

A photograph of a high-speed train (TGV) on tracks, positioned next to a freight train. The high-speed train is white with a red stripe and has its headlights on. The freight train is dark blue and grey. The background shows overhead power lines and a hazy sky.

The Phased Network Model
A Market-Based Approach



In a Nutshell

The Challenge:

Competitive speeds, frequencies and dependability cannot be achieved on the existing railroad network; but building a completely new railroad network is a bridge too far.

The Answer:

Build one or two segments of high-speed line where several routes (and local traffic) can be funneled over it.

The Six Elements



The Main Constituencies

Group	Motivation
Existing Riders	More dependability & departures
Potential Riders	Auto-competitive— Low price
Communities	Access— Low impact
The Heavy Hitters	2.5 hours max— Quality Amenities
Construction Firms and Unions	Big project
Railroads	Minimal risk— NO Faster than 90 mph!

Success Factors



Speed



Frequenc
y



Price



Location

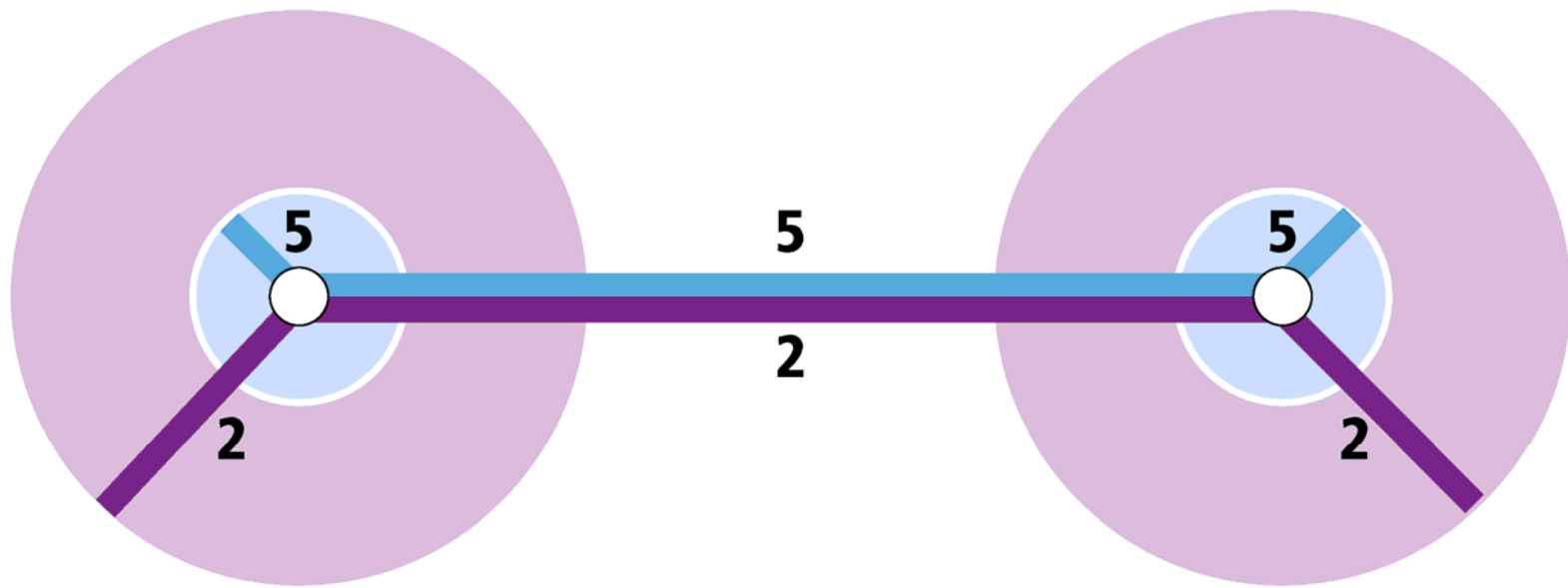


Dependability

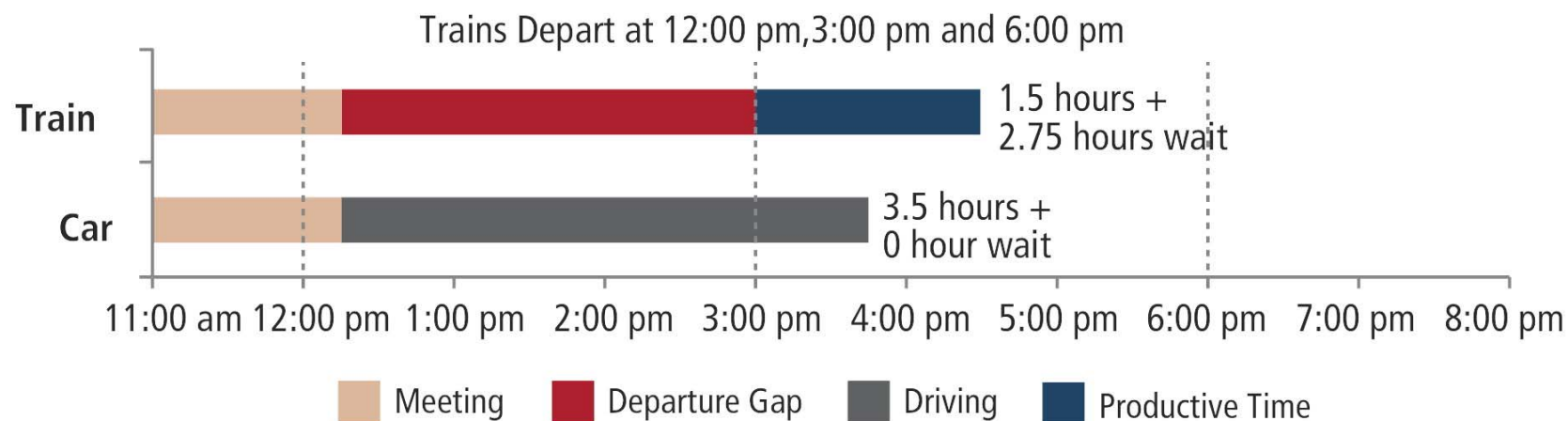


Amenities

Speed increases market potential



Frequent Departures Critical



Note: Speed makes frequency more affordable by increasing number of trips a train and its crew can make in a day

Chicago – St. Louis Phase I Underway

~\$1.8 billion to rebuild heavy-haul railroad:

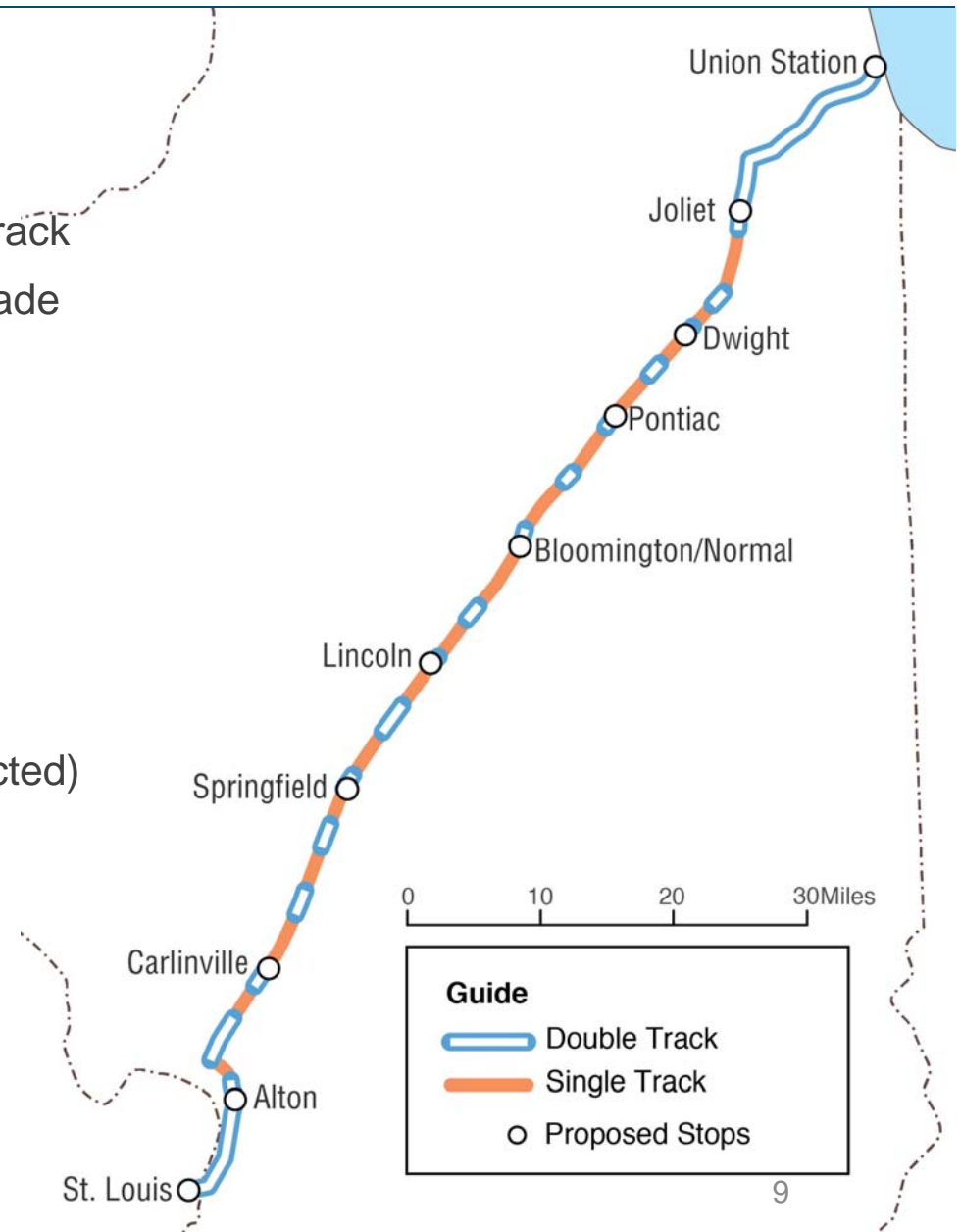
- Complete replacement of ~250 miles of track
- Lengthened sidings, new signals, new grade crossings
- New stations
- New coaches and locomotives

Hoped for Results

- Reduced trip to 4h 45m from 5h 30m
- 5 daily roundtrips (no change)
- 1,079,000 riders, up from 600,000 (projected)

Fully funded

- Trackwork complete 2018
- 110 mph operation date unknown



Valuable Lessons

Good

- Experience in structuring the deal
- Local communities got side benefits: ie: safer crossings, fencing
- All Amtrak routes should be rebuilt to this track standard.

Issues

- Political constituency not strong enough to push through issues with signaling and coaches.
- Union Pacific has been very clear that no other 110 mph projects will be considered.
- Should have increased frequencies in first round.
- Access to Chicago was not addressed, hardest and most expensive part.



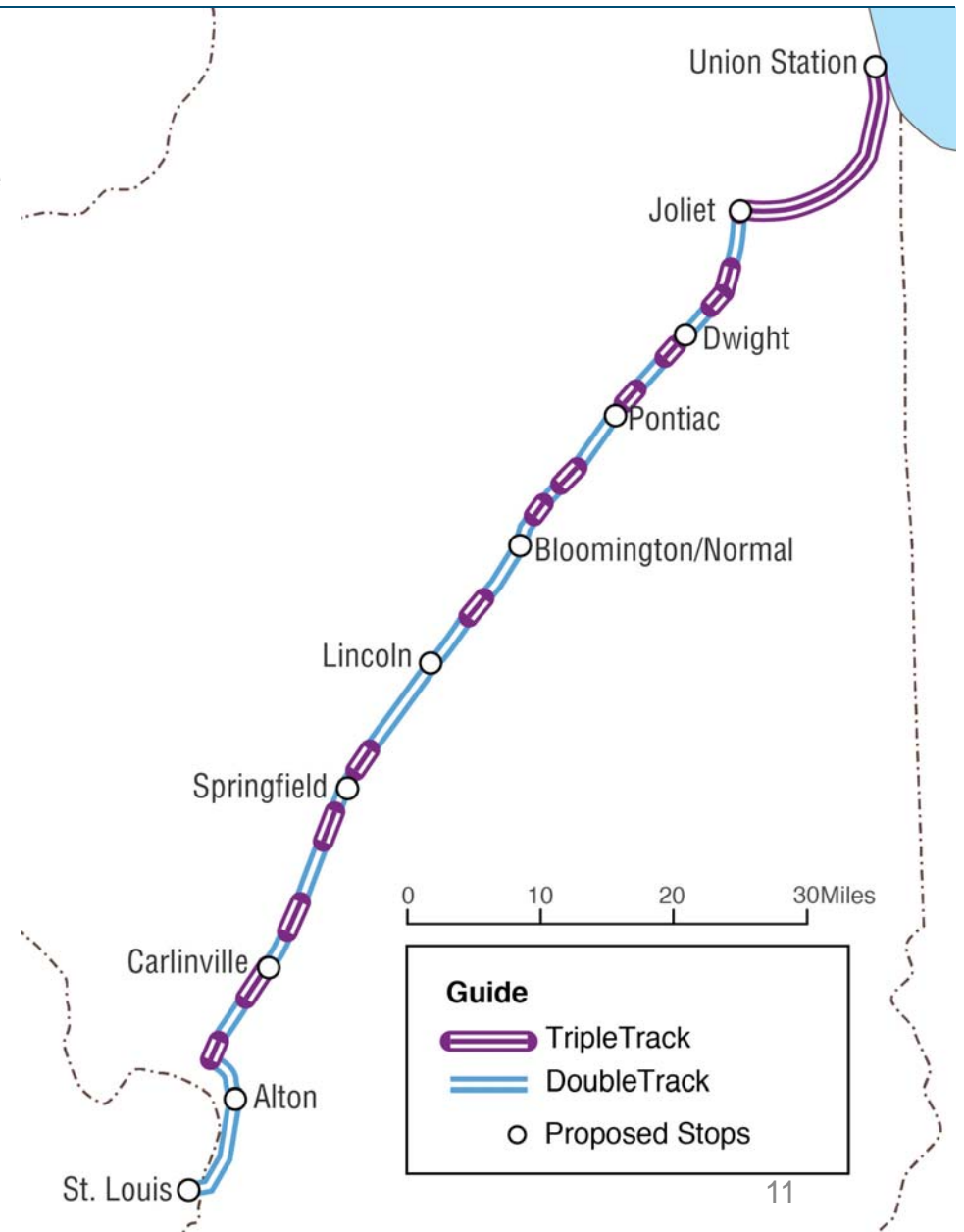
Chicago–St. Louis Phase II

~\$4.5 billion additional yields:

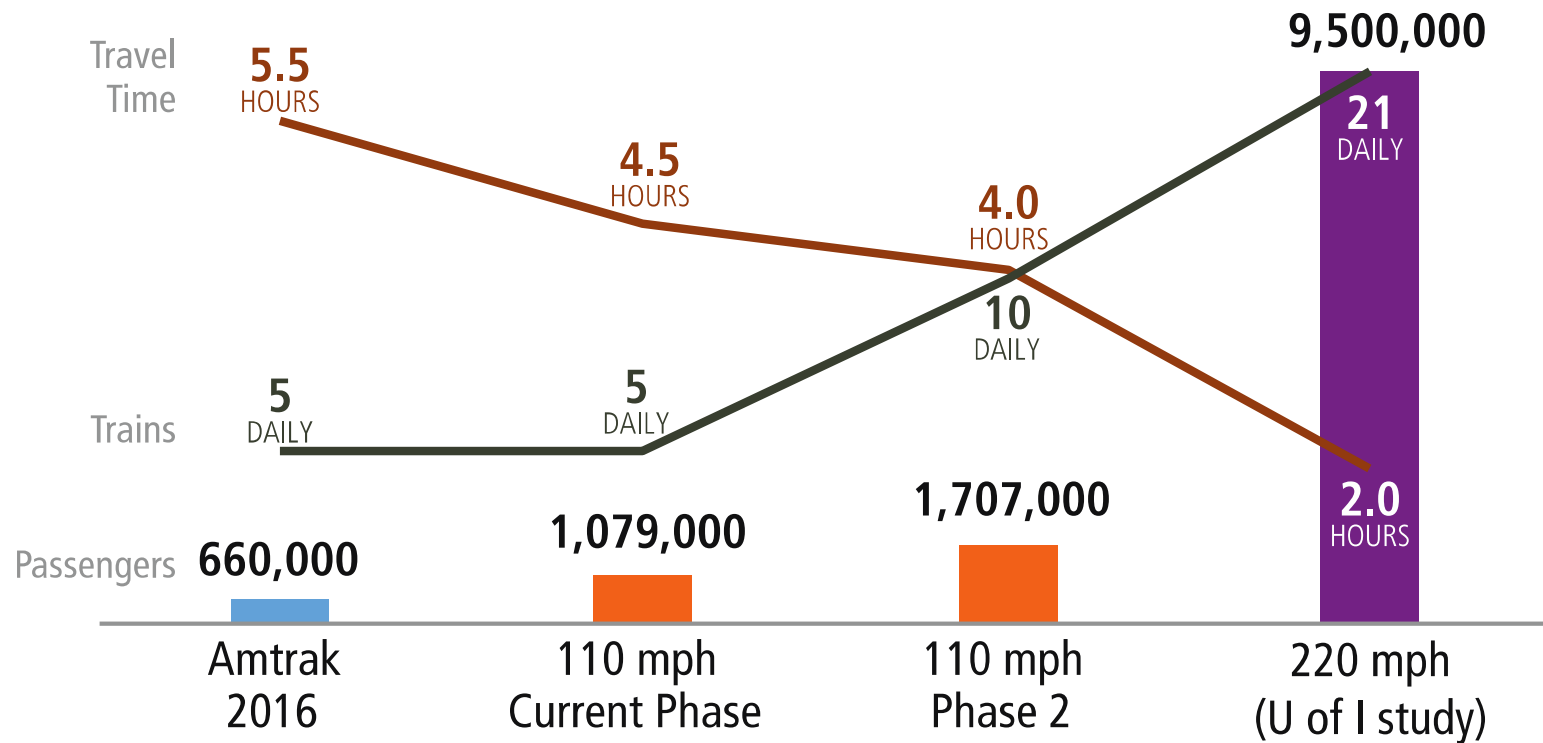
- Single track with sidings becomes double track with sidings
- 3h 51m–4h 10m trip time
- 9 daily roundtrips
- 1,707,000 annual riders

Not Funded, Tier I EIS completed

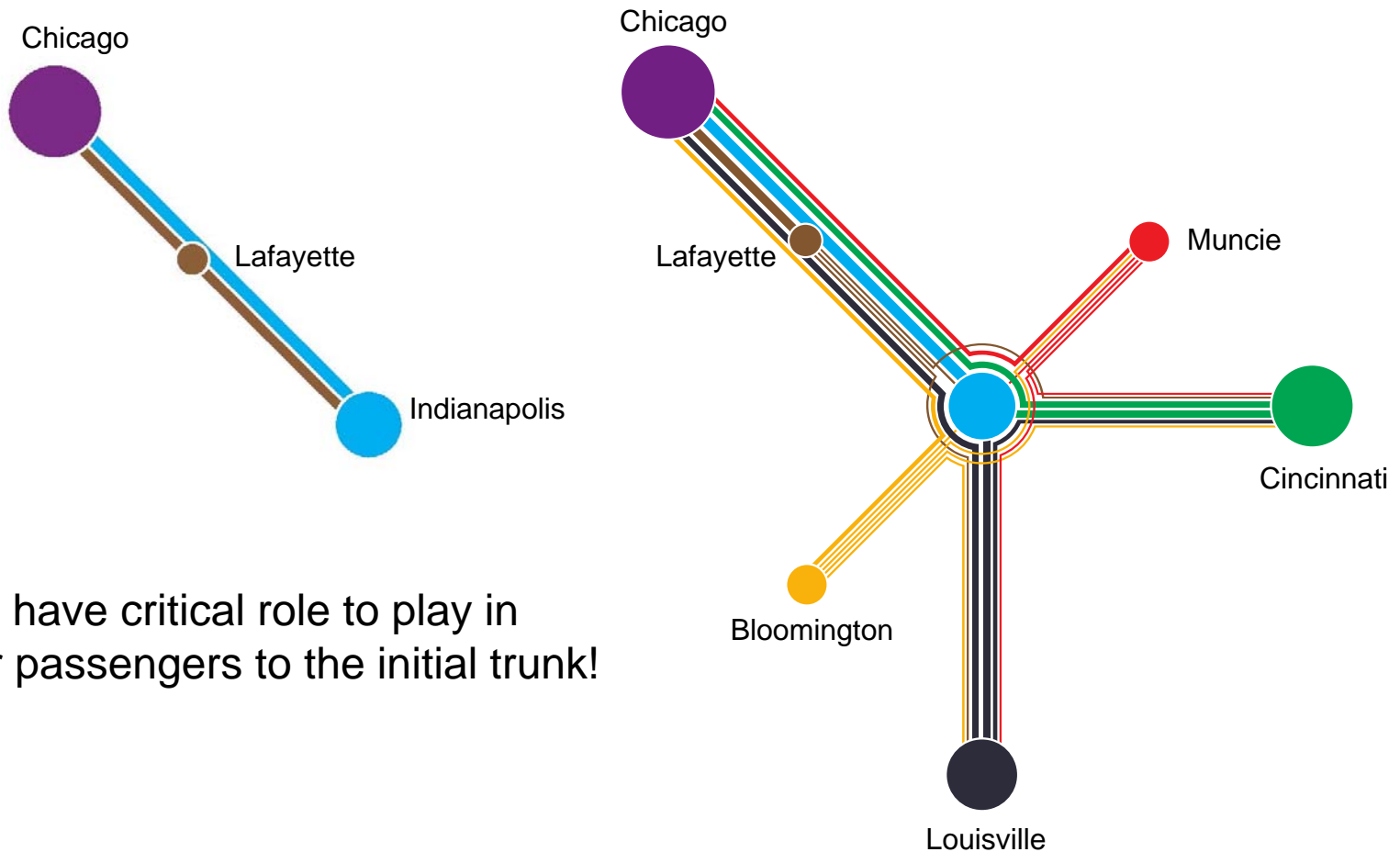
Roughly half the cost is Chicago Access.



Chicago–St. Louis Corridor Comparison

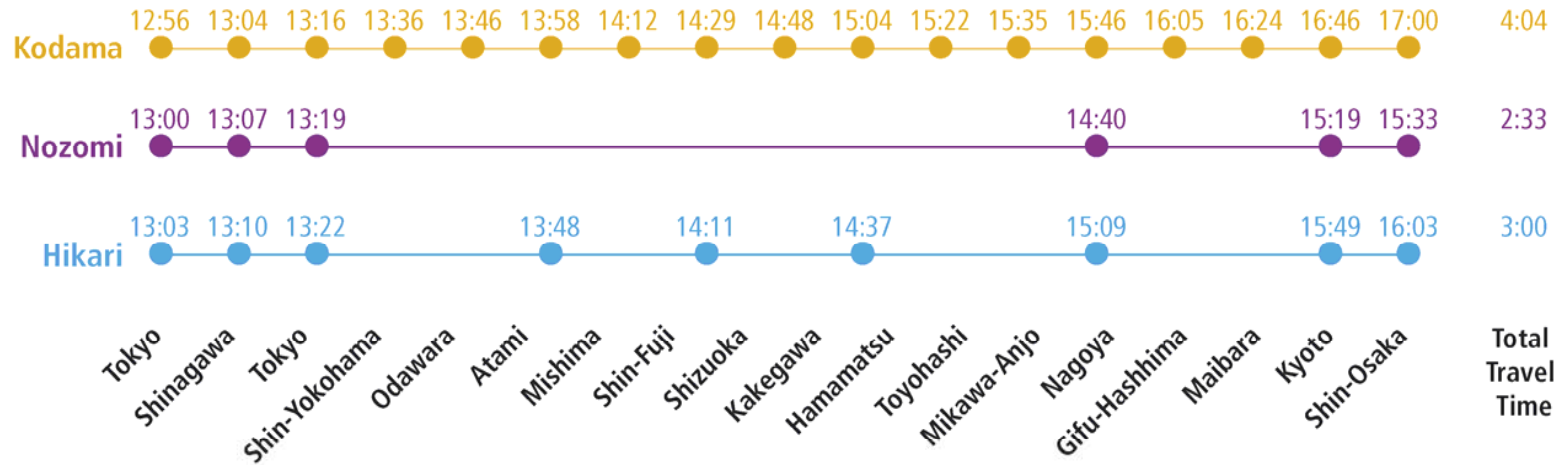


Networks Make Individual Segments More Viable



Buses have critical role to play in feeder passengers to the initial trunk!

Locals, Expresses & Limiteds Balance Time and Coverage



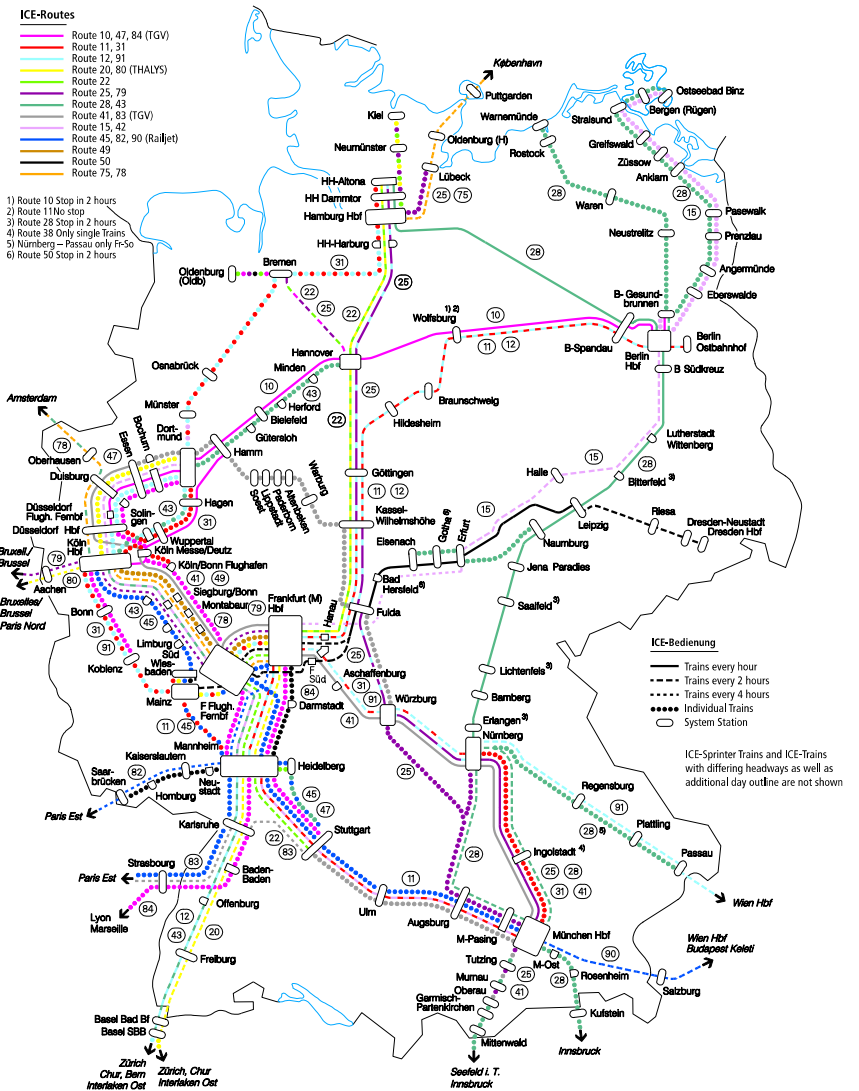
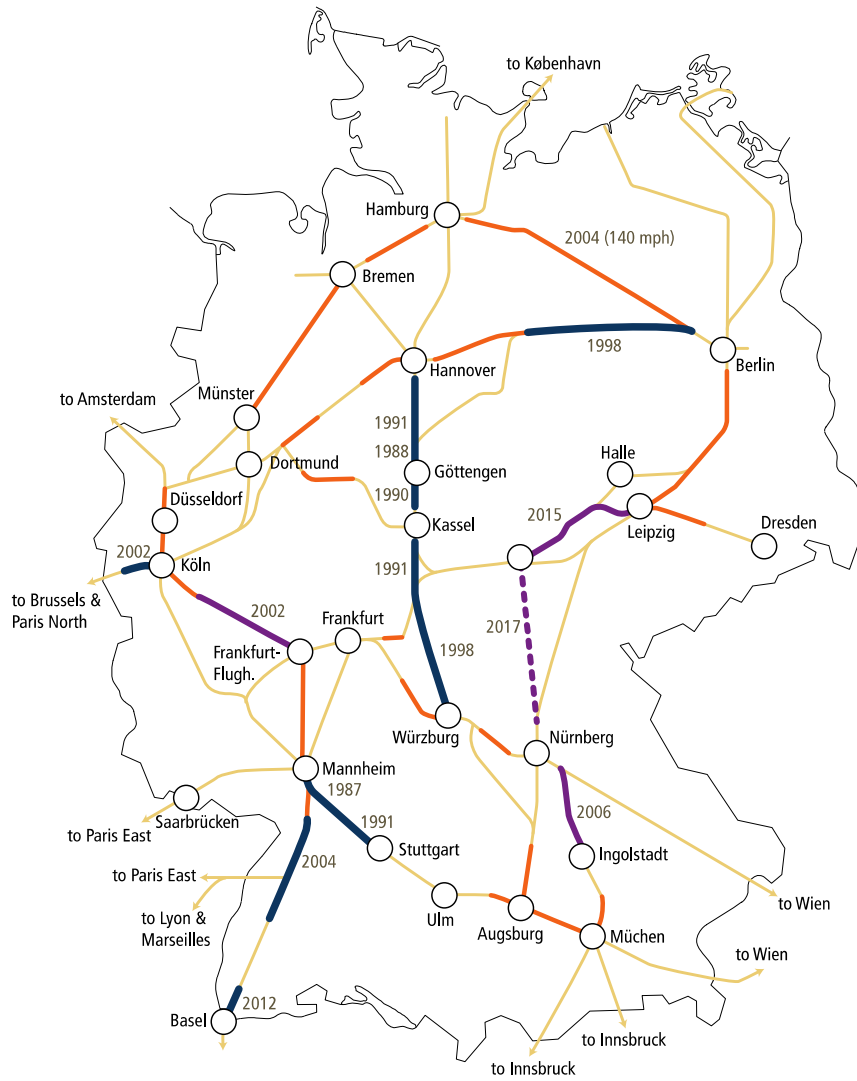
Ticket Price and Volume Go Together

Railroading is a high initial cost/low marginal cost business.

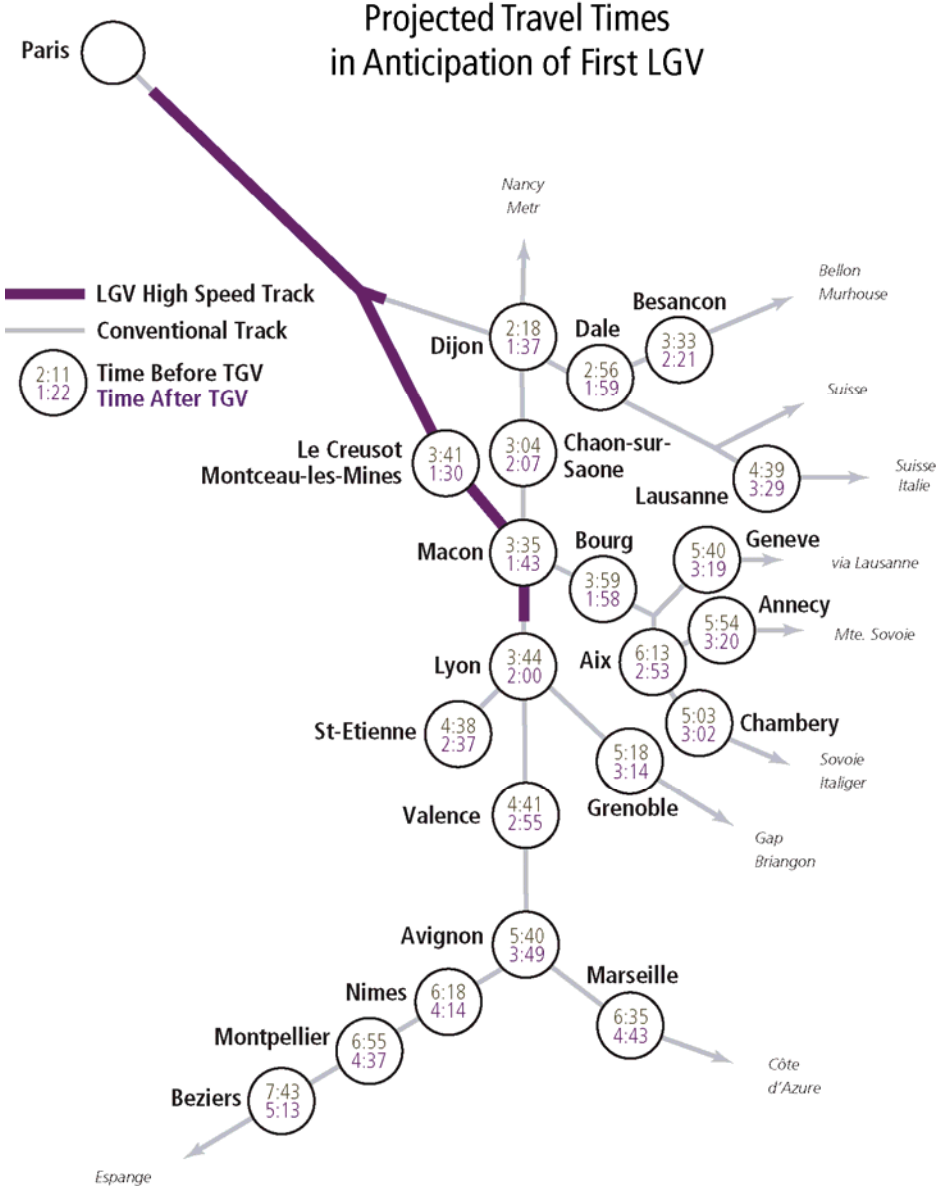
A focus on making it easy for as many people to take the train as possible spreads fixed costs over more people.



Germany: Segments in Grid



France: Well Placed First Segment



Phased Network on the LGV Atlantique

Phase I in 1990:

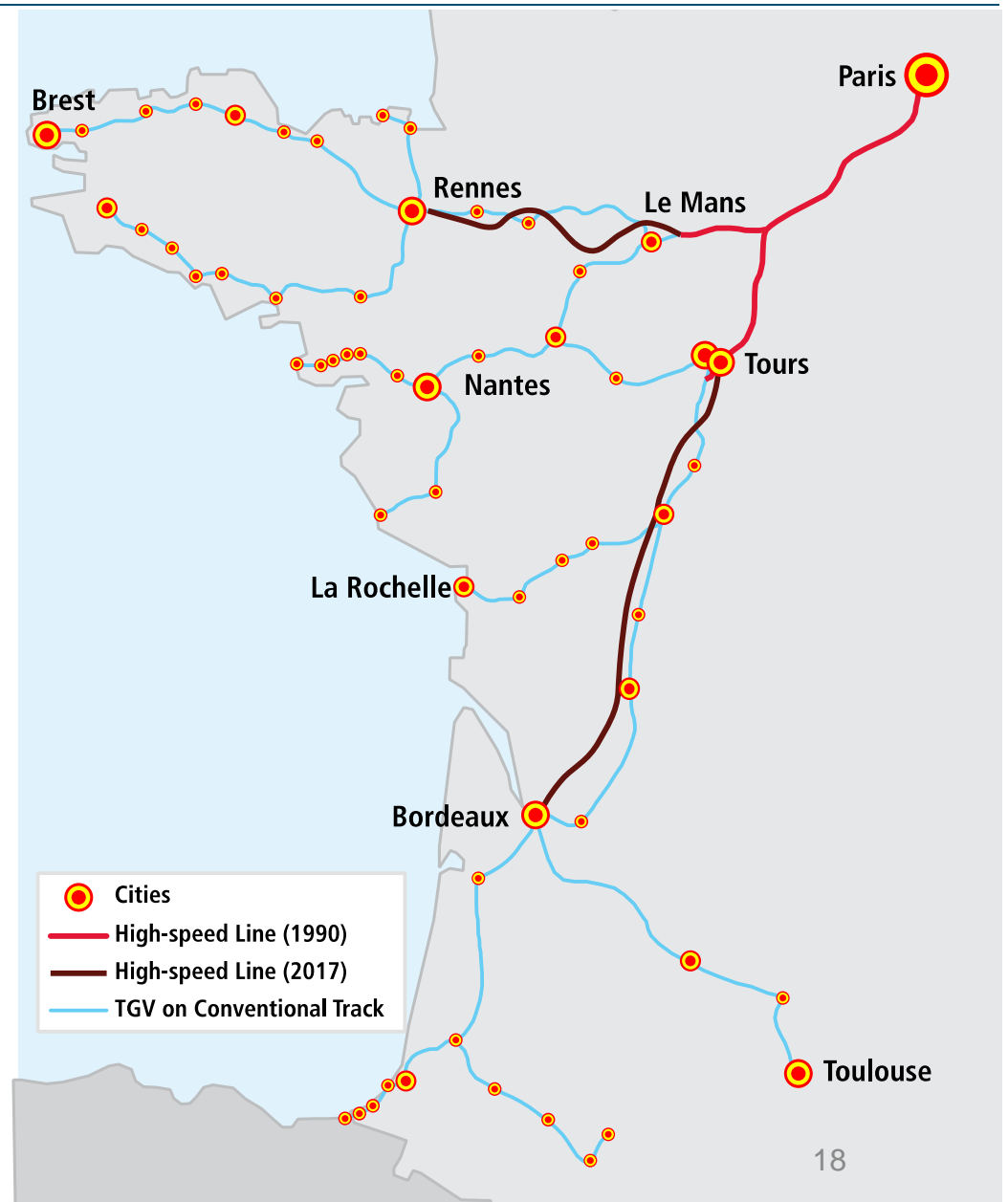
- Access to Paris on abandoned ROW
- ~145 mile segment of high-speed line
- 125 mph upgrades to existing RR from Tours to Bordeaux
- TGV trainsets operating beyond on “classic network”

Phase II in 2017:

- Two extensions built though PPP

Issues with this approach in US:

- Existing lines not electrified
- “Heavy Haul” freight track is rough, may be issues



HSR Changed the Game in Spain

Madrid – Seville Market Share



Note: Total market increased as result of high speed line. 34% of 1993 volume was induced demand.

Spain: 2008



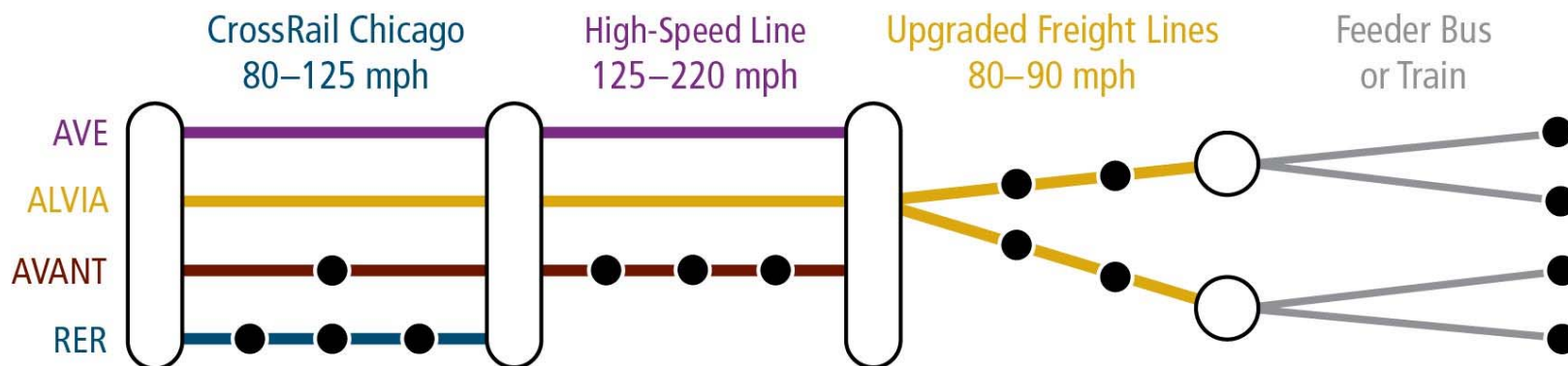
Midwest High Speed Rail Association
 REINVENTING TRAVEL. REINVENTING THE MIDWEST.

Spain: 2016



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Phased Network In a Nutshell



1. Deploy high-performance trainsets using new, safer Tier III regulations
2. Upgrade and connect two Metra lines: CrossRail Chicago
3. Build new high-speed lines in segments of 90–150 miles long
4. Make a new partnership with railroads for 4 trains a day minimum on multiple feeder routes at 90 mph max
5. Expand feeder bus network

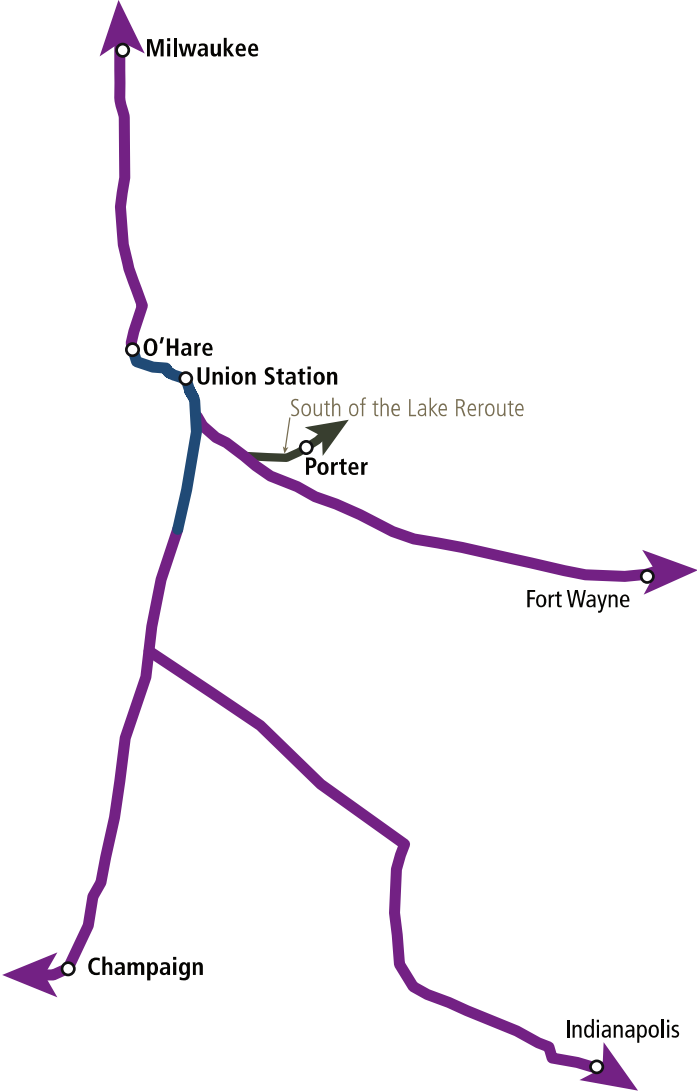
New Trainset Regulations Make it Feasible



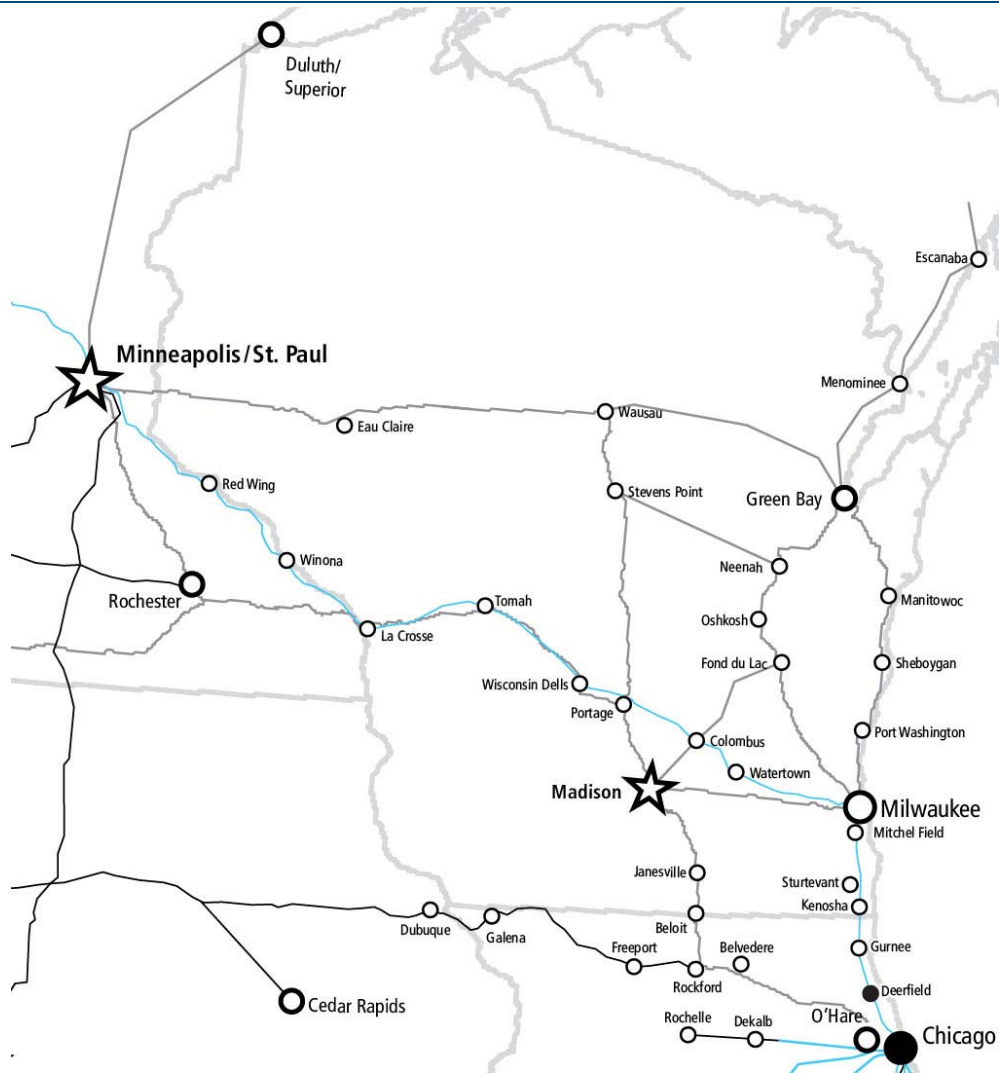
CrossRail Chicago



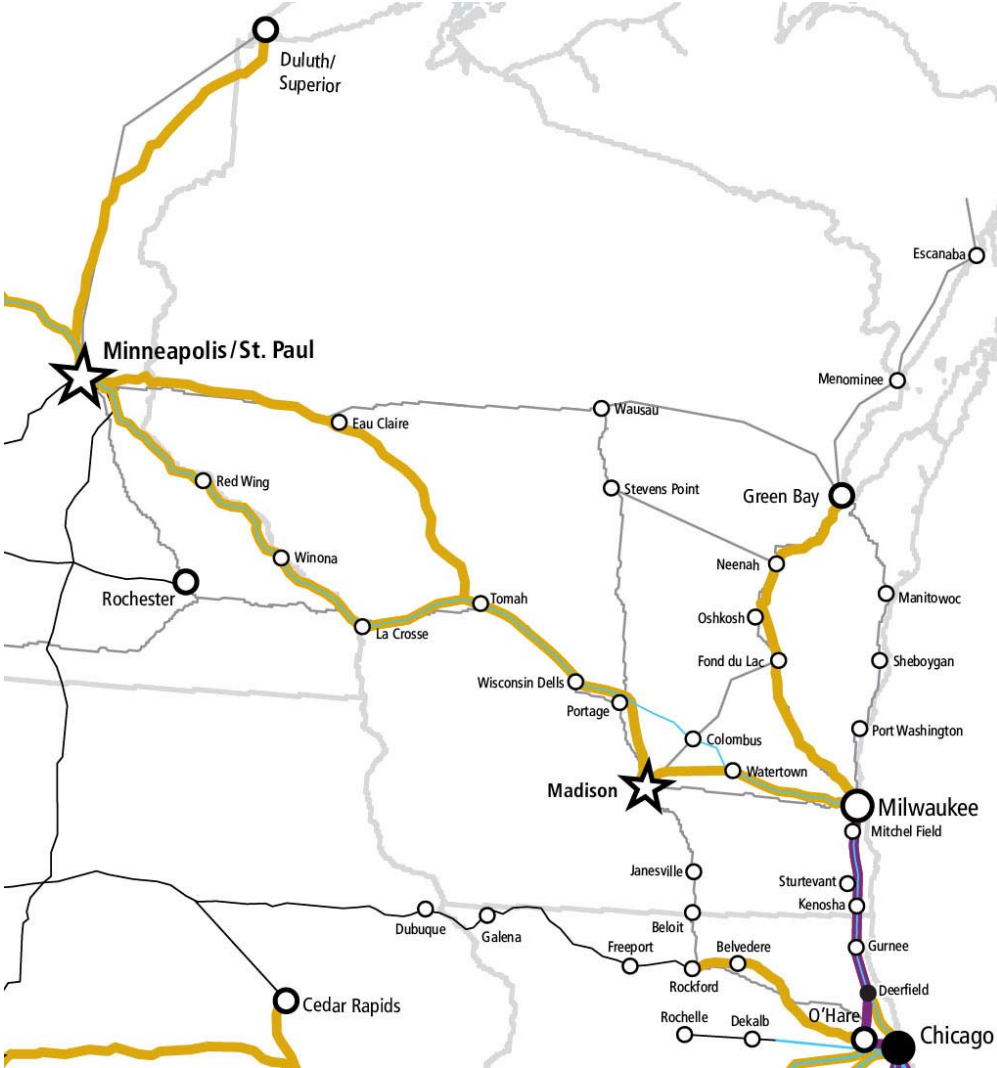
Segments of High-Speed Line



Amtrak Today



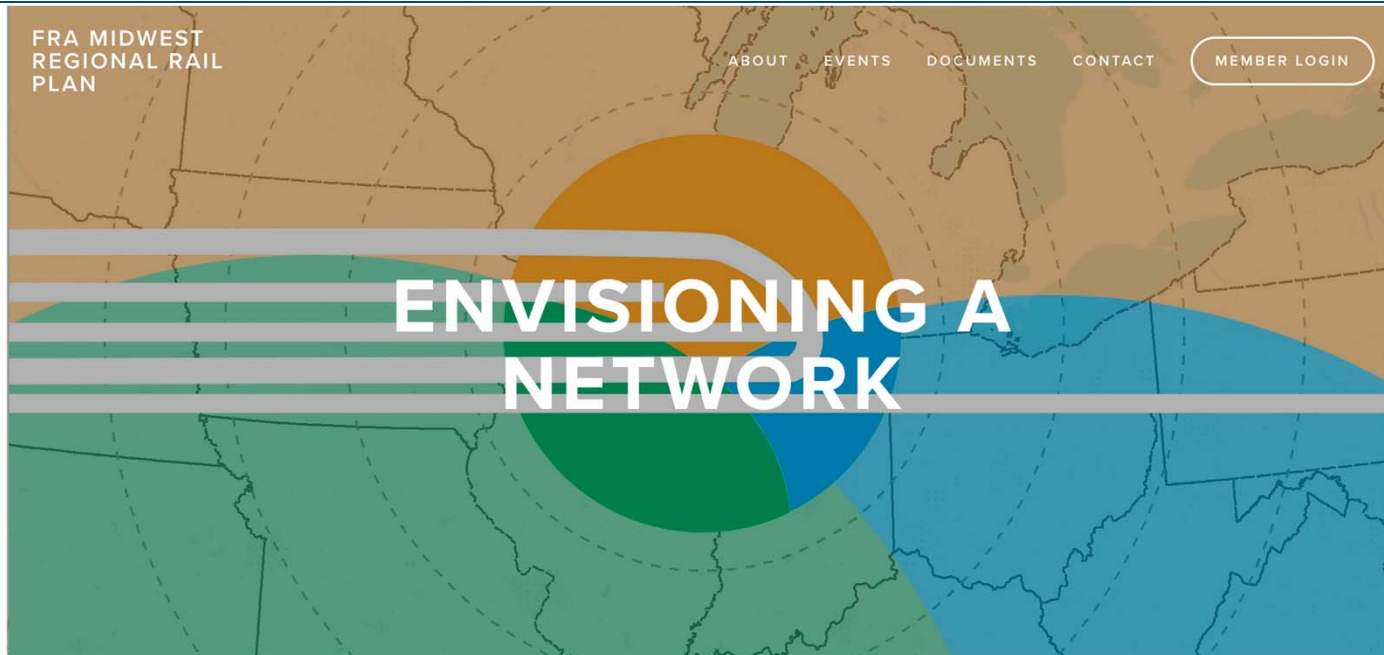
Phased Network Approach: Phase 1



Travel Times from Chicago

	Today	MWRRI	Phased Network
Milwaukee	1:29	1:21	0:40
Madison	---	2:42	1:23
La Crosse	4:59	4:31	3:39
St. Paul	8:05	6:42	5:48
Green Bay	---	4:06	3:00

An Opportunity for a New Vision



The Midwest Regional Rail Planning Study

The Federal Railroad Administration (FRA) is embarking on a project to explore the potential for a high-performance, multi-state intercity passenger rail network in the Midwest region. The study will build on current rail planning efforts within the twelve states of Illinois, Missouri, Iowa, Michigan, Wisconsin, Ohio, Nebraska, Kansas, South Dakota, North Dakota, Indiana, and Minnesota and will explore the potential for a fully integrated passenger rail network linking communities throughout the region.

