Cities & Sustainability: A Midcourse Correction



Lafayette College Web-seminar

Demographia International Housing Affordability Survey



The Evolving Urban Form

Development Profiles of

World Urban Areas

8th Annual Edition April 2012



Telecast Parties



Phoenix, AZ - Tucson, AZ - East Bay Area, CA - Los Angeles, CA Orange County, CA - Palo Alto, CA - San Diego, CA San Francisco, CA - Boulder, CO - Denver, CO - Cromwell, CT Stamford, CT - Washington, DC - Wilmington, DE Boca Raton, FL - Jacksonville, FL - Miami, FL - Naples, FL Ocala, FL - Sarasota, FL - Tampa/Clearwater, FL - Vero Beach, FL

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LAFAYETTE vs. LEHIGH TELECAST PARTIES - NOVEMBER 17, 2012 - 1 P.M. EST KICKOFF AT LAFAYETTE



Cairo to Madrid: 2100 Miles Cairo to Mumbai: 2700 Miles

OUTLINE

Cities in Perspective The Evolving Urban Form **Cities & Transport** The Dimensions of Sustainability **Current Urban Planning Myths** Conclusion: Poverty not an Option

Athens

DEMOGRAPHIA



Growing Cities Sustainably

Does Urban Form Really Matter?

... compact development should not automatically be associated with the preferred spatial growth strategy.

CITIES IN PERSPECTIVE



2 -2





Global Scaling Research

The city is like an elephant: The bigger, the more productive

City (Urban Organism)

Metropolitan Area or Labor Market (Functional Expanse) Urban Area or Agglomeration (Physical Expanse)

Definition of Urban Terms PARIS METROPOLITAN AREA (AIRE URBAINE)

 RB

93

PARIS METROPOLITAN AREA

4 Goussainville Urban Area (Exurb)

70 To any Numicipality Numicipality Numicipality Exurban Area (Rural)

50km

95

PARS

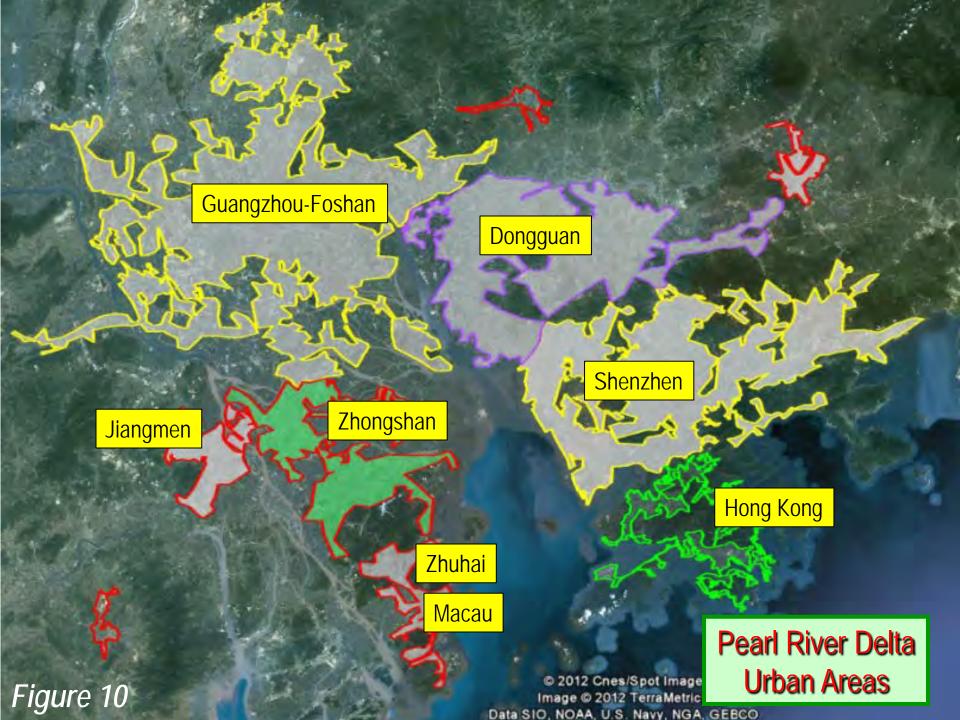
Allentown MSA & Urban Area

Easton

New York

Bethlehem Allentown Urban Area: 665,000→

Metropolitan Area: 820,000 N



Why Cities Grow: Economics PEOPLE MOVE THERE FOR BETTER LIVES

The raison d'être of large cities is the increasing return to scale inherent to large labor markets. The cities' economic efficiency requires, therefore, avoiding any spatial fragmentation of labor markets.



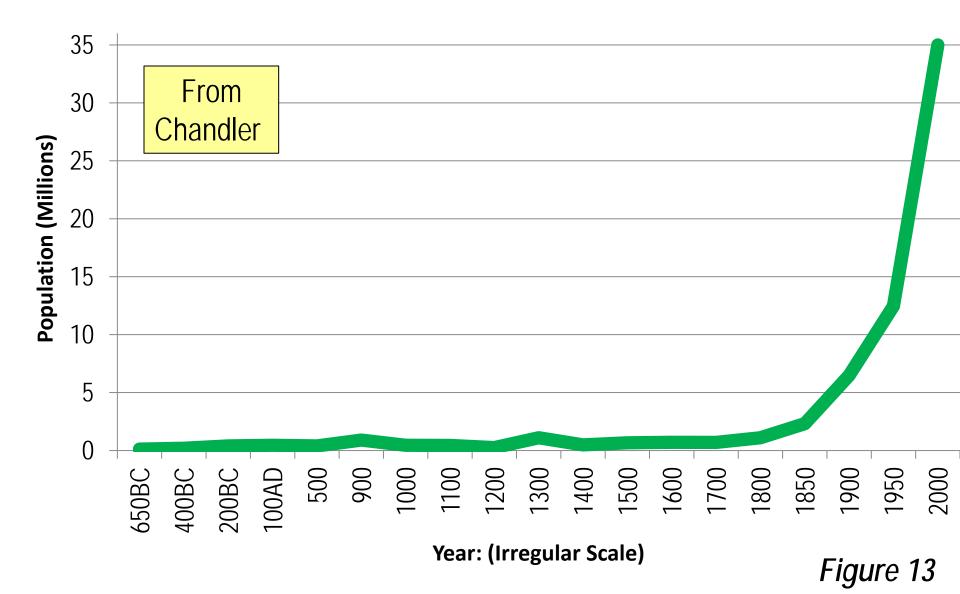
Jobs-Housing Balance (UK) BALANCED ACHIEVED, BUT NOT IN COMMUTING

Welwyn

Example Average Work Trip Distance (Exurban London) 2x Town Diameter

← Average Work Trip Length: 2001 →

World's Largest Cities (Urban Areas) 650 BC TO PRESENT



Highest National GDPs: 1500-2000 650 BC TO PRESENT

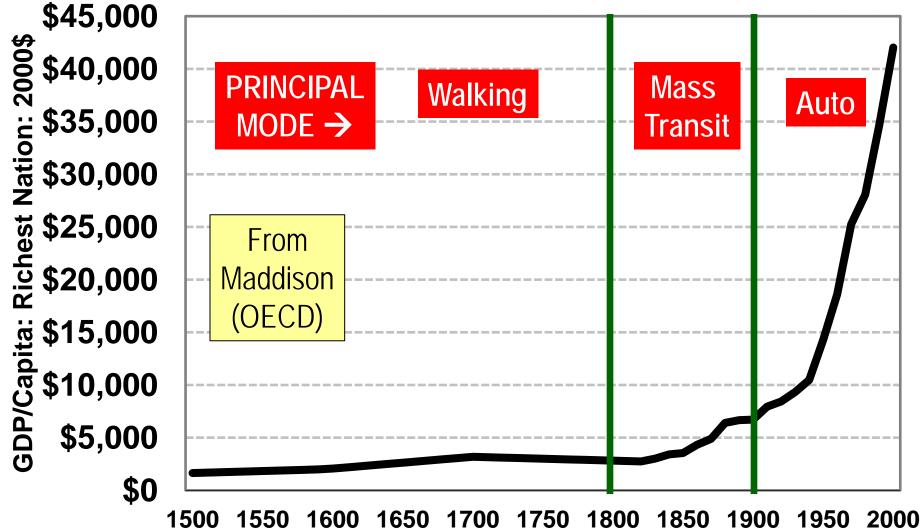
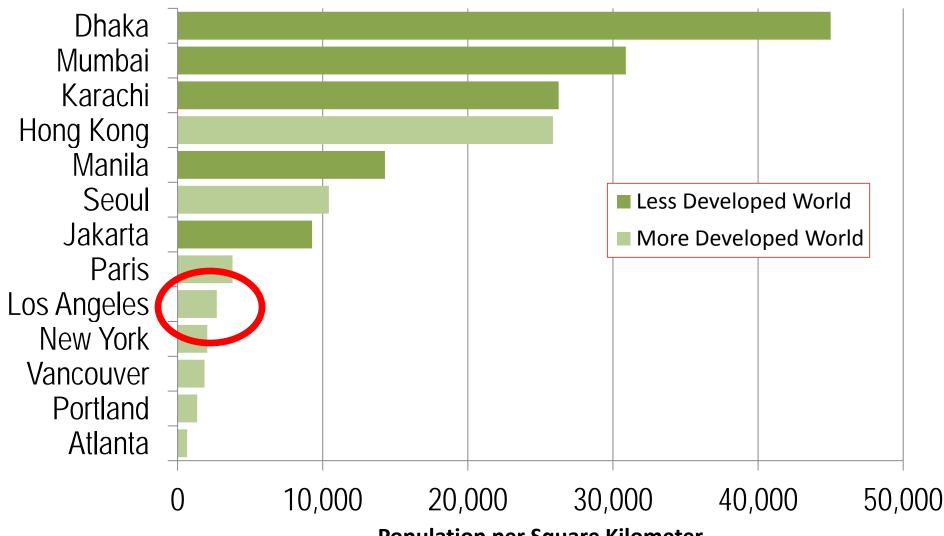


Figure 14

Economics: A History of Poverty CANNOT TAKE AFFLUENCE FOR GRANTED

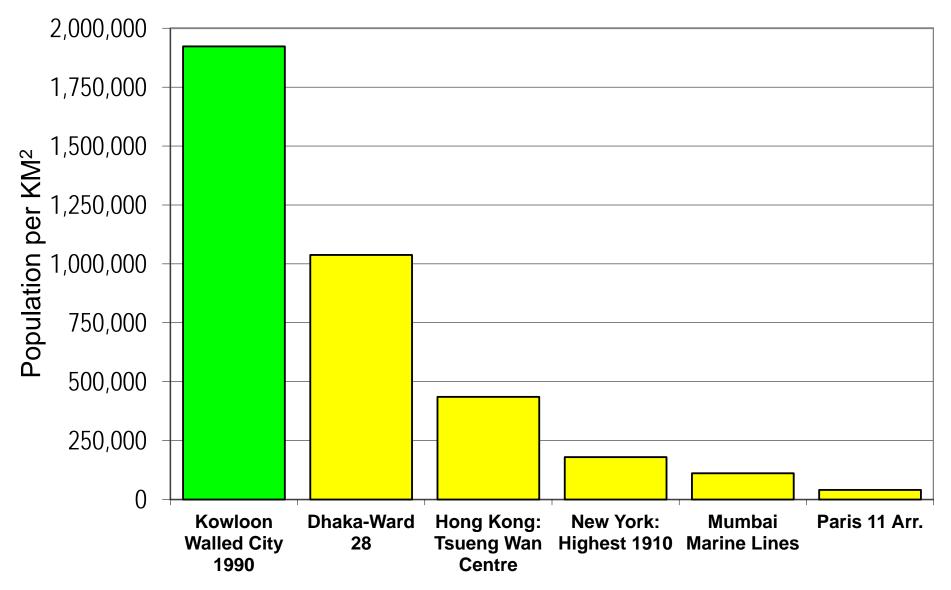
Mumbai: Airport East Slum

Urban Area Average Population Densities DHAKA & SELECTED (METRIC MEASURE)



Population per Square Kilometer

Neighborhood Densities: Examples (WITHIN CITIES)



Kowloon Walled City (Hong Kong) Nearly 5M/Square Mile

© Greg Girard and Ian Lambot

Dhaka Shantytown Up to 2M/Square Mile

TALL TALL



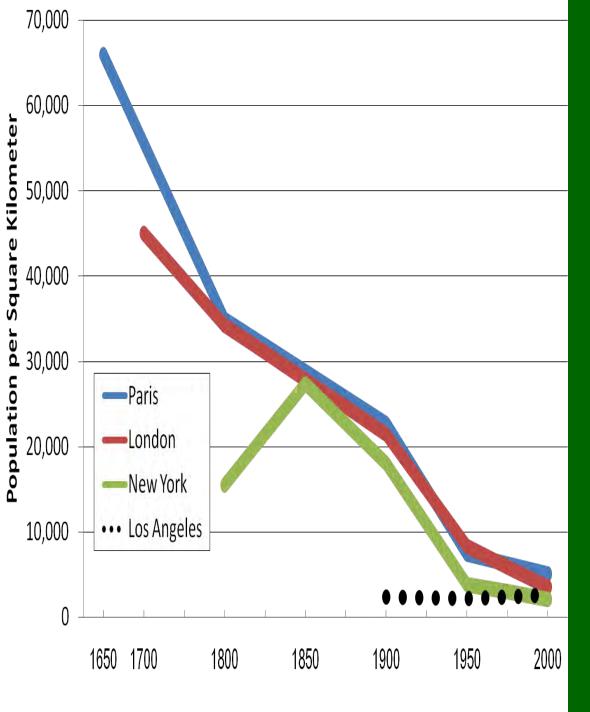


THE EVOLVING URBAN FORM



Global Scaling Research

Double city size, 15% productivity improvement (density not an issue)



As Cities Become Larger They Become Less Dense

Planet of Cities



Coming to Terms with Global Urban Expansion

> The Evolving Urban Form Development Profiles of World Urban Areas

SHLOMO ANGEL

Cairo Urban Area: Evolution 1972-2010

2010->

1912 Cairo, Cairo Governorate, Egypt

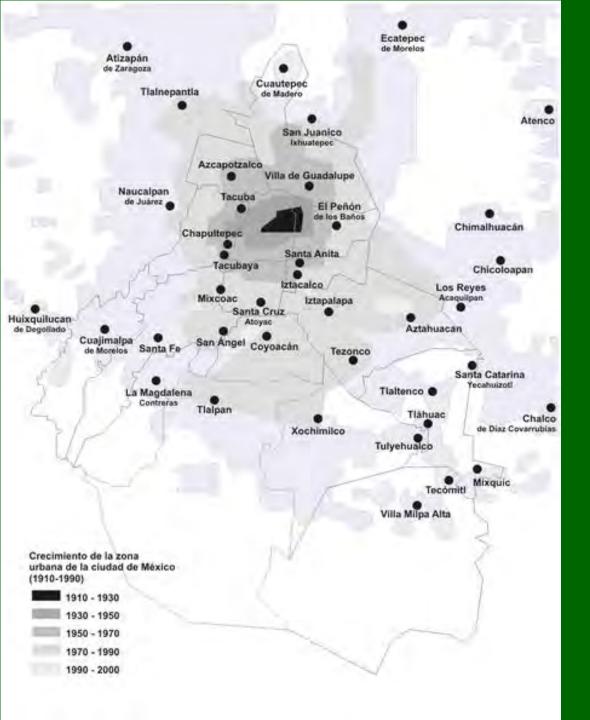
Addis Abeba Urban Area: Evolution 1972-2010

1972->

100

2010->

📀 Addis Ababa, Ethiopia



Mexico City Spatial Expansion: 1910-2000

Shanghai Population by Sector CHANGE: 2000-2010

Outer Core

Suburban

Population Increase in Millions

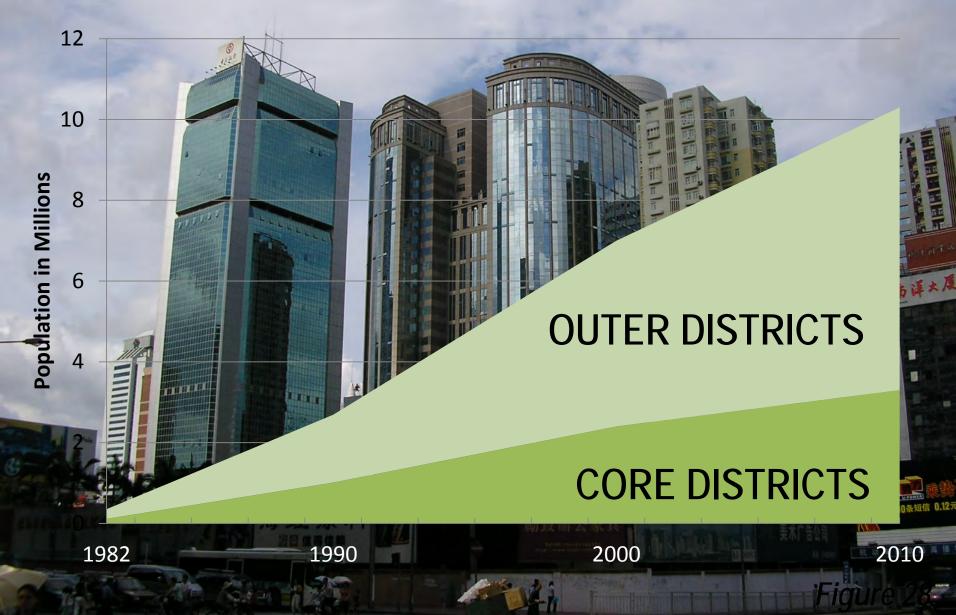
5.0

3.0

0.0

Inner Core

Shenzhen Inner & Outer Area Population 1982 - 2010



Jakarta: Growth by Sector 2000-2010

Jakarta 16%

Outer Suburbs & Exurbs 53%

Inner Suburbs 31%

Population by District: 1901-2011 MUMBAI METROPOLITAN REGION



Core & Suburban Population: 1950-2010 MANILA URBAN AREA



Moscow Area Population Growth by Sector 2002-2010

Inner

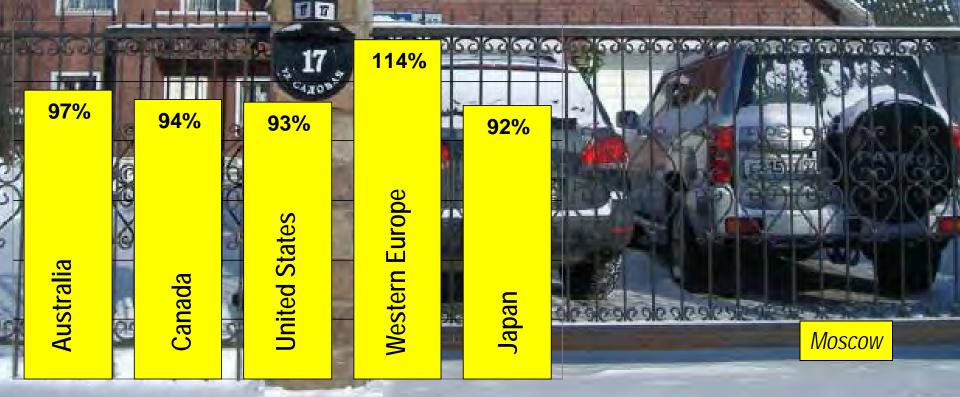
Moscow

3%

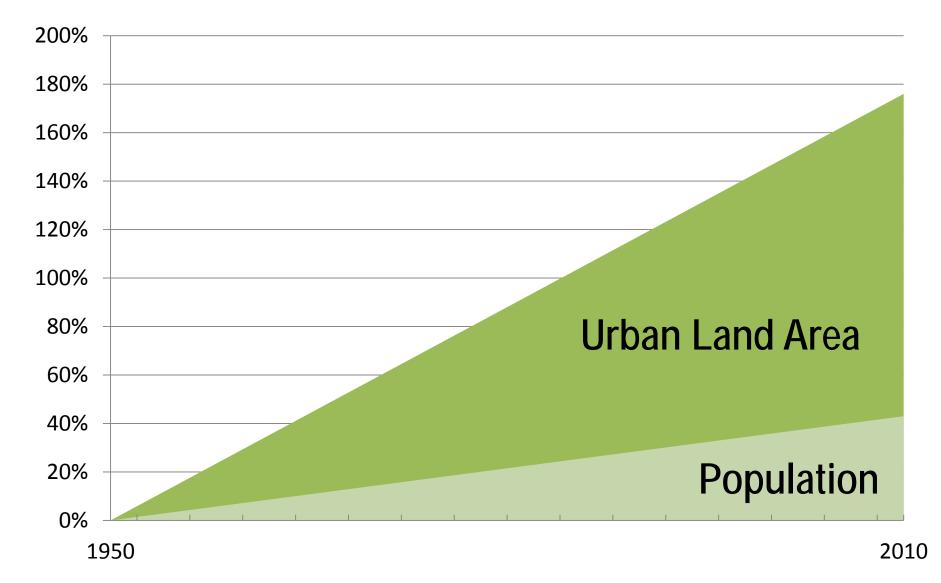
Substantial Urban Spatial Expansion Planned Suburban 27%

> Outer Moscow 70%

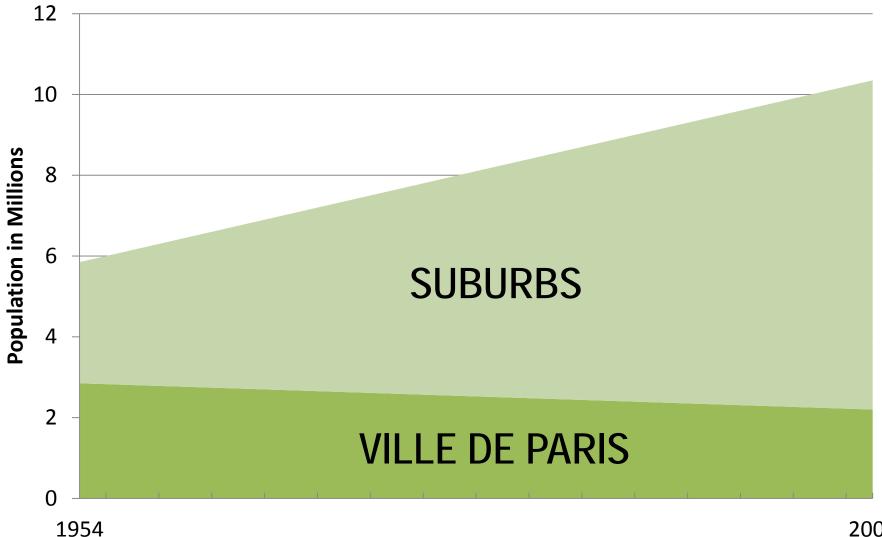
High Income World: 1960s-2000s NEARLY ALL URBAN GROWTH IN SUBURBS: 35+YEARS



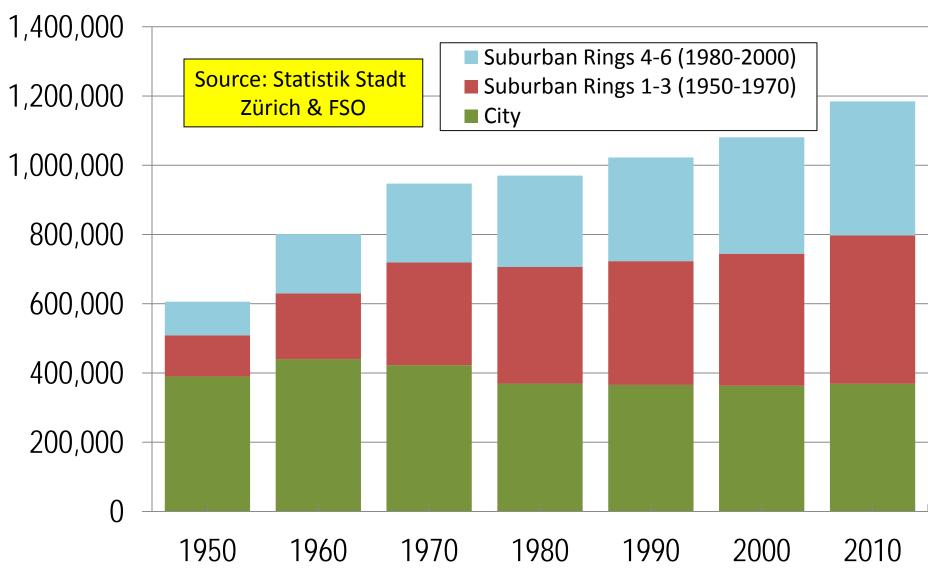
New York Urban Area Expansion POPULATION & URBAN LAND AREA 1950 - 2010



Paris Urban Area Population Growth 1950 - 2010



Zürich Urban Area Population Growth CITY & SUBURBAN RINGS: 1950-2010



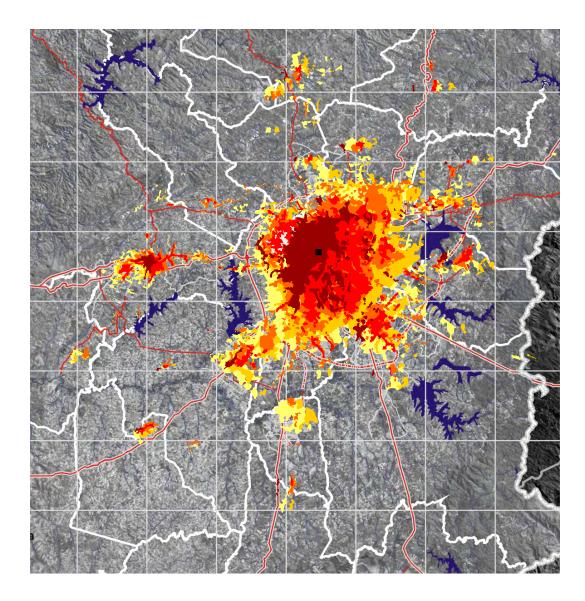
Largest Employment Center in Canada EDGE CITY: TORONTO PEARSON AIRPORT AREA

Mexico City: Santa Fe (#3) Sao Paulo: Luis Berrini (#3) Addis Abeba: Bole

Image © 2012 DigitalGlobe



The Organic Growth of Cities





Curitiba and Metropolitan Region

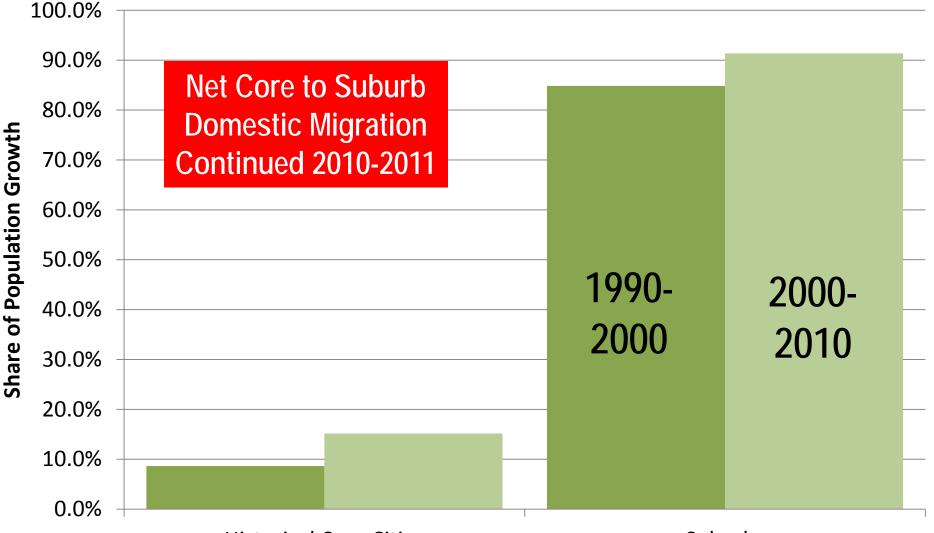
YEAR	POPULATION
1955	360.000
1965	550.000
1975	1.140.000
1985	1.700.000
2000	2.700.000
2010	3.224.286
2020	3.758.358

CURRENT URBAN PLANNING MYTHS





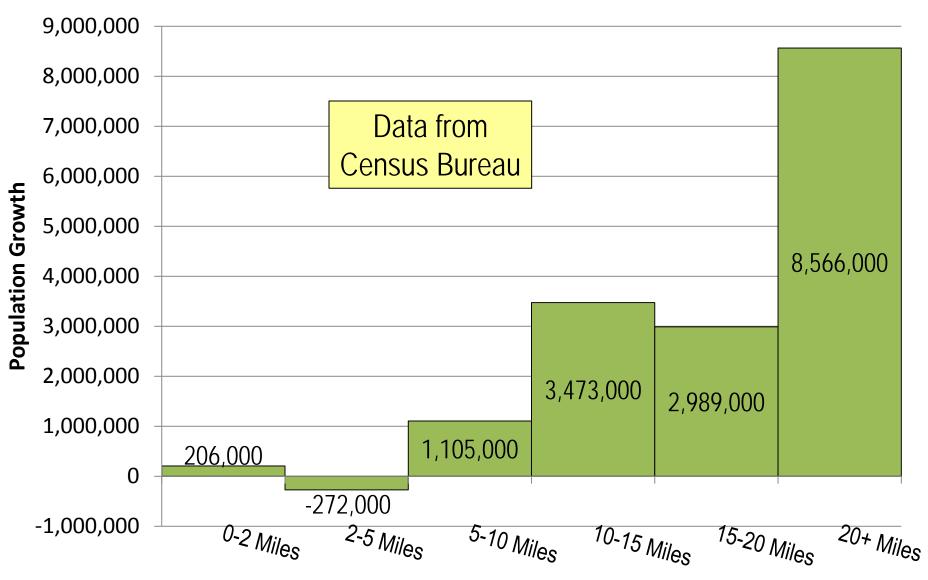
Not "Returning to the Cities" MAJOR METROPOLITAN AREAS: CORE & SUBURBAN



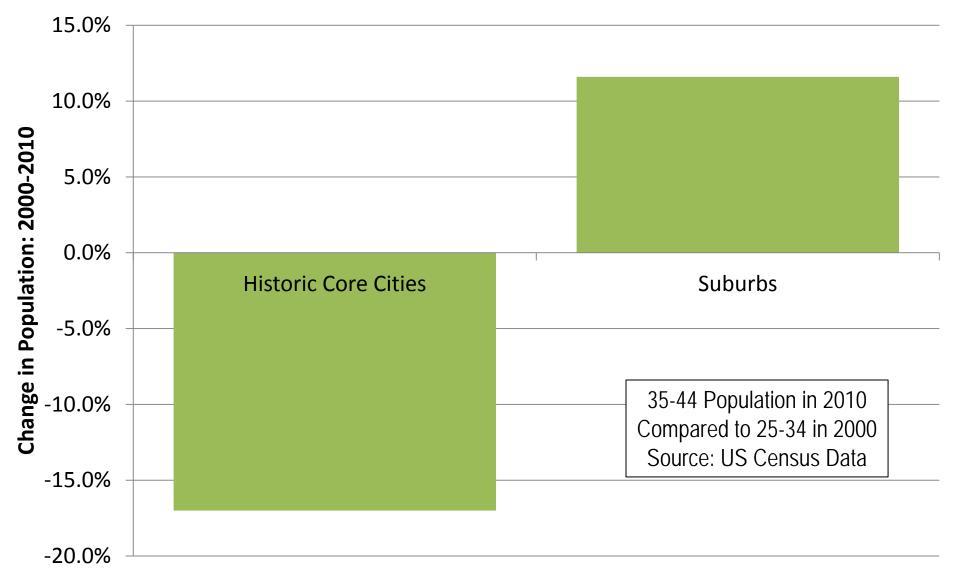
Historical Core Cities

Suburbs

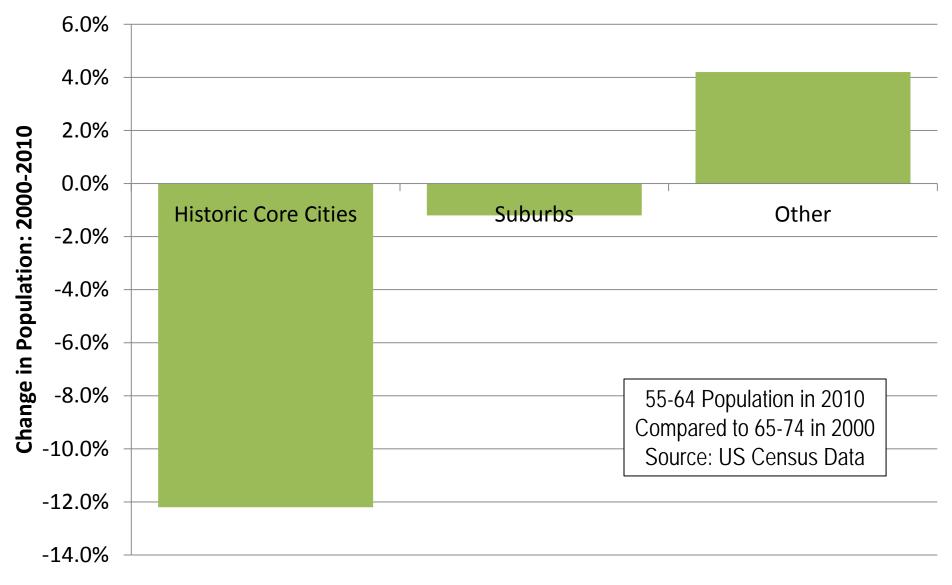
No Move from Suburbs to Core US MAJOR METROPOLITAN AREAS: 2000-2010



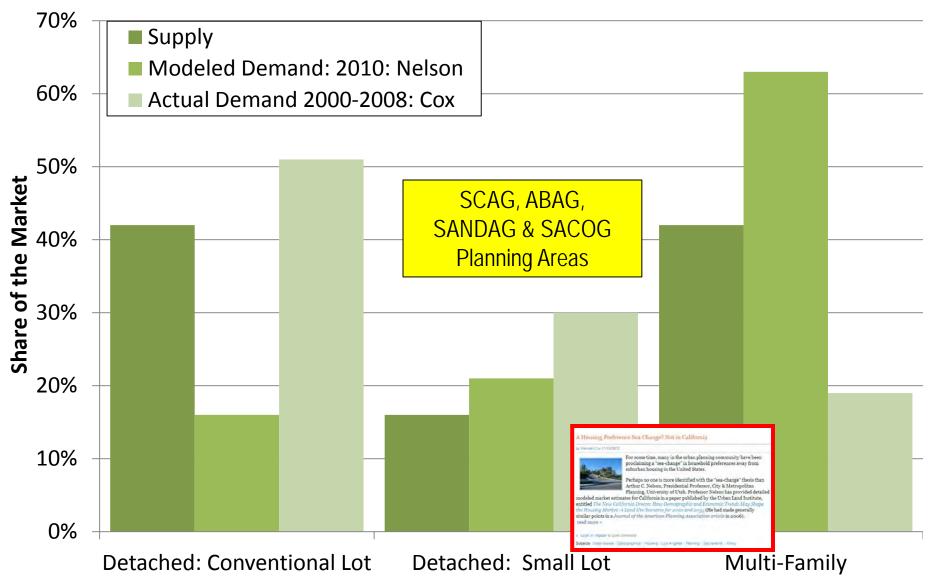
Younger Not Moving to Cities MAJOR METROPOLITAN AREAS: CORE & SUBURBAN



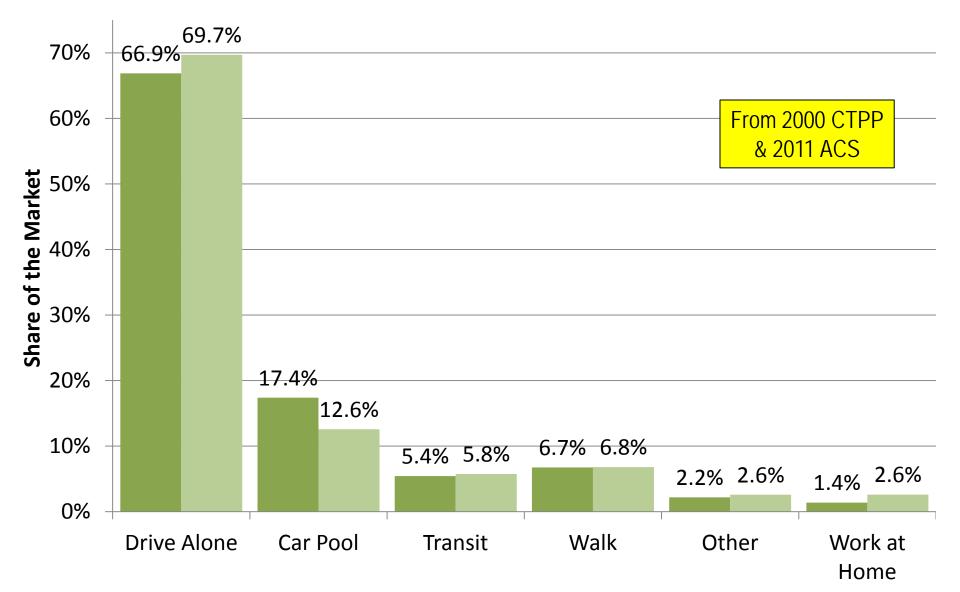
Age 55-64 Not Moving to Cities MAJOR METROPOLITAN AREAS: CORE & SUBURBAN



Housing Preferences: Not Changing CALIFORNIA (2000s)



Driving Down:16-25: But Not to Work UNITED STATES: 2000 & 2011





CITIES & TRANSPORT

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商田



Democratization of Prosperity ASSOCIATION BETWEEN MOBILITY & AFFLUENCE



Reduced Minority Unemployment With Cars U. of California PRUD'HOMME Mobility Improves Productivity U. Of Paris HARTGEN-FIELDS Mobility Improves Productivity

Chicago

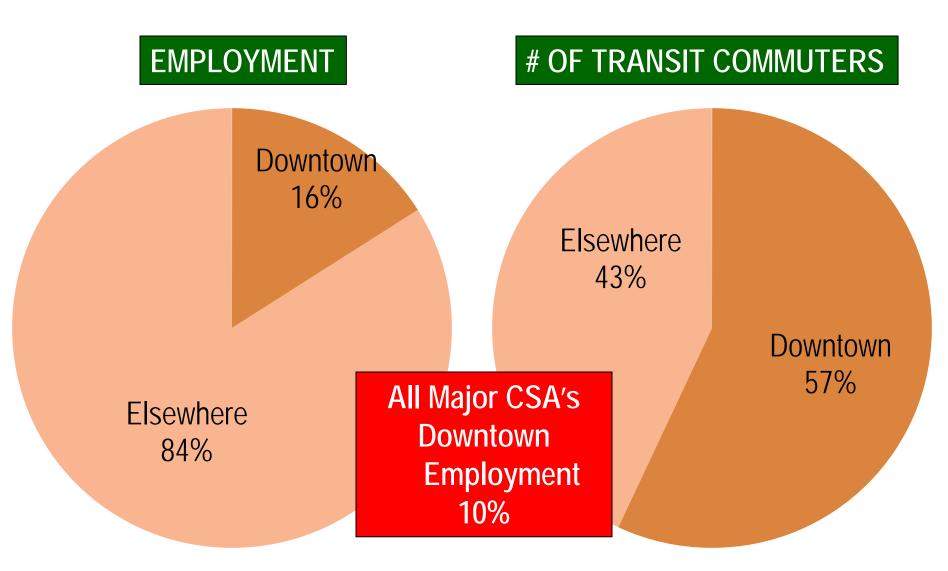
Why are all these people in cars?

88

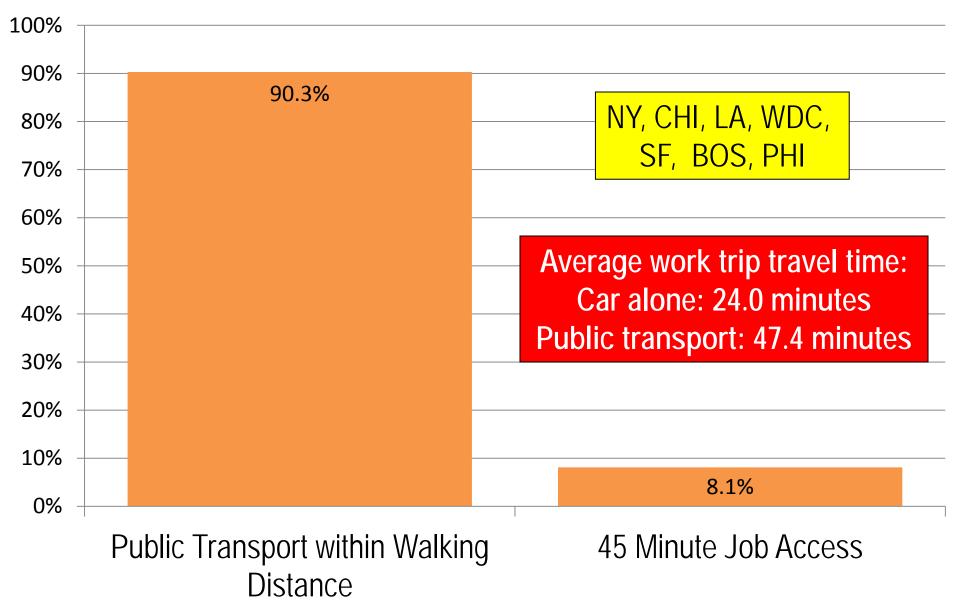
10.00



Transit: Strong Downtown: Weak Elsewhere 6 CSA'S WITH STRONGEST DOWNTOWNS: 2000



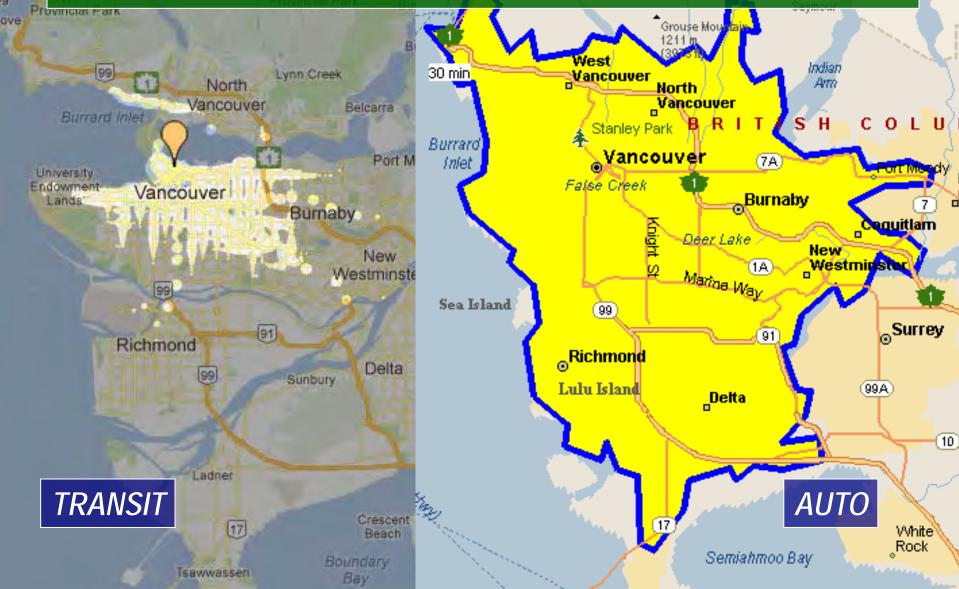
Public Transport: 7 US Largest Markets ACCESS TO TRANSIT STOPS/ACCESS TO JOBS



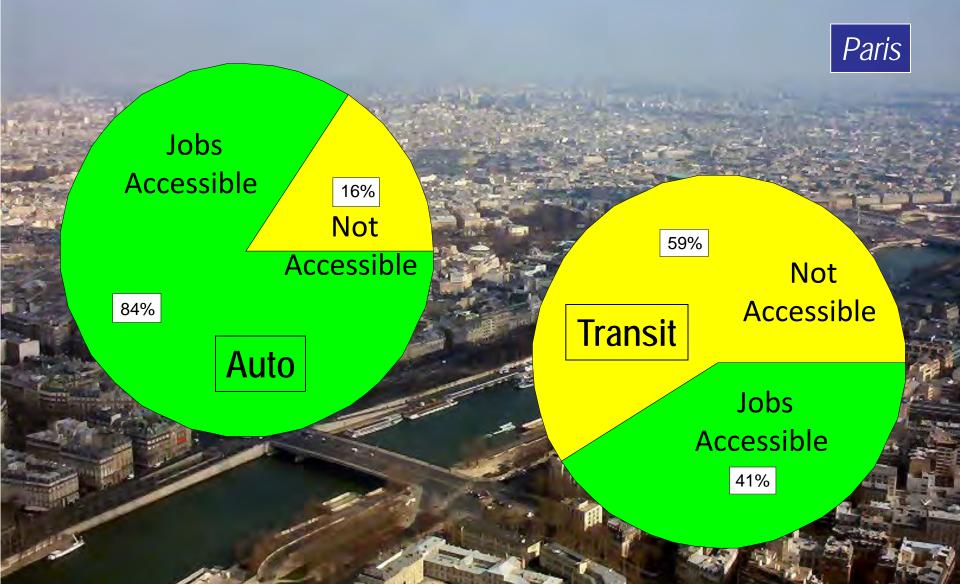
Lions Bay

Transit & Auto Access: 30 Minutes FROM CENTRAL VANCOUVER

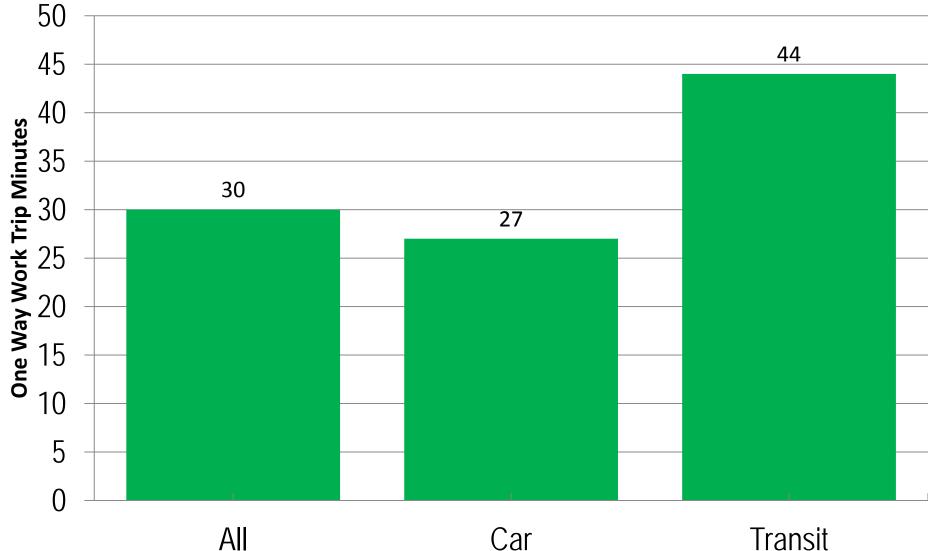
Wigwar



Paris Suburbs: Cars Provide Quicker Travel FROM MAJOR SUBURBAN RAIL STATIONS: 1 HR TO JOBS



Travel by Transit Takes Longer 6 MAJOR METROPOLITAN AREAS: CANADA



All

Car

Autos in Western Europe & North America MAJORITY OF MOTORIZED TRAVEL IS AUTO IN ALL CITIES

Example PORTLAND Transit +Cycle+Walk Market Share Down 9% 1980-2011

Transit's "Last Kilometer" Problem ELSEWHERE TRANSIT IS SLOWER FOR MORE TRIPS

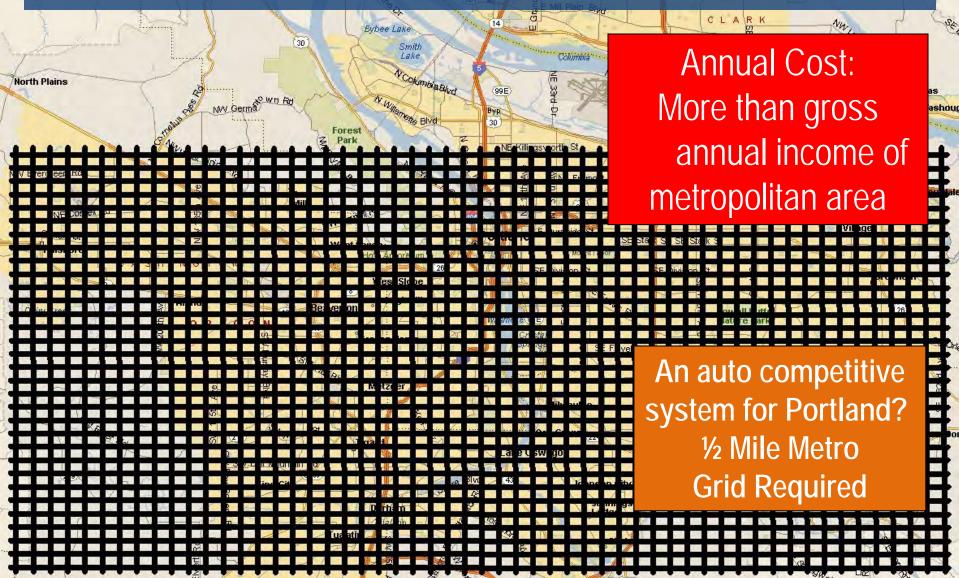
Hazel Dell

Orchards

99

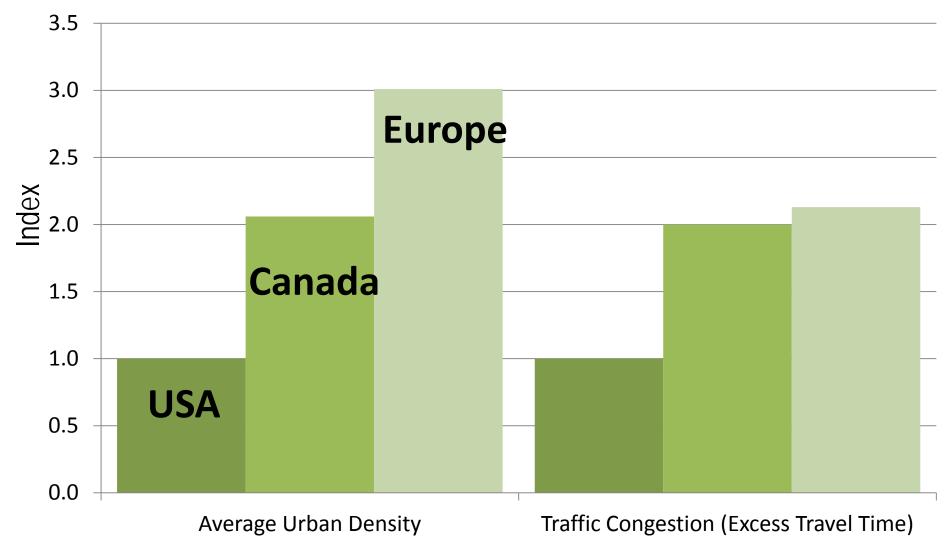
Military Reservation

(ancouver) a.

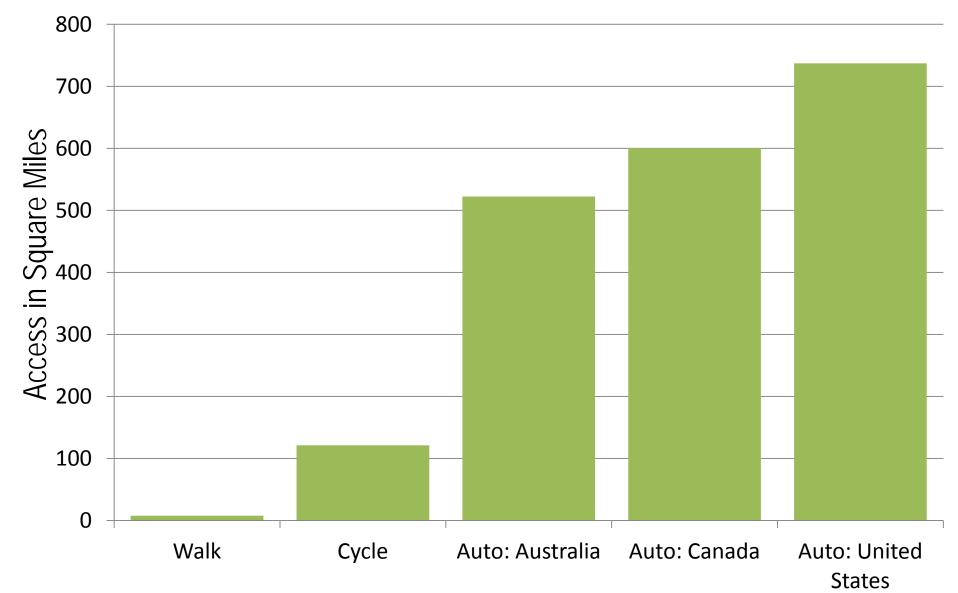


Higher Density Means More Traffic Congestion **DENSITY & TRAFFIC VOLUMES: INTERNATIONAL** 3,500 ← Vehicle Hours/KM^{2.} = 0.885 3,000 2,500 N RUK _ 🔁 🖓 2,000 1,500 1,000 Hong Kong __500 \leftarrow Population/ KM² \rightarrow 6,000 2,000

Density & Traffic Congestion UNITED STATES, CANADA & EUROPE



30-Minute Access by Mode CAR, CYCLING AND WALKING



THE DIMENSIONS OF SUSTAINABILITY

1. POVERTY ALLEVIATION Does the strategy contribute to poverty alleviation?

2. COST EFFECTIVE SUSTAINABILITY Can the strategy reduce GHG emissions at a cost within the \$50 ceiling per ton?

3. ECONOMIC SUSTAINABILITY *Is the strategy without serious potential for reducing economic growth or increasing poverty?*

4. POLITICAL SUSTAINABILITY (ACCEPTABILITY) *Is the strategy without serious potential for public rejection or evasion?*

5. ENVIRONMENTAL SUSTAINABILITY

Does the strategy have the potential to achieve the GHG emission reduction objective?



POVERTY ALLEVIATION

Rio +20 Declaration Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development.

COST EFFECTIVE SUSTAINABILITY

Not an Issue of Fair Share The most cost effective means Must be used regardless of sector

Cost Effectiveness is Crucial UN IPCC MAXIMUM RANGE PER METRIC TON







Market Less than \$15 Above \$50 is wasteful Detracts from efforts to reduce GHGs & unnecessarily reduces employment & economic growth

McKinsey Average \$17

THE ORANGE COUNTY REGISTER OPINION HOME NEWS SPORTS BUSINESS ENTER

Orange Punch Blog | Brian Calle's blog | Election 2012 | Political Cartoons | Letters to the Editor | Editorials

Published: Nov. 11, 2012 Updated: 9:54 p.m.

Wendell Cox: Global warming bill could become big pork barrel



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14 people recommend this. Sign Up to see what your friends recommend.

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ENTERTAINMENT

By WENDELL COX / Principal of Demographia, an international public policy firm in the St. Louis, Mo., area

McKinsey&Company



McKinsey & Conference Board NO RADICAL LIFESTYLE CHANGES NEEDED

Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?



U.S. Greenhouse Gas Abatement Mapping Initiative Executive Report December 2007 ...no change in thermostat settings or appliance use, no downsizing of vehicles, home or commercial space and traveling the same mileage

...no shift to denser housing

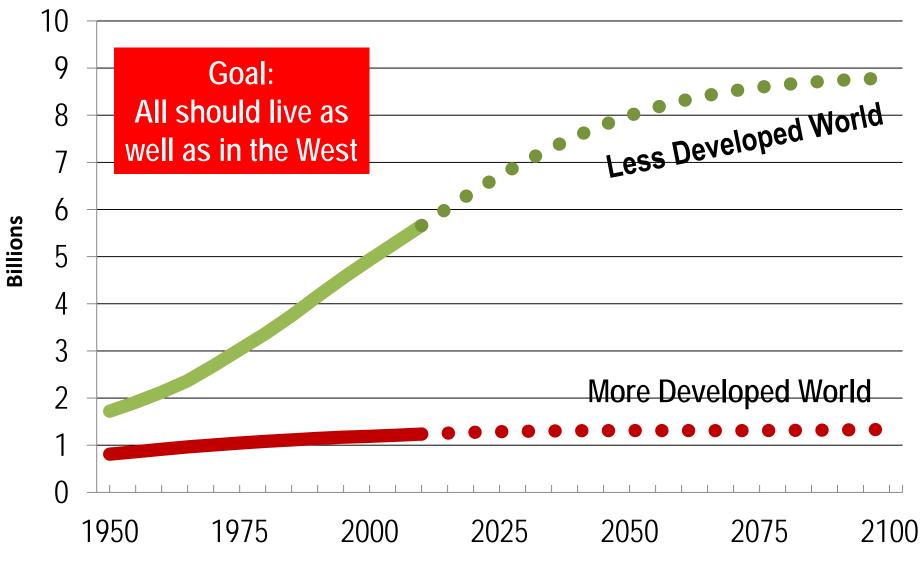
Co-sponsors included: NRDC, EDF, Shell

ECONOMIC SUSTAINABILITY



THE MORAL CONSEQUENCES OF ECONOMIC GROWTH Economic Growth: Required For Social Cohesion

World Population: 1950-2100 BY INCOME: ACTUAL AND PROJECTED



POLITICAL SUSTAINABILITY (ACCEPTABILITY)

a dillo som ils

Rajendra K. Pachauri, Chair, IPCC Can you imagine 400 million people who do not have a light bulb in their homes?" ... You cannot, in a democracy, ignore some of these realities and as it happens with the resources of coal that India has, we really don't have any choice but to use coal.



Europe: Protests Against Austerity ATHENS: 18 OCTOBER 2012



Protests Against Raising Retirement Age FRANCE: 18 OCTOBER 2012



5: ENVIRONMENTAL SUSTAINABILITY Cannot be achieved without 1-4

1. POVERTY ALLEVIATION Does the strategy contribute to poverty alleviation?

2. COST EFFECTIVE SUSTAINABILITY *Can the strategy reduce GHG emissions at a cost within the \$50 ceiling per ton?*

3. ECONOMIC SUSTAINABILITY Is the strategy without serious potential for reducing economic growth or increasing poverty?

4. **POLITICAL SUSTAINABILITY (ACCEPTABILITY)** Is the strategy without serious potential for public rejection or evasion?

5. ENVIRONMENTAL SUSTAINABILITY Does the strategy have the potential to achieve the GHG emission reduction objective?



Planning Realities



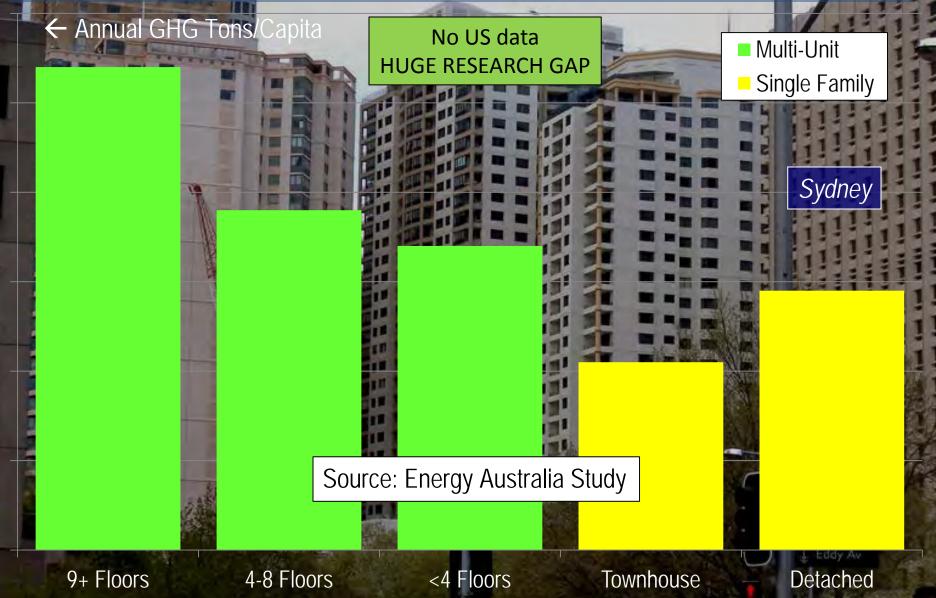
Reducing VMT: Diminishing Returns SLOWER SPEEDS, CONTESTION RAISE GHGS/VMT

Table 2. Canadian Fleet Representative Penalty Function

Driving Cycle	Approximate Average Speed (km/h)	AQ Emission (g/veh-km)			Fuel (ml/veh-km)
		СО	HC	NO _x	
Arterial LOS A-B	45	8.99	0.81	0.55	81.98
Arterial LOS C-D	30	10.70	1.01	0.60	95.92
Arterial LOS E-F	20	15.48	1.49	0.78	141.59
Freeway High-Speed	105	9.48	0.59	0.65	65.22
Freeway LOS A-C	95	9.29	0.55	0.61	63.79
Freeway LOS D	85	9.25	0.67	0.59	62.81
Freeway LOS E	50	8.63	0.82	0.52	71.84
Freeway LOS F	30	10.56	1.00	0.62	98.28
Freeway LOS G	20	11.28	1.09	0.54	113.13

Source: Simulation results using CMEM model coefficients

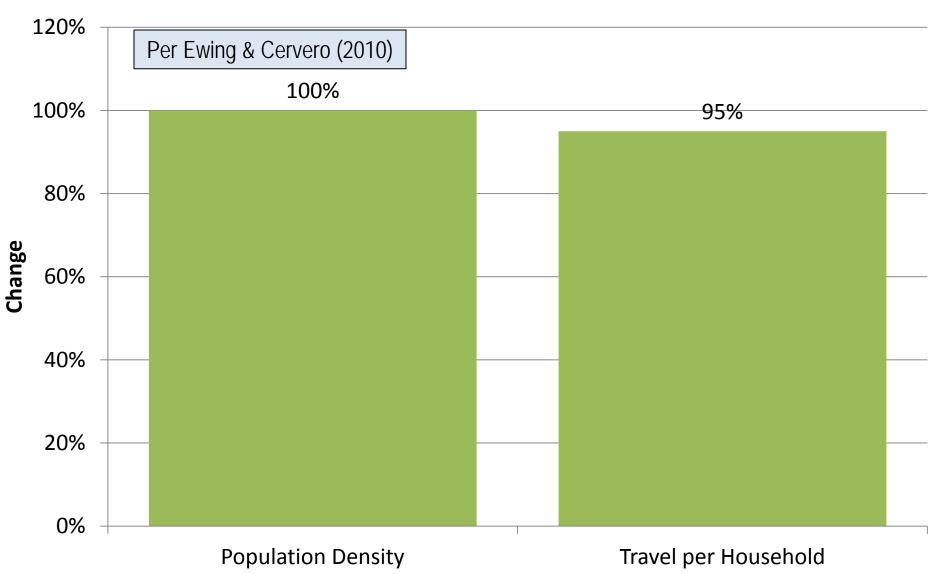
Density: GHG's May Not be Lower INCLUDING COMMON ENERGY EMISSIONS



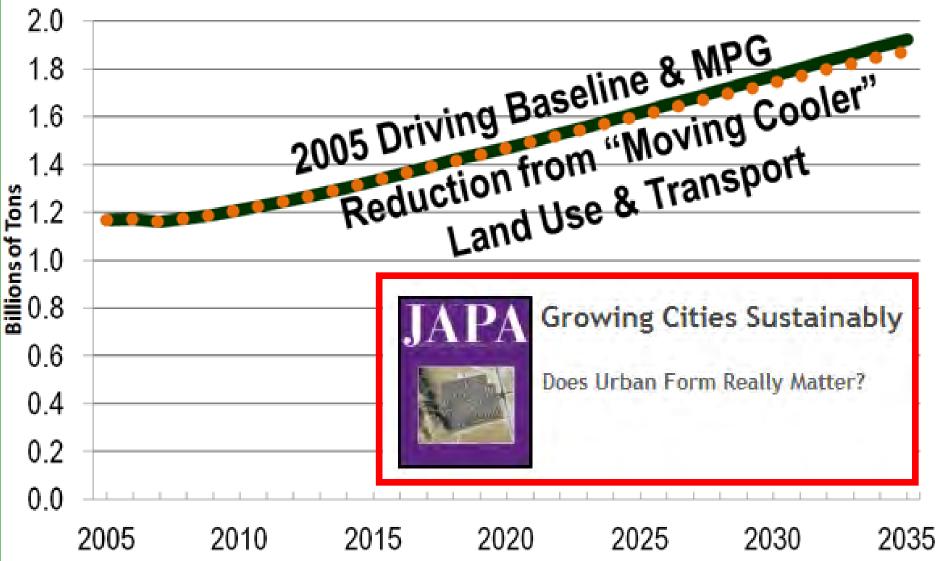
Higher Suburban Density: Travel the Same TRAVEL PATTERNS NO DIFFERENT THAN LOW DENSITY



Densification and Travel US RESEARCH



CO² Emissions: Impact of Smart Growth 2005-2035 DRIVING & MOVING COOLER MID-POINT



How Compact City Policy Destroys Housing Affordability



8th Annual Demographia International Housing Affordability Survey: 2012 Ratings for Metropolitan Markets

Australia • Canada • China (Hong Kong) • Ireland New Zealand • United Kingdom • United States

(Data for 3rd Quarter 2011)



Anthony Downs (Brookings Institution Economist) Principle of a Competitive Land Supply

Planet of Cities



SHLOMO ANGEL

LAND PRICES....

....that in the absence of ample and accessible land for expansion on the urban periphery, artificial shortages of residential land will quickly extinguish any hope that housing will remain affordable, especially for the urban poor..."

Land Rationing is the Issue DESTROYS HOUSING AFFORDABILITY



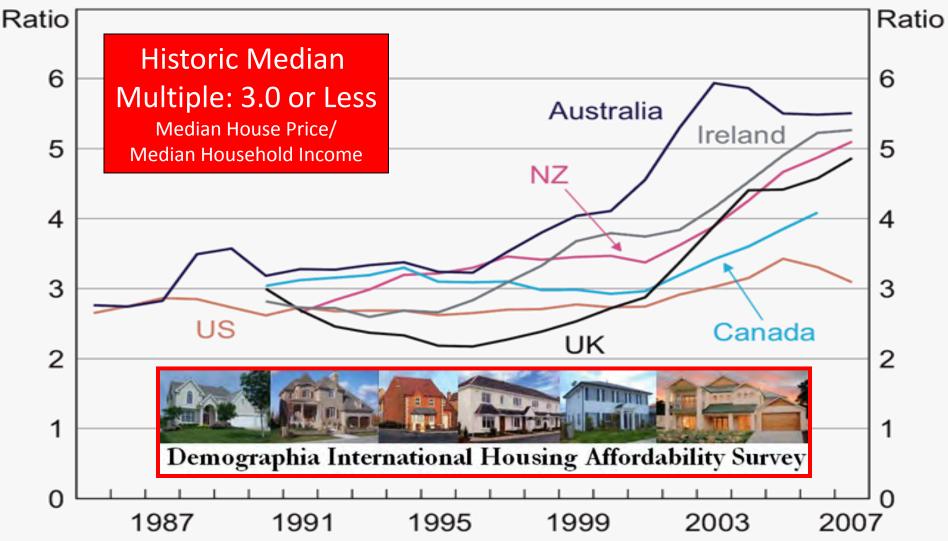
... the affordability of housing is overwhelmingly a function of just one thing, the extent to which governments place artificial restrictions on the supply of residential land.



Donald Brash, Governor, Reserve Bank of New Zealand 1988-2002 Introduction to

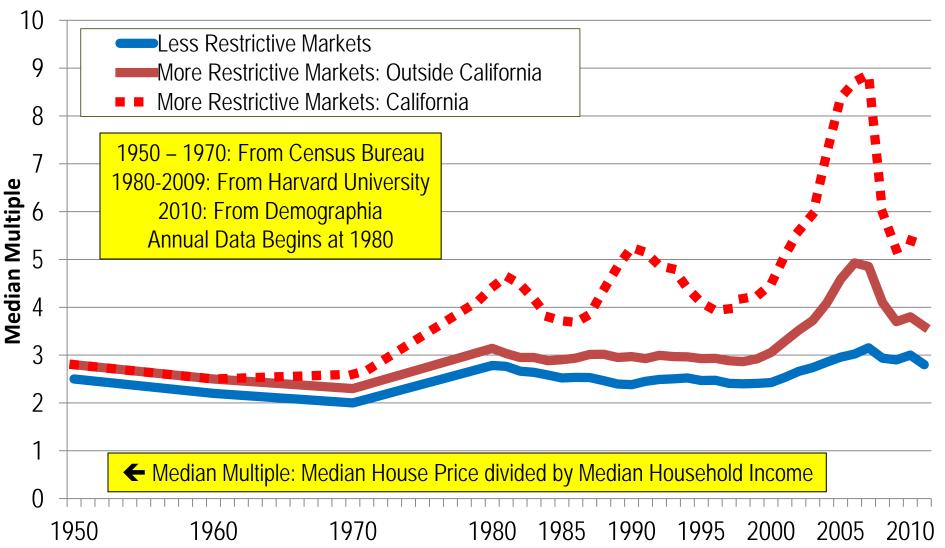
4th Annual Demographia International Housing Affordability Survey

House Price to Income Ratios*



- * Various combinations of median and mean measures of house prices and incomes used depending on availability
- Sources: ABS; BIS; Bureau of Economic Analysis; Central Statistics Office Ireland; Communications and Local Government (UK); National Statistics website; OECD; REIA; Reserve Bank of New Zealand; Statistics Canada; Statistics New Zealand; Thomson Financial

Housing Affordability 1950-2011 MAJOR US METROPOLITAN AREAS: MEDIAN MULTIPLE



Strong Land Regulation: Less Growth EUROPEAN & US RESEARCH

Reduced employment in Amsterdam/Rotterdam -Vermuelen & Ommeren

Netherlands Bureau of Econ. Rsch.

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

London

Higher unemployment in the UK

> -Mayo & Angel World Bank

Planet of Cities



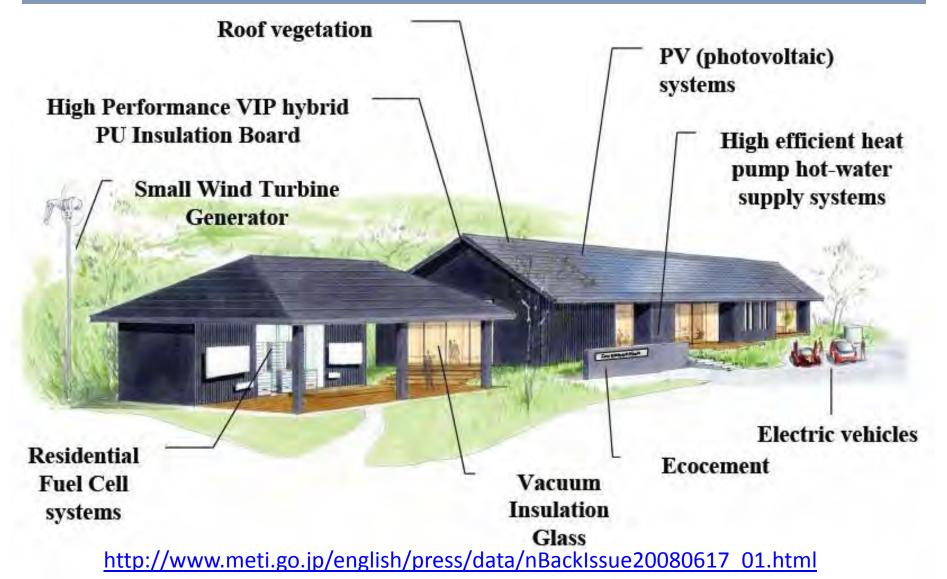
AGRICULTURE

even with urban expansion, there are

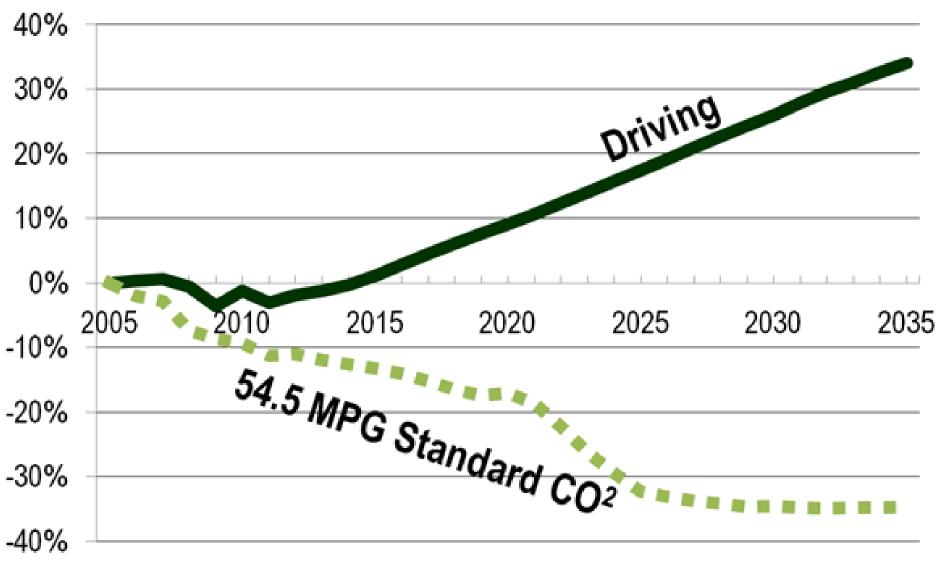
"adequate reserves of cultivatable land sufficient to feed the planet in perpetuity"

SHLOMO ANGEL

Zero Emission House: Japan 2,100 SQUARE FEET: DETACHED



Driving & CO² Emissions: 2005-2035 2005-2035



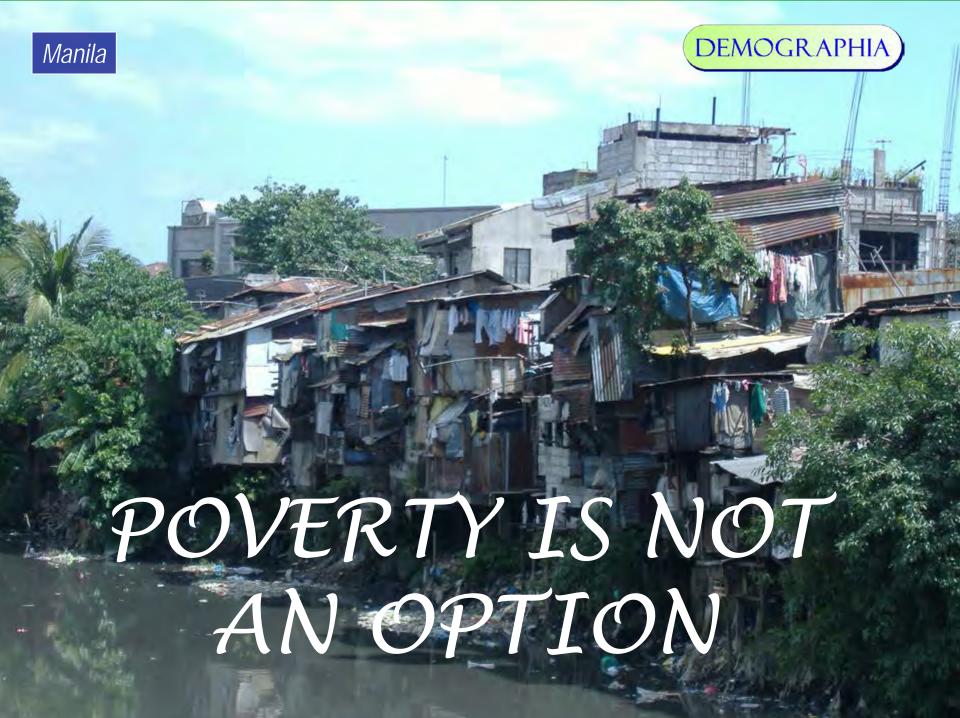
CONCLUSION

व्यानाव राज्य २ २२० मा में अने के नगाउँगेट्नाल जिन्द सिउंजियास

cozi







Why Cities Grow: Economics PEOPLE MOVE THERE FOR BETTER LIVES

The raison d'être of large cities is the increasing return Shanghai to scale inherent to large labor markets. The cities' Economic efficiency requires, therefore, avoiding any spatial fragmentation of labor markets.



A well governed city delivers:

Economic growth (mobility facilitates)

Higher discretionary incomes (housing affordability)

Comparing Toronto & Dallas-Fort Worth URBAN AREAS COMPARED (2010 & 2011)

	Toronto	Dallas-Ft. Worth	Toronto/ DFW
Population (Population			
Centre/Urban Area)	5,132,794	5,121,892	0.2%
Land Area (KM ²)	1,751	4,606	-62.0%
Density	2,931	1,112	163.6%
One Way Work Trip (Min.)	33	26	26.9%
Reach Work in 30			
Minutes	48%	59%	-18.6%
Median Multiple (House			
Price/Household Income)	5.5	2.9	89.7%
Transit Work Trip Share	21%	2%	935.0%

Planning: Facilitating the How People Want to Live

People \rightarrow

IN THE REPORT OF THE PARTY OF



Rail Station: Suburban Paris