



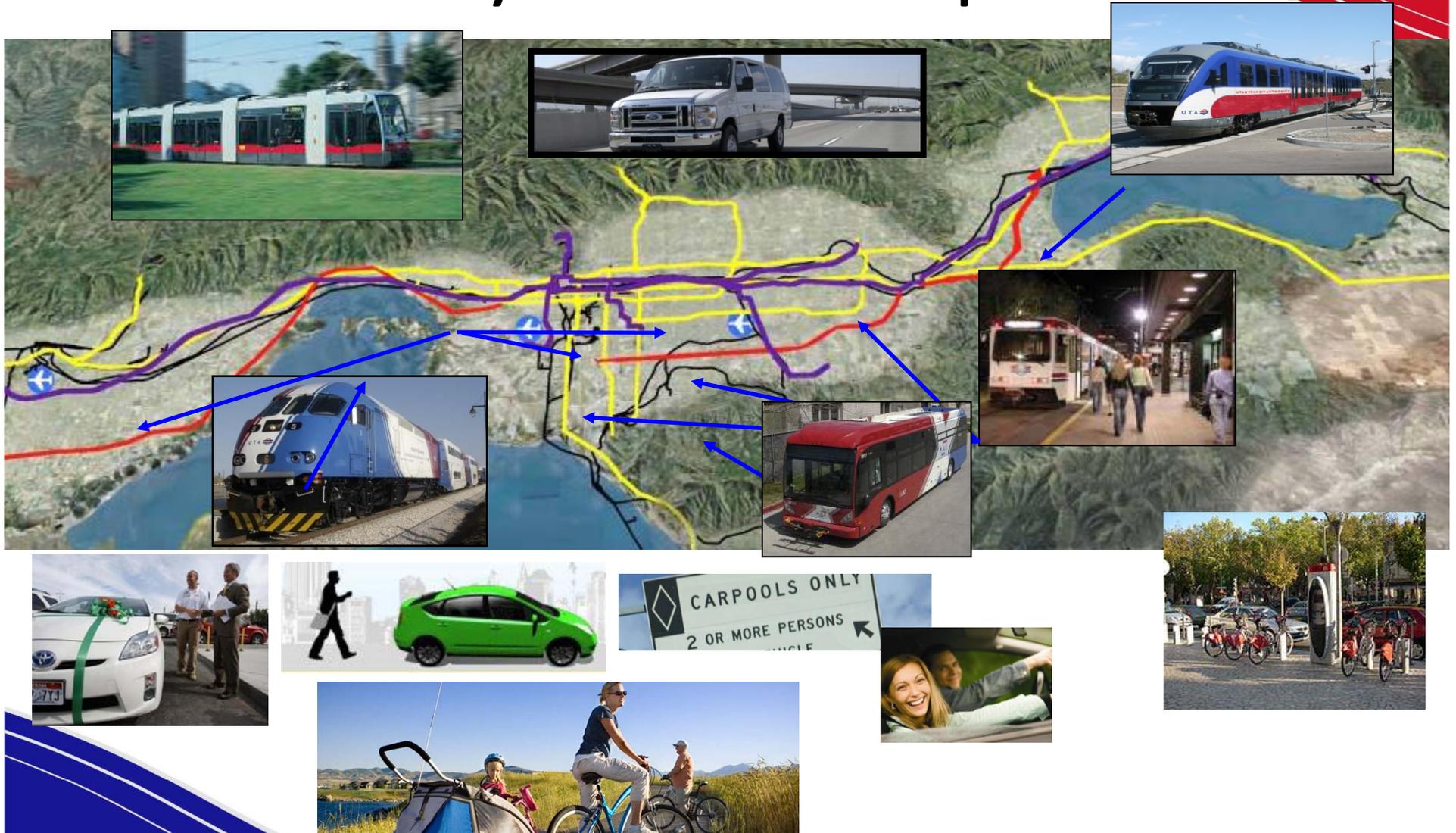
Western High Speed Rail Conference  
October 14, 2010

John M. English  
*CEO, Utah Transit Authority*  
*Salt Lake City, Utah*





# Family of Transit Options



# Next Tier \$3.8B

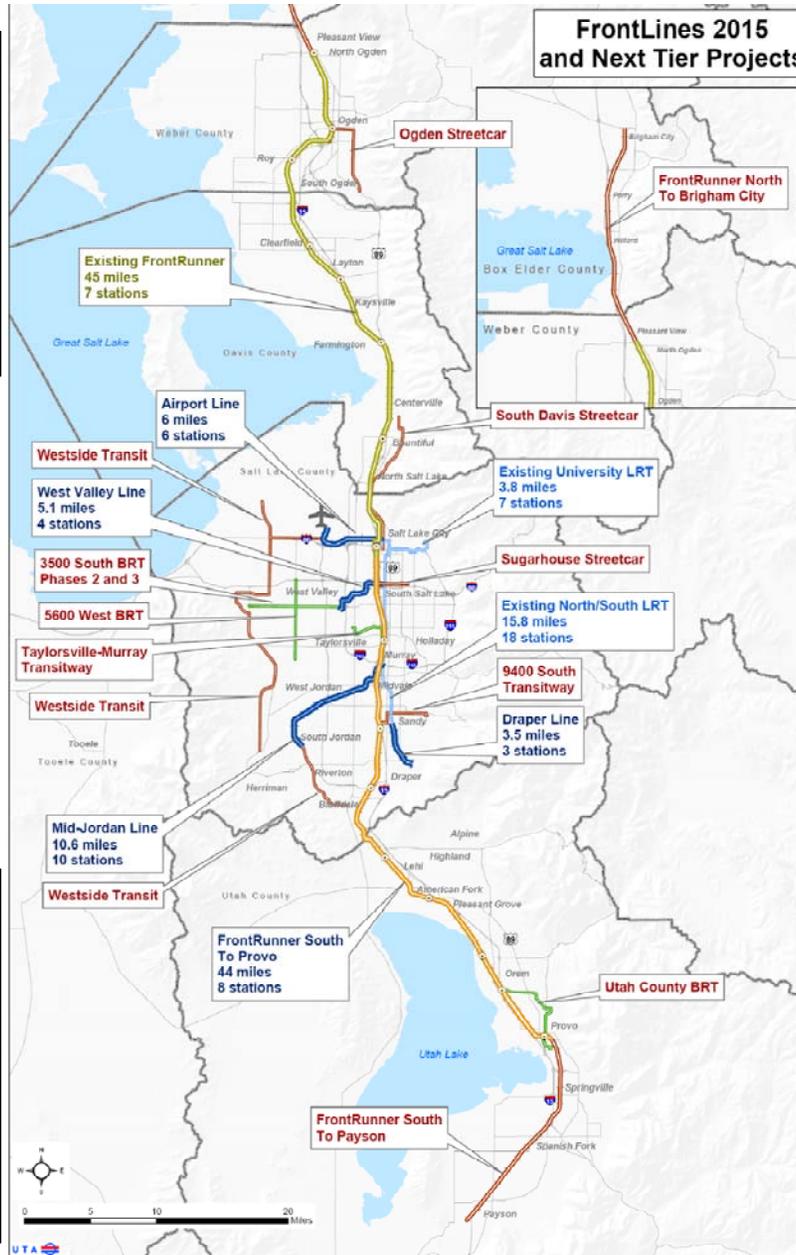


## Bus Rapid Transit

- Mountain View Corridor
- Utah County
- 3500 South
- Taylorsville/Murray

## Commuter Rail

- Payson Extension
- Brigham City Extension



## Transit Studies

- 9400 South
- Westside Transit

## Diesel Multi Unit (DMU)

- Brigham City



## Streetcar

- South Davis
- Sugar House
- Ogden



# UTA Network will Provide Feeder/Distribution function for HSR

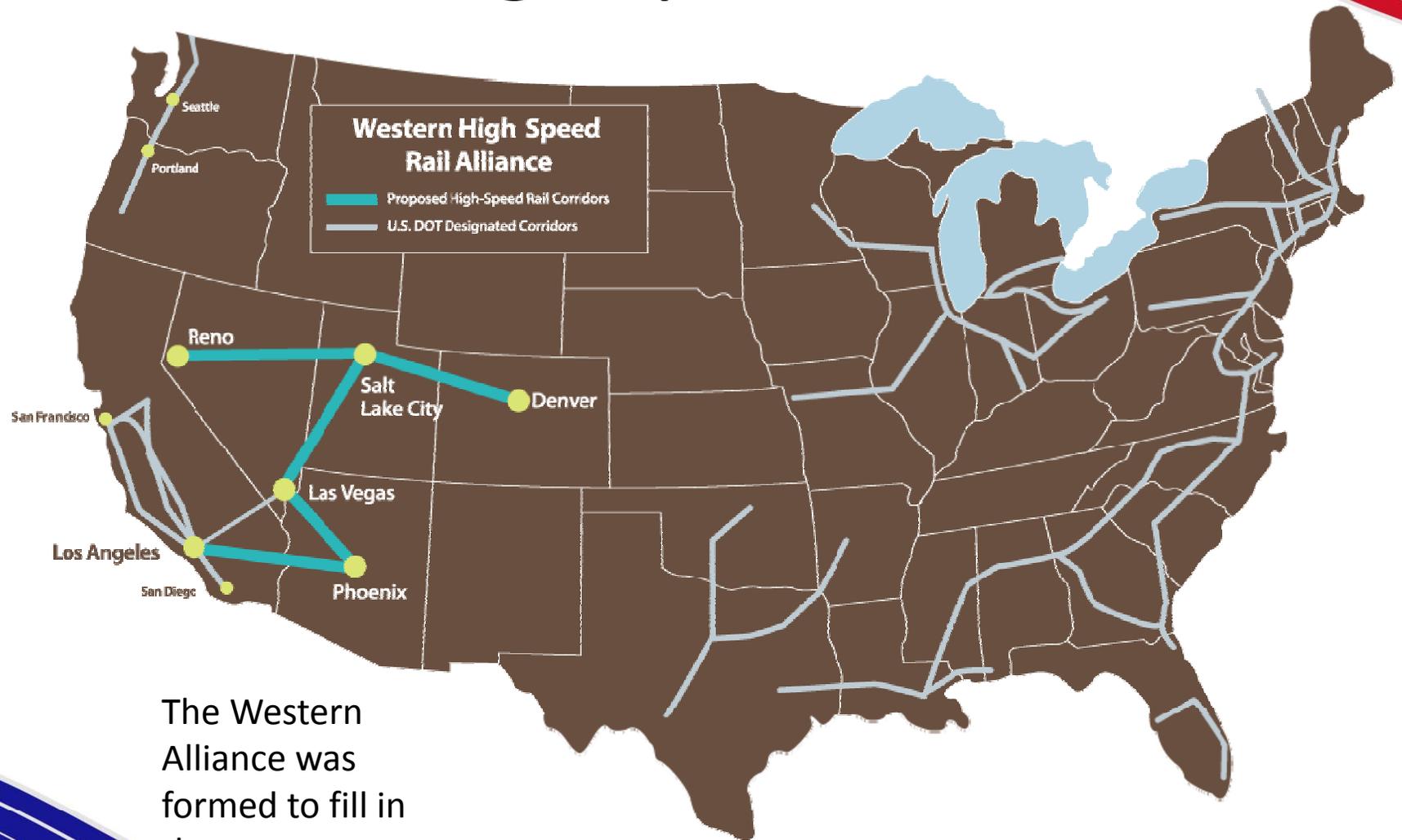


90% of residents  
along the Wasatch  
Front within  
**one mile**  
of a major transit  
stop by 2030

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



# Western High Speed Rail Vision



The Western Alliance was formed to fill in the gap

# Expected Population Growth

- US expected to grow to 500 million people by 2050
- From 2000-2030: Top 5 fastest growing states
  - Nevada, Arizona, Florida, Texas, and Utah.
  - 88% of the nation's growth will occur in the Southern and Western States. (U.S. Census)
- From 2005-2060
  - Current population of Utah is 2.7 million people.
  - 2060 population of Utah will be 6.84 million people or greater.
  - Utah's population will be more than double.
- From 2008-2028
  - Current population of Nevada is 2.78 million people.
  - 2028 population of Nevada will be 4.11 million people.
- New Transportation solutions will be need to support this amount of growth in a sustainable manner



# Utah Foundation Report Key Findings

- Non-HSR investments: Most countries have reasonable air and road networks
- Urban population 42-92% US: 82
- US has the highest per capita GDP
- Per Capita infrastructure investment in the US is low
- Cultural Conditions are weak for HSR in the US

# Non HSR Transport Network

**Key Point: Most HSR countries have well developed road and air infrastructure**

**Figure 3: Non-HSR Transportation Infrastructure**

Country	Land Area (sq km)	Airports* per 100k sq km	Airports per 100k sq km	Railways (km)	Standard Gauge (km)	Paved Road (km)	Express ways (km)
Belgium	30,278	14	46.24	3,233	3,233	119,079	1,763
China	9,569,901	195	2.04	77,834	77,084	3,583,715**	53,913
E.U.	4,324,782	456	10.54	229,450	NA	5,454,446**	NA
France	549,970	41	7.45	29,213	29,046	1,027,183**	10,950
Germany	348,672	65	18.64	41,896	41,641	644,480	12,600
Italy	294,140	39	13.26	19,729	18,317	487,700	6,700
Japan	364,485	49	13.44	26,435	3,978	961,366	7,560
Netherlands	33,893	11	32.46	2,896	2,896	136,827**	2,582
South Korea	96,920	25	25.79	3,381	3,381	80,642	3,367
Spain	498,980	30	6.01	15,288	1,392	681,224	13,872
Switzerland	39,997	7	17.50	4888	3397	71,384	1,793
Taiwan	32,260	16	49.60	1,582	345	40,843	976
Turkey	769,632	49	6.37	8,697	8,697	426,951**	1,987
U.K.	241,930	41	16.95	16,454	16,151	398,366	3,520
U.S.	9,161,966	419	4.57	226,427	226,427	4,209,835	75,040

# Urban Population

Key Point: US's population is more urbanized than many other HSR countries.

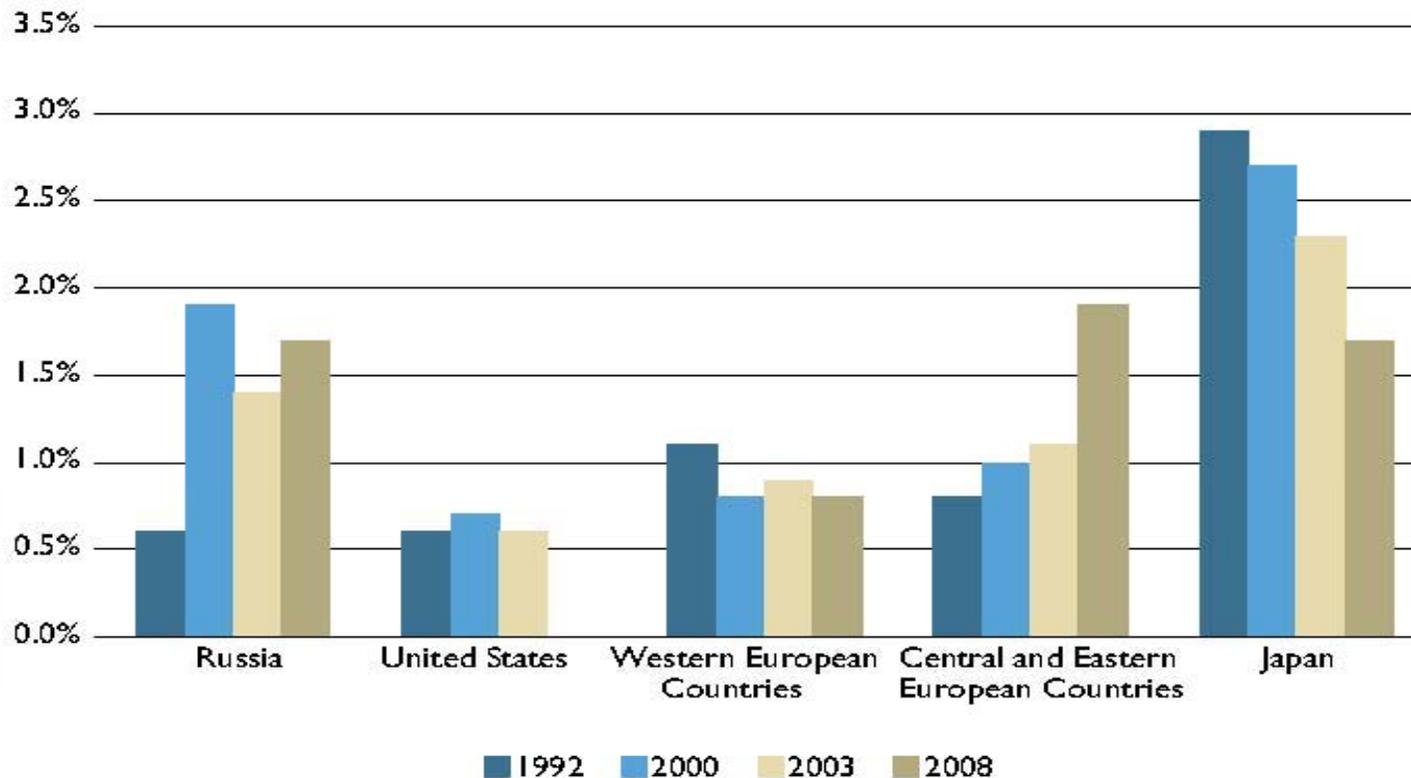
**Figure 4: Geographic and Demographic Characteristics of Countries with HSR**

Country	Land Area (sq km)	Population	Population Density Per sq km	Urban Population
Belgium	30,278	10,414,336	343.96	97%
China	9,569,901	1,338,612,968	139.88	43%
E.U.	4,324,782	491,582,852	113.67	NA
France	549,970	62,150,775	113.01	77%
Germany	348,672	82,329,758	236.12	74%
Italy	294,140	58,126,212	197.61	68%
Japan	364,485	127,078,679	348.65	66%
Netherlands	33,893	16,715,999	493.20	82%
South Korea	96,920	48,508,972	500.51	81%
Spain	498,980	40,525,002	81.22	77%
Switzerland	39,997	7,604,467	190.13	73%
Taiwan	32,260	22,974,347	712.16	NA
Turkey	769,632	76,805,524	99.80	69%
U.K.	241,930	61,113,205	252.61	90%
U.S.	9,161,966	307,212,123	33.53	82%

# Infrastructure Investment

Key Point: The US spends less on infrastructure than other countries

**Figure 6: Investment in Inland Transport Infrastructure, OECD Nations, as a Percent of GDP**



Source: International Transport Forum. Data reflect current prices and exchange rates. Data for Japan for 2008 refer to 2007. No data is available for the U.S. for 2008.

# GDP Per Capita

Key Point: The US has the highest GDP in the world

**Figure 5: Type of Government and Size of Economy in HSR Countries**

<b>Country</b>	<b>GDP (PPP*, Billions)</b>	<b>GDP / Capita (PPP*)</b>	<b>Gov Type / Adm</b>
Belgium	\$381	\$36,600	Fed. Parl./Const. Mon.
China	\$8,789	\$6,600	Communist State
E.U.	\$14,510	\$32,600	Intergovernmental
France	\$2,110	\$32,800	Rep.
Germany	\$2,811	\$34,100	Fed. Rep.
Italy	\$1,760	\$30,300	Rep.
Japan	\$4,137	\$32,600	Parl./Const. Mon.
Netherlands	655	\$39,200	Const. Mon.
South Korea	\$1,356	\$28,000	Rep.
Spain	\$1,368	\$33,700	Parl. Mon.
Switzerland	317	\$41,700	Fed. Rep.
Taiwan	\$718	\$29,800	Multiparty Democracy
Turkey	\$863	\$11,200	Rep. Parl.
U.K.	\$2,149	\$35,200	Const. Mon.
U.S.	\$14,260	\$46,400	Const. Fed. Rep.

# Cultural Conditions for HSR

## Key Point: The US is low in some key cultural measures for HSR implementation

**Figure 7: Cultural Conditions in HSR Countries  
As Measured by Hofstede Dimensions**

Country	PDI	IDV	UAI	LTO		
Belgium	65	75	94	NA	<b>PDI</b>	Power Distance Index
China	80	20	30	118	<b>IDV</b>	Individualism
France	68	71	86	NA	<b>UAI</b>	Uncertainty Avoidance Index
Germany	35	67	65	31	<b>LTO</b>	Long-Term Outlook
Italy	50	76	75	NA		
Japan	54	46	92	80		
Netherlands	38	80	53	44		
South Korea	60	18	85	75		
Spain	57	51	86	NA		
Switzerland	34	68	58	NA		
Taiwan	58	17	69	87		
Turkey	66	37	85	NA		
U.K.	35	89	35	25		
U.S.	40	91	46	29		

Source: Geert Hofstede. Available at: [http://www.geert-hofstede.com/hofstede\\_dimensions.php](http://www.geert-hofstede.com/hofstede_dimensions.php)

**TABLE A ★ 2009 Report Card for America's Infrastructure**

Aviation	<b>D</b>
Bridges	<b>C</b>
Dams	<b>D</b>
Drinking Water	<b>D-</b>
Energy	<b>D+</b>
Hazardous Waste	<b>D</b>
Inland Waterways	<b>D-</b>
Levees	<b>D-</b>
Public Parks and Recreation	<b>C-</b>
Rail	<b>C-</b>
Roads	<b>D-</b>
Schools	<b>D</b>
Solid Waste	<b>C+</b>
Transit	<b>D</b>
Wastewater	<b>D-</b>

AMERICA'S  
INFRASTRUCTURE G.P.A.

**D**

ESTIMATED 5 YEAR  
INVESTMENT NEED

**\$2.2**  
TRILLION

**NOTES** Each category was evaluated on the basis of capacity, condition, funding, future need, operation and maintenance, public safety and resilience

**A** = Exceptional  
**B** = Good  
**C** = Mediocre  
**D** = Poor  
**F** = Failing

# Infrastructure Report Card

- 2009 Report Card for America's Infrastructure
- Source: [www.asce.org/reportcard](http://www.asce.org/reportcard)

# The Market is Right for HSR in the West

- Population growth is coming, we need to plan for it
- HSR can be a tool for economic growth
- Appropriate city pair distance
- Significant freight benefits for HSR
- Move the discussion forward. The Envision Utah process shows, with good info the public will make good decision



Thank You



## Magnitude costs of high speed in Europe

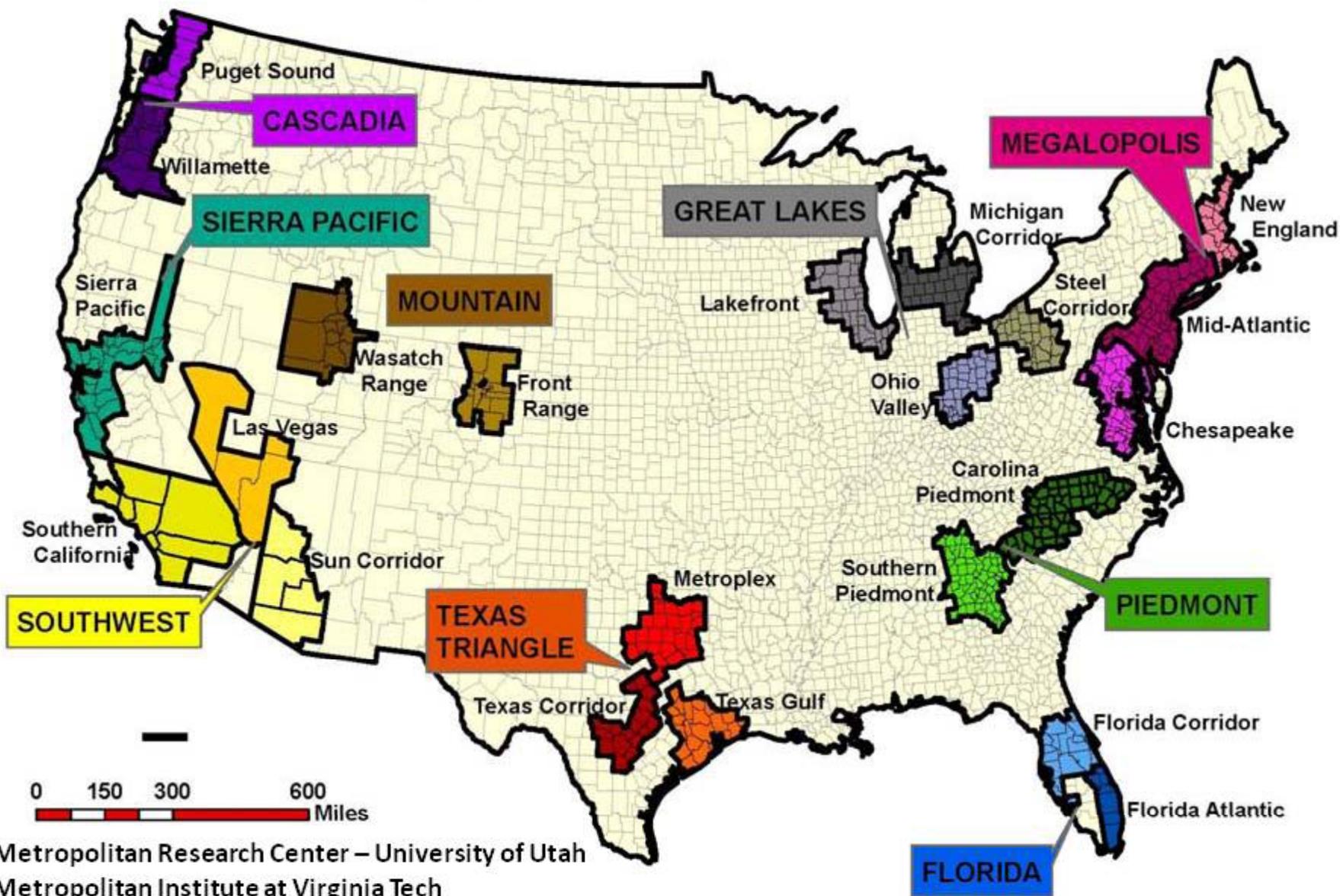
Cost per mile of new HS line:	\$30-100 M
Maintenance per mile HS line:	\$90,000/yr
Cost of one HS train (350 seats):	\$30-35 M
Maintenance of a HS train:	\$1.5 M/year

### Life Cycle Cost

1 HS train travels an average of 315,000 mi./yr



# Megapolitan America 2040



Metropolitan Research Center – University of Utah  
Metropolitan Institute at Virginia Tech  
August 2009



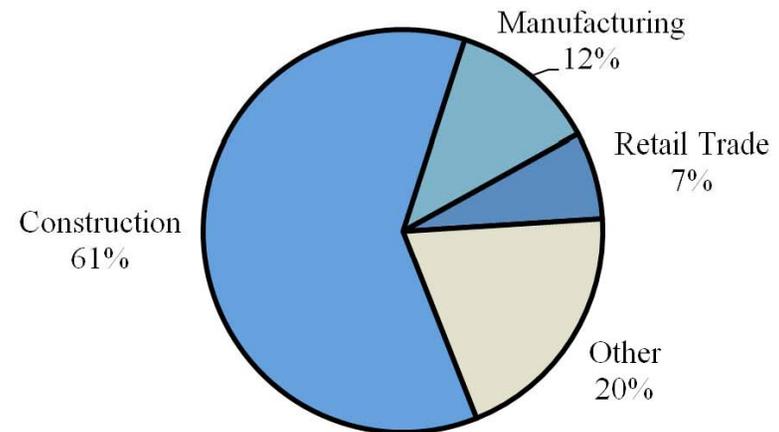
# HRS Economic Benefits

- Initial construction jobs
- Long term operating jobs
- Improved infrastructure efficiency

# Economic Analysis of Infrastructure Investment

- 84% of American's support greater investments to address infrastructure problems
- Infrastructure investments have a higher return than private capital investment
- Create middle class jobs
- Lower construction costs by building now

Figure 5: Jobs Created by Infrastructure Investment



Source: Estimates based on BEA and BLS input-output tables.

Source: US Dept of the Treasury

# City Pair Distances

- Connect City Center to City Center
- More efficient for short-to mid-distance travel or connecting travel between cities

## WHSR City Pair Distances

Departure City	Arrival City	Distance (miles)
Los Angeles	Las Vegas	265
Los Angeles	Phoenix	373
Las Vegas	Salt Lake City	424
Las Vegas	Phoenix	299
Salt Lake City	Denver	536
Salt Lake City	Reno	519



# (Ending #2 - Anja Graves Info)

## Intermountain West

- Connectivity between metropolitan transit systems, inter-city rail and a national rail network
- Goal: to strengthen and connect communities through planning and the wise investment of physical, economical and human resources.





# Envision US

# Opportunity for the West-- HSR is a Natural

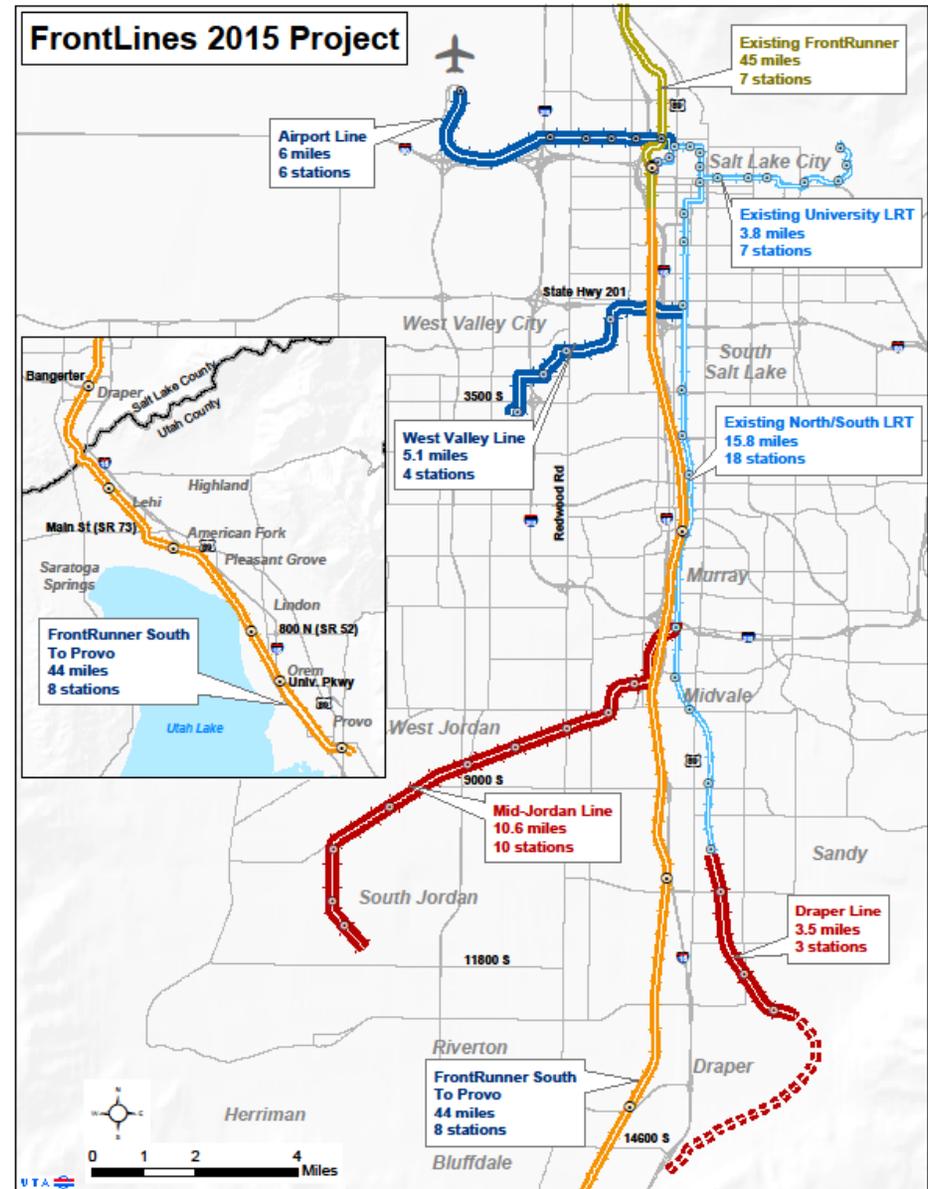
- Other issues John may like to touch on include:
  - 1. Passage of tax referenda in Utah in support of public transit,
  - 2. UTA successful work with the freight rail road-\$200M for 200 miles
  - 3. Investments in infrastructure have provided vast benefits to the nation in the past, including improving and maintaining Global economic competitiveness and reducing our dependence on foreign oil.
  - 4. When designing and developing a national rail network, the issue of connectivity is among the most important: treating all modes of transportation as complementary will allow us to design systems that will work together to improve the livability of our communities.
  - 5. Federal policy should incentivize the fastest, safest, most cost efficient and environmentally friendly way of moving passengers and freight.
  - 6. Effective, focused research, applied through standards developed by and through the industry are a proven method of controlling costs, ensuring interconnectivity of systems, and expediting project delivery by minimizing project specific development requirements.

# Beijing



# FrontLines 2015

- UTA's largest project in its history
- Sixth largest rail project (U.S. and Canada)
- Building 70 miles of rail in seven years
- One project that includes five lines
  - Mid-Jordan TRAX
  - West Valley TRAX
  - FrontRunner South
  - Draper TRAX
  - Airport TRAX



# One Project / Five Lines

- One \$2.8 Billion Project
- Expecting to Nearly Double Daily Passengers
- Beyond 50% Complete



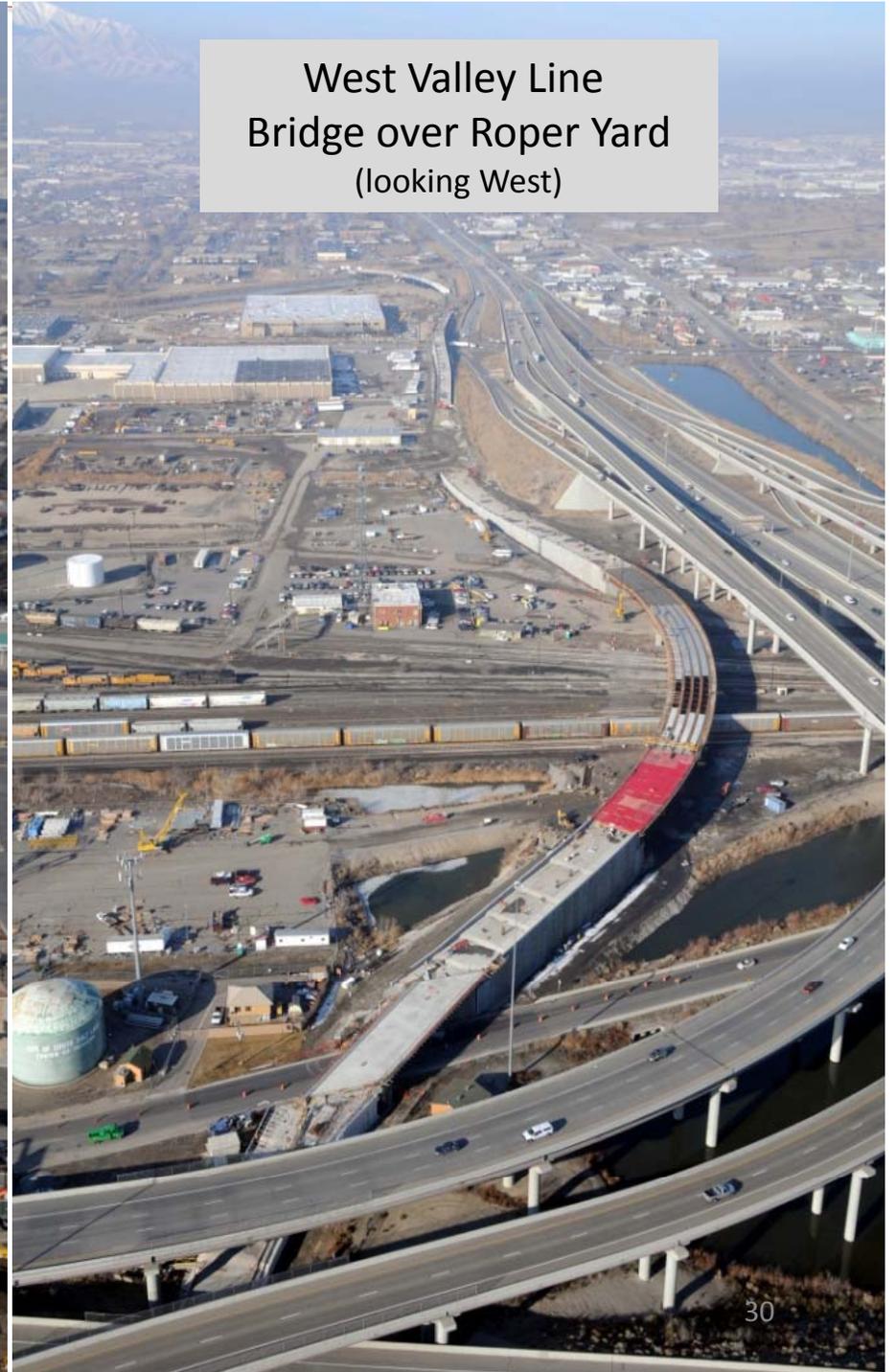


09/03/2010

West Valley Line  
on 2700 West  
(looking North)



West Valley Line  
Bridge over Roper Yard  
(looking West)



North Temple Viaduct

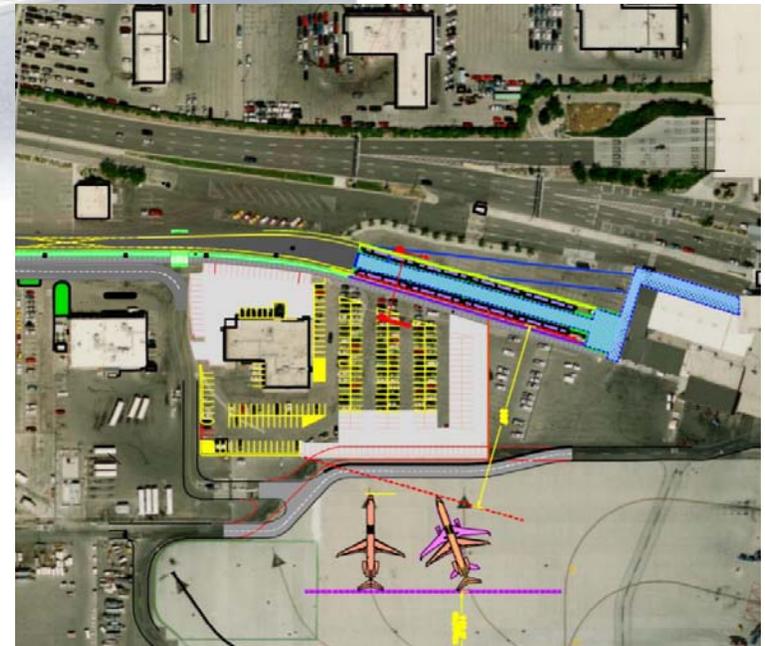


# North Temple TRAX/FrontRunner Station

North Temple Viaduct  
Transfer to Frontrunner  
Station



# Airport Welcome Center



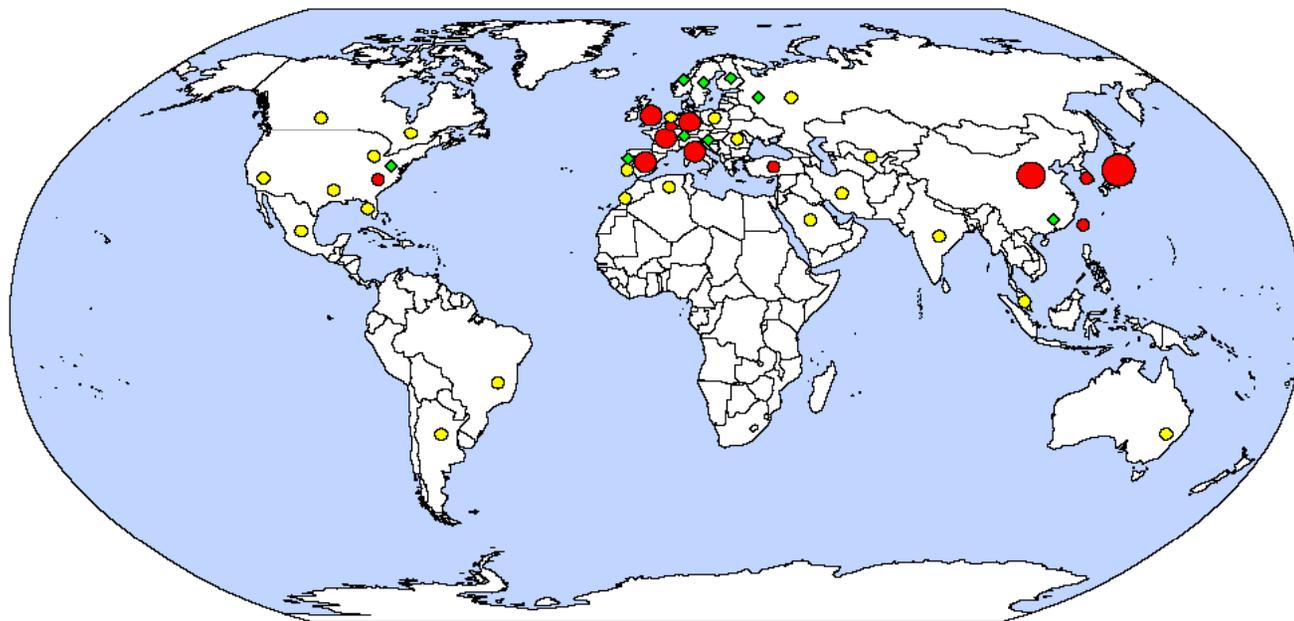
Welcome Center Video 2.wmv

# Master Planned Communities Walking and Biking Amenities





# High speed systems around the world



  $V \geq 155$  mph in operation      $V \leq 125$  mph in operation     Planned High Speed Rail