

PROJECT EVALUATION (1.011)

Spring 2011

Lecture 14

HSR (Cont'd from Lecture 10)

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HSR around the Globe

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

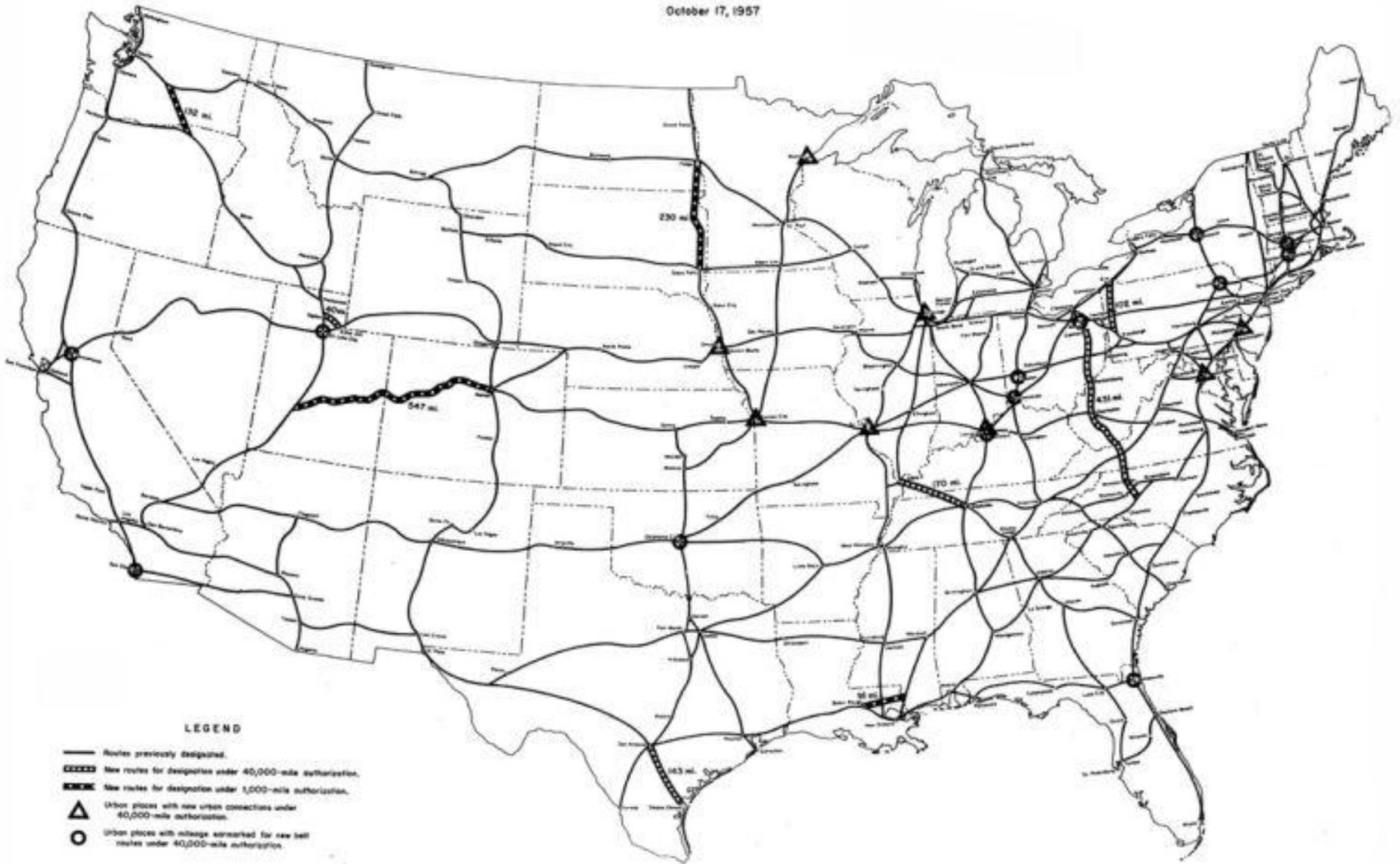
VISION *for* HIGH-SPEED RAIL *in* AMERICA



Source: United States Federal Government.

ROUTES TO BE ADDED TO
THE NATIONAL SYSTEM OF INTERSTATE AND DEFENSE HIGHWAYS

October 17, 1957



Source: United States Federal Government.

Reference: *HSR in America*, by America2050

- America2050 is an advocacy group
- That is in contrast with scholarly literature
 - Givoni
 - Albalade 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
 - Florida

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?

HSR in the U.S. IV

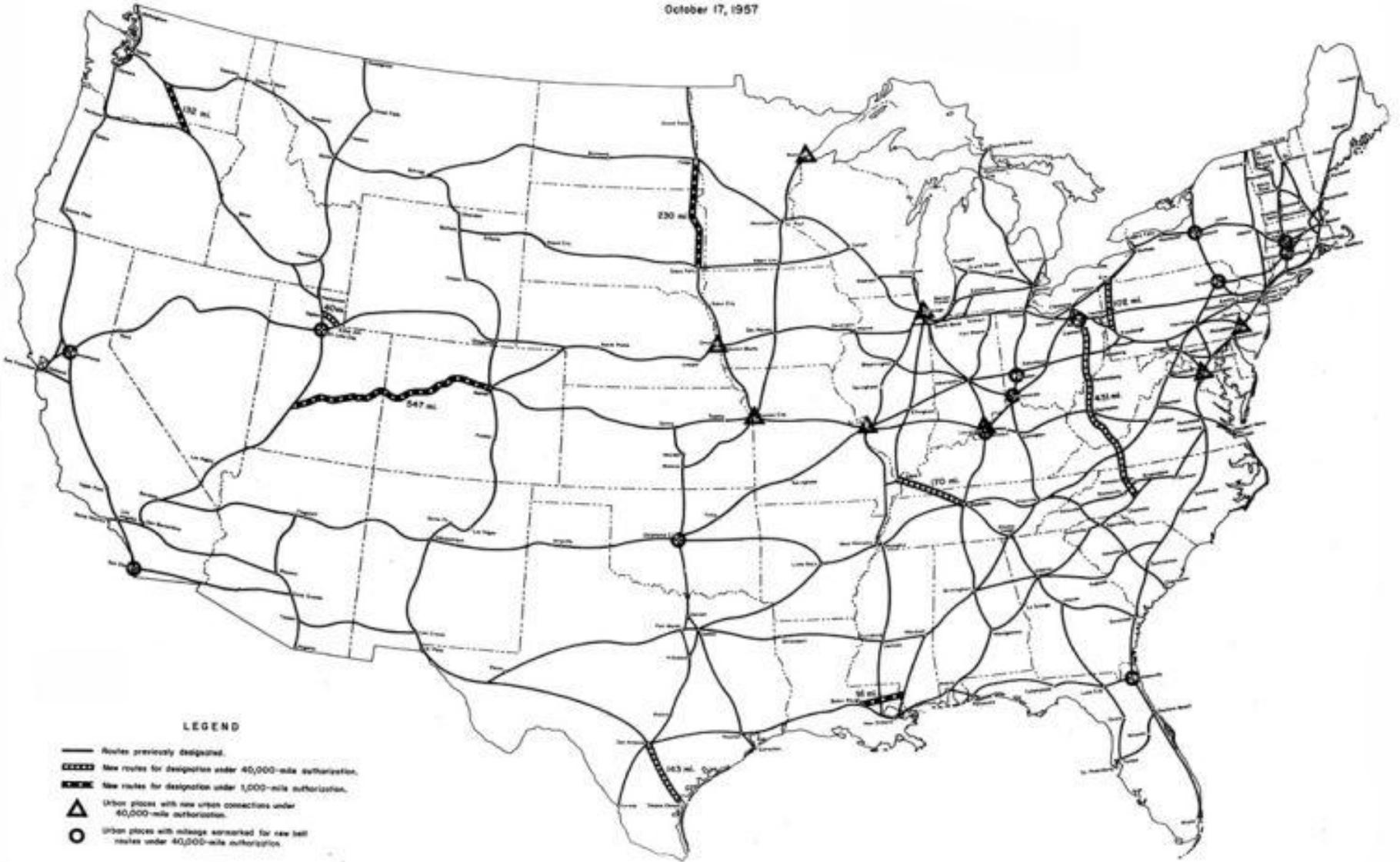
- Cost Effectiveness Questions at 3 levels
 - If you want to build HSR, what system do you build?
 - If you want to improve intercity transportation, is this the best use of the money?
 - If you want to make the U.S. a better country, is this the best use of the money?

HSR in the U.S. V

- Compare and contrast with the U.S. Interstate System

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RIDERSHIP DRIVES BENEFITS

- Service Quality Drives Ridership
- What Determines Service Quality

Service Quality – How to measure

Travel Time (Station to Station)

Travel Time (Door to Door)

Service Frequency

Service Reliability

Fares = f(costs, subsidies)

Comfort aboard

Wi-fi

Seats

Food

Safety

All these are fundamental to mode choice, demand and financial viability

Civil and Environmental Engineering
Massachusetts Institute of Technology

HSR in the U.S.

Florida

- Jump-start the program
- Tampa-Orlando
 - What's right with this route?
 - What's wrong with this route?
 - What actually happened?

Ref: New York Times, March 11, 2011, "How Flaws Undid Obama's Hope for HSR in Florida"

HSR in the U.S.

Who are the stakeholders?

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HSR in the U.S.

Who are the stakeholders (I)?

The traveling public

The freight railroads and freight shippers

The airlines

The intercity bus industry

Automobile manufacturers

Highway advocates

Urban transportation operators (buses, rail)

Trucking companies

HSR in the U.S.

Who are the stakeholders (2)?

Electric utilities

Environmental/ Energy “activists”

Urban states/ rural states

Construction industry

Economic growth advocates

Social equity advocates



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Civil and Environmental Engineering
Massachusetts Institute of Technology

Applications in Spain m(3/5)

High speed rail - AVE

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Japanese HSR network

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