UT DALLAS LANDSCAPE ENHANCEMENTS
PWP LANDSCAPE ARCHITECTS

LAF Performance Series Case Studies
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Through the first phase of the University of Texas at Dallas’ Campus Identity and Landscape Framework Plan, native plantings and walkable areas transformed the car-centric barren asphalt campus into one of architectural stability, forward-thinking greenery, and a social hub of the community.
ISSUES

• Foster connections and social interaction
• Become a place of curiosity and increase in desire for student retention and application rate
• Redesign the formal main entrance
• Increase quality of stormwater runoff and retention
The UT Dallas team designed its research strategy under three focused thematic areas:

- Environmental
- Economic
- Social (including cultural and aesthetic)

for all three case studies.
FINDINGS

The findings of the investigations in all cases focused on

- Site related performance benefits
- Its immediate adjacencies
- The project block group/neighborhood/district or zip code.

The data collected through these strategies were systematically reviewed.
The carbon sequestered is calculated with National Tree Benefit Calculator.

The number of miles a motorized vehicle travels in a year was found at Federal Highway Administration (FHWA) website (recorded since 2010) with the carbon calculator (americanforests.org).

The stormwater runoff is calculated with Rational Method (Q=CiA). The Co-efficient numbers for different materials is referenced from the LARE reference manual.

The watersheds considered for calculations were referred from the documents provided by the firm. Three kinds of areas (bio-retention area, pervious surfaces area and impervious surfaces area) were calculated.
ACCOMPLISHMENTS

• Influenced decision 44% of students surveyed to apply and enroll. Also, likely contributed to a 13% increase in enrollment from 2010 to 2012.

• Source of pride for the community, students, faculty, etc.

• Increase in 5,000 trees (sequesters 154 tons of CO2 annually- equivalent to the CO2 emitted from driving approximately 373,494 miles in a single passenger vehicle, intercepts approximately 1,077,946 gallons of stormwater runoff annually.)
ACCOMPLISHMENTS

• Contains one of the largest rain gardens in the Dallas Fort Worth region.

• Increase in seating and recreational objects (256-sf, human-scale chess boards and 1,112 linear ft. of seat wall made of Austin-sourced granite, large walls as bulletin boards).

• Strong relationships in design to the history (digital clock walls to tie to instruments legacy, fog fountain to mist vines).
ACCOMPLISHMENTS

• Low carbon-footprint materials.
• New amphitheater.
• 97% native plant palette (reduce maintenance and irrigation costs).
• Created an estimated 72 jobs with approximately 150,000 construction man-hours documented for the time period between October 2008 to October 2010.
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**Central trellis materials:**
- Major sculptural element
- Fiberglass Reinforced Polymer (FRP)
- 79% weight difference (lighter than standard industry materials)
- Lower dead load, limited corrodiability, and a lifespan that is approximately twice as long as a conventional metal building material

**Pros:**
- Cost of installation may be up to 20% higher than typical industry standards
- Economic changes was indirect and not as informative as researcher desired
- Able to use the tree benefit calculator tool
- Plants aren’t fully matured—hard to get concise evidence on water retention and stormwater runoff interception
- Watersheds calculated by the firm
- Potential for human error in area calculations
- Calculations may vary significantly and produce different results; especially if the porosity of the soil changes and if the bio-retention area has an outflow or any kind of perforated pipes

**Cons:**
- Surveys conducted about enrollment decisions and campus improvement opinions to minimize bias
- Survey conducted over the summer months and nearly half of the respondents were employees, while the other half was students
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| LACK OF CAMPUS IDENTITY     | CREATE ENDURING IDENTITY | Identity of a Texas campus and landscape: Local + Sustainable Materials Selection  
- Local stone, native Texas and southern plants; vernacular forms; (western arbor; tree stands): oversized clock (ITI Heritage)  
- Existing Trees on site transplanted to campus entry  
Mitigate heat island effect through shade  
- 2 acres of land along the entry drive has been reforested with over 5,000 native trees; magnolia trees and wisteria arbor shade walk and plaza  
Use native/naturalized species  
- 33 acres of restored native woodland along entry drive: 97% native  
Improve infiltration and stormwater quality  
- Surface water drains on Central Mall to perforated pipe below grade and allowed to percolate, contributing to groundwater recharge.  
- Native, low-maintenance woodland absorbs and filters stormwater runoff along campus entry drive.  | NATIONAL TREE BENEFIT CALCULATOR WITH EPA BENCHMARKS.  
SEQUESTRATION of CO2 through newly planted trees.  
INTERCEPTION of stormwater runoff through the canopy of newly planted trees.  
RATIONAL STORMWATER RUNOFF METHOD: Q-CIA  
REDUCTION of stormwater runoff through a decrease of impermeable surface area after the landscape enhancements.  | INCREASE of permeable surface area reduces the impact of the urban heat island effect and decreases the amount of reflectivity to create a more pedestrian friendly environment.  |
| LACK OF SOCIAL AND AESTHETIC CHARACTER | FOSTER SOCIAL AND AESTHETIC CHARACTER | Social Identity through Gathering  
- Two Community Bulletin Boards for notices and events  
- New Central Quad and Central Plaza with fountains + bleachers, new trees and planting, and a shade trellis  
- Appropriately scaled new building opportunities (fixed & movable) along enhanced central mall.  
Cultural Identity  
- (4) Human-scale chess boards at Chess Plaza celebrates UTD Chess Tien’s achievements  
- Iconic quad and plaza as stages for student and alumni events  
Spaces for Diverse Programs + Gatherings  
- Where and how do events happen? >200 student programs  
Focus on pedestrian and bicycle experience  
- New shaded bike path extends adjacent infrastructure to campus core; new shaded and pedestrian-scaled paths in Central Mall  
Limit car circulation  
- Vehicular access restricted with new entry drive circle.  | SYSTEMATIC REVIEW OF PLANTING PLAN & ON-SITE OBSERVATIONS.  
INTRODUCES a predominately native plant palette to promote sustainability through a reduction of irrigation needs and maintenance and upkeep.  |  |
| INHOSPITABLE OUTDOOR SPACES | CLIMATE MEDIATION |  | SYSTEMATIC REVIEW OF CONSTRUCTION DOCUMENTS.  
ABSORPTION and filtration of stormwater along main entry LID feature reduces the pollution impact of surface runoff.  |  |
| CAR-CENTRIC SUBURBAN CAMPUS | DIVERSIFIED CIRCULATION STRATEGIES |  | EVALUATION of social benefits through a variety of variables like physical well-being, quality of life, event opportunities, educational experiences, sustainability, safety & security, exposure to arts, and campus perception.  |  |
| ECONOMIC                      |                         |  | CREATION of indirect employment opportunities through the construction phase of the landscape enhancements.  |  |
| HIGHLY ENGINEERED LANDSCAPE  | INCREASED BIODIVERSITY AND FUNCTION | Enrollment Impacts  
- 15-20% Enrollment increase; over 100 endowments in perpetuity since 2009; 70% increase in endowed faculty chairs  
- Increased resident student population (versus commuter)  
Economy of Landscape  
- 100,000 total construction man-hours created indirect employment  
- Landscape features like magnolia trees & reflecting pools provide approximately US$360 million opportunities for additional donations to campus.  | CALCULATION OF JOBS CREATED THROUGH USE OF SECONDARY DATA.  
SYSTEMATIC REVIEW OF ARCHIVAL AND SECONDARY DATA.  
IMPACTS campus population through a projected yearly growth of new student enrollment.  |  |
A catalysis project like phase 1 of the UT Dallas Campus Identity & Landscape Framework Plan can instigate changes not only within the campus but also in the community at large.

Example:

- The 'Cotton Belt' line from DART with a 'transit plaza' and mixed-use center directly north of the campus UT Dallas LPS Methodology will be activated with multi-modal connections.
- The 2025 vision has the place-holder property valued at approximately $165 million (2010).