

SiteLines



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The quarterly newsletter of Carroll Engineering Corporation

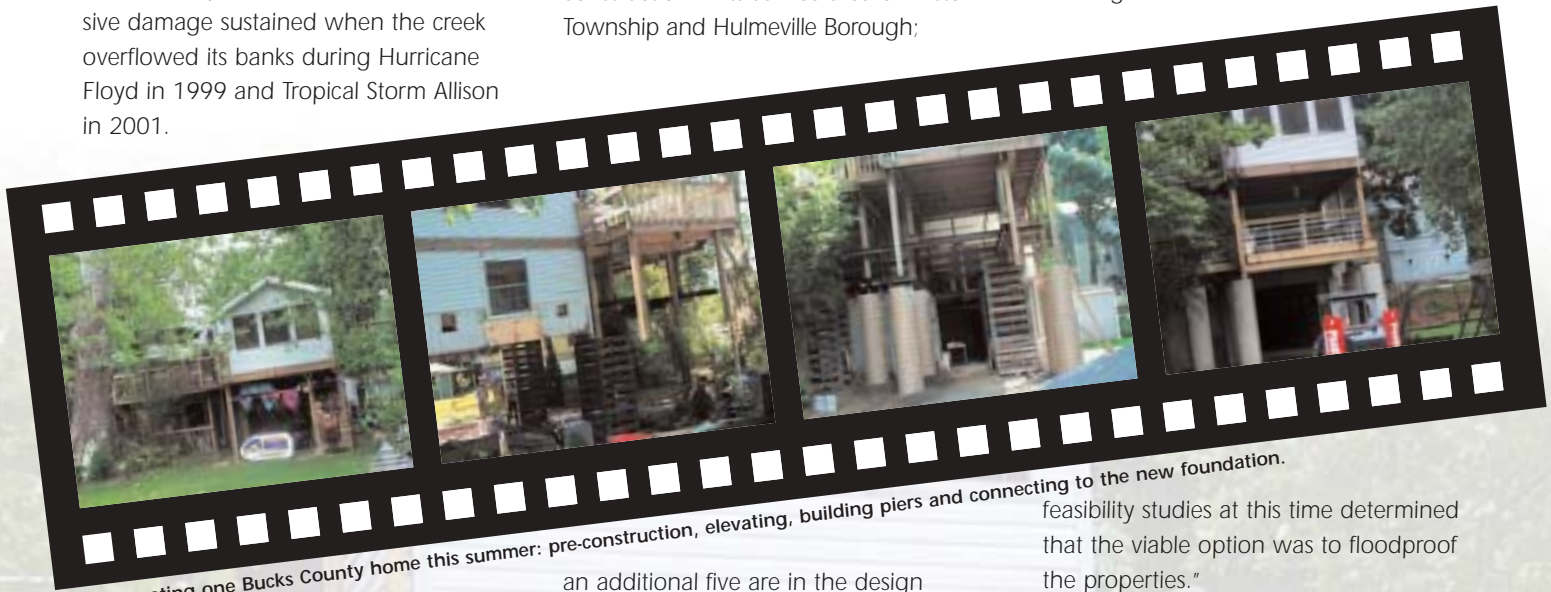
Fall 2003

County Gives Flood-Prone Homes a Lift

The Bucks County commissioners are committed to protecting residents' properties in the Neshaminy Creek flood plain from the kind of extensive damage sustained when the creek overflowed its banks during Hurricane Floyd in 1999 and Tropical Storm Allison in 2001.

homes and businesses that have been accepted into the program. Currently, CEC has five homes under contract for construction in its service area of Bristol Township and Hulmeville Borough;

Charles Arnold, PE. "It could build a dam on the Neshaminy Creek, elevate or floodproof flood-prone buildings...or do nothing at all. Cost estimates and



Renovating one Bucks County home this summer: pre-construction, elevating, building piers and connecting to the new foundation.

Carroll Engineering is playing a key role in the program, designing and overseeing the work that will alleviate conditions on as many as 150 of the more than 300

an additional five are in the design stage. The first home renovation, begun in June, was completed in September.

"In 1999 the county explored three options to control flooding," says Carrolls

feasibility studies at this time determined that the viable option was to floodproof the properties."

The Neshaminy Creek Supplemental Watershed Work Plan No. 5 was developed in 2000-2001. Using


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New Carroll Office Serves Chester County Area

Sooner than even we anticipated, Carroll Engineering is opening its third office at 128 E. Lincoln Highway, Coatesville, Pa.

Managed by Russell S. Dunlevy, PE, senior vice president, it will serve Carrolls growing client base in the Chester County area. The staff will be supported by the full range of services available through the home office in Warrington, Bucks County, Pa. This is the firms second branch facility, joining the Montgomery County office that relocated to Collegeville in 2001.

"Carroll Engineering has been steadily expanding as a regional consulting engineering firm," says Harry J. Barford Jr., PE, chairman. "The new facility will help us better serve the diverse engineering needs of our clients in Chester County and its environs, as well as assist us as we endeavor to build new, strong, vital client relationships."

With its expansion, CEC continues to seek highly qualified engineers and other professionals to join its more than 120 employees at the three sites. 

From My Chair




Harry J. Barford Jr., PE

As I look into the future of Carroll Engineering, I can see a convergence of technology and human skills on a par that I could not have anticipated when we first established this firm 30 years ago. It is both exciting and humbling to watch it develop.

Over the years, we at Carroll have understood the importance of nurturing the professional-development side of engineers. Bob Larason was a director of the corporation in charge of human resources and represented new accounts. One of his most significant accomplishments was mentoring the new engineers, helping them grow into their positions. Bob made the difference between a college grad with a degree and a practicing, contributing professional.

After 19 years with us, Bob recently retired. We wish him the best, and thank him for his insights and the tradition he established.

To take us into that exciting future that I foresee, we have executive vice presidents Ken Heydt and Tom Gockowski as part of the new leadership. Senior engineers such as Ken and Tom will now share the responsibility for mentoring our upcoming leaders and will work on developing the future of the firm. There is a growing list following Ken and Tom who are part of that vision.

We want to grow from within, developing our abilities and staying vital so we can continue to offer our clients the service, knowledge and deep grasp of their issues that we've been known for. 

Tech Wizardry Expands CEC Services

Vince Snyder brings a lot of magic to his job every day.

An expert in computer visualization, Snyder is Carroll's new CADD coordinator. He supervises all CADD (computer-aided drafting and design) functions, which are required at some level for nearly every engineering project within the firm.

But his most valuable contribution to Carroll is in 2- and 3-dimensional computer visualization, which are various techniques that assist in the visualization and comprehension of a product, site, building or system in its environment—before its actually built. He can convert mechanical, civil or architectural designs into photorealistic images or animations that are then used to enhance client and township applications, sales and marketing tools and fundraising proposals.

These images and animations help municipal boards see the site in three dimensions, allowing the board to more easily "picture" a client's "vision." Snyder can also provide "before and after" views for developers and builders, owners and other project professionals.

Snyder's background includes mechanical, architectural and engineering drafting; land surveying; and computer-aided design. He holds certification as a trainer for Autodesk® products, which includes the AutoCad system that most engineering firms use. Prior to joining Carroll, he operated his own computer visualization


company and offered drafting services catering to multiple disciplines. Some of Snyder's past 3D imaging and animation projects include a 9/11 memorial concept, custom residential housing, commercial properties in Center City, a proposal for the new Bucks County courthouse, revitalization proposals, recreational facilities and church and synagogue renovations and construction.

His imaging techniques can be in the form of computer 3D models, photo manipulation, animations, perspective and still renderings. For



Proposed commercial and residential high rise

high-quality presentation materials, he can output still images as JPG, TIF and BMP and animations as AVI, MPG, VHS tape or DVD.

"We have offered these services before, but did not have someone on staff with his skill set," says Matthew Garber, manager of Carroll's IT (information technology) department. "Computer visualization will allow us to supply a cost-effective, valuable service across the spectrum of our client base, which means all our departments will be relying on Snyder's extensive skills." 


The Personnel Side of Carroll: *Carroll Motivates Health and Fitness*

Carroll Engineering has put money on the line to encourage its employees to shape up. It is now matching the healthcare fitness program reimbursement for which employees are eligible each year. That means as much as \$150 more into each employees pocket...added to the benefit of getting or staying fit.

Blue Cross/Blue Shields Healthy Lifestyles program reimburses members up to \$150 of their annual

YMCA dues or fitness club fees when they work out at least 120 times over a 12-month period.



Insurance companies and individual members find that over the long run, regular fitness programs do help people stay healthier, which translates into reduced insurance claims and employee absences and improved work output and attitude. 

Bob Larason Retiring

Carroll extends best wishes to Bob Larason, PE, a director of the corporation, on his retirement after 19 years with CEC.



Preserving the Past

Workers are setting concrete forms to replace the collar wall at the south abutment of the 100-year-old Pine Valley Covered Bridge on Keeley Avenue in New Britain, Pa. The steel beams that were installed when the Bucks County-owned bridge was rebuilt in 1985 have been refurbished to hold new steel-grate decking. Three-inch-thick oak planks will go over the grate. Carroll Engineering's Paul Cardie, PE, is project manager on the job, which should be completed by mid-October, weather permitting.

Simulating Traffic Issues Helps Find Alternatives

When it comes to evaluating traffic problems, effective solutions require careful study of multiple factors. And traffic software helps.

The Pennsylvania Department of Transportation (PennDOT) has slated the offset intersections of Broad Street with Godshall and Cowpath Roads in Franconia Township for improvements to alleviate traffic congestion and improve safety. Franconia supervisors have chosen Carroll Engineering to design the project and prepare it to pass along to PennDOT for construction.

According to Jeff L'Amoreaux, PE, the problems at the site include "heavy truck traffic and motorists approaching the intersection too quickly." Adding left-turn


lanes can ease some difficulties, but may require the acquisition of additional right-of-way for the unusually long turn lanes needed for the anticipated queues. The intersecting roads can be realigned on twin box culverts over Skippack Creek, which could reduce problem areas, make the intersection easier for motorists to understand and thus enhance safety.

Carroll has been using computer simulation software (SimTraffic™) to help illustrate the difficulties at the problem intersections and suggest alternatives.

"The traffic simulation program is powerful," says L'Amoreaux. "Once we know we have our basic condition right, we

can get a fair representation of the traffic at that site ten years into the future."

The design team can input a range of variables—design alternatives or even motorist aggression during rush hour, for example—to observe how that impacts the traffic. Shifting alignment of the roadway and intersections or adding turning lanes of different lengths is a simple matter for the software program, which provides clear answers for the engineers' consideration.

PennDOT has assigned a construction estimate of \$1.65 million to \$2 million for the work, which is still in its design phase. L'Amoreaux anticipates his team and Franconia will settle on an alternative within six months. 

Intersection Upgrades Underway

An additional approach lane, a new barrier retaining wall that looks like the stone of a nearby historic building and upgraded traffic signals—



Meetinghouse Road box culvert

these improvements will soon be complete at the Easton Road (Route 611) and Meetinghouse Road

intersection in Horsham Township, Pa. Carroll is overseeing the \$605,000 construction project, awarded to Road-Con Inc. of West Chester, Pa. The project includes widening Meetinghouse Road where it intersects Easton Road next to Horsham Friends Meeting, adding a 40-foot curved extension to the existing culvert under Meetinghouse Road and installing 290 feet of concrete barrier retaining wall.

“The concrete barrier wall surface simulates a stone wall and is stained to match the stone meeting house and carriage shed,” says Kevin McAgnon, PE, construction manager.

Meanwhile, advanced traffic control technology is coming to town with the

installation of a temporary video detection system, which utilizes cameras to sense the presence of vehicles on an approach.

“As opposed to loop sensors, which are cut into the pavement surface and cannot be moved once they are installed, video detection allows us to adjust the location of the sensor as lanes are shifted laterally during pavement construction,” says Joel Cummings, PE, traffic engineer. “By adding traffic detection to the approaches on Easton Road, maintaining traffic detection on Meetinghouse Road and coordinating the signal timing with the signal at the intersection of Horsham and Dresher Roads, we will improve the efficiency of the traffic moving through the intersection.”

County Gives Flood-Prone Homes a Lift ...continued

specifications provided by the Natural Resources Conservation Service (NRCS) and federal and Pennsylvania emergency management agencies (FEMA, PEMA) of all properties in the floodplain areas, a “flood damage reduction measure” was determined for each building or home. Owners were contacted and asked to apply, after which their properties were further studied and put into the program.

“The most severe cases need to be elevated one and a half feet above the 100-year flood level,” Arnold explains. “That means some buildings can be raised as much as 8 feet while others may only be raised 3 feet: plus an

addition may be built at the new elevation to accommodate what had been in the cellar: utilities, laundry or finished living space.” Some buildings will be elevated and given an addition if required; others will be given only an addition; still others, mostly businesses, will receive a flood-retaining wall.

The cost of all work is covered primarily by funds from NRCS and FEMA/PEMA, depending on the building. The county is sponsoring the remaining 25 percent. The program is entirely voluntary, includes an allowance to relocate the family during construction and carries no cost to the property owner. Work may involve elevating the home and

moving it; building masonry walls, steel framing and concrete footings to provide a new foundation for the building at its new height; construction of an addition; reconnection to utilities; restoring the interior and exterior finishes; building new decks, walkways and stairs; and replacing landscaping.

Richard Manna, Bucks County's quality assurance administrator, directs the program for the county. Other engineering firms are overseeing flood damage reduction measures for properties in Middletown and Bensalem Townships and some areas in Northampton and Lower Southampton Townships.

Experts Testify

Carroll Engineering's professional staff includes experts in various fields who are available as arbitration and trial resources. Contact Nancy Friedlander, 215.343.5700 ext. 357 or nfriedlander@carrollengineering.com.

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