INTRODUCTION
- Senior Design Project [CEE 181]
  - Planning Area 9A+
  - 9 Different Design Projects
- Road Design Project
  - Geometric Design
  - Pavement Design
  - Cost Analysis
- Summary

LOCATION
Planning Area 9A+

DESIGN PROJECTS
9 Design Projects:
- 2 Transportation
  - Traffic Analysis
  - Road Design
- 3 Water
  - Storm Drain
  - Waste Treatment
- 4 Structure
  - Community Center
  - Concrete Building
  - Pedestrian Bridge

OBJECTIVE
Problem Statement
To design an optimum roadway network and pavement structure for Planning Area 9A+ (PA 9A+). *All designs should be in accordance to the City of Irvine Standards and the American Association of State Highway and Transportation Officials (AASHTO) Standards.

GEOMETRIC DESIGN
Specifications: (City of Irvine Standards & Design Manuals)
- General
  - Speed Limit – Local streets
- Horizontal Alignment
  - Center line intersections, street bends, cul-de-sac
- Vertical Alignment
  - Grades, length
- Cross Sections
  - Lane width, shoulders, sidewalks, gutters
**HORIZONTAL ALIGNMENT**

- Centerlines must intersect at 90-degree angles

**VERTICAL ALIGNMENT**

- Minimum grade of 1% at centerline
- Grades >7% not desirable
- Minimum length for local streets: 50 feet

**CROSS SECTION**

**PAVEMENT**

- City of Irvine Standards
  - Minimum:
    - 0.25ft of AC (asphalt concrete) over
    - 0.5ft of AB (aggregate base) for streets using one lift AC.
    - OR
    - 0.35ft of AC over
    - 0.5ft of AB for streets using:
      - an asphalt concrete base course of 0.25ft of AC

**CONCLUSION**

- We are in the process of geometric (vertical alignment and cross sections) and pavement design.
- The next step is to derive alternative pavement designs that will reduce construction costs, while preserving quality, safety and optimal level of service.
- Saturday, May 29, 2004:
  Final Reports and presentations
Site Plan: Nemo Engineering

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Horizontal Alignment

Vertical Alignment

THANK YOU

UCI ITE Student Chapter
April 2004