Metro Atlanta removes 58 acres of forested land/day
Sketch of an Urban Heat-Island Profile

Late Afternoon Temperatures (°F)

92°

85°

Rural
Suburban
Residential
Commercial
Downtown
Urban
Residential
Park
Suburban
Residential
Rural
Farmland
Federal health agents are in Chicago trying to determine the contributing factors to the more than 500 deaths related to the heat in July. Coffins containing the bodies of unclaimed victims were loaded on a truck by a Cook County morgue worker this summer for a mass burial.
**World Oil Situation**

**Peak Oil Reserve Forecasts**

<table>
<thead>
<tr>
<th>Source</th>
<th>Peak Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. Bernabe, ENI SpA</td>
<td>2005</td>
</tr>
<tr>
<td>C. Campbell, Petroconsultants</td>
<td>2005-2010</td>
</tr>
<tr>
<td>J. Mackenzie, WRI</td>
<td>2007-2014</td>
</tr>
<tr>
<td>Petroleum Industry</td>
<td>2020-2040</td>
</tr>
<tr>
<td>International Energy Agency</td>
<td>2010-2020</td>
</tr>
<tr>
<td>US DOE</td>
<td>&lt; 2020</td>
</tr>
</tbody>
</table>
Solar charge electric vehicle 1997

120 miles in one hour on one charge  1993

280 mpg  VW  2000

9000 mpg  2005
<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>kWh 50 Mi./Day</th>
<th>Lbs of CO₂/Year</th>
<th>Lbs of Upstream CO₂/Year*</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 MPG Gas</td>
<td>200</td>
<td>42,000</td>
<td>54,600</td>
</tr>
<tr>
<td>20 MPG Gas</td>
<td>100</td>
<td>21,000</td>
<td>27,200</td>
</tr>
<tr>
<td>30 MPG Gas</td>
<td>67</td>
<td>14,000</td>
<td>18,200</td>
</tr>
<tr>
<td>40 MPG HEV</td>
<td>50</td>
<td>10,400</td>
<td>13,600</td>
</tr>
<tr>
<td>50 MPG HEV</td>
<td>40</td>
<td>8,400</td>
<td>11,000</td>
</tr>
<tr>
<td>40 MPG PHEV with 25 Mile EV Range</td>
<td>10 for 25 Miles</td>
<td>5,000</td>
<td>6,000</td>
</tr>
<tr>
<td>PHEV with 50 Mile EV Range</td>
<td>22</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td>EV-1, 120 Mile Range (built &amp; crushed by GM)</td>
<td>12</td>
<td>0</td>
<td>400</td>
</tr>
</tbody>
</table>
GM repossessed EV-1s
and crushed them
Pedestrian-Motor Vehicle Collisions Every Year

- Injured by cars: 80,000
- Killed by cars: 5,000
- 11% of all motor vehicle deaths
Motor Vehicle Crashes

• Leading cause of death for young people (1-24 yrs)

• Crashes:
  — kill 42,000 people
  — injure 3,400,000 people
  — cost $200,000,000,000
Vehicle Miles Traveled

**Figure 2-2**
Vehicle Miles Traveled (VMT) Per Capita, 1960–1995


VMT/Capita 1960-1995
Less Density = More Driving

Driving vs Residential Density

- SF
- LA
- Chicago
From 1969 to 2000, Americans drive:
+88% farther to shop
+137% farther for errands

Women effected most

• Mom/Family “chauffeur”

• Time in car:
  - All women  64 min/day
  - Single mothers  75 min/day
Health in the Late 19th Century

• Infectious diseases: TB
  Cholera
  Yellow Fever
  Malaria

• Challenges seemed insurmountable

• Architects, Planners, Builders, Public Works people engaged

• Drinking and Waste Water Systems
TB Death Rates in England 1855-1965

- Antibiotics Introduced
- BCG Vaccination

Years: 1855 - 1965
Deaths Per 100,000 Population: 300 - 0
Diseases for this Century

- **Cardiovascular:** Heart Attack
  Stroke

- **Respiratory:** Asthma
  Emphysema

- **Cancer & other “chronic” diseases**

- **Skeletal:** Arthritis
  Osteoporosis
<table>
<thead>
<tr>
<th>Diseases for this Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight:</td>
</tr>
<tr>
<td>Diabetes II</td>
</tr>
<tr>
<td>Heart Disease</td>
</tr>
<tr>
<td>Mental Disorders:</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>Developmental</td>
</tr>
<tr>
<td>Substance Abuse</td>
</tr>
<tr>
<td>Macro-environment:</td>
</tr>
<tr>
<td>Climate</td>
</tr>
<tr>
<td>Conflict</td>
</tr>
</tbody>
</table>
Health Care Expenditures as % of GDP 1960-2001

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>5.1</td>
<td>7.0</td>
<td>8.8</td>
<td>12.1</td>
<td>13.3</td>
</tr>
</tbody>
</table>
U.S. Population, 1990-2100

Number in millions

Source: U.S. Census Bureau
An Aging Population
Percentage of U.S. Population over Age 65

Source: From Baby Boom to Elder Boom: Providing Health Care for an Aging Population
Estimated Per Capita Health Expenditures by Age and Sex, 1995

Source: From Baby Boom to Elder Boom: Providing Health Care for an Aging Population
Obesity Trends* Among U.S. Adults

BRFSS, 1990

(*BMI ≥30, or ~30 lbs overweight for 5’4” woman)

Obesity Trends* Among U.S. Adults

BRFSS, 1991

(*BMI ≥30, or ~30 lbs overweight for 5’4” woman)

Obesity Trends* Among U.S. Adults

BRFSS, 1993

(*BMI ≥30, or ~ 30 lbs overweight for 5’4” woman)

Obesity Trends* Among U.S. Adults

BRFSS, 1995

(*BMI ≥30, or ~30 lbs overweight for 5’4” woman)

Obesity Trends* Among U.S. Adults

BRFSS, 1997

(*BMI ≥30, or ~ 30 lbs overweight for 5’4” woman)

Obesity Trends* Among U.S. Adults
BRFSS, 1999
(*BMI ≥30, or ~ 30 lbs overweight for 5’4” woman)

Obesity Trends* Among U.S. Adults

BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs overweight for 5’4” woman)

Average 11-year-old boy today is 11 pounds heavier than in 1973.
1/3 of colon, breast, & kidney cancers can be attributed to overweight & inactivity.

Being overweight & inactive are the most important avoidable causes for these cancers.

An American Epidemic

Diabetes

SOMETHING TERRIBLE WAS HAPPENING TO YOLANDA BENNETT. Her eyes. They were being poisoned; the fragile capillaries of the retina attacked from within and were leaking blood. The first symptoms were red lines, appearing vertically across her field of vision; the lines multiplied and merged into a haze that shut out light entirely. "Her blood vessels inside her eye were popping," says her daughter, Janette Roman, a Chicago college student. Bennett, who was in her late 40s when the problem began four years ago, was a cleaning woman, but she had to stop working. After five surgeries, she has regained vision in one eye, but the other is completely useless. A few weeks ago, awakening one night in a hotel room, she walked into a door, setting off a paroxysm of pain and nausea that hasn't let up yet. And what caused this catastrophe was nothing as exotic as pesticides or emerging viruses. What was poisoning Bennett was sugar.

The silent killer: Scientific research shows a "persistent explosion" of cases—especially among those in their prime.

BY JERRY ADLER AND CLAUDIA KALB

Heredity

Genes help determine whether you'll get diabetes. In many families, multiple generations are struck. But heredity is not destiny—especially if you eat well and exercise.

FROM PAGE 36: Bennett's mother and two brothers died from complications of the disease.
Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1993-94

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1995-96

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1997-98

No Data  <4%  4%-6%  6%-8%  8%-10%  >10%

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1999

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 2001

Diabetes &
People born in 2000

Girls: 38% lifetime risk
If diabetic < 40 yrs
Lifespan down 14 yrs

Boys: 33% lifetime risk
If diabetic < 40 yrs
Lifespan down 12 yrs
Smothered in smog

Fatality proves sad truth: Heat can kill
30% reduction in driving
30% improvement in air quality
Total Non-Asthma-Related Acute Care Visits
1-16 year old residents of Atlanta
Acute Care Visits for Asthma
1-16 year old residents of Atlanta

Baseline Period

Olympic Period†
Surgeon General’s Report

21% US citizens ages 9-17 have a diagnosable mental or addictive disorder associated with at least minimum impairment.
Antidepressant Rx in USA


 Millions of prescriptions


Psychiatrists
Nonpsychiatrists

SOURCE: IMS Health, Inc.
HEALTH AFFAIRS - Volume 19, Number 4
Methylphenidate (Ritalin) Consumption

Depressive Disorders

19 million American adults

• Leading cause of disability in the USA

• Treatment:
  • Medication
  • Social Contact, including therapy
  • And.....
One person walking is exercise.

Millions of people walking is a step toward keeping healthcare affordable.

The illness and chronic disease resulting from inactive lifestyles cost as much as $77 billion a year to treat. That's why Blue Cross and Blue Shield Plans across the nation are launching WalkingWorks®, an unprecedented effort to work with employers to help Americans add physical activity to their daily routines. It's one of the many ways we're doing our part to control rising healthcare costs.

For more information, visit our web site at www.bcbs.com.

“It’s probably something to do with culture … We’re not a walking city…” because Detroit is, “the automobile capital of the world.

Detroit Mayor Kwame Kilpatrick
DEAR, YOU CAN'T BE A POLICE MAN. YOU'RE A GIRL.

CHOICE OF LANGUAGE (SHOWING BIAS, CREATING BIAS)
Once your street is improved, the curb will be right here.
UPGRADES? SURE IT'S GOT PLenty. EVEN THE STREET GOT UPGRADED TO AN ARTERIAL JUST THE OTHER DAY.
Traffic Demand

Price $ vs Quantity
WE HAVE HAD ABOUT 30,000 ACCIDENTS IN THE COUNTY EVERY YEAR FOR THE PAST FIVE YEARS.
TO MAKE THIS MORE EFFICIENT, SHOULD I ADD TWO MORE OR FOUR MORE LANES?
EFFICIENCY?
Accept Congestion

Increase Delay
- Improve Home
  - Keep Businesses
  - Keep Jobs
- Use Non-Car Modes
  - Main Street
  - Less Strip

Increase Cost
- Drive Less
  - Less VMT
- Own Fewer Cars
  - Community Reinvestment
CAPACITY OF STREETS
I told you that six lanes would improve the **level of service**.
ACCIDENT IMPROVEMENT
LEVEL OF SERVICE
TRAFFIC
TRAFFIC DEMAND
UPGRADE
EFFICIENT

COLLISION
WIDENING/NARROWING
CHANGE/MODIFICATION
... FOR WHO?
MOTOR VEHICLES
AUTOMOBILE USE
REDESIGNATE
FAST
The improvements to the intersections and the upgrading of the road to four lanes will not only enhance the capacity to meet future traffic demands, but the level of service will improve from "D" to "B".

Transportation professionals

(need to be and appear to be unbiased)
The changes to the intersections and adding two automobile lanes will accommodate the additional automobile traffic that we forecasted. The level of service for automobile users will increase from "D" to "B" during the weekday peak hour of automobile use.
URBAN

RURAL
Le Corbusier
"Dawn of a new start"
"There is no longer any place for the street with its traffic..."
Frank Lloyd Wright
"Broadacre City is everywhere or nowhere"
WHY DO CITIES EXIST?

ACCESS

MOBILITY
The answer is,
The answer is, “Network & build to the street”
The answer is, “Network & build to the street”

Now what was the question?
Connected Street Networks

Grid
Grid & Squares
Web
Radial
Irregular
Curvilinear
75 units/acre
GRASSHOPPER PLANNING

FOOD SUPPLY

SPRING SUMMER FALL WINTER

TIME
GRASSHOPPER PLANNING
OUR MODEL TELLS US THAT ANOTHER BRIDGE WILL BE NEEDED BY 2030
Conventional Development Cycle

INPUTS
• Auto Oriented Business
• Single Use Zoning
• Single Family Residential

OUTCOMES
• Wider Roads
• Induced Traffic
• More Traffic

OUTCOMES
• Isolated Neighborhoods
• Multiple Automobile Trips
• Poor Mobility
• Difficult Walking

• Traffic Demand Forecasting
• Congestion
• LOS
Healthy Development Cycle

INPUTS
• Diversity of Business
• Mixed Use Zoning
• Diversity of Residential Units
• Context Sensitive Design
• Community Involvement

OUTCOMES
• Healthy Neighborhoods
• Choices of Transportation
• More Open Space
• Sense of Place
• Sense of Community

OUTCOMES
• More Walking & Bicycling
• Increased Access

SMART GROWTH
Walk
Transit
Bike
Access, Not Speed
Driver-Eye View
Business Friendly
Traffic Calming
Streets as Public Spaces
Land Use Mix, TOD
Connected Network
Pricing
Telecommuting
Human Scale
In-Town Living
Lane Limits
Change Standards

More Pavement
More Use
More People, Not Cars
Move People Fewer Miles
Increase Quality of Travel
Move More Cars Faster
Move More

VERTICAL APPROACH

LATERAL APPROACH
The problems we have created cannot be solved with the same thinking that created them...."
“...the possible benefits of required seat belts would not justify the costs to the manufacturers and the public.”

1970
“...the possible benefits of required seat belts would not justify the costs to the manufacturers and the public.”

National Highway Traffic Safety Administration, 1970
MORE OF THE SAME NEXT RIGHT
Healthy Development Cycle

INPUTS
• Diversity of Business
• Mixed Use Zoning
• Diversity of Residential Units
• Context Sensitive Design
• Community Involvement

OUTCOMES
• Healthy Neighborhoods
• Choices of Transportation
• More Open Space
• Sense of Place
• Sense of Community

OUTCOMES
• More Walking & Bicycling
• Increased Access

SMART GROWTH