The use of clean technologies in transport PPP projects

Stephen Watson
Head of Service – PPP

Astana, Kazakhstan
24 October 2013
Three questions

Why?

What?

How?
Why? The Goal

Reduction in $\text{CO}_2$ emissions

- Reduce number of private hydrocarbon journeys
- Increased use of public transport
- Clean technology (private and public transport)
Why? The global view

The Telegraph
Traffic congestion costs UK economy £4.3bn a year
10 December 2013

Traffic congestion major concern for parents and school administrators
October 2013

“Traffic congestion major concern for parents and school administrators...

Traffic congestion major concern for parents and school administrators
October 2013

Beijing still struggling to deal with traffic congestion
August 2013

“Congestion Pricing Not the Solution to U.S. Transportation Woes”

“Congestion Pricing Not the Solution to U.S. Transportation Woes”

“Congestion Pricing Not the Solution to U.S. Transportation Woes”

...“the economically unjustifiable component of costs of congestion in Sydney [is estimated at] $2.4 billion in 1995, $3.5 billion in 2005, and $5.4 billion in 2012...”

Traffic congestion major concern for parents and school administrators
October 2013

Beijing still struggling to deal with traffic congestion
August 2013

“Congestion Pricing Not the Solution to U.S. Transportation Woes”

“Congestion Pricing Not the Solution to U.S. Transportation Woes”

“Congestion Pricing Not the Solution to U.S. Transportation Woes”

...“the economically unjustifiable component of costs of congestion in Sydney [is estimated at] $2.4 billion in 1995, $3.5 billion in 2005, and $5.4 billion in 2012...”
What? The role of government

- Environmental policy
- Master planning
- Economic policy

Transportation strategy

- Enable
- Develop market
- Procure
- Regulate
- Monitor
- Value for money
<table>
<thead>
<tr>
<th>Human Power</th>
<th>Road</th>
<th>Light rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human power</td>
<td>Road</td>
<td>Light rail</td>
</tr>
<tr>
<td>Bicycle</td>
<td>Car</td>
<td>Train</td>
</tr>
<tr>
<td>$</td>
<td>$$</td>
<td>$</td>
</tr>
</tbody>
</table>
## What?: Bus vs. light rail

<table>
<thead>
<tr>
<th></th>
<th>Bus</th>
<th>Light rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>Dedicate lanes?</td>
<td>Dedicated tracks</td>
</tr>
<tr>
<td>Passenger capacity</td>
<td>Generally lower</td>
<td>Generally higher</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Lower</td>
<td>Higher</td>
</tr>
<tr>
<td>Change in commuter behaviour</td>
<td>Lower</td>
<td>Higher</td>
</tr>
<tr>
<td>Costs</td>
<td>Lower</td>
<td>Higher</td>
</tr>
<tr>
<td>Delivery timetable</td>
<td>Shorter</td>
<td>(Substantially) longer</td>
</tr>
<tr>
<td>On-going flexibility</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td>Ability to integrate into existing network</td>
<td>Easier</td>
<td>Complex</td>
</tr>
<tr>
<td>Environmental benefits</td>
<td>Lower</td>
<td>Higher</td>
</tr>
</tbody>
</table>
## What?: Operating model

<table>
<thead>
<tr>
<th>Model</th>
<th>Services</th>
<th>Infrastructure</th>
<th>Service definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertically integrated - Government</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
</tr>
<tr>
<td>Public Private Partnership</td>
<td>Private</td>
<td>Private</td>
<td>Public</td>
</tr>
<tr>
<td>Vertically integrated – Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
</tr>
</tbody>
</table>
What? Can go wrong?

Dubai metro
- Longest fully automated system in the world
- $7.6 billion to build - cost increase from initial projections of c.80%
- Query if the project will ever be profitable

Spanish airports
- 52 airports in Spain, 26 currently operational
- Uncoordinated developments by regional governments
  - Infrastructure now disserted

“Bridge to no-where”
- Gravina Island Bridge, Alaska
- Projected to cost $398 million to serve island of 50 resident
- Project pulled after $25 million spent on initial road

Complexity of transportation PPPs

Key issues to consider:

- Interfaces
- Size
- Diverse market
- Future extensions
- Customer service
- Network integration
Three questions

Why?

What?

How?