Suburban Sprawl
Causes: values, car, government policies, government structure, actions of developers
Environmental Impacts
Loss agricultural land, habitat, biodiversity, roadkills, depletion of energy, inc air pollution,
Runoff: flooding, streambank erosion, water pollution.
Infiltration: depletion ground water supplies, land subsidence, saltwater intrusion
Alternatives:
- bayscaping
- urban growth boundary with effective zoning
- better planning
- clustering/intermingling land uses: why better less pollution: cars, mass transit, saves land
- city revitalization
- agricultural land preservation

Geographic Information Systems
System of hardware and software used to store and manipulate spatial data

Farmland Preservation
Conservation Easement-donate or sell development rights
Pennsylvania Preservation Issue: where preservation dollars should be focused.

Water Quantity
Water use statistics themes-Industry greatest withdrawer; agriculture greatest consumer
Flooding
- Impacts of urbanization: increased peakflow, decreased lagtime, decreased baseflow
- Levees-can enhance flooding, spills
- Channel straightening- can enhance flooding up and down river
- Adjustments/Techniques to reduce severity
  - Zoning floodplains, maintain forests, river wetlands, inc infiltration (swales, permeable park lots), let unimportant areas flood, selective use of dams, levees (move them out further from river)

How water is stored in environment- 97.5% ocean, 1.8% glacier/icecap, 0.6% in soil
Colorado River water use conflicts

Reasons for projected water shortage: increased population; increased demand for irrigation, agricultural, and industry; water waste; unequal distribution; pollution

Methods to increase supply and decrease demand and their **advantages/disadvantages**
conservation, reclamation sewage, groundwater, desalinization, salt/drought resistant crops, rainmaking, long distance transport. Decrease DEMAND: metering, price mechanisms, restrictions, education

Water Quality
Pollutants and their sources and effects: pg 184
Eutrophication, Chesapeake Bay pollution: point sources, urban/suburban, farming
Recovery: restore self-regulating mechanisms, barnyard runoff management, streambank fencing, forest buffers
Primary, secondary, tertiary treatment and types of pollutants removed (pg. 184b)
Value of sludge
Alternatives to tertiary treatment: wetlands/lagoons
Nonpoint source pollution biggest source pollution
pollution prevention-cheapest way of addressing pollution
Water quality legislation: focus on point sources: NPDES, TMDL ambient, waste treatment, drinking contaminants, effects

Public Domain
amount of land in public domain, where it's focused
Multiple use doctrine and issues, groups involved in management