The Evolution of Public Education in Vermont – There's an App for that!

Public education has been an important aspect of the VTrans Programmatic Agreement with the DHP, FHWA and ACHP since its inception in 2000. We recognize our share in the role and responsibility of educating the public on all aspects of transportation projects and how they affect the lives of Vermonters. We also recognize that many Vermonters value their cultural and natural landscapes, heritage and environment and this was very apparent in the aftermath of Irene when many of our covered bridges were damaged and destroyed. Many townspeople were concerned that their iconic covered bridge was going to be replaced by a modern substitute. We made it a mission to replace and restore the covered bridges as it is an important piece of the cultural landscape and engineering history of Vermont. It was because of education and awareness and a sense of ownership of the resource that ensured its protection and continuation. We want to bring this same kind of feeling of ownership to our archaeological resources as well by focusing on ways to help the public become aware of these resources and educate them on why they are important and why they should be protected and valued in much the same way as people want to protect the covered bridges.

VTrans has incorporated various forms of public education and outreach on our larger projects that often involve adverse effects to the resource and require Phase 3 data recovery. In this case, public education is considered a standard mitigation measure and is always included along with Phase 3 data recovery. Examples of public education excerpted from the PA Manual that we have used in the past are listed below.

Articles in popular publications, web site postings, interpretive signage, exhibits (permanent, temporary and traveling), lectures, booklets, videos, press releases, community archaeology projects such as field schools, education curricula, CDs, interactive virtual tours, digital publications, site tours and site brochures. In some cases the use of innovative programs and creative mitigation measures such as off-site mitigation, contribution to a local preservation effort or restoration or preservation of a similar resource are encouraged. (Examples taken from VTrans PA Manual Sections 2D, 2I and 4(G)(1), 2000)

Much of the time, the majority of us tend to fall into the comfortable regularity of brochures, exhibits, booklets and maybe some lectures. We meet the standards but because of staffing or time we may not go beyond what we've done in the past. We repeat the same methods and move on to the next project. It is difficult to generate excitement in public outreach if we fail to incorporate new ideas and approaches into our public education and outreach programs.

The Move To Incorporating New Technology

Each year VTrans sponsors Vermont Archaeology Month (VAM) as part of our public education requirement through the PA. It is also a venue to incorporate more innovative programming into our public education. In addition, it provides a way to contribute toward

public education and outreach in the years when we do not have large projects that produce much in the way of site information. VAM consists of several events spread out over the month of September and showcases the variety of current archaeology projects in the state through lectures, tours, presentations and hands-on activities including field schools.

One of the major renovations in the way we use new technologies in public education occurred with VAM. We had been advertising this event the same way for the past 10+ years and it was time to change! We also realized we needed to draw new attendees and were missing out on ways to reach and educate a broader audience of potential archaeology enthusiasts.

The year 2012 marked a change in the coordination and management of Vermont Archaeology Month. The VTrans Archaeology Officer and the State Archaeologist collectively made the decision to overhaul and redefine the program after years of maintaining the status quo. We felt it needed some fresh approaches and new ideas. We began by creating a list of goals that included defining target audiences, potential ways to increase attendance and increase partnerships and presenters. We also realized that part of this new approach involved the need to incorporate and expand the use of social media including Facebook and other outlets to increase public awareness and reach the population that used those avenues to get their news.

Social Media:

The greatest leap toward incorporating new technology into public education was in the form of creating a Facebook page. Deciding to host a FB page is a commitment because it only works if you have someone who's dedicated to frequently updating the site and who can speak the language of the audience. More often than not, *how* you post something is as important as *what* you post. An exciting post gets "likes" and "shares", a boring description does not. "Likes and "shares" are necessary to expanding your audience as these are ways to repost information to friends' sites and then they get more "likes" and "shares" and reposts and so on. During the months leading up to VAM and all through September, we had at least two individuals posting daily to the site. Our Facebook page is specifically named for Vermont Archaeology Month but we do post material throughout the year. We also began posting information on the VTrans FB page. Information on that site included archival photos of interstate construction, the removal of billboards, dedication ceremonies and other historic transportation events. Both FB pages have been quite successful and well-received by the general audience.

The image above shows our Facebook cover photo with the number of "likes" and links for photos and events.

One other major change was the decision to limit the use of posters for advertising and eliminate the bulk mailing of our printed brochures. While the posters are fairly popular collector items among certain individuals, we found that they often get covered up or torn down from store windows or get lost in the sea of poster advertisements for other competing events. Content for the brochures must be finalized far in advance in order to send them to the printers and mail them in time for people

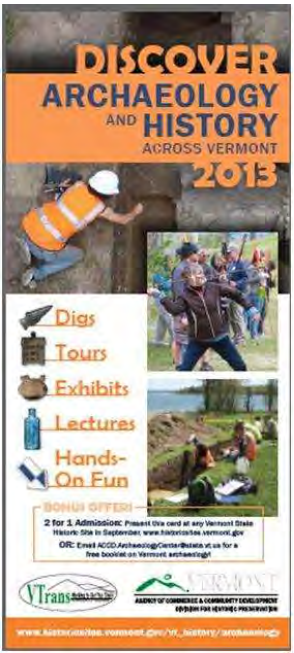
to plan for VAM. This means that events need to be set months ahead of time and new events don't make it into the brochure. With limited funding each year for VAM, we had to make choices on where to focus our funding and where we could take advantage of free or low cost options.

We collectively agreed to use rack cards to display a selection of highlighted events along with our FB logo and web site address for further information. This enabled us to display stacks of cards at strategic locations so folks could take something tangible with them and in theory, increase their likelihood of remembering the event.

The image above illustrates the front and back sides of our rack cards highlighting several events for VAM.

This year we are also incorporating the use of QR codes on the base of our posters and rack cards that will direct prospective attendees to the full VAM schedule of events since we are unable to advertise all of the events on the rack cards due to limitations in size.

Another technological tool that we have just begun using is the mobile app. There are resources available on the web such as Guidebook that allows the user to create a free app for events. These free app creation sites do have their limitations – often in the form of the maximum number of people who can download the app – but they are a useful way of allowing mobile users to view information regarding their event. Information generally includes a schedule of events, locations, alerts for sessions that the participant has signed up for and up-to-date information on changes, new sessions, etc. Guidebook is just one of a few sites out there that can assist in creating an app for your event. https://guidebook.com/



The use of app creation programs allowed us to develop an app for our Historic Preservation Conference this past year. This app developed by our Historic Preservation Specialist, Kaitlin O'Shea was a new and fun way to keep attendees connected!

Surveys are a very helpful way of understanding how information is getting to your audience. We conducted surveys at all VAM events to find out how the attendees heard about VAM and the events they attended. Survey sheets were provided to attendees at each event and on line. Attendees were encouraged to provide feedback not only on how they heard about the event but about their experience as well and what tools they found helpful to their educational experience.

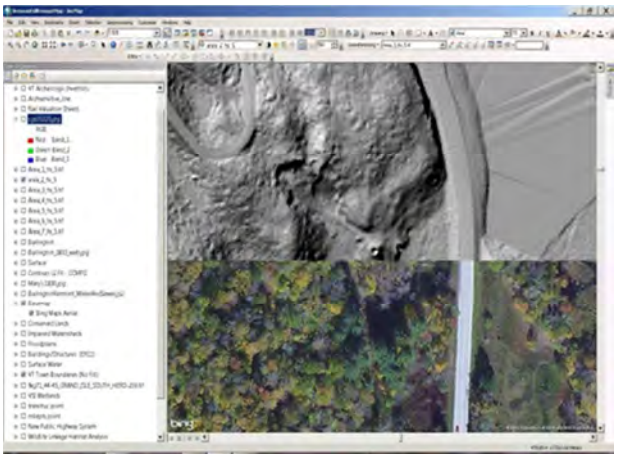
The survey showed that while people spent time on Facebook and liked the posts, the majority of people found out about events through newspaper stories, radio ads on popular stations and the rack cards. We acknowledge that it takes some time to build up an audience on Facebook so it will be interesting to see the trend over time as we continue to conduct our surveys. VAM was where a lot of our focus was this past year in

trying to incorporate new technology into public outreach simply because this is generally the largest event showcasing archaeology in Vermont and draws our largest public audience.

GIS and Other Digital Mapping as Educational Tools:

There are other areas where VTrans has used new technologies that can also become valuable educational tools to both the interested public and other professionals that we engage with during the course of our work. An important tool that we use on a daily basis includes various digital mapping techniques – ArcMap, GPS, referencing digitized Beers and Wallings maps. All of these can be referenced and with some work can be overlaid onto Ortho or Topographic maps to show changes to historic landscapes, record archaeologically sensitive areas and mark historic features. This is important information that can be used during project design. Digital recording using GPS improves documentation accuracy in the field and is then transferred into project plans so that we know exactly where a resource is in relation to proposed project limits. This is very helpful when trying to avoid impacts or adverse effects to resources. This tool can also be used to record objects in 3D such as a bridge. This is a new tool that can be very effective in recording important information on an historic object or structure prior to replacement. Examples of digital mapping techniques that we are using in Vermont are explained in greater detail and illustrated below.

After Irene, much of the state that had been affected was mapped using LIDAR. This technique removes vegetation and other obstacles and allows for a clear visual of the actual ground surface. LIDAR was used to view changes to the landscape and may be useful in determining new flood zones. As Archaeologists, we are able to use LIDAR mapping to locate archaeological features on the ground surface. Several features become visible including alterations in water routes, stone walls, roads, cemeteries and structural features such as lime kilns and foundation remains. This mapping technique is very useful in resource identification during project reviews and we have been able to use this technology in trainings presented over the past year to professionals and school groups to educate them on how archaeologists find historic sites.



The image above illustrates the difference between a typical Ortho-photo and a LiDAR Scan. Note the visible lime kiln and associated land alterations in the upper half of the image that would normally be hidden by vegetation. (Photo: VTrans)

LIDAR was also used to map a 3D image of a very unique and unusual historic stone culvert in East Montpelier, VT. This culvert had been slated for replacement in 2013. Many culverts had washed out during Irene and were determined to be undersized. Therefore, it has become somewhat of a general practice to begin replacing all culverts that are determined to be undersized even if the culvert itself is structurally sound and functioning hydraulically. This culvert was constructed of dry laid stone in 1899. Research indicated that the large lintel stone was carved with the date

and the initials of the road crew that probably constructed it. Once this had been discovered, we recommended that this culvert be left in place until some alternatives could be discussed. In the meantime, we have acquired federal funding to conduct a stone culvert inventory of the state along its highways.

This stone culvert's lintel stone bears the date June 1899 along with the initials of the individuals who worked on the road crew and most likely constructed the culvert. (Image property of VTrans)

We saw a unique educational opportunity here and partnered with the University of Vermont's Historic Preservation Program where three graduate students conducted surveys of stone culverts in two Vermont towns as their final project for their degree. We also partnered with engineering students at the University of Vermont to study the culvert and come up with some potential alternatives for rehabilitation. These students were excited to study this unique and significant culvert as a final project for their coursework and map it using LIDAR. This proved to be a great opportunity to educate this group of students about historic resources and in turn, provide us with potential ways to save this valuable resource.

A UVM Engineering student prepares the culvert for the LIDAR scan by clearing away snow from the entrance. (Image property of VTrans)

UVM Engineering students set up the LIDAR scanning equipment to capture a 3D image of the structure. (Image property of VTrans)

LIDAR is also used as a non-invasive method for recording fragile material and recreating accurate images. This method was used by one of our consultants to record historic carvings on rock faces at the Lake Champlain Bridge at the Chimney Point Historic Site. One such carving depicted the name "GEO ADAMS". Through on-line research, VTrans Archaeologist, Brennan Gauthier was able to put a face to the individual whose name appears on the rock. This information will be incorporated into the exhibit at the historic site and is an excellent

way to preserve the carvings and the information about the people who made them without further damaging the rock face.

The photo above is just one of several historic rock carvings found along the shore during the Lake Champlain Bridge project. (Photo: UVM CAP)

Military photo found by VTrans Archaeologist, Brennan Gauthier put a face to the individual whose initials appear on the rock as George Adams. Information from an Addison census registration was used to confirm his identity. (Photo: Library of Congress)

Making the Old New – Using New Technology to Extend the Life of Traditional Media for Public Outreach:

Digital technology can also simply be a conduit for transmitting traditional information in a new way. An example of this can be found in the form of digitizing historic maps and other print media such as slides, photos and newspaper articles so that it becomes available in digital archives. This broadens the availability and helps to ensure the continued use of these resources in new ways. We used an example of this technology over the past year when we were able to gain access to Vermont State Archives and our VTrans photograph collections in order to understand and educate the public on the changing face of Vermont's social and physical landscape over the past 120 years. Over 40 photographs and slides were scanned, edited and printed and made into large posters for the 2013 AASHTO conference held in Burlington, VT. These historic photos depicted everything from the construction of the interstate system and bridge construction to removal of billboards after they were banned to the faces of those who worked construction crews and who were prominent in state government at that time. We have been working closely with our public relations office and have been allowed access to the VTrans Facebook page to provide these images of interest to the public that are a significant part of the historic development of the state. Digital technology has provided a method of access to information that would otherwise be lost in the dark, dusty archives of large repositories.

Combining New and Traditional Forms of Educational Experiences to Provide a Balanced Overall Approach:

During the summer of 2013 VTrans conducted Phase 3 data recovery along VT RT 78 in Swanton, VT. As part of this mitigation, we used a combination of traditional educational methods and new technology to advertise and educate the public on this very important period of Native American occupation along the Missisquoi River. Regular Facebook postings kept people up-to-date on the day-to-day happenings and new discoveries at the site. It also provided a venue for engaging and interacting with the public such as this posting of a student's illustration of a longhouse.

Example of a Facebook post illustrating a student's depiction of longhouse construction. Remains in the form of the outline of a longhouse were discovered at the Swanton site in VT.

More traditional methods of education consisted of site tours and lectures, working with volunteers and hosting school groups for which we had a full-time dedicated staff member. We also worked very closely with local partners and federal agencies and really got them involved in everything from fieldwork to planning permanent exhibits and interpretive signage in the refuge to incorporate the area's cultural contribution and history to the natural environment. It's difficult to beat the education that hands-on experience can provide! We also attracted the attention of news crews and were featured in The Burlington Free Press which is widely distributed throughout Northern and Central Vermont as well as our local news channel.

Illustration of a local news web posting on our archaeology project. (WCAX.com)

While the use of Facebook and methods such as blogs and tweets are a good way make people aware of an archaeological project or provide immediate and current information on archaeological findings, we discovered that the majority of individuals were most likely to hear about an event through news media – both print and on-line, and through advertisements on popular radio stations. Many print media subscriptions also come with web, tablet or mobile access for their subscribers so this is a good way to reach the masses and provide some education while encouraging them to visit the site. Social Media also provides a way for the public to become engaged in dialog about your archaeological project. Along with the positive nature of immediate access and interactive capabilities one needs to consider and be prepared for negative feedback. When deciding to broaden the horizons and expand your audience with the use of social media it is good to have a plan to handle both negative and inappropriate feedback on your social media site. You need to handle potentially

damaging postings quickly and professionally. The best course of action is to carefully consider what to post in the first place.

Innovative Programs:

While the use of the new technologies can expand the reach of public outreach and education, we have found some other innovative ways to educate the public in the field of archaeology and help them gain an appreciation of Vermont's rich cultural heritage. Listed below are a few examples of new programs that we are developing and hoping to expand over the next few years.

We have been examining our collections from past projects that may not be of exhibit quality but do have incredible educational value either for research purposes or for classroom education. We have been using some of these collections or parts of them as educational tools in schools and presentations and as traveling exhibits.

Two Community Based Learning (CBL) students from Montpelier High School worked with the VTrans Archaeology staff during the 2012 season. The program provides an opportunity for high school students to work alongside a professional and experience what it might be like to work in a career in their field of interest. They must complete a certain number of hours with the professional and write a report about their experience at the end of their term.

We are working with our State Archaeologist and area educators to find the best way to incorporate archaeology studies into school curriculums. Several meetings have been conducted thus far at the archaeology center like the one shown below with the Vermont School Librarians Association.

"The Center hosts workshops for educators, such as this group from the Vermont School Librarians Association." (Photo: Giovanna Peebles)

A summary of Approaches and Conclusion:

Throughout this paper I have illustrated ways in which VTrans has begun to incorporate new technologies into our public outreach efforts. New technologies combined with innovative programs and traditional methods of public outreach help to reach a broader audience.

Incorporating new technology into your approach is challenging and I recommend adding one or two methods at a time. Don't try to do it all at once. For many of us it requires education on our part, learning these methods and discovering the best ways to add them to our program. Successful social media programs need individuals who are excited about this form of media and are savvy in the field. It requires a large time commitment to find and edit content and regularly manage a site.

Define your target audience and research the method that will reach them. Get feedback from your audience and be patient. It takes time to expand your audience. Look for free or inexpensive ways to incorporate new technology and try what interests you.

While new technology is exciting and immediate and hip, it also has its limitations and does not appeal to everyone. We found that many people still prefer to read the morning news – maybe on their phone or tablet but traditional media still works!

Do not forget traditional methods but look for new ways to incorporate them. Upload that booklet or brochure to your web site or Facebook page. Create a mobile app that you can provide non-technical project summary reports to interested individuals.

It is also important to partner with other agencies, communities, consultants and organizations if you want a successful public outreach program.

The banner shown in the photo above hangs in Barre, VT advertises Vermont Archaeology Month and illustrates a partnership with the local community.