Weyers’ research spotlights bad bridges

By Lynn Nystrom

When the U.S. was coming out of the depths of the Great Depression, one of the solutions for reducing unemployment was to create public-work programs. Part of this 1930s effort included the expansion of the highway system. Later, in the late 1950s, construction began on the present interstate highway system with the 1930s construction serving as the backbone for the main transportation routes.

These highway systems were typically designed for a 50-year service life. The highways’ bridges typically need rehabilitation in 35 years and replacement in 70 years.

The time has come to replace the 1930s infrastructure and rehabilitate the 1950-60s interstate system. Unfortunately, to date, much of the replacement and rehabilitation has not even taken place.

The consequences could be dismal, according to Richard Weyers, an expert in bridge construction and a professor of civil and environmental engineering at Virginia Tech. He predicts that the bridge-transportation system alone in America is facing a trillion-dollar investment. “To put up a new structure, it costs $75 to $100 per square foot to build. A new bridge, on average, is 8,000 square feet. And there are currently about 500,000 bridges in the federal highway system, not counting any structure under 20 feet or ones on the backroads.

Complicating the issue is new knowledge about one of the materials that the Federal Highway Administration (FHWA) started using in 1974 in the construction of the nation’s bridges. In a recent paper that Weyers presented at the International Symposium on the Integrated Life-Cycle Design of Materials and Structures, held in Finland, he concluded, “It is very difficult to justify the continued use of epoxy-coated reinforcing steel (ECR) in Virginia. Instead, Virginia should employ alternatives such as the use of low-permeability concrete and corrosion inhibitors and alternative reinforcement.”

Additionally, a student services building on Washington Street adjacent to Ambler Johnston Hall will break ground in early fall and be completed by December 2002. The project will consolidate student services such as the Registrar, Bursar, Hokie Passport Office, Scholarship and Financial Aid, CNS and more.

“The intent is to have one-stop shopping for various services students need in conjunction to financial and academic administration,” Smoot said.

Renovation of Williams Hall will be completed in December 2002. A new building scheduled to be brought on line fall 2003 to house the newly formed Virginia Bioinformatics Institute will be placed at the corner of Washington Street and Duck Pond Road.

An agricultural-and-natural-resources lab connecting Cheatham and Smyth halls is slated to begin construction upon funding by the General Assembly. Additionally, an expansion to Cheatham Hall is expected to be completed January 2003.

Congestion and traffic delays naturally follow space compression. Over the next six months, the university architect and Parking Services will collaborate on a master plan for transportation and parking. The plan will address the impact of campus development on transportation and parking, safety and convenience issues, and strategies to diminish parking congestion.

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Funding Issues Will Occupy General Assembly Session

By Ralph Byers, director of government relations


Faced with a state revenue situation that is lagging behind growth projections in the previous budget, Gilmore proposed a number of changes to funding for higher education and other state agencies. In his proposal, state General Fund support for higher education will increase by 0.38 percent in 2001-02, and about $250 million in debt-financed capital outlay will be provided by funds obtained through the Master Settlement Agreement with the tobacco industry.

For the Educational and General programs of Virginia Tech, this means a General Fund reduction of $295,149 in the current fiscal year, and an increase of $12,292 for FY02, after a series of General Fund additions and subtractions are made. The budget calls for a 2.3 percent increase in salaries for teaching and research faculty members, in contrast to the SCHEV recommendation of 5.2 percent to keep faculty salaries at the 60th percentile of our peers. Classified employees are to receive a 3.5 percent increase, Virginia Tech will also receive an additional $495,164 in General Fund student financial assistance. The Cooperative Extension and Agricultural Experiment Station Division will receive an increase of 0.66 percent in the second year of the biennium.

Among specified savings in the university’s budget is a decrease in retirement benefits of employees in Optional Retirement Plans (ORP’s). This decrease in the contribution rate from 10.4 percent to 9.24 percent will yield a

(See FUNDING on 4)
Brown to keynote Black History Month celebration

By Clara B. Cox

Judge Joe Brown, the non-traditional presiding judge of the syndicated reality courtroom show, will give the keynote address at Virginia Tech’s Black History Month celebration.

Brown will speak at 7 p.m. on February 8 in Squires Colonnial Hall. The six-week celebration will also include performances, discussions, seminars, and movies.

Black History Month begins on January 15 with “Enlightened,” a recognition of Martin Luther King that includes displays and various speakers between 10 a.m. and 4 p.m. in the Squires Brush Mountain Room. The celebration of King’s life continues on January 18 at 7 p.m. in the Black Cultural Center.

Other events during the celebration include the following:

- January 22, 23, 24: Showing of movie Roots at 8 p.m. in the Black Cultural Center, Squires; January 25: Resume Writing Seminar, 7-9 p.m., Black Cultural Center; January 27: “BluesWomen,” performance including lecture with slides and live blues performance at 7 p.m. in 105 Performing Arts Building; January 29: “Reflection of a Dream Realized,” discussion about the Christiansburg Institute, 7-8:30 p.m., Black Cultural Center.

Black History Month Event:

- February 1: “Celebration of Soul Concert,” 6 p.m., 210 Robeson; February 2: “Jazz Poetry Society Band, at 8 p.m. in Burruss auditorium; February 3: “African-American Music for Children,” 2 p.m., Black Cultural Center; February 5: Black Inventions Exhibit, 10 a.m.-5 p.m., Squires Old Dominion Ballroom; February 6: Black History Month Quiz Bowl, 7 p.m., Black Cultural Center; February 10: Fisk Jubilee Singers performance, 7 p.m., Donaldson Brown Hotel and Conference Center (DBHCC) auditorium.

CommonHealth flu shots:

CommonHealth flu shots will be available on Wednesday, Jan. 17, from 1-4 p.m. in 345 Squires, and Thursday, Jan. 18, from 9 a.m. in Waller atrium. The shot costs $10, and all faculty and staff members, retirees, and their in-home family members are eligible. Registration is required. For a registration form, contact the CommonHealth Office at 1-7810.

Our Memorial Benefit Concert announced:

The annual Rebecca Orr Memorial Benefit Concert will be held Friday, Jan. 19 at 8 p.m. in Squires Recital Salon. The concert is jointly sponsored by the Virginia Tech and Radford music departments and the Highlands Chapter of the Virginia Music Teachers Association. Proceeds go to the Rebecca Orr Memorial Scholarship Fund and the Piano Technique Festival. Tickets are available at the door for $5 (general), $3 (student), and $10 (family). For information, contact Caryl Conger at 831-5815 or cconger@radford.edu.

Leave donations requested:

Virginia Tech employees in the Physical Plant have requested leave donations. Salaried classified employees and 12-month regular faculty members may participate by donating annual leave in increments of eight hours.

There is no maximum donation limit per year, nor is there a minimum balance that must be maintained. Donation forms can be downloaded from the Personnel Services web site at http://www.ps.vt.edu/ps/forms/forms.html.

Return completed forms to Toni Piminet, Personnel Services, (0318).

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EMPLOYMENT

The following classified positions are currently available. More details of these positions, specifically qualification procedures and position-closing dates may be found on the Personnel Services web site at http://www.ps.vt.edu. Available positions are also listed on the Job Line, a 24-hour recorded message service. For information on all job listings, call 1-5300. Some of the following positions include state benefits. Positions with numbers beginning with a "W" are hourly and do not include state benefits. Individuals with disabilities desiring assistance or accommodation regarding the application process should call the application deadline. Closing date for advertised positions is 1 p.m. Monday. An EO/AA employer committed to diversity.

FULL TIME
Administrative Assistant, 001228R, Pay Band 3, Scholarship/Financial Aid.
Administrative Assistant, 002811R, Pay Band 3, Executive Vice President.
Administrative Associate, 001501L, Pay Band 3, VP for University Development/University Relations.
Administrative Associate, 003202L, Pay Band 3, University Development.
Admissions Plans/Clearances Team Member, 001534R, Pay Band 3, Graduate School.
Agriculture Supervisor, 006879M, Pay Band 3, College Farm.
Agriculture Technician, 003555M, Pay Band 2, College Farm.
Animal Care Supervisor, 006989M, Pay Band 4, Veterinary Teaching Hospital.
Assistant Counselor, 006567R, Pay Band 3, Scholarship/Financial Aid.
Automotive Technician, 006033R, Pay Band 3, Motor Pool.
Banquet Manager (Food Operations Manager Assistant), 0011160, Pay Band 3, DBHC.
Business Development Director, 007568T, Pay Band 5, ECE/MPPRIG.
Computer Systems Engineer, 0076017, Pay Band 5, SE/M.
Computer Systems Engineer, 001864T, Pay Band 5, CS.
Computer Systems Engineer, 006991J, Pay Band 5, RGS.
Data Warehouse Architect, 006930L, Pay Band 7, CVM—Academic Affairs.

EMPLOYMENT

PART TIME
Animal Care Tech B, W020141J, Pay Band 2, CVM.
Animal Care Technician, W000358M, Pay Band 2, CVM.
Animal Care Technician A, W020265M, Pay Band 1, Veterinary Teaching Hospital.
Animal Care Technician B, W000275M, Pay Band 1, Veterinary Teaching Hospital.
Audiovisual Technician, W023110R, Pay Band 2, University Registrar.
Bake Shop, W023153R, Pay Band 4, Airport.
Bake Shop, W023141R, Pay Band 2, University Relations.

INSTRUCTIONAL
Civil/Environmental Engineering, Assistant/Associate Professor, 007050H, Pay Band 2, VT Roanoke Center.
Physical Sciences, Assistant Professor, 006816J, Pay Band 2, VTTI.
Biological, Associate/Assistant Professor, Contact: Allan Yousten, 2125 Dering (0406). Position open until filled.

Communication Studies, Assistant Professor, Contact: Ellie Sturgis, 11 Agnew (0311). Position open until filled.

Statistics, Assistant Professor, Contact: Eric Smith, 406-A Hutcheson (0439). Position open until filled.

NON-INSTRUCTIONAL
Center for Power Electronics Systems, Research Faculty/Technical Director, Contact: Ann Craig, 674 Whittemore (0177). Position open until filled.

Center for Wireless Telecommunications, Project Manager, Contact: Christie Thompson, 466 Whittemore (0111). Position open until filled.

Collegiate Business Director, Business Technology Center Coordinator, Contact: Richard Sorenson, 1030 Pamplin (0209). Position open until filled.

 Corps of Cadets, Deputy Commandant of Cadets, Contact: Rossak, 143 Brodie (0213). Review begins Feb. 15.

 Corps of Cadets, Assistant Commandant of Cadets for Recruiting, Contact: Wesley Fox, 143 Brodie (0213). Deadline is Jan. 30.

 Equal Opportunity/Affirmative Action Officer, Director, Contact: Benjamin Dixon, 352 Burress (0178). Review begins Jan. 29.

 University Development, Associate Vice President for Strategic Partnerships, Contact: Margaret Zeilinski, 315 Burress (0253). Review begins Jan. 15.

 University Development, Director of Foundation Relations, Contact: Margaret Zeilinski, 315 Burress (0253). Review begins Jan. 15.

 University Development, Director of Corporate Relations, Contact: Margaret Zeilinski, 315 Burress (0253). Review begins Jan. 15.

 University Union/Student Activities, Coordinator of Leadership Development, Contact: Steven Schnitzer, 319 Squires (0138). Position open until filled.


 Alexandria Research Institute, System Administration/Outreach Coordinator, Contact: Salut Rahman, 206 N. Washington St., Suite 400, Alexandria, VA 22314.

 VCE, Extension Agent, 4-H Youth Development, #FA896. Contact: Robert Ray Meadows, 121 Hutcheson (0437). Position open until filled.


 VCE, Postdoctoral Associate, Contact: Marvin Blecher, 123 Roanoke (0435). Position open until filled.

CAMPUS

in the need for more parking. Attention will be
given to traffic and parking needs for special
events and prime time use throughout the year.
Heavy demand to access campus will neces-
sitate significant changes to Southgate Drive.
The long-awaited “ Scandinavian” will
join South Main Street with the U.S. 460 by-
pass along Southgate Drive. The project, slated
to begin in 2003, will include a grade-separated
interchange at a bypass.
Parking is probably a more immediate
concern for the university community. An op-
tion is a parking facility. However, while a
parking garage would house vehicles, the
per-car cost can be as much as ten times what a
parking lot would cost according to Univer-
sity Architect Scott Hurst. That cost, said,
would then have to be passed on to the faculty,
staff, and students. He does speculate, how-
ever, that “there may be projects that will
require that parking along family, friends, and colleagues.
At the memorial service for Moyer, Paul Sorrentino said “He had a
way of making us see ourselves better, and, in
doing so, he enriched our lives. Toparaphrase the words of the British poet William Wordsworth, the
beauty of Bert’s life were those simple, little, nameless, now-remembered
acts of kindness and love.”

FUNDING

 savings of $400,682 in FY02.

In capital outlay, Gilmore has proposed securitizing the anticipated revenue stream from the tobacco master-settlement agreement to create a Higher Education and Economic Development Trust Fund which will support bonds for capital construction and maintenance on college cam-
puses. Several Virginia Tech projects that have already received a General
Fund appropriation will be funded through this mechanism, including the
Chemistry/Physics façade ($17 million), the Upper Quad renovations
($9.7 million), and the livestock teaching arena ($1.6 million). In addition,
$16 million in General Funds from this source is provided for the $24
million Bioinformatics Phase II facility.

In a related development, the General Assembly’s Joint Subcom-
nittee on Higher Education Funding Policies, a bipartisan group of senior
legislators from the House and Senate, issued its report in December.
After an extensive investigation of higher-education funding patterns around the
nation, the Joint Subcommittee concluded that higher education in Virginia
is under-funded by approximately $200 million annually. If adopted, their
recommendations would mean an increase of about $20 million per year in
operating funds for Virginia Tech. (The subcommittee did not address capital-outlay needs.) Given the current school situation, the Joint Sub-
committee does not foresee implementing the report this year, although it
hopes to make some progress in this direction and to establish these goals
as policy for future governors and General Assemblies.

For more information, please contact the Office of Government Relations.

WEYERS

To make his point stronger, Weyers referred to a study done in
1972. After the FHWA noticed a rapid corrosion of the reinforcing steel
in concrete bridge decks following the application of deicer salt, it
sponsored a research project to assess the feasibility of using organic
coatings to protect the steel. After two years of testing, when no sign of
corrosion was obvious, the FHWA used ECR in its first bridge. Its use
soon became commonplace.

However, Weyers noted that none of the laboratory or field studies
concluded that the ECR would not corrode. And only one laboratory
study estimated that ECR would provide long-term corrosion protection
of 46 years.

By 1986, the trouble started. Engineers noticed early failures of
ECR in Florida’s bridge substructures where salt water was involved.
Due to these failures, a preliminary study was conducted with Virginia’s
bridge inspectors and later developed into the “Virginia Corrosion
Survey.” Engineers observed drills coming out of piles from piles in
marine environments and from bridges in deicing salt environments.
From their studies, they anticipated that the coatings would be de-
bonded from the steel bar in about 15 years for bridge decks and in six
years from piles in marine environments.

A second, larger study on 18 bridge decks between two and 20
years old concluded that in Virginia the epoxy de-bonds from the steel in
as little as four years.

“Presently, there is no existing method to effectively repair the
existing decks with epoxy coated bars. And there is no way to evaluate
the corrosion condition of the steel bar due to the coating. They can only
be replaced by drilling out the bridge decks out,” Weyers said.

“The product was put into the bridge deck without the knowledge
of what reactions might occur in concrete,” Weyers noted. “We need a
different approach to the technical problem” because of the dollar amount involved.

Today, industry has recognized Weyers’ research efforts on a model for the deterioration
erate as a way to judge the different corrosion protection
systems. His corrosion service-life model is the
result of a three-phase study, started 16 years ago.
His work identified “average” service lives; today
he is working on the variability of service-life
determinations.

The variability includes the use of corrosion
inhibitors, differences in concrete composition, and
selected materials’ low permeability to
corrosion. “We are looking at these systems and
selecting the most cost efficient or minimum life-
cycle cost treatments,” Weyers said.

William F. Murphy Jr., 51

William F. Murphy Jr., 51, a member of the Virginia Tech faculty
for almost 25 years, died Thursday, Jan. 4.

An associate professor at Virginia Tech, he was a leader in
distance and continuing education for the College of Agriculture
and Life Sciences, Virginia Cooperative Extension, and Virginia Agricultural
Experiment Station. His work helped advance technology to
improve the lives of the people of Virginia. Murphy designed and
produced satellite video teleconferences and distance-learning programs.

“Bill was a very valuable member of both Virginia Cooperative
Extension and this unit. This is a terrible loss for all of us,” said Tim
Mack, head of Agriculture, Human and Natural Resources Information
Mack announced that an award would be established in
Murphy’s name to be given annually to the Extension worker producing an
outstanding project in information technology.

Murphy’s work included many firsts for Extension. He designed
the first national auction and sale of feeder cattle via satellite and audio
technologies and developed and produced the first graduate class for
the Extension field personnel that was distributed on a nation network. He
was honored for many different programs including training for
Extension personnel and for volunteers.

David Barrett, director of Virginia Cooperative Extension said,
“Our entire organization was stunned at the untimely death of Dr. Bill
Murphy. Certainly our thoughts and prayers are with the family. While we
lost Bill’s death, we celebrate his life and his accomplishments.
Bill had over 25 years of service with Virginia Tech and Virginia
Cooperative Extension. During this time, Bill touched countless lives in
a very positive manner.”

Murphy’s work won many national awards and he received the
Award of Excellence in Teleconferencing from the Agricultural
Communicators in Education and the Most Distinguished Program
award from the National University Teleconference Network.

From 1993 to 1999, he was as a high school science teacher at Roanoke
in 1973. After serving as 4-H Extension agent in Floyd County from
1977 to 1982, he joined the faculty at Virginia Tech and continued his
graduate work. He was assistant director of resident instruction for the
College of Agriculture and Life Sciences, an Extension specialist in
computing resources, distance education specialist and coordinator of the
Extension Program Development Unit during his career.

He graduated from Baldwin-Wallace College in 1971. He received
his master’s degree in 1973 and doctorate in 1994, both from Virginia
Tech.

WEYERS

Continued from 1

issue a discussion draft to the university by the end of April and present the
plan to the university Board of Visitors in June.