

Dallas-Houston Intercity Rail

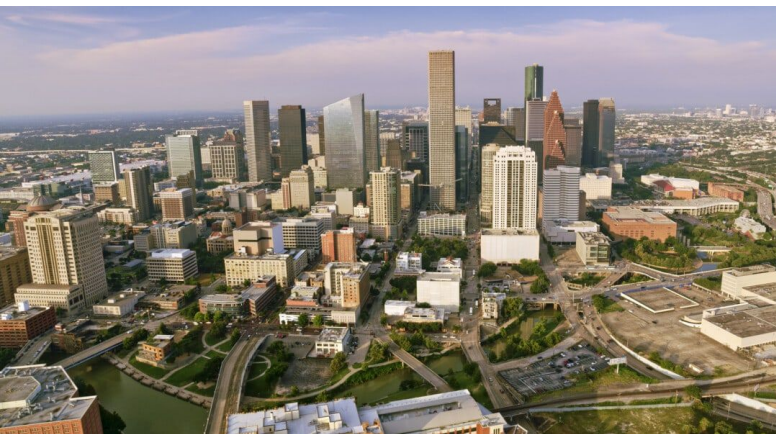
Preliminary Findings



The University of Texas at Austin
Community and Regional Planning
School of Architecture



Agenda



- Introduction
- Approach
- Early Findings
- Emerging Recommendations

About Us

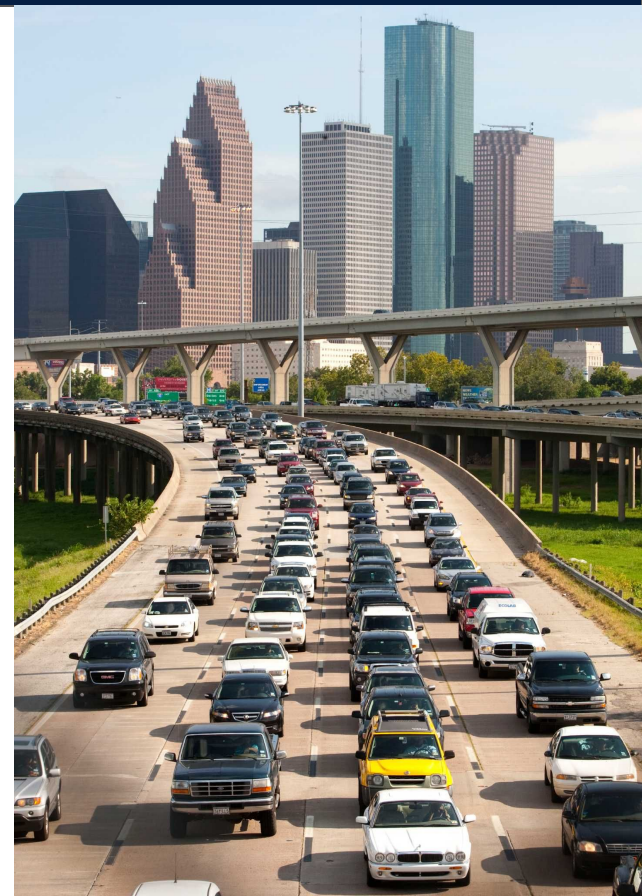
- Graduate students at UT Austin's School of Architecture - City and Regional Planning Program
- This course is a Practicum - aimed at studying a real problem and offering real solutions
- Final presentation May 2

*Recent field trip
viewing possible rail
corridors from
Houston to Dallas*



The Mission

- Determine if Dallas and Houston should be connected by passenger rail
- If so, which mode produces the most benefit (high speed rail, high performing rail, conventional rail) to TEXANS
- Forget the actors for a moment; sketch the ideal traits of developers and operators to serve the needs of Texans
- Build a policy roadmap with a nod to realistic politics



Outside of Project Scope

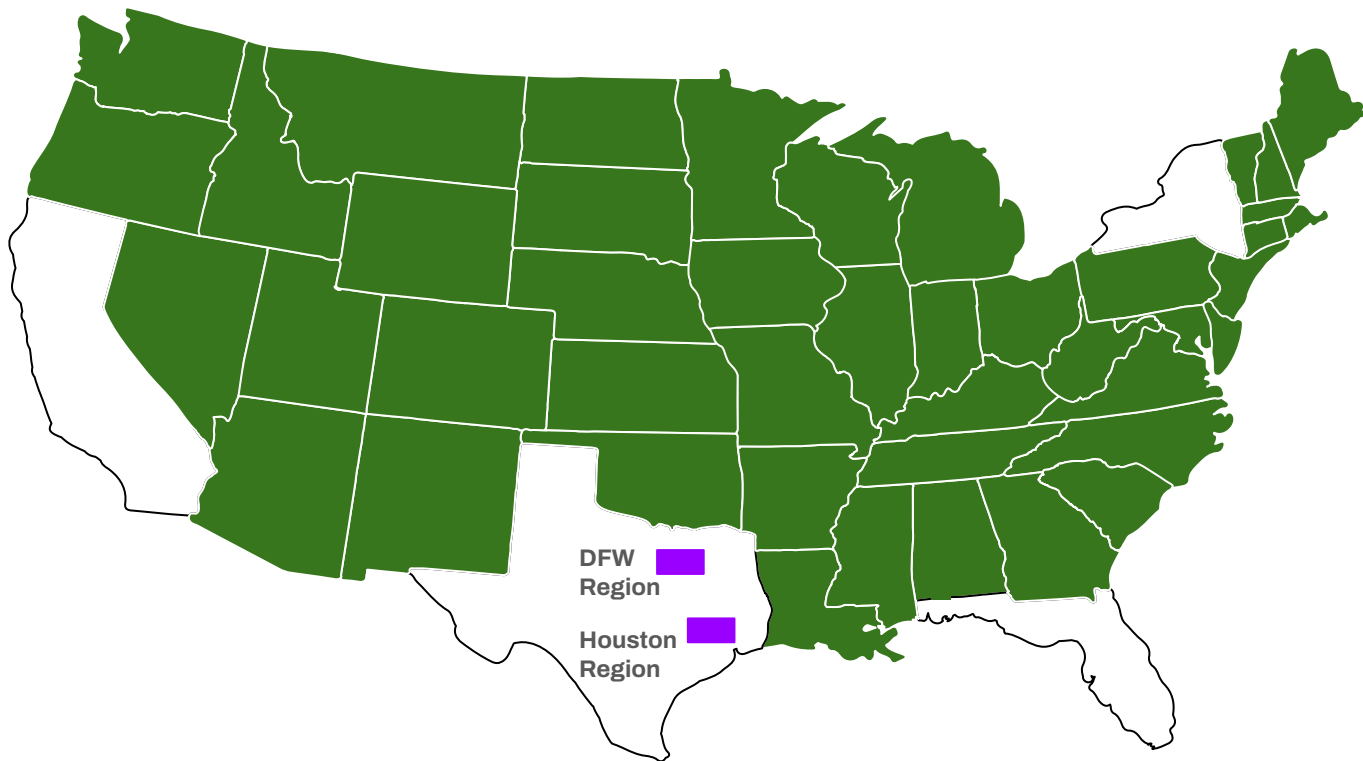
- Precise station locations
- Operational specifics
- Prescriptive funding strategy



King's Cross, London

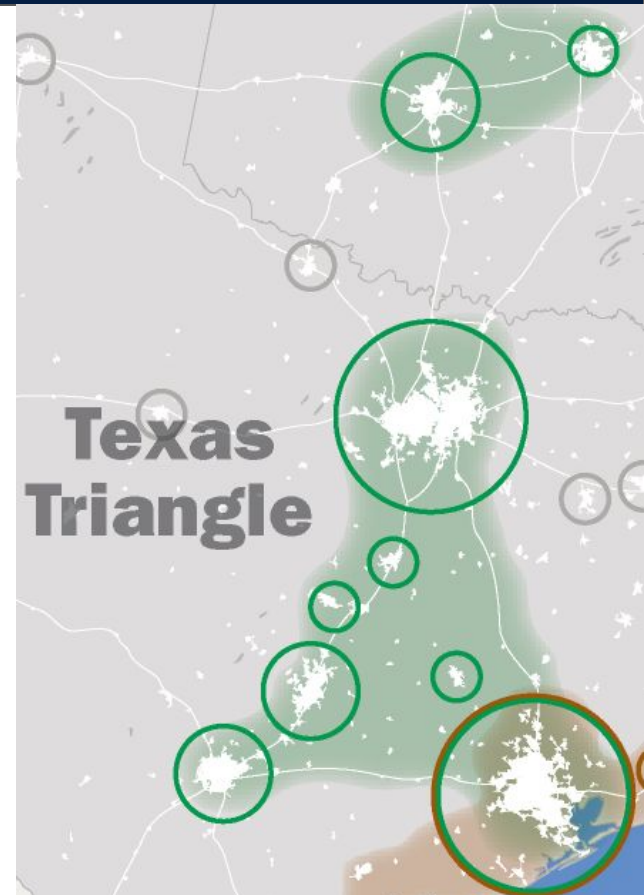
Why Texas?

States with a smaller population than DFW and Houston MSA



Why Now?

- Texas population expected to increase by 88% by 2050
- DFW and Houston will be the top two largest metro areas by 2100
- eCommerce is pushing the limits of American cargo/freight capacity AND nearshoring will put more pressure on USMCA routes

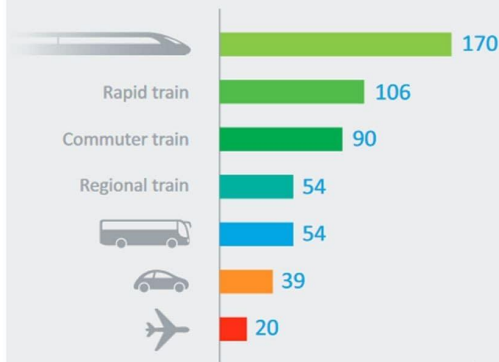


Why Now?

- HSR is far more energy efficient
- Reduction in Greenhouse Gas (GHG) emissions
- Less dependence on foreign oil
- Improvement in air quality

→ ENERGY EFFICIENCY

Passenger-kilometres carried per unit of energy (1kwh = 0.086kep)



→ CO₂ EMISSIONS

Kilogrammes of CO₂ emissions per 100 passenger-kilometres



Charts & figures from UIC - The International Union of Railways, Paris, France. UIC.ORG

Why NOT Now?

- Previous attempts in Texas failed
- Not a priority in Republican-led state
- Private property ownership culture at odds with eminent domain needs
- Infrastructure costs are astronomically out of control
- NOT ORGANIZED

Proposals, Costs, and Benefits



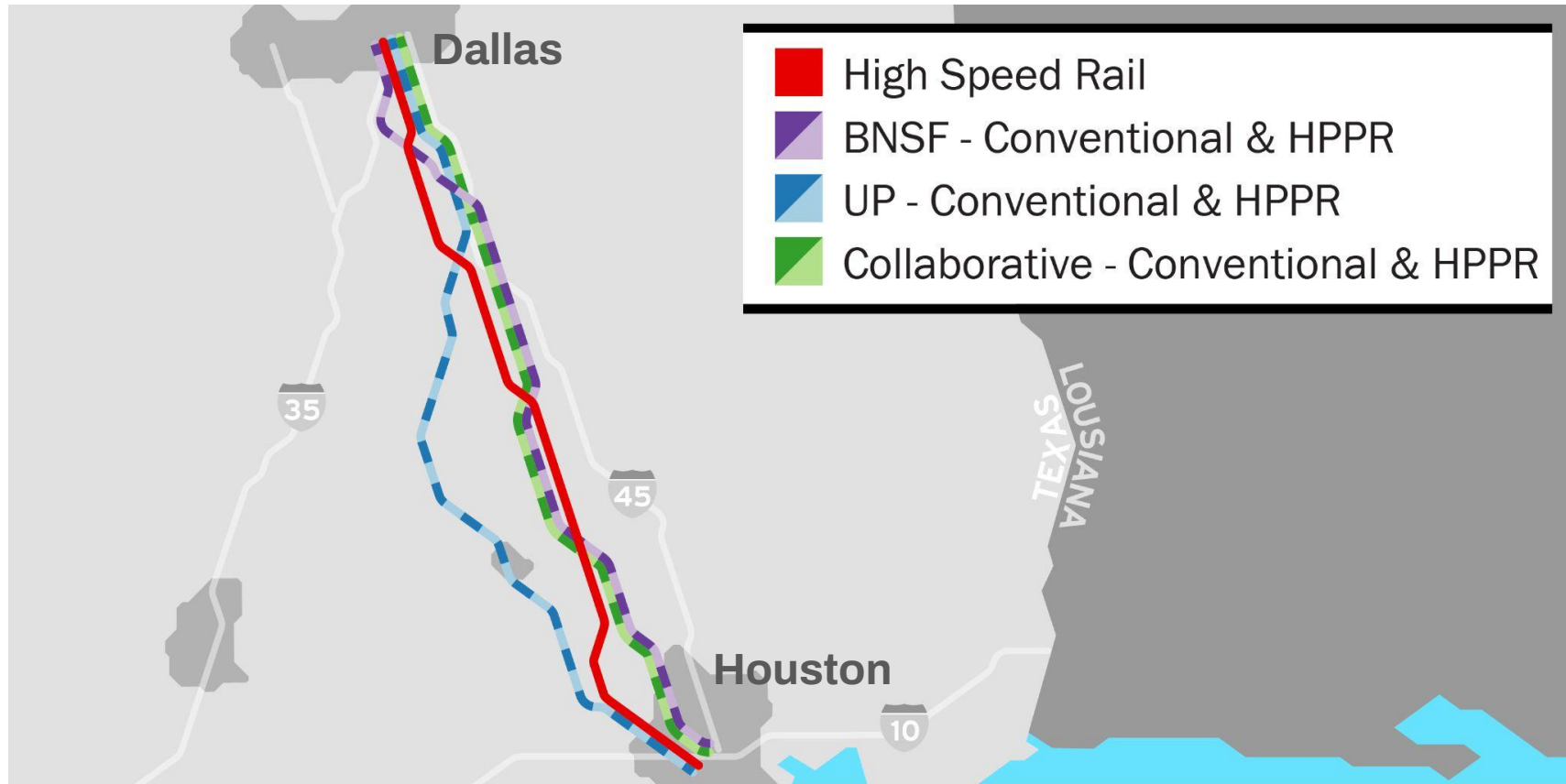
Proposal Categories

Type	Most Like...	Greenfield?	Build
High Speed Rail	Japanese Shinkansen	Yes	On proposed utility corridor selected by Texas Central
High Performance Passenger Rail	Amtrak Northeast Corridor (Acela)	Yes	Alongside existing UP and/or BNSF track
Conventional Passenger Rail	Amtrak Long Distance Routes	No	On existing UP and/or BNSF track

Proposals

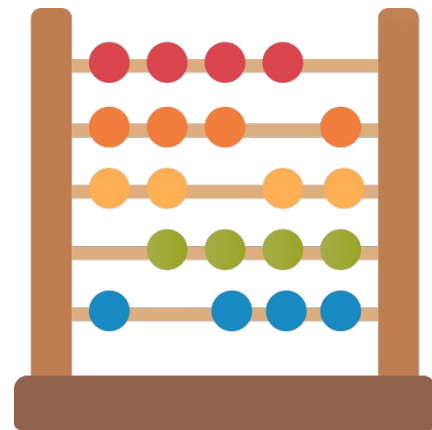
#	Projects Evaluated	Proposed by...
1	High Speed Rail	Texas Central
2	High Performance Passenger Rail - UP	Hypothetical
3	High Performance Passenger Rail - BNSF	Hypothetical
4	High Performance Passenger Rail - Collaborative	Hypothetical
5	Conventional Rail - UP	TxDOT/Amtrak
6	Conventional Rail - BNSF	Hypothetical
7	Conventional Rail - Collaborative	Hypothetical

Option Alignments



Benefit-Cost Analysis Approach

- Calculate **direct** monetary benefits for each proposal
 1. Travel time savings
 2. Reduction in crashes
 3. Reduced emissions damage
 4. Vehicle operating cost savings



Introduction		Approach		Early Findings		Emerging Recommendations	
BCA Preliminary Results							
Proposal	Time Travel Savings	Reduced Crash Costs	Reduced Emissions	Operating Cost Savings	Estimated Capital Cost	B/C Ratio	
High Speed Rail	\$4.9B	\$7.4B	\$550M	\$3.8B	\$32B	0.52	
HPPR - UP	\$1.3B	\$2.6B	\$196M	\$1.3B	\$20B	0.27	
HPPR - BNSF	\$1.8B	\$3.4B	\$254M	\$1.6B	\$20B	0.36	
HPPR - Collaborative	\$2.3B	\$4.2B	\$317M	\$2.0B	\$20B	0.44	
Conventional - UP	\$225M	\$662M	\$51M	\$308M	\$1.5B	0.83	
Conventional - BNSF	\$415M	\$900M	\$62M	\$420M	\$1.5B	1.20	
Conventional - Collaborative	\$531M	\$1.0B	\$74M	\$495M	\$1.5B	1.44	
*All figures in 2022 dollars per USDOT BCA Guidance				**All figures are subject to revision			

High Performance Rail - Not Worth Pursuing

- HPPR is lackluster across all alignments
 - Capital cost too high for what it offers
 - Not much of an improvement over conventional



Corridor	B/C Ratio
HPPR - UP	0.27
HPPR - BNSF	0.36
HPPR - Collaborative	0.44

**All figures are subject to revision*

Conventional Rail Wins Short-Term

- Lowest raw benefit, but also low capital cost
 - Collaborative alignment performs best
 - Shortest alignment
 - Less stops



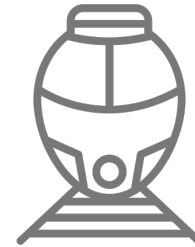
Corridor	B/C Ratio
Conventional - UP	0.83
Conventional - BNSF	1.20
Conventional - Collaborative	1.44

**All figures are subject to revision*

Texas Should Plan NOW for High Speed Rail

Highest raw benefits, but also very high capital cost

- Much better outcome than high performance passenger rail
- Viable in long-term for unquantifiable indirect benefits
- Best option for capturing and facilitating economic growth of state



Corridor	B/C Ratio
High Speed Rail	0.52

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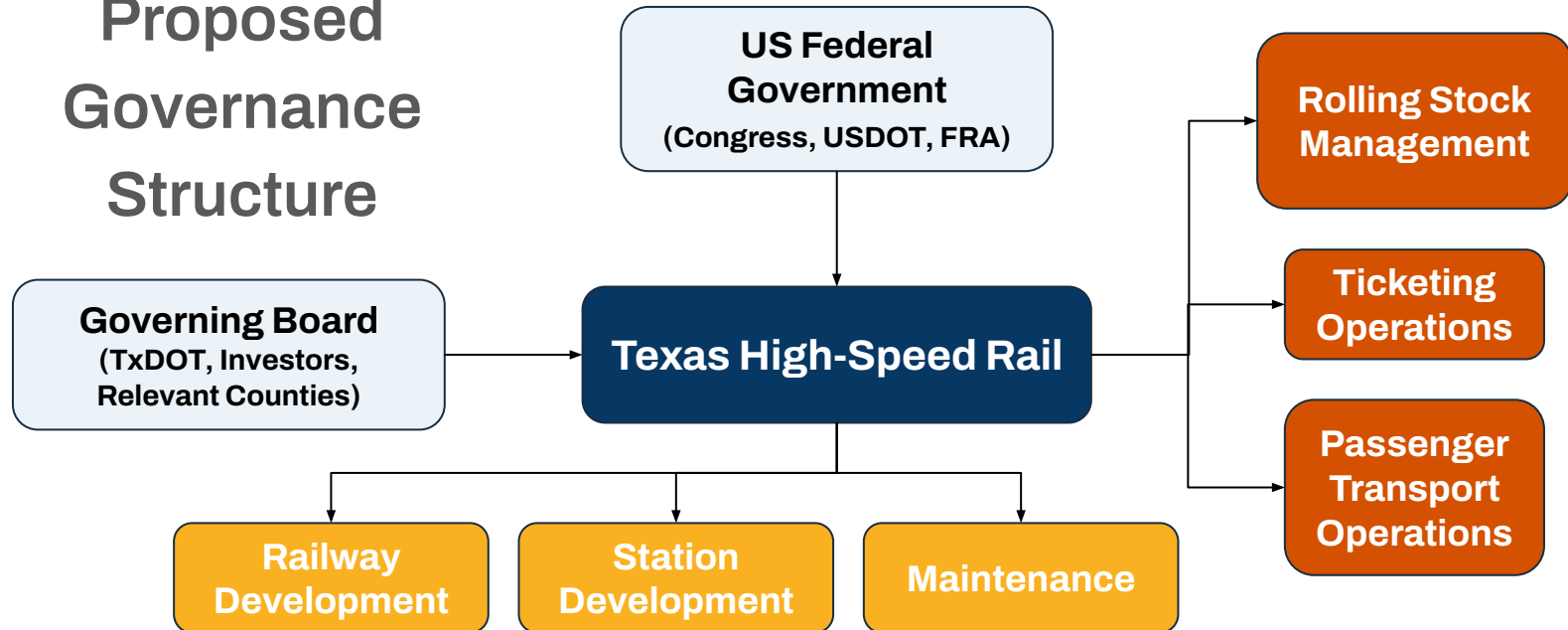
Texas Should Plan NOW for High Speed Rail

- BCA only outlines **direct** benefits
- But, there are many **indirect** benefits
 - Economic agglomeration
 - Labor market integration
 - Future-proofing for growth
 - Ease of travel and comfort
 - Evacuation use
 - And more...



Texas Should Plan NOW for High Speed Rail

Proposed Governance Structure



Funding Proposal

Readiness = Ability to Receive Funds?

Possible Funding Sources

- Funds from IIJA
 - \$36 B for Federal-State Partnership for Intercity Passenger Rail Grants (\$7.2B per yr)
 - \$15.75 B for Amtrak National Network Grant (\$3.2 M per yr)
- Federal loan programs
 - TIFIA
 - RRIF
- State funds
 - Bond programs (CA)
 - Cap and Trade (CA)
- Public-Private Partnership
 - Private Activity Bonds (Brightline)
- Innovative Financing
 - TIF (Station Area Development)

Build Capacity NOW

- Purchase land for future alignment
- Build trust through partnerships with freight companies now
- Prove ridership is viable through conventional rail



Recommendations

- **Crawl before walk; walk before run**
 - Develop conventional rail now, High Speed will take more sophisticated governance
- **In the meantime**
 - Get organized
 - Build rapport with key players
 - Capacity build for High Speed Rail



Questions?



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