

New hospital update

# JMU students collaborate with RMH to preserve wetland habitat

By Holly Cooper



*JMU professor Wayne Teel, PhD, center, meets with students Nicolas Jaramillo and Bonnie Tang on the new hospital site where they are conducting research on how to manage the site's wetland.*

James Madison University professor Wayne Teel, PhD, and college students Nicolas Jaramillo and Bonnie Tang hike across the property where RMH is constructing the community's new hospital and health campus. They unlock the farm gate and saunter through the wet grass. Past the white farmhouse and brilliant poppies, they continue through tall grass and brush. The soil sinks under their feet. They're in the wetland.

## Protecting the natural environment

A wetland is a unique type of natural habitat, often appearing as a swamp or marsh. According to the U.S. Environmental Protection Agency, wetlands are "the link between the land and the water. They are transition zones where the flow of water, the cycling of nutrients, and the energy of the sun meet to produce a unique ecosystem characterized by hydrology, soils and vegetation—making these areas very important features of a watershed."

Historically, wetlands have been regarded as wastelands and suffered from large-scale efforts to drain them, says Teel. This past spring semester, Teel, a professor of integrated science and technology, and the students in his seminar class on sustainability began looking at how RMH could manage this wetland area. The small portion of land, about 5-7 acres, is like a tiny fertile crescent on the 254-acre campus.

Scientists know that, in addition to providing habitats for certain plant and wildlife species, these marshlands serve a valuable role in flood control and water filtration. As RMH seeks to follow environmentally safe, sustainable practices

during and after the construction of its new hospital, preserving and enhancing this piece of land is particularly important.

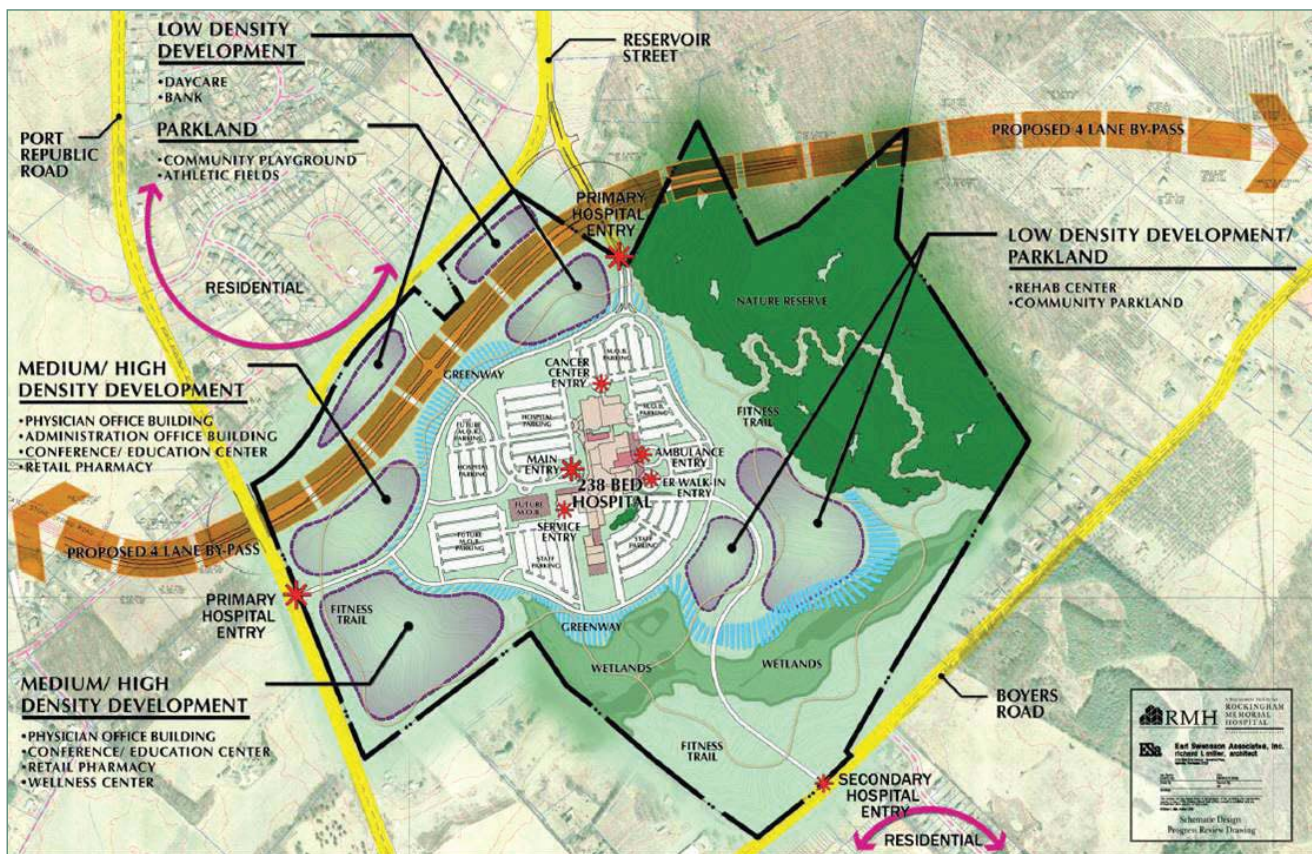
"We want to ensure construction does not disturb the natural habitat of our wetland," says Dennis Coffman, director, RMH Facilities Planning and Development.

## Safeguarding Pleasant Run

Of particular importance, the wetland on the new RMH site lies at the headwaters of Pleasant Run, a tributary to the Chesapeake Bay. Pleasant Run is classified as a federal stream because it's considered navigable water, but it's also recognized and listed as an "impaired" stream. RMH is paying particular attention to the quality of water being released into the wetland on its property because this water will eventually trickle downstream into Pleasant Run.

Another small stream, a tributary of Pleasant Run, flows through the wetland, which is situated toward the eastern edge of the property. After parking lots are installed on the site, the amount of storm water runoff making its way into this stream will dramatically increase. To reduce the impact this runoff will have on the watershed, RMH enlisted the college students to develop a plan that will prevent polluted water from flowing into Pleasant Run.

A wetland's built-in filtration system cleans the earth's water before it reaches fish and other organisms, says Teel. "Water that comes off impervious surfaces, like parking lots, picks up particles that aren't healthy for downstream life," he explains. "We're trying to manipulate the water so it flows correctly



offsite. The most important thing is managing the pulse of water to reduce flooding impact and prevent erosion. We want to slow down the water so it's released into the stream as if there were no impervious surfaces nearby. We also want to beautify the area."

Teel's students surveyed the land, identified native plant species and mapped the best route to create a slow-moving stream. This stream would connect the artificial "detention" pond that RMH installed with existing natural ponds on the site. The current detention pond helps filter runoff from the construction site to prevent flooding or the release of excess sediment into the stream.

While the current detention pond provides enough support for the storm water runoff from the construction site, the need for increased filtration will begin when the hospital's parking lots are installed. Jaramillo and Tang are working on senior projects on the wetland for their integrated science and technology majors. They will continue work through 2008-09. They and their classmates have submitted a wetland enhancement proposal to the Virginia Department of Environmental Quality, where it is pending approval.

As part of a larger JMU-RMH collaborative effort, the university has established a monitoring station near Port Republic Road to monitor any effects the RMH construction may have on the stream. Monitoring shows that, with the one detention pond filtering runoff from the construction site, the water flowing into the stream is cleaner than it was before construction began, when the land was under farm use, Coffman says.

### Preserving a home for native plants and birds

The students' plans will also ensure that the wetlands remain home to native plants and birds. The hospital plans to

incorporate walking and biking trails through the wetland area as well, so the community can enjoy this special habitat.

"Part of the RMH mission is to create a park-like campus setting that offers a healing environment to the community and employees," says Coffman.

During a recent outing to the site, students spied a red-winged blackbird, a signature species of wetland areas. The sighting was a positive sign that the land so far has remained relatively undisturbed by the construction, and native species should continue to flourish. ■

### Project update—in brief

- The hospital roof was completed in June.
- Major equipment, including boilers and chillers, should be operational by early fall.
- All the concrete was poured for upper-level floors by late June. (Lower level floors were completed earlier.)
- Workers are installing metal studs, which are used to hang drywall, on the first three levels. They are moving through the building west to east, with electrical and plumbing workers following right behind. "You can now begin to see the shapes and sizes of rooms," Coffman says.
- The entrance from Port Republic Road is being modified so the grade will be less steep. This work is being completed to match changes that will be made to Port Republic Road. Also at this entrance, an enclosed area is being created to house the main electrical service to the hospital campus. Once the electrical service is complete, trees will be planted to preserve a natural appearance.