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Visitor reads a map label in Braille inside the visitor center at Kings Mountain National Military Park, South Carolina. See examples of the many ways Harpers Ferry Center now incorporates accessibility in National Park Service exhibits, beginning on page 6. (NPS Photo by Michael Paskowsky)

From HFC's Director

Web 2.0, or social media Web sites, have become all the rage in recent months. Not a day goes by that I don't read a story or hear a report about Twitter, Facebook, YouTube, or some brand new killer social media application. Because I subscribe to several new media blogs, I've had a chance to keep tabs on many of the popular new technologies and the Web 2.0 "revolution".

As director of Harpers Ferry Center—the agency's Center for Media Services—I continue to advocate for the thoughtful use of a broad range of media tools to help tell our stories, engage with the public, and advance our mission. Audiovisual programs, visitor center exhibits, park publications, and wayside exhibits are traditional media tools we're all familiar with.

We are all less familiar with the emerging wave of smartphone applications, location aware audio devices such as the TriggerPoint (see **New Audio Tour Uses GPS** on page 2) or guidePORT (see **Making Exhibits More Accessible** on page 6), and the myriad landscape of the new social media Web sites.

As we begin to navigate in these new and uncertain waters, it's critical to remember that it's not about the technology we choose. It's all about the message, the community we are engaging, and the value of those connections we make. The technology is not an end in itself; it's there to help us achieve our goals by the most effective and efficient means.

—Don Kodak

In This Issue

New Audio Tour Uses GPS

Cuyahoga Valley National Park Adopts TriggerPoint

A new audio tour on the Cuyahoga Valley Scenic Railroad will present the culture, heritage, and nature of the Cuyahoga Valley and the Ohio & Erie National Heritage Canalway. The tour will feature an audio GPS solution that broadcasts to personal headset receivers. GPS Rangers will provide a captioned version of the tour for the deaf and hard of hearing.

The audio tour, which makes its debut on June 3, is the product of several months of planning and development by Cuyahoga National Park, the Cuyahoga Valley Scenic Railroad, and contractors Antenna Audio and BarZ Adventures. A student intern also played an important role in getting the project started.

The idea for the audio tour was inspired by park ranger talks given on the Cuyahoga Valley Scenic Railroad. During peak season, this excursion train makes three trips a day on the 26-mile run through the heart of the park. Vasarhelyi recognized that a high-quality audio tour would be a great way to provide a consistent and comprehensive overview of Cuyahoga National Park for every excursion passenger. The ability to incorporate multiple voices and music would also make the program more engaging. The railroad company agreed, and from the outset both park and railroad worked closely on planning and development of the audio tour.

"The idea of using GPS or other technology to automate the tour originated with a student who was serving as a Transportation Scholar," says Jennie Vasarhelyi, Chief of Interpretation, Education & Visitor Services at the park. Funding for the scholar was

Cuyahoga Valley Scenic Railroad. (Photo by Jason Gillyon)

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provided by Ford Motor Company through the National Park Foundation. The Transportation Scholars Program pairs transportation professionals and graduate students with National Parks seeking expert assistance on projects involving transportation planning, analysis, coordination with local communities, environmental traffic studies, and other transportation-related tasks.

The park decided early in the process that Cuyahoga Valley Scenic Railroad would own and operate the audio tour program. The park has a close working relationship with the railroad company through a cooperative agreement. Both parties agreed that long-term funding for the maintenance and replacement of the audio tour equipment should be derived through operating revenue from train tickets. As a consequence, the cost for the audio tour is included in each "excursion" ticket price.

The park secured funding for the project through the NPS Alternative Transportation Program (ATP) and the NPS audiovisual accessibility initiative. ATP funding was $314,939, and AV accessibility funding was $20,056, for a combined total of $334,995. Through the park's cooperative agreement with the Cuyahoga Valley Scenic Railroad, the funds were transferred to the railroad company. The railroad company issued the project scope of work, and served as project manager for the hardware installation.

Vasarhelyi credits Harpers Ferry Center's Michele Hartley for her help in writing the project scope of work. Hartley serves as Contracting Officer's Representative (COR) for several Multimedia Planning and Production Services contracts which HFC administers. "Michele was so helpful," recalls Vasarhelyi. "She provided sample scopes of work, and answered many of my contracting questions."

One of the first problems Vasarhelyi recognized with the audio tour format was the nature of train travel through the park. Because the train does not move at a consistent rate, an audio tour that delivers site-specific content would require place-based triggers to ensure that the audio track was precisely synced to the train's location. The delivery of placed-based audio information was an important component of the scope of work.

The railroad company received four technical proposals for the audio tour. Two vendors proposed a GPS-based solution to sync the audio tour content to the train's location. One vendor proposed using bar codes on train cars and bar-code readers along the tracks for the same purpose. The fourth vendor, Antenna Audio, proposed to develop only the audio content, and did not bid on the hardware.

After carefully reviewing all four proposals, the park found that contractor BarZ Adventures offered the best hardware solution. BarZ proposed the TriggerPoint system, a GPS audio messaging system developed by Canadian company AudioConexus. TriggerPoint, according to the company's literature, provides high-quality location relevant digital MP3 audio using a GPS-based solution which automatically triggers next stop messages. Antenna Audio, on the other hand, provided an excellent proposal for content creation.

Consequently, the park asked Antenna Audio to partner with BarZ Adventures, combining the content expertise of the former with the hardware technology expertise of the latter. Funding for the project

New Employees at HFC

Adam Leopold
Adam Leopold recently joined Harpers Ferry Center as an audiovisual equipment specialist. Adam has nearly 18 years of AV contracting and small business management skills. He began his career in 1987 doing Computer Ballistics for the Army's 3/11 Armored Calvary Regiment in Bad Hersfeld, Germany, where he helped open the Inner German Border at the end of the Cold War. He received an AA degree in AV Business from the Art Institute of Seattle in 1995, and received Infocomm CTS certification in 2000.

Adam has previously started a Dot.com business in Denver, Colorado, where he owned and operated WireRight, LLC, a small business government contractor. Most recently, he owned and operated Caribbean Systems Integration Corporation, which engineered, built, and operated a $2 million one-of-a-kind "Dancing Water Feature" with HD-SDI video projected on a five acre lake at the Hard Rock Hotel & Casino in Hollywood, Florida.

Bill Blake
Bill Blake has joined HFC as a Contract Specialist in the Office of Acquisition Management. Bill is a native West Virginian who left his hometown of Weston to obtain a B.S. in Biology from Shepherd University. Immediately after graduation, he started providing scientific research support for the U.S. Department of Agriculture, Appalachian Fruit Research Station in Kearneysville, West Virginia.

After working at USDA for seven years, Bill decided to leave government service to fulfill a long-time goal of obtaining a law degree. In 2006 he graduated from the University of Baltimore School of Law with a concentration in intellectual property. Since graduation, Bill has been admitted to the West Virginia and Virginia State Bar.

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was divided into three parts: $81,250 for Antenna Audio, $235,745 for BarZ, and $18,000 for project management and equipment installation.

Vasarhelyi now devoted her attention to working with Antenna Audio to create content for the "Voices of the Valley" program, as the audio tour became known. The audio program provides both general commentary and site-specific stories that feature a narrator and additional voices that portray particular vignettes. Park staff, local historians, natural history specialists, archival materials, and actors all contributed to the audio content.

Each story or vignette is typically 1-2½ minutes long. Music is used to animate some of the time between the vignettes. There are 28 audio segments for the full round-trip tour, with 40 total audio vignettes. It takes the train about three hours to complete a round-trip. Visitors also have the option to exit the train at an intermediate stop for a shorter 1½-hour round-trip.

Each train car has a GPS receiver mounted on the roof that communicates with TriggerPoint receivers provided for passengers at every seat. The TriggerPoint GPS system is directionally sensitive, allowing different stories to be programmed to run as the train makes its return trip.

The park chose to use headsets with each TriggerPoint receiver, rather than speakers mounted in the train cars. The decision was based on the park's past experience of having rangers deliver their talks while the train was moving—the ambient noise from the moving train and passenger chatter was just too distracting. According the Vasarhelyi, "the headphones really offer a more immersive visitor experience."

A receiver and headset are provided in an acrylic pocket at each seat on the train, so train staff don't have to distribute or collect the devices after each trip. BarZ estimates that each receiver will hold a 12-hour charge, which should last for all three round-trip excursions the train makes each day. "This really should cut down on operational costs," says Vasarhelyi. "But we'll also have to closely monitor theft or accidental removal and make adjustments accordingly."

The devices will all be collected at the end of the day for storage in a portable recharging station. Cuyahoga Valley Scenic Railroad has initially purchased 600 TriggerPoint receivers.

For visitors who are deaf or hard of hearing, a free GPS Ranger with a video screen is available in the train's concession car. These video devices provide captioned text for the audio tour. Funds from the NPS audiovisual accessibility initiative helped pay for these devices.

The park has been extremely pleased with both BarZ Adventures and Antenna Audio. Cuyahoga Valley Scenic Railroad served as project manager for the work of BarZ Adventures, and spent a considerable amount of time testing the equipment and identifying and programming the correct GPS trigger points along the 26-mile route.

The park worked directly with Antenna Audio on content creation. According to Vasarhelyi, "Antenna Audio really went the extra mile to ensure that we have a top notch audio program."

The park will launch the audio tour on the Cuyahoga Valley Scenic Railroad on June 3, 2009.

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Scott Glover
Scott Glover is a new database manager for HFC's Information Technology group. Scott was born in Tazewell County, Virginia where he graduated from Tazewell High School. Scott is married with three children and presently lives in Charles Town, W.Va. He enlisted in the Air Force while still in high school.

During Scott's Air Force career he traveled to Iceland, Norway, Spain, England, Sudan, and Italy. He also lived in many locations across the United States, being stationed on the East coast, West coast, and in the Midwest.

Scott retired from the Air Force in 1995 and chose to start a new career in Information Technology. He attended Troy State University in Montgomery, Alabama where he received a bachelor's degree in Computer and Information Science.

After graduating, Scott re-joined the Air Force, working as a Web Developer at the Air Force Software Factory in Montgomery, Alabama. In 2004 Scott transferred to the Office of the Air Force Surgeon General as an application software engineer at Fort Detrick, Maryland.

Laura Reed
Laura Reed has joined Harpers Ferry Center as a Budget Analyst in Programs & Budget. Laura grew up in Berryville, Virginia and attended Clarke County High School. She graduated with a bachelor's degree in business from Longwood University in Farmville, Virginia.

Laura started her government career in June 2002 with the General Services Administration in Washington, DC. She rotated through eight financial offices, trying to "understand" federal accounting, budget, and finance. Laura then settled down to work in the Office of the Chief Financial Officer, Office of Budget as a budget analyst for the next five years.

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HFC Staff Receive Awards

Harpers Ferry Center took home six National Association of Government Communicators Blue Pencil/Gold Screen Awards for superior media products. The awards were presented at the NAGC awards banquet in Orlando, Florida.

"These awards are extremely meaningful to us and rather prestigious because they are determined by our peers in the communications field," said Don Kodak, director of Harpers Ferry Center.

HFC Visual Information Specialist Angie Faulkner was honored with a first place Blue Pencil Award in the graphic design portfolio category. Judges commented on Faulkner's high quality work in enhancing the message and stated, "It is understandable why tourists collect these brochures, because they are informational, fun, and beautiful."

HFC Visual Information Specialist Betsy Ehrlich and Zion National Park Assistant Chief Naturalist Tom Haraden received a first place Blue Pencil Award for an exhibit display requesting that visitors use Zion Spring water instead of bringing plastic bottles into the park.

Second place awards were presented to Ehrlich, NPS Historian Duncan Hay, HFC Curator Sarah Heald, and HFC Project Manager Winnie Frost for their work with Erie Canalway National Heritage Corridor in creating the Falls View Park wayside exhibits. A second place award was also presented to HFC Producer/Director Chuck Dunkerly for his work with Homestead National Monument of America to produce the film *Land of Dreams: Homesteading America*. Dunkerly's film was praised by judges for its visual style and incredible cinematography.

Awards of Excellence were received by HFC Cartographer Lori Simmons, C&O Canal NHP Chief of Interpretation Bill Justice, HFC Writer/Editor Ed Zahniser, and HFC Printing Specialist Linda Meyers for the Chesapeake & Ohio Canal NHP large print brochure. Also receiving Awards of Excellence were HFC Visual Information Specialist Susan Barkus, HFC Writer/Editor Bill Gordon, HFC Cartographer Nancy Haack, and George Washington Memorial Parkway Site Manager Kendell Thompson for the Arlington House Unigrid brochure.

Zion Spring Water bottle filling station. (NPS Photo by Tom Haraden)

The 2009 competition included 579 entries from federal, state, and local government in the U.S. and Canada that merited a total of 169 awards.

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Laura joined the Federal Emergency Management Agency (FEMA) at the Mount Weather, Virginia site in June 2008. She worked in the FEMA Finance Center as a Financial Management Specialist.

Peggy Scherbaum
Peggy Scherbaum recently joined the staff at HFC as an interpretive planner. Peggy's 18-year work history with the National Park Service has included assignments at Fort Frederica National Monument, Martin Luther King, Jr. NHS, Hopewell Furnace NHS, Independence NHP, Roger Williams National Memorial, Dry Tortugas National Park, Death Valley National Park, Denali National Park, Natchez Trace Parkway, and most recently Cane River Creole NHP.

Peggy has worked extensively with the Interpretive Development Program, and authored the reference manual titled *Handles*.

Gary Zbel
Gary Zbel has joined Harpers Ferry Center as Facility Operations Specialist. Gary comes to HFC from Great Smoky Mountains National Park, where he served as Building and Utilities Supervisor for the North Carolina District. Prior to that he served at Cape Cod National Seashore, starting as a seasonal employee in 2001 and working his way up to Maintenance Supervisor. Gary also spent five years as the one-person maintenance staff for the small K-12 public school on Ocracoke Island, North Carolina.

Gary was born and raised in Falls Church, Virginia. He studied painting at Virginia Commonwealth University. His hobbies include golf, surfing, and hiking—he is already planning to do the One Day Hike in 2010. His wife, Maryann, is with him in Harpers Ferry and looking for a job. Daughter Remy is finishing her third year as a painting student at Hampshire College in Amherst, Massachusetts.

Making Exhibits More Accessible

Universal Design Comes of Age in National Park Service Exhibits

Harpers Ferry Center exhibit planner Krista Kovach-Hindsley recently reflected on the state of accessibility in National Park Service exhibits. "Exhibits are inherently visual experiences," she says, "so our challenge is to provide multiple opportunities for all our visitors to access information and gain the same benefit."

Universal Design

According to Kovach-Hindsley, good exhibits feature redundant, multisensory experiences. "Take tactile elements," she says. "Tactile models and exhibit components appeal to diverse age groups, people who speak different languages, and people who are blind or have low vision. Tactile elements are perfect examples of Universal Design."

Kovach-Hindsley is referring to the principles of Universal Design, which advocate the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. These principles were developed by The Center for Universal Design at North Carolina State University in Raleigh, North Carolina (see "Principles of Universal Design," ***HFC onMedia***, November 2007, page 2).

Accessibility Design Charettes

Harpers Ferry Center has become a much greater advocate for accessibility in all National Park Service media in recent years. HFC partnered with the U.S. Access Board, Smithsonian Institution, and Chesapeake & Ohio Canal National Historical Park in November 2007 to host an accessibility design charette for new exhibits at Great Falls Tavern. Subsequent accessibility charettes were conducted for new exhibits at USS *Arizona* Memorial in December 2007, at San Juan National Historic Site in May 2008, at the White House Visitor Center in June 2008, and at Frederick Douglas National Historic Site in August 2008.

New exhibits at the Naval Live Oaks Visitor Center in Gulf Islands National Seashore provide a wide range of accessibility features, including (from left to right) telephone handsets for audio description, a tactile model of an oak tree, a railing system that connects all the exhibits together, and tactile models of natural history objects including acorns, oak leaves, and a large gopher tortoise. (NPS Photo by Anita Smith)

HFC project manager Michael Paskowsky has attended several of these charettes. "One thing we've learned from users who are blind or have low vision," says Paskowsky, "is how important it is to orient them to both the exhibit space and the surrounding park site."

NPS accessibility coordinator Ray Bloomer, who has participated in some of these charettes, agrees. "Providing some kind of tactile or audio orientation really helps people who are blind or have vision-loss better visualize and participate in the available experiences." Bloomer also emphasizes that people who are either deaf or have hearing loss, or who are blind or have low vision, are for various reasons often reluctant to self-identify themselves. "By providing multi-sensory experiences," says

Bloomer, "all your visitors will have multiple opportunities to access information."

HFC exhibit producer Anita Smith also advocates Universal Design. "Provide interpretive experiences in multisensory ways," she says, "including tactile, visual, and auditory experiences." Smith was producer for one of the Park Service's newest exhibit, the Naval Live Oaks Visitor Center at Gulf Islands National Seashore.

Physical Accessibility

Smith stresses the importance of physical accessibility, which is governed by the Architectural Barriers Act (ABA) of 1968. Accessibility for exhibits usually starts with the visitor center information desk, which has to be fully accessible and functional not only for the visitor but also for NPS staff. Exhibit designers works with the park and the ABA guidelines to configure this structure so that it will comply with requirements and meet the park's individual needs. Usually, one section of the desk is designed to be open underneath, so it can be approached from the front by a visitor in a wheelchair or used by a staff member in a wheelchair from the other side as well.

Circulation through the exhibits must comply with minimum requirements for wheelchair access. If the design includes raised areas of flooring or special floor treatments, slopes and slip-resistance of the floor must be in accordance with the accessibility guidelines. If the exhibits include a small mini-theater, it must accommodate at least one wheelchair and allow an unobstructed view of the presentation. Interactive and touchable exhibits must be reachable by a person in a wheelchair. Graphics, texts, and objects in the displays need to be located at a height from the floor that is within the correct visual range to be viewed by both standing visitors and visitors in wheelchairs.

A person who is blind or has low vision may be navigating through the exhibit space using a cane. The structures need to comply with the ABA standards for protruding objects and configured so that the cane hits the structure in time to warn the person they are approaching the protruding structure.

The information desk at the Naval Live Oaks Visitor Center provides access so a person in a wheelchair can pull right up to the desk and pick up literature from the brochure rack. A handset on the right provides audio description of a daily events message board located on the far wall. (NPS Photo by Anita Smith)

If an exhibit has mechanical interactive—levers to pull, drawers to open, doors to flip, wheels to turn, and so forth—the force required has to be kept below a certain threshold measured in pounds of force. Mechanical interactive have to also adhere to the "closed fist" rule: any of the knobs or handles must be operable by a person with a closed fist, instead of requiring gripping with the hand.

Tactile Exhibit Elements

HFC exhibit planners and designers are constantly expanding their toolkit for delivering multisensory experiences that engage all visitors. At the Naval Live Oaks Visitor Center in Gulf Islands National Seashore, new exhibits recently replaced ones destroyed by Hurricane Ivan in 2004.

The new exhibits, which were designed by contractor Krister Olmon and fabricated and installed by Southern Custom Exhibits, feature tactile natural history models, a tactile model of a ship's hull, a railing system to help guide visitors who are blind or have low vision around the exhibit space, and telephone handsets that provide audio

Close-up view of tactile models of acorns (top) and oak leaves at the Naval Live Oaks Visitor Center (NPS Photos by Anita Smith)

This massive oak tree model dominates the Naval Live Oaks Visitor Center at Gulf Islands National Seashore. (NPS Photo by Anita Smith)

description. For visitors who are deaf or have hearing loss, all the audio elements in the exhibit a include open captions, volume control, and T-coil compatibility for those who have T-coil compatible hearing aids.

Smith and park staff are particularly pleased with the tree model that dominates the Naval Live Oaks Visitor Center (*see above photo*). The exhibit focuses on the natural properties of live oak trees that made them perfect for framing naval ships.

"One of the first visitors" recalls Smith, "asked park staff how they were able to build the new visitor center around the huge oak tree." In fact, the tree is a touchable model with bark cast from molds of actual oak trees found in the park. The gigantic limbs are even embellished with realistic-looking artificial leaves, ferns, and Spanish moss. The adjacent exhibits include touchable models of oak leaves and acorns, and feature touchable models that interpret key aspects of wooden ship design and construction.

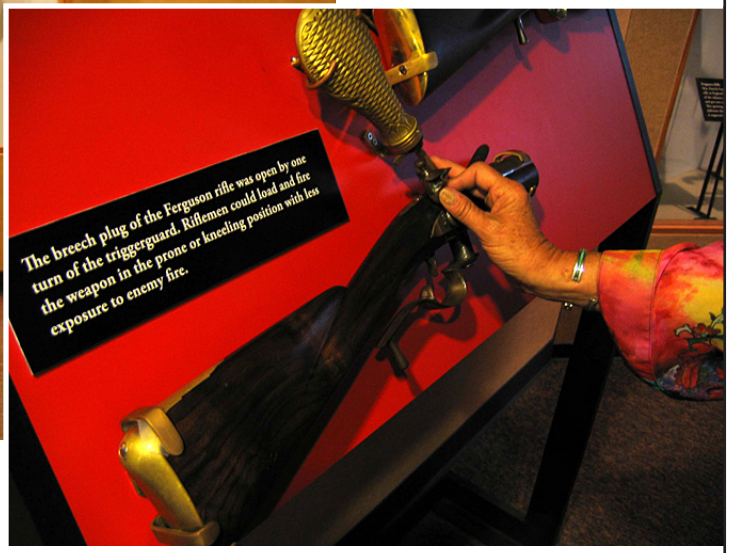
Several tactile tree models are also provided at Kings Mountain National Military Park (*see photo on right*). Trees provided critical cover for American forces as they advanced up the mountain against the British during the American Revolution.

Another unique exhibit at Kings Mountain is the Ferguson Rifle display. The original rifle in the park's collection is one of only a few on public display, and sits behind a glass case. Adjacent to the case, however, is a tactile replica of the rifle. "Everyone

Visitors touch the bark on a tree model at Kings Mountain National Military Park. (NPS Photo by Michael Paskowsky)

"Everyone touches the model of the Ferguson Rifle. It's a great example of Universal Design that engages all park visitors."

Left: *Original Ferguson Rifle and tactile replica on display at the Kings Mountain Visitor Center.* ***Below:*** *Close-up view of the tactile model. (NPS Photos by Michael Paskowsky)*



touches the model," says project manager Michael Paskowsky. "It's a great example of Universal Design that engages all park visitors."

Paskowsky is taking a similar approach to new exhibits for USS *Arizona* Memorial. Here, highly detailed models of airplanes and ships in glass cases will be accompanied by smaller scale tactile models which all visitors can touch.

The new visitor center at Great Falls Tavern on the C&O Canal, which is currently in production, also features tactile components throughout the exhibit. There's a topographic model of the Great Falls area with touch-sensitive geologic zones. A visitor can touch different geologic zones on the model to listen to an audio message. Each geologic zone is color-coded and features a different texture, which provides access to visitors who are blind or have low vision.

Another exhibit provides an olfactory experience, giving off smells of ginger punch and apple cider—two drinks that were once served at the tavern. There's also an exhibit with touchable items permanently affixed to a table top. These items represent common cargo once carried by canal boats, including lumber, coal, and farm produce.

Touchable mannequins are used in another part of the Great Falls Tavern exhibit. The figures, who represent different canal people including a boat captain, his wife, a child, and a lock keeper, are cast in fiberglass resin. Visitors can touch the models, and also push a button to hear a story for each person.

Exhibits for the new Assateague Island National Seashore Visitor Center are still in

the planning and design phase. But several tactile elements have been incorporated into the proposed new exhibits. There will be touchable models of native fish, a young horse (foal), and common crustaceans. The models are being built by Chase Studio, a subcontractor to Southern Custom Exhibits.

The Assateague Island exhibits will also feature "touch bins," which park staff will fill with commonly occurring natural material. There will even be a small "touch tank" or aquarium where visitors can reach into the water and touch horseshoe crabs or other small creatures.

A large tabletop map of the park will feature an end panel with a tactile version of the park map and accompanying Braille. "This panel should provide visitors who are blind or have vision loss with a quick feel for the size and shape of the park," says exhibit designer Chris Dearing. "We want them to be able to find their present location relative to the long, narrow barrier island." The tactile panel will be fabricated from a durable fiberglass resin material.

Audio Description

Exhibits in the Tavern Room at the Great Falls Tavern are equipped with push buttons to deliver audio description. Using directional speakers that focus sound down from the ceiling, all visitors can choose to listen to audio description of the exhibit they're standing in front of. The push button boxes have small speakers that play soft music to draw the attention of visitors who are blind or have low vision. A Walker telephone handset will provide audio description for a silent canal video that plays in one of the exhibits.

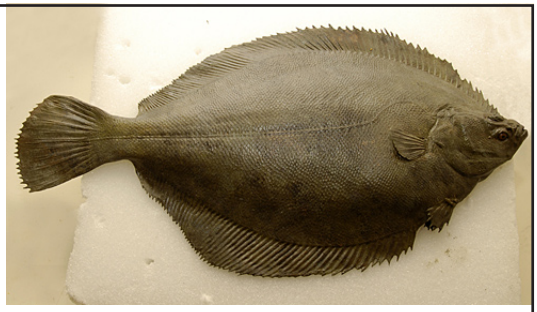
At the Naval Live Oaks Visitor Center, Walker handsets are provided at all the primary exhibit structures. Each handset features a volume control and provides audio description for the adjacent exhibit. Similar handsets are also furnished for new exhibits at Edgar Allen Poe National Historic Site and Thaddeus Kosciuszko National Memorial, both in Philadelphia. Because Kosciuszko was a Polish freedom fighter, audio description is also provided in Polish.

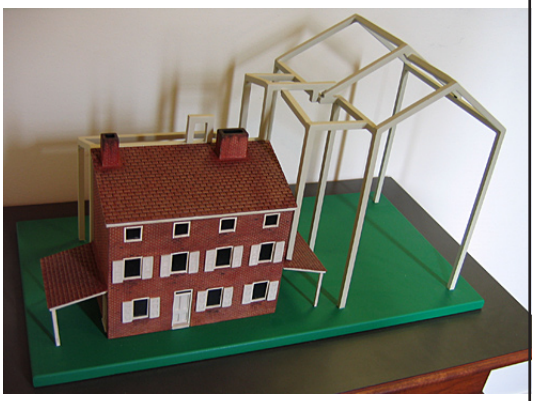
Localized handsets and push buttons provide several advantages: anyone can listen to the audio, park staff don't have to hand out devices at the front desk, and visitors with disabilities don't have to identify themselves.

Inside the touchable tree model at Kings Mountain, an audio program plays in three distinct parts: an interpretive message, an overview of the exhibit theme, and verbatim audio description of the exhibit's wall text. Visitors hear all three parts of the audio—there are no selection buttons that differentiate sighted visitors from those who are blind or have low vision. The park made this choice because they didn't want to differentiate visitors based on any type of disability—they wanted every visitor to have access to the same audio experience.

One of the innovative new products Harpers Ferry Center has adopted for use in several recent NPS exhibits is the Sennheiser guidePORT™ system. This wireless visitor information system senses a visitor's location and automatically delivers—via a wearable headset and receiving unit—audio that corresponds exactly to where the visitor is standing. Unlike other systems common to exhibit environments that require users to press buttons that correspond to their location, guidePORT is virtually hands-free.

An added benefit of guidePORT is that the system used for an exhibit area can also be





Top: *Proposed tactile models of a female flounder and young horse (foal) for the new visitor center at Assateague Island National Seashore. (Photos courtesy of Chris Dearing)*

Bottom: *This tactile model at Edgar Allen Poe NHS shows the original Poe house and the outline of an addition that is now attached to the historic house. (NPS Photo by Michael Paskowsky)*

used to deliver audio description or assistive listening in the visitor center theater. The visitor has additional flexibility with buttons on the unit that stop and restart the audio from the beginning of the last file played. Volume controls are also provided (*see photo on right*).

GuidePORT can also be combined with an induction loop system. Visitors with T-coil compatible hearing aids can request a neck loop which picks up the Sennheiser audio signal and then transmits it to their T-coil compatible hearing aid. Alternately, an induction loop can be built right into the exhibit space, doing away with the need for a neck loop. Visitors which T-coil compatible hearing aids need only be alerted to flip a switch built into their hearing aid.

The guidePORT system does have some disadvantages. Visitors who are blind or have low vision, or who are deaf or have hearing loss, must request the device at the front desk. Park staff also have to collect the returned devices and make sure they're properly stored in the furnished recharging rack. And cost for th guidePORT system is not cheap. HFC audiovisual technician Ed Boutte, who has installed a guidePORT system a Little Rock Central High School NHS, estimates hardware costs alone can total much as $40,000.

The guidePORT system being developed for African Burial Ground National Monument in New York City will provide one channel for assistive listening and a second channel for audio description. People who have hearing loss, or who are blind or have low vision, will be able to request the guidePORT device at the front desk. The attendant can then set the device to the appropriate channel (1 or 2). GuidePORT is capable of hosting multiple channels, so a third channel, for instance, could be provided in the future for a language translation or an audio tour.

At the USS *Arizona* Memorial, the park's cooperating association will offer a similar system. The Arizona Memorial Museum Association is working with contractor Antenna Audio to develop a multi-channel program that will offer audio tours in multiple languages, plus audio description for people who are blind or have low vision, and assistive audio for people who have hearing loss.

The audio program will be a hybrid system that is activated automatically by Sennheiser infrared triggers or manually by selecting numbers from the Antenna Audio device's keypad. Visitors who want a traditional audio tour experience can rent a device with the channel set to English or to one of several

Visitor uses an assistive audio system in new exhibits at Fort Stanwix National Monument. (NPS Photo by Michael Paskowsky)

New Handheld Device Provides Accessibility Solutions

The *Orlando Sentinel* (April 16, 2009) reports that people with either visual or hearing impairments now have a way to access assistive listening, captioning, or audio description in a lightweight handheld device. Walt Disney World has rolled out this first-of-its kind service, which provides visually impaired visitors with a narrative depiction of the scenes that unfold as they move through rides such as the Magic Kingdom's Haunted Mansion or Pirates of the Caribbean. The system also includes features for people who are deaf and hard-of-hearing, such as amplified sound and handheld captions.

The proprietary system, developed by Disney, relies on a series of remote, infrared sensors and a durable, hand-held device. The system tracks visitors as they move about, triggering audio descriptions for the blind and closed captioning or enhanced audio for those with hearing impairments. Disney licenses the technology to Houston-based Softeq Development Corp. who manufactures the Durateq™ hand-held device.

Customers include the Hall at Patriot Place in Foxborough, Mass., a museum dedicated to the New England Patriots football team. *The Boston Globe* (January 26, 2009) reports that the technology allows visitors to move about the museum at their own pace. Audio and video broadcast at the museum are synchronized precisely with the information on the devices.

Durateq hand-held device.

other languages. People with special needs can request the device for free with the channel set either to audio description or assistive audio. Neck collar induction loops will be available for people who have T-coil compatible hearing aids.

Interactive Kiosks

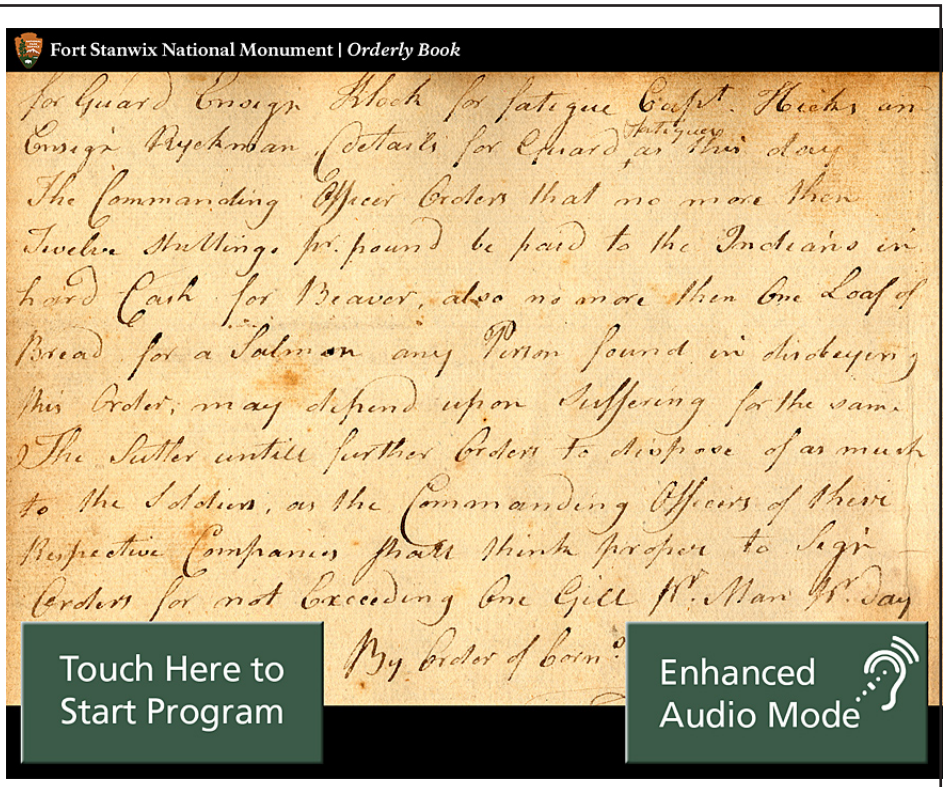
Interactive touch-screen kiosks present unique problems for visitors who are blind or have low vision. Using audio description to instruct a blind person to touch one or more small button targets on an LCD screen in order to navigate through an interactive program is a huge challenge.

Kovach-Hindsley advocates simplifying touch-screen navigation. By limiting choices on a screen to no more than four buttons, an application developer can provide large touch-targets at each corner of the screen. So, for instance, audio description could instruct a person to "touch the upper right corner of the screen" to proceed to the next screen, or to "touch the upper left corner of the screen" to return to the main menu. Two more choices could be offered for touch-targets in the lower left and lower right corners of the screen. By implementing consistent navigation based on corner touch-targets, users who are blind or have vision loss can quickly learn how to navigate through a program.

Project manager Michael Paskowsky used this approach to develop an accessible version of an interactive kiosk for the Fort Stanwix Orderly Book program at Fort Stanwix National Monument. A similar approach has been proposed for an interactive kiosk at Thaddeus Kosciuszko National Memorial.

Thought, not Afterthought

Paskowsky stresses the importance of incorporating accessibility into all our media planning processes. "The guiding principle," he says, " is thought, not afterthought." HFC experience has shown that retrofitting an exhibit for accessibility after the planning phase can easily add from 15-20 percent to the cost of the project. This can amount to several thousand additional dollars.



The main screen on the Fort Stanwix Orderly Book kiosk plays an audio loop that invites visitors who are blind or have low vision to touch the lower right corner of the screen to enter Enhanced Audio Mode.

Anita Smith is adamant about providing all visitors with similar experiences. "If you can see something, but can't hear it," she says, "then you have to think of a way to make it audible so that someone who is blind or has low vision gets a similar benefit. It's all about redundancy."

Kovach-Hindsley is equally emphatic about accessibility and Universal Design. Provide multi-sensory experiences, which benefit all visitors. Provide information in numerous ways—redundancy can be very effective. Appeal to numerous learning styles, abilities, and interests. Focus on relevant, core messages.

Members of the Harpers Ferry Center Accessibility Committee

Warren Duke
Magaly Green
Michele Hartley
Mark W. Johnson
Paul Koehler
Michael Paskowsky
Melinda Schmitt
Lori Simmons
Anita T. Smith
Anne Tubiolo

Universal Design of Tactile Exhibits with Touch-Activated Descriptive Audio

Summary of Phase I Findings of a Three-Year Research Project

In June 2008, RAF Models, Inc. of Winston-Salem, North Carolina, completed the first year of a three-year research and development project designed to develop universal design guidelines, methodologies, and best practices to address the needs of museum visitors who are blind or have low vision. The research is being funded with a grant from The National Institute for Disability Rehabilitation Research (NIDRR).

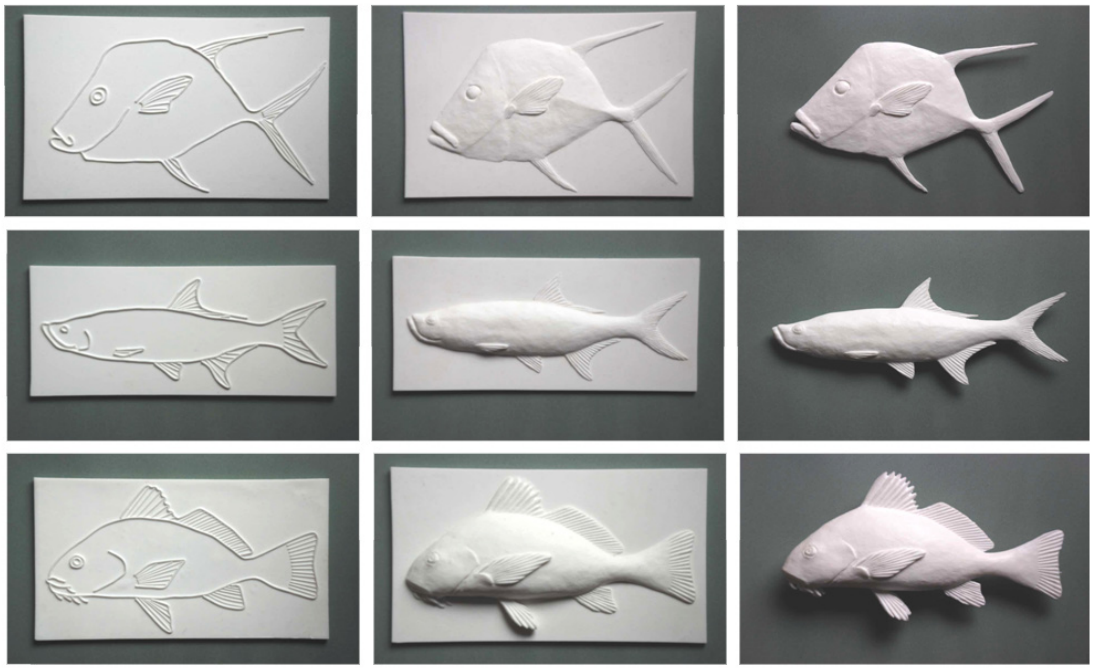
The Center for Universal Design at North Carolina State University was contracted to test and evaluate tactile exhibit components with blind, low vision, and sighted participants to establish data on user preferences related to tactile exhibits. It is believed that a universal approach to exhibit design will assure the effective and competent engagement of the exhibits by the widest possible range of people.

The goal of Phase I was to develop data on the communication effectiveness of three different forms of tactile objects in the context of an exhibit program at an aquarium. Specifically, which form of tactile representation: raised line drawing, bas-relief;,or full round representation is the most effective in communicating exhibit information related to form and shape. Furthermore, what specific guidelines can be developed from this data to help designers be more effective at including the blind/low-vision audience in the development of an exhibit program.

The primary objective is to develop statistical evidence in support of design guidelines that will outline the various physical and three-dimensional aspects of a tactile exhibit that will make it useful to the blind or low vision audience as an interpretive tool. And, in addition, to describe a technical framework or methodology useful in developing a tactile exhibit with touch activated descriptive audio.

The test results indicate that full round models are more affective as tactile exhibit artifacts and are preferred by blind and low vision participants, as well as the fully sighted participants. Further, data from participant groups show that participants would generally prefer to have fewer exhibits with more three-dimensional character (bas relief) than to have more tactile exhibits with less three-dimensional character.

Executive Summary courtesy of William Watkins, RAF Models, Inc., June 2008



Three different forms of tactile objects were used in Phase I of the research project: raised line drawing, bas-relief, and full round representation.