Megaregions Shape Communities

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Emerging Megaregions

Cascadia
California
Central
Arizona
Texas
Midwest
Northeast
Piedmont
Florida

Source: CQGRD with modification of Night Lights 2012 from NASA
Megaregions: Emerging Trends
Global Transportation: Next Decades

- Double in 15 years?
- Triple in 20 years?
- Quadruple in 15 years?
50% of US employment takes less than 4% of the total land mass. Employment will be much less concentrated by the year 2040.
Challenge of Infrastructure

The existing highway network is oriented toward current concentration.
Existing highway network may not support future employment patterns.

Challenge of Infrastructure
E-commerce

Image source: The Economist (2013)
E-commerce and Freight Infrastructures
Fast Growth of E-commerce

Source: Ross and Hylton (in preparation)
Distribution centers are increasingly adding value to supply chain process (Rodrique, 2006)

Source: Dablanc and Ross (2012)
Megaregions and Communities
Megaregions and Communities

Straw Effect

Better Connection = Better Community

“The phenomenon that relatively smaller city is taken its commercial power by larger city when the two cities are connected by high-speed transportation infrastructure such as freeway and high-speed rail.” (Cho et al., 2009)
Megaregions and Communities: 
Better Connection = Better Community

High-speed transportation infrastructure in megaregions

<table>
<thead>
<tr>
<th></th>
<th>Trip duration</th>
<th>Top speed</th>
<th>Power source</th>
<th>Ticket price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel Train</td>
<td>6h</td>
<td>150km/h</td>
<td>Diesel</td>
<td>$115*</td>
<td>Dirty and slow: this mode of transport is not sustainable for modern society.</td>
</tr>
<tr>
<td>Aircraft</td>
<td>1h 12m</td>
<td>840km/h</td>
<td>Jet fuel</td>
<td>$280*</td>
<td>Aircraft jet fuel emissions are a leading contributor to global warming.</td>
</tr>
<tr>
<td>TransPod</td>
<td>45m</td>
<td>1200km/h</td>
<td>Electricity</td>
<td>$80</td>
<td>TransPod's hyperloop eliminates the fossil fuel requirements and carbon emissions of jet travel.</td>
</tr>
</tbody>
</table>

*Prices are based on a same-day booking one way trip between Toronto and Montreal

Source: TransPod Hyperloop (transpod.com)
Better Connection = Better Community

Transportation infrastructure as a “Straw”

Source: Kim & Han (2016)
Better Connection = Better Community

Changing the relationship among regions in megaregions?

Conventional model

Change of model the Straw Effect?

Source: Ross (2009)
E-commerce will be even faster with High-speed infrastructure

Source: TransPod Hyperloop (transpod.com)
E-commerce may reshape conventional spatial structure

Brick and Mortar Model

E-Commerce Model

Source: Ross and Hylton (in preparation)
Megaregions Shape Communities

- Create greater connectivity and smoother connections
- Manage natural resources, climate change, and transport planning
- Expand economic opportunity beyond jurisdictions
- Shape land use, economic activity and communities