


# High Speed Railway in China



Xing Zeng

Oct 6, 2017

# Disclaimers

- I am a citizen of China (PRC)
  - Neither me, nor any member of my family, are in any way affiliated with any governmental agencies or corporations that had been participated in the planning, construction, operation, or maintenance of the high speed railways in China
  - With regardless of one's political belief about the current cross-strait relations, Taiwan High Speed Railway is a totally separate system managed by a different entity with incompatible electrical system. It will not be treated as a member of high speed railways in China.
- 

# Vehicles

# Vehicles (First Generation ~2006)

CRH1A - 200kph



# Vehicles (First Generation ~2006)

CRH2A - 200kph



# Vehicles (Second Generation ~2008)

CRH2C - 300kph



# Vehicles (Second Generation ~2008)

Velaro CN / CRH3C - 350kph (In Design) 300kph (In Practice)



# Vehicles (Third Generation ~2010)

Velaro CN / CRH380B - 350kph (In Design) 300kph (In Practice)





# Vehicles (Third Generation ~2010)

CRH380A - 350kph (In Design) 300kph (In Practice)



# Vehicles (Third Generation ~2010)

Zefiro 380 / CRH380D - 350kph (In Design) 300kph (In Practice)



# Vehicles (Fourth Generation ~2016)

China Standardized EMU / CR400AF & CR400BF - 350kph



# Timeline of the fastest operation speed

|             |        |                |                    |
|-------------|--------|----------------|--------------------|
| 1964-Oct    | 210kph | 0 Series       | Tokaido Shinkansen |
| 1981-Sep    | 260kph | TGV Sud-Est    | LGV Sud-Est        |
| 1983-Sep    | 270kph | TGV Sud-Est    | LGV Sud-Est        |
| 1989-Sep    | 300kph | TGV Atlantique | LGV Atlantique     |
| 1997-March  | 300kph | 500 Series     | Sanyo Shinkansen   |
| 2002-August | 300kph | ICE3           | Koln-Frankfurt HSR |
| 2004-April  | 300kph | KTX-I          | Gyeongbu HSR       |
| 2007-Jan    | 300kph | THSR 700T      | Taiwan HSR         |



# Timeline of the fastest operation speed

|             |        |                 |                      |
|-------------|--------|-----------------|----------------------|
| 2007-June   | 320kph | TGV POS         | LGV Est              |
| 2008-August | 350kph | CRH3C           | Beijing-Tianjin IC   |
| 2011-August | 320kph | TGV POS         | LGV Est              |
| 2013-March  | 320kph | E5 Series       | Tohoku Shinkansen    |
| 2017-Sep    | 350kph | CR400AF/CR400BF | Beijing-Shanghai HSR |
| TBA         | 360kph | Zefiro 300      | Torino-Milano HSR    |





Network

# Network

## Railway map of People's Republic of China

Colored lines showing CRH and other

high speed rail services

Last update: 2017-07-10



# Network

Beijing-Guangzhou-Shenzhen-Hong Kong

Top Operational Speed: 300kph

Distance: 2230km

≈ Distance Between Vancouver and Minneapolis

≈ Total Length of French LGV Line





# Network

Beijing-Shanghai

Top Operational Speed: 350kph

Distance: 1302km

AND

Coastal Passageway

Top Operational Speed: 300kph (near Shanghai) 200kph (Rest)

Distance: 1609km

Beijing  
My Hometown! ^ ^  
Capital  
2nd Largest City in China  
HQ Baidu

Tianjin  
3rd Largest City in China

Shanghai  
Largest City in China  
7th Largest Urban area in the world  
HQ Shanghai Stock Exchange

Hangzhou  
HQ Alibaba

Xiamen  
Major Air Hub

Shenzhen  
4th Largest City in China  
HQ Tencent



# Network

Xuzhou-Lanzhou

Top Operational Speed:

300kph(Rest)

200kph(Near Lanzhou)

Distance: 1363km

Xi'an  
Main Historical City

Luoyang  
Another Main Historical City

Zhengzhou  
Part of iPhone X is manufactured here

Shanghai  
Largest City in China  
7th Largest Urban area in the world  
HQ Shanghai Stock Exchange



# Network

Shanghai-Wuhan-Chengdu

Top Operational Speed:

300kph(Near Shanghai & Chengdu)

200kph(Rest)

160kph(Near Enshi)

Distance: 2078km

Chengdu  
8th Largest City in China  
Major Technology Center in Western China  
Gateway to Tibet

Chongqing  
9th Largest City in China

Wuhan  
6th Largest City in China

Shanghai  
Largest City in China  
7th Largest Urban area in the world  
HQ Shanghai Stock Exchange



# Network

Shanghai-Kunming

Top Operational Speed:

300kph

Distance: 2066km

Guiyang  
Major Aerospace Center in China

Kunming  
Major Tourist Center in China

Changsha  
HQ NUDT

Hangzhou  
HQ Alibaba




Shanghai  
Largest City in China  
7th Largest Urban area in the world  
HQ Shanghai Stock Exchange





Operation

# Operation

|   |                           | Total Debit<br>(In Billions of USD)<br>(Lower the better) | Debt To Asset<br>(Lower the Better) | Debt<br>Coverage<br>Ratio<br>(Higher the Better) |
|---|---------------------------|---|-------------------------------------|--|
|  | China Railway Corporation | 710   | 0.65                                | 0.46   |
|  | Deutsche Bahn AG          | 21  | 0.31                                | 1.09   |
|  | JR Central                | 26  | 0.55                                | 2.47   |

# Stations

# Stations





# Stations



# Stations



End

