

Eastern New York Chapter
of the
**ASSOCIATION FOR
BRIDGE CONSTRUCTION AND DESIGN**

NEWSLETTER

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President's Message

In the coming year we approach a significant anniversary for the industries associated with our organization: the fiftieth anniversary of the National Interstate and Defense Highways Act of 1956. Better known as the Interstate Highway System, this road network now contains 42,700 miles of roads, all of them at least four lanes.

The system has served the country well; unfortunately it is showing its age. The recent incident on I-787 has made it very clear to those of us in the upstate New York area that a lot of work needs to be done to just maintain this vital part of our day to day lives.

Recent increases in the price of gas and diesel fuels have produced calls for eliminating use taxes to ease the burden of the traveling public. As the old saying goes "pay me now, or pay me later". By eliminating the use taxes we remove monies from the funds needed to maintain the roads and bridges we all use daily. Reducing funding will result in poor roads and bridges which reduces fuel efficiencies and delays the inevitable.

In November the voters approved a Transportation Bond Act. As an industry we should appreciate increased spending on the infrastructure that we depend on as designers and builders. We should also, as taxpayers, make sure that the money is spent wisely on projects that are needed and serve the communities best.

I ask you to take the time to inform your representatives of your concerns regarding these issues. As an industry we owe it to ourselves to see that the infrastructure is taken care of, and as professionals we owe it to the tax paying public that it is done correctly.

JOHN WALSH

3D High Definition State-of-the-Art Survey and Mapping Technology

M.J. Engineering and Land Surveying, P.C. [MJELS] utilizes the newest equipment available to the engineering/survey community to develop High Definition Survey (HDS) Data, utilizing 3D laser scanning techniques. This advance in technology allows for the collection of thousands of data points in less time and with lower cost than the traditional techniques. The accuracy of these data points allows for the development of high quality, extremely detailed mapping with true to scale imaging of any surface within the scan. The scanned images can be utilized as a 3D model and 2D dimensional documents can be directly imported into 3rd party software. The use of this equipment allows the designer and surveyor to work in unison to accomplish project objectives, quicker and safer without traffic outages and/or expensive MPT schemes.

MJELS's ability to offer a combination of conventional survey and high definition 3-D laser scanning allows the delivery of a complete product. The data collected during the laser scanning process known as a "point cloud" contains a virtual intelligent 3-D model of the entire scanned area. The HDS scan allows the measurement of all steel structural members, such as flange thickness, bolt spacing and pedestal elevations, as well as surface utility information that is able to be used during the entire planning and design process.

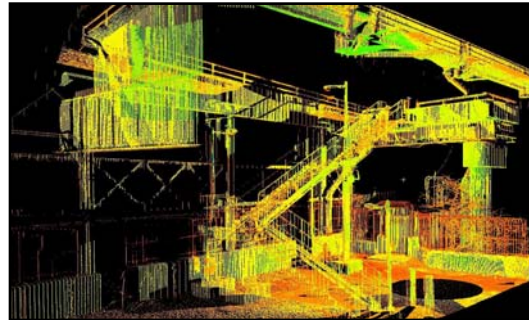
Some example projects where MJELS provided HDS services to the NYSDOT are:

158th Street Pedestrian Bridge Access at Fort Washington Park Henry Hudson Parkway, Manhattan, New York

MJELS provided 3D High Definition Survey of the roadway and plaza of the existing stairway access and cantilevered bridge structure. The objective of the project was to provide direct access to the park at 158th Street, over the Henry Hudson (Route 9A) Parkway, with a touchdown on the south side of the entrance to the park. MJELS was designated on the project after design investigations had been undertaken. As the location involves a complex mix of overhangs, steel columns and staircases, the proposed design of the handicap accessible ramp configuration must work within the confines of the existing steel framework. The design was progressed without detail field information. MJELS develop a 3D scan and point cloud to be utilized for design investigations to assure that the proposed ramp configurations worked within the constraints. The proposed 3D model of the ramps was then overlaid into the 3D point cloud to identify areas that required redesign to fit the existing conditions



(Actual Photo)



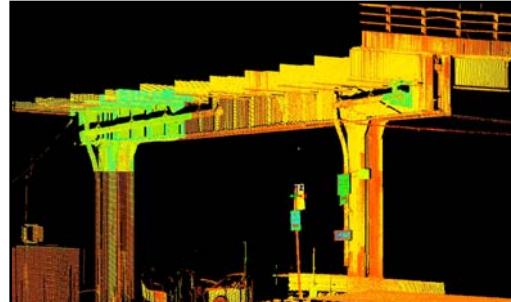
(HDS point cloud overall scan: 4 mm - 6 mm accuracy)

FDR Drive Rehabilitation; East 25th Street to East 42nd Street, Manhattan, New York

MJELS provided 3D High Definition Survey of the elevated roadway section between 33rd and 34th Street to demonstrate the applications of the scan for use in the rehabilitation investigations. Under the preliminary design phase of this contract, conceptual alternatives for the reconstruction of the elevated section are being investigated. 3D scan information will be utilized for structural investigations into the staging options for the roadway section. As part of the public information process, the scan images will be incorporated into the visual impact assessment process to develop renderings depicting pre-construction, active construction and post-construction conditions.



(Actual Photo)



(HDS point cloud section thru bridge: 4 mm-6 mm accuracy)

Applications of this technology are virtually unlimited, and include: Roadway, Bridge and Road Design; Bridge Clearance Inventory; Bridge Inspection; Building Renovations; Industrial Buildings; Historic Preservation and Forensic Investigations.

Benefits derived from application of this technology include: Development of extensive detailed database; Attainment of 4-6 mm accuracy; Quick measurement of objects and/or areas; which are inaccessible and/or unsafe; Immediate real-time information; No traffic outages or costly Maintenance & Protection of Traffic schemes; Significant overall time-savings and Potential for cost savings

Blenheim Celebrates 150th Anniversary of Blenheim Covered Bridge

By Mark Olstad, Spectra Engineering, Architecture and Surveying, P.C.

On September 10, 2005 the Town of Blenheim, NY celebrated the 150th anniversary of the construction of the Blenheim Covered Bridge. I had the honor of being asked to speak at the celebration about the significance of this beautiful bridge, and I would like to share some of my thoughts.



In 1855, Nicholas Montgomery Powers, a well known bridge builder from Vermont, was commissioned by the Blenheim Bridge Company to build a bridge crossing the Schoharie Creek in North Blenheim. The bridge still standing today is documented as the longest single span timber covered bridge in the world. It is 232 feet end to end, the trusses are 228 feet long, and the clear span of the bridge is 210 feet. As we know today, the Schoharie Creek can be a docile stream in the dry summer months and a raging torrent in the spring floods. So the length of the span certainly contributed to the bridge still being here in 2005.

The bridge is one of only 24 remaining original covered bridges in New York State. There are many challenges that face any covered bridge on a daily basis, such as fire, storms, floods and decay, even lack of funding for preservation. Over the years, the location selected for this bridge threw many additional challenges at the span and it has weathered them all with grace.

In 1869 a severe freshet washed out a wide channel on the west approach to the bridge. A wooden extension was added to span the new channel. In 1887 and in 1895 the wooden extension needed to be replaced; the last time it was replaced with an iron span. In 1930 the iron span cracked under the weight of a heavy load of ice during an ice storm. In 1931 the bridge was retired from use and a new steel truss bridge was constructed just downstream of the Blenheim Covered Bridge. In 2005 a new curved girder bridge was shoehorned between the timber bridge and the steel truss and the replacement truss was torn down.

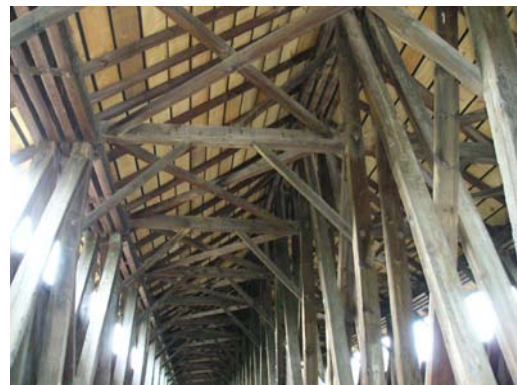
So why has this bridge been able to span such a long distance (for timber) and weather everything that man and nature has thrown at it for 150 years and still remain standing as straight and true as if it had been built just yesterday? There are two major factors that have enabled this to happen: the details of the construction made it possible to last this long and the

efforts of the people of the Town of Blenheim and Schoharie County (and likely many others) who have realized that this bridge is a treasure and worked so hard to be sure it is preserved.

Nicholas Powers knew that he would need a strong structural system in order to span such a great length. So he built two strong, all timber trusses of a type developed by Stephen Long in the 1830's (called a Long Truss). But to add more strength, Powers built a third, deeper truss down the center of the bridge. Within the center truss he constructed an arch that reaches from below the bridge floor all the way to the roof ridge beam. In this way he was able to conceal the size of this massive element and keep the lines of the bridge slender and graceful. This configuration resulted in a somewhat unusual "double barrel" configuration, which is probably at least part of the reason the bridge was retired from service, since each barrel is too narrow for modern vehicles to use.



Just as other bridge builders of the time knew, Mr. Powers was fully aware that if he could isolate the timber structure from the ravages of rain, snow and ice, it could last indefinitely. To keep out the weather he built a roof and siding as a first line of defense. Then to foster a drier environment inside, he built the structural elements (arch and truss chords) of several large pieces. The pieces were separated with timber spacers. This method allows air circulation and quicker drying of any moisture that gets through to the primary members. Thus, some of those dark and poorly ventilated areas where timber munching molds and fungi like to grow were eliminated. The bridge still standing majestically today is witness to the fact that Mr. Powers designed it to last.





How many goods and how much livestock had moved back and forth across its decking? Had children used it as a jungle gym when adults weren't looking? What changes took place as automobiles began to supplant foot travelers and horse and wagons on it?

The 150th anniversary of the construction of the Blenheim Covered Bridge was marked by a parade, historic displays, yard sales down State Route 30 through town, songs by a barbershop quartet (with about 12 people in it), an elementary school chorus, remarks by several local officials, a chicken barbeque, a country/rock band, and fireworks. There were far more people in attendance than all of the residents of this small town. All of this fuss demonstrates that this bridge is a special structure worthy of the efforts that have been made to preserve it over the years. I have been told of similar celebrations that were held at the bridge's 100th, 110th, and 125th anniversaries as well. It has been designated as a Registered National Historic Landmark by the U.S. Dept. of Interior, National Park Service, and as a National Historic Civil Engineering Landmark by the American Society of Civil Engineers. I applaud the efforts of those who have worked so hard to protect this bridge to this day, and I hope that future generations will be equally energetic in preserving it for a long time to come.

Just this summer the bridge received a new roof. And in 1998 the siding was replaced and a few deteriorated pieces were strengthened or replaced. But much of the original structural fabric of the bridge remains today. The timbers bear the unmistakable marks of decades of people that carved initials and dates into them. I was awestruck as I walked across this bridge alone for the first time. What stories could this bridge tell of the people that had used it over the years? Had Civil War volunteers used it as they headed south for some battle?

Statewide Conference on Local Bridges Held

The 12th Statewide Conference on Local Bridges was held in Syracuse on October 26th and 27th. The three New York Chapters of ABCD once again provided financial support to this conference which continues to draw bridge professionals from across the state. Preliminary registration figures indicate that there were in excess of 370 in attendance. Attendees included county, town and city representatives, DOT staff, FHWA and SEMO representatives, consultants and contractors. Cliff Thomas, George Christian and George Doucette from DOT and Randy Gibbon from Chenango County provided opening remarks. The counties in Region 9 were highlighted in this year's "Featured Region". There was a presentation on DOT's new Assistance Program Evaluation Bureau and an update on the Locally Administered Federal Aid Process. Other presentations included case studies of local and state bridge projects, ROW issues, new federal requirements for scour critical bridges, an update on concrete bridge deck performance, information on reinforcing bar options and a discussion on the importance of having a Quality Assurance process for steel bridges. An entire session was dedicated to bridge maintenance and repairs. Conference presentations are viewable on DOT's website under Departments/Structures/ Events/News.



www.abcdeny.org

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