The State of California’s Infrastructure: the Challenges of Rebuilding America

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ASCE’s REPORT CARD FOR 2009

- AVIATION: D
- BRIDGES: C
- DAMS: D
- DRINKING WATER: D-
- ENERGY: D+
- HAZARDOUS WASTE: D
- INLAND WATERWAYS: D-
- PUBLIC PARKS AND RECREATION: C-
- RAIL: C-
- ROADS: D-
- SCHOOLS: D
- SOLID WASTE: C+
- TRANSIT: D
- WASTEWATER: D-

America's Infrastructure G.P.A.: D

A = Exceptional
B = Good
C = Fair
D = Poor
F = Inadequate
# California Infrastructure Report Card 2006

www.ascecareportcard.org

<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviation</td>
<td>C-</td>
</tr>
<tr>
<td>Levees / Flood Control</td>
<td>F</td>
</tr>
<tr>
<td>Parks / Open Space</td>
<td>D+</td>
</tr>
<tr>
<td>Ports</td>
<td>C+</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>B</td>
</tr>
<tr>
<td>Transportation</td>
<td>D+</td>
</tr>
<tr>
<td>Urban Runoff</td>
<td>D+</td>
</tr>
<tr>
<td>Wastewater</td>
<td>C+</td>
</tr>
<tr>
<td>Water</td>
<td>C+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>California’s Infrastructure GPA</th>
<th>C-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Investment Needs</td>
<td>$37 Billion</td>
</tr>
</tbody>
</table>
Other Recent Studies

- CNBC Special Report *America’s Top States for Doing Business (2010)*
  - Transportation and Infrastructure, California Ranked 16.

- Enterprising States (Praxis Strategy Group and Kotkin, 2010)
  - Only in air and port investment, California ranked in the top 25. (Other categories were bridge condition and road condition)

- "Hold the Wheel Steady: America's Roughest Rides and Strategies to Make our Roads Smoother" (September 2010)
  - Based on a ranking of share of roads in poor condition and vehicle operating costs, eight of the top-twenty (worst) urban regions (500,000+ population) are in California.
Aside: How was the Index Calculated?

1. Definitions
2. Geographic Samples
3. Hierarchical Model
4. Identify Indicators
5. Explore Data Sources & Assemble Data
6. Weight the Indicators
7. Compute the Index
Comparison with Other Time Series

% of 1990 Value

- Transportation Index
- Transportation Index - Moving Average
- Population
- Passenger Miles
- Ton Miles
Federal Transportation Expenditures

% of 1990 Value

- Transportation Index
- Moving Average
- Federal Transportation Budget
ASCE’s Report Card
Select State Comparison – Transportation Performance Index

State by State Transportation Index

Alabama, California, Illinois, Nevada, North Carolina, North Dakota

Select State Comparison – Population

- Population

1995 Population
2000 Population
2007 Population

- State-by-State Transportation Index

Alabama, California, Illinois, Nevada, North Carolina, North Dakota

1995 Population: [Graph Data]
2000 Population: [Graph Data]
2007 Population: [Graph Data]

1995 Population
2000 Population
2007 Population

Graph showing the population comparison for different states across three years.
Select State Comparison – Population Growth
Economic Analysis

• Past research has attempted to correlate infrastructure spending and economic growth

• Following Sala-i-Martin (1994) and Sanchez-Robles (1998), model form is:

\[ \text{GDP per capita} = f(\text{Index, GDP (level), Government policy, Population health}) \]
### Results

<table>
<thead>
<tr>
<th>GDP per Capita</th>
<th>Coefficients*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Index **</td>
<td>0.0037</td>
</tr>
<tr>
<td>Real GDP</td>
<td>0.6120</td>
</tr>
<tr>
<td>Federal debt</td>
<td>-0.0025</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.9953</td>
</tr>
</tbody>
</table>

*All coefficients significant at 0.99.

**Three year lag

Also positive correlation between the index and foreign direct investment.
Observations

- Relationships are non-linear
- Interdependencies are strong
- Challenges require multimodal, life-cycle based solutions
  - No single project
  - No single mode
  - New facilities, infrastructure renewal, improved operations, innovative solutions
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