Sustainable Transport and the Quality of Life in the City

CODATU XIV Congress
Buenos Aires
27 October 2010
Wendell Cox
Demographia
World Urban Areas & Population Projections

Edition 6.1
July 2010

www.demographia.com
www.rentalcartours.net

All world urban areas, 500,000+ Population: Population, Land Area & Density
Summary

Economic & Political Potential of Technology
US GHG Projections
China GHG Projections

Retiro Station: Buenos Aires
Agreement: Economic Growth is a Necessity
Mobility Associated with Affluence
MORE ACCESS, MORE ECONOMIC GROWTH

$45,000
$40,000
$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0

← Highest GDP/Capita (2005$)

From OECD Data

Changsha, China

← WALKING →
← AUTO →
← TRANSIT →

1500 1550 1600 1650 1700 1750 1800 1850 1900 1950 2000
Rapid Motorization Will Continue

THE ROAD OUT OF POVERTY
Personal Mobility is Crucial
THERE IS LITTLE COMPETITIVE PUBLIC TRANSPORT

No plans for auto competitive service throughout urban area
Democratization of Prosperity
ASSOCIATION BETWEEN MOBILITY & AFFLUENCE

PRUD’HOMME
Mobility Improves Productivity
U. Of Paris

HARTGEN-FIELDS
Mobility Improves Productivity
U. Of North Carolina

Chicago
In most cases, the shortest distance between a poor person and a job is along a line driven in a car – *Progressive Policy Institute*

Given the strong connection between cars and employment outcomes, auto ownership programs may be one of the more promising options and one worthy of expansion – *Brookings Institution*
US Work Trip Travel Time Shorter
COMPLIED TO INTERNATIONAL URBAN AREAS

- Hong Kong
- New York
- Los Angeles
- Sydney
- Dallas-Fort Worth
- Houston
- Phoenix
- Atlanta
Housing Affordability Since 1950
MAJOR METROPOLITAN AREAS: PRICE/INCOME RATIO

1950 – 1970: From Census Bureau
1980-2008: From Harvard University
2009: From Demographia
Annual Data Begins at 1980

Median Multiple: Median House Price divided by Median Household Income
Land Regulations Stunt Economic Growth
US FEDERAL RESERVE BOARD RESEARCH

20% less job growth than expected in metropolitan areas with strongest land use regulation
-Raven Saks
US Federal Reserve Board

FIRST PRINCIPLE OF LIVABILITY IS AFFORDABILITY
Assumptions (Simplified)
BEHAVIORAL STRATEGIES AND THE REALITY

• We shall all have to
  – Give up our cars & switch to public transport
  – Move from the suburbs to the urban cores

• Yet no serious research indicates that the likely greenhouse gas (GHG) reduction objectives can be met by these strategies
Emissions Projections: United States
BEFORE & AFTER NEW MILEAGE STANDARDS

- 80% Glidepath
- 2005 Fleet
- 2030 Fleet
Behavioral Strategies: USA
LIGHT VEHICLE GHG EMISSIONS: 2005-2050

- Behavioral: National Academy of Sciences (Middle)

- 80% Glidepath
- Behavioral Strategies
- 2030 Fleet
Behavioral Strategies Costly
UN IPCC MAXIMUM RANGE PER METRIC TON

$20
Market
Less than $25

MCKINSEY:
no downsizing of vehicles, homes
traveling the same mileage,
no shift to denser urban housing

$50
McKinsey
Maximum $50

Shenyang, China
Density & Traffic Volumes: International

VEHICLE HOURS PER SQUARE MILE

Vehicle Hours/Sq.Mi.

Population per Square Mile
Congestion & Excess GHG Emissions
90 URBAN AREAS: CHANGE 1982-2007

- GHGs from Wasted Fuel
- Delay Hours

More Research Needed

Calculated from Texas Transportation Institute data
Better Technology is Already Here

MOST EFFICIENT HYBRIDS: 2.5X US FUEL ECONOMY
Green Car Strategy: Existing Potential
LIGHT VEHICLE GHG EMISSIONS: 2005-2050
European Parliament MPG Requirement
3.2X US AVERAGE (2020): 4.5X LATER PROPOSED

VW 11X US AVE.

Alternative Fuels
Such as
Cellulosic Ethanol
(NRDC)

Paris: 12 Lane Freeway
Additional Advances
ZERO GHG EMISSION POTENTIAL

Also
CO2 Cars
Las Alamos Lab
China: Urban & Rural Population
1950-2050

Urban Growth Next 40 Years 400 Million More than Live In Western Europe
Central Business District (CBD) Jobs
SHARE OF METROPOLITAN AREA

- Toronto
- Shanghai (Puxi & Pudong)
- Paris (I-XII)
- New York (South of 59 Street)
- Tokyo (Yamanote Loop)

0% 20% 40% 60% 80% 100%
GHG Intensity: China Opportunities
2010-2050 LIGHT VEHICLES
POVERTY IS NOT AN OPTION
Political Sustainability

PREREQUISITE FOR ENVIRONMENTAL SUSTAINABILITY

Mumbai: Airport East Slum
ECONOMIC SUSTAINABILITY

Economic Growth is a Necessity

FOR
SOCIAL COHESION
Thank You