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International Conference on
Green University
Ferdowsi University of Mashhad



نخستین همایش بین المللی دانشگاه سبز

برنامه ریزی، طراحی و مدیریت فضاهای سبز پایدار در محوطه های دانشگاهی:
ضرورت ها، سودمندی ها، شاخص ها و ابزارهای اندازه گیری

Sustainable Landscape Planning, Design and Management for University Campuses:
The Necessities, Benefits, Indexes and Measurement Tools

مهدی خان سفید

بخش آموزشی مهندسی فضای سبز پردیس کشاورزی و منابع طبیعی دانشگاه تهران

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THE Sustainable
SITES
Initiative®

The logo features the text 'THE Sustainable' in white, with 'THE' in a smaller font size and 'Sustainable' in a larger font size. Below this, the word 'SITES' is written in a large, bold, white font inside a white rectangular box. At the bottom, the word 'Initiative' is written in a large, white font, followed by a registered trademark symbol (®). The background is a solid light green color with a faint, repeating pattern of stylized green leaves and flowers.



THE Sustainable
SITES
Initiative





Save money



Consume less energy



Use less water



User fewer resources



Improve human health & productivity





Capital cost savings
ranged from **15 to 80%**
with green infrastructure





Trees & other vegetation
report savings ranging
from **10-50%** on energy



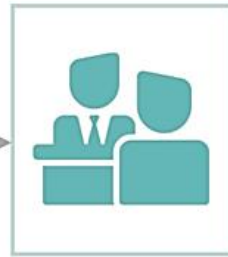
CERTIFICATION PROCESS



Register your project with GBCI



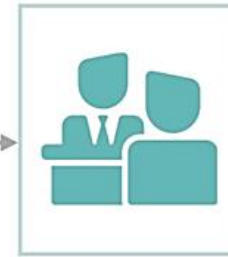
Begin implementing & documenting SITES strategies



Meet with your reviewer to answer questions (optional)



Submit your documentation for preliminary review



Meet with your reviewer to discuss results (optional)



Submit your documentation for final review (if needed)

Site Context

| 1: SITE CONTEXT | | Possible Points: | 13 |
|-----------------|---|------------------|--------|
| CONTEXT P1.1 | Limit development on farmland | | |
| CONTEXT P1.2 | Protect floodplain functions | | |
| CONTEXT P1.3 | Conserve aquatic ecosystems | | |
| CONTEXT P1.4 | Conserve habitats for threatened and endangered species | | |
| CONTEXT C1.5 | Redevelop degraded sites | | 3 to 6 |
| CONTEXT C1.6 | Locate projects within existing developed areas | | 4 |
| CONTEXT C1.7 | Connect to multi-modal transit networks | | 2 to 3 |

Pre-design Assessment + Planning

| 2: PRE-DESIGN ASSESSMENT + PLANNING | | Possible Points: | 3 |
|-------------------------------------|--------------------------------------|------------------|---|
| PRE-DESIGN P2.1 | Use an integrative design process | | |
| PRE-DESIGN P2.2 | Conduct a pre-design site assessment | | |
| PRE-DESIGN P2.3 | Designate and communicate VSPZs | | |
| PRE-DESIGN C2.4 | Engage users and stakeholders | | 3 |

Site Design – Water

| 3: SITE DESIGN - WATER | | Possible Points: | 23 |
|------------------------|--|------------------|--------|
| WATER P3.1 | Manage precipitation on site | | |
| WATER P3.2 | Reduce water use for landscape irrigation | | |
| WATER C3.3 | Manage precipitation beyond baseline | | 4 to 6 |
| WATER C3.4 | Reduce outdoor water use | | 4 to 6 |
| WATER C3.5 | Design functional stormwater features as amenities | | 4 to 5 |
| WATER C3.6 | Restore aquatic ecosystems | | 4 to 6 |

Site design – Soil + Vegetation

| 4: SITE DESIGN - SOIL + VEGETATION | | Possible Points: | 40 |
|------------------------------------|---|------------------|--------|
| SOIL+VEG P4.1 | Create and communicate a soil management plan | | |
| SOIL+VEG P4.2 | Control and manage invasive plants | | |
| SOIL+VEG P4.3 | Use appropriate plants | | |
| SOIL+VEG C4.4 | Conserve healthy soils and appropriate vegetation | | 4 to 6 |
| SOIL+VEG C4.5 | Conserve special status vegetation | | 4 |
| SOIL+VEG C4.6 | Conserve and use native plants | | 3 to 6 |
| SOIL+VEG C4.7 | Conserve and restore native plant communities | | 4 to 6 |
| SOIL+VEG C4.8 | Optimize biomass | | 1 to 6 |
| SOIL+VEG C4.9 | Reduce urban heat island effects | | 4 |
| SOIL+VEG C4.10 | Use vegetation to minimize building energy use | | 1 to 4 |
| SOIL+VEG C4.11 | Reduce the risk of catastrophic wildfire | | 4 |

Site Design – Materials Selection

| 5: SITE DESIGN - MATERIALS SELECTION | | Possible Points: | 41 |
|--------------------------------------|--|------------------|--------|
| MATERIALS P5.1 | Eliminate the use of wood from threatened tree species | | |
| MATERIALS C5.2 | Maintain on-site structures and paving | | 2 to 4 |
| MATERIALS C5.3 | Design for adaptability and disassembly | | 3 to 4 |
| MATERIALS C5.4 | Use salvaged materials and plants | | 3 to 4 |
| MATERIALS C5.5 | Use recycled content materials | | 3 to 4 |
| MATERIALS C5.6 | Use regional materials | | 3 to 5 |

Site Design – Human Health + Well-being

| 6: SITE DESIGN - HUMAN HEALTH + WELL-BEING | | Possible Points: | 30 |
|--|--|------------------|--------|
| HHWB C6.1 | Protect and maintain cultural and historic places | | 2 to 3 |
| HHWB C6.2 | Provide optimum site accessibility, safety, and wayfinding | | 2 |
| HHWB C6.3 | Promote equitable site use | | 2 |
| HHWB C6.4 | Support mental restoration | | 2 |
| HHWB C6.5 | Support physical activity | | 2 |
| HHWB C6.6 | Support social connection | | 2 |
| HHWB C6.7 | Provide on-site food production | | 3 to 4 |
| HHWB C6.8 | Reduce light pollution | | 4 |
| HHWB C6.9 | Encourage fuel efficient and multi-modal transportation | | 4 |
| HHWB C6.10 | Minimize exposure to environmental tobacco smoke | | 1 to 2 |
| HHWB C6.11 | Support local economy | | 3 |

Construction

| 7: CONSTRUCTION | | Possible Points: | 17 |
|-------------------|--|------------------|--------|
| CONSTRUCTION P7.1 | Communicate and verify sustainable construction practices | | |
| CONSTRUCTION P7.2 | Control and retain construction pollutants | | |
| CONSTRUCTION P7.3 | Restore soils disturbed during construction | | |
| CONSTRUCTION C7.4 | Restore soils disturbed by previous development | | 3 to 5 |
| CONSTRUCTION C7.5 | Divert construction and demolition materials from disposal | | 3 to 4 |
| CONSTRUCTION C7.6 | Divert reusable vegetation, rocks, and soil from disposal | | 3 to 4 |
| CONSTRUCTION C7.7 | Protect air quality during construction | | 2 to 4 |

Operation + Maintenance

| 8. OPERATIONS + MAINTENANCE | | Possible Points: | 22 |
|-----------------------------|---|------------------|--------|
| O+M P8.1 | Plan for sustainable site maintenance | | |
| O+M P8.2 | Provide for storage and collection of recyclables | | |
| O+M C8.3 | Recycle organic matter | | 3 to 5 |
| O+M C8.4 | Minimize pesticide and fertilizer use | | 4 to 5 |
| O+M C8.5 | Reduce outdoor energy consumption | | 2 to 4 |
| O+M C8.6 | Use renewable sources for landscape electricity needs | | 3 to 4 |
| O+M C8.7 | Protect air quality during landscape maintenance | | 2 to 4 |

Education + Performance Monitoring

| 9. EDUCATION + PERFORMANCE MONITORING | | Possible Points: | 11 |
|---------------------------------------|--|------------------|--------|
| EDUCATION C9.1 | Promote sustainability awareness and education | | 3 to 4 |
| EDUCATION C9.2 | Develop and communicate a case study | | 3 |
| EDUCATION C9.3 | Plan to monitor and report site performance | | 4 |

Innovation or Exemplary Performance

| 10. INNOVATION OR EXEMPLARY PERFORMANCE | | Bonus Points: | 9 |
|---|-------------------------------------|---------------|--------|
| INNOVATION C10.1 | Innovation or exemplary performance | | 3 to 9 |

SITES v2 Scorecard Summary

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|------------------------|---|------------------|--|
| 0 | 0 | 0 | 1: SITE CONTEXT | | 13 | |
| Y | | | CONTEXT P1.1 | Limit development on farmland | | |
| Y | | | CONTEXT P1.2 | Protect floodplain functions | | |
| Y | | | CONTEXT P1.3 | Conserve aquatic ecosystems | | |
| Y | | | CONTEXT P1.4 | Conserve habitats for threatened and endangered species | | |
| | | | CONTEXT C1.5 | Redevelop degraded sites | 3 to 6 | |
| | | | CONTEXT C1.6 | Locate projects within existing developed areas | 4 | |
| | | | CONTEXT C1.7 | Connect to multi-modal transit networks | 2 to 3 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|--|--------------------------------------|------------------|--|
| 0 | 0 | 0 | 2: PRE-DESIGN ASSESSMENT + PLANNING | | 3 | |
| Y | | | PRE-DESIGN P2.1 | Use an integrative design process | | |
| Y | | | PRE-DESIGN P2.2 | Conduct a pre-design site assessment | | |
| Y | | | PRE-DESIGN P2.3 | Designate and communicate VSPZs | | |
| | | | PRE-DESIGN C2.4 | Engage users and stakeholders | 3 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|-------------------------------|--|------------------|--|
| 0 | 0 | 0 | 3: SITE DESIGN - WATER | | 23 | |
| Y | | | WATER P3.1 | Manage precipitation on site | | |
| Y | | | WATER P3.2 | Reduce water use for landscape irrigation | | |
| | | | WATER C3.3 | Manage precipitation beyond baseline | 4 to 6 | |
| | | | WATER C3.4 | Reduce outdoor water use | 4 to 6 | |
| | | | WATER C3.5 | Design functional stormwater features as amenities | 4 to 5 | |
| | | | WATER C3.6 | Restore aquatic ecosystems | 4 to 6 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|---|---|------------------|--|
| 0 | 0 | 0 | 4: SITE DESIGN - SOIL + VEGETATION | | 40 | |
| Y | | | SOIL+VEG P4.1 | Create and communicate a soil management plan | | |
| Y | | | SOIL+VEG P4.2 | Control and manage invasive plants | | |
| Y | | | SOIL+VEG P4.3 | Use appropriate plants | | |
| | | | SOIL+VEG C4.4 | Conserve healthy soils and appropriate vegetation | 4 to 6 | |
| | | | SOIL+VEG C4.5 | Conserve special status vegetation | 4 | |
| | | | SOIL+VEG C4.6 | Conserve and use native plants | 3 to 6 | |
| | | | SOIL+VEG C4.7 | Conserve and restore native plant communities | 4 to 6 | |
| | | | SOIL+VEG C4.8 | Optimize biomass | 1 to 6 | |
| | | | SOIL+VEG C4.9 | Reduce urban heat island effects | 4 | |
| | | | SOIL+VEG C4.10 | Use vegetation to minimize building energy use | 1 to 4 | |
| | | | SOIL+VEG C4.11 | Reduce the risk of catastrophic wildfire | 4 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|---|--|------------------|--|
| 0 | 0 | 0 | 5: SITE DESIGN - MATERIALS SELECTION | | 41 | |
| Y | | | MATERIALS P5.1 | Eliminate the use of wood from threatened tree species | | |
| | | | MATERIALS C5.2 | Maintain on-site structures and paving | 2 to 4 | |
| | | | MATERIALS C5.3 | Design for adaptability and disassembly | 3 to 4 | |
| | | | MATERIALS C5.4 | Use salvaged materials and plants | 3 to 4 | |
| | | | MATERIALS C5.5 | Use recycled content materials | 3 to 4 | |
| | | | MATERIALS C5.6 | Use regional materials | 3 to 5 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|---|--|------------------|--|
| 0 | 0 | 0 | 6: SITE DESIGN - HUMAN HEALTH + WELL-BEING | | 30 | |
| | | | HHWB C6.1 | Protect and maintain cultural and historic places | 2 to 3 | |
| | | | HHWB C6.2 | Provide optimum site accessibility, safety, and wayfinding | 2 | |
| | | | HHWB C6.3 | Promote equitable site use | 2 | |
| | | | HHWB C6.4 | Support mental restoration | 2 | |
| | | | HHWB C6.5 | Support physical activity | 2 | |
| | | | HHWB C6.6 | Support social connection | 2 | |
| | | | HHWB C6.7 | Provide on-site food production | 3 to 4 | |
| | | | HHWB C6.8 | Reduce light pollution | 4 | |
| | | | HHWB C6.9 | Encourage fuel efficient and multi-modal transportation | 4 | |
| | | | HHWB C6.10 | Minimize exposure to environmental tobacco smoke | 1 to 2 | |
| | | | HHWB C6.11 | Support local economy | 3 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|--------------------------|--|------------------|--|
| 0 | 0 | 0 | 7: CONSTRUCTION | | 17 | |
| Y | | | CONSTRUCTION P7.1 | Communicate and verify sustainable construction practices | | |
| Y | | | CONSTRUCTION P7.2 | Control and retain construction pollutants | | |
| Y | | | CONSTRUCTION P7.3 | Restore soils disturbed during construction | | |
| | | | CONSTRUCTION C7.4 | Restore soils disturbed by previous development | 3 to 5 | |
| | | | CONSTRUCTION C7.5 | Divert construction and demolition materials from disposal | 3 to 4 | |
| | | | CONSTRUCTION C7.6 | Divert reusable vegetation, rocks, and soil from disposal | 3 to 4 | |
| | | | CONSTRUCTION C7.7 | Protect air quality during construction | 2 to 4 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|------------------------------------|---|------------------|--|
| 0 | 0 | 0 | 8. OPERATIONS + MAINTENANCE | | 22 | |
| Y | | | O+M P8.1 | Plan for sustainable site maintenance | | |
| Y | | | O+M P8.2 | Provide for storage and collection of recyclables | | |
| | | | O+M C8.3 | Recycle organic matter | 3 to 5 | |
| | | | O+M C8.4 | Minimize pesticide and fertilizer use | 4 to 5 | |
| | | | O+M C8.5 | Reduce outdoor energy consumption | 2 to 4 | |
| | | | O+M C8.6 | Use renewable sources for landscape electricity needs | 3 to 4 | |
| | | | O+M C8.7 | Protect air quality during landscape maintenance | 2 to 4 | |

| YES | ? | NO | | | Possible Points: | |
|-----|---|----|--|--|------------------|--|
| 0 | 0 | 0 | 9. EDUCATION + PERFORMANCE MONITORING | | 11 | |
| | | | EDUCATION C9.1 | Promote sustainability awareness and education | 3 to 4 | |
| | | | EDUCATION C9.2 | Develop and communicate a case study | 3 | |
| | | | EDUCATION C9.3 | Plan to monitor and report site performance | 4 | |

| YES | ? | NO | | | Bonus Points: | |
|-----|---|----|--|-------------------------------------|---------------|--|
| 0 | 0 | 0 | 10. INNOVATION OR EXEMPLARY PERFORMANCE | | 9 | |
| | | | INNOVATION C10.1 | Innovation or exemplary performance | 3 to 9 | |

| YES | ? | NO | | | Total Possible Points: | |
|-----|---|----|-------------------------------|--|------------------------|--|
| 0 | 0 | 0 | TOTAL ESTIMATED POINTS | | 200 | |

| KEY | SITES Certification levels | Points |
|-----|----------------------------|--------|
|-----|----------------------------|--------|

SITES CERTIFICATION | 200 TOTAL POINTS

CERTIFIED

70

SILVER

85

GOLD

100

PLATINUM

135

The University of Texas at El Paso's
Campus Transformation Project
SITES Silver



“The benefits of the Campus Transformation Project go beyond sustainable landscapes. Research shows that landscapes can provide **mental health, cognitive function and stress reduction benefits**, which is especially important in a collegiate setting.”

Greg McNichol, Associate Vice President for Business Affairs—
Facilities Management, University of Texas at El Paso



Acknowledgements

Letter from the President

I. INTRODUCTION

Purpose, Process & Vision

Goals for the UTEP Campus

Planning Principles &

Recommendations

II. HISTORY AND CONTEXT

Institutional History

Campus Context

Bhutanese Influence

University Properties &

Potential Acquisitions

III. THE CAMPUS PLAN

Existing Campus &

Proposed Plan

Existing Core Campus &

Proposed Core Campus

Proposed Plan

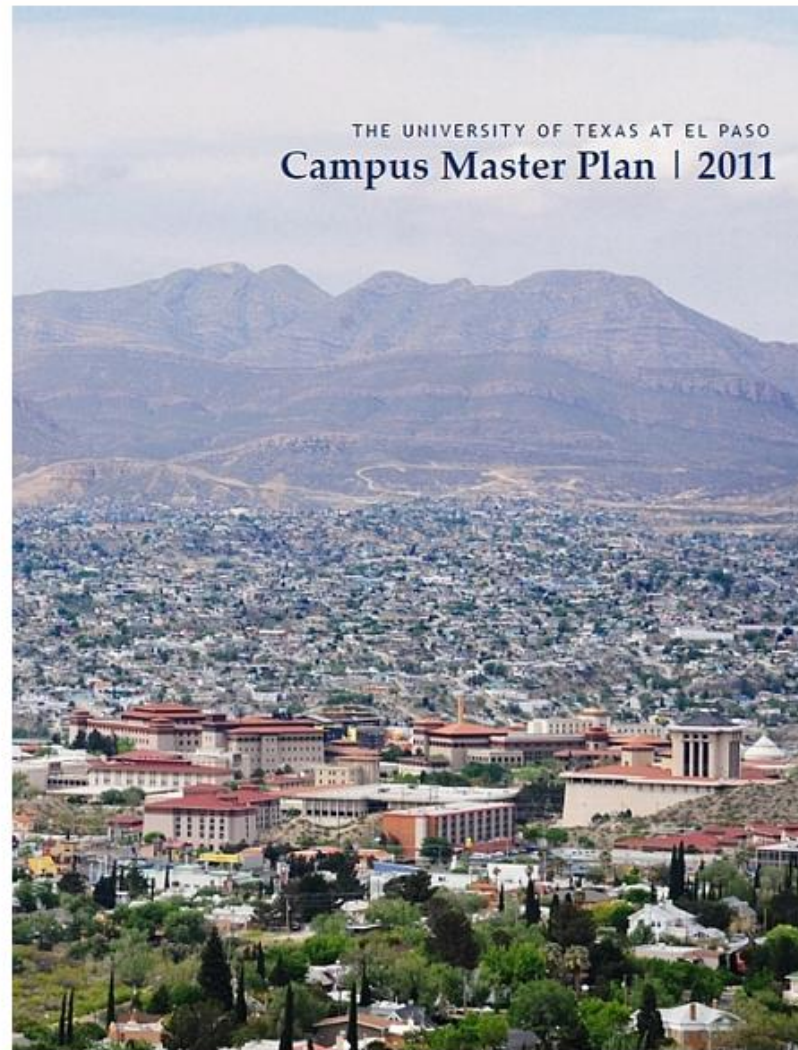
Detail Plans

Architecture

Circulation

Campus Capacity

[Click here for a full PDF copy of the UTEP Campus Master Plan](#)





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دانشگاه فردوسی مشهد- سازمان مرکزی- طبقه اول- اتاق ۲۲۸

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