FLORIDA INTERNATIONAL UNIVERSITY

CAMPUS MASTER PLAN UPDATE 2010-2020

Focus Groups Work Session #1

27/28/30 AUGUST **2012**

PERKINS+WILL

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance

Amir Mirmiran, Steering Committee Advocate
Nick DiCiacco (Facilities)
Bobby Grillo (Information Technology)
Danny Paan (Construction)
College of Engineering Representative (Infrastructure)
FPL Representative
Sergio Garcia and Jose Soto (WASAD)
Jose Rodriguez (AHC)
Amaris Beza (FIU Student-Civil Engineering)
Devon Barroso (FIU Student-MEP Engineering)

Gene Kluesner, P+W
James Tatone, Affiliated Engineers – Electrical/IT
Daniel Cesar, AEI – Chilled Water
Rodrigo Pigna, Miller Legg, Infrastructure

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance

- Provide overview of Campus Master Plan process, project schedule, and meetings
- *Review and prioritize pertinent Evaluation and Appraisal Report (EAR) issues per group element(s)*
- *Key Issues that are important to You* - bring information to meeting to share with group
- Studies or Initiatives underway that would be helpful to incorporate in master plan
- Discuss additional university strengths, weaknesses, opportunities and threats
- Confirm Best Practices

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance

Utilities & Maintenance Focus (Affiliated Engineers)

- Chilled Water
- Electrical Service
- Information Technology

Infrastructure Focus (Miller Legg)

- Potable Water
- Sanitary Sewer System
- Stormwater Management
- Solid Waste

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance – EAR Agenda Items

Utilities/Facilities Maintenance

- Chilled water pumping capacity upgrades
- Updated building standards
- Reduce energy consumption by 10%
- Consider alternate sources of energy, i.e. co-gen, thermal storage, etc.

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance – EAR Agenda Items

Utilities/Facilities Maintenance

- EMS controlled central lighting system (95% of buildings)
- Lighting upgrades (T8 lamp replacement)
- Increase wireless IT capacity throughout campus
- Update design guidelines and building standards

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance – EAR Agenda Items

Utilities/Facilities Maintenance

- FPL requirements for building standards → FPL incentives
  - Thermal Energy Storage
    - Feasibility Study → $2,500 incentive
    - $464 - $580 per ton of on-peak period summer cooling load removed
    - $16 - $20 per ton for initial system Cx
  - High Efficiency Chillers → Incentives vary based on equipment
  - Demand Control Ventilation → Incentives vary

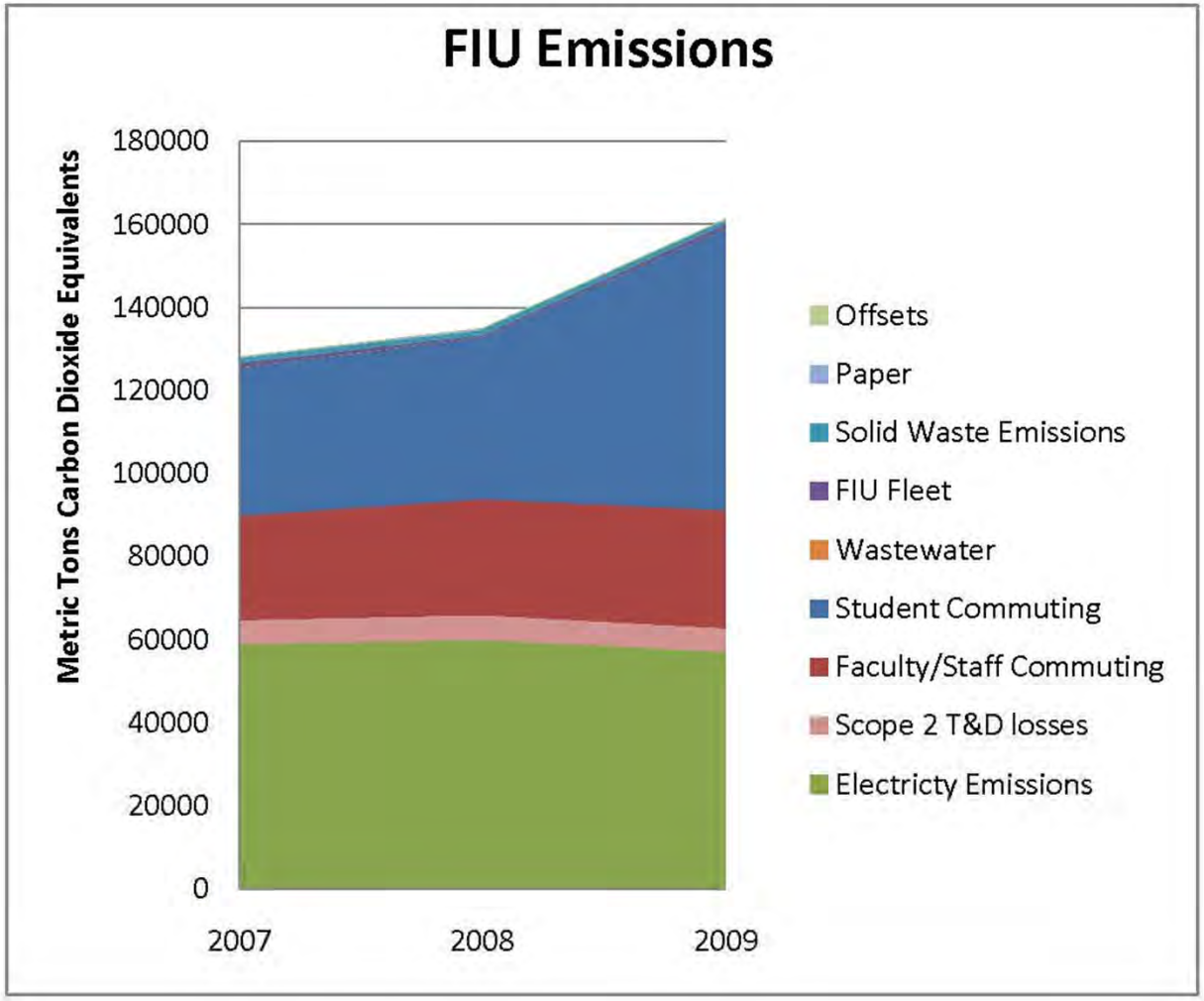
Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance – EAR Agenda Items

Utilities/Facilities Maintenance

- FPL requirements for building standards → FPL incentives
    - Energy Recovery Ventilation → FPL incentives available if not required by code
    - Lighting upgrades
    - Demand response program
- **American College and University President's Climate Commitment (ACUPCC)**

FIU Greenhouse Gas Inventory



FIU | FLORIDA INTERNATIONAL UNIVERSITY

2nd Greenhouse Gas Inventory Report

September 15, 2010

Office of University Sustainability

GoGreen.FIU.edu

Focus Group 5

Group 5 Infrastructure, Utilities & Maintenance

Business Model for Utilities

- How are cost of utilities assigned? (i.e. Physical Plant or assigned to each department)
- Does FPL bill for each meter at each service on campus or one single primary meter?
- Are BTU meters installed at each building to measure chilled water energy consumption?
- How is gas service billed on campus, i.e. one main campus meter or per service at each building?
- FPL Easements – Blanket or Prescriptive?

Modesto Maidique Campus

Chilled Water Distribution Plan

LEGEND

BLDG. #	BUILDING NAME
01	CHARLES E. PERRY PRIMERA CASA
02	DEUXIEME MAISON
03	ERNEST R. GRAHAM UNIV. CTR.
04	VIERTES HAUS
04A	CENTRAL UTILITIES ONE
05	STEVEN & DOROTHEA GREEN LIB.
06	OWA EHAN
06A	WERTHEIM CONSERVATORY
07	U.S. CENTURY BANK ARENA
08	ENGINEERING & COMPUTER SCIENCE
09	CHEMISTRY & PHYSICS
10	BUILDING TEN
11	RYDER BUSINESS BUILDING
12	UNIVERSITY HEALTH SVC. COMPLEX
13	LABOR CENTER
14	SANFORD & DOLORES ZIFF EDU.
14A	INFORMATION CENTER
15	BASEBALL STADIUM
16	HERBERT & NICOLE WERTHEIM CTR.
17	CHILDREN'S CREATIVE LEARNING
19	PANTHER RESIDENCE HALL
19A	UNIVERSITY PARK TOWER
19B	EVERGLADES HALL
19CN	LAKEVIEW HOUSING - NORTH
19CS	LAKEVIEW HOUSING - SOUTH
20	STUDENT ATHLETICS ACADEMIC CTR.
21	ACADEMIC HEALTH CENTER 1
21A	ACADEMIC HEALTH CENTER 2
22	CAMPUS SUPPORT COMPLEX SHOPS
23	CAMPUS SUPPORT COMPLEX ADMIN.
24	PAUL CEJAS ARCHITECTURE
25	MANAGEMENT & ADVANCED RESEARCH
26	CARLOS FINLAY ELEMENTARY SCHOOL
27	RAFAEL DIAZ-BALART HALL
28	RONALD W. REGAN PRES. HOUSE
29	THE PATRICIA & PHILLIP FROST MUSEUM
30	COLLEGE OF BUSINESS COMPLEX
31	CENTRAL UTILITIES TWO
31A	SATELLITE CHILLER PLANT
32	FIU COMMUNITY STADIUM
32A	FIU COMMUNITY STADIUM EXPANSION
33	RECREATION COMPLEX
36	SCHOOL OF INTER & PUBLIC AFFAIRS
39	ACADEMIC HEALTH CENTER 3
40	WOMEN'S SOFTBALL/ TENNIS CX
41	HURRICANE CENTER
42	ACADEMIC HEALTH CENTER 4
47	ART STUDIO
55	PARKVIEW HOUSING

BLDG. #	BUILDING NAME
C01	TOWER
C05	DUPLICATING CENTER
CW1	PC/DM COVERD WALKWAY
CW2	DM/GL COVERD WALKWAY
CW3	PCA COVERD WALWAY
CW4	GL/GC COVERD WALKWAY
CW5	OE/CP COVERD WALKWAY
CW6	PG1/PC COVERD WALKWAY
GHI	GREEK HOUSING I
GHII	GREEK HOUSING II
GZ1	GAZEBO 1
GZ2	GAZEBO 2
GZ3	GAZEBO 3
GZ4	GAZEBO 4
GZ5	GAZEBO 5
GZ6	GAZEBO 6
M01	RECREATION TRAILER
M05	CC.LC TRAILER
PG1	PARKING GARAGE 1 GOLD
PG2	PARKING GARAGE 2 BLUE
PG3	PANTHER PARKING GARAGE
PG4	RED PARKING GARAGE
PG5	PG5 MARKET STATION
SH	SOLAR HOUSE
THA	A UNIVERSITY APARTMENTS
THB	B UNIVERSITY APARTMENTS
THC	C UNIVERSITY APARTMENTS
THD	D UNIVERSITY APARTMENTS
THE	E UNIVERSITY APARTMENTS
THF	F UNIVERSITY APARTMENTS
THG	G UNIVERSITY APARTMENTS
THH	H UNIVERSITY APARTMENTS
THJ	J UNIVERSITY APARTMENTS
THK	K UNIVERSITY APARTMENTS
THL	L UNIVERSITY APARTMENTS
W01	WEST 1
W01A	WEST 1A
W01B	WEST 1B
W01C	CERAMICS
W02	WEST 2
W03	WEST 3
W05	WEST 5
W06	WEST 6
W06A	DOGOUT 3
W06B	DUGOUT 4
W06C	PRESS BOX & DUGOUT
W07	WEST 7
W09	WEST 9
W10	WEST 10
W10A	WEST 10A
W10B	ADMINISTRATIVE SYSTEM I
W10C	ADMINISTRATIVE SYSTEM II
W10T	WEST 10 TRAILER

Site Inventory
102 Buildings
7,038,930 GSF
344.239 ACRES

FLORIDA INTERNATIONAL UNIVERSITY

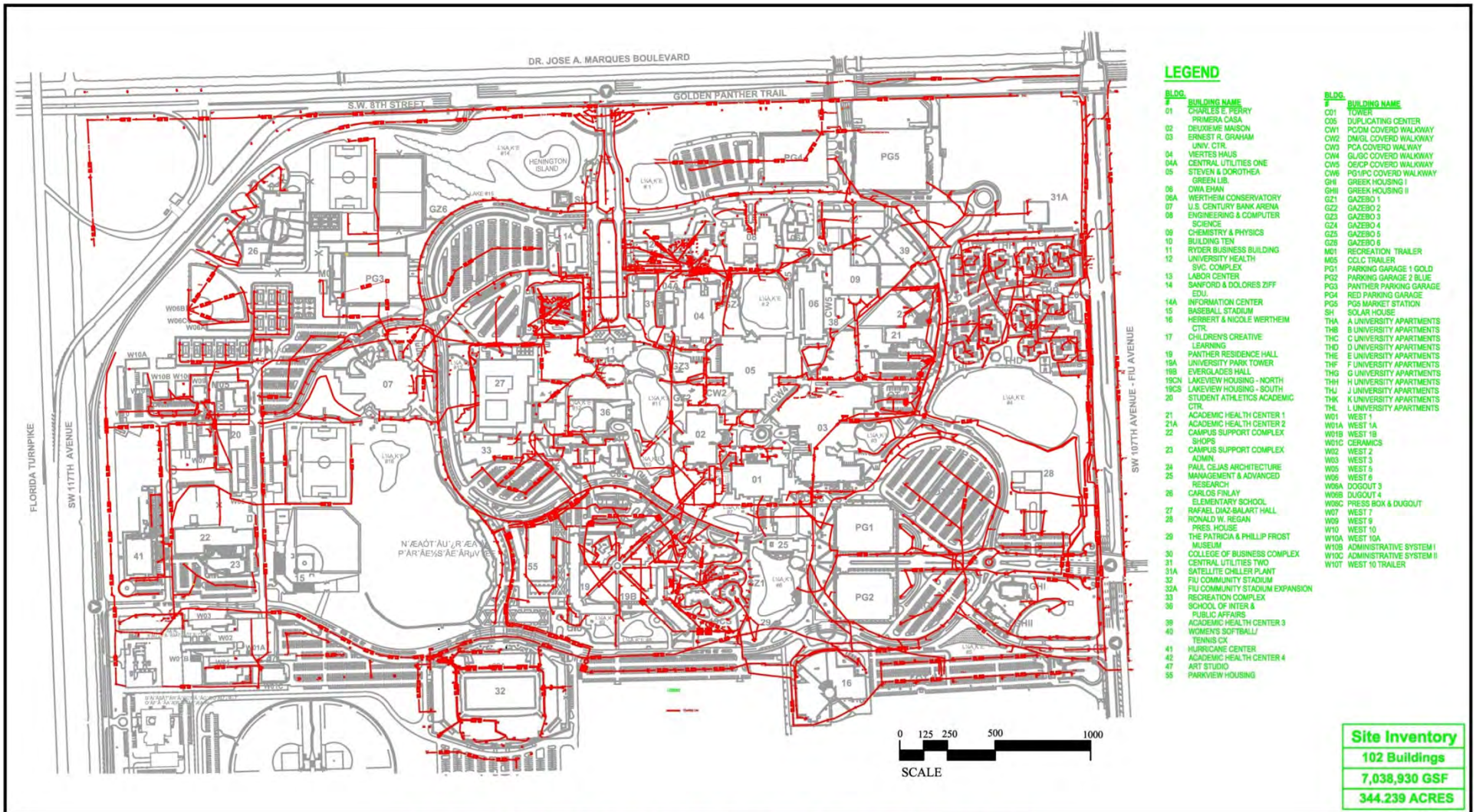
- MODESTO A. MAIDIQUE CAMPUS - CHILLED WATER DISTRIBUTION -

NORTH

JULY 9, 2012

Modesto Maidique Campus

Electrical Distribution Plan



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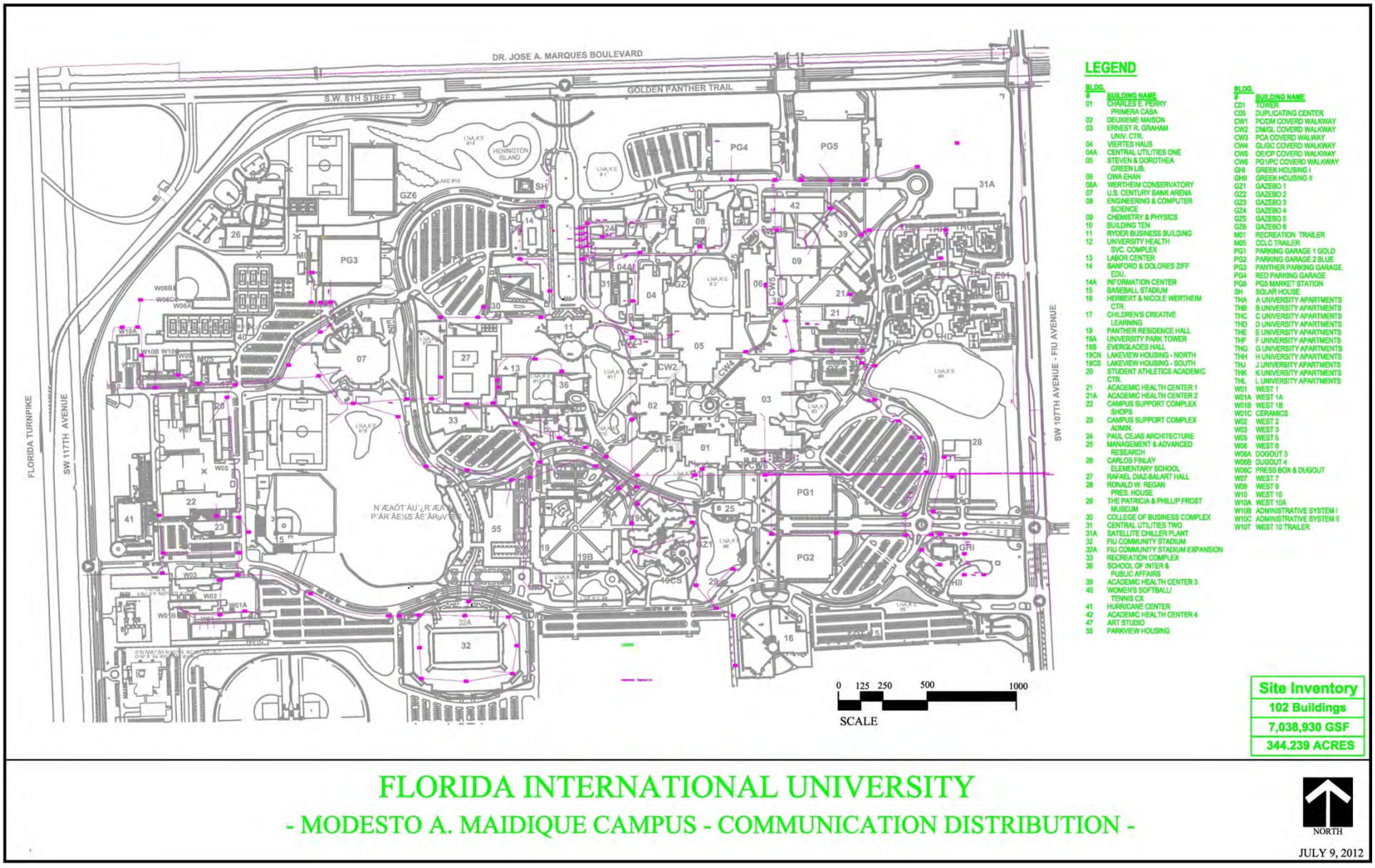
- MODESTO A. MAIDIQUE CAMPUS - ELECTRICAL DISTRIBUTION -

NORTH

JULY 9, 2012

Modesto Maidique Campus

Communications Plan



FIU FLORIDA INTERNATIONAL UNIVERSITY

Prioritize EAR Issues

Focus Group 5

Tuesday, August 28th, 3:00PM – 5:00PM

Group 5 Infrastructure, Utilities & Maintenance - EAR Agenda Items:

Infrastructure

1. Address old infrastructure to correct existing deficiencies and to meet the future needs of the University
2. Make sustainable building techniques and enforcement of smoke free areas a best practice in the Campus Master Plan
3. Facilitate LEED Certification for new construction and for renovation, operation and maintenance; to help ensure competitive recruitment and retention
4. Develop best Practice plans and procedures for storm water control and treatment to prevent pollution of groundwater, untreated runoff into surrounding waterways and to prevent flooding of low-lying areas and adjacent properties.
5. As part of the solid waste goals, objectives and policies, attention should be given to policies which lead to the implementation of programs for the recycling of white materials goods.
6. Develop partnerships, goal, objectives, and policies for the University to participate in the Solid Waste Management Trust Fund.

Utilities/Facilities Maintenance

1. Consider the use of photovoltaic installations on flat rooftops to reduce utility cost
2. Ensure that future chilled water, electrical power, and telecommunications facilities are developed to serve the needs of planned capital improvements projects and correct existing deficiencies
3. Require a review of energy utilization in order to eliminate costs associated with increasing capacity of infrastructure; reduce loads where possible to reduce demand on utilities
4. Modify and maintain building standards to comply with FPL-recommendations and participate in FP&L's energy saving incentive programs.
5. Address the quality of Wi-Fi on all campuses; correct connectivity processes that are too cumbersome or are outdated

Focus Group 5

2005 – EAR Issues & Major Recommendations

Infrastructure

✓ Update the level of service for potable water, sanitary sewer, and solid waste based on actual consumption patters.

✓ Continue to interconnect water bodies at University Park, Biscayne Bay Campus, and the Engineering Center to eliminate isolated subbasins and minimize the possibility overburdening or underutilizing any one subbasin.

✓ Work with WASD and the host communities to assure there is sufficient capacity to meet the water consumption needs of future development at FIU

✓ Continue to make improvements to the sanitary sewer system at all FIU sites in order to address infiltration and inflow deficiencies

✓ Expand recycling programs to include the Wolfsonian Museum and Annex

Focus Group 5

2010 – EAR Issues & Major Recommendations

Infrastructure:

- Address old infrastructure to correct existing deficiencies and to meet the future needs of the University
- Make sustainable building techniques and enforcement of smoke free areas a best practice in the Campus Master Plan
- Facilitate LEED Certification for new construction and for renovation, operation and maintenance; to help ensure competitive recruitment and retention
- Develop best Practice plans and procedures for storm water control and treatment to prevent pollution of groundwater, untreated runoff into surrounding waterways and to prevent flooding of low-lying areas and adjacent properties
- As part of the solid waste goals, objectives and policies, attention should be given to policies which lead to the implementation of programs for the recycling of white materials goods
- Develop partnerships, goal, objectives, and policies for the University to participate in the Solid Waste Management Trust Fund.

Focus Group 5

2010 – EAR Issues & Major Recommendations (Cont'd)

Potable Water

✓Level of Service

Potable water for Modesto A. Maidique (MMC) Campus is provided by the Miami-Dade Water and Sewer Department (MDWASD).

✓Problems and Obstacles in Meeting Goals, Objectives and Policies

Although water facilities of host communities have adequate capacity to serve the University, it is expected that the 10-year Water Supplies Facilities Workplan of the Miami-Dade Water and Sewer Department will call for (1) water conservation and re-use efforts, (2) facility improvements, and (3) stricter requirements for development.

✓Proposed Plan Amendments

- Develop methods to eliminate dead-end distribution systems at MMC and BBC; expand primary distribution systems and incorporate secondary "looped" distribution systems.
- Future water distribution maps should be updated as assessed to identify the needs of the University.
- Continue to strengthen partnerships with M-DWASD and the host communities to assure sufficient water capacity to meet consumption needs of future development needs of the University.

Focus Group 5

2010 – EAR Issues & Major Recommendations (Cont'd)

Sanitary Sewer System

✓Level of Service

The University continues to work to ensure an adequate sanitary sewer collection and disposal system based on University needs and to meet and maintain level-of-service standards. Sanitary sewer systems at campus sites consist of master pump stations, gravity sewer lines sanitary lift stations, and tie in connection points.

✓Problems and Obstacles in Meeting Goals, Objectives and Policies

M-DWASD has made improvements to the County's sewer system as a result of an Agreement with the Environmental Protection Agency. All pump stations are now monitored and certified by the County. Infiltration and inflow improvements at campus sites have helped to reduce the flow of systems based on amendments to the County's master plan adopted in 2005. Based on future enrollment projections, current improvements will not meet the needs of the projected growth based on Miami-Dade County standards. The University will need to partner with the County to reassess agreements with M-DWASD and the other host communities to ensure all campus sites have sufficient capacity to meet the existing and future development needs of the University.

The City of North Miami: Biscayne Bay (BBC) Campus sanitary sewer system is connected to the City of North Miami. The City of North Miami has made several upgrades to the existing sanitary sewer pump station. As the University projected enrollment increases during the next planning phase, the University should evaluate service and capacity outputs of the pump station.

Focus Group 5

2010 – EAR Issues & Major Recommendations (Cont'd)

Sanitary Sewer System (Cont'd)

✓Proposed Plan Amendments

- Reassess LOS for sanitary sewer systems annually; provide updates to the Campus Master plan accordingly based on actual consumption patterns.
- Strengthen partnerships with host communities in an effort to improve sanitary sewer systems at campus sites and mitigate infiltration and inflow deficiencies.
- Identify improved timing and phasing priorities of future sanitary sewer projects to maximize efficiency and capacity.

Focus Group 5

2010 – EAR Issues & Major Recommendations (Cont'd)

Stormwater Management

✓Level of Service

Stormwater Management Systems at Modesto A. Maidique (MMC), Biscayne Bay (BBC), and the Engineering Center (EC) are designed to handle all major stormwater rainfall events on site.

✓Problems and Obstacles in Meeting Goals, Objectives and Policies

The expansion of infrastructure, construction of academic, support and housing facilities has increased a demand for stormwater management services.

✓Proposed Plan Ammedments

- Ensure future stormwater management systems capacity and capital improvement needs correct deficiencies and meet the future projected needs of the University.
- Future design plans should incorporate efficient stormwater management systems to offset environmental impacts.
- Best Management Practices (BMP) should be incorporated into the drainage infrastructure design to minimize the impacts to ground and surface water quality.
- Incorporate policies to mitigate stormwater generated by the University and eliminate storm water pollutants, such as careful control and limitations on use of fertilizers, and insecticides by groundskeepers.
- Modifications or updates to current stormwater maps to identify locations for future stormwater management facilities.
- Modifications or updates to existing goals and objectives to correct deficiencies

Focus Group 5

2010 – EAR Issues & Major Recommendations (Cont'd)

Solid Waste

✓Level of Service

University staff and public/private entities collect and dispose of solid waste throughout the campus sites. Most solid waste is disposed through recycling services. Other solid waste is disposed through land fill services.

✓Problems and Obstacles in Meeting Goals, Objectives and Policies

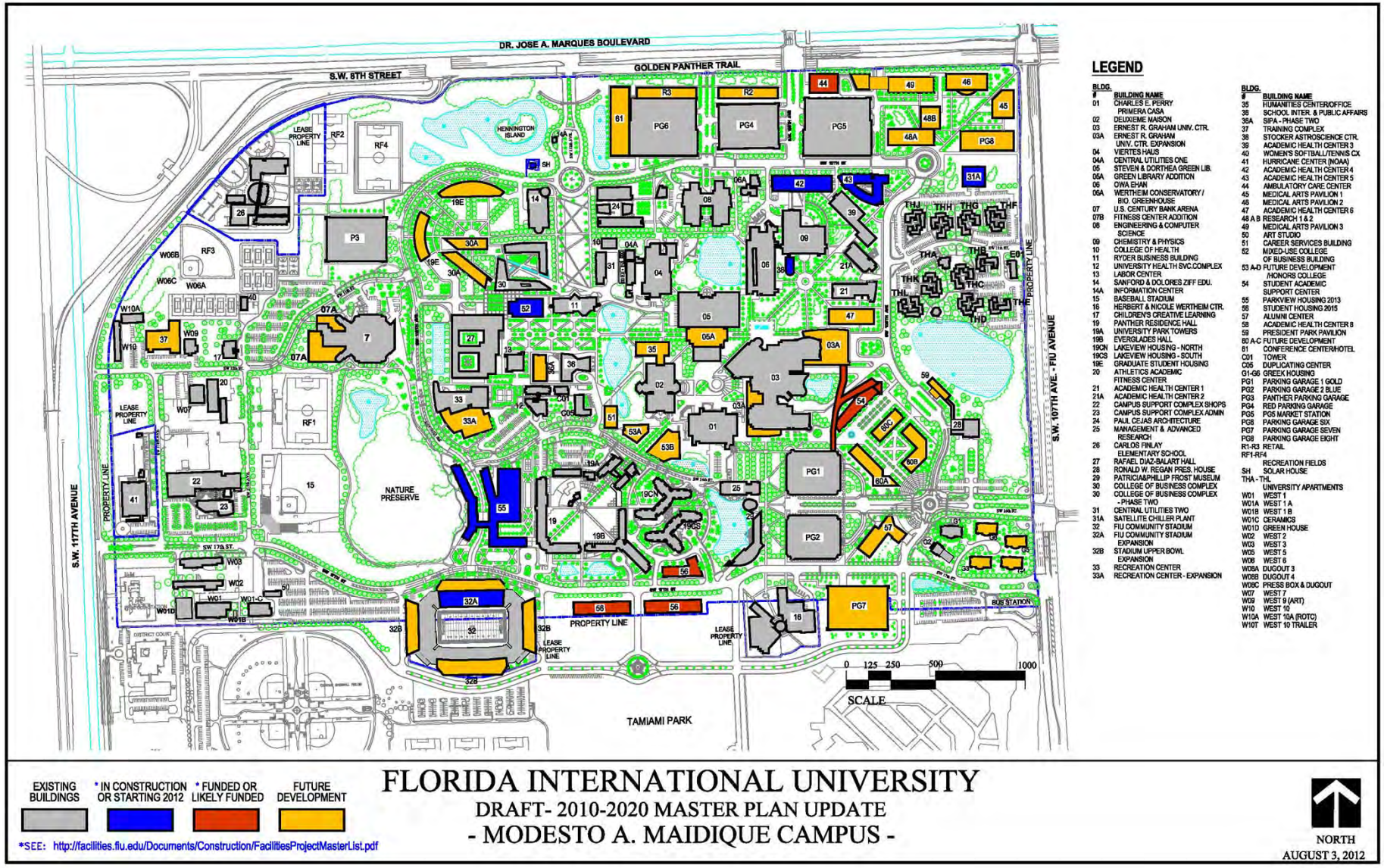
New federal and state laws are requiring localities to perform cost/benefit analysis reports for solid waste management, to update it annually, and to provide this cost information to consumers.

✓Proposed Plan Ammedments

- As part of the solid waste goals, objectives and policies, attention should be given to policies which lead to the implementation of programs for the recycling of white materials goods.
- Develop partnerships, goal, objectives, and policies for the University to participate in the Solid Waste Management Trust Fund.

Modesto Maidique Campus

UPDATES SINCE 2010



Biscayne Bay Campus / Engineering Center

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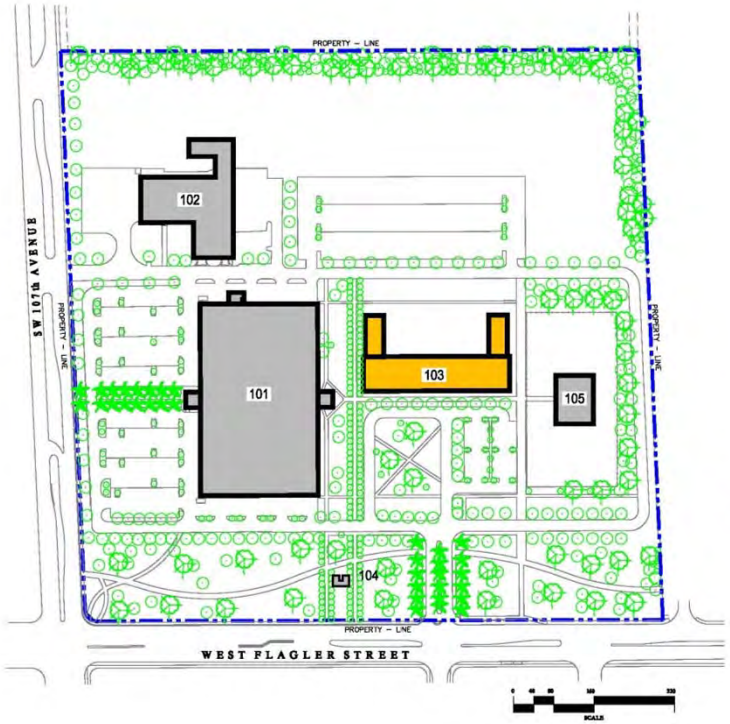

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Key Issues

Focus Group 5

Tuesday, August 28th, 3:00PM - 5:00PM

Group 5 Infrastructure, Utilities & Maintenance

- Key Issues that are important to You - information to share with group; Studies or Initiatives underway that would be helpful to incorporate in master plan – 15 minutes
    - Information received??

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S.W.O.T. Analysis

Focus Group 5

Tuesday, August 28th, 3:00PM - 5:00PM

Group 5 Infrastructure, Utilities & Maintenance

- Discuss university strengths, weaknesses, opportunities and threats – 30 minutes

FIU FLORIDA INTERNATIONAL UNIVERSITY

Best Practices

Focus Group 5

Tuesday, August 28th, 3:00PM - 5:00PM

Group 5 Infrastructure, Utilities & Maintenance

- Confirm Best Practices from other universities or communities – 10 minutes

FIU FLORIDA INTERNATIONAL UNIVERSITY

Next Steps

Focus Group 5

Tuesday, August 28th, 3:00PM - 5:00PM

Group 5 Infrastructure, Utilities & Maintenance

- **Next Steps: Assign Homework – 5 minutes**