

***Alternative Fuels  
Corridor  
Feasibility  
Analysis  
for the  
State of  
Washington***

***Parsons  
Brinckerhoff***



# PB Background

- Full-Service Firm
- Founded in 1885
- 250 offices Globally
- 10,200 Professionals
- Consistently in top 5% of ENR



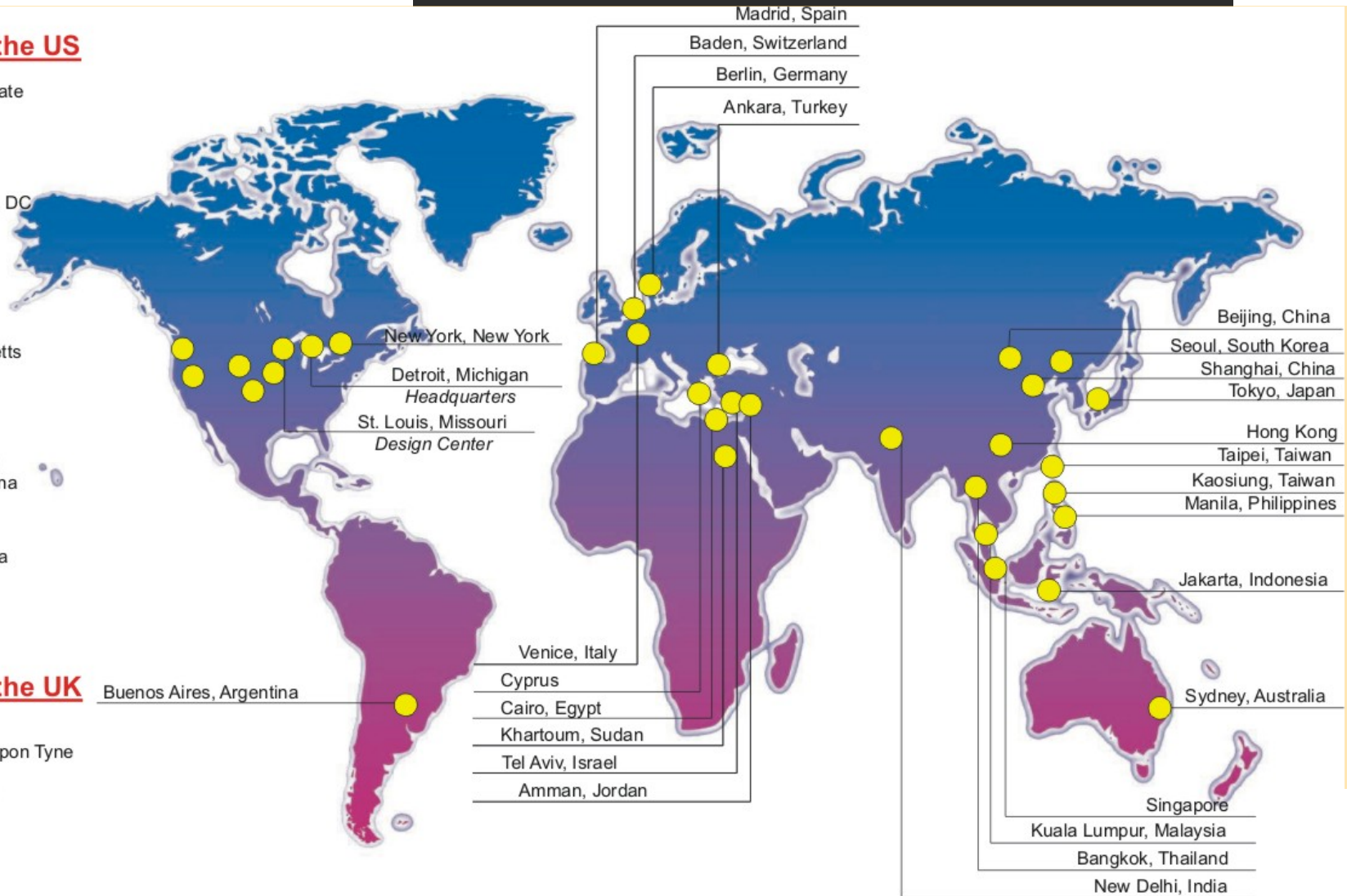
## Offices in the US

New York State  
 Alabama  
 Arizona  
 Arkansas  
 California  
 Colorado  
 Washington, DC  
 Florida  
 Georgia  
 Hawaii  
 Illinois  
 Kentucky  
 Louisiana  
 Maryland  
 Massachusetts  
 Michigan  
 Minnesota  
 Missouri  
 Nevada  
 New Jersey  
 New Mexico  
 North Carolina  
 Ohio  
 Oklahoma  
 Oregon  
 Pennsylvania  
 Tennessee  
 Texas  
 Utah  
 Virginia  
 Washington  
 Wisconsin

## Offices in the UK

Paisley  
 Newcastle upon Tyne  
 Aberdeen  
 Birmingham  
 Manchester  
 Oxford  
 London

Buenos Aires, Argentina



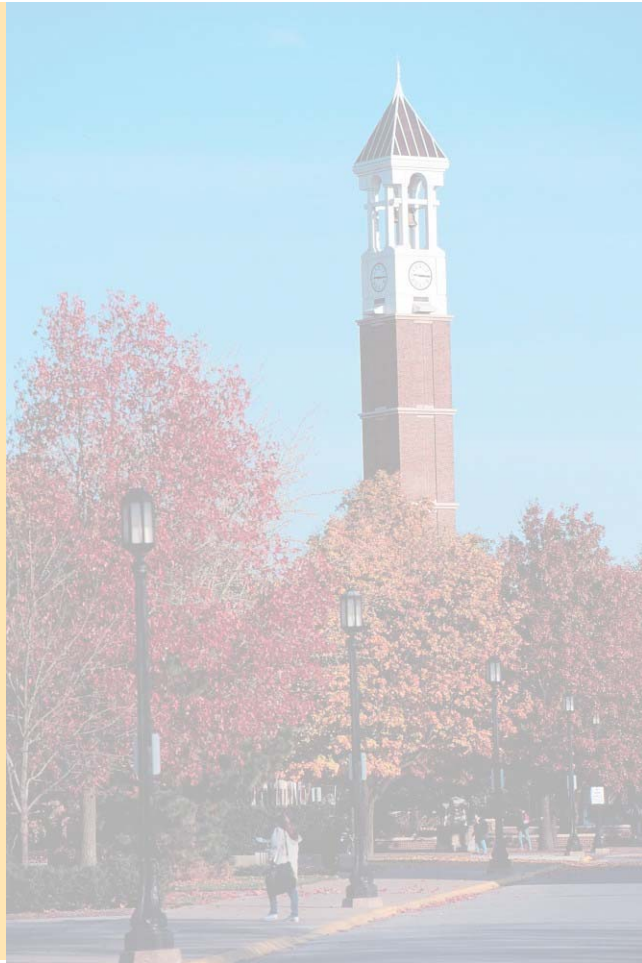
# PB Background

2007 ENR Rankings:

- #4 for Construction Mgmt.
- #4 for Program Management
- #3 for Transportation
- #13 for Design



# PB Architecture Services



Planning & Studies  
Environmental  
Architectural Design  
Engineering Design  
LEED/Sustainability  
Building Information Modeling  
Program & Project Management  
Construction Management  
Construction Inspection



# PB Architecture

- Based in St. Louis since 1998
- Growing office
- 70 architects and engineers
- Serving private and public sector clients around the world



# PB Architecture

- Members of the American Coalition for Ethanol
- Established ICM as a client in 2004 through PB Wichita office
- Assisted in the design of eight 110 MGY plants with ICM



## Alternative Fuels Corridor

- In Washington, motor vehicles produce more than half of all air pollutants, and contribute nearly half of the greenhouse gas (GHG) emissions in the state.

- To encourage the use of cleaner-burning fuels, The state is seeking to construct alternative fueling infrastructure within the Green Highway Zone, which is comprised of areas in close proximity to Interstate numbers 5, 90 and 82.



# Alternative Fuels Corridor

Primary goal:  
Analyze and suggest strategies for creating effective public/private partnerships for the retail distribution of alternative fuels



# Alternative Fuels Corridor

You can bring a horse .....

What's in the trough??



# Alternative Fuels Corridor

## Project Team

- Parsons  
Brinckerhoff  
-Strategic  
Consulting Group
- University of  
California-Davis  
Institute of  
Transportation

## Alternative Fuel Sources

- Ethanol
- Hydrogen
- Natural Gas
- Electricity
- Biodiesel



Logistics

## Hydrogen

Technology

- Good production capabilities/readily available
- Looking for Low carbon methods of production

Logistics

## Hydrogen

Technology Barriers

- Affordable on-site production
- Lack of vehicles
- Vehicles cruising range
- Storage issues
  - Large Tanks required
  - High pressure or extreme cold required (-253 C)

Logistics

## Ethanol

Technology

- Fuel is available and production has history
- Good consumer need
- Flex Fuel Cars are on the road

Logistics

## Ethanol

### Technology Barriers

- Lack of terminals for distribution to the state
- Trucking and Rail limited
- Political issues/Public perception
  - Food vs fuel

Logistics

## **Biodiesel**

Technology

- Good feedstock available from virgin oil seed and recycled cooking oil
- Washington State already has 25 fueling stations

Logistics

### **Biodiesel**

Technology Barriers

- Cost of the feedstock is high
- Lack of demand
- Lack of terminals for distribution to the state
- Trucking and Rail limited

Logistics

**Electricity**

Technology

- Proven and available
- Inexpensive installation for refueling capabilities

Logistics

## **Electricity**

Technology Barriers

- Lack of demand
- Vehicle technology not ready
- Public perception of a car

# Alternative Fuels Corridor



## Alternative Fuels Corridor

Possible Solutions  
to Generate the  
Construction of  
Fueling Stations

- Tax Incentives
- State donates property
- Public/Private Ventures



Thank You!

