

EGR 353 Green Architectural Engineering
Project #1: LEED Platinum Neighborhood Development (“ND”)

Fall 2018; Worth 30% of course grade
Due Wednesday, October 24 at 2:00 PM in E273
J Wunderlich PhD

Design a LEED Platinum Neighborhood Development (“ND”) to LEED version 4 standards. Recommended Case Studies for general ideas and inspiration:

- 1) **Elizabethtown College 1999 Comprehensive Plan, and the 2011 update** to that plan; See attached 1999 site plans, list of 1999 Comprehensive Plan goals, and part of the 1999 Campus Assessment. Also read all of the Comprehensive Plan first chapter (Item #14 in your bookstore reading packet, and file: “BOOKSTORE 14 ETOWN 1999_Master_Plan_First Chapter Narrative.pdf” in the class folder in my public folder).
- 2) **LEED Platinum 2016 Kashiwa-no-ha Smart City, Kashiwa, Japan** (LEED ND Plan v4 (neighborhood development):
 - USGBC database of projects: <https://www.usgbc.org/projects>
 - LEED website: <https://www.usgbc.org/projects/kashiwanoha-smart-city>
 - Project Website: <https://www.kashiwanoha-smartcity.com/en/>
 - YouTube Video https://www.youtube.com/watch?v=Pq6Tlo_VpbU&feature=youtu.be

Your project can be any size from a small residential neighborhood to an entire *small country*; however the complexity of each part of your design must be more in depth if it is very small. You may also analyze an existing development (small town, etc,) and propose major upgrades – i.e., your own Comprehensive/Master Plan. Generate plenty of creative work. Identify the major Urban Design concepts of “**PATHS**” (Pedestrian, Vehicle, etc); “**NODES**”, “**LANDMARKS**”, “**EDGES**”, and “**DISTRICTS**” (“Precincts”). Also **identify all wetlands; woods, and active surface water including ponds, lakes, streams, rivers, and oceans that presently effect your site, or that you will be creating.**

Don't design each building, but rather the entire site, and create concept specifications for the functionality of each building.

Read the LEED documentation for certifying Neighborhood Designs:

- File “LEED v4 ND_07.2.18_current.pdf” in the class folder in my public folder

Include a LEED Checksheet (in class folder in my public folder):

- LEED v4 for **Neighborhood Development** Checklist _1 PAGE_0.xlsx (use the “Plan” one), a copy is also attached; this is just a hardcopy of the spreadsheet page for “Plan”

Syllabus details for paper and presentation:

DESIGN PROJECT #1: Design a LEED “PLATINUM” neighborhood to LEED version 4.0 standards

DESIGN PROJECT #2: Design a LEED “PLATINUM” building or building interior to version 4.0 standards

- Groups of one or two (expectations proportional to group size)
- Much creative content is expected ! – Free-hand, pencil-drawn, or CAD images, and/or hand-built models
- Use of Computer generated images is optional, however tutorials have been created on Dr W’s site: http://users.etown.edu/w/wunderlj/home_Lab_Manuals.html

PAPER & PRESENTATION

- On due date, submit at the beginning of class:
 - A printed stapled copy of your paper (including images of all creative work)
 - Copies of your PowerPoint slides (six slides per page)
- Paper and Presentation must include much content from lectures
- Paper requirements
 - Single-spaced, 10-point font
 - A minimum of **2,500** words
 - An **Abstract** (100 to 200 words)
 - A section containing detailed narrative and data (demographics, etc) on your site selection, land development, and integration with surrounding land usage, culture, infrastructure, topography, and natural habitats
 - Many images of original creative work by each team member (put their name under each image)
 - **LEED self-assessment** of your project (using an official LEED Rating Form)
 - An annotated bibliography using **MLA** citation formatting and no more than two non-scholarly citations

Expectations for presentations

Minimize unnecessary details; A picture is worth a thousand words, and Architecture Presentations should be a visual as possible!; Less than 30 words per slide; Don't have too many slides; Ensure good contrast between text and background (will the lights be on?); Put an image on every page (clip-art, photo, animation, a sketch) which is an abstraction of the subject; Don't read from script or speak monotonically; Make eye contact with audience; Have a clear objective (to sell design, to motivate, or to report findings); Have a good opener (an agenda, a quotation, a question, or a declaration) ; tBe organized and logical (present problem then solution; or have priorities – least-to-most or most-to-least); Have audience's expectations understood (provide meaning and/or motivation); Have good transitions between main points; Have a good closing (summarize main ideas, restate purpose of presentation); Be flexible (adapt if questions are asked during presentation)

NOTE: A separate paper is required for project #2, but you can certainly reference parts of you project #1 paper. The second project is a LEED platinum design of any type of building or building interior you wish, and presumably located within the neighborhood development of your project #1; however this is not a requirement



LEED v4 for Neighborhood Development Plan
Project Checklist

Project Name:
Date:

Yes	?	No			
0	0	0	Smart Location & Linkage		28
Y			Prereq	Smart Location	Required
Y			Prereq	Imperiled Species and Ecological Communities	Required
Y			Prereq	Wetland and Water Body Conservation	Required
Y			Prereq	Agricultural Land Conservation	Required
Y			Prereq	Floodplain Avoidance	Required
			Credit	Preferred Locations	10
			Credit	Brownfield Remediation	2
			Credit	Access to Quality Transit	7
			Credit	Bicycle Facilities	2
			Credit	Housing and Jobs Proximity	3
			Credit	Steep Slope Protection	1
			Credit	Site Design for Habitat or Wetland and Water Body Conservation	1
			Credit	Restoration of Habitat or Wetlands and Water Bodies	1
			Credit	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1

0	0	0	Neighborhood Pattern & Design		41
Y			Prereq	Walkable Streets	Required
Y			Prereq	Compact Development	Required
Y			Prereq	Connected and Open Community	Required
			Credit	Walkable Streets	9
			Credit	Compact Development	6
			Credit	Mixed-Use Neighborhoods	4
			Credit	Housing Types and Affordability	7
			Credit	Reduced Parking Footprint	1
			Credit	Connected and Open Community	2
			Credit	Transit Facilities	1
			Credit	Transportation Demand Management	2
			Credit	Access to Civic & Public Space	1
			Credit	Access to Recreation Facilities	1
			Credit	Visibility and Universal Design	1
			Credit	Community Outreach and Involvement	2
			Credit	Local Food Production	1
			Credit	Tree-Lined and Shaded Streetscapes	2
			Credit	Neighborhood Schools	1

Yes	?	No			
0	0	0	Green Infrastructure & Buildings		31
Y			Prereq	Certified Green Building	Required
Y			Prereq	Minimum Building Energy Performance	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Construction Activity Pollution Prevention	Required
			Credit	Certified Green Buildings	5
			Credit	Optimize Building Energy Performance	2
			Credit	Indoor Water Use Reduction	1
			Credit	Outdoor Water Use Reduction	2
			Credit	Building Reuse	1
			Credit	Historic Resource Preservation and Adaptive Reuse	2
			Credit	Minimized Site Disturbance	1
			Credit	Rainwater Management	4
			Credit	Heat Island Reduction	1
			Credit	Solar Orientation	1
			Credit	Renewable Energy Production	3
			Credit	District Heating and Cooling	2
			Credit	Infrastructure Energy Efficiency	1
			Credit	Wastewater Management	2
			Credit	Recycled and Reused Infrastructure	1
			Credit	Solid Waste Management	1
			Credit	Light Pollution Reduction	1

0	0	0	Innovation & Design Process		6
			Credit	Innovation	5
			Credit	LEED® Accredited Professional	1

0	0	0	Regional Priority Credits		4
			Credit	Regional Priority Credit: Region Defined	1
			Credit	Regional Priority Credit: Region Defined	1
			Credit	Regional Priority Credit: Region Defined	1
			Credit	Regional Priority Credit: Region Defined	1

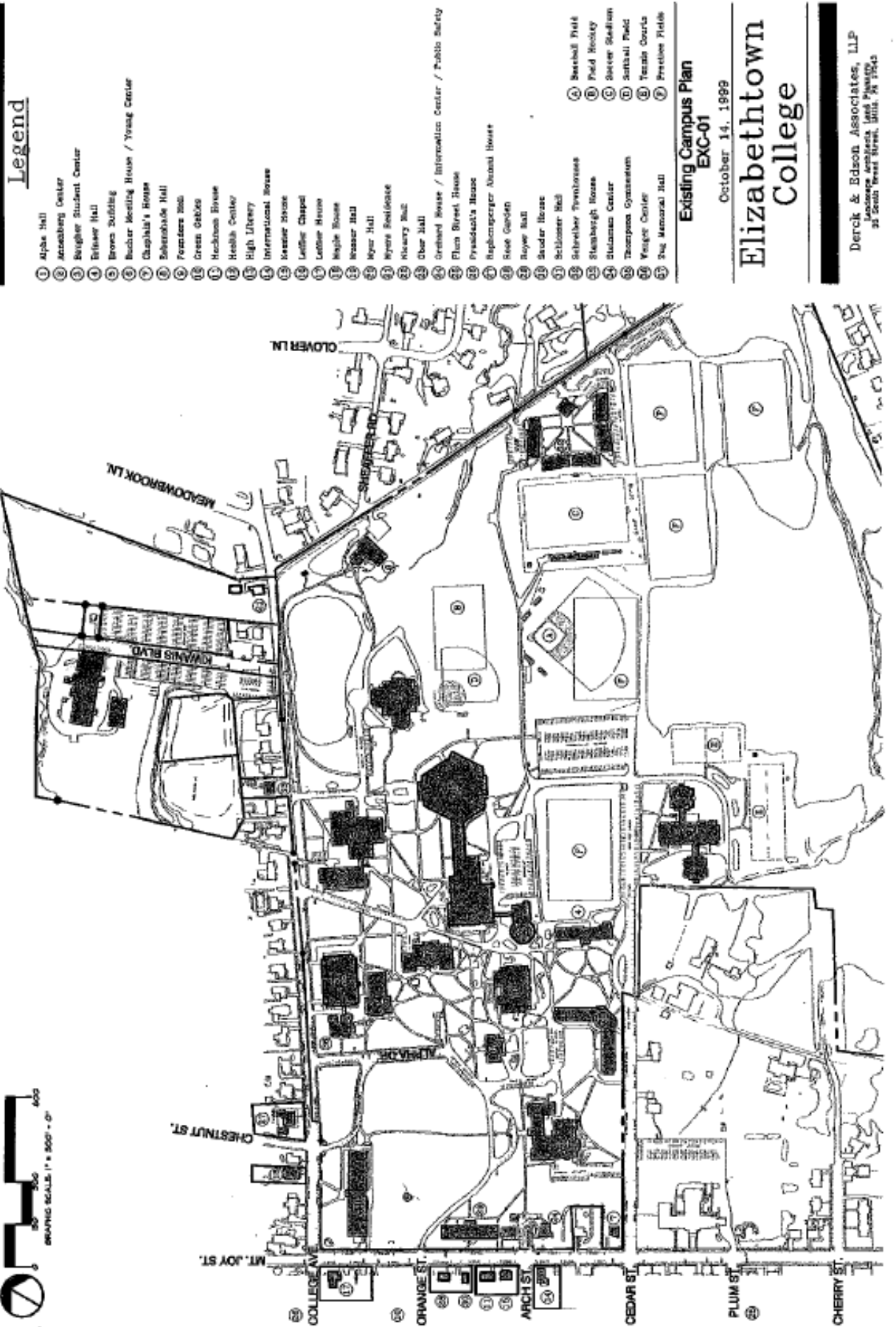
0	0	0	PROJECT TOTALS (Certification estimates)		110
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Certified: 40-49 points, Silver: 50-59 points, Gold: 60-79 points, Platinum: 80+ points

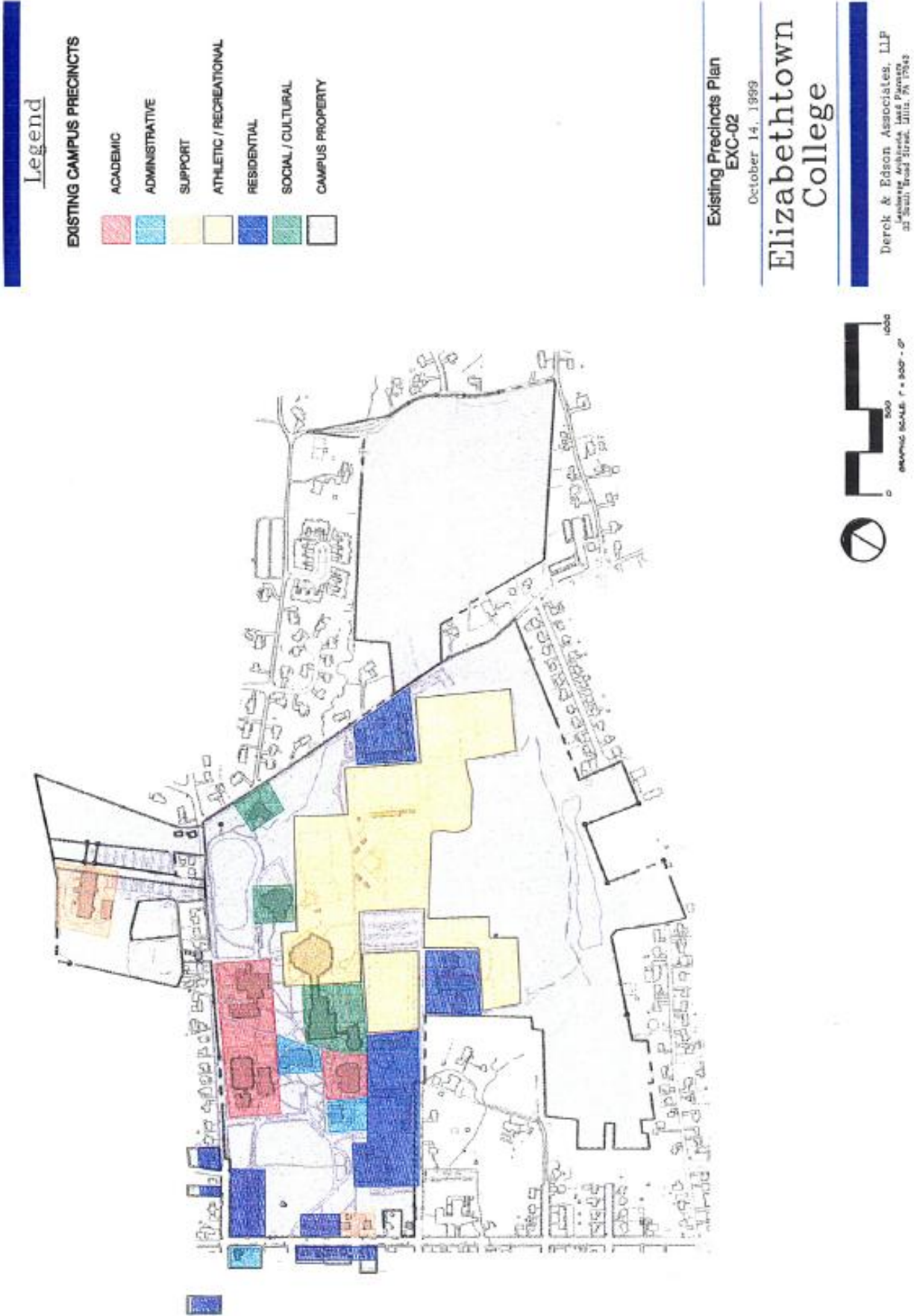
2011 update to 1999 Elizabethtown College Comprehensive Plan



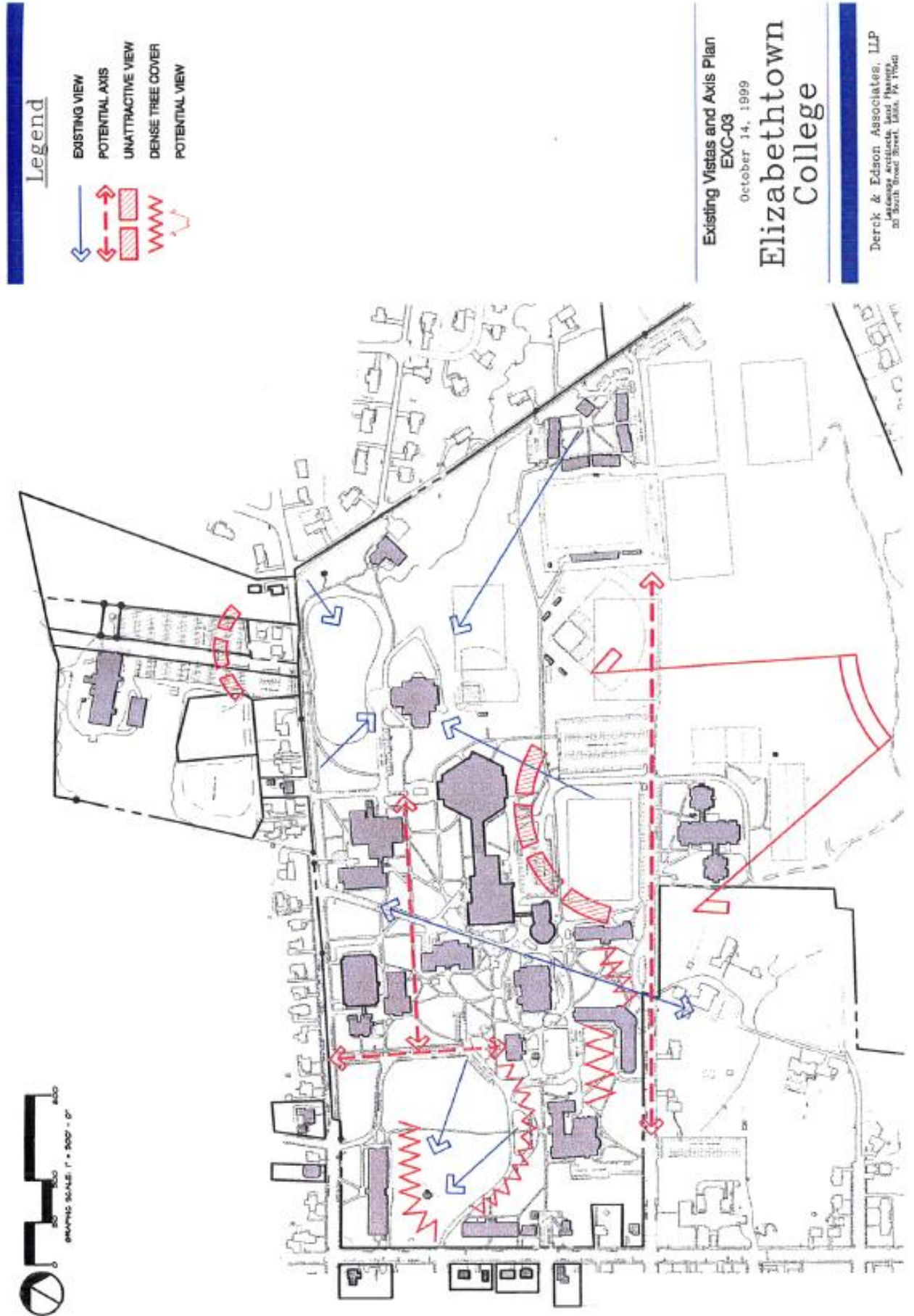
1999 Elizabethtown College Comprehensive Plan



1999 Elizabethtown College Comprehensive Plan



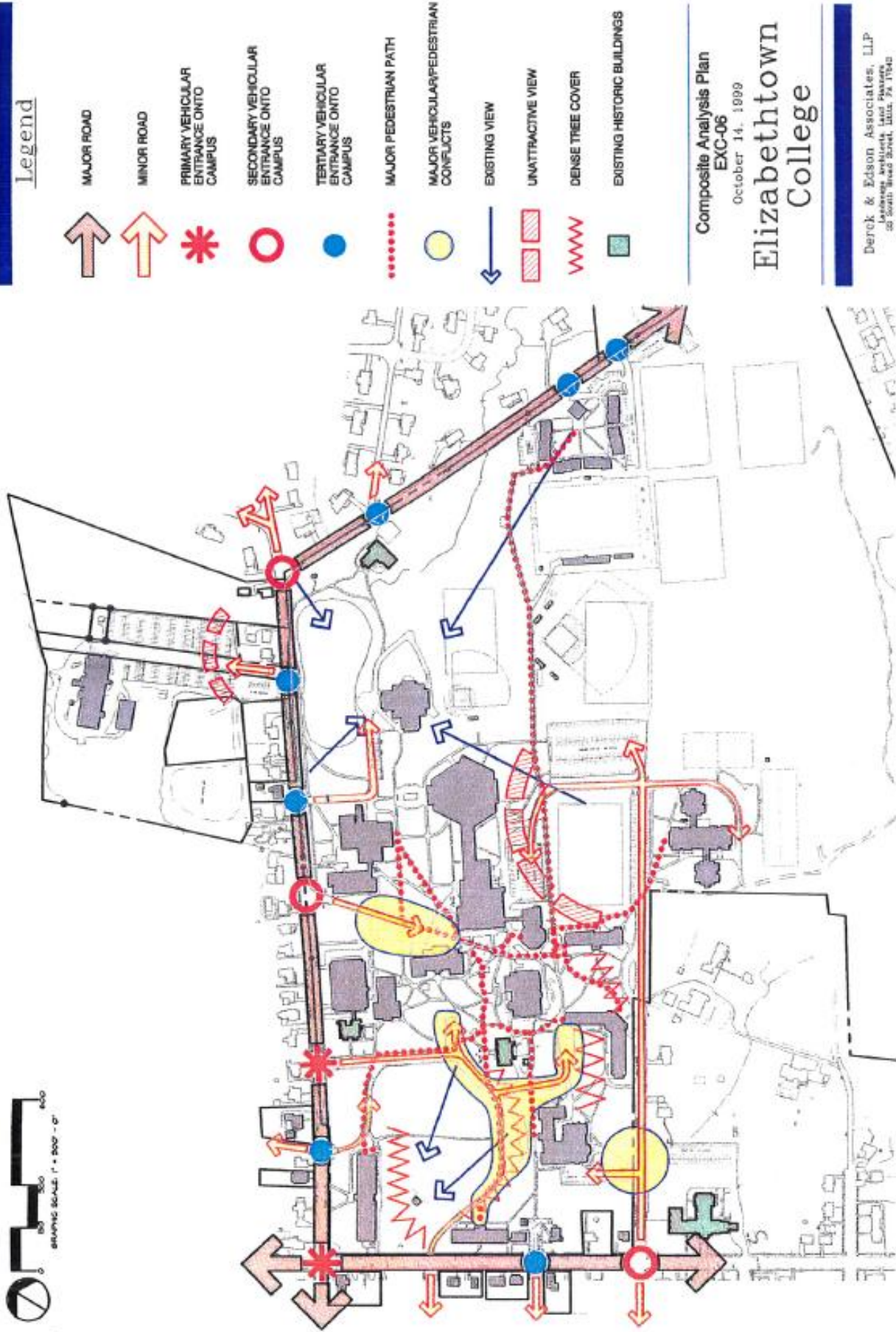
1999 Elizabethtown College Comprehensive Plan



1999 Elizabethtown College Comprehensive Plan



1999 Elizabethtown College Comprehensive Plan



1999 Elizabethtown College Comprehensive Plan



Legend

- EXISTING UNDERGROUND ELECTRIC LINES
- EXISTING UNDERGROUND FIBEROPTIC LINES
- EXISTING UNDERGROUND TV CABLE LINES
- EXISTING UNDERGROUND GAS LINES
- EXISTING SANITARY SEWER LINES
- EXISTING STORMWATER SEWER LINES
- EXISTING WATER LINES
- EXISTING WETLANDS

Existing Utilities Plan
EXC-07

October 14, 1999

Elizabethtown College

Derek & Edson Associates, LLP
Jacobus Ambrose, Lead Planner
23 South Broad Street, Suite IV, 17640

INTRODUCTION

Elizabethtown College has undertaken an initiative to improve the quality of life for existing and future students. This desire for improvement is driving the need for change. However, this desire for change and improvement needs guidance. A Master Plan is the necessary means to properly direct the future growth and development of this institution.

PURPOSE OF STUDY

The purpose of this study is to establish a means for guiding any and all campus improvements through the years to come. This strategy will set the framework for future campus development and renovation projects. This plan is intended to be a working document. With the framework established, the planning study will have the ability to flex and change as time demands.

PROJECT GOALS

The following project goals for the Campus Master Plan were established:

1. Develop a Master Plan that will guide and direct the college in all their development and improvement projects. The plan should be sensitive to the College's Mission Statement and is intended to be a working document that holds its relevance for time to come.
2. Analyze the campus' existing identity. Make suggestions and design guidelines that enhance and further promote the campus identity.
3. Evaluate and establish common use zones on campus to guide future development decisions.
4. Develop a phasing plan from which development and improvement implementation is to evolve.

5. Create a plan that articulates the college's desire to accommodate and improve the current academic, residential, and athletic facilities.
6. Analyze the pedestrian circulation patterns on campus and develop a method for maintaining and improving the current configurations as needed.
7. Evaluate the current staff, faculty, and student parking needs. Develop a plan to accommodate an increase in enrollment and eliminates the impact on the adjoining neighborhoods.
8. In conjunction with evaluating the campus character, analyze current plant material applications and practices. Make suggestions for improvements as necessary.
9. Review Elizabethtown College in a regional perspective. Looking at the best routes to the college from major roadways, what opportunities may exist to improve transportation corridors, portals and thresholds into the campus.
10. Discuss land acquisition opportunities as well as opportunities to divest of property.
11. Review utility opportunities and constraints in the context of future development of facilities.
12. Maintain Sense of Community on campus by developing areas for groups to gather and "cross" paths.
13. Enhance richness and heritage of campus through Architecture and Site Amenities.
14. Effectively utilize main campus landholdings to accommodate the College's primary goals.

CAMPUS ASSESSMENT

The Campus Master Plan is one of the first priority objectives that Elizabethtown College proposed in its Strategic Plan. As a first phase of the Master Plan, the Campus Assessment Phase identifies strengths and weaknesses of the campus and investigates the critical elements that make Elizabethtown College unique. The assessment phase is organized into a number of vital issues including regional analysis, campus precincts, visual assessment, vehicular and pedestrian issues, campus infrastructure, and building assessment.

These crucial issues have been researched through information obtained from several sources including:

- Request for Information (RFI) summaries from Elizabethtown College
- Individual RFI comments
- Architectural floor plans in digital format
- Regional USGS mapping
- Aerial Photographs
- Numerous site and architectural information obtained from the college
- Regional and local information obtained from the township of Elizabethtown and Mount Joy Township.
- Numerous Campus Visits

The information obtained by both the summary and individual RFI proved extremely useful. The RFI's allowed a deeper understanding of the campus community. Further dialog with committee members and key stakeholders have allowed a greater comprehension of the needs, hopes and concerns of Elizabethtown College.

REGIONAL ISSUES

Urban Centers

Located in scenic Lancaster County, Pennsylvania, the Elizabethtown College Campus is in close proximity to several urban centers including the state's capital city, Harrisburg. Other urban centers

located nearby include Lancaster City, York, and Hershey. Each of these communities is less than twenty miles from campus.

Within the larger Mid-Atlantic region, several major urban centers including Philadelphia, Baltimore, Washington, New York, and Pittsburgh are located within a relatively short driving distance from Elizabethtown. Philadelphia and Baltimore are approximately 1 ½

hours from the campus while Washington, D.C. is just a 2 ½ hour drive from Elizabethtown. New York City and Pittsburgh are located 3 ½ and 4 ½ hours, respectively, from the College campus.



Regional Map - 15 Mile Radius of Campus

Currently, approximately 32% of enrolled students originate from states other than Pennsylvania. Approximately 4% of all enrolled students are from countries other than the United States. With even greater student diversity expected in future enrollments, more prospective students and their families will be travelling to Elizabethtown from various regions of the country and of the world.

Transportation Corridors

Vehicular Transportation Corridors

Nearly all vehicular transportation to Elizabethtown from other urban centers involves travel on Route 283. Currently, signs at two exits from Route 283 announce the location of Elizabethtown College. Neither the Rheems-Elizabethtown exit nor the Elizabethtown-Hershey exit provide the first time campus visitor with a completely positive visual experience as an approach route from the highway to Elizabethtown Borough.

Located just south of the Dauphin-Lancaster County boundary, the Elizabethtown-Hershey exit from Route 283 initially offers scenic views of a pastoral agricultural landscape. The visual landscape

adjacent to this campus approach road (Route 743) eventually deteriorates, however, and becomes a mixed composition of suburban sprawl before oddly terminating within a residential area near Market Street. Likewise, the Rheems-Elizabethtown exit provides access to an even less positive suburban landscape composed of fragmented residential, commercial, office and industrial land uses adjacent to Cloverleaf Road and the Harrisburg Pike (Route 290). Only upon arriving at Market Street in the Borough of Elizabethtown does the first time visitor experience a sense of a unique place.

Vehicular travel from Market Street to the Elizabethtown campus involves careful sign-reading and way-finding abilities on the part of visitors. While several traffic lights on Market Street slow vehicular traffic at key intersections, no traffic light exists at the intersection of Market and College Avenue where visitor traffic must turn east toward campus. Currently, the only identifiable landmark at this intersection is an attractive painted mural commemorating the College's 100th anniversary. This mural is only visible, however, to vehicular traffic travelling northbound on Market Street.

Along this final segment of the campus approach route, the visual landscape transitions from commercial areas located on Market Street to an attractive, tree-lined residential area adjacent to College Avenue.

Railway Transportation Corridor

The Elizabethtown Amtrak Train Station is located on the western boundary of Elizabethtown Borough and less than a five-minute drive from the College campus. Once the hub of transportation activity, the vacant station structure on Wilson Avenue is surrounded by overgrown, invasive vegetation and creates a perceived security risk to arriving travelers. The train platform area remains active, however, with several stops daily on Amtrak's Philadelphia-Pittsburgh line. With landscape and architectural restoration, the Elizabethtown Station could once again be a great transportation asset for visitors to both Elizabethtown Borough and Elizabethtown College.

Air Transportation Corridor

The Harrisburg International Airport is located within ten miles of Elizabethtown College in nearby Middletown. Upon arrival at the airport, campus visitors follow the same vehicular transportation

corridors as noted above. The airport is currently undergoing several enhancement projects that are aimed to create a more positive image for travelers to south central Pennsylvania.

Pedestrian Corridors

An existing network of Borough sidewalks form vital pedestrian links between downtown Elizabethtown and the College Campus. From the western perimeter of campus at Mount Joy Street, nearby Market Street – the town’s primary north-south business route – is only a four-block walk for students and faculty.

Elizabethtown Borough / Mt. Joy Township

At nearly 165 acres, the Elizabethtown College campus covers an area equal to size to approximately 9% of the entire Elizabethtown Borough. An unimproved portion of the campus located east of Campus Road is within Mt. Joy Township. In both the Borough and the Township, residential zones (medium and low density) surround Elizabethtown Campus. In addition to single-family and semi-detached homes, the Elizabethtown Area High School, Middle School, and East High Street Elementary School are near the College campus. The Elizabethtown Church of the Brethren, the only non-residential use that directly borders Elizabethtown College, combined with the adjacent homes, defines the visual border between town and campus.

RFI Input

In May 1999, the Resources and Planning Committee ranked two items related to transportation corridors among other RFI issues. An improved entrance access point at Market Street and a proposed road connecting Leffler Chapel with the Young Center / Bucher Meetinghouse received relatively low ranking marks of “-5” and “-2” respectively.

Regarding the local community, the College’s Executive Summary indicates a positive relationship between the Borough and the College. The summary indicates that student involvement – both on and off campus – has expanded and deepened. The existing campus location affords convenient access to local Elizabethtown business and off-campus housing opportunities within this town of approximately 20,000 residents.