

Hamilton Street Railway Transit Customer Information Service Enhancements

Organization

The Hamilton Street Railway (HSR) Company, the public transit division of the City of Hamilton's Public Works Department

Status

Service enhancements to HSR's **interactive voice response (IVR)** system and Web site began in 2006. New Web and call centre services for riders using HSR's Accessible Transportation Services are planned for 2008.

Overview

Outdated computer software and process systems prompted HSR to introduce a major service enhancement to its existing information services.

HSR integrated all route and scheduling information into both systems. The new systems—known as *Bus Check* and *Bus Web*—now offers one-stop, convenient transit information. Riders are now just one phone call—or one click—away from customized transit information.

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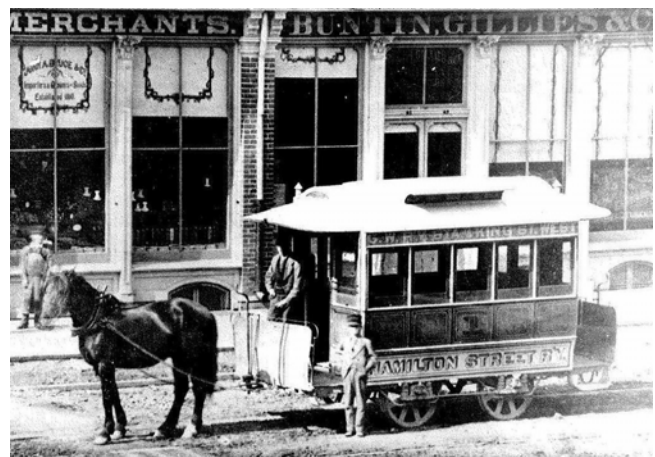
Resources

The Hamilton Street Railway Company,
<http://www.hamilton.ca/hsr>
City of Hamilton, <http://www.hamilton.ca>

Community context

The City of Hamilton is the ninth largest city in Canada, with a population of about 500,000. Its public transit authority, the Hamilton Street Railway (HSR) Company, has been providing transit services to the city for more than 130 years. Although transit in Hamilton captures a

somewhat smaller modal share (about 6%) than other large Canadian cities, HSR serves approximately 21 million riders each year.



In May 1874, HSR's first horse drawn cart began offering transit services to Hamilton residents.

In 1985, HSR introduced *Bus Check*, its first automated telephone customer information system. Initially, this interactive voice response (IVR) system provided scheduling information on only eight routes. During its first year of operation, the system handled about 3,000 calls, prompting HSR to expand the system to cover all of its approximately 30 routes. At its peak, the system received about 22,500 calls each day.

In the late 1990s, HSR introduced *Bus Web*, an online information service. The Web site offered route schedules and maps and Bus Check telephone numbers.

Policy context

Both the *Bus Check* and *Bus Web* systems relied on old computer technology and required upgrading. Service enhancements to both systems were initiated by HSR, without any specific policy requirement by city council to do so.

Rationale and objectives

The original *Bus Check* service involved a different telephone line for each bus stop (the number was posted at bus stops), with up to three consecutive stops on a single route sharing the same telephone number. Customers needed to know the individual telephone number for each stop in advance; in total, about 1,500 individual telephone lines were used in the old system.

The system was not, however, user friendly as customers could not reach an operator directly from that telephone number. For personal assistance, customers needed to make a separate call to HSR's call centre.

The *Bus Check* system was also not convenient for tourists or visitors to Hamilton who weren't already familiar with the system.

By 2006, the *Bus Check* system was in dire need of upgrading—telephone lines, computer hardware and software had all long since surpassed their end-of-life dates.

Similarly, the *Bus Web* system also needed work. All information listed was static, so all new scheduling or route information had to be manually updated. Not only was this a time-consuming task, it also opened up the possibility that information listed on Bus Web was not consistent with the information provided by *Bus Check* or at HSR's call centre.



Information on HSR's earlier Web site (shown above) was not interactive and could not be easily updated.

Actions

Bus Check. HSR first assigned each bus stop with a number that corresponded to the same last four digits of the previous system's telephone number. New stickers were affixed to all bus stops with the new phone number. This made it simple for those customers who had memorized their favourite bus stop numbers.

All telephone numbers for the new automated system were then integrated with the existing call centre phone number. Riders could now call one main telephone number to access the automated system, reach an information clerk, or both.

Today, riders simply call one main number, then key in the four digits listed at their bus stop. If they require additional assistance, keying in "0" will automatically bring them to an information clerk. The service also allows riders to



check the schedules for multiple stops with one phone call.

Customers can quickly search through HSR schedule information with a very limited knowledge of the transit system, making it much more convenient for visitors and tourists. Riders can also search through the bus

stops of any given

bus route by

choosing the route

number or the route name. Route names correspond to the city's major thoroughfares.

Bus Web. *Bus Web's* interactive features include an online trip planner, schedule display and bus locator, and static information on detours, fares and other HSR services.

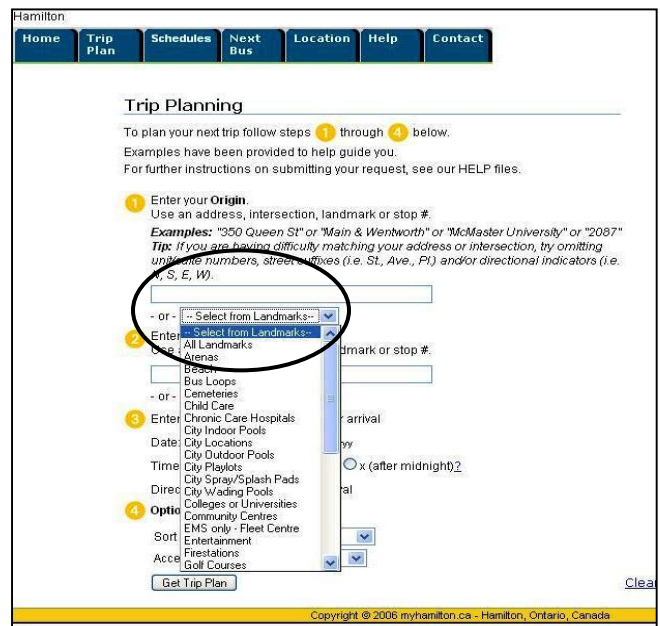
The trip planner software was designed by *Trapeze Group*, which specializes in passenger transport solutions. Several other municipal transit authorities use similar software.

To use the trip planner, customers enter their starting and destination points and departure and arrival times.

Customers can also choose to enter specific addresses or places of worship, schools, grocery stores, schools, etc.) choose from a list of landmarks (community centres, places of worship, schools, grocery stores, etc.



Bus Check receives an average of 11,600 calls per day.



As depicted in the graphic above, riders can either enter a specific address, or choose from a long list of landmarks, making it easy to navigate for all users, including tourists and visitors.

The city's geographical information systems department provided all of the landmark data and the itineraries generated from *Bus Web* use the same scheduling and routing database used by the other customer service systems (*Bus Check* and call centre).

Before the enhanced *Bus Web* was introduced, route schedules were manually edited whenever there was a change and printed in bulk on paper. HSR replaced that system with PDF route maps, which can either be printed as needed by HSR, by riders, or viewed online. HSR expects that by moving towards more electronic versions, fewer paper copies will need to be printed.

By integrating the information across the HSR computer network, the maps are now updated automatically to reflect any new route or service changes. Customers can also create customized bus schedules by selecting certain stops on a route and printing the schedule showing only those stops.

Call Centre Integration. HSR recognized that some customers prefer to speak with an operator. Information clerks that have in-depth knowledge of the city and of HSR routes are available between 7:30 a.m. and 8:00 p.m. seven days a week.

With all scheduling information integrated to ensure consistency across all service systems, information clerks use that information, together with their own in-depth knowledge of HSR's schedules and the city, to answer customers' questions. During off-peak hours (when call centre staff are not available), dispatch staff use *Bus Web* to assist customers.

Testing. To ensure that the system worked as envisioned, HSR had the new *Bus Check* and *Bus Web* systems running approximately one month before informing the public.

For *Bus Web*, the city asked a group of people with visual impairments to test the ease of use of the Web site.

In the case of *Bus Check*, all voice recordings had to be tested for the correct pronunciation of streets and landmarks. In all, some 4,400 street names and 1,900 landmarks were checked. Most of this work was done by HSR staff, but in some cases HSR used outside help. For example, HSR staff contacted Muslim congregations to ensure that the pronunciation of mosque names was accurate.

Another city division then tested the system and HSR gathered feedback on responsiveness, the clarity of the computerized voice, information provided, etc. In all, three tests were done before HSR was satisfied that the system could go "live."

When that time came, in June of 2006, HSR used the old *Bus Check* voice recording to "announce its own demise" and advertise the new *Bus Check* number.

Results

Bus Check calls. Just before implementation in 2006, *Bus Check* handled an average of 19,600 calls per day. In 2007, *Bus Check* handled about 11,600 calls per day and HSR attributes the lower number of calls to the fact that customers now dial only one number to receive information on multiple bus stops or bus routes.

Bus Web site visits. In 2007, *Bus Web* received an average of 860 visits daily, with a noticeable spike in use in September when students returned to school. The HSR Web site consistently ranks as one of the top three pages visited on the City of Hamilton Web site, with the trip planner and schedule look up the most popular of the Web site's features.

Call Centre. Since the introduction of the enhanced services, the number of daily calls to information clerks has been cut almost in half. Daily calls in 1985 averaged 800, compared to about 445 calls per day in 2007. This enabled HSR to reduce the Call Centre's hours of operation by three hours per day (the Call Centre used to be staff until 11 p.m., but after implementing the enhancements it is now staffed until 8:00 p.m.). Personal assistance is still available to the public 24 hours per day, a portion of which is handled by dispatch staff during off-peak hours.

Consistency of information. HSR integrated all bus route and schedule information across all of its new information services, making the data consistent and easier to update.

Information updates. Now that all systems are automatically updated whenever there is a change, HSR can alert customers to route or scheduling changes, or when, for example, construction is planned for an area and how it will impact bus service.

Trial by snow. HSR's service enhancements were tested in early February 2007 when the city was hit by a major winter storm that dumped more than 60 cm (two feet) of snow over the area. At the height of the storm, during a single day (February 14, 2007) *Bus Web* handled about 1,650 site visits (more than double the average), *Bus Check* took more than 18,000 calls and information clerks handled almost 3,000 calls. Had the new information technology and processes not been in place for *Bus Web* and *Bus Check*, the sheer number of information requests could easily have overwhelmed the systems.



Riders now call just one number to access an Information Clerk or Bus Check.

Participants

The Hamilton Street Railway Company

City of Hamilton divisions: Information Technology, Public Works, and Transit Planning and Customer Services

Resources

The budget for the enhancements was approximately \$385,000, which included the cost of software licenses for the Web-based trip planner and the IVR system, as well as implementation fees. Part of this cost, however, will be used in the new system for paratransit users (see *Next Steps*).

The city's information technology-network services staff assisted in configuring the computer servers required for Bus Web and helped to integrate the new IVR system.

Timeline

1985. *Bus Check* introduced. The system involved more than 1,500 separate telephone lines but customers could not access help or an operator through those phone numbers.

Mid-1990s. *Bus Web* introduced. Web pages included static displays of schedule, route information and *Bus Check* phone numbers.

2005. Improvements began to *Bus Check* and *Bus Web*, including the removal of more than 1,500 individual phone lines and testing of the *Bus Check* and *Bus Web* systems.

June 2006. All upgrades were completed and the new *Bus Check* and *Bus Web* services were introduced to coincide with summer route changes.

Lessons learned

Know your customer. Hamilton has a higher than average rate of persons with disabilities and, therefore, took extra care in planning its *Bus Web* system to display accessibility on routes. HSR tested all of the *Bus Web* tools with people who had visual impairments and found that simple tools with fewer graphics and tables worked best for all customers.

Use an existing system where possible. HSR integrated its existing bus route telephone numbers into the new system. Carol Wildeman explains that, for 21 years, HSR has 'trained' its customers to phone '548' and a four-digit number to find out when the bus was coming. To make things convenient for its customers, HSR therefore used the last four digits of the old phone numbers as the new bus stop numbers for those calling Bus Check. This helped to avoid confusion and complaints.

Look for synergies with other municipal projects. While planning the system enhancements, HSR learned that the city's traffic department was about to begin

videotaping and cataloguing all city streets for their surface condition, sign inventory, etc. HSR asked to be included in the project and received an inventory of all bus stop signs in the city, complete with photographs and geocoded locations for each one. This information was then cross-checked with HSR's existing data to ensure accuracy and was used in developing the database for the trip planner.

Next steps

By the spring or summer of 2008, HSR plans to launch new Web pages and an IVR system for its Accessible Transportation Services (specialized transit services for those with disabilities). Customers, service providers, coordinators and others will be able to access Web pages or new phone technology to confirm and/or cancel bookings.

Global positioning systems (GPS) are planned for all of HSR's buses. Once equipped with GPS, all of HSR's information systems will be able to provide real-time information to customers.

The City of Hamilton is in the process of updating its Transportation Master Plan (TMP) to develop policies and strategies for its transportation network over the next 30 years. Part of its vision is to double transit use by implementing a network of bus rapid transit routes and express routes and by introducing new GO Train rail lines.

Some actions identified in the TMP are already underway including replacing aging buses with hybrid buses, extending hours of operation and increasing transit service to the West Hamilton Innovation District, a new industrial zone that includes research and development, science and technology and other laboratory facilities.