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Town of Portland Water District No. 7

By Garrett M. Hacker, PE

E&M Engineers and Surveyors recently completed the topographic survey and water main design for Phase I of the Town of Portland's Water District No. 7, located in Chautauqua County New York. The project involves the installation of approximately 4.25 miles of 6 and 8-inch ductile iron water main, a 240 feet long conventional bore under CSX and Norfolk Southern Railroads and a 570 feet long directional boring under the New York State Thruway.



E&M's involvement with the project started with the map, plan and report phase and continued through district formation and preparation of the grant and loan applications to the United States Department of Agriculture New York Rural Development and Appalachian Regional Commission. The following summarizes the loan and grant funding acquired by our firm:

USDA RD Loan:	\$1,006,000.00
USDA RD Grant:	\$ 890,000.00
ARC Grant:	<u>\$ 150,000.00</u>
Total Loans:	\$1,006,000.00
Total Grants:	\$1,040,000.00

Bids for construction of approximately 4.25 miles of water main were opened on May 14, 2010. The construction contract was awarded to Sicar Management & Construction Inc of Elma, New York submitting a bid of \$1,682,317.28. A notice of award was issued on July 08, 2010. Construction of the project began in October of 2010 and is anticipated to be completed in April of this year. E&M is providing inspection services for the duration of the project.



Villages Infrastructure Needs

By: Glenn D. Cooley, PE

Each year the need for infrastructure capital improvement dollars grows in Village budgets. The decision on whether budget money goes to the water system or the sewage treatment plant or other facilities becomes harder.

Villages do not usually have capital budgets large enough to proceed with major projects on their own. For these projects, grants and/or loans from government funding agencies are needed. The various agencies “in the business” include: U.S. Department of Agriculture Rural Development, NYS Environmental Facilities Corporation, U.S. Department of Housing and Urban Development, Appalachia Regional Commission and most recently from the American Recovery and Reinvestment Act.

In November 2010, we conducted a survey of Village Mayors and Public Works Superintendents. The survey asked two questions: what are the top 3 repairs or upgrades needed in Village infrastructure and in the last year where did the Village obtain infrastructure funding. The survey infrastructure categories with the percent responding as the top repairs needed are:

Water Distribution Systems	= 86%
Streets	= 50%
Stormwater/Drainage	= 50%
Water Source or Treatment	= 29%
Sewage Treatment	= 21%
Sanitary Sewers	= 14%
Other	= 14%

Note that respondents could list 3 categories, thus total percent is greater than 100. Some of the “other” categories given were: industrial site redevelopment and erosion control.

Last year, most Villages (29%) receiving funding got it from the U.S. Department of Agriculture Rural Development for their projects. The second highest (21%) was “other” and included FEMA, Natural Resource Conservation Services and New York Main Street. Coming in at 7% each were NYSEFC, HUD, and ARRA.

Twenty-one percent of the responding Villages could not obtain funding and 29% did not apply for funds last year. The survey results clearly illustrate that Western New York Villages greatest need is in improvements to their water distribution systems. This component is closely followed by streets and stormwater/drainage improvements

Over the years of writing grant applications for clients we have learned several things. First, the community and grant writer need a personal connection with people at the grant agency. If you don’t have a first hand knowledge of the people processing your application, you are just another number. Second, your project must have a high necessity; i.e., its needed to prevent health problems, improve access to clean water, correct a severe environmental problem or other such situation. Applying for a grant to build a community center is perhaps noble, but does not score highly on most agencies target lists.

Next, and probably most important, is perseverance. You must stay in close contact with the agency personnel to be sure they have all the information that they need. That contact also reinforces the idea that your community really needs the money. Finally, the old adage of “if at first you don’t succeed, try, try again”. It could take several rounds of applications to get a grant or loan, but you will improve your application and your changes with each one.

Evolution of Bridge Construction Materials

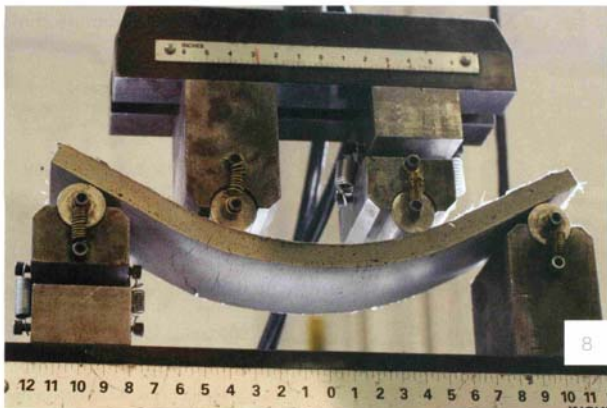
by Roy Pedersen, P.E.

Bridges, like any man made structure that must contend with the forces of nature and loads imposed on them, do not last forever.

Attention is focused on this briefly when a structure fails and makes the news. This happened in Minneapolis recently when a large structure went down. The replacement structure was built with the benefit of the latest available technology and materials to provide a cost effective, durable, strong bridge.

New ideas are being developed in the building materials and technology used in bridge construction.

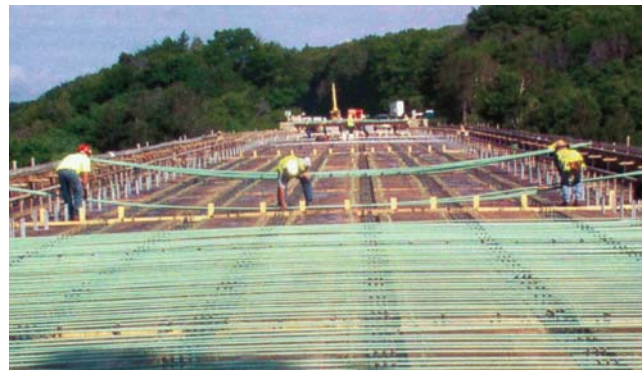
Bendable concrete is one such material. This is a product being developed at the University of Michigan. Concrete is by nature a brittle material that is very good at resisting compression, or “squashing” loads but not good resisting tension or “stretching” loads. This material, officially known as Engineered Cementitious Composite (ECC), can stretch up to 500 times more than standard concrete, and even exhibits self healing capabilities. A photo of a test sample is show here.



In a previous article, we wrote about seismic retrofitting of bridges. At the Georgia Institute

of Technology, research is being done to develop “smart” cables that will stretch during an earthquake event and then shrink back to normal after the quake. The hope is that these will be able to pull bridge beams back into the proper position after being shifted by an earthquake.

One new “ish” bridge material that has been in use for 20+ years but may not be known about by many people is epoxy coated reinforcing steel (see photo). The green colored epoxy coating on the reinforcing steel greatly slows the rusting process which causes concrete structures to deteriorate. Two other methods of corrosion protection for reinforcing steel are galvanizing and corrosion inhibitor additive to the concrete. The galvanizing process is the dipping of the reinforcing bars into a bath of molten zinc. The zinc bonds to the steel to form a protective coating.



The corrosion inhibitor additive is a liquid chemical added to the concrete at the batch plant which also can bond to the reinforcing to form a protective coating against corrosion.

Another method used by engineers to make concrete more durable is the addition of air entraining chemicals. These additives cause the formation of bubbles in the concrete. These bubbles provide space for ice crystals to expand into without breaking the concrete.

Homeowners can accomplish this with their home projects by adding some liquid dish soap to their concrete. A side benefit is that this makes the concrete easier to mix.

These are just a few of the many ideas that engineers and scientists are working on to make our bridges safer and more cost effective.

Southern Tier West Local Government Conference

Mark your Calendars: The 18th Annual Southern Tier West Local Government Conference will be held on Wednesday May 11, 2011 at Houghton College. A large variety of programs are planned for town and village board members, zoning and planning board members, clerks, highway and DPW superintendents, water/wastewater operators, justices, court clerks and code officers.

You will have the opportunity to talk with exhibitors and speakers; get education credits and compare notes with your peers. Join over 400 people from Western New York. Registration will be in the mail and online the beginning of March. Call Eileen Weishan at 716-945-5301 x207 with any questions.



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