Sustainability at Thomas Nelson

Report of the Sustainability Task Force

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Executive Summary

This report is the annual update (March 2016 – March 2017) in response to the recommendations for improved sustainability contained in the Chancellor's report on sustainability which was produced and distributed September 2009. A copy of this report can be found at the following: http://www.vccs.edu/Portals/0/ContentAreas/Facilities/SUSTAINABILITY_Ecological_Commitment_to_Our_Future.pdf.

Colleges were asked to review the list of recommendations and identify those they will implement. To respond, Thomas Nelson conducted a campus-wide survey in January 2010. Faculty and staff were asked about sustainability and conservation practices and office and personal behaviors that reduce energy consumption, as well as sustainability-improving efforts that Thomas Nelson might implement. The results of that survey constitute the majority of this report.

This report addresses the items listed under paragraph 1 by identifying the steps taken to implement each recommendation. Additionally, this report expands upon the recommendations listed under paragraph 2.

1. Task Force recommendations which Thomas Nelson will continue to implement and:

- #3. Identify gaps between existing college programs and industry needs and develop programs and scholarships to bridge these gaps.
- #4. Conform to Virginia Energy Conservation and Environmental Standards (VEES) standards.
- #9. Assess sustainability emphasis included in current procurement practices and identify areas for improvement.
- #10. Assess the use of new information technologies, such as virtual servers, digital imaging, electronic file sharing, and electronic signatures to find ways to further reduce energy consumption and paper waste.

2. Task Force recommendations Thomas Nelson commits to addressing in the future:

- #1. Research the viability of an environmental sustainability scholars program, and establish guidelines for modifying courses to include environmental sustainability components.
- #2. Provide annual funding specifically for professional development opportunities in sustainability.

Responses by Recommendation

This report documents current and planned efforts that contribute to a more sustainable environment at Thomas Nelson. Efforts are framed by the recommendations identified in the Chancellor's report.

Sustainability has long been practiced at Thomas Nelson and is a consideration in college decision making processes. Thus, Thomas Nelson is already implementing some of the recommendations proposed in the Chancellor's report. Recommendations of the Chancellor's Task Force on Sustainability were divided into three categories: Academics and Workforce Development Services (WDS), Facilities, and Fiscal and Administrative Operations. Recommendations below are presented within this framework. Current and future activities are presented by recommendation, as are a list of ACTION(S) the College intends to take to achieve (or to continue to achieve) the recommendation. This report reflects the steps taken to implement these recommendations.

Academics and Workforce Development

#1. Develop an environmental sustainability scholars program, and establish guidelines for modifying courses to include environmental sustainability components

CURRENT:

- The following are currently incorporated into the College's Science curriculum.
  - General Biology I (BIO 101):
    - Biofuels and why they are preferred over fossil fuels even though they are still expensive to produce.
    - The importance of genetic variety in the conservation of species; examples include the spread of Bt-resistant earworms to explain why a mono-cultures (such as in GMO farms) are harmful
    - How plants can curb the pollution problems from dust storms and smogs to nuclear radiations; how photosynthesis reaction can alleviate the effects of current unpredictable climate disasters, such as flooding and the increased level of CO_2.
  - General Biology II (BIO 102):
    - Biodiversity by major groups (viruses, bacteria, protists, plants, fungi, and animals) and how maintaining habitats are essential to maintain biodiversity.
    - The ecosystem structure and function, and how they apply to ecological problems, many of them human caused.
    - All students in BIO 102 Labs are required to do a presentation on a local environmental issue as a significant part of their lab grade.
  - Environmental Science Course (BIO 107):
    - Population and population growth, which includes the rate of resource consumption and the land needed for these resources (Ecological Footprint).
    - Students in the BIO 107 class will be use an Ecological Footprint calculator to determine how much land they need to maintain their lifestyles.

- Four categories of limiting factors: Resource consumption, energy use, waste management, and interactions with other species.

- Microbiology (BIO 150):
  - For on-campus classes:
    - Lab manual only available as an eManual that may be downloaded to the student's technical device of choice. For AY 2017-2018 it will be downloadable to four (4) technical devices for each student (2 computers and 2 mobile units). This eliminates the printing of the lab manual all together.
    - All lab reports are available online as .doc files so that students may download them for completion, and then upload them for grading by the instructor, thus eliminating the need to print the lab reports.
    - All supplemental lab materials are available within the Blackboard electronic format and are not printed for student use.
    - In Lecture all quizzes are available in Blackboard and are no longer printed.
  - Online classes:
    - The textbook is available as an eBook.
    - Lab manual is only available online for the hands-on lab portion of the course.
    - All lab reports are available as .doc files and must be uploaded for grading. Thus there is very little paper being used in the online class.
- Physical Geology (GOL 105):
  - Investigate role of carbon on climate change, identify sources, reservoirs, and fluxes with the carbon cycle
  - Study ground water; describe how pollutants enter and travel throughout the ground water system; and describe possible remediation efforts when groundwater becomes contaminated
  - Study shoreline processes; describe and quantify how shorelines experience erosion and deposition; and describe erosion control structures and predict how these structures will change coastlines
  - Study rivers and streams; describe and predict impact of floods on communities; calculate recurrence intervals for episodic flooding events; and evaluate and articulate the hazards of living within flood-prone environments
  - Learn how glaciers grow and retreat, and make connections with global climate changes
- Chemistry. Students are made aware of the hazards of introducing chemicals, especially those containing hazardous solvents or metals, into the environment. Faculty explain why labs were modified to make them "greener" so that many of the chemicals can be disposed of without special hazard.
  - Determine where to plant the trees
  - Establish planting and initial care costs
  - Estimate campus tree management costs
  - Schedule tree planting event date
  - Work with Public Relations to draft media materials and communication project to the community at large

- The following is a list of current Z courses and the number of sections within each:

ART 106	1	HIS 122	10
AST 197	1	HLT 110	1
AST 297	1	ITE 119	1
CST 100	5	MTH 158	1
ECO 120	All	MTH 163	1
ECO 201	All	MTH 240	1
ECO 202	All	PHI 220	1
ENG 111	5	PHY 101	1
ENG 112	5	PHY 102	1
ENG 241	1	PSY 200	2
ENG 242	1	PLS 135	2
GEO 200	2	PLS 136	2
HIS 121	10	PLS 241	1

- A professional development for faculty titled "OER in the Pathways Workshop" is being offered four times each semester, twice each on the Hampton and Historic Triangle campuses. A stand-alone professional development module for OER is also available through the Library's website.

FUTURE:

- Offer BIO 270 General Ecology again.
- Continue to encourage faculty members to infuse environmental sustainability content into courses and to create new courses that focus on environmental sustainability.
- Add sustainability topics to the annual faculty colloquium.
- Install groundwater monitoring well on the Historic Triangle campus to be used by students in science courses, specifically Geology.
- Under the guidance of instructor Cheryl Aukland and student Randie Trestrail, a service learning project through Tree Campus USA has been initiated; this will be offered as GIS 200-DJ01: Geographical Information Systems I. The application process has been started with a Tree Campus USA college account established. Carol King, a Virginia Cooperative Extension Master Gardener Tree Steward, has agreed to be a consultant on this project. As part of the service project, Ms. Aukland will assist students in developing the story map and provide GPS for collecting the tree locations and recording data.

#2. Provide annual funding specifically for professional developmental opportunities in sustainability.

CURRENT:

Professional Development funds are budgeted annually for all faculty/disciplines. It is incumbent upon each faculty member to investigate and submit to their respective Dean on how sustainability can be introduced and support the mission of the college.

FUTURE:

- Seek opportunities for professional development, such as faculty internships, at appropriate industry and community locations.
- Invite environmental industries to Thomas Nelson to present hands-on training opportunities for the faculty.
- Continue partnership with College Support Staff Association (CSSA) to include environmental sustainability issues in their annual Professional Development Day program.
- Promote the availability of professional development funds among faculty members to incorporate sustainability within their curricula.

#3. Identify gaps between existing college programs and industry needs and develop programs and scholarships to bridge these gaps.

CURRENT:

Workforce Development continues to expand its program offerings. Some examples include:

- HVAC Technician: This 160-hour course teaches students basic troubleshooting and repair techniques and prepares them for the EPA certification exam on the Federal Clean Air Act – Section 608, which is required to purchase and handle refrigerants.
- Two (2) separate Occupational Safety and Health Administration OSHA courses. Two courses (a 10-hour and a 30-hour) are offered; both cover general industry hazards not specific to those working construction-only jobs and are intended as orientation to OSHA standards. OSHA training is necessary for a safe and healthy work environment. Workers taking these courses usually have jobs related to health care, factory, warehouse, manufacturing, and shipbuilding, among others. Upon completion of the course, students receive the appropriate OSHA card (DOL card), an official OSHA Training Institute Education Center Certificate, and Continuing Education Credits (CEUs). The OSHA 30 (30-hour course) focuses on the following four (4) key major areas:
  - Bloodborne Pathogens (1 hour) prescribes safeguards to protect workers against health hazards related to bloodborne pathogens.
  - Combustible Dust (2 hours) prescribes safeguards to ensure both the employer and worker are aware of dust-related hazards and measures taken to prevent dust explosions.
  - Hazardous Communication (1 hour) provides effective training to workers exposed to hazardous chemicals. Effective training is vital to understanding the information provided on chemical container labels and material safety data sheets. The worker would learn how to applying the information in the workplace to protect against chemical hazards.
  - Hazard Materials (2 hours) focuses on training workers to be aware of hazardous materials as well as function-specific and safety training. Workers are trained how to avoid exposure to hazardous material while eliminating the release of pollutants and waste.

  - Other course topics included in OSHA-30 are:
    - Managing Safety and Health (2 hours)
    - Electrical (2 hours)
    - Exit Routes, Emergency Action Plans & Fire Prevention (2 hours)
    - Walking and Working Surfaces (1 hour)
    - Personal Protective Equipment (2 hours)
    - Materials Handling (2 hours)
    - Machine Guarding (2 hours)
    - Permit-Required Confined Spaces (2 hours)
    - Ergonomics (1 hour)
    - Powered Industrial Vehicles (2 hours)
    - Hand and Power Tools (1 hour)
    - Lockout/Tagout (1 hour)
    - Fall Protection (1 hour)
    - Welding, Cutting, and Brazing (1 hour)
- Facilities Maintenance Program: Consists of online learning, including practicing scenarios. Five technical courses consist of hands-on classroom training followed by online practice scenarios. Technical courses include:
  - Electrical Maintenance and Repair
  - Plumbing Maintenance and Repair
  - Heating, Ventilation and Air Conditioning (HVAC) Maintenance and Repair
  - Appliance Maintenance and Repair
  - Interior and Exterior Maintenance and Repair

FUTURE:

- Heating, Ventilation and Air Condition (HVAC) technician training will continue to use environmental friendly and acceptable refrigerate R410A to reduce the hydro-chlorofluorocarbon signature and minimize damage to the ozone layer.
- The Facilities Maintenance Program (FMP) has received approval for the Workforce Credentials Grant (WCG). The program prepares integrated building technicians for a national credential from the Home Builders Institute and for entry-level jobs in building maintenance. More important, it prepares students to become Facilities Managers after a year of full-time employment in the facilities maintenance field, earning them a second credential from the National Apartment Association Education Institute.

Facilities

#4. Conform to Virginia Energy Conservation and Environmental Standards (VEES) standards.

CURRENT:

- Replacement of Harrison, Diggs, and Moore Halls on the Hampton campus remains on Thomas Nelson's new Six-Year Capital Plan. This project remains in the top 5 list for the Virginia Community College System. The 2016 General Assembly approved

detailed planning funds for the replacement building for the Diggs/Moore/Harrison Hall.

- Thomas Nelson has entered into an agreement with Hampton Roads Transit (HRT) to create a Park and Ride area near the bus terminal on the grounds of the Hampton campus. Twenty-four (24) parking spaces were identified for exclusive use by HRT customers Monday through Friday from 5 a.m. to 7 p.m. The bus stop on the Hampton campus serves as a transit point for three major bus routes: 110, which runs from downtown Hampton and terminates at the College; 111, which runs from Hampton to the Riverside Regional Medical Center in Newport News; and 118, which runs from the HRT Transit Center in Hampton to Langley AFB and NASA Langley.
- Since AY 2014-2015, the College has replaced nine (9) drinking water fountains with water bottle filling stations (6 on the Hampton campus and 3 on the Historic Triangle). Since that time, approximately 62,850 water bottles have been saved from landfills.

FUTURE:

- Adhere to the standards of the VEES, which encourages superior performance through environmental management systems and pollution prevention.
- Work with HRT to extend bus routes between Hampton and Williamsburg to provide better options for students depending on public transportation.

Fiscal and Administrative Operations

#9. Assess sustainability emphasis included in current procurement practices and identify areas for improvement.

CURRENT:

- Thomas Nelson continues to transition to the Shared Services Center. The benefits are:
  - Focus campus-based staff and management on core mission and higher value activities
  - Provide higher levels of service through process improvement
  - Deliver cost savings through:
    - Greater efficiencies
    - Reduction of manual efforts
    - Reduced errors
    - Leveraging of scale
    - Greater automation
- Thomas Nelson currently offers a variety of Open Educational Resources (OER) for use by students, staff and faculty. These include:
  - American Institute of Mathematics—Open Textbook Initiative
  - BC campus
  - College Open Textbooks
  - Community College Consortium for Open Educational Resources
  - Creative Commons
  - Howard Hughes Medical Institute Educational Materials
  - Learning Management System

  - Lumen Learning
  - MERLOT II
  - MIT OpenCourseWare (Free Online Course Materials)
  - MyOpenMath
  - National Repository of Online Courses
  - Notre Dame OpenCourseWare
  - OER Commons
  - Open Course Library
  - OpenStax
  - Open Textbook Library
  - Open Yale Courses
  - Project Gutenberg (free ebooks)
  - Saylor Academy
  - Stanford Online
  - The Open Education Consortium
- Additionally, online instruction in a variety of "Anytime Anywhere Workshops" is available. Some of the topics included are:
  - Adobe Acrobat Reader Quick References
  - Adobe Connect Quick References
  - Adobe Dreamweaver Quick References
  - Adobe Fireworks Quick References
  - Adobe Flash Quick References
  - Adobe Photoshop Quick References
  - Adobe Professional Quick References
  - Apple Appleworks Quick References
  - Apple Mac OS Quick References
  - Computer Training Quick References
  - Copyright Quick References
  - Distance Learning Quick References
  - Google G-Mail Quick References
  - Internet Explorer Quick References
  - Microsoft Office Quick References
  - Publisher
  - SharePoint
  - Prezi Quick References
  - Security Quick References
  - SIS Quick References
  - Thomas Nelson Quick References

- Textbook sales and rentals from Summer 2016 through Spring 2017 indicate the following savings for students:
  - Used books: approximately $85,418
  - Purchasing digital books: $13,171
  - Renting textbooks: $335,320

  Total figures for used, new, digital and rented textbooks for these three terms are as follows:

	Used	New	Digital	Rental
Summer 2016	$ 53,146	$ 320,000	$ 10,742	$ 80,702
Fall 2016	$ 96,147	$ 1,293,862	$ 6,353	$ 75,536
Spring 2017	$ 106,877	$ 988,343	$ 2,657	$ 67,309

FUTURE:
Thomas Nelson will continue to expand the use of etextbooks in AY 2017-2018.

ACTION(S):
- Continue to enforce guidelines for 'green' requirements in RFPs and IFBs for auxiliary contacts such as vending, food service, custodial and bookstore contracts.
- Continue to enforce guidelines for general operations including buying recycled paper, avoiding disposable materials where possible when meals are served - choose biodegradable or recyclable materials.
- Encourage the use of Google Docs or OneDrive to share documents to reduce printed materials.
- When feasible/possible buy local.

#10. Assess the use of new information technologies, such as virtual servers, digital imaging, electronic file sharing, and electronic signatures to find ways to further reduce energy consumption and paper waste.

CURRENT:
- Staff and faculty regularly receive the electronic CommonHealth newsletter, promoting a healthy lifestyle. A link to the CommonHealth site is available through the Human Resources homepage on the College's website.
- Thomas Nelson continues in its efforts to recycle paper and CDs. There were two vendors utilized by the College for the period of this report. For the months of January through July, Stealth Shredding was used; between August 2016 and March 2017, ProShred CVA was used. For the period of this report, 52,982 pounds of material were collected; this equates to 26.491 tons processed. This translates to:

Quantity	Which Translates To	Financial Value
593	Trees Saved	$112,607
185,420	Gallons of Water Saved	$834
108,603	Kw of Energy Saved	$8,689
1,590	Pounds of Pollutants Kept Out of Atmosphere	$7,949
132	Cubic Yards of Landfill Saved	$6,614
		$136,693

FUTURE:

- Continue to establish more distance-learning classes.
- Continue to explore additional ways the academy and the administration can conserve resources.
- The Director of Learning Resources has been in discussions with all Division Deans, the Vice Presidents of Academic Affairs and the Vice President of Finance and Administration concerning feasibility and advantages of expanding WEPA beyond Learning Resources. These discussions are ongoing.
- All student historical paper documentation will be stored in Edoma.
- The goal of file management is to manage and integrate content data access with new trends in social media web based application software to access documents and files on and off campus.

ACTION(S):

- The Vice President for Administration and Finance will continue to work collaboratively to identify information technology purchases, short term and long term costs, anticipated savings, and the ramifications of these purchases.
- Expand WEPA beyond the Learning Resources Centers, including the Historic Triangle campus. Sell WEPA pre-loaded print cards through the campus bookstores for students who do not have credit cards.
- Continue training members of the Thomas Nelson community to develop their own sites within SharePoint and become proficient in managing applicable content.