

ENVIRONMENTAL IMPACT EVALUATION

*Prepared in accordance with the
Connecticut Environmental Policy Act*

Western Connecticut State University Midtown and Westside Campus Master Plans *Danbury, Connecticut*

JANUARY 2011



Sponsoring Agency:
Connecticut State University System

Participating Agencies:
*Western Connecticut State University
Connecticut Department of Public Works*

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LIST OF ABBREVIATIONS

AOC	Area of Concern
APA	Aquifer Protection Area
ASF	Assignable square feet
ATR	Automatic Traffic Recorder
BEC	Baystate Environmental Consultants, Inc.
BMP	Best Management Practice
Btu	British Thermal Unit
CAA	Clean Air Act
CEPA	Connecticut Environmental Policy Act
CERC	Connecticut Economic Resource Center
cfs	Cubic feet per second
CGS	Connecticut General Statutes
CHEFA	Connecticut Higher Education Funding Authority
CL&P	Connecticut Light and Power
CO	Carbon monoxide
CO ₂	Carbon dioxide
ConnDOT	Connecticut Department of Transportation
CSUS	Connecticut State University System
dbh	Diameter at breast height
DPH	Connecticut Department of Public Health
DEP	Connecticut Department of Environmental Protection
DOL	Connecticut Department of Labor
DPW	Connecticut Department of Public Works
DWD	Danbury Water Department
EIE	Environmental Impact Evaluation
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FTE	Full time equivalents
GIS	Geographic Information System
gpm	Gallons per minute
HART	Housatonic Area Regional Transit
IPM	Integrated Pest Management
ITE	Institute of Transportation Engineers
LOS	Level of Service
LQG	Large Quantity Generator
LUST	Leaking Underground Storage Tank

mgd	Million Gallons Per Day
NAAQS	National Ambient Air Quality Standards
NCAA	National Collegiate Athletic Association
NO _x	Nitrogen oxides
OPM	Connecticut Office of Policy and Management
O ₃	Ozone
Pb	Lead
PGP	Programmatic General Permit
PILOT	Payment In-lieu of Taxes
PM _{2.5}	Particulate Matter 2.5 microns or smaller
psi	Pounds per square inch
RCP	Reinforced Concrete Pipe
RCSA	Regulations of Connecticut State Agencies
ROD	Record of Decision
SCS	Soil Conservation Service
sf	Square feet
SMMA	Symmes Maini & McKee Associates
SO ₂	Sulfur dioxide
SQG	Small Quantity Generator
S.R.	State Route
STC	State Traffic Commission
SWPCP	Storm Water Pollution Control Plan
TH	Therm
typ	Tons per year
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGBC	United States Green Building Council
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VPAC	Visual Performing Arts Center
WCSU	Western Connecticut State University

EXECUTIVE SUMMARY

Project Name:	Environmental Impact Evaluation for the Proposed Master Plan at Western Connecticut State University
CT DPW Project No.:	BI-RD-226
Location:	Danbury, CT
Sponsoring Agency:	Board of Trustees for the Connecticut State University System
Participating Agencies:	Connecticut Department of Public Works and Western Connecticut State University
Prepared by:	Baystate Environmental Consultants, Inc.
Date:	January, 2011

INTRODUCTION

The Connecticut State University System (CSUS), in consultation with the Connecticut Department of Public Works (DPW) and Western Connecticut State University (WCSU or The University) as participating agencies, has proposed to implement the 2007 Campus Master Plan prepared by Symmes Maini & McKee Associates (SMMA). The Master Plan encompasses both of WCSU's campuses, the Midtown campus in downtown Danbury, Connecticut and the Westside campus, about 2¼ miles west of Midtown. The Master Plan proposes a major circulation reorganization, construction of new classroom buildings, residence halls, parking garages, a wellness center and reorganization of athletic facilities.

The Master Plan addresses accommodations for programmatic and facilities' requirements of the University in 2015. However, many of the Master Plan elements described in this document will not be completed or even initiated by 2015, therefore the actual implementation date of the Master Plan will likely be well beyond this assumed planning year. Nevertheless, projections to the planning year of 2015 related to student enrollments, staffing, and utility demand forecasts have been used in this Environmental Impact Evaluation (EIE).

This EIE has been prepared in accordance with the Connecticut Environmental Policy Act (CEPA), as promulgated under Section 22a-1 to 22a-1h of the Connecticut General Statutes (CGS) and as amended by Public Act 02-121. Under CEPA, an EIE is required for this State Action because the site includes construction in excess of 100,000 square feet (sf) of floor space and more than 200 parking spaces.

The Connecticut Department of Environmental Protection (DEP) has reviewed the Notice of Scoping for preparation of an EIE for various Master Plan projects at both the

Midtown and Westside Campuses at Western Connecticut State University. A letter from DEP, dated June 4, 2009 (Appendix A), outlines recommendations for the Master Plan. These recommendations were taken into account while reviewing the Master Plan. The Connecticut Department of Public Health (DPH) also reviewed and commented on the Notice of Scoping for the WCSU Master Plan.

PURPOSE AND NEED

Prior to the preparation of the Campus Master Plan, a *Program for the Master Plan* was prepared by Paulien and Associates, Inc. (February 2007). This document gives tabulated campus-wide, specific academic and administrative space requirements for WCSU based on target goals of estimated enrollment, staff increases and other relevant academic program data (Paulien and Associates, 2007). Paulien & Associates analyzed existing University-owned space and applied appropriate guidelines to determine current and future space needs using predetermined target enrollments for each campus and staffing growth for each major Administrative Unit.

A space needs analysis was conducted as Phase I of the campus Master Planning effort. Phase II addressed the physical responses to the Phase I analysis. Estimates were made of space amounts likely to be needed by various units of the University. According to the analysis, WCSU intends to grow by an average of 27.20% in student enrollment by the target year of 2015 (Paulien and Associates, 2007).

The University's long term goal is to be the state's public liberal arts institution. The University has become primarily a residential college by housing 70% of its undergraduate population on campus. The University cannot achieve this goal without adequate provisions for housing and learning facilities for the growing number of students, faculty, and staff.

PROJECT DESCRIPTION

Western Connecticut State University (WCSU) is located in Danbury, a city in Fairfield County located approximately 65 miles northeast of Manhattan and 55 miles southwest of Hartford. The University was founded in 1903 and consists of two campuses, the Midtown Campus and Westside Campus. The University intends to undertake a major series of phased building construction projects and renovations in accordance with the 2007 Master Plan by SMMA at both campuses. Also, a major reconfiguration of pedestrian circulation is planned at both campuses as part of the Master Plan. Central quadrangles are proposed for both campuses to create a more cohesive campus environment.

The Midtown Campus is WCSU's original campus of 34 acres and is located in downtown Danbury. It is home to most of the undergraduate programs and includes fourteen buildings mostly dedicated to the Arts & Sciences and the School of Professional Studies. The residential halls at the Midtown Campus, Litchfield, Newbury and Fairfield Hall, are traditional dormitory-style units. Parking is provided by two on-

campus parking garages and a series of multiple smaller lots targeted for faculty and staff.

The University's second campus, the Westside Campus, encompasses 355 acres and is located 2 ¼ miles to the west of the Midtown Campus. The Westside Campus consists of a Classroom Building, Campus Center building, the O'Neill Center, Charles Ives Performance Center, football stadium, baseball field, softball field, other recreation fields, and three residential complexes. The Westside Campus residential halls, Ella Grasso, Pinney and Centennial Halls, are suite and apartment style housing for upper division students. Parking is provided by surface lots and a parking garage structure behind Centennial Hall. General surface parking is provided along portions of University Boulevard and in ancillary lots adjacent to buildings.

Figure ES-1 presents the locations of the respective campuses. The preferred Master Plans for each campus are shown in Figures ES-2 and ES-3.

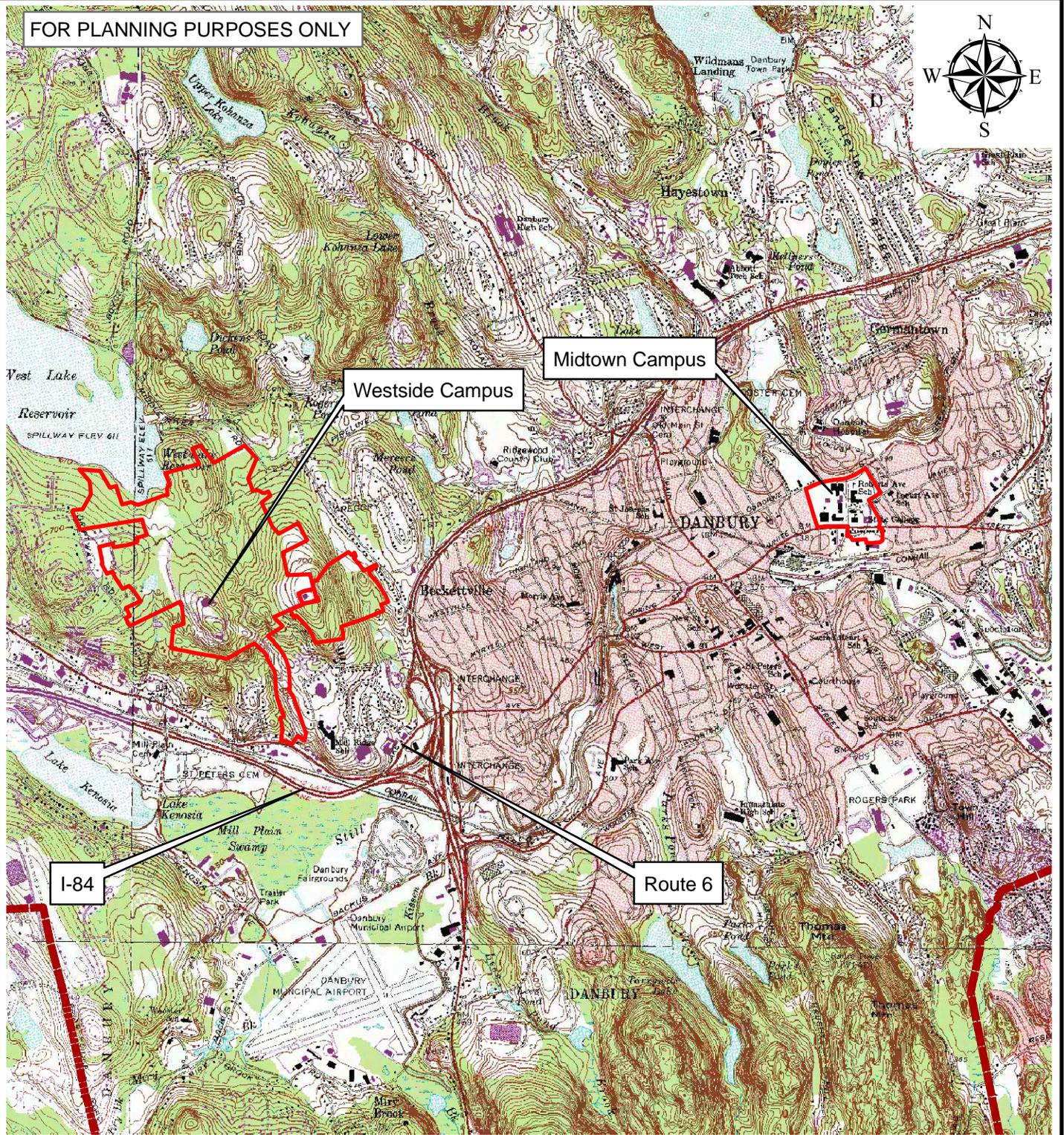
Several of the buildings that would be either newly constructed or renovated as part of the Master Plan would be required to meet DPW's *High Performance Building Guidelines* (DPW, 2010) and qualify for a LEED® Silver certification. Three buildings most recently constructed at WCSU were built to the USGBC LEED® standards. They include Centennial Hall and the Campus Center at the Westside Campus, and the Science Building at Midtown Campus.

LEED® is an internationally recognized green building certification system developed by the U.S. Green Building Council (USGBC). It was formed to provide third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, carbon dioxide (CO₂) emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts (USGBC, 2009).

Under the State Building Code of Connecticut, all new buildings except residential buildings with less than five units that are projected to cost \$5 million or more must attain a LEED® Silver rating or an equivalent standard. The same is required of renovation projects that are expected to cost \$2 million or more (http://bcap-energy.org/files/CT_memo_to_interested_parties_2009_amendment_re_pa07-242_Dec_5_08.PDF, accessed online 11/9/09). The current version of the LEED rating system was revised in 2009 and is referred to as Version 3.

The following subsections describe the Proposed Action for the two campuses:

FOR PLANNING PURPOSES ONLY



3,000 1,500 0 3,000 Feet

LOCUS

Project No:
15.0166140.10

LEGEND

-  Campus Property Boundaries
-  Town Boundaries

**Western Connecticut State University
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

CT SEAMLESS TOPO MAPS 1997, USGS TOPOGRAPHIC
QUADRANGLE MAPS Danbury, Brewster, Bethel, Peach Lake

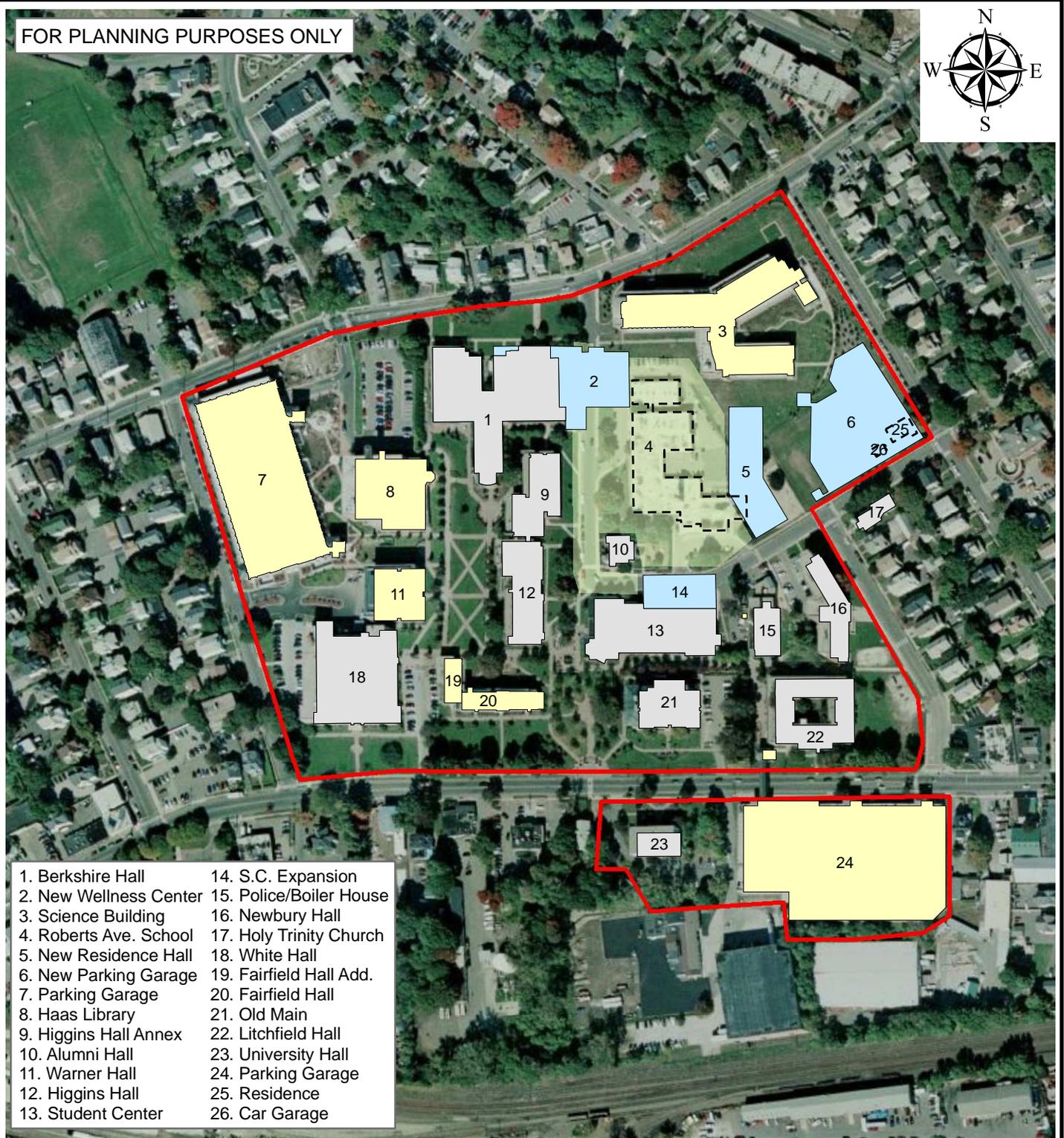
Figure No:

 Baystate Environmental Consultants, Inc.
East Longmeadow, MA / Bloomfield, CT

Data obtained from University of Connecticut Map and Geographic
Information Center and CT Department of Environmental Protection

ES-1

FOR PLANNING PURPOSES ONLY



- | | |
|------------------------|-------------------------|
| 1. Berkshire Hall | 14. S.C. Expansion |
| 2. New Wellness Center | 15. Police/Boiler House |
| 3. Science Building | 16. Newbury Hall |
| 4. Roberts Ave. School | 17. Holy Trinity Church |
| 5. New Residence Hall | 18. White Hall |
| 6. New Parking Garage | 19. Fairfield Hall Add. |
| 7. Parking Garage | 20. Fairfield Hall |
| 8. Haas Library | 21. Old Main |
| 9. Higgins Hall Annex | 22. Litchfield Hall |
| 10. Alumni Hall | 23. University Hall |
| 11. Warner Hall | 24. Parking Garage |
| 12. Higgins Hall | 25. Residence |
| 13. Student Center | 26. Car Garage |



PREFERRED ALTERNATIVE

Project No:
15.0166140.10

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Exhibit

LEGEND

- Existing Buildings
- Proposed Demolition
- Proposed Renovation
- Proposed Buildings
- Proposed Campus Quadrangle

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

ES-2

Midtown Campus

The Proposed Action for the Midtown campus includes the following, as described in SMMA (2007). Priority projects slated for construction in the near term are shown in italics:

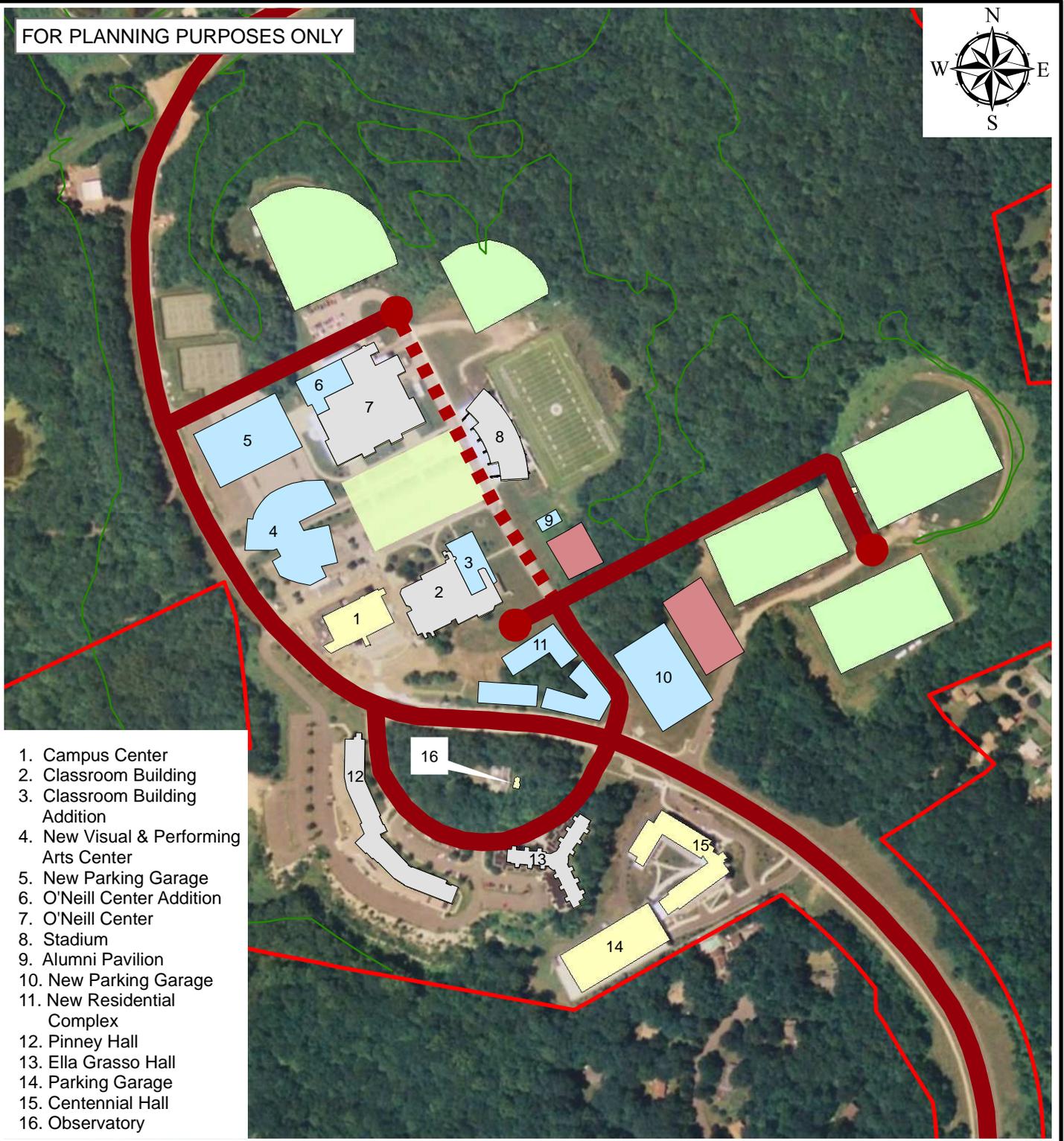
- *Construction of a new 300-bed residence hall with 400-car parking garage and associated mini-chiller plant;*
- *Demolition of an existing University-owned residence at 30 Ninth Avenue within the footprint of the proposed residence hall and parking garage*
- Central plant improvements including new boiler and relocation of Police Station to White Hall;
- Renovation and expansion of Berkshire Hall, creating space for School of Professional Studies and new Wellness Center, expanded daycare;
- *Demolition of the vacant Roberts Avenue School, closure of Seventh Avenue and the western portion of Roberts Avenue, and construction of new main quadrangle;*
- Renovation and expansion of the Student Center;
- Renovation of White Hall;
- Renovation of Higgins Hall;
- Renovation and refurbishment of Old Main;
- Renovation and refurbishment of Alumni Hall;
- Renovation and refurbishment of Litchfield Hall;
- Renovation and refurbishment of Newbury Hall;
- Renovation and refurbishment of the Holy Trinity Church; and
- Renovation and refurbishment of University Hall.

Westside Campus

The Proposed Action for the Westside campus includes the following, (Figure ES-3) as described in SMMA (2007). Priority projects slated for construction in the near term are shown in italics:

- *Construction of a new building for the School of Visual and Performing Arts;*
- Parking modifications including a new 500-car parking garage to accommodate relocated parking lost due to changes to student, faculty, and commuter lots and one staff lot with a mini-power plant for future buildings;
- Vehicular pedestrian enhancements;
- Creation of a central quadrangle between Classroom Building, Stadium, and Arena;
- Renovate and add space onto Feldman Arena located within the O'Neill Center;
- Renovate and expand Westside Classroom Building;
- Construction of a new Residential Complex to house 394 students with landscaped open quadrangle;

FOR PLANNING PURPOSES ONLY



1. Campus Center
2. Classroom Building
3. Classroom Building Addition
4. New Visual & Performing Arts Center
5. New Parking Garage
6. O'Neill Center Addition
7. O'Neill Center
8. Stadium
9. Alumni Pavilion
10. New Parking Garage
11. New Residential Complex
12. Pinney Hall
13. Ella Grasso Hall
14. Parking Garage
15. Centennial Hall
16. Observatory



PREFERRED ALTERNATIVE - WESTSIDE

Project No:
15.0166140.10

LEGEND

- Primary Vehicular Route
- Secondary Vehicular Route
- Wetland- Estimated by BEC
- Proposed Surface Parking
- Proposed Renovated Buildings
- Proposed Buildings
- Existing Buildings
- Proposed Athletic Fields
- Proposed Quadrangle
- Property Boundary

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

ES-3

- Construction of a new 500-car parking garage near the stadium with associated mini-power plant;
- Renovation of the O’Neill Center, replacement of the football stadium turf, refurbishment of the stadium, and construction of new field complexes for baseball and softball;
- Expansion of student activity and food service space;
- Renovation and refurbishment of Ella Grasso Hall; and
- Renovation and refurbishment of Pinney Hall; and,
- Construction of Alumni Pavilion
-

The estimated cost to implement the entire Master Plan at both campuses is \$400 million (2007 dollars).

ALTERNATIVES CONSIDERED

As required by CEPA, alternatives to the Proposed Action (i.e. The Preferred Plan as described above) have been identified and evaluated in this EIE. The alternatives considered include the Preferred-Plan Alternative, the No-Build Alternative and several alternatives that evolved during the Master Planning process.

No Build Alternative

Under the No-Build Alternative, the University would not meet the projected need for additional facilities based on the University’s Master Plan’s target year on-campus full-term equivalent (FTE) of 5,752 students, a 27% increase over the base year (2005). Based on the projected increase of student enrollment, there is a demand for more student housing, classroom space, expanded sports facilities, improvements to pedestrian and vehicular circulation and increased parking at both campuses.

Environmental impacts that would be avoided by not providing campus build-out according to the Master Plan include an increase in stormwater runoff rates (at Westside Campus only), wetland impacts, potential water quality impacts, and traffic related impacts. Some of these impacts are associated with relocation of the athletic fields and addition of the parking garage. No improvements to traffic, parking and circulation would result from the No-Build Alternative.

Other Build Alternatives

The Campus Master Plan (SMMA 2007) identifies three additional concepts that include the same project elements as the Preferred Plan, but have different spatial configurations. The alternatives development process was an iterative one in which program elements were reviewed with respect to environmental conditions. The CSUS has judged these alternatives to be inferior to that of the Preferred Plan for each campus based upon a variety of factors including, primarily: facility synergies, vehicular and pedestrian safety, and environmental impacts.

ENVIRONMENTAL IMPACTS AND MITIGATION

As required under CEPA, impacts to the physical, natural and socioeconomic environment of the Proposed Action (Master Plan) have been evaluated in this EIE. Table ES-1 summarizes the environmental impacts of the Proposed Action for each campus.

POTENTIAL CERTIFICATES, PERMITS OR APPROVALS

The following table is a list of approvals that may be required for the construction and operation of the proposed Master Plan facilities.

Table ES-2. Potential Certificates, Permits or Approvals Needed for WCSU Master Plan Implementation

Certificate, Permit, or Approval	Reviewing Agency	Comments
General Permit for Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities	DEP	For ≥ 1 acres of disturbance. Registration and if >10 acres a plan review is required prior to initiating activities.
Flood Management Certification Section 25-68 CGS	DEP	New or modification to stormwater drainage or development in a floodplain requires certification of compliance with Section 25-68 CGS and 225-68h-3 of RCSA by state agency.
Soil and Special Waste Disposal Approvals	DEP	May be required for disposal of waste generated during utility relocation or demolition activities
State Wetlands Permit	DEP	Would apply to such activities encroaching on wetlands: new or rehabilitated stormwater outfall structures; construction of new softball, baseball and soccer fields; road near Stadium.
Section 404 Wetlands Permit	USACE	Construction of new softball, baseball and soccer fields; road near Stadium.
Utility Relocation Plan review and approval	DEP, City of Danbury	Review required before relocating/installing utilities
Water Diversion Permit	DEP	May be required for new stream crossings or culvert replacements for watersheds of >100 acres.
State Traffic Commission (STC) Certificate	STC	Required for existing STC facilities with > 50 parking spaces or more than 1 SF of new construction. Modification of existing permits at both campuses.

Table ES-1. Summary of WCSU Master Plan Environmental Impacts for Midtown and Westside Campuses

Parameter	Midtown	Westside
Geology, Soils & Topography	No major alterations required	Blasting and other significant earth work required for construction
Wetlands	No wetland impacts	Approximately 1,300-9,800 sf of impact to forested wetland due to ballfield and roadway construction. Wetland mitigation sites available near existing baseball field.
Groundwater Quality	Stormwater infiltration proposed where suitable	Groundwater quality not affected; limited potential for groundwater infiltration of stormwater. Pollutants within APA with BMPs in accordance with DEP and DPH regulations/standards.
Surface Water Quality	Decrease in impervious surfaces	Increased impervious surface runoff to be mitigated by stormwater BMPs
Floodplains	Campus not within floodplain	Campus not within floodplain
Flora/Fauna Habitats	Existing habitats have minimal value to flora/fauna	Slight decrease in forest habitat but only along existing edges that are already impacted.
Rare Species	No state or federally listed species affected	No state or federally listed species affected
Transportation	Increased vehicular delay at intersections already at unacceptable Levels of Service (LOS) – White Street @ Fifth Avenue and Osborne Street @ Fifth Avenue.	Lighting/Markings required for VPAC per FAA letter. Similar mitigation may be required for new residential complex, parking garage and building additions.
Air Quality	Slight increase in air emissions due to increased energy demand	Slight increase in air emissions due to increased energy demand
Noise	No significant increase in noise; construction noise BMPs to be instituted	No significant increase in noise; construction noise BMPs to be instituted
Light	Additional lighting along campus perimeter required but impacts to be minimized through selection of appropriate fixtures	Additional lighting along campus perimeter required but impacts to be minimized through selection of appropriate fixtures
Water Supply	Slight increase in potable water demand easily met by Danbury Water Department	Slight increase in potable water demand easily met by Danbury Water Department
Wastewater	Additional sewage generation handled by Danbury Water Pollution Control Authority	Additional sewage generation handled by Danbury Water Pollution Control Authority
Electricity & Telecommunications	Utilities are available in close proximity to proposed projects. Berkshire Building/Wellness Center Expansion and Student Center Addition will likely require relocation of utilities.	VPA parking garage, O’Neill Center Addition and new Residence Hall will likely require utility relocations.
Heating & Cooling	An additional boiler and renovations to the boiler house needed to handle the increased size in service	New decentralized heating/cooling units and/or upgrades required for each Master Plan structure.

Parameter	Midtown	Westside
	for the proposed buildings. Cooling plants would be incorporated within the new 400-car parking structure or renovated Police Station to service many of the new buildings.	The feasibility of constructing a geothermal exchange system for the VPAC is being studied.
Aesthetics/Viewsheds	Ninth Ave. residents will have direct view of new parking garage. Impacts minimized through architectural treatments similar to those employed for parking garage along 5 th Avenue	New structures not likely visible from residential developments in the area.
Solid Waste and Recycling	Additional solid waste generated during construction and operation handled by current system under the University's Waste Management Guidelines.	Additional solid waste generated during construction and operation handled by current system under the University's Waste Management Guidelines.
Cultural Resources	No significant impact to historic properties, but SHPO will be contacted during the design phase of projects that affect State Register properties on campus. No archaeologically sensitive resources in project area.	No significant impact to historic properties. No archaeologically sensitive resources in project area.
Pesticides, Toxic or Hazardous Materials	No major sources of hazardous materials in project area. Roberts Ave. school lead paint to be abated during demolition.	Encountering contaminated soil and/or groundwater at the Westside Campus is highly unlikely.
Energy	Increased energy usage but most buildings will be LEED® certified and, therefore, energy efficient.	Increased energy usage but most buildings will be LEED® certified and, therefore, energy efficient.
Public Health & Safety	Additional campus security may be needed. No additional City emergency personnel required.	Additional campus security may be needed. No additional City emergency personnel required.
Consistency with Land Use Plans	Master Plan is consistent with local, state and regional plans	Master Plan is consistent with local, state and regional plans
Population, Economy, Employment & Income	Increase in student population living on campus. Positive effect on employment during construction and operation	Increase in student population living on campus. Positive effect on employment during construction and operation
Housing	Increase in student housing stock.	Increase in student housing stock.
Consistency with Environmental Equity Policy	No disproportionate negative effects on low or minority income populations.	No disproportionate negative effects on low or minority income populations.

CONCLUSIONS

The Proposed Action is the implementation of the WCSU Master Plans for the Midtown and Westside Campuses. The Proposed Action would have no significant-negative impacts to the natural, physical or socioeconomic environment in or around the WCSU campuses so long as mitigation measures related to stormwater/water quality, wetlands and traffic are implemented as stated in this report. Additional detail, which will be developed during the design and permitting process, will be needed to better define impacts and mitigation requirements.

EIE REVIEW PERIOD AND COMMENTS

Review Agencies and other interested parties are offered an opportunity to provide comments and other pertinent information that would help define environmental impacts, interpret the significance of such impacts, and evaluate alternatives.

Written comments on this document and any other pertinent information must be sent or postmarked by March 4, 2011. Comments must be sent to:

Keith Epstein
Assistant Vice Chancellor for Planning and Technical Services
Connecticut State University System
39 Woodland Street
Hartford, CT 06105-2337

Fax: (860) 493-0059
Email: epsteink@ct.edu

The sponsoring and participating agencies will review all such materials submitted by that time and will prepare responses to the substantive issues raised. Based on the EIE and the comments received during the EIE public review period, the CSUS in consultation with WCSU and DPW will submit a Record of Decision (ROD) to the State Office of Policy and Management (OPM) which will review the documentation, including responses to comments, and make a written determination as to whether the EIE is adequate.

DISTRIBUTION

U.S. Army Corps of Engineers
Council on Environmental Quality
Connecticut Department of Environmental Protection
Connecticut Department of Public Health
Connecticut Department of Transportation
Connecticut Office of Policy and Management
Connecticut State Historic Preservation Office
Connecticut State Traffic Commission
Federal Aviation Administration
Housatonic Valley Council of Elected Officials
Danbury Public Library
City Clerk – Danbury
City Engineer – Danbury
City Planner – Danbury
Office of the Mayor - Danbury
State Representative Robert Godfrey
State Representative Daniel Carter
State Representative Joseph Taborsak
State Senator Michael McLachlan

1 INTRODUCTION

1.1 BACKGROUND

END

Western Connecticut State University (WCSU) is one of four learning institutions in the Connecticut State University System (CSUS). WCSU was founded in 1903 and is the second oldest of the Connecticut State Universities. There are two campuses located in Danbury that comprise WCSU (Figure 1-1). The original campus is the 34-acre Midtown Campus in downtown Danbury and the newer campus, located on land purchased in the 1970s, is the 355-acre Westside Campus located approximately 2.25 miles west of downtown. Educational facilities and residential housing halls are located on both campuses and shuttle buses serve as transportation links between them.

1.1.1 Midtown Campus

The Midtown Campus is located in a primarily residential neighborhood with a direct connection to the downtown commercial district via White Street (Figure 1-2). The site is bounded by White Street to the south, Fifth Avenue to the west, Osborne Street to the north, and Eighth and Ninth Avenues to the east. Seventh Avenue bisects the campus. Roberts Avenue connects Seventh Avenue with Eight Avenue to the east.

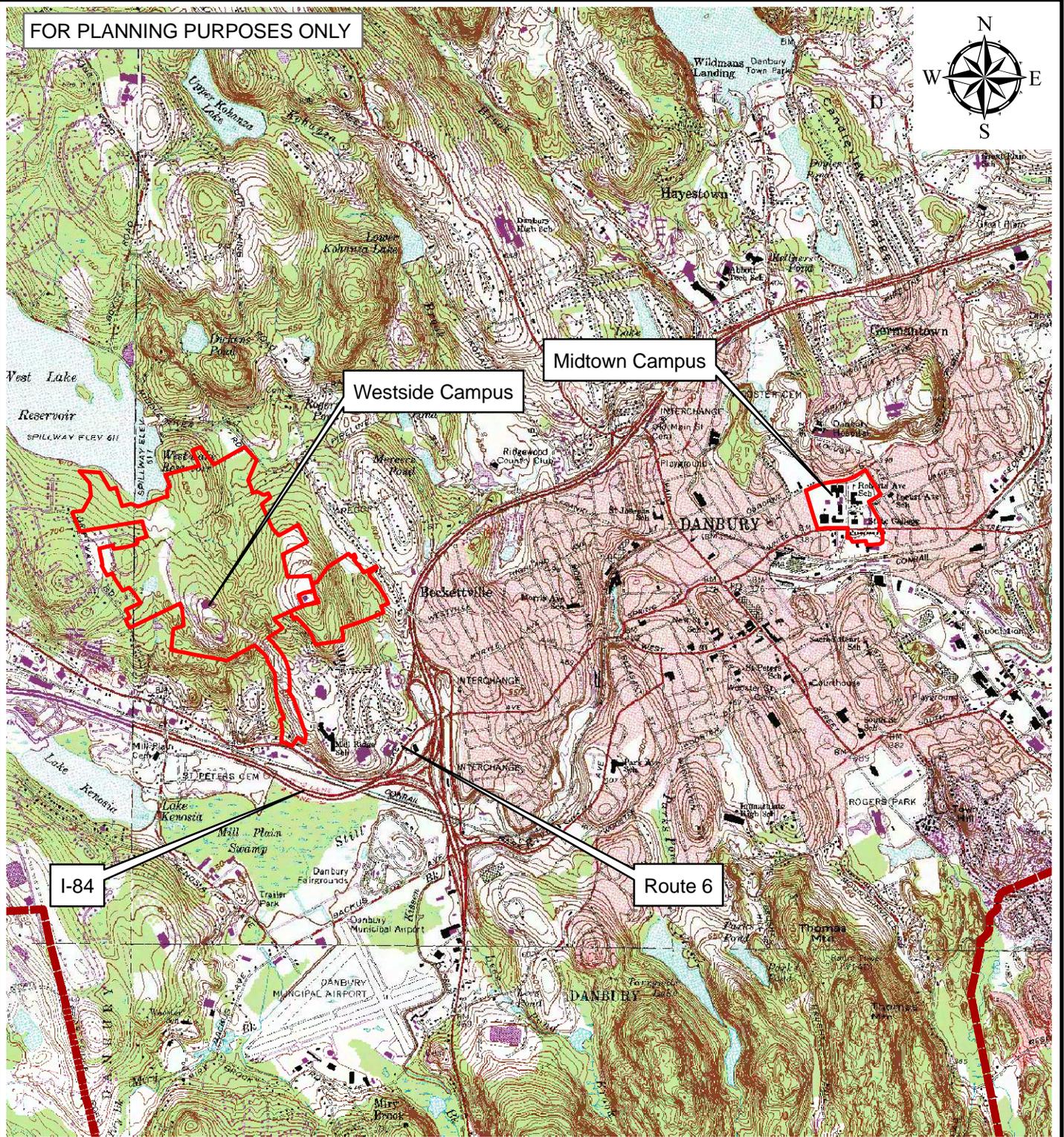
The Midtown Campus consists of a University Quad with a parking garage, Haas Library, Warner Hall, White Hall, Fairfield Hall, Higgins Hall and Berkshire Hall located around it. To the east of the Quad are the new Science Building, Student Center, Campus Police Headquarters, Alumni Hall, and Newbury Hall, Litchfield Hall and Old Main. To the south, across White Street are University Hall and the second of two parking garages. Mostly underclassmen live on the Midtown campus. The Roberts Avenue School, a vacant former City Elementary School, is included within the University's property.

1.1.2 Westside Campus

The Westside Campus is located on the west side of Danbury and is accessed from the south via Route 6 and University Boulevard (Figure 1-3). The Campus is located on top of a hill, approximately 250 feet above the entrance at Route 6. The site is densely wooded with steep hills that drop-off to the east and west. To the north, the site is bounded by West Lake Reservoir. University Blvd. is the main vehicular road through campus and dead ends at the Western Connecticut Academy for International Studies Elementary Magnet School. The Magnet School is independent of the university.

The Westside Campus consists of the Classroom Building, the O'Neill Center, newly built Westside Campus Center, three residence halls: Ella Grasso Hall, A. Searle Pinney Hall and Centennial Hall, an observatory, one parking garage, several asphalt parking lots, the Ives Center, a nature trail, athletic fields, a multi-purpose athletic and performance center, and football stadium. Shuttle buses serve as transportation between

FOR PLANNING PURPOSES ONLY



3,000 1,500 0 3,000 Feet

LOCUS

Project No:
15.0166140.10

LEGEND

-  Campus Property Boundaries
-  Town Boundaries

**Western Connecticut State University
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

CT SEAMLESS TOPO MAPS 1997, USGS TOPOGRAPHIC
QUADRANGLE MAPS Danbury, Brewster, Bethel, Peach Lake

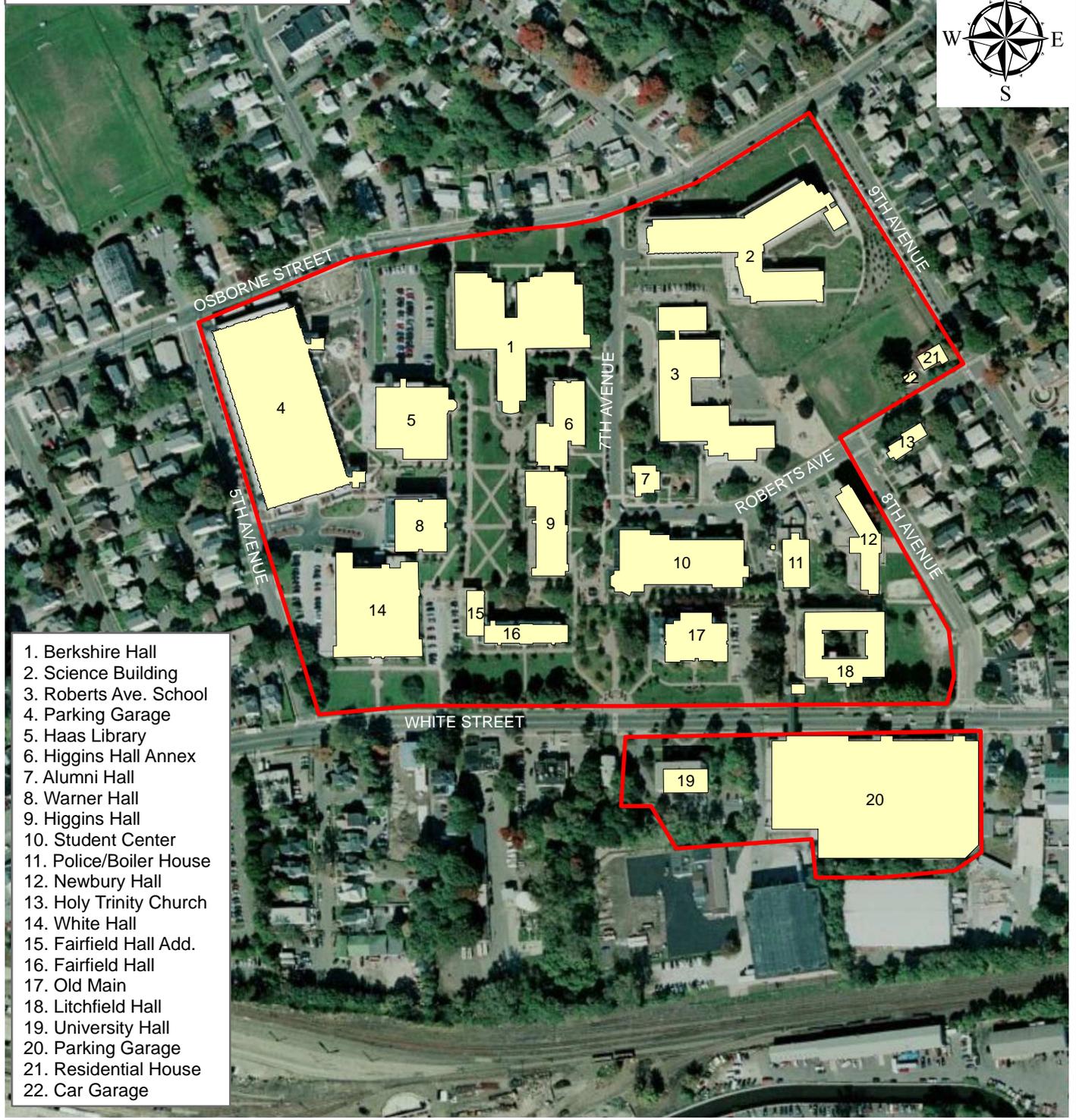
Figure No:

 Baystate Environmental Consultants, Inc.
East Longmeadow, MA / Bloomfield, CT

Data obtained from University of Connecticut Map and Geographic
Information Center and CT Department of Environmental Protection

1-1

FOR PLANNING PURPOSES ONLY



1. Berkshire Hall
2. Science Building
3. Roberts Ave. School
4. Parking Garage
5. Haas Library
6. Higgins Hall Annex
7. Alumni Hall
8. Warner Hall
9. Higgins Hall
10. Student Center
11. Police/Boiler House
12. Newbury Hall
13. Holy Trinity Church
14. White Hall
15. Fairfield Hall Add.
16. Fairfield Hall
17. Old Main
18. Litchfield Hall
19. University Hall
20. Parking Garage
21. Residential House
22. Car Garage



LEGEND

- Existing Buildings
- Property Boundary

EXISTING CONDITIONS

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

Project No:
15.0166140.10

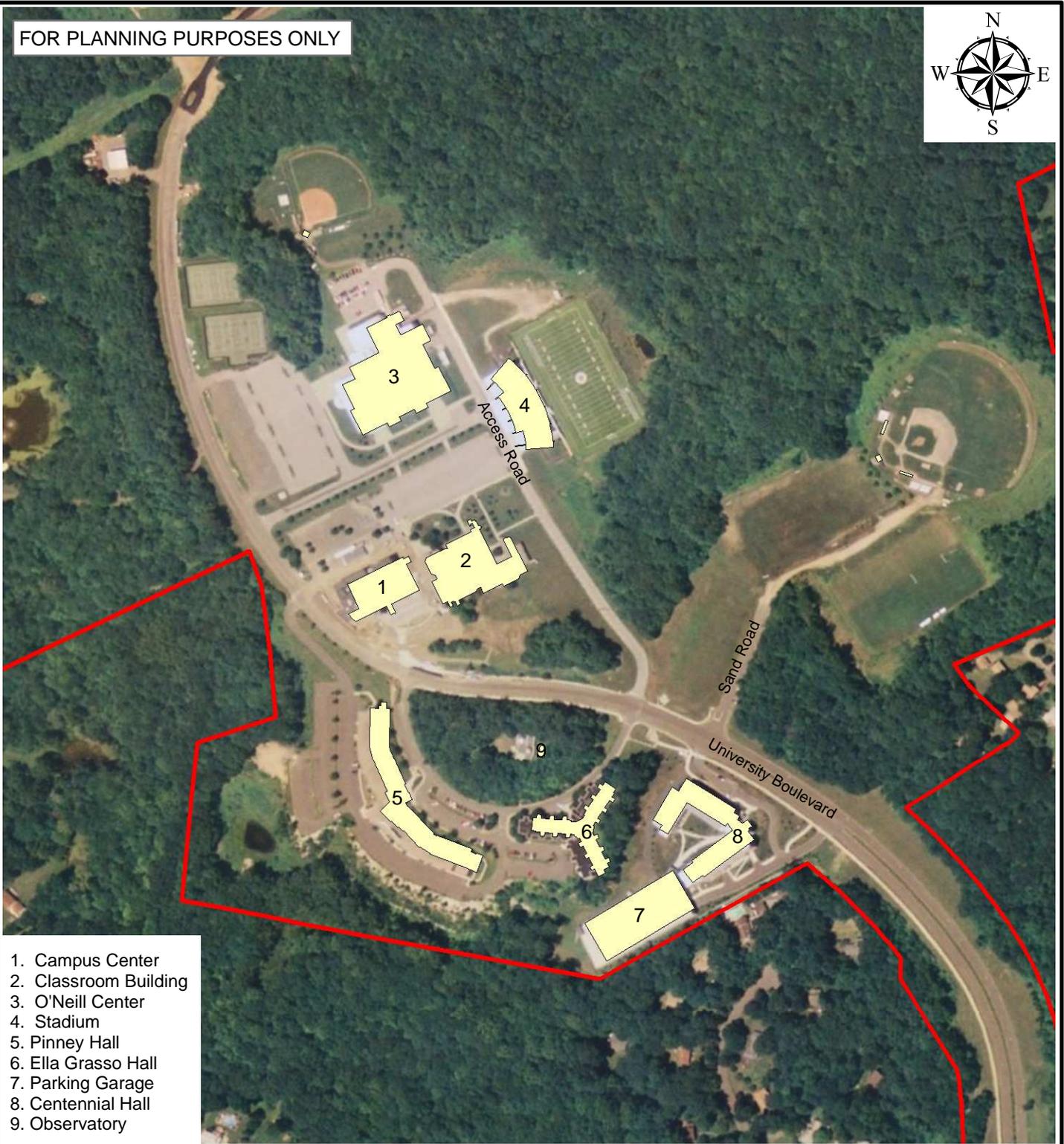
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AUGUST 2010

Figure No:

FOR PLANNING PURPOSES ONLY



- 1. Campus Center
- 2. Classroom Building
- 3. O'Neill Center
- 4. Stadium
- 5. Pinney Hall
- 6. Ella Grasso Hall
- 7. Parking Garage
- 8. Centennial Hall
- 9. Observatory



LEGEND

- Existing Buildings
- Property Boundary

EXISTING CONDITIONS

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Project No:
15.0166140.10

Drawn by:
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JRB

Date:
AUGUST 2010

Figure No:

1-3

the campuses, and HART (Housatonic Area Regional Transit) buses periodically stop on campus.

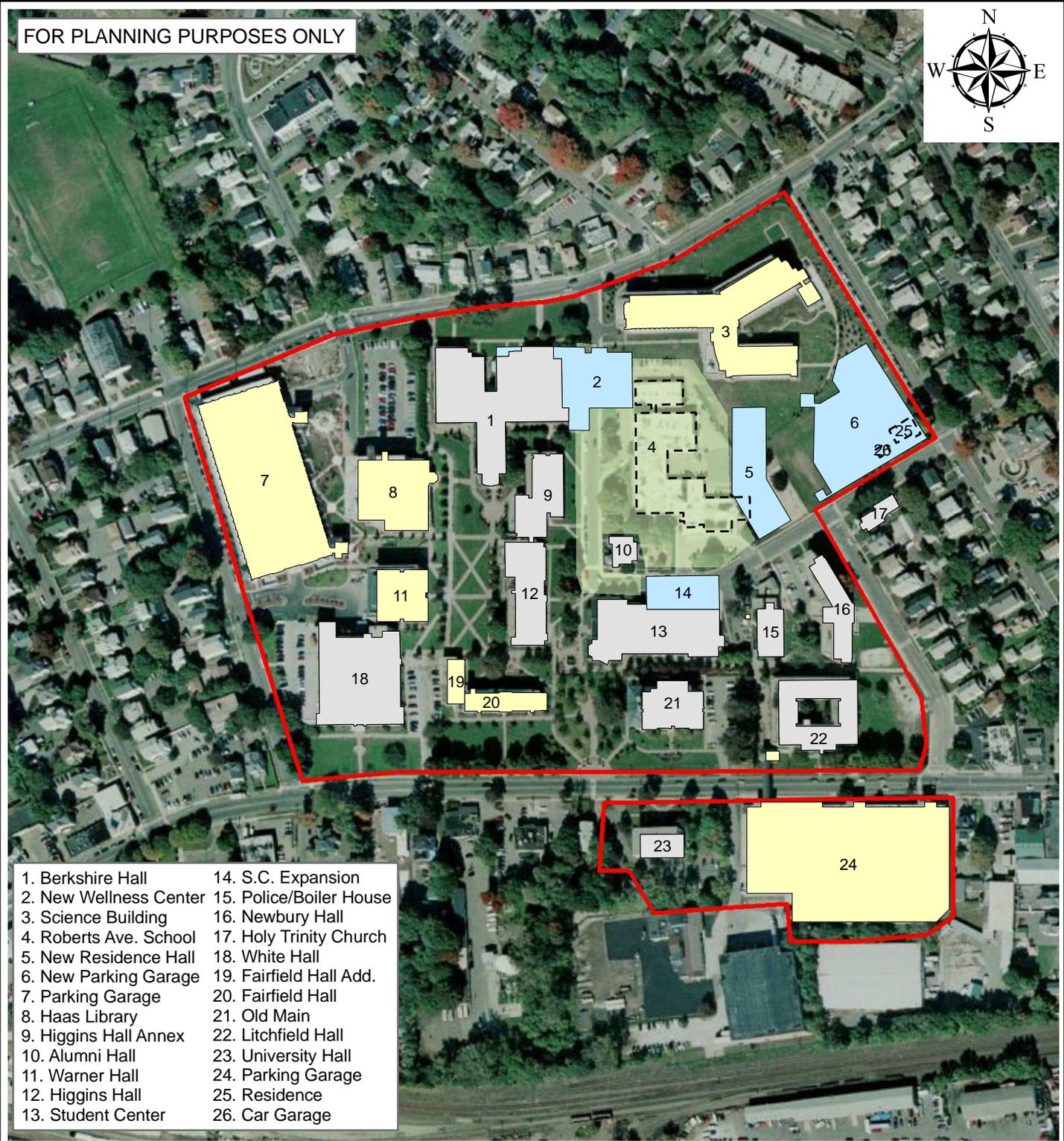
1.2 DESCRIPTION OF PROPOSED ACTION

1.2.1 Midtown Campus

The Proposed Action for the Midtown campus includes the following, as described in SMMA (2007) (Figure 1-4). Priority projects slated for construction in the near term are shown in italics. Planned gross square footages (sf) are shown in parentheses. The remaining projects would be phased-in as needed and when funding becomes available.

- *Construction of a new 300-bed (137,775 sf) residence hall with 400-car (132,000 sf) parking garage and associated mini-chiller plant;*
- *Demolition of an existing University-owned residence at 30 Ninth Avenue within the footprint of the proposed residence hall and parking garage*
- Central plant improvements including new boiler and relocation of Police Station to White Hall (2,672 sf);
- Renovation and expansion (72,172 sf) of Berkshire Hall, creating space for School of Professional Studies and new Wellness Center, expanded daycare;
- *Demolition of the vacant Roberts Avenue School (31,500 sf), closure of Seventh Avenue and the western portion of Roberts Avenue, and construction of new main quadrangle;*
- Renovation and expansion of the Student Center (37,862 sf);
- Renovation of White Hall (128,587 sf);
- Renovation of Higgins Hall (105,048 sf);
- Renovation and refurbishment of Old Main (7,734 sf);
- Renovation and refurbishment Alumni Hall (8,230 sf);
- Renovation and refurbishment of Litchfield Hall (58,534 sf);
- Renovation and refurbishment of Newbury Hall (54,171 sf);
- Renovation and refurbishment of the Holy Trinity Church (5,416 sf); and
- Renovation and refurbishment of University Hall (2,911 sf).

FOR PLANNING PURPOSES ONLY



- | | |
|------------------------|-------------------------|
| 1. Berkshire Hall | 14. S.C. Expansion |
| 2. New Wellness Center | 15. Police/Boiler House |
| 3. Science Building | 16. Newbury Hall |
| 4. Roberts Ave. School | 17. Holy Trinity Church |
| 5. New Residence Hall | 18. White Hall |
| 6. New Parking Garage | 19. Fairfield Hall Add. |
| 7. Parking Garage | 20. Fairfield Hall |
| 8. Haas Library | 21. Old Main |
| 9. Higgins Hall Annex | 22. Litchfield Hall |
| 10. Alumni Hall | 23. University Hall |
| 11. Warner Hall | 24. Parking Garage |
| 12. Higgins Hall | 25. Residence |
| 13. Student Center | 26. Car Garage |



PREFERRED ALTERNATIVE

Project No:
15.0166140.10

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Exhibit

LEGEND

- Existing Buildings
- Proposed Demolition
- Proposed Renovation
- Proposed Buildings
- Proposed Campus Quadrangle

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

BASE MAP: Microsoft Virtual Earth Aerial Photo

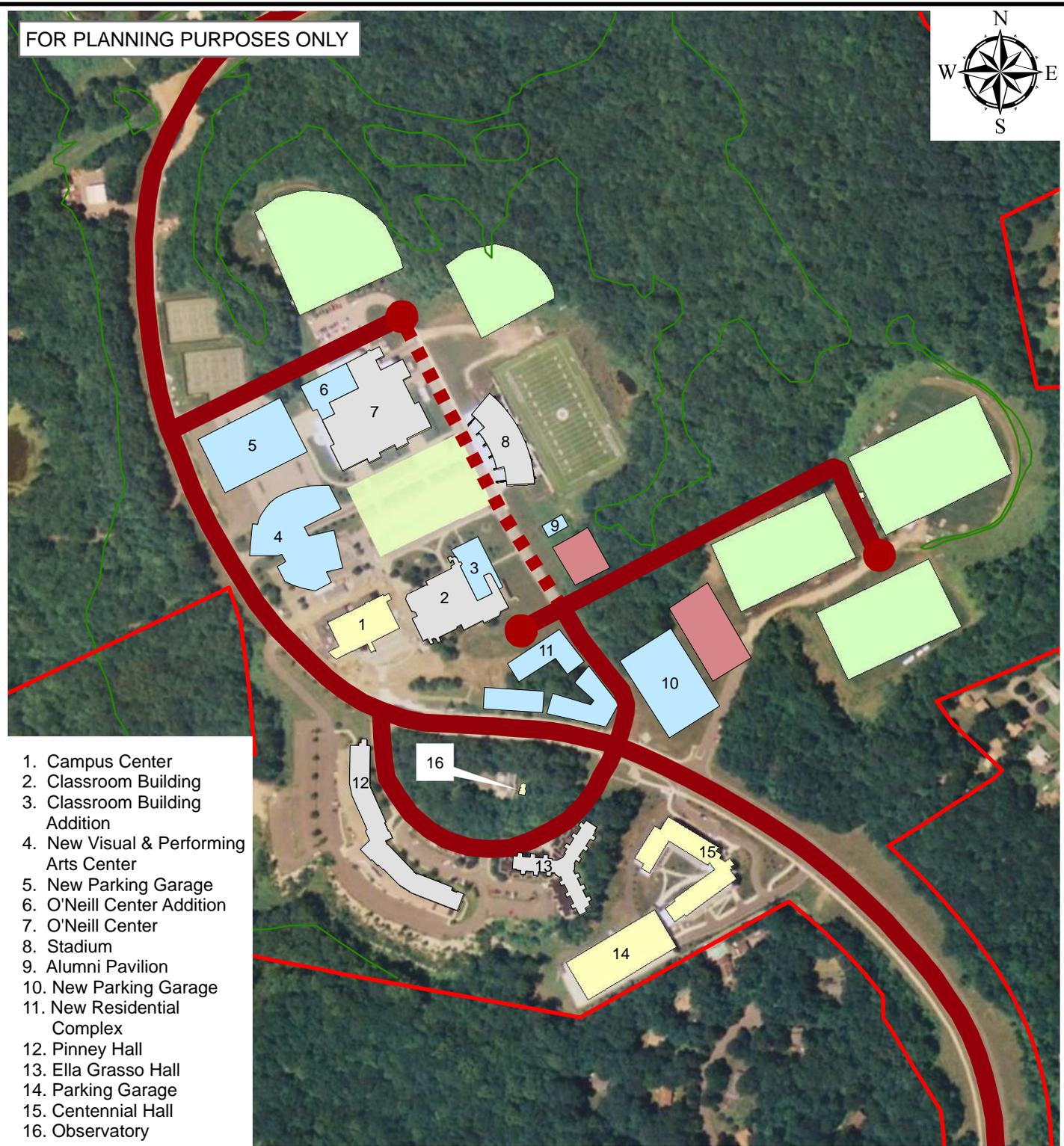
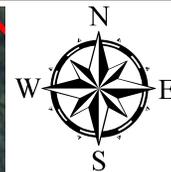
1.2.2 Westside Campus

The Proposed Action for the Westside campus includes the following, taken from the SMMA Master Plan Update (2007) and recently updated by CSUS in February, 2010 (Figure 1-5): Priority projects slated for the near term are shown in italics. Planned gross square footages (sf) are shown in parentheses. The remaining projects would be phased-in as needed and when funding becomes available.

- *Construction of a new building for the School of Visual and Performing Arts (133,000 sf) (currently in design);*
- Parking modifications including a new 500-car parking garage (165,000 sf) to accommodate relocated parking lost due to changes to student, faculty, and commuter lots and one staff lot with a mini-power plant for future buildings;
- Vehicular pedestrian enhancements;
- Creation of a central quadrangle between Classroom Building, Stadium, and Arena;
- Renovate and add space onto Feldman Arena located within the O'Neill Center;
- Renovate (130,150 sf) and expand (24,549 sf) Westside Classroom Building;
- Construction of a new Residence Hall Complex (180,945 sf) to house 394 students with landscaped open quadrangle;
- Construction of new 500-car parking garage (165,000 sf) near the stadium with associated mini-power plant;
- Renovation of the O'Neill Center, replacement of the football stadium turf, refurbishment of the stadium, and construction of new field complexes for baseball and softball;
- Expansion of student activity and food service space;
- Renovation and refurbishment of Ella Grasso Hall (89,141 sf);
- Renovation and refurbishment of Pinney Hall (211,541 sf); and,
- Construction of Alumni Pavilion (500 sf)

The estimated cost to implement the entire Master Plan at both campuses is \$400 million (2007 dollars).

FOR PLANNING PURPOSES ONLY



1. Campus Center
2. Classroom Building
3. Classroom Building Addition
4. New Visual & Performing Arts Center
5. New Parking Garage
6. O'Neill Center Addition
7. O'Neill Center
8. Stadium
9. Alumni Pavilion
10. New Parking Garage
11. New Residential Complex
12. Pinney Hall
13. Ella Grasso Hall
14. Parking Garage
15. Centennial Hall
16. Observatory



PREFERRED ALTERNATIVE - WESTSIDE

Project No:
15.0166140.10

LEGEND

- Primary Vehicular Route
- Secondary Vehicular Route
- Wetland- Estimated by BEC
- Proposed Surface Parking
- Proposed Renovated Buildings
- Proposed Buildings
- Existing Buildings
- Proposed Athletic Fields
- Proposed Quadrangle
- Property Boundary

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

1-5

1.3 PURPOSE AND NEED

The Master Plans for the Westside and Downtown Campuses were developed from the results of a study conducted by Paulien & Associates, Inc. in February, 2007. In that study, the space needs and enrollment and staffing projections were projected to the year 2015. The baseline year was 2005.

Although the study outlines the University's needs for 2015, it is not anticipated that all elements of the Master Plan would be constructed before that target year. In fact, most of the Master Plan projects would be constructed beyond 2015. See Section 1.2 for a list of near and long-term projects.

The Master Plan takes into account both the space needs and enrollment/employment analyses and the physical features of the campuses in developing the Plan.

The space needs analysis was organized by academic school and administrative units and further subdivided by department level, however for the purposes of this EIE, Table 1-1 categories space needs by the two major categories.

Table 1-1. WCSU Campus-Wide Space Needs Analysis

Unit Space Type	Fall 2005 Base Year			Fall 2015 Target Year		
	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Existing ASF	Guideline ASF	Surplus/ (Deficit)
Academic	224,313	224,989	(676)	263,619	288,918	(25,229)
Administrative	665,047	858,012	(192,965)	729,188	1,071,309	(342,121)
Inactive Conversion Space	34,538			96,897		
TOTAL	923,898	1,083,001	(159,103)	1,089,704	1,360,227	(270,523)

Source: Paulien & Associates, 2007

ASF = assignable square feet

As indicated in Table 1-1, the University is projected to have a total space needs deficit of approximately 270,000 assignable square feet (ASF) by 2015. Currently, there is a deficit of approximately 159,000 sf. Most of the project space needs are for administrative units which include: Academic Affairs, Finance and Administration, Student and University Affairs and Institutional Advancement. This analysis merely accounts for building space needs, but does not consider residential and parking space needs. These needs are a function of the existing and proposed enrollment as discussed below.

The University intends to grow its student population by 27% by 2015. The projected FTE (full time equivalent) by School is presented in Table 1-2.

Table 1-2. Enrollment Projections at WCSU

Schools	FTE		
	Fall 2005	2015	Percent Increase/ (Decrease)
Arts & Sciences	2,846	3,666	28.81%
Business	773	981	26.91%
Professional Studies	535	628	17.38%
Visual & Performing Arts	368	477	26.92%
TOTAL	4,522	5,752	27.20%

Source: CSUS (2006)

All academic schools are expected to have substantial increases in student population, which is consistent with the trend of the other Connecticut State Universities. Factors that contribute to the expecting growing population include: large numbers of college-age students; higher percentage of high school graduates choosing higher education goals; and the relative affordability of State Universities.

2 ALTERNATIVES CONSIDERED

CEPA requires that alternatives to the Proposed Action are considered by State agencies in their decision-making process. At a minimum, the No Action alternative and other sites that are controlled or available to the subject State agency need to be considered.

For this project, numerous alternative layouts and configurations of the elements of the Master Plan were developed and analyzed as part of the Master Planning process in 2006/2007. The Connecticut Department of Public Works (DPW), working in conjunction with the CSUS, presented these alternatives to the WCSU Board of Trustees which selected a preferred alternative for each campus.

The overarching goals and objectives of the Campus Master Plan Update (2007) were developed during the Master Planning process:

- *“To provide phased renovation, upgrades, replacement, and expansion of existing facilities.*
- *To identify functions that should be relocated in existing or new facilities in coordination with the space utilization study.*
- *To outline a guide for unification and consolidation of the campus.*
- *To act as a blueprint for utilizing existing resources, building on existing strengths, and reinforcing the positive image of the University, community and State.*
- *To provide a development strategy that establishes need, priority, and cost-effective solutions.” (SMMA)*

Each build alternative was evaluated with respect to the goals listed above as well as their physical, natural and socioeconomic implications. The alternatives considered in this EIE are described below.

2.1 ALTERNATIVE 1 – NO ACTION

2.1.1 Midtown Campus

The No Action Alternative would involve not constructing the new residence hall, parking garage, wellness center, or student center expansion, and not renovating buildings in need of upgrades and repair or making improvements to the current pedestrian and vehicular circulation systems. The No-Build Alternative does not satisfy the projected additional space requirements outlined in the Space Needs Analysis (Paulien and Associates, 2007) which projects a 27% increase in the number of students and facility and a substantial deficit in academic and administrative space. By implementing the No-Build Alternative, it will be less likely for the University to achieve a competitive status within other in-state Universities and other private/public universities both in and out-of state.

2.1.2 Westside Campus

If the No Action Alternative was implemented by the University, there would be no construction of the O'Neill Center Expansion, parking garages, Visual and Performing Arts Center, residential halls, and Classroom Building expansion. The current circulation of pedestrian and vehicles would not improve under the No-Build Alternative. Environmental impacts that would be avoided by not relocating the baseball and softball fields according to the Master Plan include impacts to approximately 1,300 – 9,800 square feet acres of wetlands and potential water quality impacts. However, no improvements to traffic, parking and circulation would result from the No-Build Alternative and the University would not be able to meet its projected growth estimate of 27% more students and, therefore, it will be less likely for the University to achieve a competitive status within other in-state Universities and other private/public universities both in and out-of state.

2.2 ALTERNATIVE SITES CONTROLLED OR AVAILABLE

CEPA requires that State agencies consider sites that are controlled or available by the sponsoring agency when proposing projects that have the potential for negative environmental impacts. In the case of this project, where the proposal is to expand an already-established institution, alternative sites for the Proposed Action are not relevant or applicable. Providing an alternative site for the facilities proposed for both campuses would not be practicable or desirable for the CSUS. In fact, the development of the Westside Campus, which began in the 1980s, was necessitated by the land constraints at the Midtown campus. The development of a third campus site was deemed imprudent and logistically undesirable.

Therefore, the only sites controlled or available to the CSU system are the existing State-owned lands at the Midtown and Westside campuses. Alternative configurations for each Campus were developed as part of the Master Planning process in 2006/2007. The program elements common to all the build alternatives are outlined below.

2.2.1 Midtown Campus

The projects proposed in the Preferred Master Plan are all located on the WCSU's Midtown or Westside Campuses. Concept Design Alternatives for the Midtown Campus were considered. They were all designed to reflect the development of the program-fit studies into viable schemes based on comments from WCSU faculty and staff.

According to the Master Plan, the Concept Alternatives for Midtown Campus are outlined as follows:

- Demolition of the Roberts Avenue School and closure of Seventh Avenue and portions of Roberts Avenue to accommodate new development and to integrate the Science Building with the rest of campus. This would restrict all vehicular traffic to the periphery, with the exception of emergency vehicles;
- Extensive renovation of academic buildings in order to consolidate campus-wide departments;

- New academic building including a Wellness Center and addition to the Science Building;
- Expansion of the Boiler House to accommodate campus police and facilities' space needs;
- A new 400-bed residence hall;
- Expansion of the Student Center to provide expanded food service facilities;
- A new main quadrangle; and,
- Hierarchies of open spaces and pedestrian walkways.

2.2.2 Westside Campus

The projects proposed in the Preferred Master Plan are all located on the WCSU's Midtown or Westside Campuses. Concept Design Alternatives for the Westside Campus were considered. They were all designed to reflect the development of the program-fit studies into viable schemes based on comments from WCSU faculty and staff.

According to the Master Plan, the Concept Alternatives for Westside Campus are outlined as follows:

- New School of Visual & Performing Arts Center (VPAC) and plaza;
- Reorganization of vehicular circulation;
- New residence halls across from Centennial Hall forming a campus gateway with associated parking structure, quad, and recreation fields;
- New Academic quad including classroom buildings and parking structure; and,
- Relocation and consolidation of athletic fields and facilities into a complex and renovation of the O'Neill Center.

2.3 ALTERNATIVE 2 – VARIOUS MASTER PLAN CONCEPTS

As mentioned previously, the Master Planning process evaluated many different alternatives for each campus (SMMA, 2007). Each of the alternatives achieve the general goals and objectives of the Master Plan by incorporated the desired building and vehicular/pedestrian facilities listed in Section 2.2 above. These alternatives presented in this Section are described and illustrated below. The maps were taken directly from the SMMA (2007) Master Plan and, therefore, have different scales, color schemes and coding than that of the maps in this report that depict the Preferred Alternative.

2.3.1 Midtown Campus

The Master Plan produced four alternatives; the preferred alternative and three others. Each alternative is similar in its programming elements as listed in Section 2.2.1 above, with subtle differences in the amount of building renovation and construction as well as greenspace configurations. The primary differences among the three alternatives (Figures 2-1, 2-2 and 2-3) are listed below:

- Alternative 2B calls for a new parking lot at the corner of Roberts and Ninth Avenues which would necessitate the demolition of an existing WCSU-owned residential-type structure that is used as offices.
- Alternatives 2B and 2C involve the demolition of the southern half of Higgins Hall (3) which makes way for a larger quadrangle space than that of Alternative 2A.
- Alternative 2B has less quadrangle space than that of Alternatives 2A and 2C.

These three alternatives were dismissed in favor of the preferred alternative at the end of the Master Planning process. The amount of environmental impact of the three alternatives is similar, and not substantially different, than that of the preferred alternative (Section 2.4), which offers the best programmatic solution to the University's space needs.

2.3.2 Westside Campus

The Master Plan produced four alternatives; the preferred alternative and three others. Each alternative is similar in its programming elements as listed in Section 2.2.2 above, with subtle differences in the amount of building renovation and construction as well as greenspace configurations.

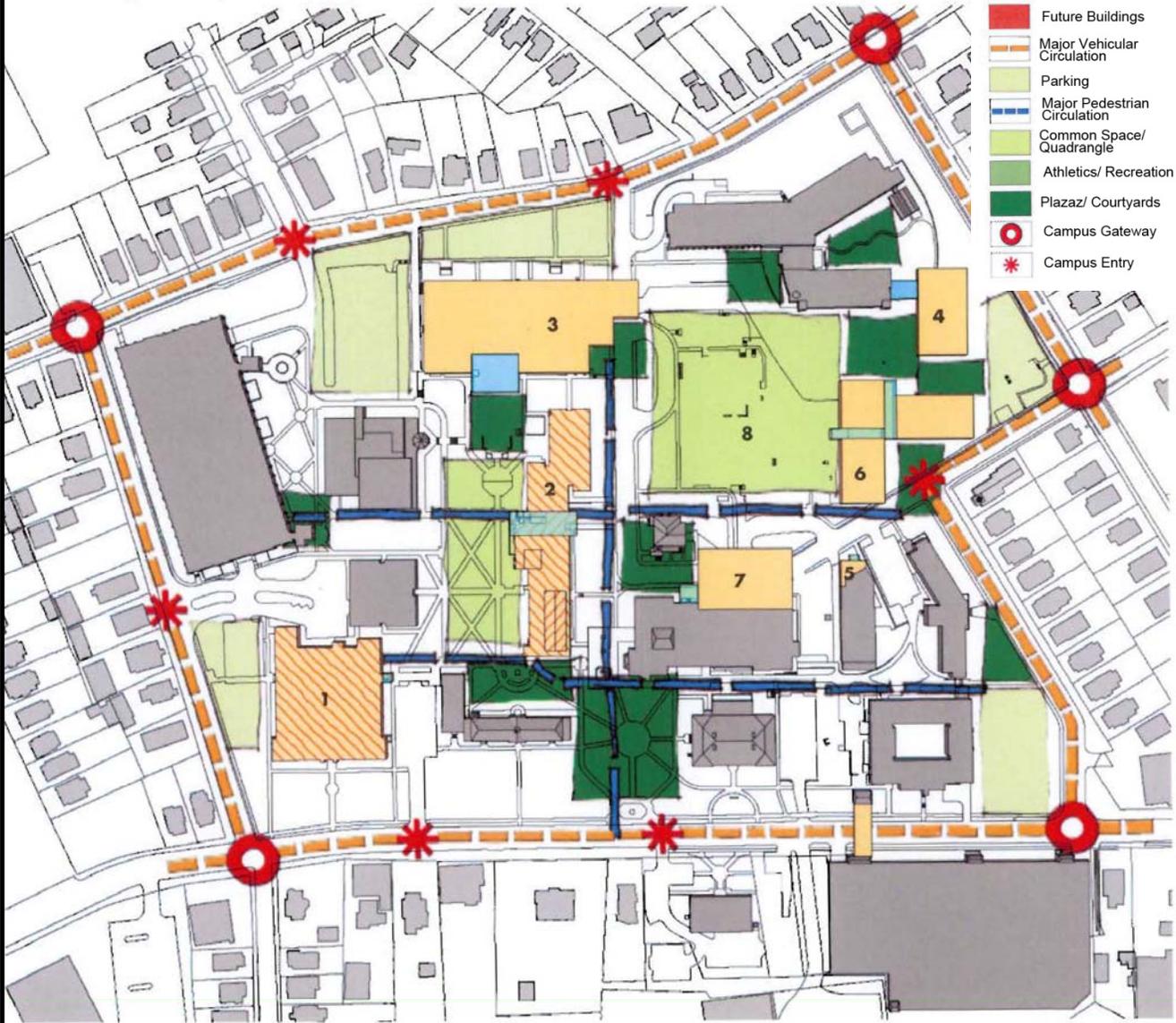
The three alternatives to the preferred plan are shown in Figures 2-4, 2-5 and 2-6. The major differences among the three are listed below:

- Alternative 2B would create a new segment of road on the east side of the O'Neill Center and the existing softball field. This roadway would impact a forested red maple swamp. None of the other alternatives have this feature.



LEGEND

- Existing Buildings
- Target Year Buildings
- Future Buildings
- Major Vehicular Circulation
- Parking
- Major Pedestrian Circulation
- Common Space/Quadrangle
- Athletics/ Recreation
- Plazas/ Courtyards
- Campus Gateway
- Campus Entry



ALTERNATIVE 2A

Project No.:
15.0166140.00

**WESTERN CONNECTICUT STATE UNIVERSITY MASTER PLAN
MIDTOWN CAMPUS**

Date:
MARCH 2010

Figure No.:

2-1



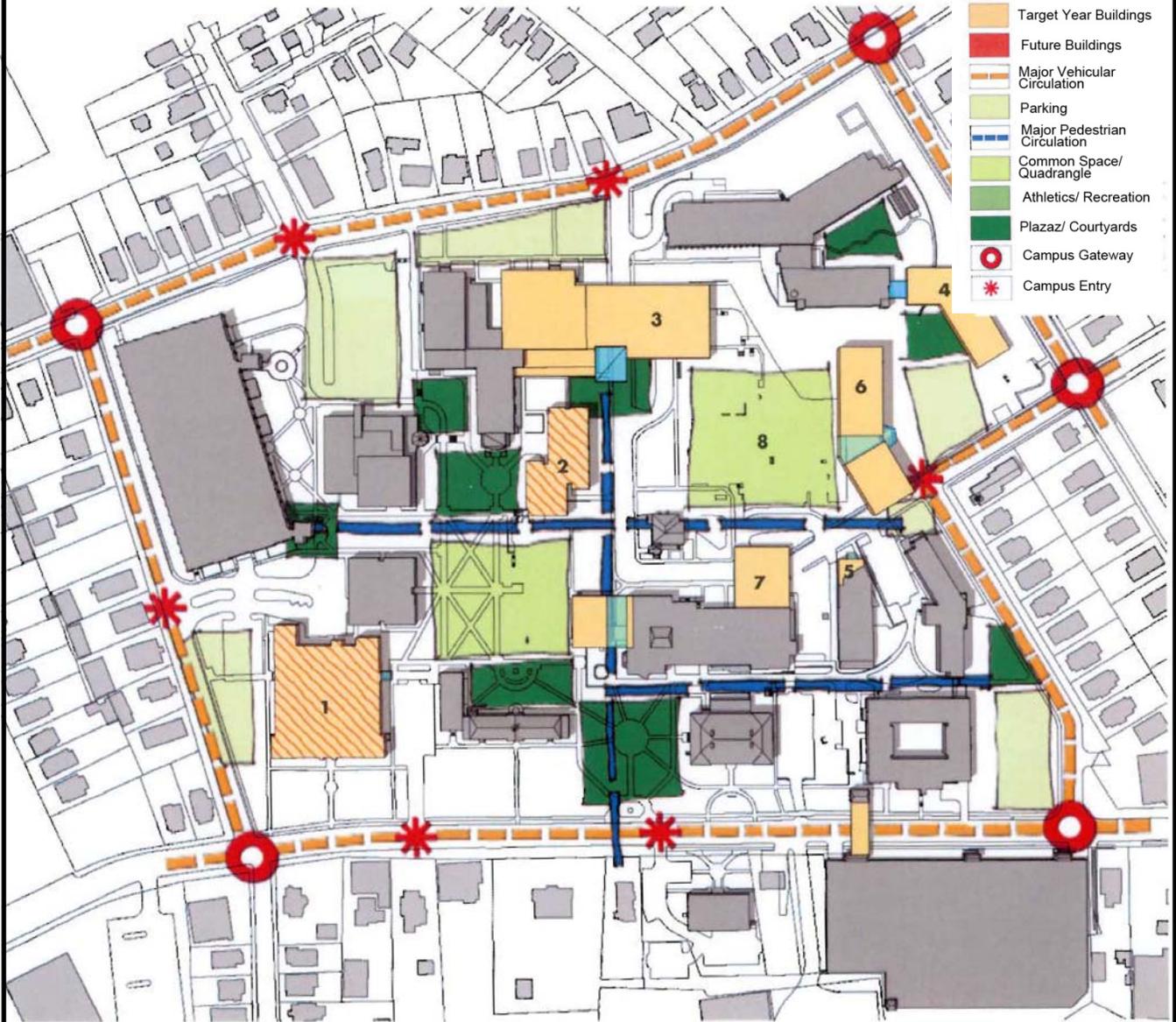
Baystate Environmental
Consultants, Inc.
East Longmeadow, MA /
Bloomfield, CT

Source: SMMA, Western Connecticut State
University Campus Master Plan, September 2007



LEGEND

- Existing Buildings
- Target Year Buildings
- Future Buildings
- Major Vehicular Circulation
- Parking
- Major Pedestrian Circulation
- Common Space/Quadrangle
- Athletics/ Recreation
- Plazaz/ Courtyards
- Campus Gateway
- Campus Entry



ALTERNATIVE 2B

Project No.:
15.0166140.00

**WESTERN CONNECTICUT STATE UNIVERSITY MASTER PLAN
MIDTOWN CAMPUS**

Date:
MARCH 2010

Figure No.:
2-2



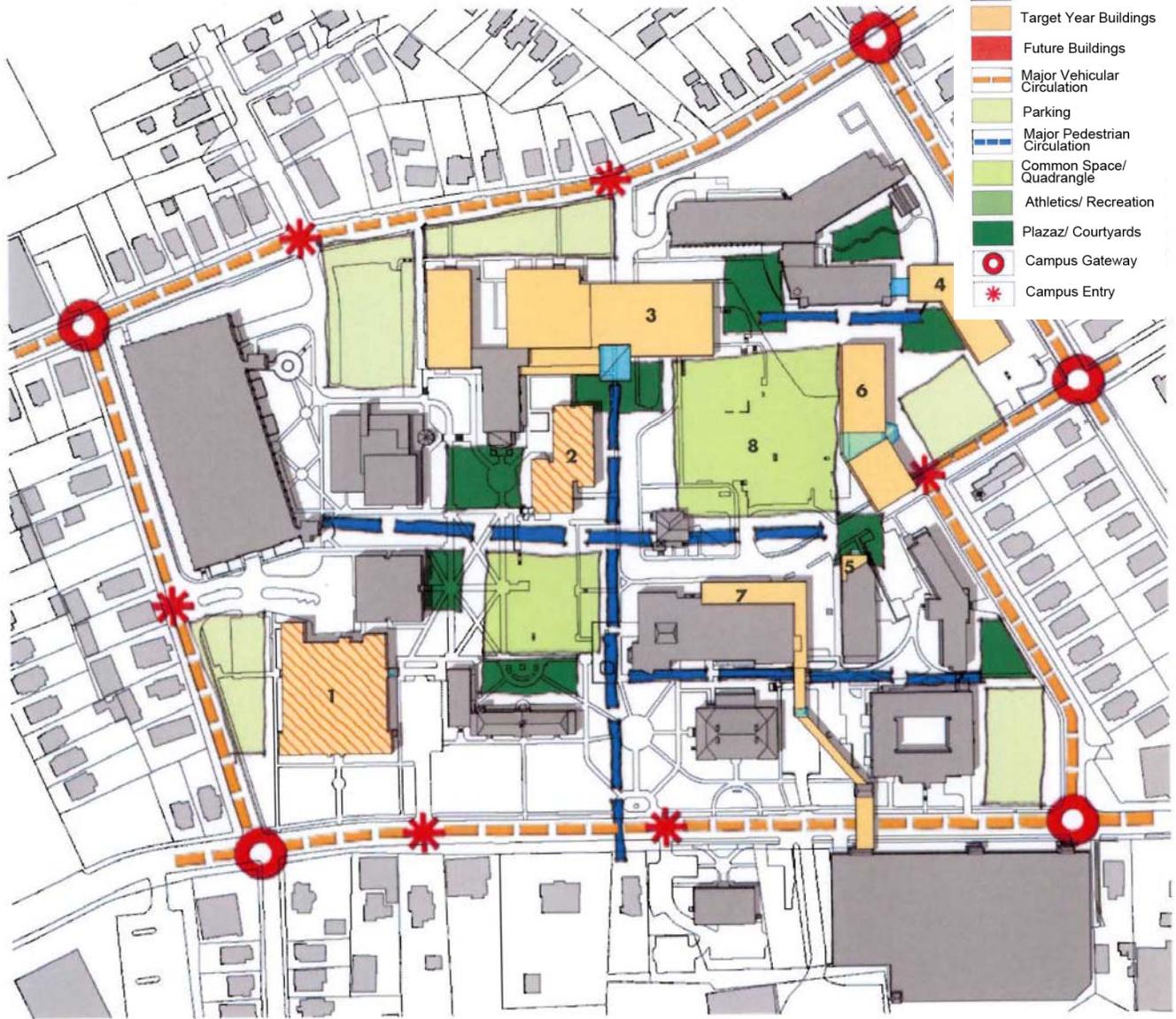
Baystate Environmental
Consultants, Inc.
East Longmeadow, MA /
Bloomfield, CT

Source: SMMA, Western Connecticut State
University Campus Master Plan, September 2007



LEGEND

- Existing Buildings
- Target Year Buildings
- Future Buildings
- Major Vehicular Circulation
- Parking
- Major Pedestrian Circulation
- Common Space/Quadrangle
- Athletics/ Recreation
- Plazaz/ Courtyards
- Campus Gateway
- Campus Entry



ALTERNATIVE 2C

**WESTERN CONNECTICUT STATE UNIVERSITY MASTER PLAN
MIDTOWN CAMPUS**

Project No.:
15.0166140.00

Date:
MARCH 2010

Figure No.:
2-3



Baystate Environmental
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East Longmeadow, MA /
Bloomfield, CT

**Source: SMMA, Western Connecticut State
University Campus Master Plan, September 2007**



LEGEND

- Existing Buildings
- Target Year Buildings
- Future Buildings
- Major Vehicular Circulation
- Parking
- Major Pedestrian Circulation
- Common Space/Quadrangle
- Athletics/ Recreation
- Plazaz/ Courtyards
- Campus Gateway
- Campus Entry



ALTERNATIVE 2A

Project No.:
15.0166140.00

**WESTERN CONNECTICUT STATE UNIVERSITY MASTER PLAN
WESTSIDE CAMPUS**

Date:
MARCH 2010

Figure No.:

2-4



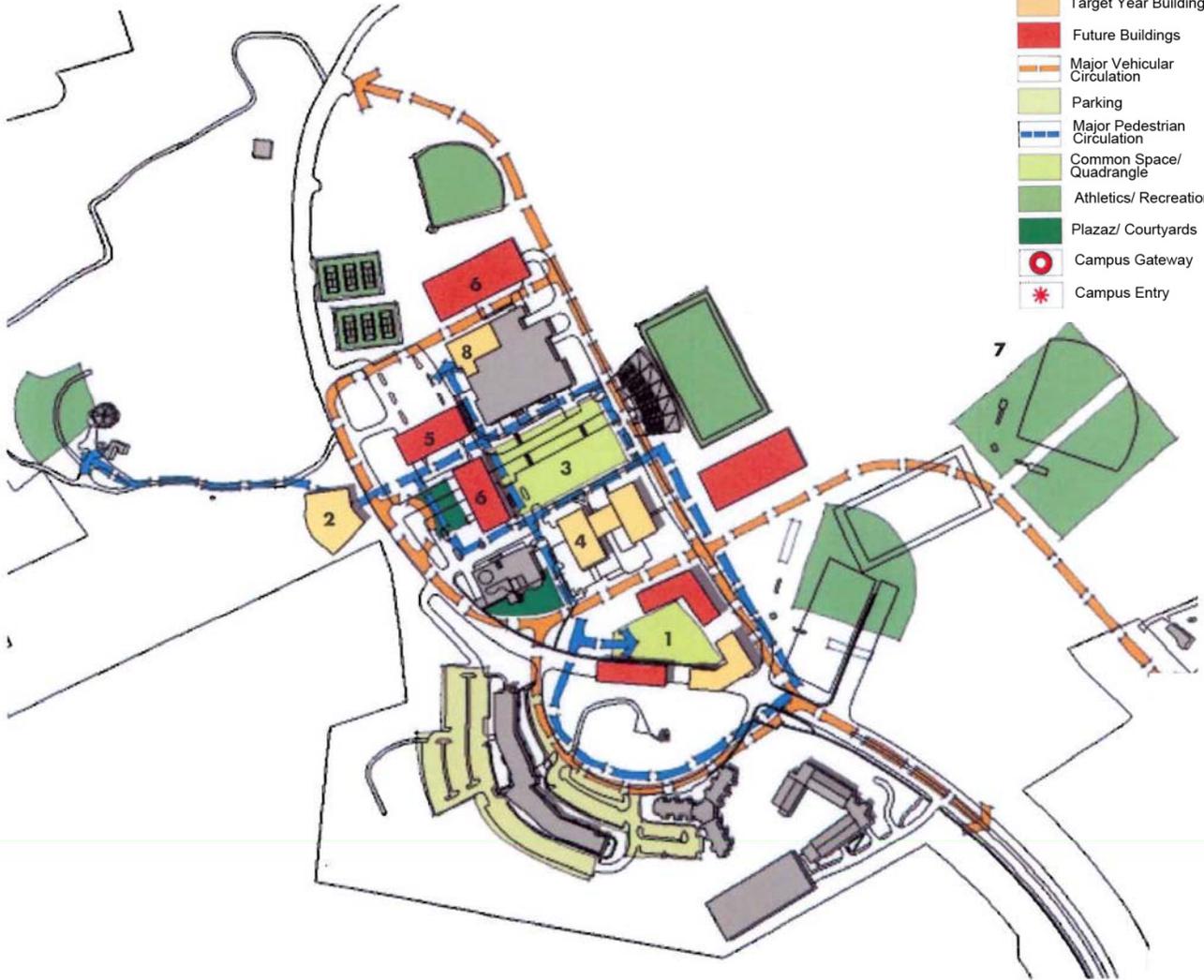
Baystate Environmental
Consultants, Inc.
East Longmeadow, MA /
Bloomfield, CT

**Source: SMMA, Western Connecticut State
University Campus Master Plan, September 2007**



LEGEND

- Existing Buildings
- Target Year Buildings
- Future Buildings
- Major Vehicular Circulation
- Parking
- Major Pedestrian Circulation
- Common Space/Quadrangle
- Athletics/ Recreation
- Plazaz/ Courtyards
- Campus Gateway
- * Campus Entry



ALTERNATIVE 2B

Project No.:
15.0166140.00

**WESTERN CONNECTICUT STATE UNIVERSITY MASTER PLAN
WESTSIDE CAMPUS**

Date:
MARCH 2010

Figure No.:
2-5



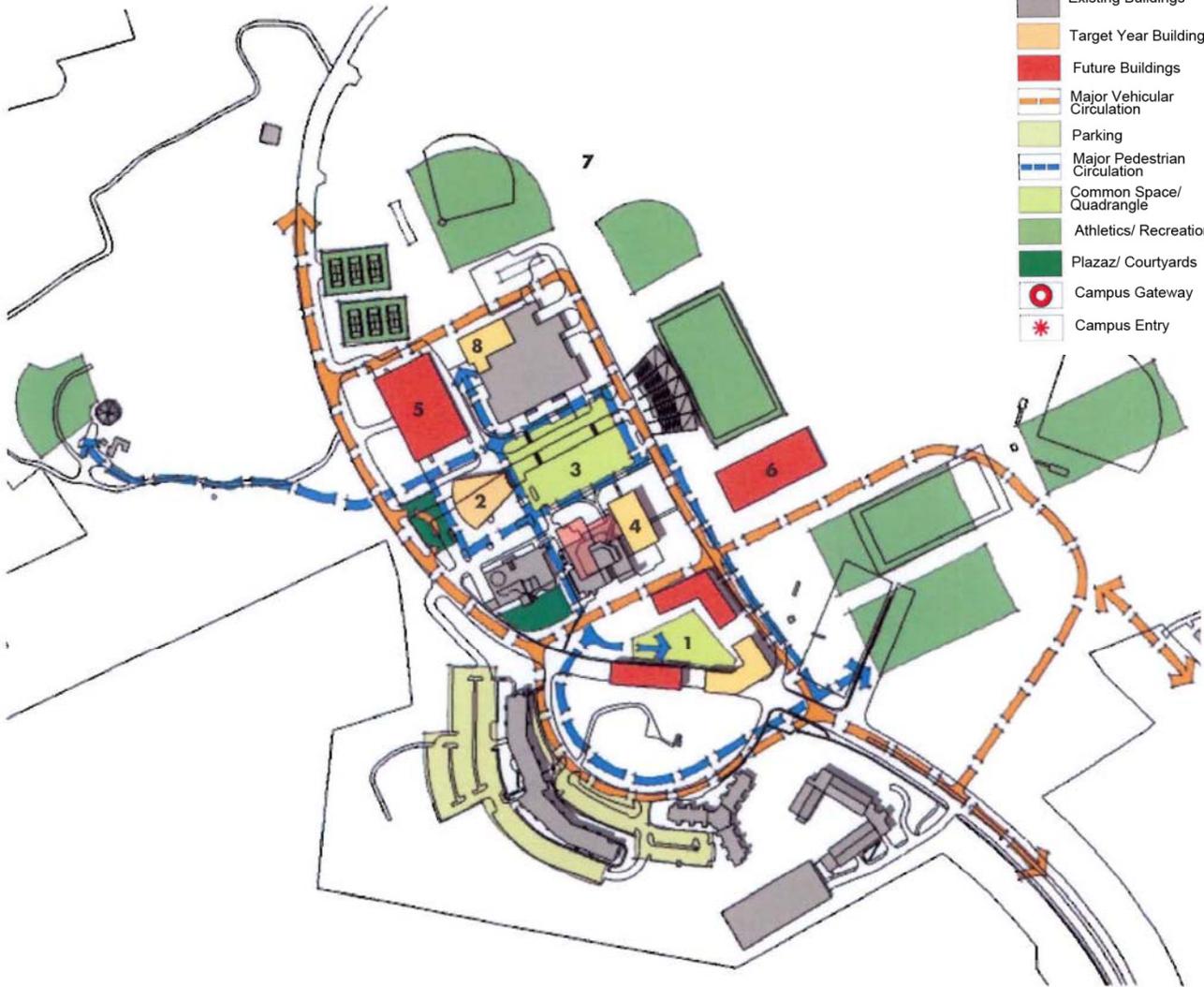
Baystate Environmental
Consultants, Inc.
East Longmeadow, MA /
Bloomfield, CT

**Source: SMMA, Western Connecticut State
University Campus Master Plan, September 2007**



LEGEND

- Existing Buildings
- Target Year Buildings
- Future Buildings
- Major Vehicular Circulation
- Parking
- Major Pedestrian Circulation
- Common Space/Quadrangle
- Athletics/ Recreation
- Plazaz/ Courtyards
- Campus Gateway
- * Campus Entry



ALTERNATIVE 2C

Project No.:
15.0166140.00

**WESTERN CONNECTICUT STATE UNIVERSITY MASTER PLAN
WESTSIDE CAMPUS**

Date:
MARCH 2010

Figure No.:

2-6



Baystate Environmental
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East Longmeadow, MA /
Bloomfield, CT

**Source: SMMA, Western Connecticut State
University Campus Master Plan, September 2007**

- Alternative 2B would locate two soccer fields at the site of the existing baseball field. This would involve the direct filling of forested and shrub/scrub wetlands. None of the other alternatives have this feature.
- Alternative 2B would involve creation of a parking lot on the west side of University Boulevard along the access path to the Ives Center. None of the other alternatives have this feature.
- Alternatives 2A and 2C involve a circumference roadway from Centennial Hall to an intersection immediately south of the Classroom Building. This would involve clearing of a portion of upland forest.
- Alternative 2A involves rerouting a portion of University Boulevard around a proposed large quadrangle and the proposed VPAC center. This would negatively impact traffic flow and pedestrian safety by diverting traffic through the driveway/parking areas of the Pinney and Ella Grasso Halls.
- Alternatives 2A, 2B and 2C depict a roadway connection to a residential neighborhood southeast of the Campus proper.

The comparable impacts of each alternative are summarized as follows:

- Alternative 2B would have the most impact to wetlands and upland vegetation of any of the alternatives.
- Traffic flow and pedestrian safety would be inferior in Alternatives 2A and 2C.
- All three alternatives involve a direct roadway connection to an existing non-WCSU residential neighborhood.
- Alternative 2C is the most similar to the preferred alternative with respect to building/parking configuration, athletic field layout and environmental impacts.

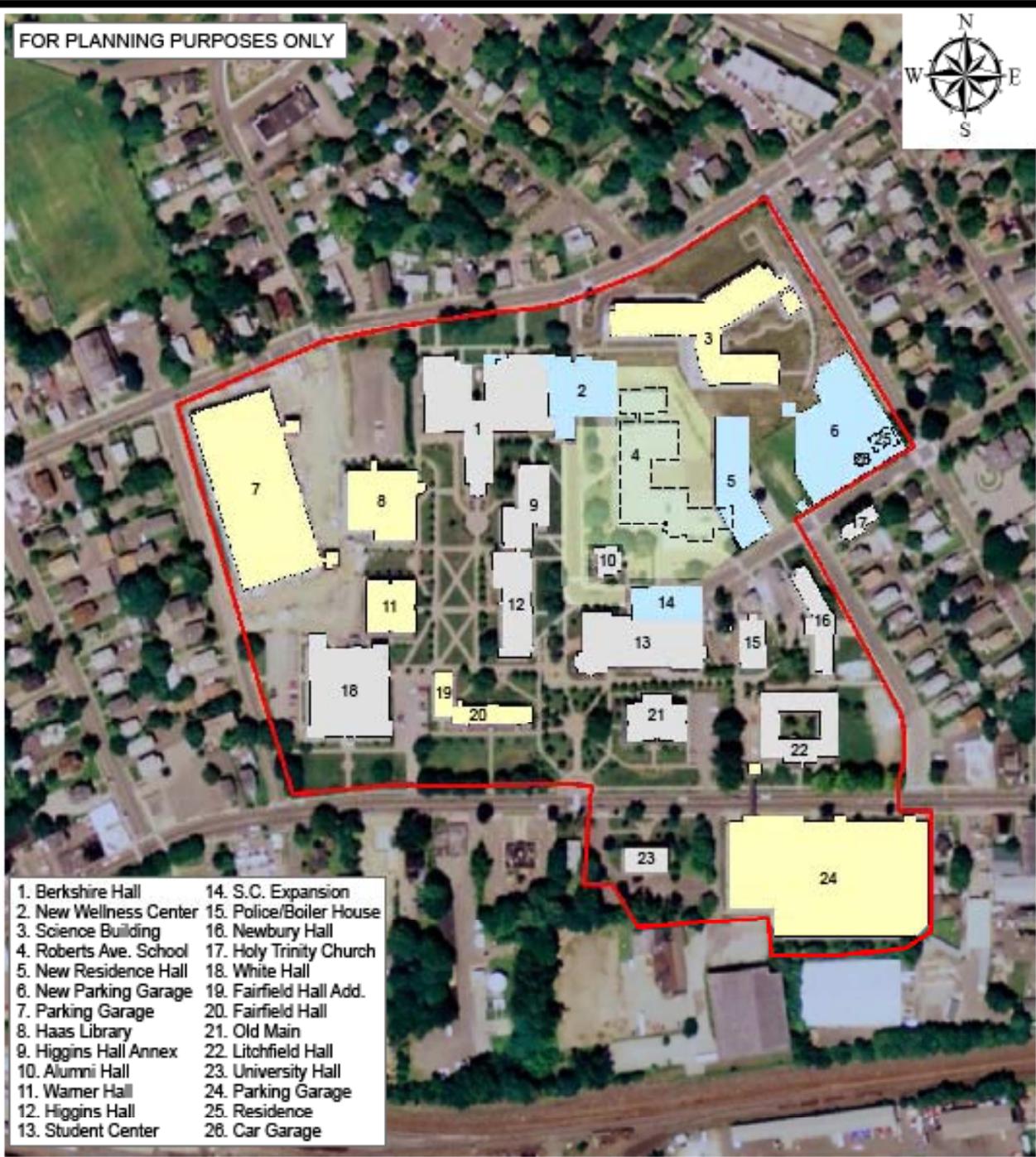
2.4 ALTERNATIVE 3 – PREFERRED ALTERNATIVES

The Preferred Plan was derived from the evolution of the concept alternatives discussed in Section 2.3 above. SMMA reviewed the concept alternatives, and compiled the elements and configurations together that best reflected the WCSU's goals and objectives.

2.4.1 Midtown Campus

The preferred alternative (Figure 2-7) at Midtown Campus is consistent with the goals of the Master Plan in that it provides a cohesive, pedestrian-friendly campus, with vehicular circulation and parking kept to its periphery. The demolition of the vacant Roberts Avenue School is proposed due the cost of code-required upgrades the building would need to undergo exceeding the value of the building and the location of the building. Also, by demolishing the building, existing paved surfaces would be converted to green space.

FOR PLANNING PURPOSES ONLY



- | | |
|------------------------|-------------------------|
| 1. Berkshire Hall | 14. S.C. Expansion |
| 2. New Wellness Center | 15. Police/Boiler House |
| 3. Science Building | 16. Newbury Hall |
| 4. Roberts Ave. School | 17. Holy Trinity Church |
| 5. New Residence Hall | 18. White Hall |
| 6. New Parking Garage | 19. Fairfield Hall Add. |
| 7. Parking Garage | 20. Fairfield Hall |
| 8. Haas Library | 21. Old Main |
| 9. Higgins Hall Annex | 22. Litchfield Hall |
| 10. Alumni Hall | 23. University Hall |
| 11. Warner Hall | 24. Parking Garage |
| 12. Higgins Hall | 25. Residence |
| 13. Student Center | 26. Car Garage |



PREFERRED ALTERNATIVE

Project No:
15.0166140.10

- LEGEND**
- Existing Buildings
 - Proposed Demolition
 - Proposed Renovation
 - Proposed Buildings
 - Proposed Campus Quadrangle

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:
2-7

Baystate Environmental Consultants, Inc.
East Longmeadow, MA / Bloomfield, CT

BASE MAP: Microsoft Virtual Earth Aerial Photo

quadrangle, the land would become permeable and stormwater run-off rates will be decreased on that site.

A new 400-bed, 20,500 S.F. Residence Hall is proposed to go along the eastern edge of the new quadrangle. Adjacent to the Residence Halls, in the corner of the site, along 9th Avenue and Roberts Avenue, a 400-car, 46,000 sf parking structure and associated mini-chiller are proposed to accommodate the students living in the Residence Hall.

Renovations to White Hall, Higgins Hall, Old Main, Alumni Hall, Newbury Hall, Litchfield Hall, Trinity Church and University Hall are proposed and include upgrades and/or replacements of existing heating and cooling systems. At the Student Center, renovations and building addition are proposed.

The proposed 12,000 s.f. Wellness Center is to be added to the existing Berkshire Hall building.

The impacts of the preferred alternative are described in Section 3 below.

2.4.2 Westside Campus

The preferred alternative proposes major vehicular circulation reorganization to allow for the creation of open spaces and the development of clearly defined pedestrian circulation systems. The preferred alternative also proposes to reorganize building and facility locations based on university functionality and program need. The preferred plan has reorganized the campus core in order to create a central quadrangle space. This would require demolishing the existing asphalt parking lots, and re-grading the site in order to meet grades at the existing campus structures and roadways.

The new VPAC will be located on the western edge to the proposed quadrangle, opposite the existing football stadium. One of the two new parking garages will be located north of the VPAC and the parking garage will have a mini chiller plant that will serve Westside campus facilities. The existing Classroom Building and the O'Neill Center will be renovated and will both receive additions.

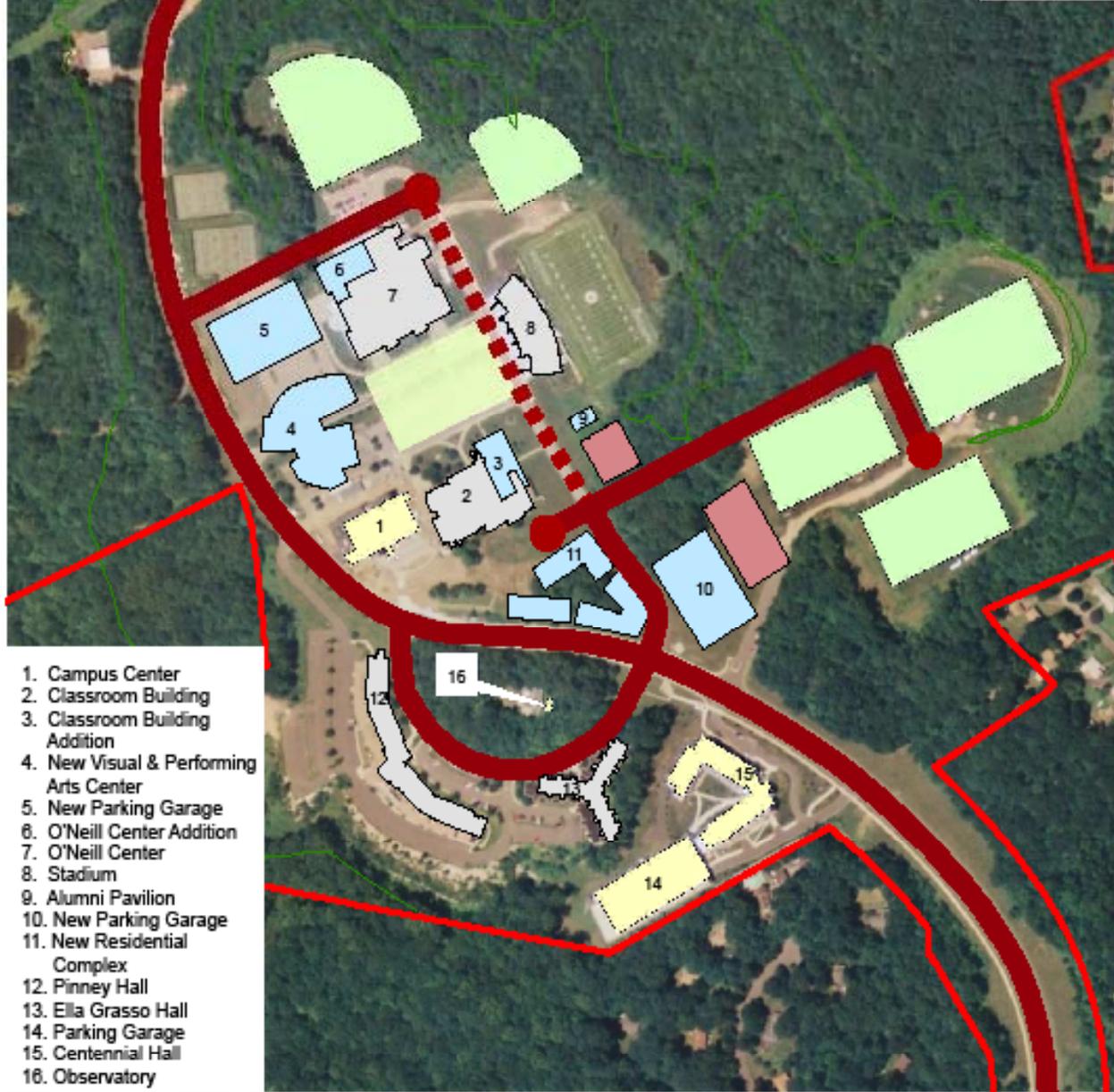
Two new parking structures are proposed to address the increased amount of parking required on campus. One will be at the new VPAC and the other will be located east of the new Residence Hall. The proposed parking structures will minimize the area of surface parking space required. The proposed parking for the Westside Campus totals 1,952 spaces.

Under the preferred plan, the three proposed residence halls are sited close to the existing residence halls in a triangle shaped piece of land where the Access Road split off of University Boulevard. The three buildings would house approximately 394 new beds and will have a mini chiller and dual fuel oil boilers/gas fired boilers in one of the buildings.

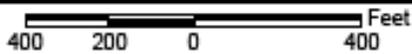
The recreation facilities on the Westside Campus will be reorganized so that the baseball field, softball field, football stadium and tennis courts will be reorganized to create an athletic complex. It is proposed to expand the existing softball field at the north end of campus to size of a baseball field. A new softball field is proposed to be constructed between the new baseball field and the football stadium. At the southeastern end of campus, where the existing baseball field currently is located, a soccer field is proposed to that location.

Under the preferred plan, the Access Road which passes by the football stadium will be extended around the north side of the O'Neill Center and connected to University Boulevard north of the proposed VPAC building. A new secondary road will provide access to the proposed soccer fields. The remaining athletic fields will be relocated in close proximity to each other north of the football stadium.

FOR PLANNING PURPOSES ONLY



1. Campus Center
2. Classroom Building
3. Classroom Building Addition
4. New Visual & Performing Arts Center
5. New Parking Garage
6. O'Neill Center Addition
7. O'Neill Center
8. Stadium
9. Alumni Pavilion
10. New Parking Garage
11. New Residential Complex
12. Pinney Hall
13. Ella Grasso Hall
14. Parking Garage
15. Centennial Hall
16. Observatory



PREFERRED ALTERNATIVE - WESTSIDE

Project No:
15.0166140.10

LEGEND

- Primary Vehicular Route
- Secondary Vehicular Route
- Wetland- Estimated by BEC
- Proposed Surface Parking
- Proposed Renovated Buildings
- Proposed Buildings
- Existing Buildings
- Proposed Athletic Fields
- Proposed Quadrangle
- Property Boundary

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

2-8



Baystate Environmental Consultants, Inc.
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BASE MAP: Microsoft Virtual Earth Aerial Photo

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3 EXISTING ENVIRONMENT AND ANALYSIS OF IMPACTS

3.1 GEOLOGY, SOILS & TOPOGRAPHY

3.1.1 Existing Setting

3.1.1.1 Midtown Campus

Geology

According to the CT DEP GIS layers for Surficial Materials and Quarternary Geology, the north portion of the site is underlain by lake bottom deposits from glacial Lake Danbury, which are sands over fines. The majority of the Midtown campus is underlain by stream terrace deposits, which are also sands over fines. The southern portion of the campus, south of White Street is categorized as floodplain alluvium, with alluvial deposits over fines.

The CT GIS Bedrock Geology GIS layer lists bedrock below the campus primarily as Stockbridge Marble, with a small area of Ratlum Mountain Schist south of White Street.

Soils

Soils on the Midtown campus are primarily identified in the CT DEP GIS Soils Layer as Urban Land for much of the western two-thirds of the campus and area south of White Street. The eastern third of the campus is primarily classified as Udorthents-Urban Land with a small area along the campus' eastern boundary which is classified as Agawam-Urban Land Complex, 0-8% slopes. Agawam soils are well drained soils on outwash plains and terraces and tend to be loams over stratified sand and gravel. Udorthents and Urban Land are typical soil classifications in historically urbanized areas such as that present on the WCSU Midtown campus. In the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) *Soil Survey of Fairfield County, Connecticut*, dated 1981, Udorthents soils are indicated to be “excessively drained to moderately well drained soils that have been cut or filled”, with the top two feet of soil being altered in some way. They are typically on glacial till or outwash and are “dominantly sandy loam, fine sandy loam”, or gravelly versions of such soils.

The portion of campus located along and south of White Street is identified as Urban Land. Urban land is defined in the Soil Survey as “areas where urban structures cover more than 85 percent of the surface” (USDA SCS, 1981). Slopes in these areas generally range from 0-8 percent. No Hydrologic Soil Groups (HSG) are assigned to Urban Land, due to its variability. No new construction or Master Plan activities are proposed in this area.

Each soil series has been grouped based on their hydrologic properties. The USDA defines groups of soils into HSGs according to their runoff-producing characteristics. Soils are assigned to four groups (A, B, C, and D Groups). Group A soils have a high rate of infiltration and therefore a low runoff potential. They typically are deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They may have a hardpan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other nearly impervious material.

Udorthents and Urban Land soils are not provided with a HSG due to variability. Agawam soils are listed as HSG B, although Agawam-Urban Land soils may differ due to development impacts. Because of the lack of a classification for urban soils, available information in the form of boring logs or geotechnical reports were reviewed for areas of this campus to try to better understand subsurface conditions onsite. However, little information was available due to the age of the campus development.

A 1969 study prepared by Philip W. Genovese & Associates entitled *Drainage Study: Western Connecticut State College, Danbury, Connecticut*, conducted a review of available boring information including 90 borings and two test pits conducted by the Department of Public Works and concluded that the borings indicated “glacial deposits ranging in thickness from 65 to 87 feet” overlying bedrock located at elevations ranging from El. 292 to 326 (USGS 1929 datum). The report indicated that materials range in size but were primarily “fine grained granular materials” porous and permeable materials, with the exception of the area of the Student Center and south of the library where materials were silty sands, silts, and clays to a depth of up to 35 feet. The Genovese study also indicated high groundwater levels beneath the campus, due to the lack of vertical relief between the campus and the Still River to the south. Also noted was the presence of footing/foundation drains and sump pumps at many of the buildings to control water and the fact that the various buildings all have differing types of foundations due to subsurface conditions.

Goldberg-Zoino & Associates prepared a report entitled *Geotechnical Engineering Report: Parking Garage, Western Connecticut State University, Danbury, Connecticut* dated 1986, which presented subsurface conditions in the vicinity of the White Street Parking Garage. The report indicate soils in the area to generally be a surficial fill layer, rubble and topsoil over fine sand with some silt and clay varves, and then sand over bedrock. Depth to groundwater at the time of the borings was recorded at eight to fifteen feet, according to boring logs.

Topography

Topography at the Midtown campus is fairly level, with gentle slopes, most on the order of 0-4%. Slopes at the property boundaries along Fifth Avenue and Ninth Avenue are steeper, with the ground surface sloping downward from the street level onto campus, and at the southern end of the property, where the general topography of the area trends downward toward the Still River.

3.1.1.2 Westside Campus

Geology

According to the CT DEP GIS layers for Quarternary Geology and Surficial Materials, the entire Westside campus is underlain by till deposits. The majority of the campus is underlain by “thin till deposits”, while areas at the north end of the campus, flanking the West Lake Reservoir are categorized as “thick till deposits”.

The Bedrock Geology GIS layer shows two main types of bedrock beneath the campus: Hornblende gneiss and amphibolites on the western half of the property, which includes most of the developed campus areas and Pink granitic gneiss on the eastern half of the property, which is largely undeveloped, except for the athletic facilities.

Soils

There are a number of soil types on the Westside campus, according to the CT GIS Soils layer and the county soil survey. Soils at the Westside Campus are listed below (listed with their HSGs). Soils which are classified as Prime Farmland soils are listed in **bold**-type and soils which are classified as Farmland of Statewide Importance are listed in *italics*. However, due to the large degree of earth moving activities in conjunction with development of this campus, it is expected that natural soils have been disturbed and that the listed soil types may not be accurate in many locations. For undisturbed areas of the campus, the soil types are expected to be more representative.

The USDA defines prime farmland as:

“Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The land could be cropland, pastureland, range-land, forest land, or other land, but not urban built-up land or water. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed according to modern farming methods.

In general, prime farmlands have an adequate and dependable water supply, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time. Typically they do not flood during the growing season or they are protected from flooding.”

Many of the areas of proposed construction that are classified as either Prime Farmland or Farmland of Statewide Importance are in locations that are already developed with

Table 3-1. Soil Types at WCSU Campuses

Map Unit	Soil	HSG(s)¹
2	<i>Ridgebury fine sandy loam</i>	D
3	Ridgebury, Leicester, & Whitman soils, extremely stony	D
13	Walpole sandy loam	D
17	Timakwa and Natchaug soils	D
21A	Ninigret and Tisbury soils, 0-5% slopes	B
29C	Agawam fine sandy loam, 8-15% slopes	B
<i>45B</i>	<i>Woodbridge fine dandy loam, 3-8% slopes</i>	C
46B	Woodbridge fine dandy loam, 2-8% slopes, very stony	C
46C	Woodbridge fine dandy loam, 8-15% slopes, very stony	C
47C	Woodbridge fine dandy loam, 2-15% slopes, extremely stony	C
48B	Georgia and Amenia silt loams, 2-8% slopes	B
60B	Canton and Charlton soils, 3-8% slopes	B
<i>60C</i>	<i>Canton and Charlton soils, 8-15% slopes</i>	B
60D	Canton and Charlton soils, 15-25% slopes	B
61C	Canton and Charlton soils, 8-15% slopes, very stony	B
62C	Canton and Charlton soils, 3-15% slopes, very stony	B
62D	Canton and Charlton soils, 15-35% slopes, extremely stony	B
73C	Charlton – Chatfield complex, 3-15% slopes, very rocky	B
73E	Charlton – Chatfield complex, 15-45% slopes, very rocky	B
75E	Hollis – Chatfield- Rock outcrop complex, 15-45% slops	D/B/D
84B	Paxton and Montauk fine sandy loams, 3-8% slopes	C
84C	Paxton and Montauk fine sandy loams, 8-15% slopes	C
84D	Paxton and Montauk fine sandy loams, 15-25% slopes	C
85C	Paxton and Montauk fine sandy loams, 8-15% slopes, very stony	C
108	Saco silt loam	D
273C	Urban-land-Charlton-Chatfield complex, rocky, 3-15% slopes	-/B/B
275E	Urban-land-Charlton-Chatfield complex, rocky, 15-45% slopes	-/B/D
284B	Paxton- Urban land complex, 3-8% slopes	C/-
306	Udorthents – Urban land complex	B/-

¹ Each soil series has been grouped based on their hydrologic properties. The USDA defines groups of soils into Hydrologic Soil Groups (HSG) according to their runoff-producing characteristics. Soils are assigned to four groups (A, B, C, and D Groups). Group A soils have a high rate of infiltration and therefore a low runoff potential. They typically are deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They may have a hardpan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other nearly impervious material.

Italics = Prime Farmland Soils; **Bold** = Farmland Soils of Statewide Importance

pavement, structures, or lawn, or in areas that have been disturbed during earthmoving activities associated with these facilities.

Topography

The Westside campus is set along a hilltop, with the steepest slopes at the margins of developed areas and a significantly sloped access road (University Boulevard). Much of the campus had been cut into the hill and rock cuts and areas of ledge are evident across the campus.

3.1.2 Impact Evaluation

3.1.2.1 Midtown Campus

Construction of Master Plan projects may require excavation, fill, and/or reworking of existing soils, resulting in a greater degree of urbanized soils. As construction is to occur on previously developed areas that have already been reworked, additional reworking or removal of soils at this site will not result in adverse impact. Minimal soil erosion is expected to occur during construction at this campus because the areas to be disturbed are level.

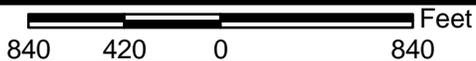
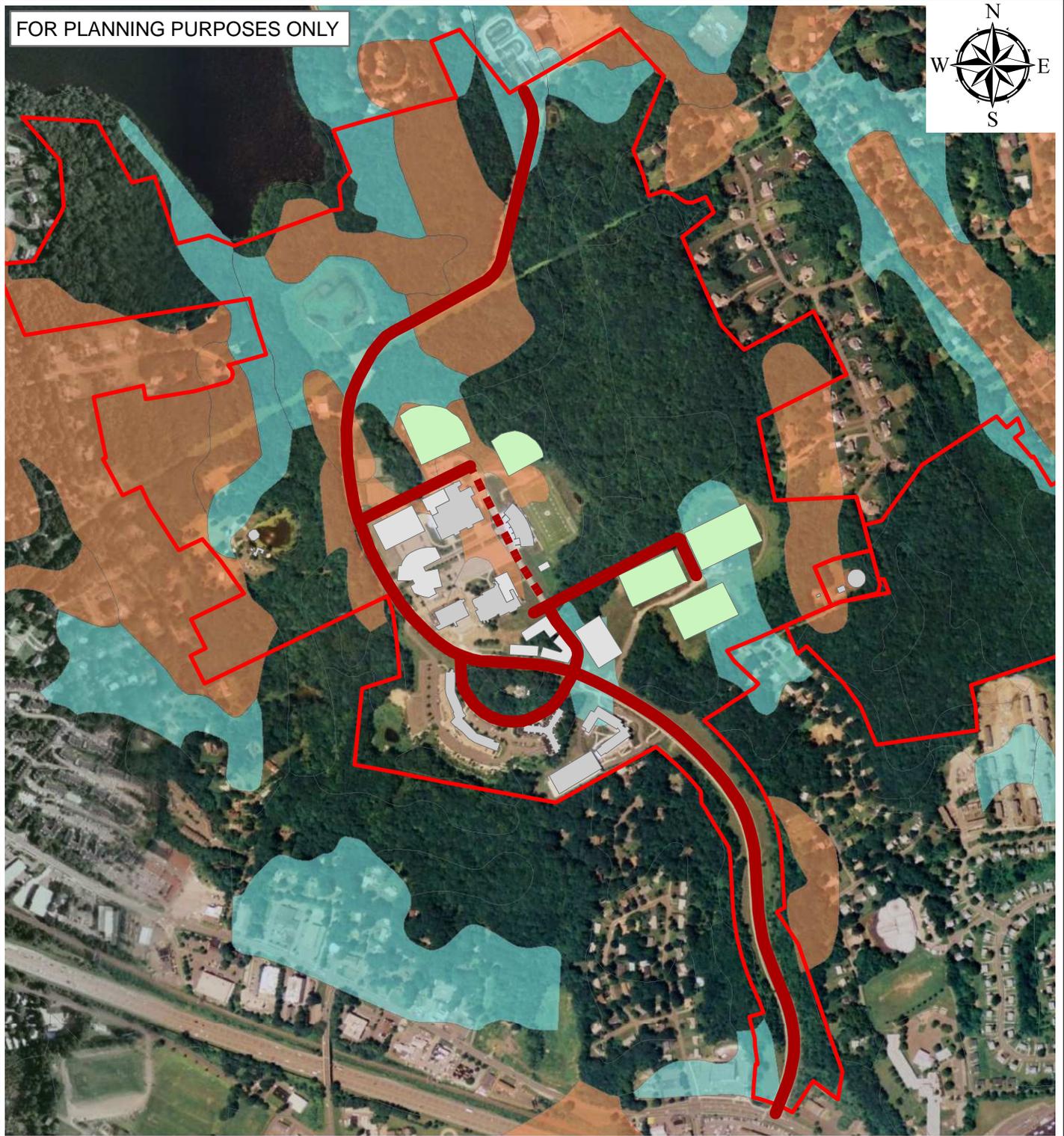
3.1.2.2 Westside Campus

As on the Midtown campus, construction of Master Plan projects will require excavation, fill, and/or reworking of existing soils, resulting in a greater degree of urbanized soils. Due to the presence of shallow and exposed bedrock, construction on this campus may also require rock excavation by means of explosives.

Due to the campus location on a hillside, the potential for erosion and sedimentation to occur is greater than on the Midtown campus. Erosion control measures will need to be designed on a project by project basis to address individual site characteristics.

Master Plan project construction will also result in earth disturbance in areas designated by the SCS as both Prime Farmland and Farmland of Statewide Importance. Almost all of these areas of designated soils which would be impacted by Master Plan development have already been disturbed by previous development at the campus and are currently paved or have been filled/excavated in conjunction with development, as can be seen on the aerial photograph underlying the Farmland soils GIS layer on Figure 3-1. Nevertheless, there are approximately 1.9 acres of Prime Farmland Soils and 1.4 acres of Farmland of Statewide Importance that could be impacted by the construction of the baseball and softball fields. Public Act 83-102 requires that the Connecticut Department of Agriculture reviews state bonded projects that impact 25 acres or more of prime farmland. Because this project would impact far less than this amount of farmland soil and the land is not currently farmed nor is it intended for agricultural use, the impact to Prime Farmland Soils and Farmland of Statewide Importance would not be significant.

FOR PLANNING PURPOSES ONLY



FARMLAND SOILS MAP

Project No:
15.0166140.10

LEGEND

- Prime Farmland Soils
- Statewide Important Farmland Soils
- Estimated Property Boundary
- Existing Buildings
- Proposed Buildings
- Proposed Athletic Fields
- Proposed Major Vehicular Circulation
- Proposed Minor Vehicular Circulation

Western Connecticut State University Westside Campus Danbury, Connecticut

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

BASE MAP: Microsoft Virtual Earth Aerial Photo

Figure No:



Baystate Environmental Consultants, Inc.
East Longmeadow, MA / Bloomfield, CT

Data obtained from Connecticut Department of Environmental Protection. Soil Survey Geographic (SSUR GO) database for the State of Connecticut (USDA, NRCS, 2005).

3-1

3.1.3 Mitigation Measures

Erosion control measures, such as silt fence or haybale filters, will be employed as needed to minimize soil erosion at the proposed construction sites across the campuses. Sites which will involve land disturbance of more than 1 acre will require separate registration forms for a General Permit Associated with Construction Activities which will be prepared and submitted to the Connecticut Department of Environmental Protection (DEP) before construction of each project. Compliance with the General Permit will include a Stormwater Pollution Control Plan (SWPCP) designed to minimize impacts of construction to downstream water resources, including wetlands. The SWPCP will incorporate erosion and sediment control measures that adhere to *the Connecticut Guidelines for Soil Erosion and Sediment Control* prepared by the Connecticut Council on Soil and Water Conservation in cooperation with DEP (2002) and the *2004 Connecticut Stormwater Quality Manual* (DEP). This will include fugitive dust control measures to protect on and off-campus pedestrians and air intake structures.

3.2 WETLANDS

3.2.1 Existing Setting

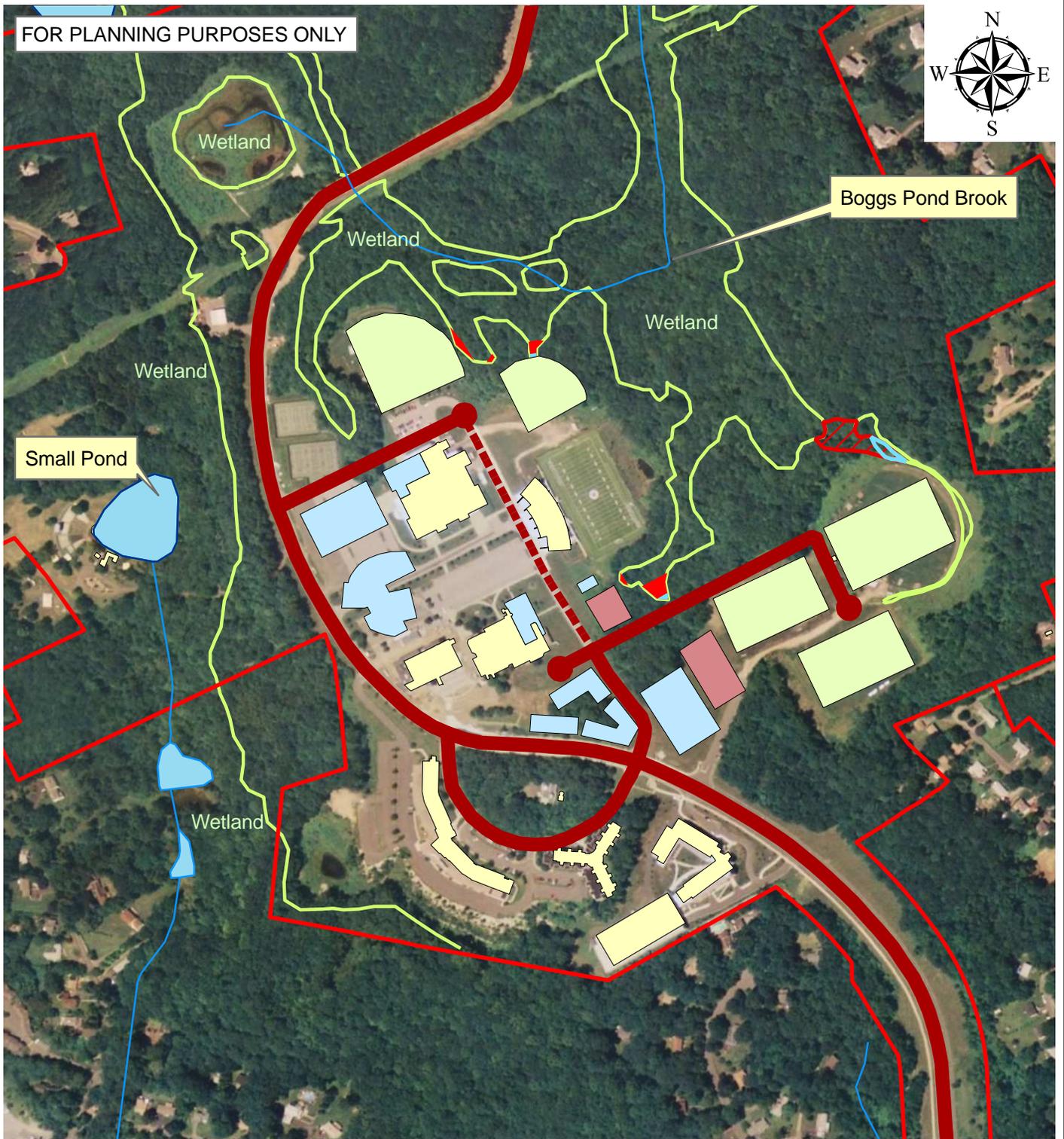
3.2.1.1 Midtown Campus

The Midtown campus is situated in a highly urbanized setting and wetland resources are extremely limited in the area. No regulated wetland areas were found on campus. The closest wetland is a man-made watercourse located on the southern end of this campus that conveys stormwater to the Still River. The functional value of this manmade swale is primarily stormwater conveyance and sediment and toxicant retention.

3.2.1.2 Westside Campus

Based on DEP Wetland Soils mapping and on-site examination by a wetland scientist, wetlands on the Westside Campus are located west, north and east of the developed areas of campus. Wetland soils on site are mapped as the Ridgebury soils type (both fine sandy loam and extremely rocky varieties). Site observations were consistent with the published soils mapping for the site. All wetland systems on campus have similar vegetative composition, density and species diversity. They can all be classified as Palustrine Forested (PFO) wetlands (Cowardin et al. 1979) and/or as Palustrine Acidic Red Maple Basin Swamp and Acidic Red Maple Seepage Swamp (Metzler and Barrett, 2006) natural communities. Approximate wetland limits are shown in Figure 3-2.

FOR PLANNING PURPOSES ONLY



WETLAND IMPACTS

Project No:
15.0166140.10

LEGEND

- Proposed Vehicular Circulation
- Existing Buildings
- Preferred Alternative Buildings
- Proposed Athletic Fields
- Proposed Surface Parking
- Campus Property Boundary
- Wetland Impact, minimized
- Wetland Impact, not minimized
- Minimized - Mitigation Area
- Not minimized - Mitigation Area
- Estimated Wetlands by BEC on 11/23/2009

Western Connecticut State University Westside Campus Danbury, Connecticut

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:



Baystate Environmental Consultants, Inc.
East Longmeadow, MA / Bloomfield, CT

BASE MAP: Microsoft Virtual Earth Aerial Photo

3-2

The primary and largest wetland on the site is associated with an unnamed stream that flows northerly out of a constructed wetland area into Boggs Brook (Figure 3-2) 600 feet downstream of the campus. This wetland is, for the most part, linear and follows the watercourse. It varies in width from 10 feet to over 100 feet. Several drainages also flow into this primary watercourse, creating several finger-like wetland projections from the primary watercourse. In areas where drainages of substantial size enter the wetland, the wetland's width increases. The unnamed stream is 4-8 feet in width with a variable substrate of cobbles, gravel, sand and mud. The overall gradient is moderate (~1%) with some high gradient (>2%) cobble dominated segments located along the channel. The stream was not observed to be flowing during the August, 2009 observations, although some discontinuous wet pockets were found along the channel.

Another wetland on site is associated with the outlet of Small Pond. Here an unnamed watercourse flows southward from the pond and along the western border of the Universities' property to the Still River, 3,800 feet down gradient of the site. This wetland is located at the base of a steep slope and follows the watercourse on both sides. This wetland is long and linear and varies in width from a few feet to 50-75 feet wide. Another small area of forested wetland is located east of the pond, north of the access trail to the Ives Center and west of University Drive.

The dominant vegetation within these systems includes a mature to semi-mature canopy of Red Maple with inclusions of American Elm and Yellow Birch. An average canopy height of the trees is 60 feet and the average diameter at breast height (dbh) of the trees is six to ten inches. Canopy cover is near 90 percent. The understory is moderately dense and consists of Highbush Blueberry and Spicebush. The groundcover layer varies in density due to hydrology and light affecting its degree of cover. Areas with dense vegetation tend to be dominated by Cinnamon Fern, Tussock Sedge and Royal Fern. Sparsely vegetated areas are occupied mostly by Sensitive Fern, Skunk Cabbage, and Jewelweed and are also the wettest areas.

There are some small areas of open wetlands present mainly along road edges. These areas dominated by Cattail, Purple Loosestrife, Jewelweed, Goldenrods, Reed Canary Grass, and Common Reed Grass.

The Westside Campus is situated on top of a hill and for the most part the wetlands surrounding campus are restricted to the toe of slope, along drainage ways where surface and groundwater discharge provide the hydrology.

The transitional areas between the upland and wetland are dominated by a dense groundcover layer of the afore mentioned wetland species, as well as dense patches of Japanese Barberry, sparse patches of Japanese Stilt Grass (both invasive species) as well as Ground Pines (lycophodiums) and Pennsylvania Sedge. The adjacent upland forests area dominated by Red Maple, Sugar Maple, Tulip Tree, Black Birch, Red Oak and Hickory with a moderately dense understory of Japanese Barberry, Burning Bush, Pennsylvania Sedge, Canada Mayflower, Garlic Mustard, Partridge Berry, Marginal Wood Fern, Hayscented Fern and Wood Asters.

3.2.2 Impact Evaluation

3.2.2.1 Midtown Campus

There will be no direct impact to wetland resource areas associated with the proposed work on the Midtown Campus.

3.2.2.2 Westside Campus

The Master Plan would directly impact up to 9,800 sf of wetland for the construction of the baseball field, softball field, athletic field perimeter road and surface parking lot. This is based on the current concept-level plans for these facilities and an engineering standard 2:1 side slope. However, through the use of retaining walls and steep side slopes, direct impacts to wetland could be minimized to approximately 1,300 sf. Figure 3-2 shows the potential wetland impacts associated with the minimized and non-minimized scenarios.

The largest anticipated impact is to a finger-like projection of the larger wetland complex located on the north side of the campus. This direct impact is the result of the filling needed to construct the proposed baseball field, and associated side slopes/retaining wall. The final area of direct wetland impact is associated with the fill slopes required to construct a new access roadway to the soccer field area, located on the east side of the campus, this final area of impact will total 500 sf in area. All 1,300 sf impact is to forested wetland areas, all of which are present because of the drainage contribution from the developed upland areas located on the campus. The area associated with the filling required to construct the two baseball fields will impact a wetland area dominated by red maple and understory species such as Highbush Blueberry and Spicebush. These wetlands are both drainage extensions of the larger, natural, wetland to the north with their hydrology supported from runoff from the upgradient developed areas of the campus. All impacts will be to the leading edge of this larger wetland area, which is highly disturbed with invasive species such as Japanese Barberry, Japanese Knotweed, Japanese Stiltgrass, Garlic Mustard, Multiflora Rose, and Oriental Bittersweet. Impacts to the wetland area associated with the proposed access road will also be to a forested wetland system; however, this area is more natural in character than the other wetland impact site. Impacts in this area will total 500 sf and impact a mature red maple swamp community.

Impacts to wetland functional values will largely be to wildlife habitat, with minor impacts to nutrient removal and floodflow alteration also occurring, particularly under the larger impact scenario.

In addition to the direct impact to wetland resource areas, some secondary impacts will also result from the proposed alternative. The primary one of which is increased light penetration and edge effects from cutting and construction near the wetlands. By removing native forest cover near the wetland, additional light penetration occurs along

the edge allowing pioneer edge species (mostly invasive in nature) to begin to colonize the transition zone between the newly created developed areas and the natural habitats.

As discussed in Section 3.4, the construction of the additional buildings, pavement and the proposed parking garage will also result in an increase in stormwater runoff that may be discharged to the wetland on site at various locations. However, stormwater management systems will be incorporated into the design that will control the discharge of stormwater to the wetlands, as described in Section 3.4. Potential adverse impacts to water quality from stormwater discharges will be mitigated as described in Section 3.4

3.2.3 Mitigation Measures

3.2.3.1 *Midtown Campus*

Since there is no proposed wetland impact, or wetland resource areas, in proximity to the any to the work at the Midtown Campus, no wetland mitigation is proposed for this area.

3.2.3.2 *Westside Campus*

Any work or construction activity within the inland wetland areas or watercourses will be regulated by the Inland Water Resources Division of DEP pursuant to section 22a-39(h) of the CGS. Under the larger impact scenario, work in wetlands will also be regulated by the US Army Corps of Engineers and require a Category II permit.

The project is proposing to replicate the lost forested wetlands on campus and directly adjacent to the same wetland complex impacted. proposed potential replication site is situated in an area that is currently upland habitat and maintained as grassland, near the existing baseball field on the east side of the campus (Figure 3-2). The potential wetland replication site would consist of an area between 2,800 sf and 18,600 sf, depending on the amount and type of impact which would be determined during the design phase. Under the smaller impact scenario, the wetland mitigation would be contained entirely within an area of existing, disturbed, grassland, directly adjacent to the wetland system located behind the existing baseball field. Under the larger impact scenario, this area will be expanded to 18,600 sf and connect the isolated wetland system located behind the baseball field to the larger wetland system to the west, with a created stream channel (watercourse) located within the wetland. Under both scenarios, the created wetland system would be vegetated with a mixture of native shrubs and tree species to replicated lost wetland area and wildlife habitat features, as this is the primary functional value that will be lost from the proposed impacts.

In addition to the propped 2:1 replacement of impacted wetland resource areas, secondary impacts to wetlands will be mitigated for through the control of invasive species along the edges of the remaining wetland areas, where construction has disturbed or significantly reduced the wetland natural buffer. Species targeted for control will be

Oriental Bittersweet, Japanese knotweed, Japanese Stiltgrass, Multiflora Rose, Japanese Barberry, Common Reed and Garlic Mustard.

The impacts to wetlands at the proposed project site are minimal. The potential impact of the stream crossing on fish and other aquatic organisms would be mitigated by a large span of the stream and maintenance of a natural stream bottom.

3.3 GROUNDWATER QUALITY AND RESOURCES

3.3.1 Existing Setting

3.3.1.1 Midtown Campus

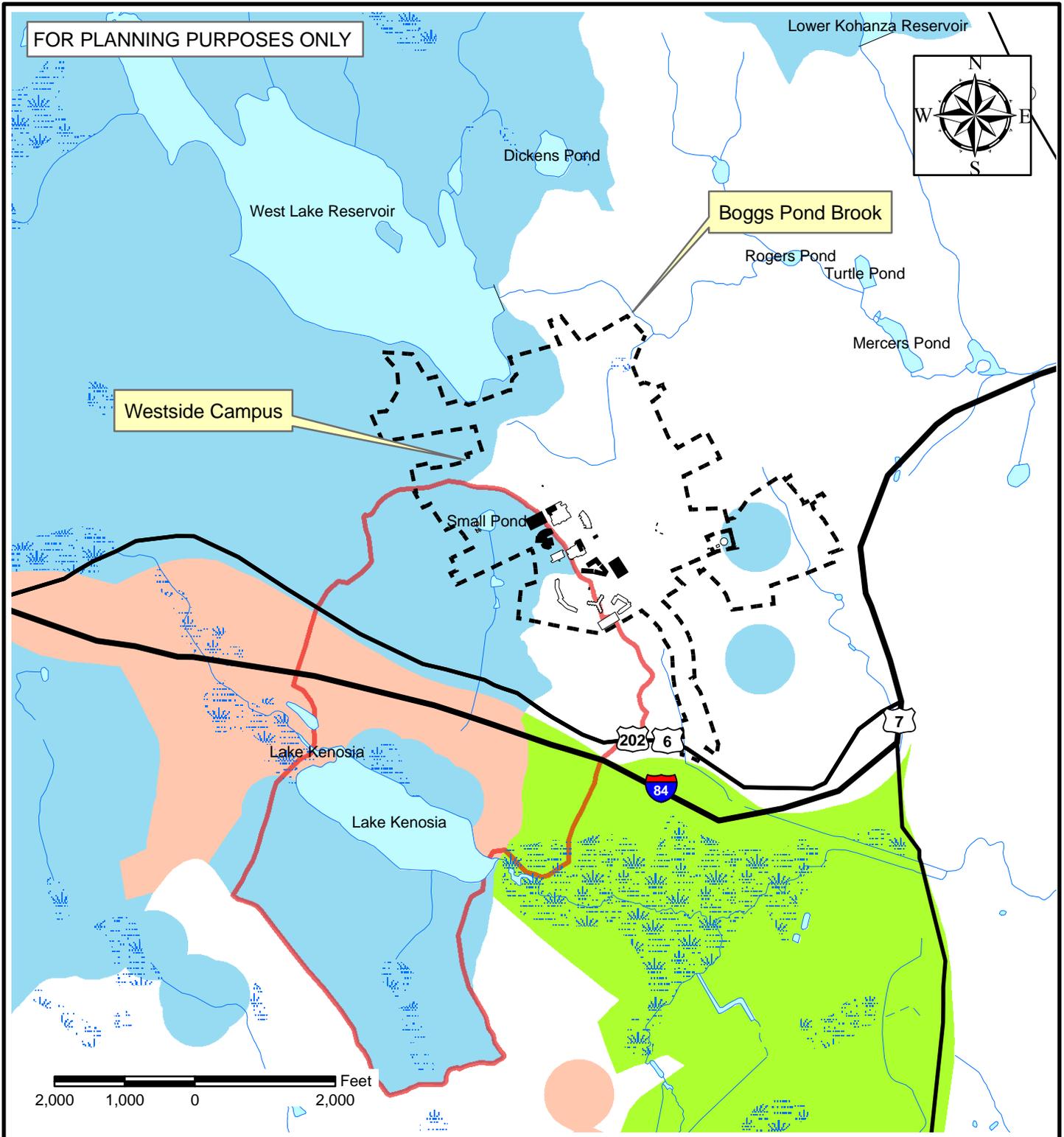
In the vicinity of the Midtown Campus groundwater is located in underlying Still River West Aquifer. The Aquifer encompasses approximately 2.4 square miles of direct recharge area. It is the most urbanized of the aquifers in the region. The City of Danbury noted in 2008 that it planned to eliminate future use of the Still River West Aquifer resource due to its poor water quality. Correspondence from Paul Stacey of DEP to the City of Danbury dated 11/26/2008 states that “Danbury’s Osborne Street Well is no longer an active well, and will not be mapped to Level A Standards” (HVCEO, 2009).

Level A mapping is detailed delineation of the recharge area for a well in a stratified drift aquifer based upon information such as geologic mapping, groundwater observation data, pump test data, and numerical groundwater modeling.

The groundwater below the Midtown Campus has a water quality classification of “GB” according to the DEP GIS mapping. The “GB” classification as defined by the DEP means “ground water within a historically highly urbanized area or an area of intense industrial activity and where public water supply service is available. Such ground water may not be suitable for human consumption without treatment due to waste discharges, spills or leaks of chemicals or land use impacts” (DEP, 2004).

3.3.1.2 Westside Campus

A portion of the Westside Campus is located within an Aquifer Protection Area (APA) and is depicted in the Final Level A mapping for the Danbury Water Department’s Lake Kenosia well field (Figure 3-3). The existing Pinney Hall, Ella Grasso Hall, the parking garage at Centennial Hall and a portion of the Student Center lie within the APA. DEP’s

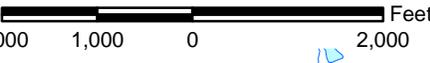


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Westside Campus

Boggs Pond Brook



LEGEND	<u>Water Quality Class</u>	
	GA	Buildings
	GAA	■ Preferred Plan Proposed Bldgs
	GB	□ Existing Buildings
	GC	
	GA, GAA May be impaired	
<u>Aquifer Protection Area</u>		
	□ Final Adopted Aquifer Protection	
	□ Preliminary Aquifer Protection	
	- - Property Boundary	

GROUNDWATER RESOURCES

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Project No: 15.0166140.10
Drawn by: ATR
Checked by: JRB
Date: AUGUST 2010
Figure No: 3-3

Aquifer Protection Land Use Regulations apply only to regulated activities located within the level “A” mapping boundary of a protected aquifer (DEP, 2004).

Groundwater quality in the vicinity of the proposed Master Plan project sites is classified as “Class GA and GAA” according to the DEP Water Quality Classifications and DEP GIS mapping. Two thirds of the entire campus is located within an area in which groundwater is classified as “GA” and one third is located within an area in which groundwater is classified as “GAA”. These water quality classifications were assigned to surface water and groundwater in all areas of the State by DEP. These assignments are based on both the use of potential use of such waters as well as on their known or presumed quality (GIS Data layer, 2002).

The “GA” classification defines areas that are known or presumed to meet water quality criteria which support designated uses including existing private and potential public or private supplies of water and base flow for hydraulically connected surface water. The DEP presumes that groundwater in such an area is, at a minimum, suitable for drinking or other domestic uses without treatment (DEP, 2004).

The “GAA” classification defines areas where ground water is used or may be used for public drinking water supplies without treatment, or groundwater in the area the contributes to a public drinking water supply well, or groundwater in the area has been designated as a future water supply in a individual water utility supply plan (DEP, 2004).

3.3.2 Impact Evaluation

3.3.2.1 Midtown Campus

An overall decrease of impervious surfaces throughout the Midtown Campus will allow for an increase in groundwater recharge through impervious surfaces. Stormwater management and BMPs will be incorporated into the design and construction of the proposed Master Plan.

3.3.2.2 Westside Campus

The VPAC and the new Parking Garage which will serve the O’Neill Center and the New Visual & Performing Arts Center are proposed to be located within the Lake Kenosia Aquifer Protection Area. The proposed VPAC building would include a photo studio with darkroom and chemical storage room will be included in the building. The DEP has established the Aquifer Protection Area Program that identifies critical water supply aquifers and protects them from pollution by managing land use (APA, 2009). The APA regulations state that the activity of photographic finishing which involves the use, storage or disposal of hazardous materials, must have its waste water lawfully disposed of through a connection to a publicly owned treatment works. Also, according to the Amenta/Emma Architects, 25% Design Development Mechanical Narrative (February, 2010), the source of heating and cooling for the new VPAC building may be a closed-loop geothermal system. If installed, a 30 percent propylene glycol solution would pass

through the system in 450-foot deep bore holes. In a phone conversation with Patricia Bisacky of the Department of Public Health, she stated that the DPH does not currently have any regulations pertaining to geothermal, but that the DPH is working with DEP and the Department of Consumer Protection on regulations (phone conversation on 2/24/10). In the interim, the DPH has issued a letter providing guidance, based on recommendation made in a report to the Connecticut General Assembly (DPH, April 26, 2007).

The DEP made a comment in a response to the WCSU Master Plan scoping letter that that the generation of electricity using fossil fuels other than natural gas or propane should not be allowed at the new parking garage on the Westside Campus (DEP, 2009). This statement is presumed to exclude emergency power sources.

The City of Danbury has implemented regulations consistent with the state aquifer protection regulations. The regulations restrict development of certain new land use activities that use, store, handle or dispose of hazardous materials; and they require existing regulated land uses to register and follow best management practices.

3.3.3 Mitigation Measures

3.3.3.1 *Midtown Campus*

To safeguard the Midtown Campus natural resources from potential water quality impacts, a Stormwater Management Plan (BEC, 2011) has been prepared for the Midtown that details measures to minimize non-point source impacts. Such measures include (at minimum) semi-annual street-sweeping, covering materials and equipment stored outside, prevention of discharge of water waters to storm drains and preparation of a “spill control and response plan.” Oil and sediment control structures may be installed along with any new drainage systems. Such measures should ensure that the proposed projects will employ best management practices and adequate mitigation measures for the protection of surface and ground waters. This document will alert the jurisdictional agencies of the proposed project and possible permitting issues. Building to LEED® Silver Standard will probably involve the use of rain gardens and infiltration of roof drainage.

3.3.3.2 *Westside Campus*

The VPAC’s photo center’s photo processing materials will be properly disposed of under the guidelines set forth under WCSU’s Environmental Program’ “Photographic Process Waste Recovery”. The procedures to be undertaken by University personnel in order to manage the waste generated by the photography labs are outlined in the program and will be modified to include the new photo processing lab at the VPAC. WCSU employs the *Metallic Replacement* method for recovering silver from rinse water solutions used in photo processing. The silver recovery unit is located in White Hall at the Midtown Campus. It is expected and recommended that the University add a silver

recovery unit to the Westside campus at the VPAC and eliminate the unit serving this function.

In compliance with the DEP's standard recommendations regarding stormwater collection and treatment for parking garages, runoff from the top, exposed parking level will be directed to a gross particle separator and then eventually conveyed to the an appropriate stormwater management system. Runoff from the interior, lower levels of the garage will be treated by oil and water separators with sufficient capacity prior to being discharged to the municipal sanitary sewer system. A licensed waste oil hauler will clean the tank at least once per year. Maintenance of these structures and the detention basin will ensure that they are functioning effectively to prevent contaminants from being discharged with stormwater.

To safeguard the Westside Campus natural resources from potential water quality impacts, a Draft Stormwater Management Plan (BEC, 2010) has been prepared for the Westside Campus that details measures to minimize non-point source impacts. Such measures will include, at a minimum, semi-annual street-sweeping, covering materials and equipment stored outside, prevention of discharge of water waters to storm drains and preparation of a "spill control and response plan." Oil and sediment control structures may be installed along with any new drainage systems. Such measures should ensure that the proposed projects will employ best management practices and adequate mitigative measures for the protection of surface and ground waters. This document will alert the jurisdictional agencies of the proposed project and possible permitting issues.

As described in Section 3.4.2.2, BMPs in accordance with the *2004 Connecticut Stormwater Quality Manual* will be applied at the site of the proposed project areas to manage stormwater and provide proper treatment of runoff prior to discharge to the wetlands, ensuring that groundwater quality will not be impaired.

3.4 SURFACE WATER QUALITY/STORMWATER

3.4.1 Existing Setting – Surface Water Quality

The West Lake Reservoir is a surface water public drinking water supply reservoir for the City of Danbury and subsequently both of WCSU's campuses. Lake Kenosia surface water is pumped to West Lake Reservoir under rare emergency conditions when the water in West Lake Reservoir is too low.

"The Lake Kenosia diversion is designed as a flood skimming operation and therefore Lake Kenosia storage is not utilized in the calculations of safe yield. The pump station has the capacity to divert up to 9 million gallons per day from Lake Kenosia to West Lake Reservoir, but only during the non-swimming season, and only when West Lake

Reservoir does not fill from other water supply watersheds. The area of Lake Kenosia water supply watershed in Danbury is about 3,020 acres. Additional upland acreages for this watershed are located to the southwest, within adjacent Ridgefield, CT and in adjacent New York State.” (HVCEO, 2009)

3.4.1.1 *Midtown Campus*

The Midtown Campus is within the Still River subregional watershed basin (Figure 3-4). According to the CT DEP *Water Quality Standards* (2002) and associated Classification Maps, the segment of the Still River to which the campus stormwater discharges is listed as Class B in this vicinity. Designated uses for Class B waters include recreational use, fish and wildlife habitat, agricultural and industrial supply, as well as other uses. Discharges to Class B waters are limited to discharges from public or private drinking water treatment systems, dredging and dewatering, emergency and clean water discharges, cooling waters, discharges from industrial and municipal wastewater treatment facilities given that certain treatment is supplied, and other discharges subject to section 22a-430 CGS.

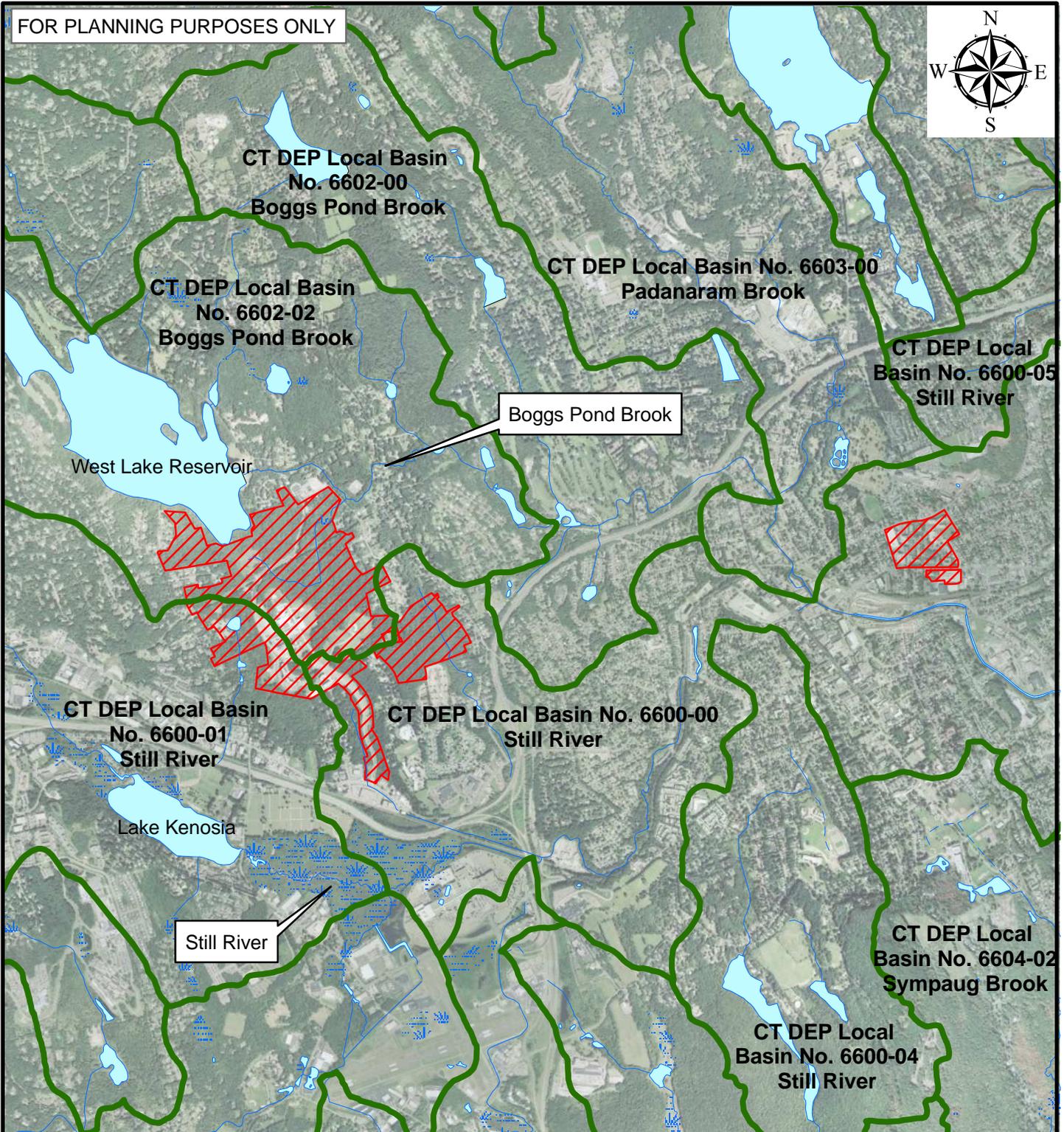
The Midtown campus is relatively flat with sloped areas along the eastern, western, and northern borders. There are no wetlands or watercourses on the Midtown campus. Stormwater is collected via a complex system of drains and pipes, accepting flows from and later joining with the City’s municipal stormwater drainage system before discharging into the Still River to the south of the campus (Figure 3-5). Detailed and general maps of the existing stormwater system are contained in BEC (2010).

The quality, quantity and flow of water that enters the Still River from the campus and surrounding areas is primarily a function of the stormwater system present within and surrounding the campus, therefore it is discussed further below.

The Midtown Campus drains primarily via a complex traditional system of foundation/perimeter drains, catch basins, area/yard drains, trench drains, and manholes with piped connections which discharge to the City of Danbury’s municipal stormwater system before eventually discharging to the Still River just south of campus via a single outfall. The Midtown Campus drainage system is integrated with the local municipal system of the watershed. Stormwater from the surrounding neighborhood and roadway watershed enters the piped campus system at several junctions and appears to be intermingled with the campus stormwater flows. The City system appears to cross the campus at several locations. The campus system then discharges off-campus into the municipal system prior to its ultimate system outfall, a 54-inch diameter pipe outfall at the Still River, just south of the campus.

The most recent available data for the campus stormwater system was obtained from WCSU Facilities in the form of an undated CAD file/plan. Other sources of information regarding the drainage at the Midtown campus include available design reports or project plans for individual facility construction, a 1995 Existing Conditions Survey for the University prepared by Friar Associates, and a historic drainage report dating back to the 1960s. Complete drainage mapping of the City system for this area was not available,

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CT DEP LOCAL DRAINAGE BASINS

Project No:
15.0166140.10

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ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

LEGEND

Local Basins

WCSU Westside Campus Property Boundary

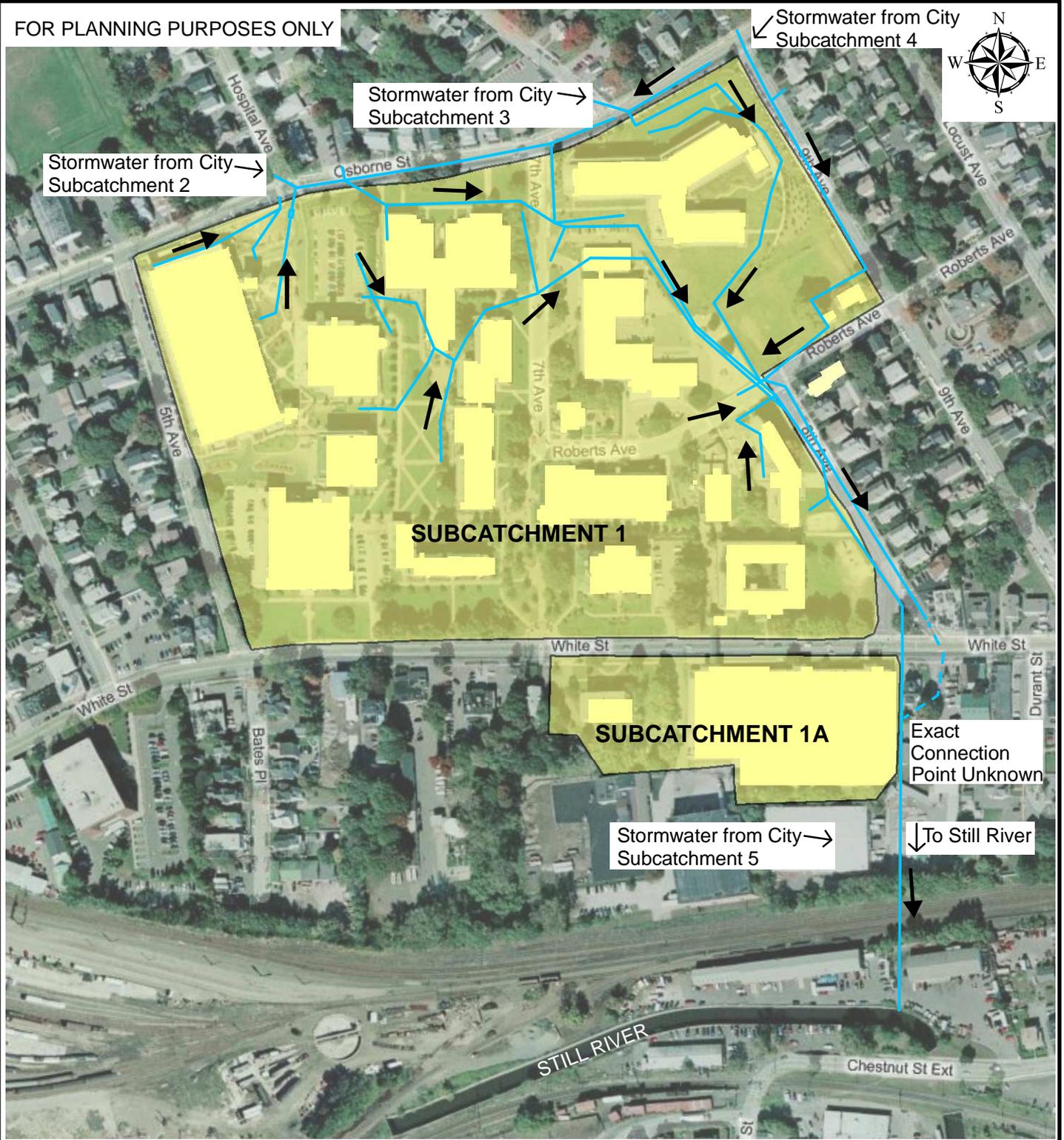
**Western Connecticut State University
Westside & Midtown Campuses
Danbury, Connecticut**

BASE MAP: Microsoft Virtual Earth Aerial Photo

Data obtained from Connecticut Department of Environmental Protection.

3-4

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LEGEND

- Subcatchments
- Stormwater Drainage Lines 15 inches in Diameter and Greater

STORMWATER SYSTEM OVERVIEW

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

Project No:
15.0166140.20

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

3-5

with data limited mainly to manhole and catch basin locations and some piped connection information.

There appears to be limited attenuation for peak flows or provisions for treatment within the current system, due to its age and the reported presence of high groundwater related to the proximity to the Still River. Roof drains and underdrains primarily discharge directly into the piped stormwater conveyance system. Newer development on campus such as the Fifth Avenue parking garage and the Science Building, a LEED Silver certified building, have included provisions for peak flow attenuation and water quality treatment.

3.4.1.2 *Westside Campus*

The Westside campus is divided between two Subregional Drainage Basins: the Boggs Pond Brook Subregional Basin (No. 6602) on the north side of the campus and the Still River Subregional Basin (No. 6600) on the south side of the campus (Figure 3-4). Local Basins are similar, with the north side of campus included in the Boggs Pond Brook Local Basin (No. 6602-02, 3.78 square miles) and the south side of campus divided into two Local Basins labeled as Still River (Nos. 6600-00 and 6600-01).

The only surface water feature on the Westside Campus proper is the pond at the Ives Center on the eastern side of campus, detention facilities constructed on the campus, and wetland and watercourse systems along the eastern side of campus. According to the CT DEP *Water Quality Standards* (2002) and associated Classification Maps, the pond at the Ives Center is a Class AA water and its outlet stream, which leads south offsite toward the Still River and Lake Kenosia and the Still River for this reach is classified as AA. The Still River and Lake Kenosia offsite are classified as B/A and B/AA, respectively.

The West Lake Reservoir, located just north of the campus, is classified as AA. The swale/watercourse that runs north to south just off-campus paralleling University Drive is classified as A. Also classified as A are the wetland/watercourse system on the northeastern portion of campus, which eventually discharges offsite to Boggs Pond Brook (also a Class A water).

Designated uses for Class AA waters are existing or proposed drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply. Discharges are restricted to discharges from public or private drinking water treatment systems, dredging, and dewatering, emergency, and clean water discharges.

Designated uses for Class A waters are potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial use and other uses including navigation. Discharges are restricted to those allowed for Class AA waters.

Class B waters uses and restrictions are as previously stated.

Topography at the Westside campus is steep along the outer margins of the campus and many of the buildings onsite have been constructed/built into the hillside with multi-level entrances to accommodate the slopes onsite. Because of its location on a hilltop, the campus' drainage is divided, discharging to multiple wetlands/watercourses on multiple sides of the hill (Figure 3-6). All of the drainage eventually discharges to the Still River, after passing through tributaries, reservoirs, and other watercourses. General maps of the existing stormwater system are contained in Appendix B.

Similar to the Midtown Campus, the Westside Campus drains primarily via a traditional system of catch basins and manholes with piped connections to stormwater outfalls, with some attenuation for peak flows or provisions for stormwater quality treatment within the system. In addition, unlike the Midtown Campus, this campus has some overland channels and swales as part of its stormwater system. Roof drains and underdrains primarily discharge into the piped stormwater conveyance system.

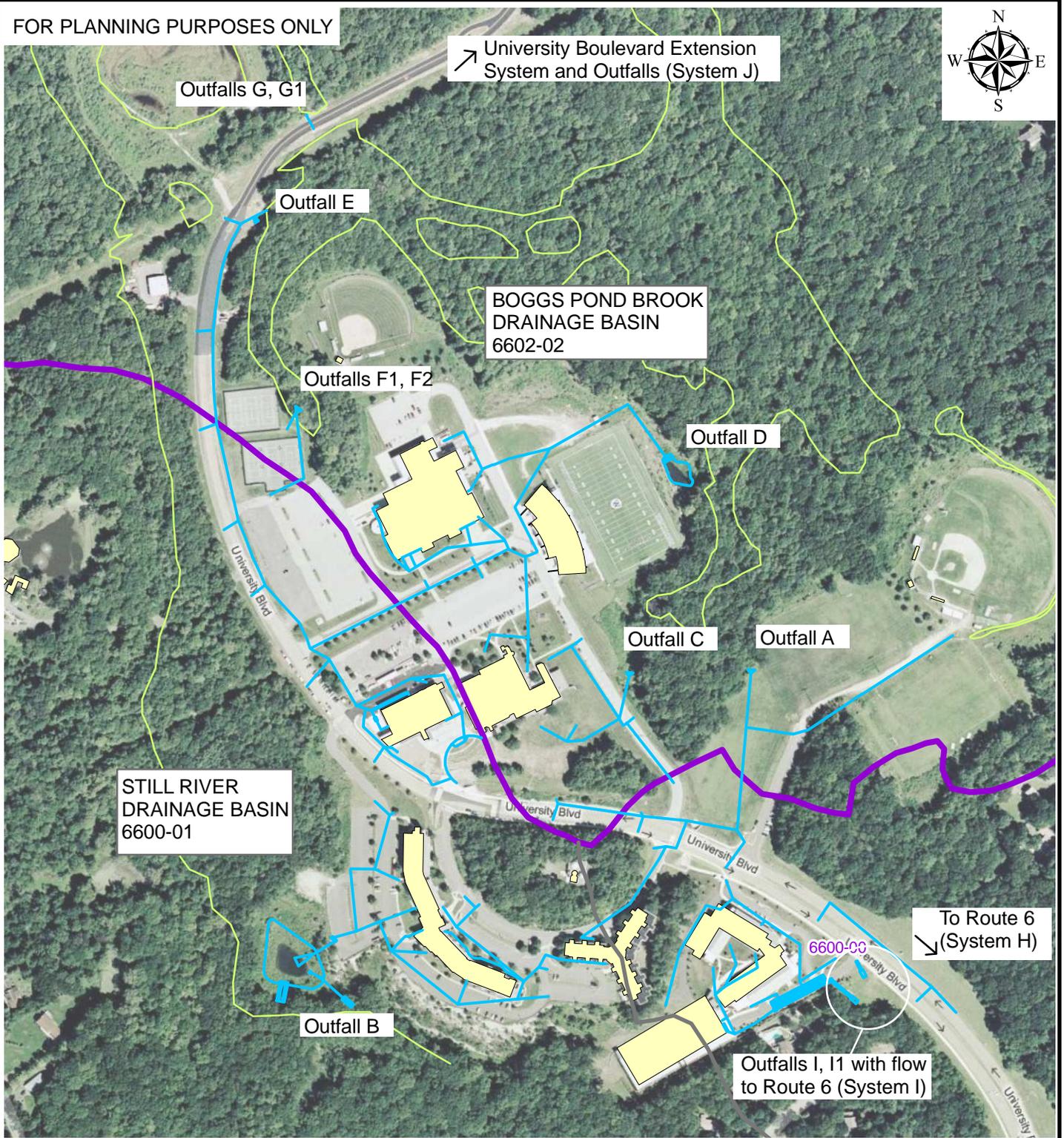
Information regarding the Westside Campus drainage systems was taken from plans associated with individual developments on the campus, including the development of Pinney Hall, Centennial Hall and parking garage, and the extension of University Boulevard. Base information was also taken from the DMJM Harris report prepared the August 2002 entitled *Stormwater Management Plan, Westside Campus, Western Connecticut State University, Danbury, Connecticut*, which was prepared to provide a comprehensive review of the existing stormwater drainage system on the Westside Campus at that time and to provide a plan for the long-term inspection and maintenance of the system.

Due to its location at the top of a hill, the campus drainage systems and outfalls generally do not accept flows from off-property development. Unlike the Midtown Campus which has a centralized system which discharges via a single outfall, the Westside Campus stormwater system is comprised of multiple decentralized systems, each with their own outfall.

The majority of the developed portion of the campus, including areas which are proposed for future Master Plan activities, drain towards a large wetland system and unnamed tributary to Boggs Pond Brook, with a final discharge point at the eastern campus boundary via a six foot wide by approximately two foot high stone box culvert under Middle River Road. Downstream of this crossing, the unnamed tributary watercourse joins with Boggs Pond Brook and passes through additional road crossing culverts and multiple impoundments, including Rogers Pond and Mercers Pond, before joining with Padanarum Brook and discharging to the Still River in downtown Danbury. A small portion of the northern part of the property (mostly undeveloped, with no relevant Master Plan changes proposed) discharges toward West Lake Reservoir, which outlets to what becomes Boggs Pond Brook and is also part of the stormwater discharges toward the Boggs Pond Brook Local Basin.

The western and southern portions of the campus are the only areas which do not flow toward Boggs Pond Brook. No significant Master Plan changes are proposed in this area

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STORMWATER SYSTEM OVERVIEW

Project No:
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LEGEND

-  Existing Buildings
-  Existing Stormwater Drainage Lines Locations
-  Estimated Wetland Boundary
-  Subregional Drainage Basin

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

of campus, which discharges toward the municipal drainage system in Route 6 and the Still River.

In conjunction with more recent development projects on the Westside Campus, provisions for peak flow attenuation and water quality improvements have been made, including the stormwater system designs for the following projects:

- Extension of University Boulevard,
- Construction of Pinney Hall,
- Construction of the new stadium and field, and
Construction of Centennial Hall and its associated parking structure.

3.4.2 Impact Evaluation

3.4.2.1 Midtown Campus

Generally, campus changes over time throughout the life of the campus have removed impervious areas by discontinuing on-campus roadways and removing surface lots in favor of multi-level parking structures. This has resulted in better water quality being discharged from the campus at a slower rate.

Changes in impervious from the present through the Master Plan build-out include:

- Proposed demolition of the Roberts Ave. School and associated pavement and creation of green quad area in its place.
- Proposed discontinuation of Roberts Avenue on campus.
- Proposed discontinuation of the remaining segment of north-south central road on campus, north of Roberts Avenue.
- Proposed construction of a new residence hall and parking garage.
- Proposed construction of addition to Berkshire Hall and construction of addition to Student Center.

The Proposed Condition will result in approximately a 1% reduction in impervious area over the Existing Condition.

A Draft Stormwater Master Plan (BEC, 2010) has been prepared for both campuses to evaluate existing conditions and potential impacts due to proposed development. The Stormwater Master Plan was prepared as a standalone document which presents detailed information about the drainage systems and modeling efforts and is currently in draft format and under review. Results are discussed generally in this EIE.

Due to the proposed decrease in imperviousness in the Master Plan buildout scenario, peak discharge rates and runoff volumes remained the same or decreased for the Midtown Campus for the buildout scenario, as compared to the existing estimates.

Based on these results, mitigation related to increases in stormwater runoff for the Master Plan projects at the Midtown Campus may not be needed. However, water quality treatment for the WQV or one-inch storm over 24 hours, will be required for compliance with the CT Stormwater Quality Manual, as will infiltration for groundwater recharge as appropriate.

The results of modeling conducted for the Midtown Campus and the larger watershed it is a part of show that the reduction in impervious on the campus over time will have a minimal effect on the results for the overall watershed. This is due to the limited changes in land use proposed relative to the size of the overall watershed. The campus is only approximately 20% of the total watershed to the Still River outfall.

The Midtown Campus is relatively flat and does not have any waterbodies, watercourses, or wetlands onsite. The main goal during construction onsite would be to prevent sediment or other pollutants from entering the stormwater drainage system onsite, which discharges to the Still River. To prevent stormwater pollution, the *Connecticut Guidelines for Soil Erosion and Sediment Control* will be followed. Catch basin inlet protection may be used in the form of silt sacks and haybales, the areas of disturbance at any one time limited, and perimeter controls would be installed in the form of silt fence and/or silt fence with haybales. Because of the developed nature of the campus and limited site areas for staging, a sediment basin would most likely not be practical onsite. If turbid water onsite requires settling or flocculents, a structured tank could be brought onsite to use as a settling basin. Small sediment traps could also be considered or the use of geotextile dewatering bags with or without flocculent to remove additional sediment. Stabilized construction entrances and sweeping would also be used to limit offsite tracking of sediments associated with construction vehicles entrance/egress from the site.

The proposed Master Plan development on this campus is projected to reduce impervious areas, thereby reducing peaks and runoff volumes and as such, mitigation for peak flow or runoff volume increases may not be needed. Infiltration would be proposed to the extent feasible to further reduce runoff, based on soil and underlying water table conditions. The use of detention would require a thorough analysis, as detaining stormwater onsite at the bottom of a large watershed with capacity issues could further exacerbate the issue. Water quality treatment would be provided and could consist of a variety of treatment options. The following structural treatment controls would be considered, in accordance with the *Connecticut Stormwater Quality Manual*, with consideration given to Low Impact Development (LID) controls such as:

- *Subsurface infiltration structures or trenches* – Due to the lack of available land, subsurface structures would be required if infiltration was desired. The Roberts Avenue School and its associated pavements will be removed and the area converted into a green quad. This presents a location for potential subsurface

infiltration, as it is near the center of campus, in an area where multiple storm drain lines currently join. The presence of high groundwater in some areas may preclude the use of infiltration.

- *Bioretention, rain gardens, tree boxes* – In conjunction with proposed development, these small stormwater features could be incorporated into the landscape with development.
- *Porous pavement or porous paver blocks for walkways* – New walkways could be constructed of porous pavement or porous paver blocks to further reduce imperviousness.
- *Deep sump hooded catch basins* – For new structures or structures being replaced, deep sump hooded basins should be considered.
- *Water quality swales* – Water quality swales could be considered along the sides of the parking garage, particularly along the eastern side of the garage.
- *Oil/water separator* – An oil-water separator should be considered for all parking garages on both campuses.

In addition, because state facility development over certain monetary thresholds is required to comply with the LEED silver rating, it is expected that many of these and other green techniques will be implemented as part of new development or renovations.

Parking areas are susceptible to stormwater contamination from oils, greases, and other hydrocarbons due to leaks from vehicles. Exposed parking levels will produce a high volume of runoff with relatively low concentrations of pollutants. The interior, covered parking garage levels will produce lower volumes of runoff with relatively high concentrations of pollutants. Deicing chemicals are another source of potential contamination. If runoff is left unmitigated, the proposed parking garage has the potential to result in increased pollution of the receiving watercourse from these contaminants. However, measures as described in Section 3.4.3.1 will mitigate for this concern.

3.4.2.2 *Westside Campus*

Changes in impervious from the present through the Master Plan build-out include:

- Proposed construction of new buildings including a residence hall complex, two new parking garages, additional surface parking, additions to the Classroom Building and O'Neill Center, a new Alumni Pavilion, and new Visual Performing Arts Center, some of which are being proposed on existing paved areas.
- Proposed removal of existing parking lot and replacement with green quad area.

The Proposed Condition will result in approximately a 13% increase in impervious area over the Existing Condition.

As discussed in the impacts section above for the Midtown Campus, a Draft Stormwater Master Plan (BEC, 2010) has been prepared for both campuses to evaluate existing conditions and potential impacts due to proposed development. This document was

prepared as a standalone document which presents detailed information about the drainage systems and modeling efforts and is currently in draft format and under review. Results are discussed generally in this EIE.

For the purposes of the Stormwater Master Plan, each outfall and its associated subcatchment and drainage system were considered separately, with a goal of looking at potential changes to the drainage areas as a result of proposed Master Plan development. For those areas where significant Master Plan activities are not proposed, an Existing Conditions analysis was still completed in order to present a baseline. Existing detention basins were also accounted for to the extent that design information was available.

Based on the modeling results of the Draft Stormwater Master Plan and the estimated increases in impervious area associated with Master Plan buildout, it appears that approximately 3.4 acre-feet of detention storage would be required at the Westside Campus in order to attenuate increases in peak flow rates and increased volumes. Some of this detention may be provided in underground structures in areas where subsurface conditions allow. Other detention may require additional detention basins or expansion of current detention facilities. The design of detention and stormwater would be considered on a campus wide level if possible, in order to allow for more efficient development of stormwater systems. Design of detention and water quality treatment practices would be in accordance with the Connecticut Stormwater Manual, as discussed in the previous subsection.

Infiltration will be utilized as practicable. Site soils are classified as primarily B, C, and D, with shallow depth to bedrock in some areas, so infiltration potential may be limited. In addition to the BMPs suggested above for the Midtown Campus, detention will be needed. Sediment control would also be part of an integrated BMP system to address observed issues relative to sand deposits from winter road maintenance practices. This could include sediment traps, hydrodynamic separators, deep sump catch basins, or other practices designed to control sediment. These features would need to be maintained regularly to maintain their efficiency.

To prevent stormwater pollution, the *Connecticut Guidelines for Soil Erosion and Sediment Control* will be followed. Site specific recommendations are presented in the Draft Stormwater Master Plan. In general, areas on the Westside Campus are either on flat to gently rolling terrain surrounded by steeply sloped areas which direct stormwater toward wetlands or are on the more steeply sloped areas themselves.

Stormwater needs to be controlled on sloped land and not allowed to concentrate and cause erosion. As such, careful planning will be required. If sediment basins are to be constructed, their outlets would be carefully designed to minimize erosion and scour. Existing and proposed catch basins would be protected and perimeter controls used. Areas to be disturbed would be minimized and stabilized as soon as possible to limit runoff and sediment movement. In addition, because of the sloped nature of some areas, additional controls will be required along slopes, such as checks or wattles to prevent hillside erosion after the natural vegetation is removed, minimizing disturbance, and use

of tackifiers or matting to help stabilize slopes and minimize erosion. Stockpiles would need to be located on flat areas, stabilized, and surrounded by appropriate perimeter controls. Vegetative filters would also be used. Stabilized construction entrances and sweeping would also be used to limit offsite tracking of sediments associated with construction vehicles entrance/egress from the site.

Parking areas are susceptible to stormwater contamination from oils, greases, and other hydrocarbons due to leaks from vehicles. Exposed parking levels will produce a high volume of runoff with relatively low concentrations of pollutants. The interior, covered parking garage levels will produce lower volumes of runoff with relatively high concentrations of pollutants. Deicing chemicals are another source of potential contamination. If runoff is left unmitigated, the proposed parking garages have the potential to result in increased pollution of the receiving watercourse from these contaminants. However, measures as described in Section 3.4.3.2 will mitigate for this concern.

Pollutants may include fertilizers and/or pesticides used to maintain the field, oils and greases, sediments, and litter. The potential for negative impacts to water quality will be minimized as described below.

There is the potential for erosion and sedimentation to occur during phased construction of the buildings, athletic fields, and associated infrastructure. Each construction varies in the size of the area that it will disturb. Disturbance of approximately more than 5 acres will occur with construction of the proposed baseball field and associated amenities north of campus.

3.4.3 Mitigation Measures

3.4.3.1 Midtown Campus

The project will comply with stormwater management standards specified in section 25-68d of the CGS and section 25-68h-3 of the RCSA. The design of the drainage system associated with the Master Plan will include oil-water separators, as well as sediment or grit chambers, to reduce potential contamination during storm events.

LEED® certified buildings will likely employ stormwater BMPs in order to fulfill the LEED® Stormwater Management credit. The criteria for this credit are:

“If existing imperviousness is less than or equal to 50%, implement a stormwater management plan that prevents the post-development 1.5 year, 24 hour peak discharge rate from exceeding the pre-development 1.5 year, 24 hour peak discharge rate.”

or

“If the existing imperviousness is greater than 50%, implement a stormwater management plan which results in a 25% decrease in the rate and quantity of stormwater runoff.

In compliance with the DEP’s standard recommendations regarding stormwater collection and treatment for parking garages, runoff from the top, exposed parking level will be directed to a gross particle separator and then eventually conveyed to the detention basin beneath the existing parking garage. Runoff from the interior, lower levels of the garage will be treated by oil and water separators with sufficient capacity prior to being discharged to the municipal sanitary sewer system. A licensed waste oil hauler will clean the tank at least once per year. Maintenance of these structures and other stormwater BMP devices will ensure that they are functioning effectively to prevent contaminants from being discharged with stormwater. The *2004 Connecticut Stormwater Quality Manual* will be consulted during the design of the stormwater drainage system.

During construction at both campuses, erosion and sedimentation control will be applied through the use of BMPs to prevent polluted stormwater from running off and entering surface waters. For construction that will disturb one acre or more of land, SWPCP’s will be developed and maintained on-site at all times to ensure that construction will satisfy conditions under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities, administered by the DEP Bureau of Water Management pursuant to 40 CFR 122.26. The SWPCP will describe measures such as erosion and sedimentation controls to be used on site during construction as well as post-construction stormwater management. A goal of 80 percent removal of total suspended solids from the stormwater discharge shall be used in designing and installing stormwater management measures. The SWPCP will incorporate erosion and sediment control measures that adhere to *the Connecticut Guidelines for Soil Erosion and Sediment Control* prepared by the Connecticut Council on Soil and Water Conservation in cooperation with DEP.

3.4.3.2 *Westside Campus*

The mitigation measures described above will be employed for the Westside Campus as well. Site-specific investigations will be needed for each proposed project so that appropriate stormwater BMPs can be designed and implemented.

The University has an Integrated Pest Management (IMP) program that is used to manage athletic field and landscaped areas. The IMP will be applied to the existing and proposed athletic fields at the Westside Campus in order to reduce the amount of pesticides applied and potentially entering groundwater and/or surface waters.

Although there are no athletic fields at the Midtown Campus, the IMP program will still apply there to all landscaped areas.

3.5 FLOODPLAINS

3.5.1 Existing Setting

3.5.1.1 Midtown Campus

The Federal Emergency Management Agency (FEMA) 500-year flood zones for the Midtown Campus are shown in Figure 3-7. The Midtown Campus is approximately 500 feet from the Still River and is not within the 100-year or 500-year flood zones of the Still River.

3.5.1.2 Westside Campus

The Westside Campus is approximately 0.75 miles from the Still River. The Westside Campus is not located within in the 100-year or 500-year flood zones of the Still River.

3.5.2 Impact Evaluation

3.5.2.1 Midtown and Westside Campuses

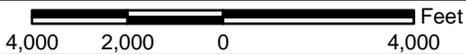
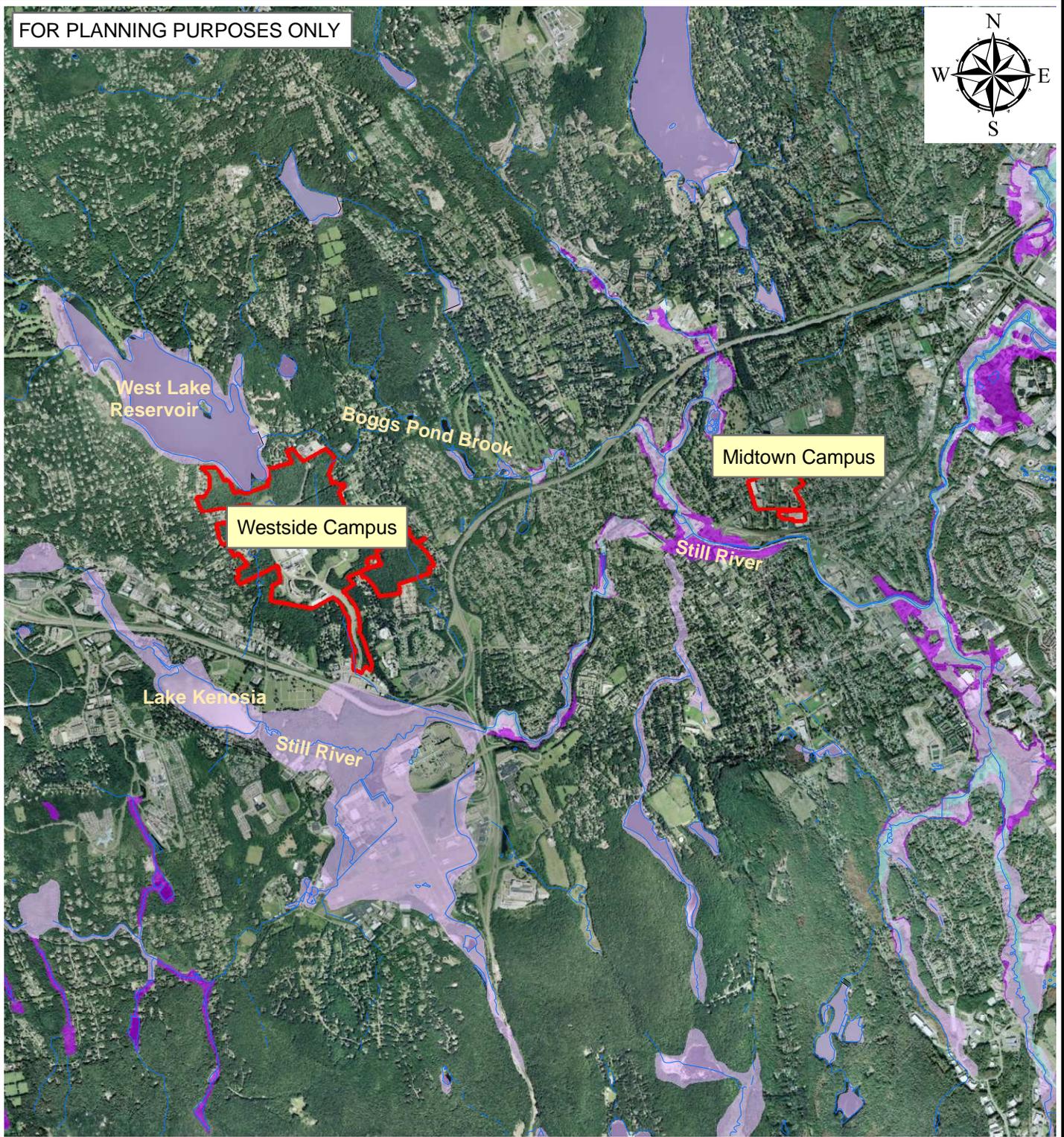
Both campuses are not within any floodplain areas, therefore, construction of the proposed Master Plan projects will not impact floodplain resources.

3.5.3 Mitigation Measures

3.5.3.1 Midtown and Westside Campuses

The Midtown and Westside Campuses are not within any floodplain areas, therefore, construction of the proposed Master Plan projects will not impact floodplain resources and mitigation will not be necessary.

FOR PLANNING PURPOSES ONLY



FLOOD ZONES

Project No:
15.0166140.10

LEGEND

- 100 Year Flood Zone
- 500 Year Flood Zone
- Floodway in Zone AE
- Property Boundary
- River or Shore line

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:



Baystate Environmental Consultants, Inc.
East Longmeadow, MA / Bloomfield, CT

BASE MAP: Microsoft Virtual Earth Aerial Photo

3-7

3.6 FLORA/FAUNA HABITATS

3.6.1 Existing Setting

3.6.1.1 *Midtown Campus*

Wildlife habitat the Midtown campus is extremely limited due to the highly urbanized setting of this area. No natural habitat exists on or within proximity to this campus due to a highly urbanized surrounding area, therefore preventing any inward migration of most wildlife species. On campus landscaped and ornamental trees, many of which are non-native, do provide food, shelter and breeding areas for some small mammals and common passerine birds. Many of species are considered human commensals (not harmful and perhaps beneficial) and/or introduced species. Species which would be expected on campus include: House Sparrow, European Starling, House Finch, Rock Doves (pigeons) and Mourning Doves. Other passerine bird species not typically associated with urban environments, but which have adapted to these areas, such as American Crow, American Robin, Blue Jay, and Northern Cardinal are also likely to be found on campus. The most common mammals at the Campus include Eastern Chipmunk and Gray Squirrel. Due to the lack of wetland resources, waterfowl and herpetofauna (amphibians and reptiles) are not expected to be found on campus.

3.6.1.2 *Westside Campus*

The primary habitats at the Westside campus are Mesic Acidic Forests, Acidic Pond and Lake Shores as well as open water habitats. The Mesic Acidic Forests are dominated by Red Oak, White Oak, Tulip Tree, Hickory and Sugar Maple with a moderate to sparse understory comprised of canopy tree regeneration of Spicebush and Multiflora Rose, with moderate infestations of Japanese Stilt Grass, Oriental Bittersweet, Japanese Barberry and Burning Bush. West Lake Reservoir, a large waterbody that dominates the northern border of the campus, contains deep water lake and lakeshore habitats.

Forested wetlands are fairly common throughout the campus' natural communities which primarily are seepage and alluvial swamps that follow drainage ways in the till derived soils. These swamps can be classified as Acidic Basin Swamps and are dominated almost exclusively by Red Maple with a dense understory of Spicebush, Sweet Pepperbush and Blueberry.

The principal natural communities found on site include:

- Mesic Acidic Forests;
- Acidic Pond and Lake Shores;
- Acidic Palustrine Seepage Swamps;
- Acidic Palustrine Basin Swamps; and,
- Palustrine Aquatic Beds.

Habitat features found within the natural areas on campus include large diameter tree holes which can be utilized as cover, overwintering and shelter habitat for small mammals and birds. Coarse woody debris is abundant throughout the area, and is useful as cover, shelter and overwintering habitat for small mammals as well as herpetiles. Several stone walls transect the wooded areas and also provide the same functions. The open water and littoral habitats associated with West Lake Reservoir are also warm water fisheries habitat and emergent marsh habitat for aquatic and semi-aquatic organisms. This reservoir and the surrounding habitats are the headwaters of Boggs Pond Brook, which is a feeder stream to Kohanza Brook. A second, unnamed perennial stream starts on site at a headwater seep and flows northward, converging with Pond Brook, just north of the campus. The forests on campus are mainly even aged stands, with some larger diameter trees remaining; the mean tree diameter is 12 inches dbh (diameter at breast height).

Species observed during field investigations in 2009 included American Crow, Red Winged Blackbird, Red Tailed Hawk, Blue Jay, Northern Cardinal, Black Capped Chickadee, House Sparrow, Song Sparrow, Downy Woodpecker, Green Frog, Red Backed Salamander, White Tailed Deer, Raccoon, and Striped Skunk. Other species which can be presumed present based on the supporting habitat features include Red Fox, Black Bear, Turkey, and many warm water fishes and other common herpetiles.

The habitat on campus is only moderately fragmented and is still connected to other natural areas to the north. Although extensive forested tracts exist on campus, the extent and configuration of the developed landscape dictate that there is little interior forest that is not currently impacted by edge effects.

This forest patch has a low degree of connectivity within the landscape as only 11% of its boundary is considered connected to surrounding habitat. To the south of the block, wildlife movements are restricted by commercial development along Route 6 and I-84. The remainder of the block's boundary is adjacent to relatively high density residential development.

Overall there is a considerable amount of habitat on site and a moderate degree of fragmentation within the habitat itself. The numerous subdivisions around the edges of the forest lower the overall connectivity score, thus reducing the effectiveness in providing for a good movement corridor through the otherwise developed landscape. Habitat within the area is fairly good, with some invasive species intrusions located throughout.

3.6.2 Impact Evaluation

3.6.2.1 Midtown Campus

Wildlife habitat at the Midtown campus is extremely limited due to the highly urbanized setting of this area, therefore no impacts are expected due to the construction of the buildings associated with the Master Plan. The reduction in impervious surfaces caused by the creation of another quadrangle would have a net benefit, albeit small, to the existing wildlife community.

3.6.2.2 Westside Campus

Construction of the residential hall complex and its associated parking garage and surface lots and the secondary connector road that will serve the new soccer field would impact approximately 1.8 acres of upland forest. Approximately one acre of this is existing forest edge and 0.8 acres is the isolated forest patch at the location of the proposed residential hall complex. The University's largest forest patch would not be fragmented by the Master Plan activities. As such, these impacts will not affect the overall habitat value of the larger habitat block. Impacts to flora and fauna are expected to be localized and mainly affect the local small mammal and passerine bird communities that inhabit this area, most of which are urban adapted species given the layout of the campus and high degree of edge effects that are currently present in this forested area. Impacts will mainly be the loss of nesting, cover and forage for common passerine birds (House Sparrow, Black Capped Chickadee, Tufted Titmouse, American Robin, etc.), and common small mammals (Little Brown Bat, Deer Mouse, etc.). Construction of the new soccer fields, will have no impact on flora and/or fauna as these areas are already maintained grassland and playing fields.

Construction of the new softball and baseball fields near the athletic complex will have minor impacts to flora and fauna proximal to the construction. The vast majority of the work in this area is within the footprint of the existing playing fields; however, some work will extend northward into vegetated areas, with some of this are being wetland resource area. Total forest impacts would be approximately 2.5 acres. These impacts will not have a notable effect on the larger habitat patch; however, will have the localized effect of impacting some passerine bird, small mammal and herpetile habitat in proximity to the proposed work. All impacts will be along the existing edge of the forested area, which is already compromised through dense proliferation of invasive and non-native species. Because the impacts are mainly to edge habitats, this work will not affect forest interior species.

Both areas of impact will also have the potential for secondary impacts, the primary one being the potential expansion of invasive species and other edge effects into areas that were native forest interior.

No impacts are expected to the flora and fauna due to the construction of the VPAC, O'Neill Center addition and Classroom Building addition.

3.6.3 Mitigation Measures

3.6.3.1 Midtown Campus

No mitigation is required for the construction of the buildings associated with the Master Plan. Where practical, native plant species will be used in landscape planting plan to enhance what limited wildlife habitat is present.

3.6.3.2 Westside Campus

There will be minimal impact to flora and fauna of the larger habitat patch as a result of implementing the Master Plan. However, there is potential for a slight increase in invasive species proliferation associated with construction of the new softball and baseball fields because they will be located on the edge of existing wetlands where invasive species density tends to be greatest.

3.7 ENDANGERED, THREATENED, OR SPECIAL CONCERN SPECIES OR HABITATS

3.7.1 Existing Setting

3.7.1.1 Midtown and Westside Campuses

According to the Natural Diversity Database (NDDB) GIS data, neither campus is located in an area of known state or federally listed Endangered, Threatened, and Special Concern species. The nearest identified location for such specie(s) is approximately 4,700 ft to the northeast of the Midtown campus and 3,000 ft to the southeast of the Westside campus..

3.7.2 Impact Evaluation

3.7.2.1 Midtown and Westside Campuses

As the proposed project is located a substantial distance from the nearest area of Endangered, Threatened, or Special Concern species or habitats, no impacts to the aforementioned are expected.

3.7.3 Mitigation Measures

3.7.3.1 Midtown and Westside Campuses

Mitigation measures are unnecessary due to no expected impacts.

3.8 TRANSPORTATION

3.8.1 Existing Conditions

The following is a summary of existing transportation conditions at both campuses. A detailed vehicular traffic analysis is provided in Appendix C and D.

3.8.1.1 Midtown Campus

Air Traffic

The Midtown Campus is not located within the airspace of any airport. The nearest airport is Danbury Municipal Airport located near the Westside Campus.

Vehicular Traffic

The Midtown Campus is located along the north side of White Street between Fifth Avenue and Eighth Avenue (Figure 3-8).

Regional access to the Midtown Campus is from I-84 to the north with various local streets serving as access roads to the campus. In the immediate vicinity of the campus, the local streets include White Street, Osborne Street, Hospital Avenue, Locust Street, Fifth Avenue, and Eighth Avenue. There is no railroad access to the Campus, however the campus is located along an existing bus route.

White Street is an east west roadway beginning at Main Street to the west traveling east past the campus beyond Federal Road where it becomes Newtown Road traveling into the town of Bethel. At the Danbury –Bethel town line there is an interchange with I-84. Development along White Street in the vicinity of the Midtown campus is varied, with the Danbury Superior Court located west of the campus and a wide mix of retail development east of the campus.

Osborne Street is an east west roadway beginning at Maple Avenue to the west extending east past the campus beyond Locust Avenue. In the vicinity of the Midtown Campus Osborne Street is a two lane roadway with additional lanes added at the signalized intersections of Hospital Avenue / WCSU Garage Drive and Locust Avenue. Development along Osborne Street is a mix of residential and commercial.

Locust Avenue begins at White Street at the continuing north through its intersection with Osborne Street and ending at Hospital Avenue in front of Danbury Hospital. In the vicinity of the Midtown Campus Locust Avenue is a two lane roadway with additional lanes added at the signalized intersections of White Street, Osborne Street and Hospital Avenue. Development along Locust Avenue is a mix of residential and commercial. To the north, the combination of Locust Avenue, Hospital Avenue, Tamarack Avenue and Haystown Avenue provide access to I-84 Interchange 6.

Regional access to the Campus is provided via I-84 where the signing directs motorists to Interchange 5 to access the Midtown Campus via Route 53 and White Street. However as noted above, students can and do use Interchanges 6 and 8 to access the campus as well. Turning movement counts were conducted during a midweek morning and afternoon peak period in January 2010 at the following locations (Figure 3-8):

- Signalized Locations
 - White Street @ Eighth Avenue
 - White Street @ Locust Avenue
 - White Street @ Federal Road
 - Osborne Street @ Hospital Avenue
 - Osborne Street @ Locust Street

- Unsignalized Locations
 - White Street @ Fifth Avenue
 - Osborne Street @ Fifth Avenue
 - Roberts Avenue @ Locust Street

24 hour Automatic Traffic Recorder (ATR) counts were conducted at the following locations:

- White Street west of Meadow Street
- White Street west of Fifth Avenue
- Osborne Street west of Fifth Avenue
- Osborne Street east of Locust Avenue
- Locust Avenue north of Osborne Street
- Hospital Avenue north of Young Place

The existing peak hour traffic volumes for each intersection are presented in the traffic flow diagram Exhibit 3 in Appendix C. The existing turning movement count volumes and ATR summary sheets for the study area are included in Appendix C of this report.

3.8.1.2 *Westside Campus*

Air Traffic

The proposed Visual Performing Arts Center Building would be located within the flight path of the Danbury Municipal Airport Runway 17. As such, coordination with the Federal Aviation Administration (FAA) was carried out by the design team. Specifically 49 U.S.C., Section 44718 and Title 14 of the Code of Federal Regulations, Part 77, requires that airspace remain clear for runway approaches. Potential penetrations to airspace must be coordinated with FAA in order to determine if there is a potential hazard to air navigation. The FAA then performs an Aeronautical Study to determine the

object's impact and, through a public information process. If the object is a potential safety hazard, then FAA will dictate mitigation requirements.

Vehicular Traffic

The Westside Campus is located along Route 6 approximately 0.75 miles west of the I-84 Interchange 4 (Figure 3-9).

Access to the Westside Campus is from Route 6. In the vicinity of the Westside Campus, Route 6 varies from a two lane roadway with one lane in each direction to a multi-lane roadway at various locations near intersections. In Connecticut, Route 6 begins in the west at the New York state line, continues eastward past the WCSU campus and then joins I-84 at Interchange 4. All of the signalized intersections in the vicinity of the campus have additional turn lanes provided and between Mill Ridge Road and Segar Street and two through lanes are provided for each direction of travel. The intersection of Route 6 at University Boulevard is signalized with an exclusive left turn lane provided for eastbound traffic and an exclusive right turn lane for westbound traffic turning onto University Boulevard. University Boulevard has two lanes approaching Route 6 at the intersection. The Route 6 corridor in the vicinity of the WCSU Westside campus is heavily developed with a wide variety of commercial, retail and restaurant developments.

Students at the Westside campus are able to access the campus from either interchanges 3 or 4 from I-84 which provides flexibility of access to the site. Based on 24 hour machine counts conducted for this project, the Average Daily Traffic (ADT) for Route 6 the west of the site is 12,600 vehicles per day. To the east of the site the ADT is 18,500 vehicles per day. University Boulevard experiences an ADT of 7,200 vehicles a day. The posted speed limit for Route 6 in the vicinity of the site is 40 mph.

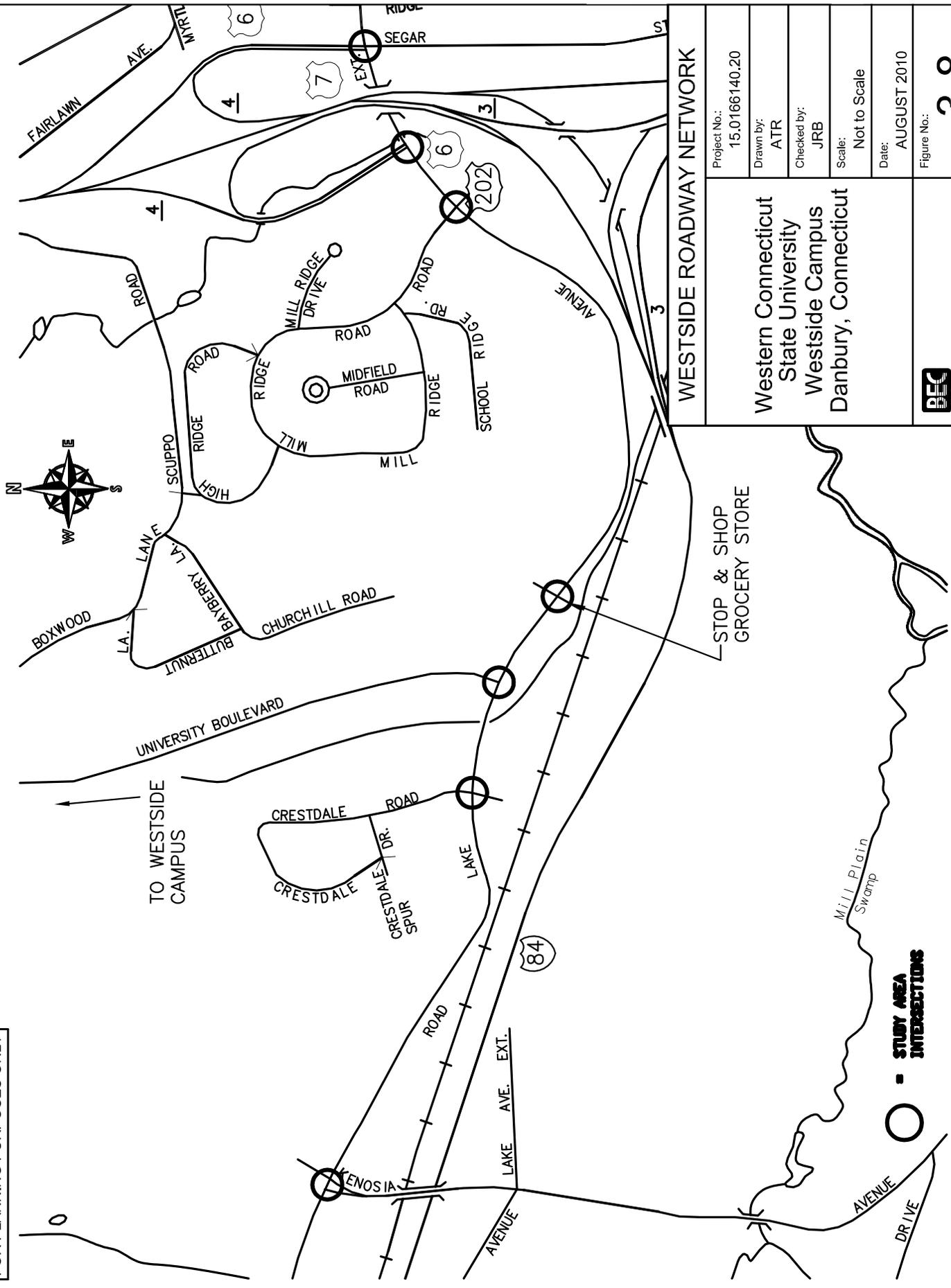
Turning movement counts were conducted during a midweek morning and afternoon peak period in January 2010 at the following locations as shown in Figure 3-9:

- Route 6 at Kenosia Avenue / 7-11 Drive
- Route 6 at Crestdale Road / S&S Drive West
- Route 6 at University Boulevard
- Route 6 at S&S Drive East / Private Drive
- Route 6 at Mill Ridge Road / McDonalds Drive
- Route 6 at I-84 WB Ramps
- Route 6 at I-84 EB Ramps / Segar Street

24 hour Automatic Traffic Recorder (ATR) counts were conducted at the following locations:

- Route 6 east of University Boulevard
- Route 6 west of University Boulevard
- University Boulevard north of Route 6

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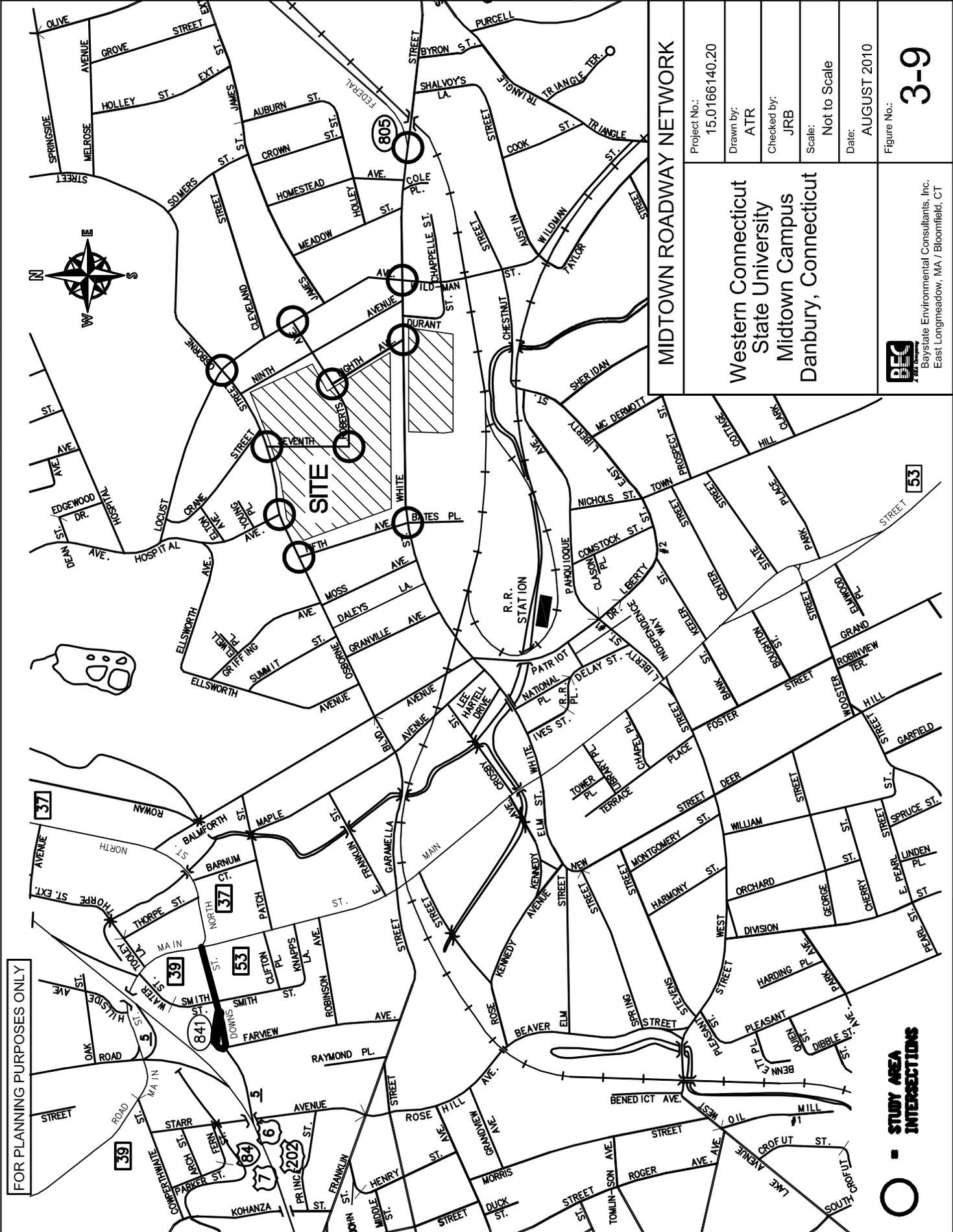


WESTSIDE ROADWAY NETWORK

Project No.:	15.0166140.20
Drawn by:	ATR
Checked by:	JRB
Scale:	Not to Scale
Date:	AUGUST 2010
Figure No.:	3-8

Western Connecticut
State University
Westside Campus
Danbury, Connecticut





The existing peak hour traffic volumes for each intersection are presented in the traffic flow diagrams in Appendix D. The existing turning movement count volumes and ATR summary sheets for study area are also included in this Appendix.

3.8.2 Impact Evaluation

3.8.2.1 Midtown Campus

Air Traffic

The Midtown Campus is not located within any regulated airspace, therefore would not be any impact to air traffic.

Vehicular Traffic

Capacity analyses were conducted for the intersections in the vicinity of the Midtown Campus for the 2015 and 2020 No Build and Build conditions. The Year 2015 is the year of the projected Master Plan buildout year and 2020 is the year that all Master Plan projects are expected to be fully operational.

The traffic volumes for 2015 and 2020 were projected from 2010 traffic counts by using a 1.0 percent per year growth factor to account for normal growth and increase in the student population.

Intersection function is measured by Level of Service (LOS) which measures the amount of delay at an intersection as A-F given the traffic volumes (usually measured during AM and PM peak hours), intersection geometry, and intersection operations (signalized vs. unsignalized). Intersections with LOS A experience very little delay and are free flowing, whereas LOS F intersections are heavily congested and have major delays.

All of the signalized intersections will operate at Level of Service (LOS) D or better during both the morning and afternoon peak hours with the 2015 and 2020 traffic volumes with the exception of: Roberts Avenue at Locust Avenue; White Street at Fifth Avenue; and, Osborne Street at Fifth Avenue.

The Roberts Avenue approach to Locust Avenue will operate at an LOS E during the afternoon peak period, which is considered acceptable for an unsignalized intersection in an urban environment. The unsignalized intersections of White Street at Fifth Avenue and Osborne Street at Fifth Avenue require signalization in order to operate at acceptable levels of service with the 2015 and 2020 traffic volumes. However, these intersections are currently operating at unacceptable levels of service so there is currently a need to improve them through signalization.

If these two locations are improved with signalization, then all intersections studied would operate at an acceptable level of service under all scenarios.

3.8.2.2 *Westside Campus*

Air Traffic

The FAA conducted an Aeronautical Study of the potential effect of the VPAC on aviation safety for aircraft using Danbury Municipal Airport. The maximum height of the structure was determined to be 85 feet above ground level (AGL) (781 feet above mean sea level (AMSL)). A total of nine points along the roof were evaluated and based on this evaluation, the FAA determined that “the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities”. Of the nine points, two would require lighting or markings in accordance with FAA Advisory Circular 70/7460-1K Change 2, Obstruction Marking and Lighting, red lights – Chapters 4, 5(Red), and 12.

The University will be required to complete FAA Form 7460-2, Notice of Actual Construction or Alteration, within 5 days after the construction reaches its greatest height.

Several other proposed Master Plan structures will also need to be coordinated with FAA as these are in or near the Runway 17 glide path. They include: the O’Neill Center Addition, Classroom Building Addition, new Parking Garage and new Residential Hall Complex. Coordination will occur early in the design process so that height and marking design parameters can be determined.

Vehicular Traffic

Capacity analyses were conducted for the intersections in the vicinity of the Westside Campus for the 2015 and 2020 No Build and Build conditions. The Year 2015 is the year of the projected Master Plan buildout year and 2020 is the year that all Master Plan projects are expected to be fully operational.

The Year 2015 Build traffic volumes were projected to the 2020 Build year using a 1.0 percent per year growth factor to account for normal growth in traffic within the study area. Then the long term site generated traffic volumes were added to the 2015 No-Build volumes (without the proposed development) to yield the Year 2015 combined traffic volumes (with the proposed development).

The capacity analysis indicates that all of the intersections will operate at Level of Service (LOS) D or better during both the morning and afternoon peak hours in before and after the Master Plan projects at the Westside campus are completed.

3.8.3 Mitigation Measures

3.8.3.1 Midtown Campus

Air Traffic

No impacts to air traffic would occur therefore no mitigation is required.

Vehicular Traffic

The unsignalized intersections of White Street at Fifth Avenue and Osborne Street at Fifth Avenue would require signalization in order to operate at acceptable levels of service with the 2015 traffic volumes. These intersections, however, currently operate at an unacceptable level of service and the additional traffic generated from the Master Plan would further increase delay at these intersections. As these intersections are influenced by traffic other than that generated by the Midtown Campus, the potential for signalization will be discussed with the City.

3.8.3.2 Westside Campus

Air Traffic

Two of the nine rooftop points of the VPACC would require lighting or markings in accordance with FAA Advisory Circular 70/7460-1K Change 2, Obstruction Marking and Lighting, red lights – Chapters 4, 5(Red), and 12. The University will be required to complete FAA Form 7460-2, Notice of Actual Construction or Alteration, within 5 days after the construction reaches its greatest height.

Similar mitigation measures may be required for other proposed tall structures proposed as part of the Master Plan. FAA will be consulted during the design process for these projects.

Vehicular Traffic

The Master Plan is not expected to have a negative impact on the local roadway system, therefore mitigation is not warranted.

3.9 AIR QUALITY

3.9.1 Existing Conditions

Under the Federal Clean Air Act (CAA) and its associated amendments (42 USC 7401 et seq.) the federal government through the Environmental Protection Agency (EPA) regulates six “criteria” air pollutants:

- nitrogen oxides (NO_x),

- sulfur dioxide (SO₂),
- lead (Pb),
- carbon monoxide (CO),
- particulate matter with a diameter of 10 microns or less (PM₁₀) and 2.5 microns or less (PM_{2.5}), and
- ozone (O₃).

The EPA has established public health and welfare-based National Ambient Air Quality Standards (NAAQS) for these pollutants. The State of Connecticut has in turn adopted its own air standards that mimic the federal ambient air quality standards and are administered by the DEP. Based on the NAAQS, the Connecticut DEP Administrative Regulations for the Abatement of Air Pollution define Primary and Secondary Standards for six major pollutants, as shown in Table 3-6.

Air pollutants are derived from stationary sources and mobile sources. Information on air emissions from stationary and mobile sources was obtained from the *Compilation of Air Pollutant Emission Factors AP-42, Volume I: Stationary Point and Area Sources*, and *Compilation of Air Pollutant Emission Factors AP-42, Volume II: Mobile Sources* (EPA, Office of Air Quality Planning and Standards). The EPA publications are commonly referred to as *AP-42*.

Stationary sources of air pollution are derived from fuel burning equipment used to generate steam, heat, electric power and mechanical power. Natural gas is used to generate industrial and utility electric power, produce industrial process heat and steam, and heat residential and commercial spaces. Emissions from natural gas fired boilers and furnaces include nitrous oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO₂) and particulate matter (PM). Fuel oil is used in boilers to generate heat, steam and electric power. Emissions from fuel oil combustion is dependent on the grade and composition of the fuel, boiler configuration and type, firing practices and level of maintenance. In general, fuel oil combustion generates emissions of sulfur oxides (SO_x), NO_x, and PM.

Under the Connecticut General Statutes (CGS) Section 22a-174-3, the Connecticut DEP Bureau of Air Management requires that equipment with a capacity in excess of 5 million Btu/hr for distillate oil, 1 million Btu/hr for residual oil or solid fuel, or 11 million Btu/hr for natural gas and/or with potential emissions of any individual air pollutant greater than 5 tons per year (TPY) obtain stationary source permits. Emergency engines (i.e., emergency generators) are required to register with the Connecticut DEP under the General Permit to Construct and/or Operate an Emergency Engine if they exceed the same thresholds for rated capacity and/or emissions.

Emissions from mobile sources, i.e., automobiles, principally include CO, NO_x, and VOCs. In hot, sunny weather, NO_x and VOCs can contribute to the formation of ozone on a regional (mesoscale) basis. These pollutants are typically most problematic in the summer and are released to the total VMT.

Table 3-2. CT DEP Adopted EPA National Ambient Air Quality Standards

POLLUTANT	STATISTICAL MEASUREMENT	STANDARD VALUE*	STANDARD TYPE
Carbon Monoxide			
	8-hour Average (1)	9ppm (10 mg/m ³)	Primary
	1-hour Average (1)	35 ppm (40 mg/m ³)	Primary
Nitrogen Dioxide (NO₂)			
	Annual Arithmetic Mean	0.053ppm (100 µg/m ³)	Primary & Secondary
Ozone (O₃)			
	8-hour Average (2)	0.075ppm	Primary & Secondary
	1-hour Average (3)	0.12ppm	Primary & Secondary
Lead (Pb)			
	3-Month Rolling Average	0.15µg/m ³	Primary & Secondary
Fine Particulate (PM_{2.5})			
	Annual Arithmetic Mean (4)	15µg/m ³	Primary & Secondary
	24-hour Average (5)	35µg/m ³	Primary & Secondary
Particulate (PM₁₀)			
	Annual Arithmetic Mean (6)	Revoked	Primary & Secondary
	24-hour Average (7)	150µg/m ³	Primary & Secondary
Sulfur Dioxide (SO₂)			
	Annual Arithmetic Mean	0.03ppm (80µg/m ³)	Primary
	24-hour Average (1)	0.14ppm (365µg/m ³)	Primary
	3-hour Average (1)	0.50ppm (1300µg/m ³)	Primary

*Parenthetical value is approximate equivalent concentration.

(1) Not to be exceeded more than once per year.

(2) To attain this standard, the 3-year average of the fourth highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. EPA is currently reconsidering the 2008 8-hour ozone NAAQS.

(3) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1, as determined by appendix H. (b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

(4) To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-orientated monitors must not exceed 15.0µg/m³.

(5) To attain this standard, the 3-hour average of the 98th percentile of 24-hour concentrations at each population-orientated monitor within an area must not exceed 35µg/m³ (effective December 17, 2006).

(6) Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM₁₀ standard in 2006 (effective December 17, 2006).

(7) Not to be exceeded more than once per year on average over 3 years.

EPA, 2010. (<http://www.epa.gov/air/criteria.html>)

DEP, 2009. (<http://www.ct.gov/dep/cwp/view.asp?a=2684&Q=321796>)

At the microscale level, air quality considerations due to increased traffic include CO emissions. CO is most problematic in the winter, as CO emissions are highest when low temperatures favor the incomplete combustion of gasoline in vehicle engines. The formation of extended queues at stop signs and signalized intersections is a necessary condition for CO concentration to exceed air quality standards. When cars idle in a queue over a period of time, accelerate, and decelerate, they produce emissions in excess of what would be generated if the cars were traveling in an uninterrupted or sporadically interrupted flow.

3.9.1.1 *Midtown Campus*

The DEP has established a network of air quality monitoring stations located throughout the State of Connecticut. Areas of the State are designated as “attainment” or “non-attainment” for particular criteria pollutants based on the monitoring data. Attainment areas show no exceedances of the primary or secondary air quality standards listed in Table 3-6. WCSU is located in Fairfield County which is in severe non-attainment for ozone.

The 2009 Connecticut Air Monitoring Network consisted of 24 stations, which monitor from one to several air pollutants. One of the State’s air monitoring stations is located on top of the parking garage at WCSU’s Midtown Campus. The Danbury WCSU monitoring site objectives include collecting PM_{2.5} FRM measurements for compliance purposes and continuous PM_{2.5} for AQI and forecasting purposes. Ozone is measured as the Danbury site for compliance assessment and AQI and forecasting purposes.

According to the EPA “Green Book”, the entire State of Connecticut is in attainment for CO, nitrogen dioxide (NO₂), Pb, and SO₂, as of October 2005 (<http://www.epa.gov/air/oaqps/greenbk/index.html>). The entire state is designated as nonattainment for 8-hour ozone and portions of the state are in nonattainment for particulate matter (New Haven County, NY-NJ-CT region). The entire State of Connecticut is designated “moderate nonattainment” for the 8-hour ozone standard.

Under the CAA Amendments of 1990, each state was required to develop a Title V operating permit program to permit major sources of air pollution and other sources subject to Federal CAA requirements. As of this writing WCSU is not required to operate under the requirements of the Title V permits (http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322176&depNav_GID=1619).

Emissions generated on the Midtown Campus are from No. 2 oil burning boilers, natural gas furnaces, emissions from vehicles., and other misc. sources. WCSU utilizes the services of several companies to identify energy savings opportunities. The University has decreased it's CO₂ emissions by 147,274 metric tonnes (WCSU, 2008) by choosing to heat with gas when prudent.

3.9.1.2 *Westside Campus*

Emissions generated on the Westside Campus are from No. 2 oil burning boilers, emergency generators and from vehicles on campus. As evidenced by the experience in emissions reductions at the Midtown Campus, there is potential to reduce emissions at the Westside Campus as well; however, obtaining natural gas from Yankee Gas has been studied and determined to be not cost effective (Kohler Ronan, 2007)

3.9.2 **Impact Evaluation**

3.9.2.1 *Midtown Campus*

It is anticipated that emergency power will be needed for the new parking garage which would likely consist of a natural gas generator. Any emergency electrical power generators for the proposed buildings may require an air quality stationary source operation permit as defined under the CGS Section 22a-172-3a. While the generators remain to be designed and specified, it would likely be exempt from DEP air permitting according to the RCSA Section 22a-174-3b(e). The exemption allows operation only during periods of testing and scheduled maintenance at no more than 500 hours of operation during any 12-month period. The University would need to maintain records showing compliance with the new source review exemption requirements.

Carbon monoxide concentrations associated with automotive traffic traveling to and from the campuses would not cause violations of the NAAQS. Also, there is expected to be no significant increase in regional ozone precursor emissions because the projected growth in student population and the new parking garage would not create a significant amount of additional traffic.

Potential air quality impacts associated with the construction proposed in the Preferred Master Plan are related to stationary and mobile sources of air pollutants and potential air pollutants generated by construction activity. Stationary source pollutants would be generated by the fuel burning equipment and vehicles. Mobile sources of air pollution would be associated with automotive traffic. These construction-related air quality impacts which can be caused by exhaust emissions from construction equipment and fugitive dust (e.g., wind-blown dust from the construction area), but will be temporary. Due to the adjacent land uses at both sites, air quality impacts from the construction phase would be mitigated as described in the following subsection.

3.9.2.2 *Westside Campus*

The proposed Master Plan would result in an increase in air emissions, however given that most of the new construction and major renovation projects would be LEED® certified, air emissions would be minimized by one or more of the following measures:

- Use of alternative energy sources such as solar, geothermal, wind, or low-emitting fossil fuels;
- Enhanced building commissioning; and,
- Meeting or exceeding ASHRAE and IESNA standards.

For example, the New Visual & Performing Arts Center’s Schematic Design Submission states that the proposed building may be heated by a geothermal system, with propane, #2 heating oil as a possible supplemental source. Geothermal systems use the heat energy from the earth for heating. According the U.S. Energy Information Administration, propane gas produces 13.7% less pounds of carbon dioxide than Number 2 Distillate Fuel (www.eia.doe.gov/oiaf/1605/coefficients.html, accessed 12/30/09).

Other buildings proposed as part of the Master Plan will consider similar air emission reduction strategies.

3.9.3 Mitigation Measures

3.9.3.1 Midtown Campus

To minimize impacts to air quality during construction, construction equipment emissions will be reduced by limiting the idling time of mobile sources to 3 minutes, in accordance with Section 22a-174-18(b)(3)(C) of the RCSA. In addition, construction equipment with air pollution control devices such as diesel oxidation catalysts or particulate filters, and “clean” fuels (ultra-low sulfur diesel fuel, compressed natural gas or emulsified fuels) will be used to the maximum extent possible.

Several of the USGBC LEED® credits address ways of reducing emissions. The following are LEED® credits that the University may incorporate in the future designs and programming of the Master Plan at both campuses:

- Sustainable Sites Credit- Alternative Transportation: Public Transportation Access
- Sustainable Sites Credit- Alternative Transportation: Bicycle Storage & Changing Rooms
- Sustainable Sites Credit- Alternative Transportation: Low Emitting & Fuel Efficient Vehicles
- Energy & Atmosphere Prerequisite- Fundamental Commissioning of the Building Systems
- Energy & Atmosphere Prerequisite – Minimum Energy Performance
- Energy & Atmosphere Prerequisite- Fundamental Refrigerant Management
- Energy & Atmosphere Credit- Optimize Energy Performance
- Energy & Atmosphere Credit- On-Site Renewable Energy
- Energy & Atmosphere Credit- Enhanced Commissioning

- Energy & Atmosphere Credit- Enhanced Refrigerant Management
- Energy & Atmosphere Credit- Measurement & Verification
- Energy & Atmosphere Credit- Green Power

3.9.3.2 *Westside Campus*

To minimize impacts to air quality during construction, construction equipment emissions will be reduced by limiting the idling time of mobile sources to 3 minutes, in accordance with Section 22a-174-18(b)(3)(C) of the RCSA. In addition, construction equipment with air pollution control devices such as diesel oxidation catalysts or particulate filters, and “clean” fuels (ultra-low sulfur diesel fuel, compressed natural gas or emulsified fuels) will be used to the maximum extent possible.

3.10 NOISE

3.10.1 **Existing Conditions**

3.10.1.1 *Midtown Campus*

Noise produced at the Midtown Campus is limited to that generated by student activities, facilities maintenance, traffic, emergency generators, and heating and cooling equipment. In 2005, letters from nearby residents were sent to the University about the level of noise coming from the exhaust fans on the new Science Building. The University mitigated this problem by installing 4-foot outlet silencers to the roof top units (letter from Accuspec, Inc. to WCSU regarding “West Conn. Exhaust Fans”, dated 8/04/05).

3.10.1.2 *Westside Campus*

Noise produced at the Westside Campus is limited to that generated by student activities, facilities maintenance, traffic, heating and cooling equipment, emergency generators, University-sanctioned sporting events, and Danbury Municipal Airport air traffic.

Motor vehicle traffic from Route 6 and Interstate Route 84 is barely audible on the Westside Campus. Overhead air traffic associated with the Danbury Municipal Airport is infrequent, but certainly audible from the Campus. Other than occasional on-site sound sources such as lawn mowers, leaf blowers or snow removal equipment, there are no significant noise generators in this area.

The nearest sensitive noise receptors to Westside Campus are the residences located near Centennial Hall on College Park Drive, the end of Boxwood Lane near the practice fields and the end of Logan’s Way near the existing baseball fields. According to the University, there has been a history of noise complaints during and after construction of Centennial Hall and the associated parking garage.

3.10.2 Impact Evaluation

3.10.2.1 Midtown Campus

Noise associated with the daily operations of parking garage along Ninth Avenue and Roberts Avenue will be audible from nearby residences. This noise source is expected to be insignificant because the vehicles entering the garage will be traveling at a low rate speed in this area. The only negative impact to neighboring residences is an increased potential for car alarms that could result in negative, albeit infrequent, impacts.

During construction of the Master Plan build-out, there will be an increase in noise generated throughout the campus which may impact local residences. This noise impact will be limited by limiting construction to normal working hours during weekdays.

3.10.2.2 Westside Campus

According to the Preferred Plan, the University's new buildings and facilities will be located far enough away from the surrounding residential areas so as not to have a negative noise impact. The center of the Westside Campus, where most of the new construction will be centered, is approximately a quarter of a mile from the nearest residence; therefore, no long term noise impacts will be expected. An improvement to the noise levels at the existing site of the baseball field activities will likely occur under the new plan because the baseball field will be relocated to a site further away from the residences located on Logan's Way and Boxwood Lane.

Construction related noise at the existing baseball field and practice fields will likely be audible to residents of Boxwood Lane, Logan's Way and College Park Drive. Noise generated from blasting of ledge at the proposed Residence Hall site will likely be audible to surrounding residences. This impact will be mitigated by limiting blasting and construction to normal working hours during weekdays only. Blasting will be done in conformance with applicable regulations and guidelines. The City of Danbury requires that a permit be filed with the Fire Marshall, a pre-blast survey be conducted and all persons within one hundred yards of the "shooting" spot be notified. The Fire Marshall must be notified every day before blasting.

3.10.3 Mitigation Measures

3.10.3.1 Midtown Campus

No significant long term noise impacts from the proposed buildings are expected; therefore no long term mitigation is warranted.

3.10.3.2 Westside Campus

No significant long term noise impacts from the proposed buildings and athletic facilities are expected; therefore no long term mitigation is warranted. Blasting will be done in conformance with applicable regulations and guidelines. Compliance with "Chapter 293-

Excavation, Demolition or Discharge of Explosives” of the CGS is required prior to excavation or discharge of explosives.

3.11 LIGHT

3.11.1 Existing Conditions

There are three kinds of light pollution. Light trespass is light that extends beyond property lines. Skyglow is the garish hue seen overhead from artificial light scattering in the atmosphere. The reflected light masks the background stars and creates a pallid-looking sky. Glare is light striking your eye directly from the source. A veil of light across your field of view reduces the contrast between objects--you can't see as well in the stark brightness (<http://www.nightwise.org/3types.htm>).

3.11.1.1 Midtown Campus

Lighting on campus is associated with street lighting, lamp posts along pedestrian ways, interior and exterior light at the University buildings, residence halls and parking garages. There is nighttime illumination from street lights, businesses and residences found on adjacent parcels and roadways that does trespass onto the Midtown Campus.

3.11.1.2 Westside Campus

Nighttime illumination on the Westside Campus area is associated with the existing high tower lighting at the Athletic Complex and exterior lights at the University buildings, residence halls and parking garage, street lighting along the University's roads and pedestrian way lamp posts. Because the Westside Campus sits on top of hill and is surrounded by a tree buffer, light trespass from the surrounding area is minimal.

3.11.2 Impact Evaluation

3.11.2.1 Midtown Campus

The proposed Residence Hall, Wellness Center and Student Center Addition will be fitted with interior and exterior lighting. Interior lighting should not result in significant light trespass or increased skyglow in the area. Exterior lighting will likely consist of wall-mounted or free standing lights at or near the entrance(s). All new pedestrian paths and vehicular ways will be fitted with lighting similar to the existing lighting on campus. The parking garage will be fitted with lighting that will be cast down and away from the nearby residences.

3.11.2.2 Westside Campus

The proposed Residence Hall Complex, VPAC, O'Neill Center Addition, Classroom Building Addition will be fitted with interior and exterior lighting. Interior lighting should not result in significant light trespass or increased skyglow in the area. Exterior lighting will likely consist of wall-mounted or free standing lights at or near the

entrance(s). Lighting at both parking garages will be interior and exterior. All new pedestrian paths and vehicular way will be fitted with lighting similar to the existing lighting on campus. The relocated sports facilities will continue to have high tower lighting for night time games. All relocated sports facilities will be relocated to sites that already have sport facility there except for the softball field which will be constructed on an empty site between the existing football stadium and baseball field.

For security and safety reasons, parking garages and pedestrian pathways would remain illuminated throughout the nighttime hours. Rooftop and exterior lights will likely be on a timer to conserve energy during the day.

3.11.3 Mitigation Measures

3.11.3.1 Midtown Campus

Residences along Roberts Avenue could be impacted by light spill from lighting associated with the new Residence Hall and Parking Garage. It is recommended that the site layout include tree plantings to minimize the impact. Light impacts can also be minimized through limiting spill light, and utilizing the minimum number of fixtures and the minimum light intensity required to meet public safety and security needs. All light fixtures for the new Residence Hall shall conform to applicable standards and codes for luminescence and energy efficiency.

The preferred plan's proposed buildings will be designed to follow LEED® credits. Requirements set by the USGBC to reduce light pollution. For interior lighting, "the angle of maximum candela from each interior luminaire as located in the building shall intersect opaque building interior surfaces and not exit through the windows". For exterior lighting, the proposed plan will "only light areas as required for safety and comfort". It is required that the exterior lighting does not exceed 80 percent of the lighting power densities for exterior areas and 50 percent for building facades and landscape features.

3.11.3.2 Westside Campus

Light Impacts will be minimized through limiting light spill, utilizing the minimum number of fixtures and the minimum light intensity required to meet public safety and security needs. All light fixtures utilized by University facilities will conform to University standards for luminescence and energy efficiency.

3.12 UTILITIES

3.12.1 Water Supply

3.12.1.1 Existing Conditions

The Westside and Midtown Campuses are served by the City-owned water supply system, which is operated and maintained by the Danbury Water Department (DWD). The City's system consists of eight reservoirs, one well site, two water treatment plants, 14 pump stations, eight storage tanks, 200 miles of water pipe and 1,800 fire hydrants. The current population of customers served by the DWD is approximately 64,000 people. The water distribution has the function of supplying domestic water to the campus and to meet the fire protection responsibility through fire hydrants (Danbury, 2009).

Midtown Campus

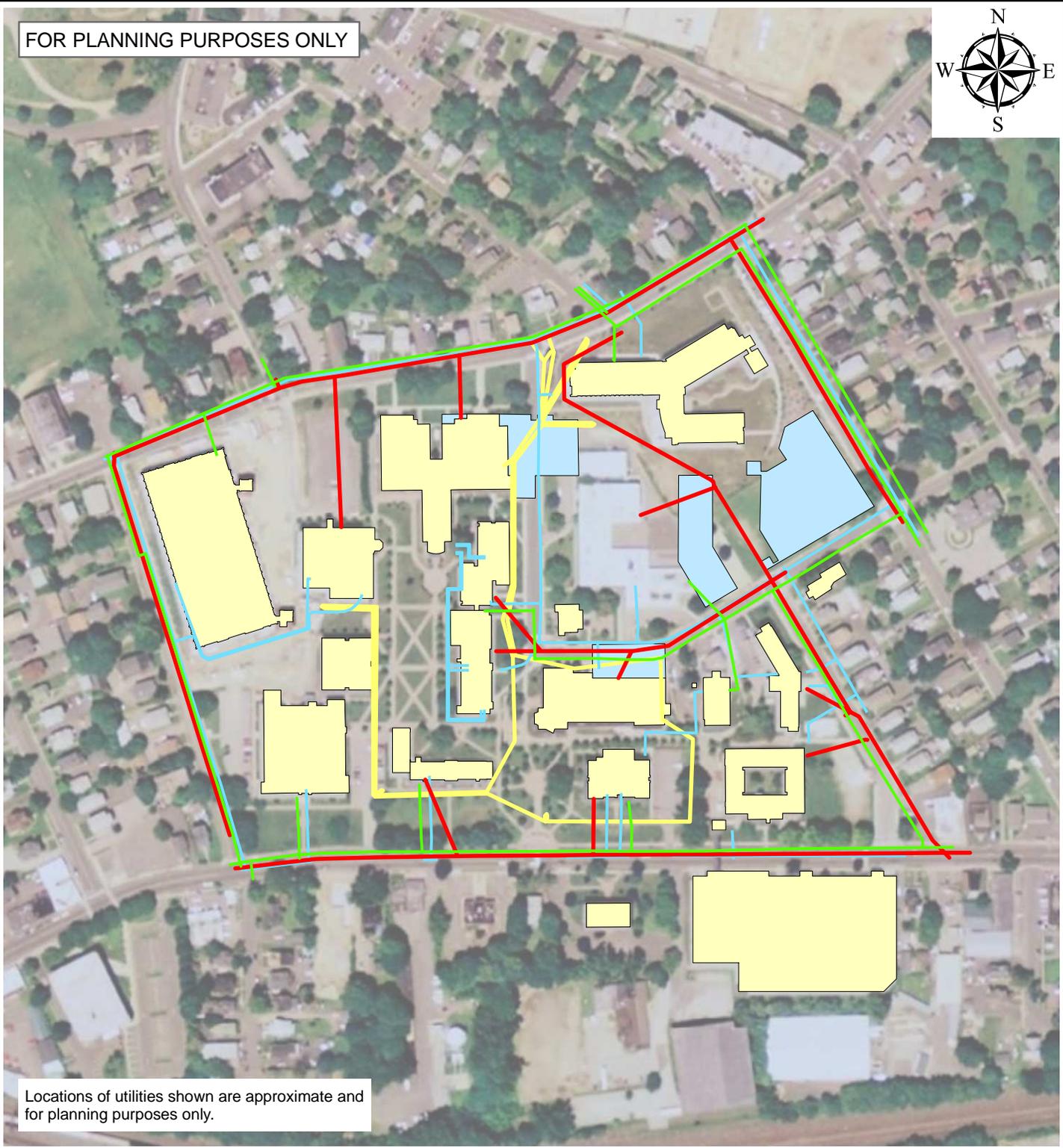
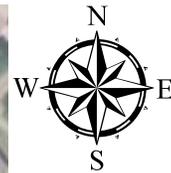
Water mains which supply the Midtown Campus are located in all of the peripheral streets surrounding campus and are shown on Figure 3-10. They consist of an 8-inch main on Osborne Street and 6-inch mains on Ninth Street and Sixth Street and a 10-inch water main on White Street. According to a 1995 Existing Conditions Site Survey, the CSUCSUS in conjunction with WCSU owns and maintains all of its utility lines within its site boundaries (Friar, 1995). According to utility use reports provided by WCSU, from July 2008 to June 2009 the university used 14.1 million gallons of water at both campuses combined. Detailed plans of the water supply system and all utilities are contained in Appendix B.

Westside Campus

The Westside Campus is directly supplied by a pumping station and storage facility located near the eastern limit of the campus. The station presently has both a primary and a back-up booster pump, each with a 300-gallon per minute (gpm) capacity. The layout purportedly allows for the future installation of up to two additional booster pumps. Potable water is pumped to an adjacent 1.5-mg storage tank (elevation 761 NGVD) from the municipal system. Sixteen-inch pipes distribute water to the campus along the full length of University Boulevard and Ella Grasso Drive (Figure 3-11). The average daily demand of the Westside Campus is purportedly near 16,000 gallons, or 6 million gallons annually (Harris, 2000).

There are two water main easements on the campus which supply the City of Danbury with municipal drinking water. A 30-foot wide water line easement crosses the northeast corner of the site and contains a 30-inch water main. A 25-foot wide water line easement for a 16-inch water main crosses the site west to east (Friar, 1995). An 8-inch water line runs along University Boulevard (Luchs, 2006).

FOR PLANNING PURPOSES ONLY



Locations of utilities shown are approximate and for planning purposes only.



EXISTING UTILITIES / PREFERRED PLAN

Project No:
15.0166140.10

LEGEND

Drawn by:
ATR

Checked by:
JRB

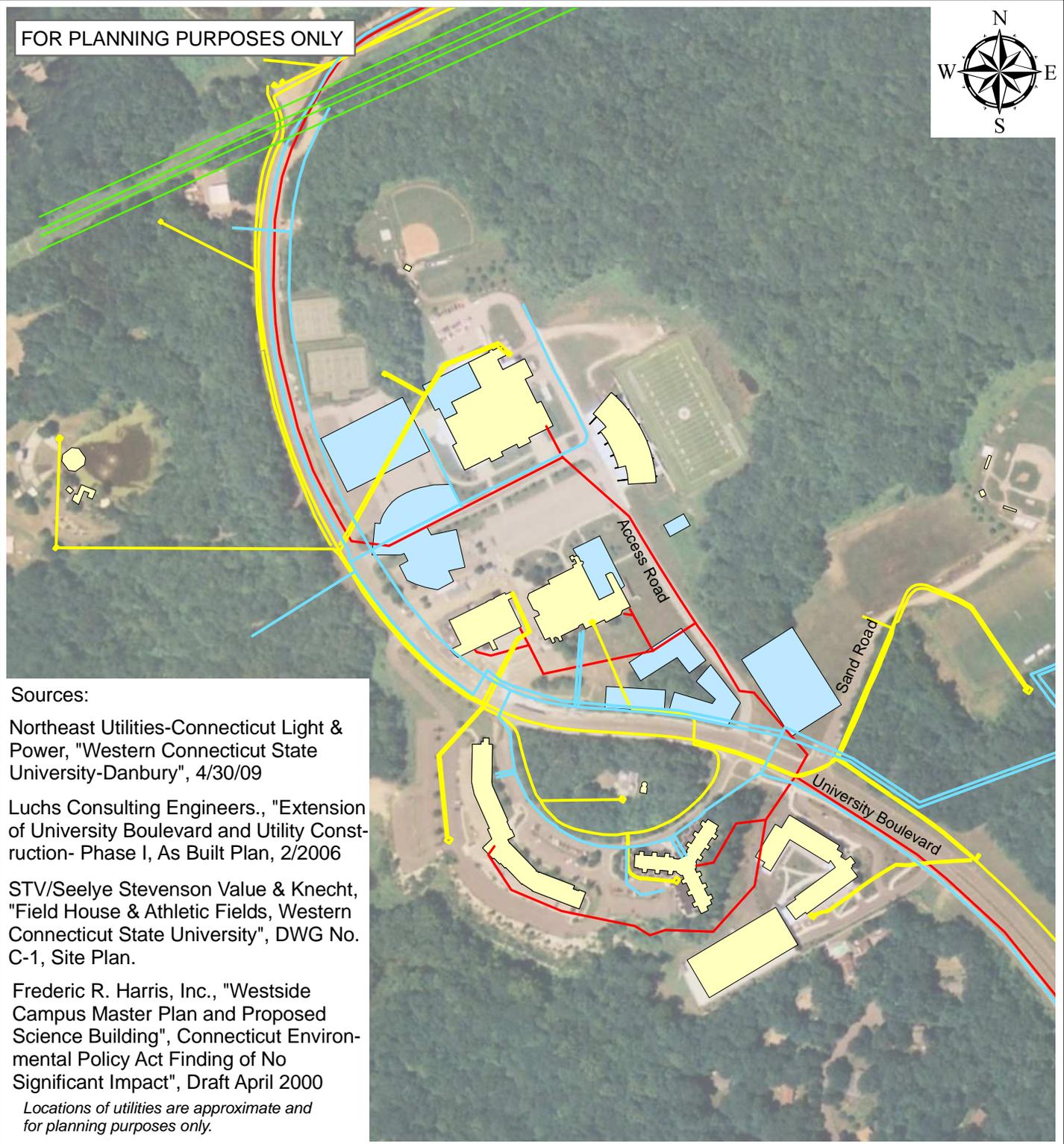
Date:
AUGUST 2010

Figure No:

-  Water Service (Estimated)
-  Electrical (Estimated)
-  Sanitary Sewer (Estimated)
-  Gas Service (Estimated)
-  Existing Buildings
-  Proposed Buildings

**Western Connecticut State University
Midtown Campus
Danbury, Connecticut**

FOR PLANNING PURPOSES ONLY



Sources:

Northeast Utilities-Connecticut Light & Power, "Western Connecticut State University-Danbury", 4/30/09

Luchs Consulting Engineers., "Extension of University Boulevard and Utility Construction- Phase I, As Built Plan, 2/2006

STV/Seelye Stevenson Value & Knecht, "Field House & Athletic Fields, Western Connecticut State University", DWG No. C-1, Site Plan.

Frederic R. Harris, Inc., "Westside Campus Master Plan and Proposed Science Building", Connecticut Environmental Policy Act Finding of No Significant Impact", Draft April 2000

Locations of utilities are approximate and for planning purposes only.



LEGEND

- Water Service (Estimated)
- Electrical Service (Estimated)
- Sanitary Sewer (Estimated)
- Gas Easement (Estimated)
- Existing Buildings
- Proposed Buildings

EXISTING UTILITIES / PREFERRED PLAN

**Western Connecticut State University
Westside Campus
Danbury, Connecticut**

Project No:
15.0166140.10

Drawn by:
ATR

Checked by:
JRB

Date:
AUGUST 2010

Figure No:

3-11

3.12.1.2 *Impact Evaluation*

Midtown Campus

Water service utility lines with and around the footprints of the proposed buildings will be relocated and/or upgraded as needed to support the Master Plan projects.

Water demand for the proposed buildings and fire protection will increase marginally because of the projected number of additional students and faculty during the Master Planning period. According to the University utility records, the water/sewer consumption between July 2008 to June 2009 was approximately 14 million gallons per year with approximately 6,617 total students attending, which translates to 2,127 gallons per year per enrolled student.

According to the Master Plan (SMMA 2007), the student body population was expected to increase to approximately 6,652 by 2015. That projected population has almost been reached by 2010, therefore it is expected that the original projections were low. Nevertheless, depending on the number of students in 2015, the water demand/wastewater discharge is expected to increase nominally at the rate of approximately 2,000 gallons per student.

As part of the LEED® certification, water and sewerage usage will likely reduction due to efficient design such as low flow water fixtures and xeriscape landscaping.

Westside Campus

The increase in water and sewage usage is covered in the previous sub section for both campuses.

As with the Midtown Campus, water service utility lines with and around the footprints of the proposed buildings at the Westside Campus will be relocated and/or upgraded as needed to support the Master Plan projects.

3.12.1.3 *Mitigation*

LEED® certification is anticipated for all new buildings which have construction costs of \$5 million or more, or buildings with renovation costs exceeding \$2 million. Water Efficiency (WE) credits which the University may incorporate into the new buildings specified in the LEED® 2.2 version rating system include the following:

- WE Credit 1 Water Efficient Landscaping
- WE Credit 2 Innovative Wastewater Technologies
- WE Credit 3 Water Use Reduction

3.12.2 Wastewater

3.12.2.1 Existing Conditions

Both the Midtown and Westside Campuses utilize the City of Danbury's municipal sanitary sewer system.

Midtown Campus

At the Midtown Campus, wastewater is discharged from campus to the City's municipal sanitary sewer system. Wastewater from the campus is carried via an 18-inch sewer trunk southward down Eighth Avenue to a sewer pipe under White Street and then is eventually carried to the City's wastewater treatment plant. Sewerage from individual buildings in north end of campus and from the residential section north of campus is collected via a 12-inch pipe under Osborne Street which ties into the same 18-inch sewer trunk under Eighth Avenue.

Effluent from both campuses is conveyed to Danbury's Water Pollution Control Facility located on Filtration Plant Road approximately two and half miles from the Midtown Campus. After receiving treatment, wastewater is discharged from the plant into the Still River. Solids removed by the treatment process are deposited at the nearby municipal composting site (Harris, 2000).

Westside Campus

At the Westside Campus, sanitary discharges presently consist of sewerage from all of the existing buildings. The O'Neill Center periodically releases quantities of swimming pool water, under permit issued by DEP. An existing 18-inch sewer trunk carries effluent southward down University Boulevard to a 24-inch interceptor under Route 6 (Harris, 2000).

3.12.2.2 Impact Evaluation

Midtown Campus

A sanitary sewer line which runs under Roberts Avenue, north of the Student Center, will need to be relocated due to the proposed construction of the Student Center Addition. The sewer connection which services the Roberts Avenue School will be demolished. The new Residence Hall footprint falls within approximately five feet of the existing 18-inch City sewer trunk which bisects campus and, therefore, may need to be relocated.

Westside Campus

Existing sanitary sewer utilities will need to be relocated around the proposed footprint of the new Visual & Performing Arts Center. Sanitary sewer pipes which leave the Classroom Building and the Campus Center and flow east to a sewer line along the access road will need to be relocated around the proposed footprint of the new Residence Halls.

3.12.2.3 *Mitigation*

Midtown and Westside Campuses

The University will implement LEED® standards during its design and construction of the Master Plan's individual buildings with construction costs of greater than \$5 million. Implementation of one or more of the following LEED® Water Efficiency Credits will help to mitigate any negative impacts the Master Plan may have to the waste water service:

- Water Efficient Landscaping
- Innovative Wastewater Technologies
- Water Use Reduction

3.12.3 **Electricity & Telecommunications**

3.12.3.1 *Existing Conditions*

The University is serviced by Connecticut Light & Power (CL&P). CL&P, a wholly-owned subsidiary of Northeast Utilities Service Company, provides retail electric services to almost 11 million customers in the State.

Midtown Campus

There are two electrical services that enter the Midtown Campus feeding individual transformers. The *University Utility Assessment by Kohler Ronan, LLC* describes the existing mechanical and electrical systems for each of the buildings on the Midtown Campus as sufficient (Kohler Ronan, 2007).

In 1998 WCSU completed a capital project to upgrade the primary electrical service for the campus and relocate the electrical service from above ground to below ground. CL&P installed, and will maintain and repair, the permanent electrical power service to the campus within a utility easement (Harris, 2000).

Fiber optic communication lines are distributed to all of the buildings on Midtown Campus from Old Main. Each building is provided with at least eight multi strand fibers and four single strand fibers. Some of the fiber strands run through an old utility tunnel which runs from Old Main to Higgins Hall (conv. William Aust, 1/27/09). At the time of this EIE there was no mapping available showing the individual communication lines.

Westside Campus

CL&P provides electrical service to the campus with a 13.8-kilowoltkilowatt, three-phase, 3 #4/0 aluminum cable that enters the Campus property along its eastern property line near Middle River Road. It then, runs westward parallel to the Algonquin gas transmission lines, then southward along the west side of the undivided section of University Boulevard. (Harris, 2000) All electrical and telephone service lines on the Westside Campus are below ground. Each campus building is serviced by its own transformer.

Kohler Ronan (2007) describes the existing mechanical and electrical systems for each of the buildings on the Westside Campus as sufficient.

Fiber optic strands are distributed to the Classroom Building on the Westside Campus from Midtown Campuses' Old Main distribution center. The University leases the 12 strands of fibers that run between campuses. The University is currently planning to add an additional 12 strands of fiber which will follow a different route and which will serve as a backup if the original 12 strands fail (conv. William Aust, 1/27/09).

3.12.3.2 Impact Evaluation

Midtown Campus

CL&P is expected to provide electricity to the proposed buildings on the Midtown Campus. Each new building will require the addition of a new transformer to service the building (conv. John Siclari, CL&P, 10/29/09). There are underground electrical utility lines that run north and south along Seventh Avenue within the footprint of the Berkshire Building/Wellness Center Expansion and north of the Student Center within the proposed footprint of the Student Center Addition. It is expected that any conflicting utility lines will be relocated (See Figure 3-10).

Westside Campus

The proposed buildings in the Master Plan will be serviced by CL&P. New electrical services fed from the existing campus feeders will be provided to service the new buildings (Kohler Ronan, 2007). The new Residence Hall will require the addition of a new transformer to service the building and the Visual and Performing Arts building will require at least two new transformers (phone conversation, John Sinclari, CL&P, 10/29/09).

There are existing underground electrical lines within the footprints of the proposed new VPAC parking garage, O'Neill Center Addition and new Residence Hall. It is expected that any conflicting utilities will be relocated (See Figure 3-11).

3.12.3.3 *Mitigation*

Midtown and Westside Campuses

The University has an aggressive energy conservation plan for the Westside Campus. The proposed facilities and building renovations are expected to follow the LEED® guidelines and incorporate energy conserving design features and energy efficient fixtures and appliances.

3.12.4 **Heating & Cooling**

3.12.4.1 *Existing Conditions*

The Kohler Ronan (2007) utility assessment provided recommendations which required upgrades to the existing heating and cooling systems. The Master Plan acknowledges the recommendations as potential options as part of the Development Program Capital Budget and Master Plan.

Midtown Campus

Heating: A central steam heating plant consisting of three dual fuel, 525 hp boilers provides heating to all buildings on the Midtown Campus via underground high pressure steam lines. The boilers were installed in 1959 and provide steam to most buildings on the campus (Kohler Ronan, 2007). According to Kohler Ronan (2007), the boilers were tested to be 64% efficient and on cold days in winter run close to maximum capacity without additional back-up heating capacity (Kohler Ronan, 2007).

The Midtown Campus has the option of using gas instead of oil in all of the buildings because they are also equipped with gas burners (conv. Luigi Marcone 11/10/09). According to information provided by Luigi Marcone, Director of Environmental and Facilities Services at WCSU, the University used 582,213 CCFs of Natural Gas and 326,824 gallons of oil at both campuses between July of 2008 and June of 2009.

Cooling: Litchfield Hall and Fairfield Hall do not have cooling systems in place. Alumni Hall, Higgins Hall, Newbury Hall, Berkshire, Old Main, Student Center, University Hall, Warner Hall and White Hall have either individual mini chillers, rooftop HVACs or window AC units.

Westside Campus

Heating: Heating at the Westside Campus is provided by individual hot water oil-fired boilers at each building. One 20,000 gallon oil tank is shared between the Student Center and the Classroom Building. There is also a 2,000 gallon underground storage tank which serves a generator at the Classroom Building. Centennial Hall, Pinney Hall and

Ella Grasso Hall all have their own above ground oil storage tanks for their individual boilers. The O'Neill Center has its own underground storage tank and boiler system which also serves the new football stadium. Based on the analysis made in Kohler Ronan (2007), centralizing the heating does not appear to save costs because the relatively large distances between buildings would require expensive heating distribution lines.

The University has inquired into adding a gas service to the campus, but according to the Yankee Gas, the increased demand on campus for gas is not significant enough to warrant a return on investment for bringing a new gas service to the campus unless the university was able to commit to a firm rate and load (Kohler Ronan, 2007).

A 75-foot easement owned by the Algonquin Gas Transmission Company crosses the Westside Campus from east to west at the northern end of the site. This easement contains a 26-inch gas main and a 30 inch gas main. The closest natural gas facility in the vicinity of the Westside Campus consists of an 8-inch gas main located on the north of Route 6/202 owned by Yankee Gas (Harris, 2000).

Cooling: Cooling at the Westside Campus is provided in each building through individual cooling units. Centennial Hall has a 175 ton water cooled chiller with remote cooling tower. Grasso Hall has a 140 ton closed circuit cooling tower. The O'Neill Center has an ice harvester that provides 1470 TH (therm, a.k.a. 100,000 Btu) of cooling for the arena and does not have sufficient capacity to sustain longer than a 3 day event. Pinney Hall has a 400 ton air cooled chiller. The Stadium has stand alone rooftop units. The Classroom Building has a chiller plant.

3.12.4.2 *Impact Evaluation*

Midtown Campus

Heating: Currently the central steam heating plant load is 17,325 MBH. After the construction of the Master Plan, it is estimated the estimated heating load for the Midtown Campus will increase to 36,798 MBH (thousands of BTUs per hour), a 112% increase (Kohler Ronan, 2007). Based on the proposed Master Plan recommendations there appears to be a potential shortage in the existing plant capacity. According to the Kohler Ronan report, if burner upgrades could provide an additional 5% efficiency then the existing boilers could possibly handle the proposed loads without backup (Kohler Ronan, 2007). An additional boiler as well as renovations to the boiler house are proposed to handle the increased size in service for the proposed buildings (Kohler Ronan, 2007).

Cooling: At the Midtown Campus clusters of buildings such as the Student Center, New Residence Hall, Old Main, Newbury Residence Hall, and Litchfield Hall are proposed to utilize a miniature cooling plant to allow for smaller equipment to be utilized and take advantage of the buildings diversity verses stand alone plants which would be sized for

each buildings peak load (Kohler Ronan, 2007). The cooling plants would be incorporated within the new 400-car parking structure or renovated Police Station. Underground chilled water lines would be routed throughout the northeast corner of campus to feed the buildings. The proposed cooling plant will have a minimum demand of 800KW (Kohler Ronan, 2007).

White Hall, Berkshire Hall, and Higgins Hall are slated to have their existing cooling system upgraded or replaced with independent cooling plants incorporated inside each of the buildings (Kohler Ronan, 2007). The impact or increase in energy service sized for each building and may require new transformers at each of the buildings (conv. Siclari, 10/29/09).

Westside Campus

Heating: The proposed VPAC may utilize a closed loop geothermal heat exchanger and reverse cycle chillers to deliver hot water. A supplemental gas fired condensing boiler would maintain the hot water temperature to a desired setpoint. Hot water would be circulated to the hot water loop in a primary/secondary configuration via two inline pumps with variable frequency drives in a lead/standby configuration. Primary hot water to the building would be circulated via two base mounted pumps (P11&12) with variable frequency drives in a lead/standby configuration. A small circulator pump (P-13) would inject hot water from the condensing boiler into the primary hot water loop.” (Amenta/Emma Architects, 2010)

The feasibility of installing the above described geothermal system is currently being evaluated. If this system is not selected, then a the proposed VPAC’s heating needs would be served by an on-site fuel oil furnace.

The issue of bringing a gas service to the Westside Campus up University Blvd has been discussed between the gas company and the University. As of the writing in this EIE, bringing in a gas service is not economically feasible. It is planned for the new Residence Halls, O’Neill Center Addition and Classroom Building Addition to use oil fuel for heating. Kohler Ronan (2007) stated that the Number 2 Oil was the only viable option due the lack of natural gas connection on campus. The new VPAC center, which is the first of the proposed Master Plan buildings to be in a Schematic Design phase, is slated to use propane with a possibility of converting to natural gas in the future as its heat source. The new Residence Halls, O’Neill Center Addition and Classroom Building Addition may also be designed with LEED® certification standards. Alternative energy sources or a propane gas alternative may be further examined in the design and development phases of these buildings.

The O’Neill Center will not have enough heating capacity to support the proposed addition. It was recommended in the Kohler Ronan (2007) report that the current heating

plants at the O'Neill Center and the Classroom Building be upgraded or that supplemental plants be added as part of the proposed renovations.

Cooling: As described above, the proposed VPAC may include a closed loop geothermal heat exchanger that would service the heating and cooling needs of the facility. If this system is not selected, then cooling would be provided by one of the two miniature cooling plants attached to be attached to the proposed parking garages or existing chiller systems on campus.

3.12.4.3 *Mitigation*

Midtown Campus

The Midtown Campus proposed renovations to the heating and cooling facilities for the existing buildings will maximize heating and cooling efficiency throughout campus. New buildings will be designed and constructions following the LEED® certification guidelines as summarized below.

Westside Campus

According the 25% Design Development Submission's Mechanical Narrative for the VPAC, the VPAC may be heated and cooled through geothermal energy (Amenta/Emma Architects, 2009). The feasibility of this option is currently being evaluated. If not selected, then heating would be provided by on-site fuel oil furnaces and cooling would be provided by the existing chillers on campus or the proposed new chiller plant to be located adjacent or within the proposed nearby parking garage.

The VPAC is only one of the proposed buildings to have a 100% Schematic Design completed during the writing of this EIE. The Visual and Performing Arts Center building project is pursuing a minimum silver LEED® certification. Several of the following credits involving the mechanical systems would need to be obtained as part of the design of the VPAC:

Energy & Atmosphere

- Prerequisite 1: Fundamental Commissioning of Building Energy Systems
- Prerequisite 2: Minimum Energy Performance.
- Prerequisite 3: Fundamental Refrigerant Management
- Credit 1: Optimize Energy Performance (Minimum of 21% above baseline.)
- Credit 3: Enhanced Commissioning
- Credit 4: Enhanced Refrigeration

It is expected that the O'Neill Center, Residence Halls and Classroom Building addition will also pursue alternative energy source as well as LEED® certification.

3.12.5 Energy (Use and Conservation)

3.12.5.1 Existing Conditions

Energy consumption at the Midtown Campus is derived from electricity, fuel oil, and natural gas. According to utility reports provided by the University, from July 2008 to June 2009 the University used 582,213 CCF of natural gas on its Midtown Campus, 20,568,520 kWh of electricity at both campuses and 326,802 gallons of fuel oil at both campuses.

In 2003 WCSU enrolled in an energy demand response program with the company EnerNOC. A demand response program enables the University to shut off power during a state authorized power emergency. Fourteen buildings on WCSU's campuses are shut down and students and staff are shifted to other facilities during such emergencies. Some buildings are provided with power from backup generators. EnerNOC also provides WCSU with monitoring-based commissioning and energy management software. Its energy management software, serves as a centralized platform for identifying opportunities for raising energy efficiency by monitoring, comparing, and analyzing set points, operating schedules, and other operational components (EnerNOC).

According to WCSU's President Schmotter in his report to the trustees titled "Sustainability", it is the goal of WCSU to achieve a 1.5 percent reduction in electrical consumption per square foot/per year. This has already been achieved and is expected to continue further by implementing conservation and automation improvements in several campus buildings. Since improvements were made, electrical consumption decreased from 2006 to 2007 by 10.1 percent (Schmotter).

The American College & University Presidents Climate Commitment was signed by President Schmotter in 2007. With respect to a goal of reducing greenhouse gas emissions, WCSU have pledged to develop a campaign to encourage ride sharing, investigate renewable energy sources, and map the university's emission footprint (EnerNOC).

Midtown Campus

According to the University Utility Assessment (Kohler Ronan, 2007), the total square footage of the Midtown Campuses buildings equals approximately 891,555 square feet. The total energy consumption of a building is dependent on its use, size, type of energy used, age, and age of energy demanding equipment. Estimates of energy intensities for various commercial facilities are available through the US Department of Energy and are represented in Table 3-4. Based on the energy intensity values in the Table, the existing annual demand in the Midtown Campus is approximately 44.5± million Btu.

Westside Campus

According to the University Utility Assessment (Kohler Ronan, 2007), the total area of the Westside Campuses buildings equals approximately 744,085 square feet. Based on

the energy intensity values in Table 3-4, the existing annual demand in the Westside Campus is approximately 66.5± million Btu.

Table 3-3. U.S. Commercial Buildings Energy Intensity Using Weather-Adjusted Site Energy¹ by Census Region and Principal Building Activity, 1992,1995, and 2003

Business Sector	Energy Intensities¹ (Thousand Btu/sq ft)
Education	98
Food Sales	Q
Food Service	Q
Health Care	207
Lodging	90
Mercantile and Service	89
Office	99
Public Assembly	85
Public Order and Safety	Q
Religious Worship	50
Warehouse and Storage	40
Other*	Q
Vacant	Q

¹ Sum of major fuels. Weather-adjusted energy consumption for 1999 is not reported because 1999 CBECS does not estimate energy consumption for space heating, space cooling, and ventilation. Normals are based on calculations of data from 1971 through 2000. To aggregate Census division degree-days to Census regions, each division value is weighted by the 2000 population shares of divisions within each Census region.

Other*: Laboratory buildings are included in the "Other" category.

Q: Data withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

Sources: Energy Information Administration (EIA), Commercial Buildings Energy Consumption Surveys, 1992, 1995, 2003, and EIA, "Annual Energy Review," 2007; Tables 1.10 and 1.19. Available online: <http://www.eia.doe.gov/emeu/aer/txt/ptb0110.html>, and <http://www.eia.doe.gov/emeu/aer/txt/ptb0109.html>

3.12.5.2 Impact Evaluation

Midtown Campus

The proposed Residence Hall, Parking Garage, Wellness Center, Student Center addition and boiler replacement will utilize energy as a direct result of operation and construction. Operation of the proposed facilities will require energy primarily in the forms of electricity, provided by the CL&P, gas, provided by Yankee Gas and number 2 fuel oil. CL&P is owned by Northeast Utilities. The power for electricity is expected to be provided by a combination of, oil, natural gas and hydropower generation services, primarily. Power is currently available in the immediate project vicinity.

Construction of the proposed Master Plan would add approximately 210,000 square feet of residential and educational space. Based on energy intensity values in Table 3-4, the energy usage on the site is expected to increase by approximately 19± million Btu per year.

Westside Campus

The proposed VPAC, Residential Hall Complex, two parking garages, O’Neill Center addition, Classroom Building addition and new ball fields will utilize energy as a direct result of operation and construction. Operation of the proposed facilities will require energy primarily in the forms of electricity and oil. Power is currently available in the immediate project vicinity.

Construction of the proposed Master Plan would add approximately 423,600 square feet of residential and educational space. Based on energy intensity values in Table 3-4, the energy usage on the site is expected to increase by approximately 39.7± million Btu per year.

3.12.5.3 *Mitigation Measures*

Midtown and Westside Campuses

The following mitigation applies to proposed buildings at both campuses. All new and renovated buildings will be added to the campus digital control system which will allow centralized energy monitoring and control of the buildings heating and cooling system to allow for more efficient operation of the campus buildings.

The State of Connecticut requires for any state facility that costs five million dollars or more or any state building renovation that costs two million dollars or more to be built or renovated using building construction standards consistent with or exceeding the silver certification rating of the LEED® Green Building Rating System for New Construction & Major Renovation or an equivalent standard.

According to the LEED® certification guidelines, there are three prerequisites that are required for new buildings in order to become LEED® certified. There are also six energy and atmosphere credits that the buildings may obtain.

The required prerequisites include:

- EAp1: Fundamental Commissioning of the Building Energy Systems
- EAp2: Minimum Energy Performance
- EAp3: Fundamental Refrigerant Management

The optional credits include:

- EAc1: Optimize Energy Performance
- EAc2: On-Site Renewable Energy
- EAc3: Enhanced Commissioning
- EAc4: Enhanced Refrigerant Management
- EAc5: Measurement & Verification
- EAc6: Green Power

The State of Connecticut requires that all new construction, \$5,000,000 or greater, and renovations, \$2,000,000 or greater exceed the standards of ASHRAE 90.1 2004 (or the most recent adopted ASHRAE in the State of Connecticut) by no less than 21%.

3.13 AESTHETICS/VIEWSHEDS

3.13.1 Existing Conditions

3.13.1.1 Midtown Campus

The Midtown Campus is located in an area of Danbury about a half a mile from the downtown. Bordering campus to the north, west and east are three-family and multi-family residential neighborhoods and to the south is a commercial district (Photo 3-1). The university's original buildings have an American Colonial style of architecture common in New England (Photo 3-2). The original buildings on campus are mostly brick, have symmetrical window arrangements, decorative white columns and white trim. The more recent campus structures are contemporary in style with brick veneers that tie in with the older campus buildings (Photo 3-3). Along Route 6, between Old Main and Fairfield Hall a formal pedestrian entrance to the campus is marked by a brick and iron gateway with the name of the campus inscribed in the arch. The grounds of the campus have well maintained lawn areas and trees along streets on the outer edge.

The parking garage on Fifth Avenue is across the street from residences, with two stories that are above ground. The cars are hidden within the structure by its taller outside walls. Between the garage and street is a strip of grass, a dense tree planting and brick-faced and black ornamental aluminum fence (Photos 3-4 and 3-5).

The site of the proposed Residence Hall is where the Roberts Avenue School currently resides. This former elementary school is a 31,500 sf single story structure constructed in 1957. It has not received a significant renovation to date (Photo 3-6). On the site of where the new parking garage is proposed is a residential structure that is used by the University as offices (Photo 3-7).

3.13.1.2 Westside Campus

The Westside Campus is located on top of a hill surrounded by wooded undeveloped land. From the center of campus hill and from the upper floors of the campus buildings, there are expansive views of Danbury's commercial core and distant hills.

At the entrance to University Blvd. on Route 6, no campus facilities are visible. The entrance sign and scrolling marquee are clearly visible from Route 6 as is the tree-lined University Blvd., which runs up hill into the campus from Route 6.

On the site of where the new residential halls are proposed to be constructed is a tree-covered promontory that has visible ledge out crops. The site is close to where University Boulevard and the Access Road split (Photos 3-8, 3-9 and 3-10).

The VPAC is proposed to be constructed on the site of an existing parking lot, north of the Campus Center building (Photo 3-11). Adjacent to the facility will be a new quadrangle space (Photo 3-12).

The area where new softball field is proposed is grass covered, free of structures, has a driveway to a field house and has a undulating topography that slopes downward, away from the Access Road (Photos 3-13 and 3-14).

3.13.1.3 *Midtown Campus*

At the corner of Ninth Avenue and Roberts Avenue, the on-campus single-detached residential-type structure will be demolished and the new parking garage will be constructed in its place and in the existing grassy field between the street corner and the Science Building.

Where the Roberts Avenue School and the large open grass area located east of it currently exist, the new Residence Hall will be constructed. Walkways and courtyards have been planned as part of the Master Plan for the areas surrounding the new Residence Hall and Parking Garage. Due to the demolition of the Roberts Avenue School and elimination of Seventh Avenue, a large grassed campus quadrangle will be created north of the Student Center. This elimination of a vehicular road will create a more pedestrian-friendly campus with fewer pedestrian/vehicle conflicts and better connect different parts of campus with walking paths.

From Osborne Street looking south into the campus, Seventh Avenue will be terminated and in its place will be the proposed Wellness Center addition on Berkshire Hall. A plaza or courtyard is proposed to be placed between the Wellness Center and Osborne Street, and will be a designed landscape feature. There will no longer be a view into the campus from where Seventh Avenue and Osborne Street met. The view will be of the courtyard and the new Wellness Center.

Photo 3-1. View of Residential Homes on Eight Avenue from White Street at Midtown Campus



Photograph 3-2. Fairfield Hall at Midtown Campus



Photograph 3-3. Student Center



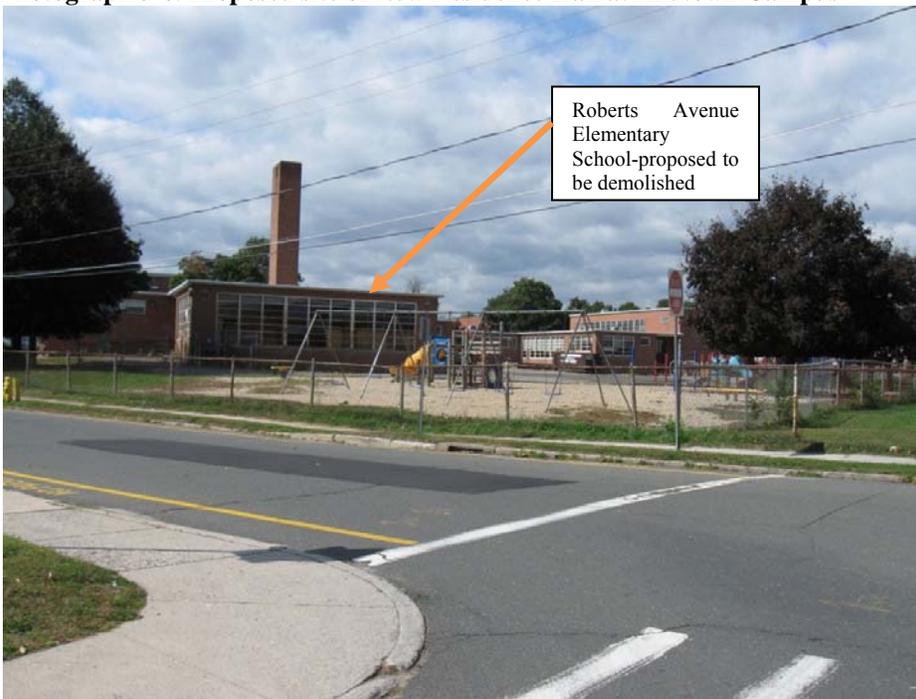
Photograph 3-4. Existing Parking Garage on Fifth Avenue at Midtown Campus



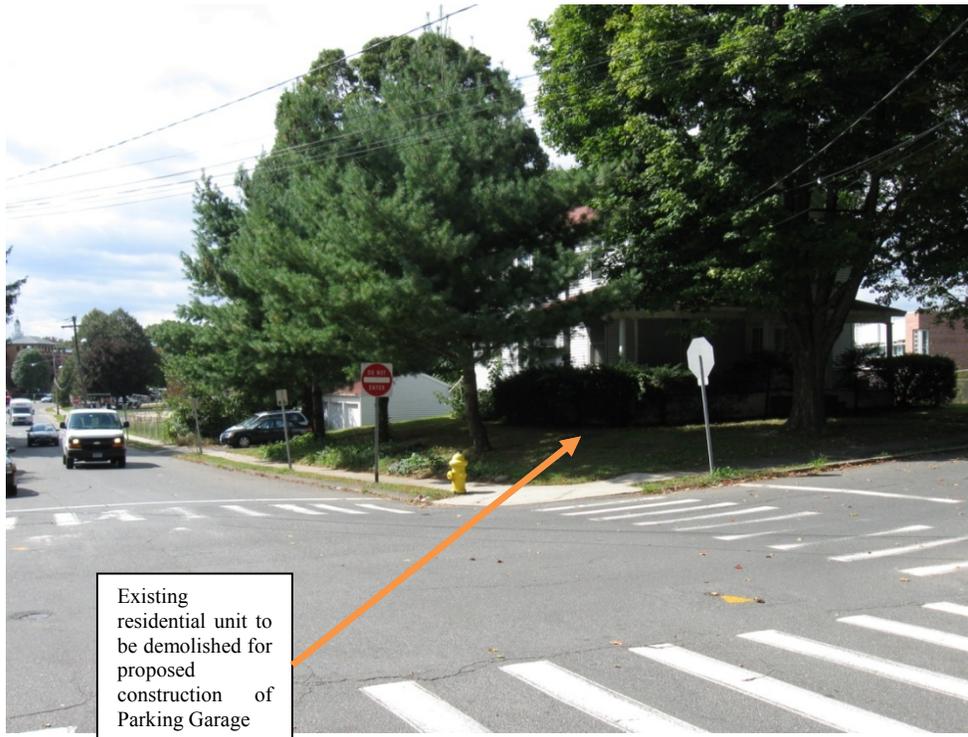
Photograph 3-5. Parking Garage seen from Fifth Avenue at Midtown Campus



Photograph 3-6. Proposed site of New Residence Hall at Midtown Campus



Photograph 3-7. Proposed site of Parking Garage on corner of Ninth and Roberts Aves. at Midtown



Photograph 3-8. View of promontory where University Boulevard and Access Road Split at Westside Campus



Photograph 3-9. University Boulevard looking north towards the Campus Center at Westside Campus



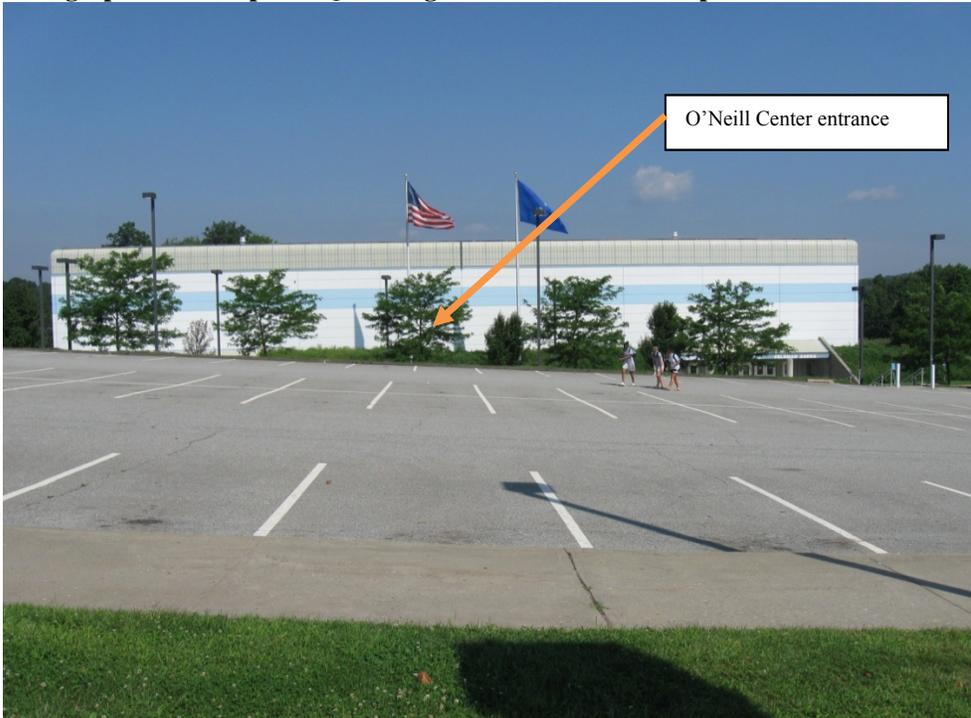
Photograph 3-10. University Boulevard from Campus Center looking south towards Route 6



Photograph 3-11. Proposed Visual Performing Arts Center Site at Westside Campus



Photograph 3-12. Proposed Quadrangle site at Westside Campus



Photograph 3-13. Proposed Site of new Softball Field at Westside Campus Looking East



Photograph 3-14. Proposed site of new Softball Field at Westside Campus looking Northwest



3.13.2 Impact Evaluation

3.13.2.1 Westside Campus

The proposed construction of the buildings in the Master Plan will not be visible from residences outside of campus. However, inside the campus, there will be significant improvements made to the campus aesthetics. In the area between the O'Neill Center and the Classroom Building, a quadrangle will replace the expansive parking lot and roadway that connects University Boulevard to the Access Road. This proposed green space will create a better sense of a campus center and will improve the pedestrian circulation from the Campus Center to the improved Athletic Complex (see Photo 12).

The preferred Master Plan proposes to construct the Residential Hall Complex on top of a rock promontory. One of the three dormitories will be placed in the existing University Boulevard road cut (see Photo 9, 10). All vehicular traffic will follow the former Access Road through campus. Upon arriving almost at the top of the Westside Campus' hill, one will be greeted with a view of the new Residential Hall Complex rather than a split in the road. This may be a visual/aesthetic improvement and a simpler way of navigating through campus.

3.13.3 Mitigation Measures

3.13.3.1 Midtown Campus

The proposed parking garages will be designed to be as visually unobtrusive as possible and set back enough from the street so that the residences across the street are buffered. In the area between the proposed garage and the street, street trees and fencing will minimize views of the parking garage.

3.13.3.2 Westside Campus

The proposed construction of the buildings specified in the Master Plan will not cause a negative aesthetic impact to the surrounding neighborhoods, therefore no mitigation is warranted.

3.14 SOLID WASTES AND RECYCLING

3.14.1 Existing Conditions

According to a report on sustainability dated May 15, 2008 by WCSU President Schmotter posted on the University's Environmental and Facilities Services webpage, in the 2006-2007 fiscal year, prior to attaining a recycling program, the university disposed of 625.36 tons of trash. According to the report, during the 2007-2008 fiscal year, after the recycling program was initiated, an estimated 38 percent reduction in the amount of trash was disposed of in that year. Based on the report, the university recycling initiative

recycled 112,000 pounds of paper and cardboard as well as more than 2,000 pounds of recyclable materials during the 07/08 fiscal year (Schmotter).

WCSU has an Electronic Waste Recycling Plan, as part of its Environmental and Facilities Services Department. The Environmental and Facilities Services' Waste Management Guidelines provide the university with instruction on the various environmental programs which the University participates in. WCSU has several Environmental Programs which address proper waste disposal measures, they include the following:

- Waste Management Guidelines
- Hazardous Waste Management Plan
- Hazardous Waste Contingency Plan
- Hazardous Waste Satellite Accumulation Areas
- Combustible Waste Disposal Plan
- Fluorescent Lamp Recycling Plan
- Fluorescent Lamp Ballast Recycling Plan
- Aerosol Can Management Plan
- Photographic Processing Waste Recovery
- Ethidium Bromide Management and Disposal Information
- Electronic Waster Recycling Plan

(<http://www.wcsu.edu/efs/environmental.asp>)

3.14.1.1 *Midtown and Westside Campuses*

Solid waste and recycling is collected at the Midtown Fuel Shed and then removed from the campus by a private hauler. Hazardous chemical wastes are collected and stored at the Science Building. The main accumulation areas require a weekly inspection and a record keeping. Weekly inspections are conducted by a designee of Environmental & Facilities Services Department. According to the Universities' Waste Management Guidelines, the weekly inspection checklists are kept in a binder in proximity to the storage area. All inspection items are checked and any appropriate corrective measures taken must be noted in the appropriate area.

Solid waste and recycling is removed from the Westside campus by a private hauler. Both the Westside and Midtown Campuses practice the same Environmental Programs.

3.14.2 **Impact Evaluation**

3.14.2.1 *Midtown and Westside Campuses*

An increase in the number of students of housing units may result in an increase in the amount of waste and recyclable material generated on campus. During construction, efforts will be made to re-use existing materials such as fencing, light poles, scoreboards, etc. as is possible. All solid waste and recycling generated on construction projects will be removed from the site by the contractor.

3.14.3 Mitigation Measures

3.14.3.1 Midtown and Westside Campuses

The University will examine the potential for reuse of materials (benches, light poles, fencing, etc.) at other areas on campus. The University will continue the administration of its Environmental Policies during and after construction of the Master Plan.

The USGBC's LEED® prerequisites and credits that would help to alleviate added impact to the waste stream include the following:

- Storage & Collection of Recyclables
- Building Reuse: Maintain 75% of Existing Walls, Floors & Roof
- Building Reuse: Maintain 95% of Existing Walls, Floors & Roof
- Building Reuse: Maintain 50% of Interior Non-Structural Elements
- Construction Waste Management: Divert 50% From Disposal
- Construction Waste Management: Divert 75% From Disposal
- Materials Reuse: 5%
- Materials Reuse: 10%
- Recycled Content: 10% (post-consumer + ½ pre-consumer)
- Recycled Content: 20% (post-consumer + ½ pre-consumer)
- Regional Materials: 10% Extracted, Processed & Manufactured Regionally
- Regional Materials: 20% Extracted, Processed & Manufactured Regionally
- Rapidly Renewable Materials
- Certified Wood

3.15 CULTURAL RESOURCES

3.15.1 Existing Conditions

There are twelve historic resources in the City of Danbury that are listed on the National Register of Historic Places, according to the National Register Information System reviewed from the National Register's website (<http://www.cr.nps.gov/nr/>), however none are located at the Midtown or Westside campuses. The State of Connecticut also maintains a State Register of Historic Places which generally contains buildings 50-years or older. The State Register is administered by the Connecticut Department of Culture and Tourism with use of similar criteria of the National Historic Register.

(www.ct.gov/cct/cwp/view.asp?a=2127&q=293858&CCTNAV_GID=1656) Due to insufficient funding a formal list of facilities has not been completed. CSUS adheres to

the criteria set by the State Historic Register. There are 11 Midtown Campus facilities and no Westside Campus facilities included on the State Historic Register.

3.15.1.1 *Midtown Campus*

A 1867 map by F.W. Beers shows the existing Midtown Campus as being owned by “W.A. White.” This property, in which no buildings or streets are shown, was bounded by Locust Avenue (then Baird Street) to the east, White Street to the south, Moss Avenue to the west, and Osborne Street (then Great Plains Road) to the north. (Harris, 2000)

Fire insurance maps by the Sanborn Map and Publishing Co. were reviewed for the years of 1884, 1889, 1897, 1904, 1919, 1929, and 1940. No portion of either the Midtown Campus or the Westside Campus is shown on any of these maps. The adjacent blocks to the east of the Midtown Campus are shown on the 1929 and 1940 maps as having residential development. A church on the southeast quadrant of Roberts Avenue and Eight Avenue is shown as “Greek Church” (Alumni Hall) on the 1929 map and “Russian Orthodox Church” (Holly Trinity Orthodox Church) on the 1940 map. That (Harris, 2000)

There are 11 Midtown Campus facilities and no Westside Campus facilities included on the State Historic Register.

- | | |
|--------------------------------------|--------------------|
| 1. Old Main Administration Building | 1904 |
| 2. White Hall | 1925 |
| 3. Fairfield Hall | 1927 |
| 4. Higgins Hall | 1950 |
| 5. Berkshire Hall | 1958 |
| 6. Boiler Plant | 1959 |
| 7. Memorial Hall | 1959 |
| 8. Alumni Hall (St. Nicholas Church) | 1932/1993 addition |
| 9. Armory | 1912/1929 |
| 10. Roberts Ave School | 1957/2003 addition |
| 11. Holy Trinity Orthodox Church | 1924/2005 addition |

3.15.1.2 *Westside Campus*

The Westside Campus is also shown on the 1867 maps by F.W. Beers, and no development is shown on the campus with the exception of a residence fronting on the southwest side of Middle River Road indicated as “H.D. Gregory House.” (Harris, 2000)

The State of Connecticut Department of Public Works had a Phase I Archaeological Reconnaissance Survey prepared for the Westside Campus dated January, 2002. The survey was conducted for parcels of land on Westside Campus in preparation for the construction of the baseball and athletic field southwest of the campus center. The research conducted as part of the survey indicated that the project area has moderate prehistoric archaeological potential and low historic period sensitivity (DMJM + Harris, 2002). No significant cultural materials, features or structures were found within the

project area; consequently no further archaeological or historical research was recommended (DMJM + Harris, 2002).

There are no historic features listed on the National or State Register of Historic Places in or near the University's Westside Campus.

In the 1950s and the late 1960s, two natural gas transmission pipelines were installed across the north end of the Westside Campus. Between 1970 and 1974, the State of Connecticut purchased individual lots at the site that became a single 314-acre parcel which today comprises the Westside campus and the Charles Ives Center for the Arts. The access road for the campus (University Boulevard) was constructed in 1975. All existing structures at the Westside Campus were erected subsequent to the State purchase, beginning with the Classroom Building which was built in 1981. (Harris, 2000)

The majority of campus, as well as the existing softball field are located in an area that has been previously subjected to development, including cutting, filling, and grading of the soils. Thus, it is not expected that undiscovered archeological or cultural resources will be present on the proposed campus Master Plan addition sites.

3.15.2 Impact Evaluation

3.15.2.1 Midtown Campus

The construction of the proposed campus Master Plan does involve the demolition of the Roberts Street School which is listed on the State Register of Historic Places. Building additions are planned for the Boiler Plant and Berkshire Hall. Demolition and required approvals allowing building additions will need to be consistent with those required by the State Register. The Locust Avenue School is the closest historical building to any of the proposed project sites. Although it is located diagonally across the intersection of Ninth Avenue and Roberts Avenue from the proposed parking garage about 200 feet away, care will be taken during construction to minimize negative direct or indirect impacts on the Locust Avenue School.

The State Historic Preservation Office responded to the scoping letter stating there will be "No Effect" to historic places in a letter dated January 5, 2010. Subsequent coordination with SHPO has verified that there are State Register of Historic Places structures on the campus as listed in Section 3.15.1.1. The CSUS, WCSU, and DPW will coordinate with SHPO prior to renovation and construction activities to avoid and/or minimize impacts to the historical aspects of these structures.

Impacts to archeological resources due to construction of the campus Master Plan additions are not expected, as no archeological resources are known to be or expected to be at the project site.

3.15.2.2 *Westside Campus*

The construction of the proposed campus Master Plan does not involve the destruction of any historic resources listed on the National Register of Historic Places or any historically significant or potentially historically significant buildings. No historic resources are located near the Westside campus, thus development at this site will not have any negative direct or indirect impacts on historic resources.

Impacts to archeological resources due to construction of the campus Master Plan additions are not expected, as no archeological resources are known to be or expected to be at the project site.

The Connecticut State Historic Preservation Office received copies of the Notice of Scoping for the proposed Master Plan on both the Midtown and Westside Campuses, and a “No Effect” response was provided in a letter dated January 5, 2010.

3.15.3 **Mitigation Measures**

3.15.3.1 *Midtown Campus*

Direct impacts to historic or archaeological resources are not expected as a result of the Master Plan improvements. However, due to the proximity of the Locust Avenue School and several on campus historic structures, erosion and sediment controls will be implemented during construction to avoid fugitive dust impacts to these structures.

3.15.3.2 *Westside Campus*

As impacts to historic resources or areas of archeological significance are not expected at the site of the proposed campus Master Plan, therefore mitigation measures are not warranted.

3.16 **PESTICIDES, TOXIC OR HAZARDOUS MATERIALS**

3.16.1 **Existing Setting**

3.16.1.1 *Midtown Campus*

A FirstSearch® Database review was conducted in March 2010 to assess releases to soil and/or groundwater of hazardous materials at and in the vicinity of the Midtown Campus. Based on inferred groundwater flow direction (north to south), only a small subset of incidents included in the report have potentially impacted on-site soil and groundwater conditions. Properties identified in the report are presented in Table 3-4 and the FirstSearch report can be found in Appendix E. A summary of pertinent findings is presented below.

According to the FirstSearch database report, several small scale spills of hazardous materials were documented at the WCSU campus. With the exception of one report at

Higgins Hall, incident reports are not building or location specific. A majority of the spills occurred prior to 2000. The most significant spill occurred in March of 1990 and was caused by a leaking underground storage tank (LUST) which required removal of contaminated soil. The incident report fails to mention the substance contained in the LUST though it may be inferred that it was likely petroleum based, i.e. gasoline or heating fuel. All spills and incidents are currently documented as being ‘Closed’ incidents with CT DEP and none of the incidents note continued monitoring or remediation of on-site soil or groundwater. The report does indicate the Midtown campus as being a Large Quantity Generator (LQG) of hazardous waste as recently as January 2010. Wastes at the campus are various and associated predominantly with on-site laboratory operations.

One file was identified in the FirstSearch report for the Roberts Avenue School which sites the July 1989 removal of an existing and installation of a new 5,000 gallon heating oil underground storage tank (UST). In addition to the information provided by FirstSearch, a Transfer Act Site Assessment Phase I and Phase II document entitled *Property Acquisition of Roberts Avenue School Building*, May 2, 2002 (first Draft), prepared for the State of Connecticut Department of Public Works by AARON Environmental was reviewed. With the exception of lead paint in some exterior and interior surfaces and detection of acetone in one of two groundwater samples, which was likely an byproduct of the laboratory analysis and not representative of true groundwater conditions, the report did not identify any concerns associated with hazardous material or contamination at the school.

The FirstSearch report noted several incidents for the Danbury Hospital, located at 24 Hospital Avenue, approximately 0.2 miles upgradient of the Midtown Campus. A majority of spill/release incidents at the Hospital were minor and/or remediated in place, it does not appear that any of these releases would impact soil or groundwater conditions at the campus. The most significant release at the Hospital occurred in April 2007 and involved the release of approximately 400 gallons of fuel oil. No further details related to impacted media or method of release however the report notes that spilled fuel oil was contained with a boom and sanded in place. The file is listed as closed and no mention of impact to groundwater or soil or necessary remediation is noted. The hospital is also noted as being a Small Quantity Generator of hazardous waste (SQG).

Two abutting properties were noted in the report that may represent concern to on-site activities include the Hoffman Fuel property located at 170 White Street, which abuts the campus to the south, and the Superior Cleaners and Tailors property, located at 154 White Street, which abuts the campus to the southwest. A summary of environmental conditions at these properties is presented below.

The Hoffman Fuel property is noted as having several documented releases on-site. In some instances soil removal was conducted to remove contaminated soil from the site. However, a 1993 incident report notes the presence of free product in on-site monitoring wells, which indicates that groundwater beneath the property is potentially impaired. A Transfer Act Form III is also on file at CT DEP, which, according to CT DEP, indicates

that environmental conditions at the site are unknown or a release of hazardous waste has occurred and has not been remediated in accordance with State Remediation Standard Regulations. Given that groundwater is understood to flow from north to south away from campus, and, with the exception of Building 23, groundwater beneath the Midtown campus should be unaffected by the Hoffman Property. Though proposed activities at Building 23 include only interior renovations, it should be noted that any future excavation or work that would encounter groundwater at or near Building 23 has potential to encounter sub-surface contamination. Given groundwater flow direction and location of the Superior Cleaners Property it is unlikely that impacts at this site, which include registration as a SQG for the use and disposal of hazardous chemicals associated with dry cleaning operations, have impacted campus property.

In February a file review was conducted at the CT DEP file room in Hartford. No significant additional information was obtained that was not already presented in the FirstSearch report.

There was no information available for the 30 Ninth Avenue property (the residential-type structure used by the University as offices), however given its age, there is potential for asbestos or lead paint in the structure.

Based on findings presented in the FirstSearch database review and in the DEP file review, we assume there is a low probability of encountering hazardous or contaminated soil or groundwater during construction of the Master Plan.

3.16.1.2 *Westside Campus*

A FirstSearch® Database review was conducted in March 2010 to assess releases to soil and/or groundwater of hazardous materials at and in the vicinity of the Westside Campus. Since the Westside Campus is situated on a topographical high, groundwater flow direction is presumed to be away from the campus in all directions. For this reason, only the campus property was evaluated in FirstSearch Database search. Properties identified in the report are presented in Table 3-3 and the FirstSearch report can be found in Appendix F. A summary of pertinent findings is presented below.

The only incident in the FirstSearch database for the Westside campus was for the January 1982 closure of one 5,000 gallon heating UST that was removed from the ground at the campus.

In February a file review was conducted at the CT DEP file room in Hartford. No significant additional information was obtained that was not already presented in the FirstSearch report.

Based on the information available through the FirstSearch database review and in public DEP files, the likelihood of encountering contaminated soil and groundwater at the Westside Campus is highly unlikely.

Table 3-4. Environmental Database Summary for WCSU Campuses

	Date of Release	Address	Operating Name	Loc. Relative to Site	Material	Cause	Amt.	Soil/GW Impact	Cleaned	Closed	
Midtown Campus	4/19/2001	181 white	WCSU	SITE	Mercury	Dropped Equipment	1 oz	n/a	yes	yes	
	10/4/1996	181 White - Higgins Hall	WCSU	SITE	Chloronex III Herbicide	N/A	n/a	no	evaporated	yes	
	2/4/2004	181 White Street	WCSU	SITE	No. 2 Fuel Oil	Overfill	45 gal.	no	n/a	Yes	
	6/19/2006	181 White Street	WCSU	SITE	Mercury	Dropped Equipment	4 oz.	soil	n/a	Yes	
	3/16/1990	181 White Street	WCSU	SITE	No. 4 Heating Oil	LUST	n/a	soil	soil removal	Yes	
	1/13/2010	181 White Street	WCSU	SITE	LQG; Assorted Material	N/A	n/a	n/a	n/a	no	
	2/2/1994	181 White Street	WCSU	SITE	Undisclosed Material	Leaking 55 gal. drum		no	speedi dry	yes	
	7/1/1994	181 White Street	WCSU	SITE	Diesel Fuel	Overfill	n/a	soil removal	n/a		
	3/8/1994	181 white street	WCSU	SITE	No. 2 Fuel Oil	LUST	n/a	n/a	n/a	yes	
	12/15/1999	24 Hospital Ave	Danbury Hospital	N	Radioactive Iodine	Handling	n/a	n/a	yes	yes	
	1/13/2010	24 Hospital Ave	Danbury Hospital	N	SQG; hospital waste	N/A					
	6/17/2005	24 Hospital Ave	Danbury Hospital	N	Hydraulic Oil	Transfer Line Failure	5 gal.	n/a	yes	yes	various small spills
	4/12/2007	24 Hospital Ave	Danbury Hospital	N	Fuel Oil	N/A	400 gal			yes	several USTs removed and in use pg. 165
	10/30/1991	67 osborne	n/a	North	Lead	N/A	n/a	soil	n/a	yes	
	7/1/1989	Roberts Ave.	Roberts Ave. School	SITE	Heating Oil	N/A					1 5K UST removed; 1 5K installed
	11/13/2008	154 White Street	Superior Cleaners and Tailors	S/W corner	SQG: VOCs, Dry Cleaning Solutions	Dry Cleaners	n/a	n/a	n/a	no	
	6/28/1993	170 White Street	Hoffman Fuel	Abuts South	VOCs	N/A				closed 1997	Form III
	1/13/2010	170 White Street	Hoffman Fuel	Abuts South	SQG	N/A					Note many small spills pg. 80+/-
	1/26/1993	170 White Street	Hoffman Fuel	Abuts South	Gasoline	AST Failure	20 gal.	soil & GW	soil removed	yes	Free product in monitoring wells, rec. ESA
	2/6/1991	170 White Street	Hoffman Fuel	Abuts South	No. 2 fuel oil	N/A	140 gal	soil	soil removed	yes	
	1/15/1999	170 White Street	Hoffman Fuel	Abuts South	No. 2 fuel oil	N/A	100 gal.	soil	soil removed	yes	
	12/1/1992	170 White Street	hoffman fuel	Abuts South	N/A	N/A					2 5K UST rem. 1 gas, 1 diesel. 1 550 gal. filled in place w/ inert mat'l.
	9/24/2007	49 osborne	city of danbury	N/W corner	Hydraulic Oil	Container Failure	1 gal.	no	yes	yes	
	9/19/2007	49 osborne	city of danbury	N/W corner	Hydraulic Oil	Transfer Line Failure	2 gal.	soil	soil removal	yes	
	8/1/2007	49 osborne	city of danbury	N/W corner	Hydraulic Oil	Hose Failure	2 gal.	soil	soil removal	yes	
	9/21/2007	49 osborne	city of danbury	N/W corner	Hydraulic Oil	Hose Failure	1 gal.	soil	yes	yes	
	1/18/2008	49 osborne	city of danbury	N/W corner	Hydraulic Oil	Container Failure	1 gal.	soil	yes	yes	
	8/1/1989	49 osborne	city of danbury	N/W corner	Heating Oil	N/A					1 5K UST removed; 1 5K installed
	5/19/1989	217 White Street	One Stop Auto Repair	East	Gasoline	LUST	n/a	soil	soil removal	Yes	
	1/1/1984	217 white street	One Stop Auto Repair	E	N/A	N/A					removed 5 4K gas USTs and 1 250 gal. waste oil UST from ground
	4/23/2001	31 osborne	Joe Dasilva	NW	No. 2 Fuel Oil	LUST	n/a	soil		yes	550 gal. UST failure. Proposed remediation
	3/1/1989	Locust Ave.	Alternative Center for Education	E	Heating Oil	N/A					1 UST removed from ground
	USTs	181 white street	WCSU	SITE	Petroleum	N/A					
6/18/1994	roberts street	n/a		Natural Gas	Valve Failure	n/a	n/a	dissipated	yes		
Westside Campus	WCSU Grasso Hall	WCSU Grasso Hall	SITE	Yes	n/a	N/A	n/a	n/a	yes	1 5K gallon No. 2 fuel oil UST removed from ground	

3.16.2 Impact Evaluation

3.16.2.1 Midtown Campus

Based on the information provided in the FirstSearch database review, DEP file review, and existing reports provided by CSU and the University, it appears that the proposed renovations, construction of new buildings, and demolition of the Roberts Avenue School and Ninth Avenue structure will not likely encounter hazardous materials in either soil or groundwater. Lead paint associated with painted surfaces in the Roberts Avenue School was the only identifiable source of known contamination at the campus. No information was available for the Ninth Avenue structure, however given its age there is a potential for lead paint and/or asbestos in the building. It should be noted however that sampling of subsurface media is recommended if subsurface work is to be conducted in proximity to either the Hoffman Fuel or Superior Cleaners and Tailors properties.

3.16.2.2 Westside Campus

As no information or evidence of hazardous releases at or within an influential distance to the Westside Campus was obtained, it is likely that the work proposed under the Master Plan is unlikely to encounter contaminated soil and/or groundwater.

3.16.3 Mitigation Measures

3.16.3.1 Midtown Campus

During construction activities, hazardous chemicals and wastes will be managed in accordance with all applicable Federal and State regulations and BMPs for chemical storage and handling. Spills of petroleum products or chemicals will be reported to applicable local, State, or Federal authorities as required. Although it is unlikely, if soil and/or groundwater contamination is discovered, the Permitting, Enforcement and Remediation Division of DEP will be notified in writing and a further assessment will be made to determine the appropriate course of action.

A lead and asbestos survey of the Ninth Avenue building will be conducted to determine if these substances are present. If present, appropriate measures will be taken in accordance with State and local regulations for removal and disposal of these materials prior to demolition. These same procedures will be followed during demolition of the Roberts Avenue School.

3.16.3.2 Westside Campus

During construction activities, hazardous chemicals and wastes will be managed in accordance with all applicable Federal and State regulations and BMPs for chemical storage and handling. Spills of petroleum products or chemicals will be reported to applicable local, State, or Federal authorities as required. Although it is unlikely, if soil

and/or groundwater contamination is discovered, the Permitting, Enforcement and Remediation Division of DEP will be notified in writing and a further assessment will be made to determine the appropriate course of action.

The University will continue to implement its Integrated Pest Management (IPM) program at the new softball field to minimize pesticide application.

3.17 PUBLIC HEALTH AND SAFETY

3.17.1 Existing Setting

The Western Connecticut State University Police Division oversees campus safety and provides a variety of services to the student and faculty population. The WCSU Campus Police Department was established pursuant to Section 10a-142 of the CGS as an “organized police department” with the same authority and responsibilities as any municipal police department within the State of Connecticut. As the primary police presence for the University, the department consists of sixteen (16) police officers that conduct constant patrolling of the University’s grounds.

All WCSU Police Department officers are graduates of the Connecticut Police Academy and are empowered by state law to arrest, carry firearms and provide the same law enforcement services that local police provide for a city or town. The department is certified in cardiopulmonary resuscitation (CPR) training and officers have been qualified to operate the automatic external defibrillators (AEDs) that are deployed in police cruisers and at the athletic facilities. The department personnel also have completed all mandatory and elective recertification training provided by Police Officer Standards and Training Council (WCSU, 2009).

The Campus Police Department is located on the Midtown Campus in the same building as the heating plant on Roberts Avenue between the Student Center and Newbury Hall. Approximately thirty (32) emergency phones are stationed throughout campus, providing a direct line to the Police Department. In addition to emergency phones, the University has installed "courtesy" phones that provide for intra-campus calling. Courtesy phones are located on each floor of classroom buildings, in Alumni Hall, and residence halls. The Police Department can be reached from these phones by calling 79300 or "911" (WCSU, 2009). The Police Department also provides an escort service and shuttle service for personal safety, as well as a bike patrol. The Danbury Police Department is also responsible for public safety in areas outside of campus.

The Environmental and Facilities Services Department administers policies and procedures to protect faculty, students and staff from personal injury relating to environmental health and safety. The Department provides safety training and information relating to recycling of hazardous materials.

Fire fighting services are provided by the Danbury Fire Department and twelve volunteer fire companies. The Danbury Fire Department, which has full time paid personnel, is located on New Street in Danbury, approximately 2.5 miles away from Westside campus, and a half of a mile from Midtown campus. The closest volunteer fire station to Westside campus is the Mill Plain Fire Company on Mill Plain Road, approximately half of a mile from the campus. The closest volunteer fire station to Midtown campus is the Waterwitch Hose Company on the corner of Roberts Avenue and Locust Street, approximately 500 feet from campus.

All University buildings are equipped with state of the art fire alarm systems. All alarms are automatically reported to the University Police department which in turn, dispatches the city of Danbury Fire Department. All Danbury career firefighters are cross-trained to be EMS First-Responders and are equipped with Automatic External Defibrillators. The strategically located fire stations provide a rapid emergency medical response until the paramedic ambulances arrive (www.ci.danbury.ct.us).

WCSU Health Services, which treats students for most non-emergency primary health care, is on the Midtown Campus, across from the parking garage and in front of Litchfield Hall. Emergency medical service is available from Danbury Hospital located at 24 Hospital Avenue in Danbury, approximately quarter of a mile to the north of campus.

3.17.2 Impact Evaluation

As the number of students on campus increases, the University will need to consider hiring additional police. The University may assess the need for additional police personnel by conducting analyses like the Annual Campus Security Report which includes crime statistics reported on campus, on non-campus property and on public property adjacent to campus.

3.17.3 Mitigation Measures

Construction activities at the project site will be managed with adequate engineering controls and standards to prevent safety hazards to students and faculty on the campus. Emergency vehicle access will not be obstructed by construction activities or equipment.

The new parking garage and residence hall will be equipped with emergency telephones. Additional emergency phones may be required at various locations.

3.18 CONSISTENCY WITH ADOPTED MUNICIPAL AND REGIONAL PLANS

3.18.1 Existing Setting

WCSU is a State-owned institution; therefore, activities conducted within its borders are not subject to local land use regulations. However, where possible, the University strives to be consistent with municipal and regional planning efforts, therefore the Proposed Action is being evaluated relative to these plans. It should also be noted that municipal zoning regulations has no jurisdiction on property under State ownership.

The City of Danbury's Plan for Conservation and Development has five major planning themes: (1) growth and development, (2) the environment and open space, (3) urban design, (4) public improvements, and (5) state and regional planning. The Plan of Conservation and Development is the planning component of the City of Danbury's Comprehensive Planning Program, designed to set direction, guide development, and define expectations for future government action.

The Housatonic Valley Council of Elected Officials (HVCEO) is the State-designated regional planning organization for the greater Danbury-Milford area. HVCEO is required by State law to prepare an advisory "Growth Map" as a reference for planning for municipalities as they update their plans of development and zoning maps. The Future Growth Map advocates a mostly centralized development pattern, or "Responsible Growth" for the Region.

3.18.1.1 Midtown Campus

The WCSU Midtown Campus is zoned High-Rise Residential (RH-3), according to the 2009 Official Zoning Map of the City of Danbury (Amended 12/31/08). Danbury Zoning Regulations allow college or university uses under the RH-3 District, as well as uses associated with educational institutions, including off street parking facilities. The purpose of the High-Rise Residential Zoning District is to provide for: a compatible mix of high density residential, limited commercial, institutional and neighborhood uses in the urban core of the City.

According the City of Danbury Zoning Regulations, design standards which apply to RH-3 zoning districts include; screening at parking areas, front yard landscaping, provision for sidewalks and curbs which meet City standards, orientation of new buildings, and setbacks.

The Master Plan is consistent with the Housatonic Valley Council of Elected Official's (HVCEO) Regional Plan of Conservation and Development's Definition of "Responsible Growth" which calls for "Infill within Central Areas".

3.18.1.2 Westside Campus

The Westside Campus is zoned Single Family Residential District RA-40 according to the 2009 Official Zoning Map of the City of Danbury (Amended 12/31/08). The Westside Campus falls with the "Special Exception Use" category for colleges or Universities. The proposed Master Plan is consistent with the Use Regulations for RA-40

which requires vehicular access from an arterial street, municipal sewer and water facilities, minimum lot sizes, setbacks and accreditation by the State of Connecticut.

3.18.2 Impact Evaluation

3.18.2.1 Midtown Campus

The RH-3 Zoning design standards require a “Street Wall” effect from new buildings. By orientating the new Parking Garage parallel to Roberts Avenue and Ninth Avenue, the Master Plan is consistent with the “Street Wall” requirement. The proposed buildings’ site design will be consistent with the Zoning regulations.

The Master Plan is consistent with the City of Danbury’s Plan of Conservation and Development. One of the five major planning themes, Managing Growth and Development, aims to “concentrate future commercial, industrial, and medium to high-density residential development in the urban core and within the urban development area, as designated on Plan maps”. The Midtown Campus Master Plan proposes to reclaim already developed land and infill with a dormitory and new parking structure, thus promoting high-density residential development.

3.18.2.2 Westside Campus

HVCEO’s Future Growth Map designates the Westside Campus proposed project area as a “Near Central Area.” In a Near Central Area the “land areas (are) already largely built up (and) have near central, energy efficient locations. Growth potential for mixed uses and some housing at three or more units per acre” are planned for the Near Central Areas. The plan to build the proposed dormitories, Athletic Center expansion, and VPAC are therefore consistent with the Future Growth Map because municipal and private utilities are already servicing the area. According to the Zoning Regulations “Primary Growth Areas”, the proposed project sites are consistent because they share the energy efficiency of central areas and have major roadways and public transit nearby.

3.18.3 Mitigation Measures

3.18.3.1 Midtown and Westside Campuses

No mitigation measures are necessary because no adverse impacts are expected.

3.19 CONSISTENCY WITH STATE PLAN OF CONSERVATION AND DEVELOPMENT AND LOCALATIONAL GUIDE MAP

In accordance with Sections 16a-24 through 16a-33 of the CGS, the Office of Policy and Management (OPM) is required to prepare a State Plan of Conservation and Development (C&D Plan) on a recurring five-year cycle. The C&D Plan is a statement of the State's growth, resource management, and public investment policies and is designed to guide the planning and decision-making processes of the state using a

balanced response to human, environmental, and economic needs in a manner which best suits the future of Connecticut. State agencies are required by Public Act 91-395 to be consistent with the C&D Plan when they undertake various actions including the acquisition, development or improvement of real estate property when the costs are in excess of \$100,000. The C&D Plan was recently updated and is entitled "Conservation and Development Plan Update for Connecticut, 2005-2010." The Plan provides a Locational Guide Map that identifies eight land categories. Each category has associated development and conservation strategies and priorities based on the area's character of development, social structure, economic base, natural conditions, and public service facilities (OPM, 2005).

3.19.1 Existing Setting

3.19.1.1 Midtown Campus

The WCSU Midtown Campus is located within a "Regional Center" according to the Locational Guide Map of 2005. Regional Center's encompass "land areas containing traditional core area commercial, industrial, transportation, specialized institutional services, or facilities of intertown significance, and meet specific criteria regarding minimum population density and qualities of housing and income level." Regional Centers are considered a development priority 1, which is the "highest priority for affirmatively supporting rehabilitation and further development toward revitalization of the economic, social, and physical environment" of these areas.

3.19.1.2 Westside Campus

The WCSU Westside Campus is within a Growth Area, which contains "lands near Regional Centers or Neighborhood Conservation Areas that provide the opportunity for staged urban expansion generally in conformance with municipal or regional development plans". These areas are supported under the C&D Plan as development priority 3 (high) for "concentration of new growth that occurs outside of Regional Centers and Neighborhood Conservation Areas into specified areas capable of supporting large-scale, mixed uses and densities in close relationship to the Regional Centers".

3.19.2 Impact Evaluation

3.19.2.1 Midtown Campus

The proposed construction of the Master Plan within a Regional Center is consistent with the State Plan of Conservation and Development and the Locational Guide Map. The Master Plan's "five paramount issues (that) have directed the planning process" are; Preservation, Integration, Renewal, Adaptability and Development. These five major issues are consistent the C&D's aim which is to "further development toward revitalization of the economic, social, and physical environment" of this Regional Center. The proposed New Residence Hall, Parking Garage, Wellness Center and Student Center

addition will be supported by existing infrastructure and will be constructed on a site that supports “infill” development on the WCSU campus.

The C&D Plan presents six “Growth Management Principles” to guide the state’s efforts in improving interagency coordination and ensuring uniform application across state-sponsored projects, as well as municipalities and regional planning organizations when updating local plans of conservation and development. Growth Management Principle Number 1 is to redevelop and revitalize Regional Centers and areas with existing or currently planned physical infrastructure. This principle presents policies guiding a regional planning strategy for development areas (Regional Centers, Neighborhood Conservation Areas, Growth Areas and Rural Community Centers) in terms of nature of development, infrastructure, revitalization and reuse, and economic development. Construction of the new residence hall, parking garage, wellness center and student center addition is consistent with Growth Management Principle Number 1 in a variety of applications. The proposed project encourages fuller use of places with existing infrastructure and promotes compact, transit accessible, pedestrian-oriented mixed-use development patterns and infill development. Indirectly, by improving the quality of the University, the project supports expanded use of the state’s higher education institutions and promotes urban areas as centers for arts, entertainment and culture.

3.19.2.2 *Westside Campus*

The proposed construction of the VPAC and associated parking garage is within a Conservation Area. These areas currently consist of one paved and one gravel parking lot and University Boulevard. According to the C&D Policies Plan, in a “Conservation Area”, the long-term management of land should contribute to the state’s need for food, water and other resources and environmental quality by ensuring that any changes in use are compatible with the identified conservation value. In the case of the VPAC, parking garage and residential hall project sites, the Lake Kenosia Aquifer is the identified conservation value on these sites. These projects are not expected to negatively impact the aquifer, therefore they are consistent with the goals of the C&D Policies Plan.

The Location Guide Map also identifies portions of the Westside Campus as “Preservation Area.” This area is closely follows the delineated wetlands area shown on Figure 3-2. The remainder of the Westside Campus is planned as “Growth Area”, which allows for “staged urban-scale expansion in areas suitable for long-term economic growth that are currently less than 80% built up, but have existing or planned infrastructure to support future growth in the region.”

3.19.3 **Mitigation Measures**

3.19.3.1 *Midtown and Westside Campuses*

Mitigation measures are unnecessary due to no expected direct adverse impacts.

3.20 POPULATION, ECONOMY, EMPLOYMENT AND INCOME

3.20.1 Existing Conditions

There are several measures of economic conditions of the State of Connecticut, as well as of regions and municipalities within the State. Comparisons of these metrics for the City of Danbury, with regional and statewide statistics provide insight into the general economic health of the City.

The Connecticut Department of Labor (DOL) divides the State into several Labor Market Areas (LMAs). The City of Danbury is located in the Danbury LMA. The Danbury LMA includes the towns of New Milford, New Fairfield, Sherman, Bridgewater, Brookfield, Bethel and Danbury. The Danbury LMA experienced a decrease (4.5 percent) in the non-farm employment over the past year (Dec. 2008 to Dec. 2009), while the State of Connecticut total non-farm employment had slightly less of a decrease (3.5 percent). Comparison of Nov. 2008 and Nov. 2009 non-farm labor statistics for the City of Danbury indicates that the total non-farm employment has decreased from 69,500 to 66,900, a decrease of approximately 3.7 percent. Therefore, relative to the Danbury LMA, employment conditions are more favorable in Danbury.

According to the Connecticut Economic Resource Center, Inc. (CERC), the City of Danbury's 2008 total population was 78,939, which is expected to increase by 0.7 % annually over the period 2008-2013 (CERC, 2009). According to CERC, the median age in Danbury is 38 years. According to the CERC, the population of Danbury in 2008 was 75% White, 7% Black, 7% Asian Pacific, 11% Other Race/ Multi-Race and less than 1% Native American.

U.S. Census figures reveal that per capita income in Danbury was \$32,382, approximately \$17,843 less than Fairfield county per capita income and \$4,701 less than statewide per capita income. The overall poverty rate for the City of Danbury was 7.0%, which is lower than the rate in Fairfield County (7.2%) and the State (8.5%) (Census, 2008).

The most common occupations in Danbury were: management, professional, and related occupations (32 percent); Sales and office occupations (23 percent); Service occupations (18 percent); Construction, extraction, maintenance and repair occupations (14 percent); and Production, transportation, and material moving occupations (13 percent). Eighty-four percent of the people employed were private wage and salary workers; 9 percent were Federal, state, or local government workers; and 7 percent were self-employed workers (Census, 2008).

The top five major employers in the City of Danbury in 2002 were the City of Danbury School System, Danbury Hospital, CARTUS, G.E. Commercial Finance and Pitney Bowes, Inc. (CERC, 2009).

In order to compare the areas surrounding the campuses with greater Danbury and the State, a square mile of land surrounding the campuses was looked at. Three census tracts make up each campus area. The Midtown campus is made up of census tracts 2101, 2102 and 2103. The Westside campus is made up of census tracts 2105, 2108 and 2109. The City of Danbury is broken into several census tracts. “A census tract is a small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tract boundaries normally follow visible features, but may follow governmental unit boundaries and other non-visible features in some instances; they always nest within counties. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment, census tracts average about 4,000 inhabitants” (www.census.gov).

3.20.1.1 *Midtown Campus*

According to the 2000 Census, the combined average of the Census tracts 2101, 2102 and 2103 has a lower per capita median household income than the City of Danbury and the State (see Table 3-10). The poverty rate of this area, surrounding the Westside Campus, is also much higher than the City’s and the State’s. The area around campus is defined by the census tracts within a half mile surrounding campus. These campus tracts were then averaged together to determine a value.

According to the 2000 Census, the population within a half mile radius of Midtown campus was approximately 67% White, 7% Black, 5% Asian, 20.5% Other Race/Multi-Race and less than 1% Native American. Hispanic or Latino peoples are 26.5% of the population. These values were assigned by averaging the totals of the each census tract found within the square mile area.

3.20.1.2 *Westside Campus*

According to the 2000 Census, the combined average of the Census tracts 2105, 2108 and 2109 has a higher per capita median household income than the City of Danbury and the State (see Table 3-5). The poverty rate of the area surrounding campus is also much lower than the City’s and the State’s. The area around campus is defined by the census tracts within a half mile surrounding campus. These campus tracts were then averaged together to determine a value.

According to the 2000 Census, the population within a half mile radius of Westside campus was approximately 87% White, 5% Black, 4% Asian, 4% Other Race/Multi-Race and less than 1% Native American. Hispanic or Latino peoples are 6.5% of the

population. These values were assigned by averaging the totals of the each census tract found within the square mile area.

Table 3-5. General Census Statistics for WCSU Campus, City of Danbury and the State of Connecticut, 2000.

Census Tract/ Geographic Area	Midtown Campus*	Westside Campus**	Danbury	Connecticut
Total Pop. (2000)	17,802	16,188	74,848	3,405,565
Household Income (1999)	Median- \$42,610 Mean-\$48,3337	Median- \$76,014 Mean- \$91,069	Median-\$53,664 Mean-\$65,979	Median-\$53,935 Mean-\$74,196
Per Capita Income (2000)	\$16,951	\$34,402	\$24,500	\$28,766
Poverty Rate (1999)	11.2%	3.7%	8.0%	7.9%

*A one square mile area surrounding campus. Census Tracts: 2101, 2102, 2103

**A one square mile area surrounding campus. Census Tracts: 2105, 2108, 2109.

3.20.2 Impact Evaluation

3.20.2.1 Midtown Campus

The construction of the proposed residence hall, Wellness Center, parking garage and facilities renovations is expected to impact the population, economy, employment and income in the local area and the region. Short term positive impacts to the local economy would be realized by the addition of construction jobs and the need to service construction workers in the area (building materials, patronage to local eating establishments and businesses). The operation of the residence hall, Wellness Center and Parking will commensurate an increase in staff as is proportional to an increase of student body, classroom space and building uses. An increase of student population levels may benefit the local economy through the goods and services they acquire locally.

3.20.2.2 Westside Campus

The construction of the proposed residence halls, VPAC, parking garage and relocation of the athletic facilities is expected to positively impact the population, economy, employment and income in the local area and the region. Short term positive impacts to the local economy would be realized by the addition of construction jobs and the need to service construction workers in the area (building materials, patronage to local eating establishments and businesses). The operation of the VPAC, parking garage and residence halls will commensurate an increase in staff as is proportional to an increase of student body, classroom space and building uses. An increase of student population levels may benefit the local economy through the goods and services they acquire locally.

3.20.3 Mitigation Measures

3.20.3.1 Midtown and Westside Campuses

There would be no negative impact on population, employment or income expected, therefore no mitigation is warranted.

3.21 HOUSING

3.21.1 Existing Conditions

A square mile of land surrounding the campuses consisting of three census tracts each were averaged together in order to provide a more precise account of the housing situation around both of WCSU's campuses. The Midtown campus is made up of census tracts 2101, 2102 and 2103. The Westside campus is made up of census tracts 2105, 2108 and 2109.

Based on the 2006-2008 American Community Survey data set by the U.S. Census Bureau, approximately 44.3% of the housing units in Danbury are single-family homes. Two-family homes make up 9.2% of all housing units in the City. Three- and four-unit homes compose about 14.4% of the total number of units, while 5 to 9 unit structures comprise approximately 6.2% of all units. About 12.1% of the units are structures with 10 or more units, and mobile homes make up approximately 1.5% of the housing stock in Danbury.

Table 3-6. Housing Conditions in Danbury and Areas Surrounding WCSU Campuses

Geographic Area	Housing Vacancies (%)			
	Owner Occupied	Renter Occupied	Occupied	Vacant
Danbury	74	26	93	7
Midtown	39	61	94	6
Westside	79	21	97	3

U.S. Census Bureau- Data Set 2006-2008 American Community Survey 3-Year Estimate

3.21.1.1 Midtown Campus

In the area that directly surrounds the Midtown campus, the owner occupied housing rate is considerably lower than that of the City and of the Westside Campus. The vacancy rate is similar to the City's rate (see Table 3-6).

3.21.1.2 Westside Campus

In the area surrounding the Westside Campus, the owner occupied housing rate is higher than the City's rate and vacancy rates are less (Table 3-6).

3.21.2 Impact Evaluation

3.21.2.1 Midtown Campus

The proposed, 300-bed residential hall will be constructed on the site of the Roberts Avenue School and eastward. The new residential hall will have a building footprint of approximately 20,200 square feet. In correspondence received from WCSU's Housing Department, approximately 80% of students who live off-campus, live at home with parents or family. The remaining 20% live mostly in nearby apartments or rental homes. With the construction of the new 300-student residential hall, some of these individuals may relocate to on-campus housing.

3.21.2.2 Westside Campus

The proposed, 394-bed residential hall complex will consist of three buildings and will be constructed within existing University property. The site chosen for the new residential complex sits on top of the existing University Boulevard. The increased number of student housing on the Westside Campus will not be likely to significantly affect the local housing stock.

3.21.3 Mitigation Measures

3.21.3.1 Midtown and Westside Campuses

There is no significant impact to housing expected, therefore mitigation is not warranted.

3.22 CONSISTENCY WITH STATE ENVIRONMENTAL EQUITY POLICY

In part, the State's Environmental Equity Policy (a.k.a. Environmental Justice) states "...no segment of the population should, because of racial or economic makeup, bear a disproportionate share of risks and consequences of environmental pollution or be denied equal access to environmental benefits".

The following discussion of environmental justice incorporates 2000 census data from the U.S. Census Bureau, as presented in Section 3.24.1 above, to provide an overview of minority and low-income populations in the vicinity of the proposed work.

3.22.1 Existing Conditions

3.22.1.1 Midtown Campus

The WCSU Midtown campus is located a half mile east of downtown Danbury. The campus exists entirely in the Fairfield County, block group 2 of census tract 2102. A census block group is a geographical unit used by the United States Census Bureau which is between the census tract and the census block. It is the smallest geographical unit for which the bureau publishes sample data, i.e. data which is only collected from a fraction

of all households. The block group in which Midtown campus is located is bound by the railroad track to the south, Maple Avenue to the west, Osborne Street to the north, and Ninth Avenue to west. The following paragraph describes the demographics of the 2000 demographic data for this area and provides a snapshot of the demographic makeup surrounding the campus.

The total population in block group 2 of census tract 2102 was 1,861 people according to the 2000 census. This population consists of approximately 69.2% white and 30.8% non-white. While the race distribution of this college population was unavailable from 2000 census data, the WCSU application brochure for 2002 estimates 16% of the student population as minorities. According to the 2000 census, block group 2 of census tract 2102 had a total of 426 housing units. Of the total units, 93% were occupied and 7% were vacant. Of the occupied units, 13.4% were owner-occupied, while 86.6% were renter-occupied (US Census, 2000).

The percentage of individuals below the poverty level was 10% for census tract 2102, according to the 2000 U.S. census data. This information is only available at the census tract level, and therefore represents a wider area than the block group described above.

3.22.1.2 Westside Campus

The WCSU Westside campus is located within block group 3 of census tract 2108 in Danbury, Fairfield County. This block group is bound by the New York/Connecticut state border, Middle River Road, Westville Avenue Extension, Mill Plain Road and Driftway Road. The following paragraph presents the 2000 demographic data for this area, to provide an analysis of the community surrounding the campus and the sites of the proposed work.

The total population in block group 3 of census tract 2108, encompassing and surrounding the University campus, was 2,022 in the 2000 census. This population is consists of approximately 25% minorities (non-White). While the race distribution of this college population was unavailable from 2000 census data, the WCSU application brochure for 2002 estimates 16% of the student population as minorities. According to the 2000 census, block group 3 of census tract 2108 had a total of 610 housing units. Of the total units, 97% were occupied and 3% were vacant. Of the occupied units, 67.7% were owner-occupied, while 37.3% were renter-occupied.

The percentage of individuals below the poverty level for whom poverty status has been determined was 5.9% for census tract 2108, according to the 2000 U.S. census data. This information is only available down to the tract level and thus is presented for all of census tracts 2108 and is not limited to block group level.

3.22.2 Impact Evaluation

3.22.2.1 Midtown Campus

Disproportionately high and adverse human health or environmental effects are not expected to be associated with construction of the Master Plan build out. Development of the Midtown campus including the proposed residence halls, parking garage, redirected vehicular circulation and building expansions are meant to improve the campus and maintain a viable and productive college community. Improvements to the University are unlikely to have any adverse impacts to the surrounding population, including minorities and low-income individuals. There will be short-term impacts to the neighborhood near the project site associated with construction, including noise and low to moderate increases in air pollution from construction vehicles and dust. These impacts are discussed in Sections 3.9, Air Quality, and Section 3.10, Noise. The increase in on-campus parking will alleviate occurrences of students or faculty parking on neighborhood streets.

3.22.2.2 Westside Campus

Disproportionately high and adverse human health or environmental effects are not expected to be associated with construction the Master Plan build out. Development of the Westside campus with the proposed residence halls, Visual Performing Arts Center, parking garages and athletic complex additions are meant to improve the campus and maintain a viable and productive college community. Improvements to the University are unlikely to have any adverse impacts to the surrounding population, including minorities and low-income individuals. There will be short-term impacts to the neighborhood near the project site associated with construction, including noise and low to moderate increases in air pollution from construction vehicles and dust. These impacts are discussed in Sections 3.9, Air Quality, and Section 3.10, Noise.

3.22.3 Mitigation Measures

3.22.3.1 Midtown Campus

No significant impact to local minority or low income populations are expected as a result of the Proposed Action. Positive economic benefits would be realized for the community during construction as the construction contractors will likely use local services.

Minor impacts associates with temporary increases in air emissions and noise will be mitigated by limiting construction to normal working hours, Monday through Friday, so as to minimize impacts to residents in the area.

3.22.3.2 Westside Campus

No significant impact to local minority or low income populations are expected as a result of the Proposed Action. Positive economic benefits would be realized for the

community during construction as the construction contractors will likely use local services.

Minor impacts associated with temporary increases in air emissions and noise will be mitigated by limiting construction to normal working hours, Monday through Friday, so as to minimize impacts to residents in the area.

4 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

4.1 CONSTRUCTION PHASE

Air Quality. Temporary, insignificant impacts to air quality from vehicular emissions, construction equipment, and dust would likely result from construction related activities.

Noise. During construction of the proposed Master Plan facilities, there would be short-term increases in noise levels in and around the construction site including occasional blasting at the Westside Campus.

Transportation. During construction, there would be a temporary increase in truck traffic near the site and at streets and intersections surrounding the University.

Solid Wastes and Recycling. Construction activities would result in the temporary generation of additional solid waste due to site preparation (including the removal of soil), utility relocation, and construction material packaging and waste.

Stormwater. Excavation of the site for construction and utility relocation would increase the potential for erosion and sediment transport during wet weather periods while bare earth is exposed on the site.

Energy. Construction-related energy usage would produce a one-time energy demand including the energy utilized in the production and installation of construction materials.

4.2 OPERATIONAL PHASE

Transportation. The proposed Master Plan would result in an increase in the number of vehicle trips on roadways in the vicinities of both campuses. This in turn would result in a nominal increase in noise and air pollutant emissions.

Solid Waste and Recycling. The addition of new facilities at both campuses would generate additional solid waste and recyclable goods in the form of trash from garage users and maintenance personnel. This volume of material is expected to be relatively minor over existing operations.

Light. There will be a minor increase in the amount of light on and off-campus. Residences along Ninth Avenue at the Midtown Campus would experience a new light source from the proposed parking garage, but this will be minimized by utilizing light fixtures that direct lighting downward.

Energy. The Master Plan projects at both campuses would consume additional energy for electricity, heat and cooling. However, most of these projects will be LEED® certified and, therefore, their energy usage would be less than that of a traditional structure.

Stormwater. The proposed Master Plan at the Midtown Campus would result in an overall slight decrease in impervious area and peak flows on campus because of the increase in lawn and landscaped areas.

There will be an increase in stormwater flow from the Westside Campus due to an increase in impervious surface area associated with new building construction.

Visual Resources. The Master Plan projects at both campuses would result in a net positive effect on the visual characteristics as viewed from both on and off-campus viewpoints.

Agricultural Soils. There will be a loss of approximately 1.9 acres of soil that is mapped as Prime Farmland Soil and 1.4 acres of soil mapped as Farmland Soils of Statewide Importance that may be impacted by construction of the softball and baseball fields. However, its value as agricultural soil is limited because of prior disturbances and its intended educational use.

Pesticides, Toxic or Hazardous Materials. Although the analysis of previously recorded spills and incidents has revealed that there is a low probability of encountering contaminated soils, there is the potential for encountering such conditions during construction. The only area of known contamination is lead-based paint contained within the Roberts Street Elementary School at the Midtown Campus.

5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The following is a summary of the non-recoverable resources associated with construction and operation of a new parking garage at ECSU. For detailed information, see the appropriate subsections of Section 3 in this EIE.

Utilities and Services. Operation of the new facilities proposed as part of the Master Plan would use water and generate waste above and beyond what is currently generated. However, because many of the facilities will be LEED® certified, water use and waste generation will be reduced. For example, the use of greywater return systems may be employed and water-saving fixtures will be installed.

During the construction phase, additional water would be used for drinking, dust control, and other construction-related needs.

Energy. Construction and operation of the facilities associated with the Master Plan projects at both campuses would require non-recoverable energy expenditures.

Economic Resources. The estimated construction cost for the Master Plan is \$400 million (2007 dollars). There are also operational costs associated with each of the

facilities. The construction and operation costs are borne by Connecticut tax payers and University students.

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6 SUMMARY OF MITIGATION MEASURES

6.1 CONSTRUCTION PHASE

Transportation. During construction, campus security and/or City police will manually direct traffic to appropriate and safe locations. This will be done on a project-by-project basis where plans will be developed for the maintenance and protection of traffic. Traffic will follow all posted speed limits and pedestrian crossing rules for maximum safety of campus pedestrians. Construction traffic would use the Charter Oak Road entrance to the campus in order to avoid the more heavy pedestrian areas of the central campus.

During construction of the VPAC a temporary parking lot consisting of gravel will be provided in the vicinity of the Ives Center to account for lost spaces during construction.

Air Quality. Temporary, insignificant impacts to air quality will be mitigated through the use of BMPs such as minimization of exposed erodible earth area, stabilization of exposed earth, work areas, haul roads and stockpiled material, use of covered haul trucks, and minimizing the transport of soil by construction equipment from unpaved to paved surfaces. Increased emissions from construction related traffic will be mitigated through implementation of appropriate traffic controls, such as limiting idle time of heavy equipment to 3 minutes, as required by Section 22a-174-18(b)(3)(C) of the RCSA, and using construction equipment with air pollution control devices.

Noise. Noise impacts to the surrounding area will be minimized by limiting construction activities to weekday, daytime work hours. The noise mitigation measures used during construction would be subject to the continuing approval of the site engineer. Blasting of rock at the Westside campus will follow prescribed regulations for notification and monitoring.

Water Quality. Erosion and sedimentation control will be applied through the use of erosion and sediment control measures, and BMPs, to prevent polluted stormwater from running off and entering surface waters. If the project involves disturbance of one or more acres of land, a SWPCP will be developed and maintained on-site at all times to ensure that construction will satisfy conditions under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities, administered by the DEP.

Public Health and Safety. Construction traffic will follow all posted speed limits and pedestrian crossing rules for maximum safety of campus pedestrians. Construction activities at the project site will be managed with adequate engineering controls and standards to prevent safety hazards to students and faculty on the campus. Emergency vehicle access will not be obstructed by construction activities or equipment.

6.2 OPERATION PHASE

Transportation. There would be unacceptable Levels of Service (LOS) at the White Street at Fifth Avenue and Osborne Street at Fifth Avenue intersections. CSUS will coordinate with the City of Danbury regarding potential remedies.

At the Westside Campus, lighting and/or markers will be installed at two rooftop locations as navigation aids for air traffic approaching and departing Danbury Municipal Airport.

Wetlands

During the design phases of the various Master Plan projects at the Westside Campus, efforts will be made to avoid, minimize and/or mitigate wetland impacts. If wetland impacts do occur, then the University will provide wetland mitigation through creation of replacement wetlands and/or restoration of degraded wetlands. Suggested wetland replication areas are shown in Figure 3-2.

Water Resources and Quality. The project will comply with stormwater management standards specified in section 25-68d of the CGS and section 25-68h-3 of the RCSA. Stormwater runoff from the top, exposed level of the parking garages will be directed to a gross particle separator and then eventually conveyed to a stormwater system. Runoff from the interior, lower levels of the garages will be treated by oil and water separators prior to being discharged to the University's sanitary sewer system. The oil-water separators and gross particle separators will reduce potential contamination during storm events.

During the design phases of the parking garage and other Master Plan projects, analyses will be conducted to ensure that there are no adverse effects on downstream resources as stipulated in Sections 25-68b through 25-68h, inclusive of the CGS and Sections 25-68h-1 through 25-68h-3 of the RCSA.

Light

Potential lighting impacts at the Midtown campus will be mitigated by specification of light fixtures that minimize light trespass to adjacent residential areas.

Aesthetics/Viewsheds

Architectural treatments of the parking garage proposed along Ninth Avenue will be similar to that of the garage along Fifth Avenue so as to mitigate for potential aesthetic impacts to Ninth Avenue residents.

Pesticides, Toxic or Hazardous Materials

Lead paint at the Roberts School will be removed prior to demolition in accordance with applicable State and Federal guidelines and regulations.

7 COST BENEFIT ANALYSIS

It has been estimated that the total cost for implementing the Master Plan at both campuses would be approximately \$400 million (SMMA, 2007). Projects would be paid for by either Connecticut Health and Educational Facilities Authority (CHEFA) or General Obligation Bond funds. Both sources are borne by the taxpayers of Connecticut and student tuitions.

Economic benefits would be realized for the City of Danbury, the region and the State of Connecticut. The economic impacts of the project encompass several components including jobs, earnings and output that area realized as either direct or indirect consequences of construction and operation.

The proposed construction would cause an increase in construction and related jobs throughout the Master Planning period of approximately 15 years. Indirect benefits would occur within the City for businesses that provide support services for these contractors.

Earnings, i.e. salaries and wages paid to employees would result in direct and indirect positive benefits to the City of Danbury and to the communities in which these employees reside.

Besides construction-related employment, there would be an increase in the number employees at the University with the addition of new facilities. Additional educators, administrative staff and maintenance personnel would be needed. Although there is projected to be only a modest increase in student enrollment, a higher percentage of students would be residing on campus. This will create additional economic benefit to local services in and around both campuses.

The City of Danbury would also receive an increase in their Payment in Lieu of Taxes (PILOT) money it receives from the State of Connecticut because the Master Plan would increase the value of the University.

While the Master Plan would have a cost of approximately \$400 million, there would be significant positive economic benefits to the City of Danbury, the region and the State of Connecticut through increased jobs, earnings and their associated secondary economic effects.

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8 POTENTIAL CERTIFICATES, PERMITS AND APPROVALS

Table 8-1 summarizes the environmental-related certificates, permits and approvals that would likely be required for the construction and operation of projects associated with the Master Plan.

Table 8-1. Potential Certificates, Permits and Approvals Required for WCSU Master Plan Implementation

Certificate, Permit, or Approval	Reviewing Agency	Comments
General Permit for Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities	DEP	For ≥ 1 acres of disturbance. Registration and plan required prior to initiating activities.
Flood Management Certification Section 25-68 CGS	DEP	New or modification to stormwater drainage requires certification of compliance with Section 25-68 CGS and 225-68h-3 of RCSA by state agency.
Soil and Special Waste Disposal Approvals	DEP	May be required for disposal of waste generated during utility relocation or demolition activities
State Wetlands Permit	DEP	Would apply to: new or rehabilitated stormwater outfall structures; construction of new softball, baseball and soccer fields; road near Stadium.
Section 404 Wetlands Permit	USACE	Construction of new softball, baseball and soccer fields; road near Stadium.
Utility Relocation Plan review and approval	DEP, City of Danbury	Review required before relocating/installing utilities
Water Diversion Permit	DEP	May be required for new stream crossings or culvert replacements for watersheds of >100 acres.
State Traffic Commission (STC) Certificate	STC	Required for facilities with > 200 parking spaces. Modification of existing permits at both campuses.

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