

# C1.01 – Airport Futurity

**Nigiel Lozano, Matthew Lancon, David Karr, Bianca Desouza**

Sponsored By: Dr. Feng Hong



## Project Overview

The prompt for this project was provided to us by Airport Cooperative Research Program as a Design Competition.



Our group chose to address both airport runway management and bearing capacity in our design, in an innovative two-pronged approach.

## Background

We decided that a case study would be beneficial to determine common issues with airports, to create an innovative design applicable to airports nationwide.

Using the San Marcos Regional Airport as a basis for design due to ease of access, we determined a number of innovative alternatives that we could address in our design.

## Design Considerations

- Scope and Applications
- Design Alternatives
- Sustainability
- Life Cycle Costs
- Design Feasibility

## Site Selection

- San Marcos Regional Airport
- Runway 13/31



## Design Alternatives

- Software Management System – Innovative Approach
- Asphalt vs Concrete Overlay – Realistic Approach
- Drainage Conditions – Unfeasible

## Sustainability Evaluation of Overlay Alternatives

Leadership in Energy & Environmental Design (LEED)

- Certified 43/100

Envision

- Silver 38%



## Capital & Life Cycle Costs

- |                              |                              |
|------------------------------|------------------------------|
| • 8" Asphalt Overlay         | • 12" Concrete Overlay       |
| • \$3.1M Capital Cost        | • \$5.6M Capital Cost        |
| • \$1.3M Maintenance & Rehab | • \$1.1M Maintenance & Rehab |
| • \$4.5M NPV                 | • \$6.6M NPV                 |
| • 75-year Analysis Period    | • 75-year Analysis Period    |

## Group Picture



Matthew, Nigiel, Bianca, David

## Second Semester Plan

- Design Innovative Management System
- Reevaluate Life Cycle Cost Analysis
- ACRP Competition

## Acknowledgements

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