PROJECT EVALUATION (1.011)

Spring 2011
Lecture 10

Instructors: Professor Joseph Sussman
Carl Martland
Teaching Assistants:
Nihit Jain
Edna Edzell

Civil and Environmental Engineering
Massachusetts Institute of Technology

What is HSR

- Definitions vary
  - ~ 180- 200 mph is the international standard for maximum speed
  - Usually fewer stops as compare to conventional rail
  - Often (but not always) city center to city center--the competitive edge with air
  - Steel wheels on steel rails

    But some talk of HSGT (“high speed ground transportation”) to include MAGLEV

Why HSR I

- Motivation
  - Economic growth
    - Enhanced productivity
    - The “mega-region” idea-- labor markets, commercial markets
- Social integration
- Environmental/energy benefits
- Jobs: economic stimulus

Why HSR II

- Congested Corridors
  - The idea-- you simply need the capacity and air and highway are congested already
    - Example: The Northeast Corridor in the U.S. connecting Boston-- New York--Washington
      - I-95
      - Logan in Boston, JFK, LaGuardia, Newark in New York, and Reagan National, Dulles in Washington

Why not HSR?

- Those against say
  - VERY EXPENSIVE both to build and to operate
  - Ridership VERY uncertain
  - Benefits are overstated and costs understated
  - Economic growth is really just a redistribution of economic activity-- no net growth
  - Not clear that environment/energy benefits will actually happen

Where HSR competes well

- The sweet spot
  - ~ 150 miles to ~ 600 miles
  - At shorter distances, auto is competitive
  - At longer distances, air is competitive

Deciding about HSR

- Run the process
  - Costs
  - Benefits
  - Stakeholders
  - Financing
  - Consider alternatives

A Framework for Project Evaluation

From Martland

Project ID

Analysis of Alternatives

Accessing and Comparing Alternatives

Implementation

Ongoing Evaluation

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Infrastructure Issues

- Where to get the $?
- What are the political concerns?
  - Whose district or state benefits
  - Environmental justice
- What are the costs and benefits?
  - Who bears the costs?
  - Who reaps the benefits?
- Is the project the “best use” of the $?
- What are the environmental impacts?
- What are the social impacts?

HSR Issues/Questions I

- New ROW vs. upgrading what we have?
  - The idea of “incremental HSR” -- upgrade current lines to provide ~125mph service
- Limit to just passengers vs. have a hybrid system with both passenger and freight

HSR Issues/Questions II

- Develop your own technology vs. Buy it abroad
  - Japan
  - France
  - Germany
  - Italy
  - Korea
  - Taiwan
  - China
  - United States

HSR Issues/Questions III

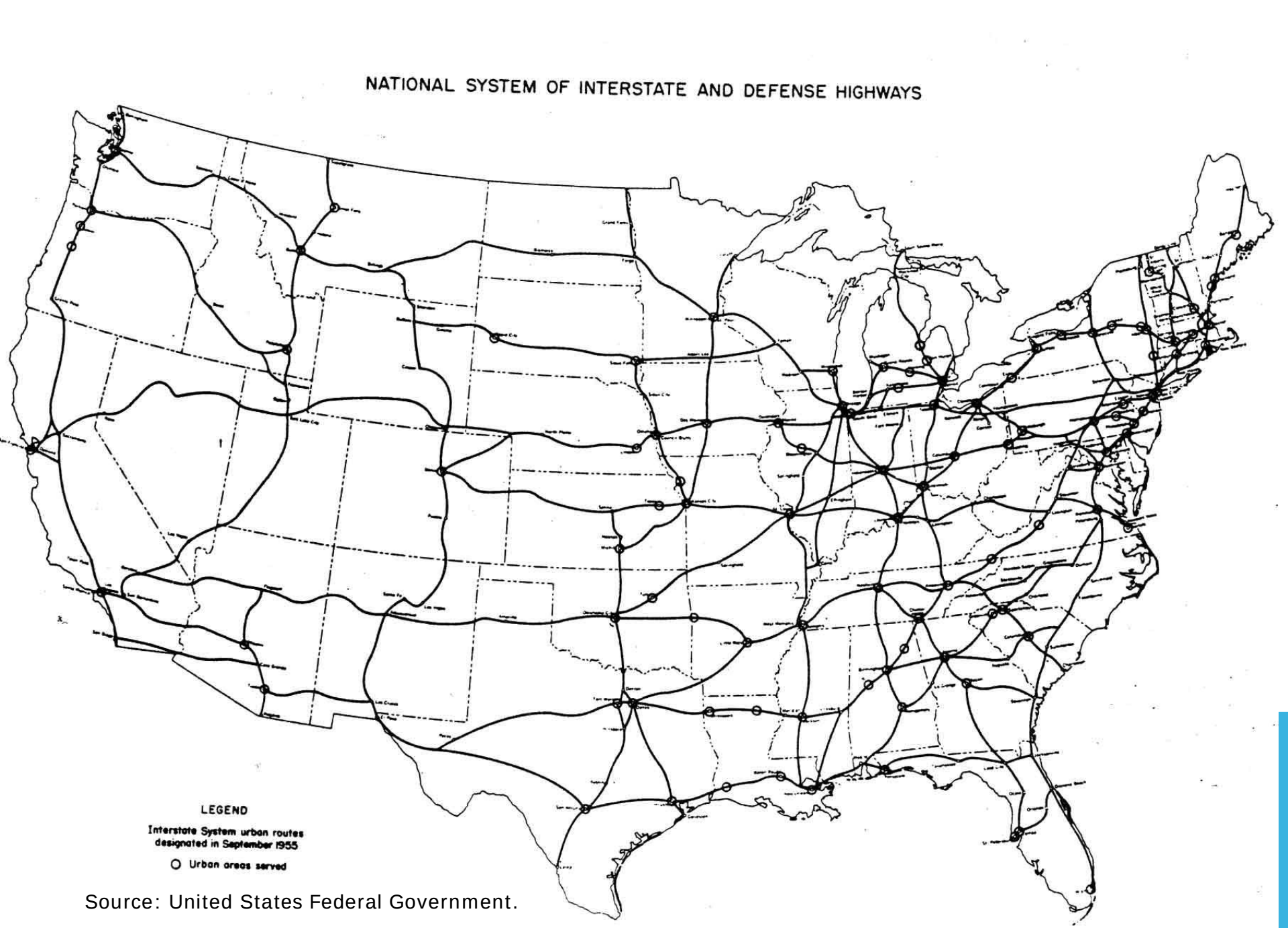
- Accessing the HSR station
- City Center or locate elsewhere-- pros and cons
- The “last 20 miles”

HSR around the Globe

- Why has HSR been developed at so many places around the Globe but not in the U.S.?

VISION *for* HIGH-SPEED RAIL *in* AMERICA

Source: United States Federal Government.



Source: United States Federal Government.

Reference: *HSR in America*, by America2050

- America2050 is an advocacy group
- That is in contrast with scholarly literature
  - Givoni
  - Albalate and Bel

Findings from *HSR in America*, by America2050 I

- Where HSR can work
  - Corridors of 100-600 miles
  - Major employment and population centers
  - In the US, 11 megaregions, with 70% of US population and regional GDP is located

Findings from *HSR in America*, by America2050 II

- Where HSR can work
  - Promising short corridors, possible as part of a longer corridor
    - New York- Philadelphia
    - Los Angeles- San Diego
    - Chicago- Milwaukee

Findings from *HSR in America*, by America2050 III

- Where HSR can work
  - Very large city (or cities) are “powerful” generators of rail traffic on a corridor with medium and smaller cities-- the anchor tenant idea
  - Likely to generate more traffic than corridors of the same overall population with just medium cities

Findings from *HSR in America*, by America2050 IV

- Where HSR can work
  - Workforce composition is important
    - “Knowledge workers” more likely to travel
    - Industrial areas generate less passenger traffic than “knowledge industries” such as finance

HSR in the U.S.

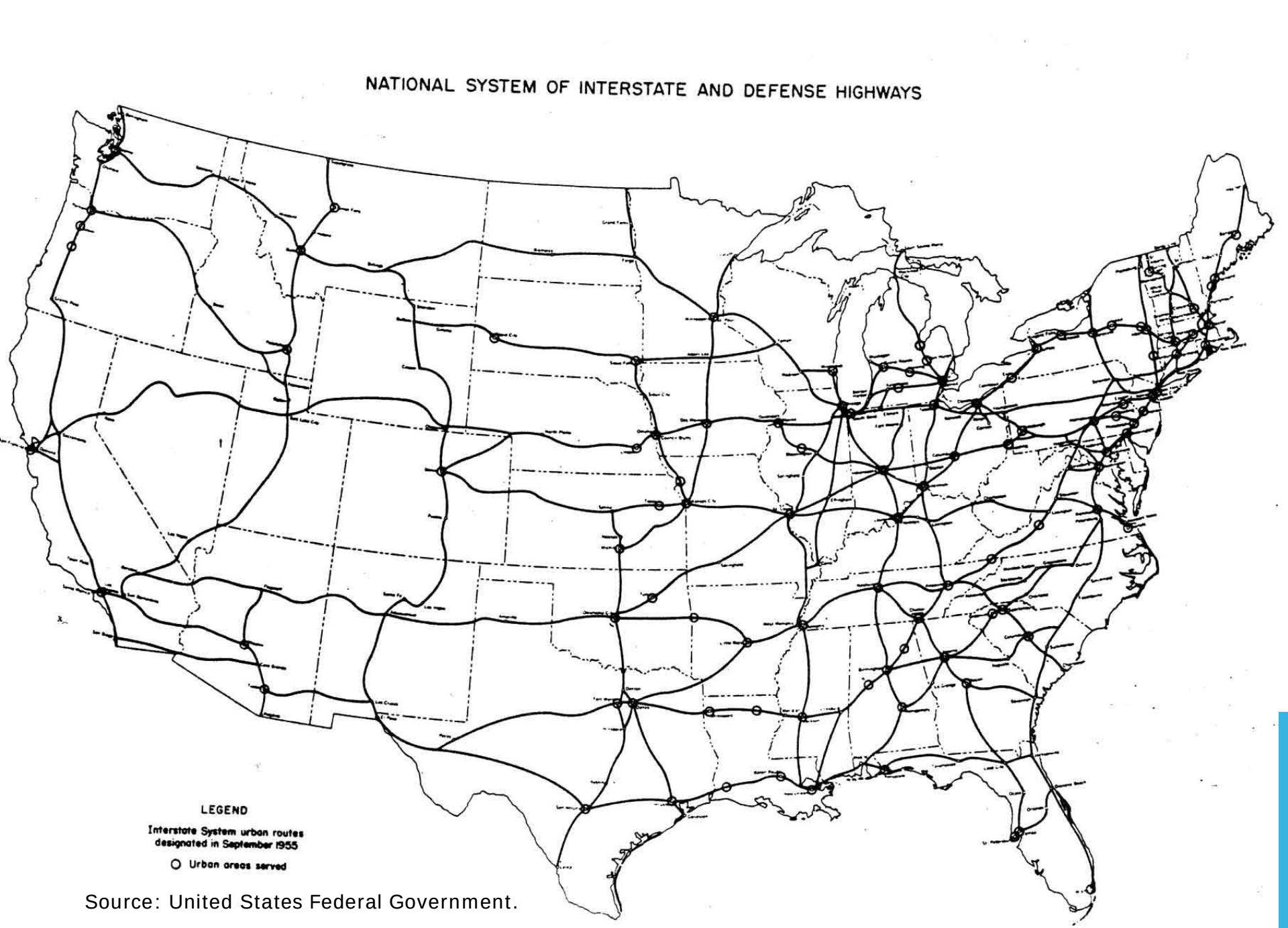
- Federal funds
- Spread out over a number of states
- The hope: the states and the private sector will partner
  - California
  - Wisconsin
  - Ohio

HSR in the U.S. II

- The reality: a lot of uncertainty
  - Costs--these are BIG projects
  - Benefits-- depends on uncertain ridership
  - Can the financing be cobbled together?

HSR in the U.S. III

- A key question: Is this a set of projects or a program?
- Compare and contrast with the Interstate System



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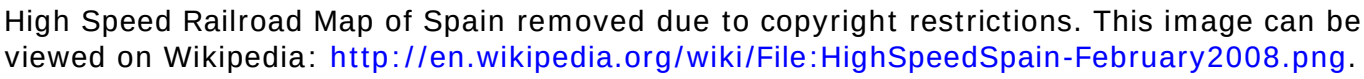
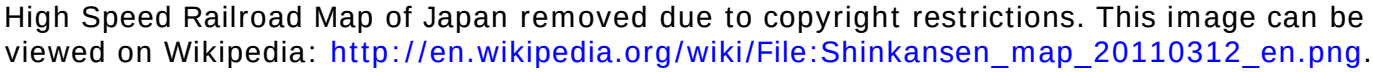
Applications in Spain m(3/5)

High speed rail - AVE



Japanese HSR network


High Speed Railroad Map of Japan removed due to copyright restrictions. This image can be viewed on Wikipedia: http://en.wikipedia.org/wiki/File:Shinkansen_map_20110312_en.png.

1.011 Project Evaluation

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