et al. *APTS: The State of the Art Update 2000*, Cambridge: Volpe National Transportation Systems Center, 2000.
- City of Chicago website. <http://egov.cityofchicago.org/city/webportal/home.do>, 2003.
- Clark, Hugh, and Selena Barlow. *Traveler Information Services in Rural tourism Areas*, Washington, DC: US Department of Transportation ITS Joint Program Office, 2000.
- Frane, Jeff. Personal conversation, April 2003.
- Grokdotcom.com website. <http://desktoppub.about.com/library/weekly/aa103000a.htm>, 2003.
- Hill, Eric. *Review and Assessment of Information Kiosks*, Washington, DC: US Department of Transportation, Federal Transit Administration, 1997.
- Infopolis 2. Needs of Travellers: an Analysis Based on the Study of their Tasks and Activities, Aix-en-Provence: CETE méditerranée, 2000.
- _____. *Review of Current Passenger Information Systems*, Aix-en-Provence: CETE méditerranée, 1998.
- Jenq, J., and Faisal Saleem. *AZTech's Experience with Traveler Information Kiosks*, Paper submitted to 2002 ITS America Annual Conference, 2002.
- Lappin, Jane. *What do ATIS Customers Want?*, Cambridge: Volpe National Transportation Systems Center, 2000.
- _____. *What Have We Learned About Advanced Traveler Information Systems and Customer Satisfaction?*, Cambridge: Volpe National Transportation Systems Center, 2000.
- _____. *Who are ATIS Customers?*, Cambridge: Volpe National Transportation Systems Center, 2000.
- Lemon, Delando. Personal conversation, March 2003.
- Maguire, M.C. *A Review of User-Interface Design Guidelines for Public information Kiosk Systems*, Loughborough: HUSAT Research Institute, 1998.
- Mendelsohn, Francine. *Internet Kiosk Best Practices*, Rockville, MD: Summit Research Associates, 2003.

Ramfos, Nicholas. Integrating Kiosks into a TDM Program: InfoExpress Kiosk Project Implementation and Results, Washington, DC: Metropolitan Council of Washington Governments, 1999.

_____. Personal conversation, March 2003.

Regional Transit Authority website. <http://www.rtachicago.com/>, 2003.

Research By Design. *TRIMET Trip Planning Kiosk Evaluation*, Portland, OR: Research by Design, 2002.

Saleem, Faisal. Personal conversation, April 2003.

Thornton, Coleen. *Georgia User Acceptance Test Report*, Knoxville, TN: Concord Associates, 1997.

Turner, Ken. Personal conversation, March 2003.

US Bureau of the Census website. <http://www.census.gov/>, 2003.

Wozniak, MaryAnn. Personal conversation, April 2003.

Yujuico, Carolina. Personal conversation, March 2003.

Appendix A – Transit Related Kiosk Projects

Below is the information on transit-related kiosk projects from the Volpe National Transportation Research Center.

KIOSKS			
Currently Use		Plan to Use	
State	AgencyName – Other than 78 Largest	State	AgencyName – Other than 78 Largest
AL	Huntsville Transit	AK	Anchorage Public Transportation (People Mover)
AL	Lee-Russell Council of Governments	AK	MACS and VANTRAN
CA	Benicia Transit	AL	Metro Transit System
CA	Camarillo Area Transit	AL	Montgomery Area Transit System
CA	Foothill Transit	AR	Intra City Transit
CA	Merced County Transit (The Bus)	CA	Mendocino Transit Authority
CA	Omnitrans	CA	Modesto Area Express
CA	Redding Area Bus Authority	CA	Petaluma Transit
CA	Santa Barbara Metropolitan Transit District	CA	Riverside Transit Agency
CA	Stanislaus Regional Transit	CA	Roseville Transit
CA	Thousand Oaks Transit	CA	San Joaquin Regional Transit District
CA	Yolo County Transportation District (Yolobus)	CA	Santa Clarita Transit
CO	City of Pueblo Transit	CA	Vacaville City Coach
CO	Transfort Dial-A-Ride	CO	Eagle County Regional Transportation Authority
CT	Northeast Transportation Company	CO	Springs Transit
DE	Delaware Transit Corporation (DART First State)	CT	Greater Bridgeport Transit Authority
FL	Lee County Transit	CT	Housatonic Area Regional Transit

FL	Manatee County Area Transit	CT	Milford Transit District
FL	Regional Transit System	CT	Southeast Area Transit District
GA	Chatham Area Transit Authority	FL	Indian River Council on Aging
IA	Sioux City Transit System	FL	Okaloosa County Transit
IL	Rock Island County Mass Transit (METROLINK)	FL	Volusia County Transportation Authority (VOTRAN)
IN	South Bend Public Transportation	GA	Athens Transit System
MA	Cape Ann Transportation Authority	GA	Cobb Community Transit
MA	Cape Cod Regional Transit Authority	GA	METRA Transit System
MA	Worcester Regional Transit Authority	GA	University of Georgia (Campus Transit)
MD	Washington County Transportation Department	IA	Dubuque-Keyline Transit
ME	Greater Portland Transit District	IA	Siouxland Regional Transit System
ME	Monhegan Boat Line	IA	University of Iowa, CAMBUS
MI	Blue Water Area Transit	ID	Pocatello Regional Transit
MN	Duluth Transit Authority	IL	Champaign-Urbana Mass Transit District
MS	Coast Transit Authority	IL	Greater Peoria Transit (CityLink)
NC	Asheville Transit System	IL	Rockford Mass Transit District
NH	Nashua Transit System (Citybus)	IL	Springfield Mass Transit District
NM	Santa Fe Trails Transit System	IN	City Bus
NV	ATC/VanCom Paratransit	IN	Fort Wayne Public Transportation Corporation (Citilink)
NY	Dutchess County Mass Transportation Division	IN	Kokomo/Howard County Governmental Coordinating Council
NY	Greater Glens Falls Transit System	IN	Muncie Indiana Transit System
NY	Newburgh-Beacon Bus Corporation	KS	Johnson County Transit
OH	Middletown Transit	KY	LEXTRAN
OR	Salem Area Mass Transit District	KY	Transit Authority of Northern Kentucky

PA	Altoona Metro Transit (AMTRAN)	LA	CityBus of Greater Lafayette
PA	Berks Area Reading Transportation Authority	LA	Lake Charles Transit System
PA	Cambria County Transit Authority	MA	Berkshire Regional Transit Authority
PA	Centre Area Transportation Authority	MD	Annapolis Transit
PA	Mid Mon Valley Transit Authority	ME	Casco Bay Island Transit District
PA	Red Rose Transit Authority	ME	South Portland Bus Service
PA	Williamsport Bureau of Transportation (City Bus)	MI	Battle Creek Transit
SC	Charleston Area Regional Transportation Authority	MI	Jackson Transportation Authority
SC	Columbia Area Transit System	MI	Kalamazoo Metro Transit System
SC	Waccamaw Regional Transportation Authority (Lymo)	MI	Mass Transportation Authority
SD	Rapid Transit System	MI	Saginaw Transit Authority Regional Services
TN	Chattanooga Area Regional Transit Authority	MN	Rochester City Lines
TX	Texoma Area Paratransit System	MS	City of Jackson Transit System (Jatran)
VT	Addison County Transit Resources	NC	Fayetteville Area System of Transit
VT	Brattleboro BeeLine	NC	Greenville Area Transit
VT	Fort Ticonderoga Ferry	ND	Bis-Man Transit Board
VT	Green Mountain Express	ND	Grand Forks City Bus
VT	Lake Champlain Ferries	NH	Concord Area Transit
WA	Ben Franklin Transit	NY	Chemung County Transportation Services Transit System
WA	Community Urban Bus Service	NY	Tompkins Consolidated Area Transit
WA	CTRAN	OH	Stark Area Regional Transit Authority
WA	Spokane Transit Authority	OR	Lane Transit District
WA	Yakima Transit	OR	Rogue Valley Transportation District
WY	Casper Area Transportation Coalition	PA	Area Transportation Authority of N. Central

			Pennsylvania
		PA	York County Transportation Authority (Rabbit Transit)
		SC	Santee Wateree Regional Transportation Authority
		TX	Brownsville Urban System
		TX	Regional Transportation Authority
		UT	Logan Transit District
		VA	Blacksburg Transit
		VA	Greater Lynchburg Transit Company
		VA	Loudoun County Commuter Bus Service
		VA	Williamsburg Area Transport
		VT	Chittenden County Transportation Authority
		WA	Everett Transit
		WA	Whatcom Transportation Authority
		WI	Belle Urban System
		WI	Eau Claire Transit
		WI	LaCrosse Municipal Transit Utility
		WI	Madison Metro
		WV	Mid-Ohio Valley Transit Authority
		WV	Tri-State Transit Authority
State	AgencyName – 78 Largest	State	AgencyName - 78 Largest
AL	Birmingham-Jefferson County Transit Authority	AZ	Glendale Dial-A-Ride
AR	Central Arkansas Transit Authority	AZ	Mesa City
AZ	Sun Tran	CA	Culver City Municipal Bus Lines
AZ	Phoenix Transit System	CA	Long Beach Public Transportation Company

CA	Antelope Valley Transit Authority	CA	Montebello Bus Lines
CA	San Diego Trolley Incorporated	CA	Monterey-Salinas Transit
CA	Corona City Dial-A-Ride	CA	Orange County Transportation Authority
CA	Norwalk Transit System	CA	San Diego Transit Corporation
CA	Commerce City Municipal Buslines	CA	Torrance City Transit System
CA	Southern California Regional Rail Authority	CT	Greater New Haven Transit District
CA	Sonoma County Transit	CT	Middletown Transit District
CA	Livermore/Amador Valley Transit	CT	Norwalk Transit District/Westport Transit Lines(CT)
CA	Laguna Beach Municipal Transit Lines	FL	Broward County Mass Transit
CA	Sacramento Regional Transit District (RT)	FL	Miami-Dade Transit Authority
CA	Fairfield City, Fairfield Transit System	FL	Palm Tran operated by Florida Transit Management Incorporated
CA	Santa Monica Municipal Bus Lines	HI	Oahu Transit Services (The Bus)
CO	Regional Transportation District (RTD)	IL	PACE
CT	Connecticut Transit	IN	Indianapolis Public Transportation
CT	Connecticut Transit-Stamford(CT)	KS	Wichita Metropolitan Transit Authority
CT	Connecticut Transit-New Haven	KY	Transit Authority of River City (TARC)
CT	Connecticut Department of Transportation(CT)	LA	Capital Transportation Corporation
DC	Montgomery County - Ride On	LA	Regional Transit Authority
DC	Fairfax Connector Bus System	LA	St. Bernard Parish Government
FL	Hillsborough Area Regional Transit Authority	MA	Pioneer Valley Transit Authority
FL	Pasco County Public Transportation (PCPT)	MD	Howard Area Transit Service (HATS)
FL	Tri County Commuter Rail Authority	MI	Ann Arbor Transportation Authority
GA	Metropolitan Atlanta Rapid Transit Authority (MARTA)	MN	Metro Transit
IL	Chicago Transit Authority (CTA)	MO	Bi-State Development Agency

IL	Northeast Illinois Regional Commuter RR Corporation	NC	Chapel Hill Transit
IN	Hammond Transit System	NC	Charlotte Area Transit System (CATS) (Charlotte DOT)
LA	Westside Transit Lines	NC	Winston-Salem Transit Authority
MD	Mass Transit Administration (MTA)	NE	Omaha Transit Authority
MI	Grand Rapids Area Transit Authority	NM	Sun Tran
MO	Kansas City Area Transit Authority	NV	Regional Transportation Commission/Citizens Area Transit
NC	Durham Area Transit	NY	Capital District Transit Authority (CDTA)
NY	Clarkstown Mini-Trans	NY	Long Island Rail Road
NY	Long Beach City	NY	MTA Long Island Bus
NY	New York City Transit Authority (MTA)	NY	Suffolk County
NY	Port Authority Trans-Hudson (PATH)	NY	Westchester County
NY	Central New York Regional Transit Authority	OH	Greater Cleveland Regional Transit
OH	COTA	OH	Metro Regional Transit Authority
OH	Campus Bus Service	OH	Miami Valley Regional Transit
OR	Tri-Met	OH	Southwest Ohio Regional Transit Authority (SORTA)
PA	Beaver County Transit Authority	OH	Toledo Area Regional Transit Authority (TARTA)
PA	Southeastern Pennsylvania Transportation Authority (SEPTA)	OK	Central Oklahoma Transit
PA	Cumberland-Dauphin-Harrisburg	OR	Clark County Public Transportation Benefit Area Authority
PA	Luzerne County Transportation	PA	Lackawanna County Transit System (COLTS)
PA	Port Authority of Allegheny County	PA	Lehigh and Northampton
RI	Greater Attleboro-Taunton Regional Transit Authority (GATRA)	TN	Knoxville Transportation Authority
RI	Rhode Island Public Transit Authority	TX	Austin Capital Metropolitan Transportation Authority

SC	Charleston Transit Administration	TX	Dallas Area Rapid Transit (DART)
SC	Greenville Transit Authority (GTA)	TX	Denton City Manager
TN	Metropolitan Transit Authority	TX	Fort Worth Transportation Authority (The T)
TX	Metro Transit Authority	TX	Sun Metro-EI Paso City
WA	Everett Transit	VA	Petersburg Area Transit
WA	King County Metro	WA	Pierce Transit
WA	Kitsap Transit	WA	Sound Transit
WA	Seattle Monorail Transit	WI	Belle Urban System-Racine
		WI	Milwaukee County Transit System
		WI	Waukesha City Metro Transit

Appendix B – Benchmarking Questionnaire

The following is a copy of the survey delivered to kiosk projects in New York, Washington, Portland, Cambridge, and Arizona.

General Preliminary Questions

1. When did you start the kiosk program? _____
2. How many kiosks do you currently have in operation? _____
3. Are your kiosks multi-lingual in content? Y___ N___

User Needs Questions

1. Did you do benchmarking studies? Y___ N___
 - a. If yes, how was it helpful? _____
2. Did you do best practices studies? Y___ N___
 - a. If yes, how was it helpful? _____
3. Did you do a user needs analysis studies? Y___ N___
 - a. If yes, how was it helpful? _____

Site Selection Questions

1. Did you use specific criteria to select sites? Y___ N___
 - a. If yes, what criteria did you use to select sites? _____
2. What site attributes lowered the probability of selection? _____
3. What site attributes increased the probability of selection? _____
4. What would you do differently in the site selection process? _____

Concept plan and functional specifications Questions:

1. What sort of data? Tourism, transit, or a combination? (Circle answer)

IF only tourism information:

2. What methods are employed to allow a user to select an attraction? (keyboard entry, drill down through categories and subcategories, etc) _____
3. How many attractions do you put on a single screen? _____
4. Do you rank attractions in any way? Y___ N___
 - a. If yes, how? _____
5. Where do you get your attractions information? _____
6. How is its freshness and accuracy maintained? _____
7. What would you do differently? _____

IF only transit information:

8. How do you provide schedule information (including scheduled runs and route maps)?

9. What format is the map and schedule data presented in (e.g. PDF)? _____
10. Do you provide transit trip planning? Y___ N___
 - a. If yes, how do you do this? _____
11. Did you use commercial software (which one) or was your application developed internally?
(Circle answer)
12. What options are offered to the user besides origin, destination, date, and time? _____
13. Does your trip planner include a pull down menu of landmarks to be used for an origin or destination? Y___ N___
 - a. If yes, what categories does it include? _____
14. Have you geocoded them in the system or is the street address fed to the planner instead?
Y___ N___
15. Have you encountered issues in implementing and maintaining the application and underlying information? Y___ N___
 - a. If yes, how have you addressed them? _____
16. How many staff are assigned to data update, cleaning, and problem solving? _____
17. Do you provide composite journey maps for transit trips? Y___ N___
 - a. If yes, are you getting them from a commercial mapping source or are they internally developed and processed? (Circle answer)
18. Do you provide fare information on the kiosk? Y___ N___
 - a. If yes, is it provided for trip plans as well? Y___ N___
19. Do you provide real-time information on transit service at the kiosk? Y___ N___
 - a. If yes, what is the source for this information – the dispatch system, an add-on application like NextBus, or manual entry? (Circle answer)
20. Have you had problems with including this info on the kiosk? Y___ N___
 - a. If yes, how have you addressed them? _____
21. Do your kiosks or web apps include “How to use transit” content? Y___ N___
 - a. If yes, what is included? _____
22. Did you design the content or commission its design? (Circle answer)
23. What kind of feedback have you gotten from the public about this feature? _____
24. Does your kiosk dispense farecards for the local (your) transit system? Y___ N___

- a. If yes, are they precoded, or does the kiosk include fare card coding/add value capabilities?
(Circle answer)

25. What issues have arisen with the dispensing of farecards via the kiosk? _____

26. What would you do differently? _____

For integrated tourism-transit attraction selection and way finding (remember that we will be asking all the above questions as well):

27. What specific changes did you have to make to your trip planning software to accommodate this feature? _____

28. How often is it used? _____

29. Has it been well received? Y___ N___

30. Are there any problems or other issues with the feature? _____

31. What would you do differently? _____

For all types of information kiosks:

32. Does your kiosk provide a general orientation map to the surrounding area? Y___ N___

a. If yes, to what initial scale? _____

33. Can the user zoom in/out? Y___ N___

34. Are you using a commercial product to provide this or working with an in-house GIS base map?
(Circle answer)

Kiosk Layout Questions

1. Is there any way to access your kiosk application on the WWW? (this would help us in understanding your layout) Y___ N___ URL: _____

a. If this is not an option: Attraction loop running on the kiosks? Y___ N___

b. Brief description of this _____

2. Number of buttons on opening screen? _____

3. On following pages? _____

4. Number of overall pages? _____

5. "Breadcrumbs" on all pages? Y___ N___

6. Is there anything else you could tell me about the layout (in brief)? _____

Kiosk Software Questions

1. Is the software available for other uses (PDA, web portal, etc.)? _____

2. Did you buy a commercial browser wrapper or develop your own? (Circle answer)

a. If commercial, what was your experience with the product? _____

b. If custom application, what problems were encountered? _____

3. Did you employ rapid prototyping during the development process? Y___ N___
 - a. If yes, how was it helpful? _____
4. What would you do differently in the software process? _____

Kiosk Data Questions:

1. What data sources are you using to support the kiosk? _____
2. Who are the owners of the data? _____

Interagency agreements, in the case of multiple data sources:

3. Did you have to get these types of agreements? Y___ N___
4. Did they help? Y___ N___
5. What would you do differently in this process? _____
6. Who has administration rights for the kiosks? _____
7. What methods are you using to bring data from its source to the kiosk application? _____
8. Have data integration issues come up (e.g. multiple transit agencies)? Y___ N___
 - a. If yes, how have you addressed them? _____
9. What would you do differently? _____
10. What type of Internet connection do you use? (if applicable) _____
11. What is the speed of the connection? _____
12. What is the bandwidth? _____
13. Has that been adequate? Y___ N___

Kiosk Hardware Questions

Processor, memory, storage, etc.:

1. Types? _____
2. Adequate? Y___ N___

Touch screen:

3. Model? _____
4. Reliable? Y___ N___
5. Usability experience? _____

Printer:

6. Type? _____
7. Vendor? _____
8. Model? _____

9. Pros and cons to date? _____

Keyboard:

10. Type? _____

11. Vendor? _____

12. Model? _____

13. Pros and cons to date? _____

Pointing device:

14. Type? _____

15. Vendor? _____

16. Model? _____

17. Pros and cons to date? _____

Kiosk Enclosure Questions

1. Dimensions? _____

2. ADA roll-up compatible? Y___ N___

3. Materials used? _____

4. Indoor/outdoor? (Circle answer)

5. If outdoor, any issues with glare on the screen? Y___ N___

a. Any other issues with outdoor placement? Y___ N___

b. How did you solve them? _____

6. Wear and vandalism experience?

ADA Compliance Questions

1. What other, if any, steps did you take for ADA compliance? _____

2. For ADA issues, what would you do differently? _____

Kiosk Upkeep/Maintenance Questions:

1. Is your agency responsible for the physical maintenance of the kiosks? Y___ N___

a. If no, who is responsible for maintenance? _____

b. If yes, how are your resources allocated for maintenance? _____

2. Do you employ watchdog monitoring? Y___ N___

3. What are your strategies for systems failure? _____

4. Is there anything you would do differently for maintenance? _____

Evaluation

1. What means did you use to evaluate the project? _____
2. Did you do usability evaluations? Y___ N___
 - a. If yes, how was it helpful? _____
3. If you have reports or statistical data, can you provide us with copies of that information? We would be happy to share our evaluation reports with your organization in future if that would be of interest to you.
4. If that is not an option, would you be willing to provide some of the information to us now? Y___ N___
5. If yes, what are your average hits per hour? _____
 - a. Per day? _____
 - b. Per week? _____
 - c. Per month? _____
6. Do you have any other means for system tracking? Y___ N___

Expansion

1. How did you get funding for your project? _____
2. One of the funding ideas we have been considering is to develop private sponsorship for the kiosks. Did you consider doing this? Y___ N___
3. Is this a pilot or demonstration program? Y___ N___
4. Do you have any plans to expand the program? Y___ N___
 - a. If yes, will your agency retain responsibility for the kiosks? Y___ N___
5. How large of an expansion is planned? _____
6. How do you plan to fund the expansion? _____
7. Will your functional requirements change? Y___ N___
 - a. If yes, in what ways? _____
8. Will your performance requirements change? Y___ N___
 - a. If yes, in what ways? _____
9. Will your content requirements change? Y___ N___
 - a. If yes, in what ways? _____
 - b. If no, who plans to take over the project? _____
10. What plans do you have to facilitate that transfer of responsibility? _____

“What else do you think I should know?” Kiosk Questions:

1. What is the number one worst thing that has happened in your project? _____
2. What is the number one best thing? _____

Appendix C – Structured Interview Questionnaire

The following is the list of questions administered to the “expert informants” identified during the user research segment of the user needs analysis.

Interviews with the Experts

Thank you so much for allowing me to observe you as you work with your guests. In this research, I hope to benefit from your expertise in assessing the needs and desires of visitors to Chicago. But no pressure, I am only asking you for your opinion—I would not expect you to pull out any records or statistics to back up your answers during the course of this interview. I simply want to know what you think!

The questions below are broken into sections. Additionally, I will sometimes ask you to answer on a scale from 1 to 3 (least to most). In answering these types of questions, the number 1 means very few or none of the visitors express interest in the topic being covered, 2 means some of the visitors are interested, and the number 3 means many or most of the visitors are interested in the topic covered in the question.

Who are your guests?

1. Domestic or foreign? (circle one if it applies to most guests, or both if fairly even split)
2. If they are from the US, are they from instate? 1___ 2___ 3___
3. If they are from Illinois, are they Chicagoland residents? 1___ 2___ 3___
4. Are they familiar with the city? 1___ 2___ 3___
5. Are they business travelers or vacationers? (circle one if it applies to most guests, or both if fairly even split)
6. Are they families, couples, or groups? (circle one if it applies to most guests, or all if fairly even split)
7. Age ranges? Most under 30 ___ Most 30-60 ___ Most 60+ ___ Evenly spread ___
8. Are there seasonal variations in the demographics?

What, where, and when do they want to do?

1. Do they already know their destination and just need some details? 1___ 2___ 3___
2. Do they want to hear about all their options? 1___ 2___ 3___
3. How long do you usually spend with guests? 0-5 min ___ 5-10 min ___ 10+ min ___
4. Are they concerned about costs? 1___ 2___ 3___
5. Are they interested in shopping? 1___ 2___ 3___
6. Are they interested in zoos, nature walks...? 1___ 2___ 3___
7. Are they interested in sporting events? 1___ 2___ 3___
8. Are they interested in museums? 1___ 2___ 3___

9. Are they interested in walking tours or architecture boat tours? 1___ 2___ 3___
10. Are they interested in restaurants? 1___ 2___ 3___
11. Are they interested in clubs, bars, or dancing? 1___ 2___ 3___
12. Are they interested in blues or jazz? 1___ 2___ 3___
13. Are they interested in plays, opera, or concerts? 1___ 2___ 3___
14. Are they interested in physical activities? Boating, beaches, biking, inline skating...?
1___ 2___ 3___

How will they get there?

1. 1. Will they be driving and want to know about parking, traffic, etc? 1___ 2___ 3___
2. 2. Are they interested in taxi service or limos? 1___ 2___ 3___
3. 3. Are they interested in walking? 1___ 2___ 3___
4. 4. Are they interested in public transit (non-specified)? 1___ 2___ 3___
5. 5. Are they interested in the CTA Bus? 1___ 2___ 3___
6. 6. Are they interested in the "L"? 1___ 2___ 3___
7. 7. Are they interested in the free trolley to attractions? 1___ 2___ 3___
8. How do these obstacles to transit use rank in your mind as you think about your guests' attitudes (remember, 1 for the least amount of guests, 3 for the most):
Cost? 1___ 2___ 3___
Don't know where the stop or station is? 1___ 2___ 3___
Don't want to wait at the stop station? 1___ 2___ 3___
Security concerns on board? 1___ 2___ 3___
Don't know how long it will take to get there? 1___ 2___ 3___
Don't want to transfer? 1___ 2___ 3___
Prefer not to travel with strangers? 1___ 2___ 3___
9. Have you had any bad experiences sending guests to transit?
10. If you are asked questions about transit, how easy is it for you to answer them? 1___ 2___ 3___

How much do they want to know?

1. Do they want to make plans for the entire day? 1___ 2___ 3___
2. Do they ask for directions, maps, or itineraries for the day's plan? 1___ 2___ 3___

Overall Thought and Opinions

This is the part where you tell me what you notice the most about your guests. This could be overall tendencies, things that stand out and really catch your attention, unusual requests, things that everyone wants to know, something that nobody wants to know, and so on. Please tell me anything else you think I should know.

