



EDUVENTURES

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Learning Collaborative
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Demand for Graduate Degree Programming in Sustainability

Data Type	Key Sources
Demand for Graduate Sustainability Programming	<ul style="list-style-type: none"> • Bureau of Labor Statistics • Wisconsin Department of Workforce Development • Expert Interviews
Evaluation of Proposed Program	<ul style="list-style-type: none"> • Expert Feedback

Key Questions

What level of demand exists for a graduate degree in sustainability and regeneration?

Who is the target market for the proposed graduate degree in sustainability and regeneration?

What level of demand exists for the proposed program opportunities related to sustainability?

What are employer perceptions on the proposed program format and curricular expectations?

Are there opportunities for the inquiring member to develop partnerships with regional employers?

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Inquiry Overview

A Continuing and Professional Education Learning Collaborative (CPE-LC) member sought to understand demand for a graduate degree in sustainability and regeneration within the state of Wisconsin and nationally. The inquiring member institution is interested in identifying those factors that may impact the viability of offering this proposed program to serve a variety of occupations. Program structure and format, curricular expectations, and program strengths and areas for improvement will be assessed. The inquiring member institution would also like to assess the level of interest for future partnerships and collaboration for the proposed program.

Methodology

CPE-LC staff reviewed sustainability-related education, nursing, and management industry and occupational trends, nationally and within the state of Wisconsin, to assess demand for the proposed program. In addition, CPE-LC staff conducted interviews with national and regional employer and industry experts to evaluate the proposed program, gain insight into the field of sustainability, assess demand for individual concentrations within existing graduate degrees, obtain perceptions held for this program, and identify the potential for future partnerships.

Custom Research Reports - *In-depth analysis of issues of concern to individual members.* The CPE-LC maintains dedicated staff to support members' needs for detailed, quick-turnaround research. Requests may be prompted by issues raised in the CPE-LC's Collaborative Research investigations, may seek to leverage the collective experience of the CPE-LC membership, or may take the form of small-scale primary research investigations or reviews of secondary literature. Requests are fulfilled on a first-come basis and generally take ten to twelve weeks to complete subsequent to the receipt of an approved proposal. CPE-LC staff works to deliver accurate, reliable data and information in all cases; however, we cannot guarantee the accuracy of data and information from all sources used.

Key steps in this investigation include:

Step 1	Step 2	Step 3	Step 4	Step 5
Define scope and objectives of inquiry, and formulate hypothesis	Identify secondary and/or primary sources to be investigated	Collect data and test research hypothesis	Summarize key findings with reference to supporting evidence	Recommend specific actions and areas for further research, if needed
<ul style="list-style-type: none"> • Interview CPE-LC member regarding objectives for inquiry • Formulate research hypothesis: There appears to be demand for graduate degree programming in sustainability and regeneration. 	<ul style="list-style-type: none"> • Wisconsin Department of Workforce Development • Employer and professional association interviews • Bureau of Labor Statistics • Past CPE-LC research 	<ul style="list-style-type: none"> • Review BLS and Wisconsin labor market data on sustainability-related education, nursing, and management industries. • Review expert feedback. • Adjust hypothesis based on analysis of data, as necessary. 	<ul style="list-style-type: none"> • Feedback indicates growing awareness for sustainability within a variety of industries. • Demand appears to exist for the stand-alone graduate degree and individual concentrations within existing degrees. • The proposed program structure and format received favorable remarks by experts. • Partnership opportunities were identified. 	<ul style="list-style-type: none"> • Reach out to individuals who expressed interest to secure conversations to begin dialogue regarding next steps for partnership opportunities. • Conduct primary research within a set geography to assess individual interest in the program and assess program strengths and limitations from consumers. • Continue to reach out to regional employers and national associations to assess partnership and endorsement opportunities.

Findings

The primary goal of this report is to provide information on sustainability-related industries and occupations, nationally and within the State of Wisconsin, to identify demand for a graduate degree program in sustainability and regeneration. Occupations within the education, management, and nursing fields were also assessed to identify potential demand for the inquiring member institution’s individual program types of interest. To assess regional Madison city-level trends, CPE-LC staff utilized the Madison-Dane County Workforce Development Area South Central occupational projections. For the remainder of the report, CPE-LC staff will refer to this regional area as the South Central Region. Expert feedback was retrieved to evaluate the proposed program format and to identify potential interest in future collaboration.

This report is organized in the following manner:

- First, CPE-LC staff provides expert commentary on national and regional trends for the field of sustainability, which may impact the viability of the proposed program.

- Secondly, CPE-LC staff presents national data for sustainability-related occupations and those associated with the nursing, education, and management fields, which may be relevant for the individual concentration areas.
- Thirdly, state- and regional-level occupational trends are assessed to identify the potential market size for the proposed program in sustainability and regeneration.
- The fourth section of the report highlights expert feedback on program- and institution-specific information for program structure and format, strengths and limitations, and opportunities for improvement.
- Lastly, opportunities for partnerships are assessed.

CPE-LC staff will provide an analysis of the secondary and qualitative feedback to identify demand for sustainability and regeneration graduate programming, highlighting proposed program strengths and offering recommendations for proposed program implementation and next steps. CPE-LC staff suggests additional primary, complementary market analysis from the consumer perspective before program development occurs or launch decisions are made.

CPE-LC staff conducted interviews with the following sustainable- related industry and professional association representatives:

- Ex-Officio and Editor-in-Chief, National Environmental-Related Association
- Sustainability Expert and Fiscal and Information Technology Chief, Regional Governmental Organization
- Human Resources Manager, Regional Building Company
- Sustainability expert and hydrologist, State Governmental Organization

Key takeaways from this investigation include:

Demand for Sustainability and Regeneration Programming

- Nationally, there is a reported growing interest in and awareness of sustainability-related processes and knowledge
- Expert feedback suggests that sustainability is not only ecological-, environmental-, or science-related, but is impacting all industries – *this indicates potential demand for the individual sustainability concentration area within existing graduate degrees*
- Nationally, occupations most likely to be associated with this field and forecasted to experience growth through 2016 include architecture-, engineering-, and technical-related occupations
- The registered nurse occupation is forecasted to experience significant growth and employs a large portion of the market share
- In addition to the typically identified occupations, experts stressed the importance of targeting various industries and occupations – *this indicates a potential shifting demand to incorporate sustainability curriculum within existing degrees*
- Within the State of Wisconsin, education occupations, followed by the registered nurse occupation, and the architecture and engineering occupational group are forecast to experience the most numeric growth through 2014
- Within the South Central region, civil engineers and environmental engineers are high-growth occupations
- Typically, the bachelor’s degree is required for the identified occupations, however, the graduate degree may be necessary for career advancement – *this indicates favorable opportunities to offer sustainability programming at the graduate level*

Evaluation of Proposed Program Structure and Format

- Favorable perceptions were identified for the inquiring member institution and expert feedback indicated high correlation between the proposed program and the school's mission
- All of the interviewees indicated relevance for the proposed degree and demand – *this indicates favorable opportunities for the inquiring member to serve regional and national constituents*
- Positive feedback was retrieved for program outcomes, for defined skill sets, and for the overall concept of the interdisciplinary nature of the program
- The combination of coursework with the individual learning plans and community-based projects rated high with all interviewees
- Geographic information systems (GIS) curriculum was identified as lacking from the curriculum description and was suggested by experts to consider incorporating within the program– *the inquiring member institution should evaluate its faculty strengths in GIS and consider the feasibility of incorporating this course into the existing proposed curriculum*
- The two 10-day live/learn experiences received an overall medium level of attractiveness, primarily from industry feedback, as 10-day leaves may be challenging – *the inquiring member institution may consider working with employers on an individual basis to ensure that work is not disrupted significantly*
- Constructive feedback was retrieved for the two-year matriculation timeframe, which was defined as potentially dangerous for enrollments if institutions have to wait two years to enroll new students – *the inquiring member institution may consider a re-evaluation of this particular protocol to assess opportunities for revision or to potentially reduce the two-year cohort enrollment policy*
- Greater potential demand was identified for the graduate certificate from the Regional Building Company
- Favorable perceptions were identified for the M.B.A, education, and nursing degree opportunities

Partnership Opportunities

- Three of the interviewees expressed interest in further communication
- The Region Building Company human resources manager expressed initial interest and support for further communication to discuss partnership opportunities with the vice president of engineering
- The Ex-Officio for the National Environmental-Related Association indicated a desire to be contacted by the inquiring member institution to assist with program development
- The Fiscal and Information Technology Chief and sustainability expert for the Regional Governmental Organization indicated significant support for the program and volunteered to be a key supporter of the program to moderate partnership discussions

Demand for Sustainability and Regeneration Programming

National Trends

According to expert feedback retrieved from the National Environmental-Related Association, sustainability is a growing field that is receiving a significant amount of recognition from a variety of constituents. The Ex-Officio and Editor-in-Chief of the professional association newsletter provided substantial commentary on the demand for sustainability-related

programming and indicated that climate change is a key driver of demand behind this growing field.

“One major issue is climate change and energy economy. Within the last five years, this area has gotten greater attention because of Al Gore, and lot of individuals and organizations are coming to terms with climate change and identifying the need to address this – a lot of parties, except the White House, that is. Regardless of sustainability, climate change, or energy issues, we will need to address them through our daily interactions and in our work environments. These effects will have huge implications for us, so we need people to have the knowledge and skills and work in areas where they can make a difference to get things moving – to instigate a movement.”

- Ex-Officio, National Environmental-Related Association

Sustainability expert and hydrologist for the State Governmental Organization provided further insight on sustainability national trends and stressed the importance of sustainability as a holistic perspective, as opposed to the traditional focus on environmental issues and science.

“Most people are connecting sustainability with energy consumption, science, and the environment. Sustainability impacts all people and all industries. Thus, there should be less emphasis on the environment/science focus and more of holistic approach and [it should be] interdisciplinary in nature.”

- Sustainability Expert and Hydrologist, State Governmental Organization

This feedback suggests that in general, individuals are associating sustainability with science most commonly, and there are initiatives in place to shift the mind-set of individuals and educate consumers on how sustainability impacts activities and everyday life, as opposed to only a few occupations or industries. This feedback indicates potential demand for sustainability-related programming and furthermore, emphasis within varied discipline areas, such as nursing and business programs.

“Sustainability issues and coursework should be weaved into everything; there should be a holistic view on this field.”

- Sustainability Expert and Hydrologist, State Governmental Organization

Additional expert insight retrieved from the Executive Director of the Association for the Advancement of Sustainability in Higher Education (AASHE), provides complementary evidence that suggests demand for sustainability-related education. The national audience is increasingly becoming more aware and knowledgeable about the environment and how the choices they make impact the environment-at-large and consequently, is demanding a significant amount of accountability from construction-related entities.

“We are at the beginning of the next Industrial Revolution; the last one took a lot of work off our shoulders and put [that work] into machines. This [industrial revolution] is about taking the load off the natural world and creating a society with limited [dependence on the] environment. This is a clear and strong trend and becoming a dominant trend. Employers are looking for people that know and understand the sustainability area.”

– Executive Director, AASHE

The Institute for Market Transformation to Sustainability Web site, an organization dedicated to “achieving a sustainable world through transformation of the way products are designed, produced, and sold, and foster and accelerate the global free market transformation to sustainability,” provides further evidence of the corporate profit gain associated with sustainable practices.

“As nearly every study shows, companies with better environmental performance consistently achieve superior financial and stock market performance,”

- Maximizing Environmental Benefits and Market Returns, World Wildlife Fund,
www.mts.sustainableproducts.com

Although CPE-LC staff were not able to connect directly with Kraft Foods representatives, within Wisconsin, the Kraft Foods logo with regard to sustainability “*Making Sustainable Practices Part of every Business Decision*” highlighted within the organizations’ Web site, provides company evidence of the impact sustainability is having on society and businesses.

“Sustainability is about preserving the planet – land, air, water and people. From the “big picture” issues like climate change driven by greenhouse gases, to local issues like coffee and cocoa farmers earning a decent wage, Kraft is finding ways to have positive impacts on the world we live in. To help prioritize our sustainability activities, we are focusing on six areas where we can have the greatest impact and that have the greatest impact on our business: agricultural commodities, packaging, energy, water, waste and transportation and distribution.”

- Kraft Foods Web site, www.kraft.com/about/sustainability

Therefore, it appears that the growing awareness for sustainability and sustainable product utility is not only a national concern for consumers and builders, but according to expert commentary and company examples, private and public companies may experience a profit gain by utilizing green building procedures and materials within manufacturing processes. This indicates a moderate to strong level of demand for sustainability programming.

The next section of the report will focus on occupational trends associated to sustainability-related programming as defined by the BLS and retrieved expert feedback.

Occupational Trends – National Level

Market Size

CPE-LC staff mined the Bureau of Labor Statistics (BLS) to retrieve national occupational and industry trend data specific to the related occupations for the proposed programming. CPE-LC staff identified the following occupations as most commonly associated with the sustainability field:

- Architecture-related occupations
- Environmental-related occupations
- Architectural engineering-related occupations

In addition, as defined by the inquiring member institution, education, management, and nursing occupations were analyzed to assess potential demand for the M.B.A. concentration in sustainability, the focus area within the nursing graduate degree, and the concentration within the education graduate degree. According to national data, the architecture and engineering cluster

group employed more than two million individuals in May 2006. As Figure 1 highlights, nationally, there is a significant potential market size for sustainability-related programming and the proposed program opportunities.

Of the occupations within the architecture and engineering cluster group, the top two occupations that employed the greatest number of individuals in 2006 were as follows:

- Civil engineers
- Architects

Furthermore, the environmental engineer and environmental engineering technician occupations are forecasted to experience the most growth through 2016. Therefore, there appear to be favorable opportunities for the inquiring member to target architecture- and engineering-related occupations for graduate degree programming in sustainability and regeneration.

With regard to the individual program opportunities, teachers at the secondary and primary level had a significant share of employment in 2006 with projected growth about equal to the average. Teachers at the postsecondary level comprised a substantial share of the market with the occupation forecasted to experience job growth by 23% through 2016. This indicates potentially greater demand for programming at the postsecondary level, as opposed to the primary and secondary teacher levels. The registered nurse occupation employed a significant number of individuals in 2006 and is projected to experience much faster growth than the average through 2016. This indicates a large potential market size for the sustainability and regeneration concentration within the graduate degree in nursing. Of the management occupations, the management analyst occupation is forecasted to experience the most growth, compared to the general and operations manager and construction manager occupations. This indicates moderate opportunities for the inquiring member to target management-level occupations for its proposed business-related sustainability programming. Figure 1 highlights national occupational trends for sustainability programming.

Figure 1. National Sustainability- and Regeneration-Related Occupational Trends

Sustainability and Regeneration - Related Occupation	Estimated Employment 2006	Projected Job Outlook Through 2016
Teachers—Preschool, Kindergarten, Elementary, Middle, and Secondary	4,000,000	Increase by 12% (growth about as fast as the average)
Architecture and Engineering Occupations	2,430,250 (May 2006)	Depends on Job
Registered Nurses	2,500,000	Increase by 23% (growth much faster than the average)
General and Operations Managers	1,720,000	Increase by 2% (grow by little or no change)
Teachers, Postsecondary	1,700,000	Increase by 23% (growth much faster than the average for all teacher occupations)
Management Analyst	678,000	Increase by 22% (growth much faster than the average)
Construction Manager	487,000	Increase by 16% (growth faster than the average)
Civil Engineers	256,000	Increase 18% (growth faster than the average)
Architects, Except Landscape and Naval	132,000	Increase by 18% (growth faster than the average)
Civil Engineering Technicians	91,000	Increase 10% (growth as fast as the average)
Environmental Engineers	54,000	Increase 25% (growth much faster than the average)
Environmental Science and Protection Technicians	37,000	Increase 21% or more (growth much faster than the average)
Landscape Architects	28,000	Increase 16% (growth faster than the average)
Health and Safety Engineers, Except Mining Safety Engineers	25,000	Increase 10% (growth about as fast as the average)
Materials Engineers	22,000	Increase 4% (growth slower than the average)
Environmental Engineering Technicians	21,000	Increase by 25% (growth much faster than the average)

Source: Bureau of Labor Statistics, 2006

In addition, the Fiscal and Information Technology Chief and Sustainability expert provided positive commentary for the demand of the proposed program, nationally.

“Demand for this degree will grow. Over the next five to 10 years, there will be emergence within this industry. New job categories will be generated that we haven’t heard of before that have generic titles. People are going to need to have knowledge of this. The healthcare industry, the education industry, the manufacturing industry, all industries will see a rise in demand for this knowledge.”

- Sustainability and Fiscal and Information Technology Chief, Regional Governmental Organization

There appears to be demand for the proposed program within the traditionally associated occupations and emerging occupations, regardless of industry.

Wisconsin State-Level Trends

To better understand the demand and potential target market for graduate degree programming in sustainability and regeneration, state and South Central regional labor market data was retrieved. Figure 2 highlights Wisconsin employment data for related occupations. Within the state of Wisconsin and the architecture and engineering cluster group, civil engineers and architects are projected to have the greatest number of total openings through 2014. However, projections for the remaining occupations identified within the architecture and engineering cluster as most commonly related to sustainability forecasted low to moderate levels of growth through 2014.

Thus, the inquiring member should consider targeting the high-growth occupations related to sustainability and regeneration for educational programming.

With regard to the individual program opportunities, similar to national labor market trends, employment is strong with the registered nurse occupation and is forecasted to experience strong growth through 2014. This indicates moderate to strong demand for programming associated with the nursing field. In addition, projections within the management occupational group for the general and operations manager occupation forecasted more than 53,400 employment through 2014, with total job openings of more than 1,500. The education, training, and library occupational cluster group is forecasted to add more than 30,000 openings to the state with more than 3,000 jobs due to new job growth, as opposed to job replacements. Thus, there appears to be favorable opportunities for the inquiring member to target these occupations.

Figure 2. Wisconsin State Occupational Trends

Occupational Title	Estimated Employment ⁽¹⁾				Estimated Average Annual Openings ⁽¹⁾		
	2004	2014	Change	% Change	New Jobs	Replacements ⁽²⁾	Total ⁽³⁾
Education, Training, and Library Occupations	187,700	217,930	30,230	16.1%	3,020	3,960	6,980
Registered Nurses	48,410	64,420	16,010	33.1%	1,600	1,010	2,610
Architecture and Engineering Occupations	48,720	53,470	4,750	9.7%	480	1,110	1,590
General and Operations Managers	28,280	32,330	4,050	14.3%	410	530	940
Management Analysts	7,760	8,560	800	10.3%	80	110	190
Construction Managers	4,740	5,490	750	15.8%	80	90	170
Civil Engineers	3,770	4,200	430	11.4%	40	60	100
Architects, Surveyors, and Cartographers	3,640	4,060	420	11.5%	40	70	110
Environmental Engineers	1,020	1,300	280	27.5%	30	20	50
Architects, Except Landscape and Naval	1,920	2,150	230	12.0%	20	20	40
Environmental Scientists and Specialists, Including Health	1,100	1,250	150	13.6%	20	20	40
Civil Engineering Technicians	1,870	2,010	140	7.5%	10	40	50
Materials Engineers	530	620	90	17.0%	10	10	20
Environmental Engineering Technicians	330	400	70	21.2%	10	10	20
Landscape Architects	480	550	70	14.6%	10	10	20
Environmental Science and Protection Technicians, Including Health	430	480	50	11.6%	10	10	20
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	340	390	50	14.7%	10	10	20

Source: Wisconsin Department of Workforce Development, 2006

(1) **Employment** is a count of jobs rather than people, and includes all part- and full-time non-farm jobs. Employment also includes jobs among self-employed and unpaid family workers. Employment is rounded to the nearest 10, with employment less than five rounded to zero. Totals may not add due to rounding.

(2) **Replacements** are an estimate of the number of job openings expected because people have permanently left a given occupation. Permanent exits occur if someone dies, retires, or otherwise leaves the labor force. Permanent exits also include openings resulting from someone permanently changing occupations. For example, a person leaves their job as a cashier and becomes a truck driver. Openings resulting from people changing employers, but staying in the same occupation are not included.

(3) **Total openings** are the sum of new jobs and replacements. Total openings are an indication of how many new people are needed to enter a given occupation.

Within the state of Wisconsin, educators, registered nurses, general and operations managers, civil engineers, and architects appear to be the most attractive market to target for educational programming. Many state-level trends mirror national trends.

South Central Regional – Level Trends

To assess immediate regional potential demand for sustainability and regeneration programming, CPE-LC staff retrieved occupational trend data for the occupations highlighted within Figures 1 and 2 for the South Central Region, which is inclusive of Madison, Dane County. Occupational trends for the architecture and engineering occupation cluster appear to indicate a moderate potential market size for sustainability-related programming.

High-growth occupations are listed below:

- Civil engineers
- Environmental engineers

Fastest-growing occupations are as follows:

- Environmental engineering technician (28.6% through 2014)
- Environmental engineer (26.9% through 2014)

Therefore, although the total potential market size may be moderate, the total architecture and engineering occupational group, highlighted within Figure 3, is forecasted to add more than 900 jobs through 2014. With regard to the full-degree graduate program, the inquiring member appears to have a moderate potential market size to target for sustainability and regeneration programming.

For occupations within the management sector, the general and operations manager occupation is forecasted to increase by 15.1% through 2014, adding more than 600 jobs. The construction manager occupation is the fastest-growing occupation compared to the other two management occupations, with a forecasted growth rate of 21.1% through 2014. Thus, with regard to the management program opportunity, total management-related occupations appears to provide a strong potential market size for M.B.A. programming with a sustainability focus.

In addition, the registered nurse occupation employment trends mirror both national- and state-level trends. The registered nurse occupation is not only forecasted to experience the greatest numeric change over the 2004 to 2014 period, but is also the fastest-growing occupation from all occupations listed within Figure 3. Based on economic trend data, the registered nurse occupation is highly attractive to target for educational programming. Furthermore, as Figure 3 highlights, limited growth is forecasted for the postsecondary educator occupation. Greater growth is projected for primary and secondary educators.

Figure 3. South Central Workforce Development Area Occupational Trends

Occupational Title	Estimated Employment				Estimated Average Annual Openings						
	2004	2014	Change	% Change	New Jobs	Replacements	Total				
Registered Nurses	7,180	9,460	2,280	31.8%	230	150	380				
Architecture and Engineering Occupations	7,810	8,760	950	12.2%	100	180	280				
General and Operations Managers	4,230	4,870	640	15.1%	60	80	140				
Management Analysts	1,240	1,410	170	13.7%	20	20	40				
Civil Engineers	990	1,090	100	10.1%	10	20	30				
Construction Managers	380	460	80	21.1%	10	10	20				
Environmental Engineers	260	330	70	26.9%	10	<5	10				
Architects, Except Landscape and Naval	380	450	70	18.4%	10	<5	10				
Civil Engineering Technicians	550	590	40	7.3%	<5	10	10				
Environmental Engineering Technicians	70	90	20	28.6%	<5	<5	<5				
Materials Engineers	100	120	20	20.0%	<5	<5	<5				
Landscape Architects	80	90	10	12.5%	<5	<5	<5				
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	50	60	10	20.0%	<5	<5	<5				
Environmental Science and Protection Technicians, Including Health	70	80	10	14.3%	<5	<5	<5				
Education - Specific											
Architecture Teachers, Postsecondary	N/A				<5	<5	<5				
Engineering Teachers, Postsecondary					<5	<5	<5				
Agricultural Sciences Teachers, Postsecondary					<5	<5	<5				
Biological Science Teachers, Postsecondary					<5	<5	<5				
Forestry and Conservation Science Teachers, Postsecondary					<5	<5	<5				
Environmental Science Teachers, Postsecondary					<5	<5	<5				
Economics Teachers, Postsecondary					<5	<5	<5				
Geography Teachers, Postsecondary					<5	<5	<5				
Elementary School Teachers, Except Special Education					4,770	5,390	620	13.0%	60	110	170
Secondary School Teachers, Except Special and Vocational Education					3,990	4,390	400	10.0%	40	110	150
Preschool Teachers, Except Special Education	1,310	1,640	330	25.2%	30	20	50				
Middle School Teachers, Except Special and Vocational Education	2,490	2,670	180	7.2%	20	60	80				
Special Education Teachers, Preschool, Kindergarten, and Elementary School	540	670	130	24.1%	10	10	20				
Kindergarten Teachers, Except Special Education	520	610	90	17.3%	10	10	20				
Special Education Teachers, Secondary School	450	520	70	15.6%	10	10	20				
Special Education Teachers, Middle School	310	370	60	19.4%	10	10	20				
Vocational Education Teachers, Secondary School	320	350	30	9.4%	<5	10	10				
Vocational Education Teachers, Middle School	90	90	0	0.0%	<5	<5	<5				

Source: Wisconsin Department of Workforce Development, 2006

Industry perspective feedback received from the Human Resources Manager from the Regional Building Company, indicated that consumers are becoming more knowledgeable about sustainable building and demanding a greater level of education from industry.

“Customers are asking more questions on how to use materials in a sustainable way, how we can build sustainable buildings, and how our product provides the green component. We also have this green initiative, internally. The environment is pushing us to become more knowledgeable about this and we are trying as a company to become more green. There are numerous initiatives, internally, in place to attain this. We have a couple of people who head up these initiatives and they all pass through our vice president of engineering. Thus, for us, within our company, the occupations that would be relevant for this degree would be our VPs – engineering, sales, and production executives.”

- Human Resources Manager, Regional Building Company

Since total engineering and management occupations are projected to experience high growth over the 10-year period, and there exists demand, as reported by the human resources manager, there appear to be moderate opportunities to offer the proposed program to serve an executive- and middle-level of occupations, regionally.

National Drivers of Demand

To have a better understanding of those factors that will impact the growth of related occupations, CPE-LC staff compiled drivers of demand, highlighted within Figures 11 through 13 (found within the Appendix). According to the BLS, architect-related occupations, environmental engineers, registered nurses, and management analysts are projected to experience most favorable job prospects due to a variety of reasons including, but not limited to:

- Replacement of retired workers
- Impact of sustainable materials/green-friendly resources to be used for green building construction
- Environmental regulation to clean up the environment – transitioning from controlling problems to preventing those issues
- Increase in public health awareness
- Demand for architect and engineering-related occupations based on construction and environmentally-related issues, or available resources within certain geographic regions
- Shortage of nurses
- Impact of internationalization

Education and Training Required

Of the identified occupations most commonly associated with sustainability and regeneration programming and the proposed program opportunities, the typical education and training required for these occupations is primarily a bachelor's degree. Although this is true for a number of entry-level occupations, in order to further advance within the industry a professional master's degree, such as architecture or graduate degree programming in related fields, may be necessary. In contrast, employment as a postsecondary teacher requires a doctoral degree. Furthermore, depending on the level of occupation, e.g., technician versus an engineer, the education and training varies as well. Graduate degree programming appears to be attractive for the majority of the identified target occupations within the sustainability field.

Figure 4 highlights Wisconsin state-level education and training requirements for the occupations under investigation.

Figure 4. State-Level Education Requirements for Related Occupations

Occupational Title	Typical Education and Training Path ⁽¹⁾
Architecture and Engineering Occupations	Varies
Civil Engineering Technicians	Associate degree
Environmental Engineering Technicians	Associate degree
Environmental Science and Protection Technicians, Including Health	Associate degree
Registered Nurses	Associate or Bachelor's degree depends on job
General and Operations Managers	Bachelor's or higher degree + work experience
Civil Engineers	Bachelor's degree
Environmental Engineers	Bachelor's degree
Architects, Except Landscape and Naval	Bachelor's degree
Materials Engineers	Bachelor's degree
Landscape Architects	Bachelor's degree
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	Bachelor's degree
Materials Scientists	Bachelor's degree
Construction Managers	Bachelor's degree
Management Analysts	Bachelor's degree
Architects, Surveyors, and Cartographers	Master's degree
Environmental Scientists and Specialists, Including Health	Master's degree
Teachers, Postsecondary	Doctoral degree
Primary and Secondary Teachers	Bachelor's degree

Source: Wisconsin Department of Workforce Development

(1) **Typical Education and Training Path** gives a general indication of the education or training typically needed in a given occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.

Experts provided further commentary on the education required for individuals interested in working with sustainability and indicated that education for this field is foremost introduced at a young age; however, the graduate degree credential is a critical level for sustainability coursework to be incorporated. The regional sustainability expert and Fiscal and Information Technology Section Chief as well as the representative from the National Environmental-Related Association provided strong evidence for the need for sustainability-related education.

“Offering this degree at the graduate level is an excellent choice, and beneficial. Really, I would like to see this type of education being addressed early in education; however, this is a good start. It’s a certainly good starting place and we need to start somewhere. I hope to see this incorporated at the undergraduate level as well.”

- Sustainability Expert and Fiscal and Information Technology Section Chief, Regional Governmental Organization

“I think this is a very astute move of [inquiring member institution]. The graduate degree is the education required, typically. You don’t need a Ph.D., the master’s program is the right level with the skills you will need.”

- Ex-Officio and Editor-in-Chief, National Environmental-Related Association

Sustainability experts representative of the Governmental Organization and the National Environmental-Related Association provided indifferent feedback for the graduate certificate; however, regional industry expert commentary indicated potential greater demand for the

graduate certificate. The Regional Building Company representative reported that ongoing education is important, more so than the attainment of a graduate degree.

“Graduate level education is good; however, we have a number of certifications that are important to our business that we emphasize. Continuing education and the attainment of individual certifications, aimed towards engineers and other occupations are more important compared to a one-time graduate degree.”

- Human Resources Manager, Regional Building Company

Feedback and national and regional data indicates demand for the standalone graduate degree, and the industry perspective indicates potential demand for the graduate certificate.

In addition to identifying occupational and industry factors impacting demand for sustainability programming, CPE-LC staff gathered salary data for the identified occupations to provide further insight into the potential demand for sustainability-related programming for the target audience. Figure 5 highlights related occupation salary data.

Figure 5. Related Occupation Salary

Occupational Title	Estimated Salary and Wages (2005)		
	Average Annual Salary(1)	Entry Level Hourly Wage(2)	Experienced Hourly Wage(3)
General and Operations Managers	\$96,173	\$24.23	\$57.24
Construction Managers	\$82,707	\$23.13	\$48.08
Environmental Engineers	\$66,296	\$22.79	\$36.42
Materials Engineers	\$65,336	\$26.19	\$34.02
Architects, Except Landscape and Naval	\$64,804	\$18.39	\$37.54
Civil Engineers	\$61,924	\$23.19	\$33.06
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	\$59,323	\$22.56	\$31.50
Management Analysts	\$57,573	\$19.87	\$31.59
Registered Nurses	\$56,605	\$22.32	\$29.66
Architecture and Engineering Occupations	\$54,767	\$16.92	\$31.04
Landscape Architects	\$52,630	\$19.32	\$28.29
Vocational Education Teachers, Middle School	\$51,729	N/A	
Environmental Scientists and Specialists, Including Health	\$48,262	\$17.48	\$26.06
Vocational Education Teachers, Secondary School	\$47,645	N/A	
Special Education Teachers, Secondary School	\$46,553		
Secondary School Teachers, Except Special and Vocational Education	\$43,417		
Middle School Teachers, Except Special and Vocational Education	\$44,331		
Elementary School Teachers, Except Special Education	\$43,250		
Special Education Teachers, Preschool, Kindergarten, and Elementary School	\$43,055		
Civil Engineering Technicians	\$41,902	\$14.71	\$22.86
Special Education Teachers, Middle School	\$41,520	N/A	
Kindergarten Teachers, Except Special Education	\$41,109		
Environmental Engineering Technicians	\$40,142	\$13.00	\$22.45
Environmental Science and Protection Technicians, Including Health	\$36,030	\$14.06	\$18.95
Preschool Teachers, Except Special Education	\$24,559	N/A	
All Postsecondary Teachers		N/A	

Source: Wisconsin Department of Workforce Development, 2006

(1) **Average Annual Salary:** An occupation's average hourly wage is calculated by summing the wages of all employees in a given occupation and then dividing by the total number of employees in that occupation. In most cases, the annual average salary is equal to the average hourly wage multiplied by 2,080.

(2) **Entry Level Hourly Wage** is the average of the lower third of wages that are paid in a given occupation.

(3) **Experienced Hourly Wage** is the average of the upper two-thirds of wages that are paid in a given occupation.

Of the identified occupations, regardless of program opportunity, the Wisconsin Department of Workforce Development reported that the general and operations manager occupation, followed by the construction manager occupation were the most compensated annually in 2005. In 2005, annual salaries for architecture and engineering-related occupations ranged from \$36,000 to \$66,000. From the consumer perspective, management-level occupations compensate higher and

thus may potentially increase the demand for these occupations and consequently, increase demand for graduate degree programming focused on business.

The next section of this report will provide expert commentary on the inquiring member institution’s specific proposed program format, structure, and identification of fit with the institution’s mission.

Evaluation of Proposed Program Structure and Format, and Inquiring Member Institution-Specific Feedback

Three of the interviewees indicated that they were familiar with the inquiring member institution. Figure 6 highlights feedback on the inquiring member institution and fit between the proposed program and the institution’s mission.

Figure 6. Proposed Program Fit With Inquiring Member Institution’s Mission

Organization	Familiarity With Inquiring Member Institution	Fit With Inquiring Member's Mission
State Governmental Organization	"I am familiar with the college; however, I do not know enough about the school and the mission to provide further commentary."	"Although I am not very familiar, having read the description of the program and the mission of the school - I think it's very representative of the school."
Regional Governmental Organization	"I am familiar with the [inquiring member institution]."	"I think this is a strong institution with good traditions and this program reflects this."
National Environmental-Related Association	"I am not familiar with the school at all."	"Even though I do not know the institution, having read the description, mission of the school, I think this proposed program absolutely fits, no question about it! There is a huge religious sector interest in sustainability and thus this school is on board with where this field is going."
Regional Building Company	"I am not specifically familiar with the [inquiring member institution], so I cannot comment on this too much."	
<p><i>Trend: In general, favorable perceptions were identified for the inquiring member institution. Overall, feedback indicated high correlation between the proposed program and the inquiring member's mission.</i></p>		

All of the interviewees indicated relevance for the proposed program within their respective organizations. Figure 7 highlights individual responses to program relevance and applicability.

Figure 7. Employer Applicability

Organization	Program Applicability
State Governmental Organization	"I think this program would be relevant for us. You would have to have the environmental knowledge and within our division, we need visionary people - visionary leaders."
Regional Governmental Organization	"I think this program would be very beneficial to our organization. Individuals with strong science background and they have a sustainability focus, this would be ideal. Much of our work here is science-based; however, having the knowledge and skill sets with regard to sustainability would be favorable in our organization. I interview people and I would look favorably upon candidates that graduated from the [inquiring member institution] with this degree."
National Environmental-Related Association	"I don't think this degree is necessarily specific to one industry, I see it having applicability in a variety of industries. There's a huge level of relevance, regardless of industry."
Regional Building Company	"Whenever we have sustainability related issues come up or we try to generate new initiatives for green building or similar, we turn to our VP of Engineering. Thus, because of the high demand for us to become more sustainable in our processes, this program would be beneficial. However, I think that the benefit would be minimal - specifically our VP of Engineering, VP of Sales, and VP of Production would benefit the most."
<p><i>Trend: In general, there appears to be demand and relevance for this degree within the interviewed organizations.</i></p>	

Employee Tuition Assistance

In addition to assessing employer relevance, employers commented on tuition assistance programs available to employees to pursue the proposed program. In general, there appears to be a low level of employer financial support for employees to pursue this degree. Interviewees provided commentary on employer assistance policies.

“Employer assistance would not necessarily be available to individuals to pursue advanced degrees, in general. We have had graduate students that work as limited time employees within our organization while they are pursuing education, but having employees receive assistance for education, while they are full-time employees is less prevalent. We have a number of students that do their projects with us.”

- Sustainability expert and Hydrologist, State Governmental Organization

With regard to the Regional Building Company, limited insight was provided for tuition assistance; however, considering the fact that this program would have most relevance for executive-level employees, chances for financial support appear to be prevalent. In addition, although the Governmental Organization indicated limited financial support, opportunities for internships and further partnerships for graduates appear to be greater.

Proposed Program Strengths

In general, feedback indicated favorable perceptions for the proposed program skill sets, proposed program outcomes, curriculum, and format.

“In today’s society, to be competitive, people need to have something else, something that tops the nuts and bolts of how to run a business. Many people just do not get it, nobody wants to change. To run a business people need to have an M.B.A., however, people also need to understand how sustainable businesses work. This degree would be that something else that people need to have to promote new direction within sustainability. The interdisciplinary nature of the program is great, because it allows individuals who are pursuing the degree to select elective courses and follow curriculum that is of interest to them. Sustainability is very much a personal attribute, intrinsic and so students need to be able to tailor programming to meet their needs and passions. I think this program does a good job of that.”

- Sustainability Expert and Hydrologist, State Governmental Organization

“These skills sets would be great, because we would then have more people to turn to, aside from our VP of Engineering, when we want to address green initiatives.”

- Human Resources Manager, Regional Building Company

The Ex-Officio of the National Environmental-Related Association indicated that the proposed skill sets and knowledge outcomes for graduates of the proposed program would have significant benefit to society-at-large and congratulated the inquiring member institution on the level of detail and research that went into the development of this program.

“The quantitative skills that are highlighted are key, you need to have this – you do not need to be proficient but it’s a good element. This proposed program looks like it is very credible, and praiseworthy. The interdisciplinary nature of the program is great – because it allows for sustainability to impact a variety of subjects. The proposed program outcomes are very important. This program is very attractive. It seems to be a non-residential program, targeting full-time working professionals, and applicable to many backgrounds.”

- Ex-Officio, National Environmental-Related Association

The Fiscal and Information Technology Chief at the Regional Governmental Organization provided further positive feedback on program strengths.

“The program outcomes and skill and knowledge sets defined within this proposal are important. The [inquiring member] has done a great deal of research and this is a pretty good initial concept thus far. The interdisciplinary format is key because it allows a variety of individuals to pursue the degree. I would whole heartedly support and endorse this program.”

- Fiscal and Information Technology Chief, Regional Governmental Organization

The individual project was rated very favorably and experts stressed the importance of hands-on practical experience. An individual analysis of program structure attractiveness is highlighted within Figure 8.

Figure 8. Level of Proposed Program Format Attractiveness

Organization	Level of Proposed Program Format Attractiveness			
	Combination of Academic Coursework, Individualized Learning Plans, and Community-Based Projects	Two 10-Day Living/Learning Experiences	Monthly Seminars (4-7 Hrs)	Two-Year Completion Time With Cohort
State Governmental Organization	High	Medium	High	Medium-High with no significant preference
Regional Governmental Organization	High	Medium	High	Medium-High with no significant preference
National Environmental-Related Association	High	Medium-High	High	High for completion time; however, low attractiveness for every 2nd year cohort starting
Regional Building Company	High	Low (challenging, depends on employee's work schedule)	High	Medium-High with no significant preference
Trend	High	Medium	High	Medium-High

In addition to identifying program strengths, some interviewees provided suggestions for areas for improvement. The Ex-Officio of the National Environmental-Related Association cited the area of geographic information systems (GIS) as missing from the curriculum description and also suggested that the inquiring member institution re-evaluate the two-year cohort commencement time.

“Within landscape architecture, there is a lot of GIS going on, so this is a key component that is missing from the curriculum description. Before students leave the program, they need to have a solid understanding of this area – this field is very connected to quantitative. Also, I would recommend that the cohort not start every two years. I think this sets up problems for recruiting students. If they can not start the program when they want to, then they will go to another provider. A one year starting cycle may be okay, but two years I think will create a barrier for students to enroll. In my opinion, having created and operated a similar program for many years, it’s very dangerous to go to a two-year recruitment cycle.”

- Ex-Officio, National Environmental-Related Association

The regional Madison sustainability expert and Fiscal and Information Technology Chief for the Regional Governmental Organization suggested that the inquiring member institution take into consideration student learning styles.

“I think this program is well researched and has a lot of potential. I think one thing that the [inquiring member institution] should take into consideration is students’ learning styles. People learn differently. So with the variety of delivery formats, that’s great, but also I would look more closely into this as we all learn in different ways.

- Fiscal and Information Technology Chief, Regional Governmental Organization

The Human Resources Manager at the Regional Building Company reported mixed reactions toward the two 10-day learning/living experiences due to the relatively significant time required for employees to take a leave from full-time employment.

“I think practical experiences are great and learning hands-on is very beneficial. We have a lot of internal training programs that are delivered in this format; however, the 10-day leave may present challenges and would depend on the employees’ schedule.

Again, though, I think this would only be relevant for top executives, so there may be fewer obstacles.”

- Human Resources Manager, Regional Building Company

In general, with the exception of the Ex-Officio’s program-specific areas for improvement and recommendations, and the concerns raised for the 10-day leave from work, few areas for development were identified. Based on this limited constructive feedback, coupled with the significant positive program-specific insight received, it is evident that the inquiring member institution has well researched this program and favorable industry and professional perceptions exist for it.

The next section will focus on the individual program opportunities identified by the inquiring member institution, which include the M.B.A. concentration, the nursing graduate degree focus area, and the education concentration within the graduate degree.

Individual Program Concentration Opportunities

In addition to identifying demand for the stand-alone graduate degree in sustainability and regeneration and the graduate certificate, CPE-LC staff asked industry experts to provide insight regarding demand for sustainability programming within an M.B.A. program, a nursing graduate degree, and an education graduate degree.

In general, there was a significant interest identified for the sustainability concentration within the graduate degree programming. Expert feedback indicated a significant demand to incorporate sustainability-related coursework within a variety of degrees.

“There is absolutely demand for the business concentration, nursing concentration, and education concentration. This is the only way that we will see different people addressing the issue of sustainability, by incorporating it within existing degrees that are not science or environmental-specific.”

- Fiscal and Information Technology Chief, Regional Governmental Organization

Sustainability expert and hydrologist for the State Governmental Organization indicated significant demand for the individual concentrations and expressed great interest in the nursing focus area.

“There is definitely a benefit for nurses to know the life cycle analysis of the products they are using every day. Incorporated within the curriculum would be great. There’s demand for managers to know how sustainability affects their operations, manufacturing, product development, the list is endless.”

- Sustainability Expert and Hydrologist, State Governmental Organization

According to the Chronicle of Higher Education, the sustainability field is gaining popularity within graduate business degrees. Based on existing research, the Aspen Institute, which provides alternative ranking for business schools and their ability to address social and environmental issues, reported that over the six-year period from 2001 to 2007, the presence of social and environmental issues coursework experienced a significant increase in visibility in M.B.A. programming.

“The Aspen Institute released this morning the 2007-8 edition of Beyond Grey Pinstripes, its biennial alternative ranking of business schools and survey tracking how full-time M.B.A. programs are addressing social and environmental issues. Among other findings, the survey showed that the number of reported M.B.A. courses that focus on sustainability jumped from 13 in 2001 to 154 in 2007. Still, the number of the business schools that pay attention to such matters is relatively small, even if the cohort is growing. Stanford University’s school led the way, finishing first in the ranking.”

- Chronicle of Higher Education, “More Business Schools Focus on Sustainability”, January 21, 2008

In addition, CPE-LC staff conducted an initial secondary scan to identify similar programs with a sustainability emphasis to assess potential demand and national supply for related programming. CPE-LC staff researched the Association of University Leaders for a Sustainable Future Web site, institutional Web sites, and the University of Wisconsin sustainability resource link to retrieve information on graduate business programming with an emphasis in sustainability. CPE-LC staff retrieved 10 institutions, nationally, that offer M.B.A programming with a sustainability focus. Figure 9 highlights the institution name, program name, and the Web site URL.

Figure 9. M.B.A.-Related Programming With Sustainability Emphasis

Institution Name	Program Name	Web site URL
Aquinas College	Master of Management Sustainable Business Concentration (M.M.)	http://www.aquinas.edu/sb/
Bainbridge Graduate Institute Business School	Sustainable Business M.B.A. or graduate certificate	http://www.bgiedu.org/
Dominican University of California	Green M.B.A.	http://www.greenmba.com/
Duquesne University	M.B.A. with a concentration in Sustainable Enterprise	http://www.business.duq.edu/grad/programs/mba/sustainablemba/
The George Washington University	M.B.A. and M.P.P. with Environmental Policy and Management Emphasis	http://www.gwu.edu/~essi/
Green Mountain College	Online M.B.A. in Sustainability Business	http://www.greenmtn.edu/graduate_studies/mba/
Presidio World College	Sustainable Management M.B.A.	http://presidioworldcollege.org/
Stanford University	Business Strategies for Environmental Sustainability - not full-degree program	http://www.gsb.stanford.edu/exed/bses/index.html
University of Michigan	Environmental Management Program Joint M.B.A. and M.S.	http://www.umich.edu/~cemp/index.htm
University of North Carolina	M.B.A. with a concentration in Sustainable Enterprise	http://www.cse.unc.edu

Sources: Association of University Leaders for a Sustainable Future, Institutional Web sites

In general, demand was retrieved for all individual concentration areas within existing graduate degree programming. This feedback, coupled with the favorable occupational trends related to the healthcare and management fields, indicates moderate opportunities for the inquiring member to incorporate this curriculum within existing graduate management, nursing, and education degrees.

Partnership Opportunities

Of the organizations interviewed, interest was identified for future communication and partnership opportunities. The following commentary was provided by individual interviewees.

“I would certainly support this program. I think it is an excellent proposal! Students could intern, I would be the primary contact for the program within the division, I would endorse the program and advertise it.”

- Sustainability Expert and Fiscal and Information Technology Chief, State Governmental Organization

“I can not speak to the extent of partnership opportunities, but I am assuming we would be interested in partnering, yes. The VP of Engineering would be the supporter of the program and the one who would evaluate the program first. I’m sure he would be interested, but this proposal would have to go through him first.”

- Human Resources Manager, Cleary Building Corporation

Although initial conversations were not able to identify specific partnership opportunities, interest was expressed for further communication with Regional Building Corporation. Currently, the HR Manager indicated huge emphasis on alternative resource building and practices and on educating the customer on particular sustainable products, on location of building sites, and on other factors that are important when trying to build a sustainable building.

In addition, the Ex-Officio representative from the National Environmental-Related Association expressed interest in further communication.

“I would be happy to speak with them if they decide to move forward with this initiative. It’s a great idea and I would assist them with my knowledge of the industry and academic programming, which I have experience in with 30-plus years.”

Ex-Officio, National Environmental-Related Association

Analysis and Recommendations

Based on national and regional trend data, demand for sustainability-related programming is increasing. This fact is complemented by significant expert feedback and commentary retrieved from secondary resources, which highlight the importance of sustainable practices within not only the traditional environmental capacity but also more generally. Within the state of Wisconsin there appears to be a moderate potential market size to target for the proposed program. Favorable growth is reported for education, training, and library occupations, the registered nurse and the architecture and engineering occupational group. Regionally, within the South Central Region, primary and secondary teachers, civil engineers and environmental engineers are projected to supply a moderate potential market size. Thus, based on industry and occupational data, there appears to be a moderate potential market size to target for sustainability-related programming.

For proposed program evaluation, CPE-LC staff created a SWOT analysis table, which highlight the strengths and weaknesses of the proposed program, and opportunities and threats identified from external factors. Strengths and weaknesses are typically identified as internal factors and opportunities and threats are identified as external factors. These factors combined provide a comprehensive picture of those elements which may impact the viability of the proposed program. CPE staff present the SWOT analysis of the proposed program within Figure 10.

Figure 10. SWOT Analysis of Proposed Program

Strengths	Weaknesses
<ul style="list-style-type: none"> • In general, feedback indicated that the proposed program fits well with the inquiring member institution’s mission. • The proposed program addresses sustainability in an interdisciplinary format, which reflects national expert feedback on the sustainability movement • The integration of academic coursework and individual learning plans received significant positive feedback – <i>the ability to tailor programming to serve individual needs and interests is key</i> • The community-based projects provides potential students to address a local concern and provides opportunities for individual creativity and growth • Program outcomes are reportedly well researched and prepare individuals for work within this context • The individual program concentrations within the education, business, and nursing graduate programming received favorable commentary – <i>based on primary and secondary research retrieved in this investigation there appears to be demand for the individual program areas</i> • The variety of the delivery formats the proposed program offers provides potential students with opportunities to learn within different capacities 	<ul style="list-style-type: none"> • Feedback identified a lack of geographic information systems (GIS) programming within the curriculum, which should be addressed – <i>the inquiring member institution should evaluate program curriculum and faculty strengths to assess the feasibility of incorporating GIS programming</i> • By limiting enrollment to a 2-year basis, this may present a challenge for interested students whose attention is captured by a similar program that matriculates students every year – <i>the inquiring member institution should consider this feedback and assess the opportunity to enroll students with a 1-year or every year cohort</i>
Opportunities	Threats
<ul style="list-style-type: none"> • Of the occupations identified as most relevant and those of interest to the inquiring member institution, the bachelor’s degree is the typical education required, followed by the graduate degree for career advancement purposes – <i>this indicates demand for sustainability programming offered at the graduate credential level</i> • There may be opportunities for the inquiring member to partner with the Regional Governmental Organization to provide “limited time” employment to students pursuing the program – <i>the inquiring member should reach out to the interviewed individual to assess the feasibility of this partnership</i> • Support, endorsement, and opportunities for collaboration were identified by the Fiscal and Information Technology Chief – <i>the inquiring member should contact this individual to begin conversation for future support</i> • With a growing awareness of sustainability within a variety of industries, including, but not limited to; business and education, national trends and expert feedback provides initial evidence for individual program concentration formats – <i>there appears to be moderate demand for the inquiring member to incorporate sustainability coursework within existing degree programs</i> • Expert feedback indicated a low number of programs offering this program in the defined format – <i>this indicates an initial low level of competition with programming that follow this format</i> • Regional employers (Building Company and Kraft) are addressing sustainability through sustainable business practices and therefore are target employers for this opportunity - <i>the inquiring member should reach out to the HR Manager at the Regional Building Company to begin conversations for partnership</i> 	<ul style="list-style-type: none"> • Because of the large number of institutions offering similar sustainability graduate programming in a residential format, this may present competition – <i>the inquiring member should have a thorough understanding of potential competition and highlight program differentiation areas through marketing and advertisement of the proposed program</i> • Employers may utilize internal training departments to educate employees in related sustainability issues and maintain certification standards through different providers – <i>this may create additional competition for the proposed program and may result in lesser demand for the full-degree graduate program</i>

Additional Research Opportunities

The purpose of this investigation was to identify national and regional demand for the graduate degree program in sustainability and regeneration. Additional complementary research that can be completed within the CPE-LC membership, or internally by the institution, include the following:

- Reach out to individuals who expressed interest to secure conversations and begin dialogue regarding next steps for partnership opportunities
- Conduct primary research within a set geography to assess individual interest in the program and assess program strengths and limitations from consumers
- Continue to reach out to regional employers and national associations to assess partnership and endorsement opportunities

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Appendix

Figure 11. National Drivers of Demand

Sustainable Sciences-Occupation	Drivers of Demand
Architects, Except Landscape and Naval	<p>Besides employment growth, additional job openings will arise from the need to replace the many architects who are nearing retirement, and others who transfer to other occupations or stop working for other reasons. Internship opportunities for new architectural students are expected to be good over the next decade, but more students are graduating with architectural degrees and some competition for entry-level jobs can be anticipated. Competition will be especially keen for jobs at the most prestigious architectural firms as prospective architects try to build their reputation. Prospective architects who have had internships while in school will have an advantage in obtaining intern positions after graduation.</p> <p>Employment of architects is strongly tied to the activity of the construction industry. Strong growth is expected to come from nonresidential construction as demand for commercial space increases. Residential construction, buoyed by low interest rates, is also expected to grow as more and more people become homeowners. If interest rates rise significantly, this sector may see a falloff in home building.</p> <p>Current demographic trends also support an increase in demand for architects. As the population of Sunbelt States continues to grow, the people living there will need new places to live and work. As the population continues to live longer and baby-boomers begin to retire there will be a need for more healthcare facilities, nursing homes, and retirement communities. In education, buildings at all levels are getting older and class sizes are getting larger. This will require many school districts and universities to build new facilities and renovate existing ones.</p> <p>Some types of construction are sensitive to cyclical changes in the economy. Architects seeking design projects for office and retail construction will face especially strong competition for jobs or clients during recessions, and layoffs may ensue in less successful firms. Those involved in the design of institutional buildings, such as schools, hospitals, nursing homes, and correctional facilities, will be less affected by fluctuations in the economy. Residential construction makes up a small portion of work for architects, so major changes in the housing market would not be as significant as fluctuations in the nonresidential market.</p> <p>Despite good overall job opportunities some architects may not fare as well as others. The profession is geographically sensitive and some parts of the Nation may have fewer new building projects than others. Also, many firms specialize in specific buildings, such as hospitals or office towers, and demand for these buildings may vary by region. Architects may find it increasingly necessary to gain reciprocity in order to compete for the best jobs and projects in other States.</p>
Architecture and Engineering Occupations	See all other descriptions relevant to the architecture industry
Civil Engineers	Civil engineers are expected to see average employment growth through 2014. Spurred by general population growth and an increased emphasis on infrastructure security, more civil engineers will be needed to design and construct safe and higher capacity transportation, water supply, and pollution control systems, as well as large buildings and building complexes. They also will be needed to repair or replace existing roads, bridges, and other public structures. Because construction and related industries—including those providing design services—employ many civil engineers, employment opportunities will vary by geographic area and may decrease during economic slowdowns, when construction often is curtailed.
Civil Engineering Technicians / Environmental Engineering Technicians	<p>Opportunities will be best for individuals with an associate degree or extensive job training in engineering technology. As technology becomes more sophisticated, employers will continue to look for technicians who are skilled in new technology and require a minimum of additional job training. An increase in the number of jobs related to public health and safety should create job opportunities for engineering technicians with the appropriate training and certification.</p> <p>Overall employment of engineering technicians is expected to increase about as fast as the average for all occupations through 2014. Competitive pressures will force companies to improve and update manufacturing facilities and product designs, resulting in more jobs for engineering technicians. In addition to growth, many job openings will stem from the need to replace technicians who retire or leave the labor force.</p> <p>Growth of engineering technician employment in some design functions may be dampened by increasing globalization of the development process. To reduce costs and speed project completion, some companies may relocate part of their development operations to facilities overseas, impacting both engineers and the engineering technicians that support them—particularly in electronics and computer-related areas. However, much of the work of engineering technicians requires on-site presence, so demand for engineering technicians within the US should continue to grow.</p> <p>Because engineering technicians work closely with engineers, employment of engineering technicians is often influenced by the same local and national economic conditions that affect engineers. As a result, the employment outlook varies with industry and specialization. Growth in the largest specialty—electrical and electronics engineering technicians—is expected to be about as fast as the average, while employment of environmental engineering technicians is expected to grow faster than average to meet the environmental demands of an ever-growing population.</p>
Environmental Engineers	Environmental engineers should have favorable job opportunities. Employment of environmental engineers is expected to increase much faster than the average for all occupations through 2014. More environmental engineers will be needed to comply with environmental regulations and to develop methods of cleaning up existing hazards. A shift in emphasis toward preventing problems rather than controlling those that already exist, as well as increasing public health concerns, also will spur demand for environmental engineers. Even though employment of environmental engineers should be less affected by economic conditions than that of most other types of engineers, a significant economic downturn could reduce the emphasis on environmental protection, reducing environmental engineers' job opportunities.

Source: Bureau of Labor Statistics, 2006

Figure 12. National Drivers of Demand Continued

Sustainability and Regeneration-Related Occupation	Drivers of Demand
Environmental Science and Protection Technicians, Including	Employment of environmental science and protection technicians should grow about as fast as the average; these workers will be needed to help regulate waste products; to collect air, water, and soil samples for measuring levels of pollutants; to monitor compliance with environmental regulations; and to clean up contaminated sites.
Landscape Architects	Employment of landscape architects is expected to increase faster than the average for all occupations through the year 2014. In addition to growth, the need to replace landscape architects who retire or leave the labor force will produce some additional job openings. Employment will grow because the expertise of landscape architects will be highly sought after in the planning and development of new residential, commercial, and other types of construction to meet the needs of a growing population. With land costs rising and the public desiring more beautiful spaces, the importance of good site planning and landscape design is growing. In addition, new demands to manage stormwater run-off in both existing and new landscapes, combined with the growing need to manage water resources in the Western States, should cause increased demand for this occupation's services.
	New construction also is increasingly contingent upon compliance with environmental regulations, zoning laws, and water restrictions, which will spur demand for landscape architects to help plan sites that meet these requirements and integrate new structures with the natural environment in the least disruptive way. Landscape architects also will be increasingly involved in preserving and restoring wetlands and other environmentally sensitive sites.
	Continuation of the Transportation Equity Act for the Twenty-First Century also is expected to spur employment for landscape architects, particularly through State and local governments. This Act, known as TEA-21, provides funds for surface transportation and transit programs, such as interstate highway construction and maintenance, and environment-friendly pedestrian and bicycle trails.
	In addition to the work related to new development and construction, landscape architects are expected to be involved in historic preservation, land reclamation, and refurbishment of existing sites. They are also doing more residential design work as households spend more on landscaping than in the past. Because landscape architects can work on many different types of projects, they may have an easier time than other design professionals finding employment when traditional construction slows down. Opportunities will vary from year to year, and by geographic region, depending on local economic conditions. During a recession, when real estate sales and construction slow down, landscape architects may face greater competition for jobs and sometimes layoffs.
	New graduates can expect to face competition for jobs in the largest and most prestigious landscape architecture firms, but should face good job opportunities overall as demand increases, while the number of graduates of landscape architecture holds steady or only goes up slightly. Opportunities will be best for landscape architects who develop strong technical skills—such as computer design—and communication skills, as well as knowledge of environmental codes and regulations. Those with additional training or experience in urban planning increase their opportunities for employment in landscape architecture firms that specialize in site planning as well as landscape design. Many employers prefer to hire entry-level landscape architects who have internship experience, which significantly reduces the amount of on-the-job training required.
Health and Safety Engineers, Except Mining Safety Engineers	Health and safety engineers, except mining safety engineers and inspectors, are projected to experience average employment growth through 2014. Because the main function of health and safety engineers is to make products and production processes as safe as possible, their services should be in demand as concern for health and safety within work environments increases. As new technologies for production or processing are developed, health and safety engineers will be needed to ensure their safety.
Materials Engineers	Materials engineers are expected to have employment growth about as fast as the average for all occupations through 2014. Although many of the manufacturing industries in which materials engineers are concentrated are expected to experience declining employment, materials engineers still will be needed to develop new materials for electronics, biotechnology, and plastics products. Growth should be particularly strong for materials engineers working on nanomaterials and biomaterials. As manufacturing firms contract for their materials engineering needs, employment growth is expected in professional, scientific, and technical services industries.

Source: Bureau of Labor Statistics, 2006

Figure 13. National Drivers of Demand Continued

Sustainability and Regeneration-Related Occupation	Drivers of Demand
Registered Nurse	Employment is expected to grow more slowly in hospitals—health care’s largest industry—than in most other health care industries. While the intensity of nursing care is likely to increase, requiring more nurses per patient, the number of inpatients (those who remain in the hospital for more than 24 hours) is not likely to grow by much. Patients are being discharged earlier, and more procedures are being done on an outpatient basis, both inside and outside hospitals. Rapid growth is expected in hospital outpatient facilities, such as those providing same-day surgery, rehabilitation, and chemotherapy.
	More and more sophisticated procedures, once performed only in hospitals, are being performed in physicians’ offices and in outpatient care centers, such as freestanding ambulatory surgical and emergency centers. Accordingly, employment is expected to grow very fast in these places as health care in general expands.
	Employment in nursing care facilities is expected to grow because of increases in the number of elderly, many of whom require long-term care. However, this growth will be relatively slower than in other health care industries because of the desire of patients to be treated at home or in residential care facilities, and the increasing availability of that type of care. The financial pressure on hospitals to discharge patients as soon as possible should produce more admissions to nursing and residential care facilities and to home health care. Job growth also is expected in units that provide specialized long-term rehabilitation for stroke and head injury patients, as well as units that treat Alzheimer’s victims.
	Employment in home health care is expected to increase rapidly in response to the growing number of older persons with functional disabilities, consumer preference for care in the home, and technological advances that make it possible to bring increasingly complex treatments into the home. The type of care demanded will require nurses who are able to perform complex procedures.
	Rapid employment growth in employment services industry is expected as hospitals, physician’s offices, and other health care establishments utilize temporary workers to fill short-term staffing needs. And as the demand for nurses grows, temporary nurses will be needed more often, further contributing to employment growth in this industry.
Construction Manager	Construction managers will be needed as the level of construction activity continues to grow. Population and business growth will result in more construction of residential homes, office buildings, shopping malls, hospitals, schools, restaurants, and other structures that require construction managers.
	The increasing complexity of construction projects will also boost demand for specialized management-level personnel within the construction industry. Sophisticated technology and the proliferation of laws setting standards for buildings and construction materials, worker safety, energy efficiency, environmental protection, and the potential for adverse litigation have further complicated the construction process. Advances in building materials and construction methods, the need to replace portions of the Nation’s infrastructure, and the growing number of multipurpose buildings and energy-efficient structures will further add to the demand for more construction managers.
Management Analyst	Job growth is projected in very large consulting firms with international expertise and in smaller consulting firms that specialize in specific areas, such as biotechnology, health care, information technology, human resources, engineering, and marketing. Growth in the number of individual practitioners may be hindered by increasing use of consulting teams that are often more versatile.
	Job growth for management analysts has been driven by a number of changes in the business environment that have forced firms to take a closer look at their operations. The growth of international business also has contributed to an increase in demand for management analysts. As U.S. firms expand their business abroad, many will hire management analysts to help them form the right strategy for entering the market; to advise them on legal matters pertaining to specific countries; or to help them with organizational, administrative, and other issues, especially if the U.S. company is involved in a partnership or merger with a local firm.
General and Operations Manager	Projected employment growth of top executives varies by industry. For example, employment growth is expected to grow faster than average in professional, scientific, and technical services and about as fast as the average in administrative and support services. However, employment is projected to decline in some manufacturing industries.
	Because this is a large occupation, numerous openings will occur each year as executives transfer to other positions, start their own businesses, or retire. However, many executives who leave their jobs transfer to other executive positions, a pattern that tends to limit the number of job openings for new entrants to the occupation.
Teachers, Postsecondary	Because of the size of this occupation and its much faster than average growth rate, postsecondary teachers will account for 382,000 new jobs, which is among the largest number of new jobs for an occupation.
	Projected growth in the occupation will be primarily due to increases in college and university enrollment over the next decade. This enrollment growth stems mainly from the expected increase in the population of 18- to 24-year-olds, who constitute the majority of students at postsecondary institutions, and from the increasing number of high school graduates who choose to attend these institutions. Adults returning to college to enhance their career prospects or to update their skills also will continue to create new opportunities for postsecondary teachers, particularly at community colleges and for-profit institutions that cater to working adults. However, many postsecondary educational institutions receive a significant portion of their funding from State and local governments, so expansion of public higher education will be limited by State and local budgets.
Teachers—Preschool, Kindergarten, Elementary, Middle, and Secondary	Through 2016, overall student enrollments in elementary, middle, and secondary schools—a key factor in the demand for teachers—are expected to rise more slowly than in the past as children of the Baby Boom generation leave the school system. This will cause employment of teachers from kindergarten through the secondary grades to grow as fast as the average.
	Projected enrollments will vary by region. Fast-growing states in the South and West—led by Nevada, Arizona, Texas, and Georgia—will experience the largest enrollment increases.
	Enrollments in the Midwest are expected to hold relatively steady, while those in the Northeast are expected to decline. Teachers who are geographically mobile and who obtain licensure in more than one subject should have a distinct advantage in finding a job.

Source: Bureau of Labor Statistics, 2006