Denver International Airport (DIA)

University of Hawai‘i – CEE 491
Group Presentation 3
Troy Samura
Christopher Major
Shawn Butler
Overview

- Description of Infrastructure Project
- Magnitude and Costs
- Social and Economic Benefits
- Technical Issues and Innovations
- Social Problems and Policy Challenges
Description/Background

- Public airport
- Owned and operated by the City & County of Denver Department of Aviation
- Opened in February 28, 1995 (16 months behind schedule)
- White tensile architecture tension fabric roof to resemble snow caps of the Rocky Mountains
Magnitudes & Costs
Magnitude

- Largest international airport in US
- 53 square miles
- 6 runways, longest at 16,000 feet
- 3 concourses with 138 gates
- 327 foot control tower
Growth

- Original construction for 32 million passengers/year
- Expand to handle 110 million passengers/year
- 6 more runways
- Double the size of the existing concourses
- Build 2 more concourses
Costs

- Delays due to poor planning
- Repeated design changes
- 16 months behind schedule
- $4.8 billion, $2 billion over budget
- Operates by generating its own revenues
## Cost Breakdown

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$3.004 billion</td>
</tr>
<tr>
<td>Planning and land</td>
<td>$261 million</td>
</tr>
<tr>
<td>Capitalized interest</td>
<td>$915 million</td>
</tr>
<tr>
<td>Bond discounts</td>
<td>$43 million</td>
</tr>
<tr>
<td>Facilities and equipment</td>
<td>$199 million</td>
</tr>
<tr>
<td>Special facilities</td>
<td>$334 million</td>
</tr>
<tr>
<td>Rental car facilities</td>
<td>$66 million</td>
</tr>
<tr>
<td>Total cost</td>
<td>$4.822 billion</td>
</tr>
</tbody>
</table>
Social & Economic Benefits
Social & Economical Benefits

- Before DIA, Stapelton International Airport
  - Plagued with Problems
    - Inadequate separation between runways
    - Noise complaints
    - Little/no room for other airlines that proposed/wanted to use Stapleleton for new destinations
Social & Economical Benefits

- Built farther away (25 miles (40 km) from downtown Denver, 19 mi. farther than Stapelton)
  - Alleviate noise problems to nearby developed areas
  - Accommodate a generous runway layout and space for expansion

- Solar Energy System
  - Provide eco-friendly energy to underground trains
Social & Economical Benefits

- Increase in Job opportunities
- Increase in visitors
  - Aircraft operations (2008) - 625,884
  - Passengers (2008) - 51,245,334
# Social & Economical Benefits

## ANNUAL AIRPORT TENANT AND BUSINESS ECONOMIC IMPACTS

<table>
<thead>
<tr>
<th></th>
<th>Denver International</th>
<th>Other Commercial Airports</th>
<th>General Aviation Airports</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JOBS</strong></td>
<td>76,092</td>
<td>51,536</td>
<td>15,438</td>
</tr>
<tr>
<td><strong>PAYROLL</strong></td>
<td>$3,290,964,500</td>
<td>$2,035,861,600</td>
<td>$541,660,600</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td>$10,098,685,100</td>
<td>$3,810,400,400</td>
<td>$1,358,045,300</td>
</tr>
</tbody>
</table>
## Social & Economical Benefits

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<tr>
<td>Jobs</td>
<td>141,367</td>
<td>49,141</td>
<td>7,212</td>
</tr>
<tr>
<td>Payroll</td>
<td>$3,773,779,200</td>
<td>$1,324,025,900</td>
<td>$207,594,600</td>
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<tr>
<td>Output</td>
<td>$12,197,979,000</td>
<td>$4,185,239,600</td>
<td>$553,899,500</td>
</tr>
</tbody>
</table>
Technical Issues, Innovations, Social Problems & Policy Challenges
Technical/Environmental Issues

- Automated Baggage System Failure
- Occasional technical difficulties with concourses
- Blizzards
Innovations

- Solar Energy
- Pinwheel Airfield Arrangement Around Midfield Terminal & Concourses
- Longer runway
Social Problems And Policy Challenges

- Delays
  - Poor planning
  - Repeated design changes
  - Millwright Strike

- No bypass sidewalks connecting concourses B & C
Thank You