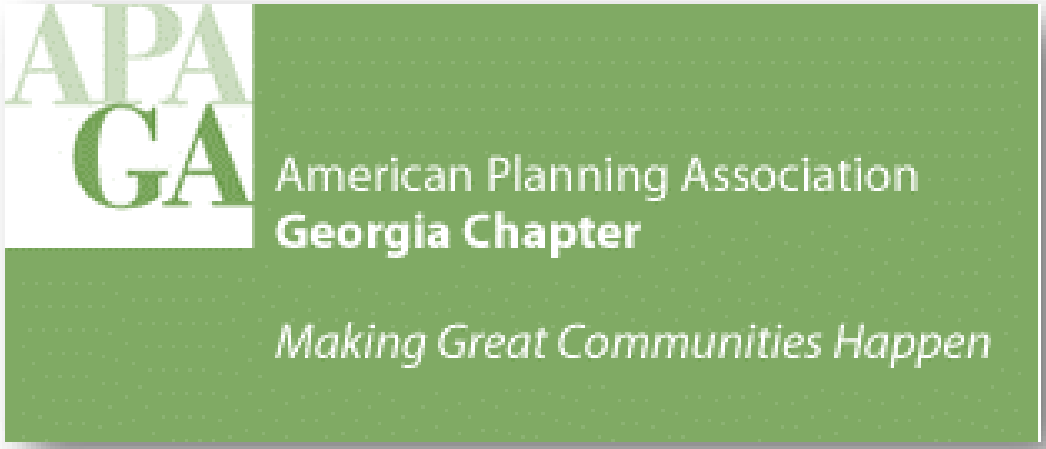
AICP Exam Review

AREAS OF PRACTICE | ENVIRONMENTAL & NATURAL RESOURCE PLANNING

Russ Danser, AICP

Environmental Project Manager



Things to Keep in Mind…Areas of Practice

- Makes up 30% of the AICP exam
- 45 items over 17 Topics
- My presentation will cover five of these 17 “Areas of Practice”…
- In 60 minutes

What will we cover in the next 60 minutes?

- Environmental and natural resources planning (e.g., air quality, climate change, environmental impact analysis, aquatic planning, agriculture, forestry, extraction, habitat, shoreline planning, environmental justice).
- Parks, recreation, and open space (e.g., standards, incentives, greenways and trails, scenic resource, preservation, viewsheds, wildlife corridors, connectivity, conservation easements, transfer/purchase of development rights)
- Sustainability planning (e.g., sustainable processes, practices and outcomes, including environmental planning, economic planning, and equity planning)
- Hazards, mitigation, and resiliency planning (e.g., flooding, earthquake, wildfires, spills, brownfields, anti-terrorism, disaster preparedness planning)
- Food planning (e.g., food security, access and justice, food production, food economies, food governance)

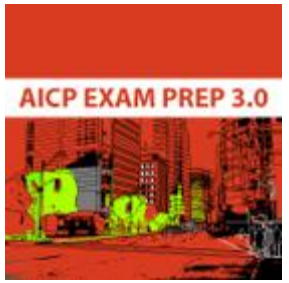
- General terminology, practices, and principles of environmental restoration

- What reading is recommended?

(Underline = Areas of Practice)

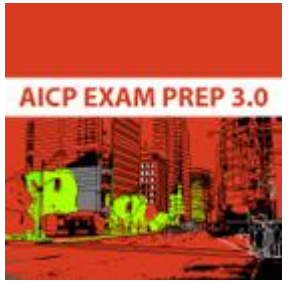
Environmental & Natural Resource Planning

- Air quality, climate change, environmental impact analysis, aquatic planning, agriculture, forestry, extraction, habitat, shoreline planning, environmental justice
- AICP EXAM PREP 3.0
  - Plan Making & Implementation: Lesson 5
  - Functional Areas of Practice: Lesson 7
- 2007 Outline
  - II.H.
  - III.P.



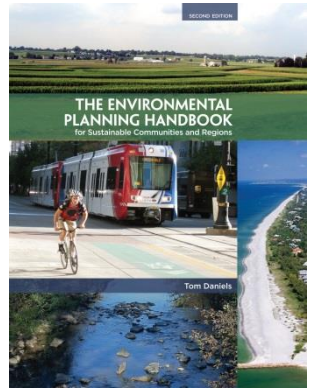
Parks, Recreation & Open Space

- Standards, incentives, greenways and trails, scenic resource, preservation, viewshed, wildlife corridors, connectivity, conservation easements, transfer/purchase of development rights
- AICP EXAM PREP 3.0
  - Functional Areas of Practice: Lesson 8
- 2007 Outline
  - III.Q.



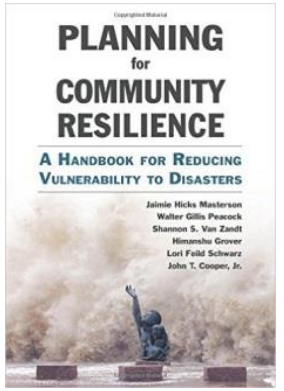
Sustainability Planning

- Sustainable processes, practices and outcomes, including environmental planning, economic planning, and equity planning
- AICP EXAM PREP 3.0
  - Tips Page
- 2007 Outline
  - NEW…it is not there.
- Daniels, Tom. *Environmental Planning Handbook for Sustainable Communities and Regions* (2nd ed.). Chicago: APA Planners Press. 2014.



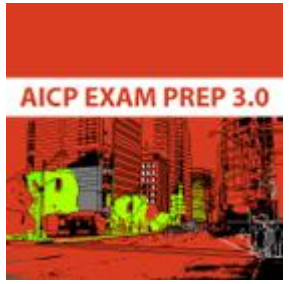
Hazards, Mitigation and Resiliency Planning

- Flooding, earthquake, wildfires, spills, brownfields, anti-terrorism, disaster preparedness planning
- AICP EXAM PREP 3.0
  - Functional Areas of Practice: Lesson 11
- 2007 Outline
  - III.J.
- Masterson, Jamie Hicks, et. al. *Planning for Community Resilience: A Handbook for Reducing Vulnerability to Disasters*. Washington, D.C.: Island Press. 2014.



Food Planning

- Food security, access and justice, food production, food economies, food governance
- AICP EXAM PREP 3.0
  - Functional Areas of Practice: Lesson 19
- 2007 Outline
  - III.H.



General Terminology, Practices, and Principles of Environmental Restoration

NEPA

General Terminology, Practices, and Principles of Environmental Restoration: NEPA

National Environmental Policy Act of 1969

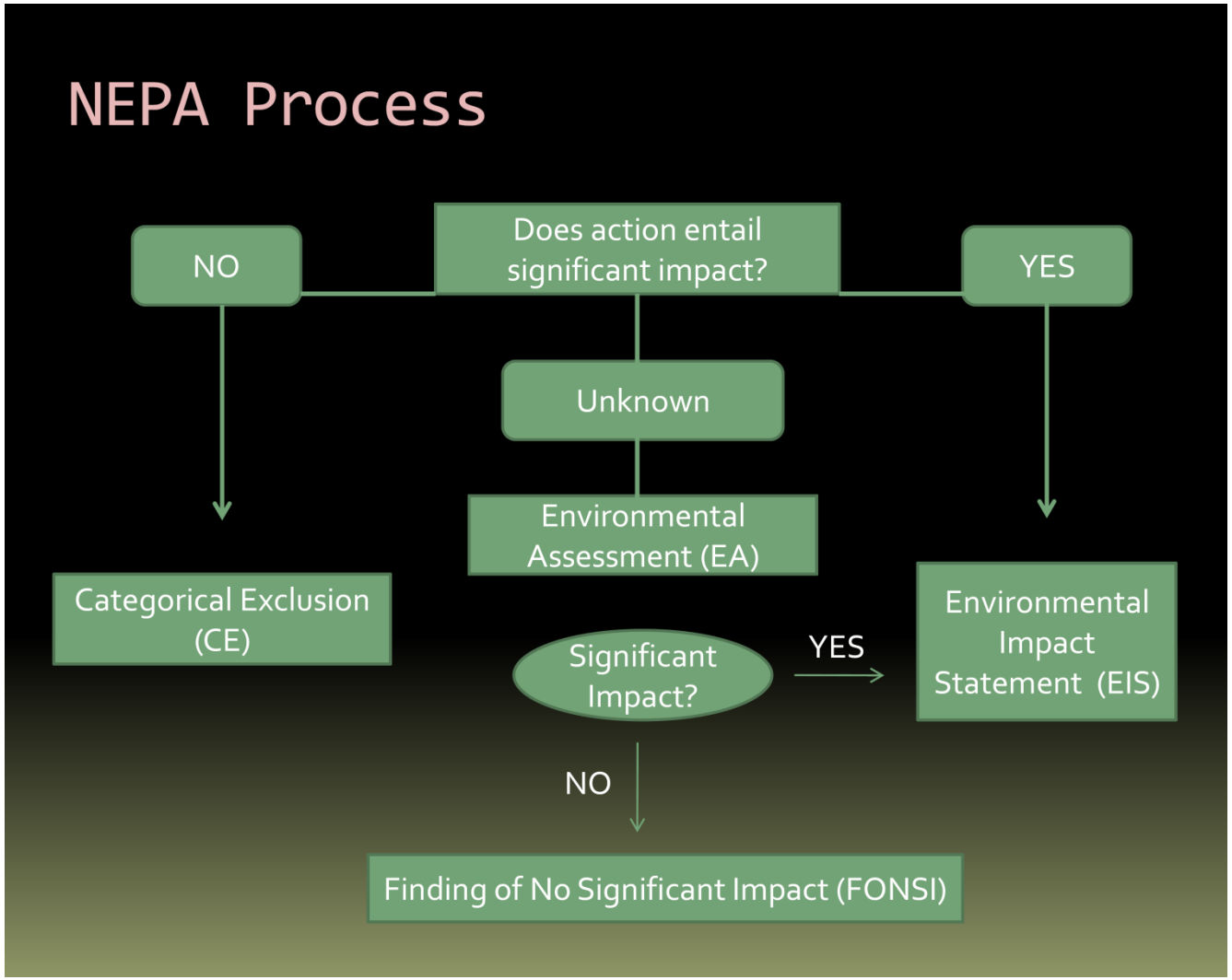
- NEPA was the first of a suite of federal statutes upon which the contemporary environmental regulatory framework is established.
- The Act established a process to review any federal projects and policies that could impact environmental quality.
- NEPA created the Council on Environmental Quality (CEQ) to draft regulations for environmental review and publish an annual report on national environmental quality.

General Terminology, Practices, and Principles of Environmental Restoration: NEPA

National Environmental Policy Act of 1969

- NEPA requires review of all proposed federal projects, funding, permits, policies, and actions for “significant” environmental impacts. NEPA requires review of state and local government, as well as private sector, actions requiring federal approval or permitting.
- Courts have determined that the significance of an action is based on: 1) the extent to which the action will cause adverse environmental effects in excess of those created by existing uses; and, 2) the absolute quantitative adverse environmental effects of the action.

General Terminology, Practices, and Principles of Environmental Restoration: NEPA



General Terminology, Practices, and Principles of Environmental Restoration: NEPA

Elements of the Environmental Impact Statement

1. Current conditions and the probable impact of the proposed action;
2. Any adverse environmental effects which cannot be avoided should the proposal be implemented;
3. Alternatives to the proposed action and their likely impacts;
4. The relationship between local short term uses of the environment and the maintenance and enhancement of long term productivity;
5. Any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented;
6. Ways to minimize the negative impacts of the proposed action.

General Terminology, Practices, and Principles of Environmental Restoration: NEPA

What NEPA is designed to do:

- Require agency and public participation in planning process
- Require disclosure about the action, alternatives, environmental effects, and mitigation
- Bring out environmental concerns of the affected publics
- Require environmental impacts to be considered during planning and decision making

General Terminology, Practices, and Principles of Environmental Restoration: NEPA

What NEPA is not designed to do:

- Decide which alternative to chose
- Prevent environmental impacts from happening
- Prohibit any actions

General Terminology, Practices, and Principles of Environmental Restoration

WATER QUALITY

General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Clean Water Act

- Water Pollution Control Act of 1948
  - Federal role limited to expertise and advice to states
- Water Pollution Control Act of 1956
  - Research on interstate pollution control
  - Grants for wastewater treatment facilities
- Clean Water Acts of 1972, 1977, & 1987
  - States develop and enforce water quality standards
  - National Pollution Discharge Elimination System (NPDES) permits
  - More emphasis on effluent quality than water quality
- Safe Drinking Water Act of 1974 & 1986
  - National health-based standards for drinking water

General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Point and Non-point Sources of Pollution

- Point source pollutants are water or air pollutants discharged from an effluent pipe, smokestack, or tailpipe.
- Non-point sources of water pollution are created from numerous and diverse land use and agricultural activities, such as urban stormwater runoff.
- Non-point sources of air pollution result from natural events, such as wildfires, or result from “secondary” air pollutants that form in the atmosphere from tailpipe or smokestack emissions.

General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Clean Water Act Programs

1.	Section 201	Grants for construction of public sewage treatment plants.
2.	Section 208	State water quality standards and management plans, addressing the nondegradation of swimmable and drinkable waters and waters of "exceptional recreational or ecological significance," the identification and use of best management practices for the control of point and nonpoint pollution sources.
3.	Section 303(d)	State Total Maximum Daily Load process for prioritizing and implementing clean-up of impaired waterways. The state compiles a list of impaired waters by priority for clean-up, known as the 303(d) list.
4.	Section 305(b)	*Biennial Environmental Protection Agency Report* to Congress on the Nation's Water Quality, based on state-level data.
5.	Section 319	State plans and programs and federal loans and grants for the control of nonpoint source pollution and to publish reports.
6.	Section 402	National Pollutant Discharge Elimination System permit system for point and nonpoint sources of water pollution, including stormwater management permits and permits for confined animal feeding operations. This includes the monitoring of urban stormwater discharges into regulated streams.
7.	Section 403	Pretreatment of industrial sewage before discharge into municipal sewage treatment plants.
8.	Section 404	Wetlands permitting system for the draining and filling of wetlands (see Chapter 10).
9.	Section 503	Sewage sludge land application and disposal regulations.
10.	Section 604(b)	State water quality planning and assessment grants. Can be used for monitoring water quality and setting water quality standards.

General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Section 303(d): Total Maximum Daily Load Standards (TMDLs)

How are TMDL's Calculated?

$$TMDL = WLA + LA + MOS$$

(WLA - waste load allocation, LA - load allocation, MOS - margin of safety)

WLA = daily load of pollutants permitted as point source discharges
LA = amount of pollution that nonpoint sources can discharge
MOS = margin of safety

General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Section 402: National Pollution Discharge Elimination System (NPDES)

- National Pollution Discharge Elimination System permit
- Technological effluent control standards to minimize discharges
- Permits required for industrial facilities, publicly owned treatment works (POTW), and concentrated animal feedlots.
- Stormwater runoff
  - Phase I, large industrial facilities, municipal separate storm sewers systems (MS4), and construction activities disturbing more than 5 acres of land must obtain a permit.
  - Phase II, MS4s under 100,000 population and construction activities between 1 and 5 acres must also obtain a NPDES permit.

General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Section 402: National Pollution Discharge Elimination System (NPDES)

- Phase I & II NPDES Permit Requirements
  1. Public education and outreach on stormwater impacts
  2. Public involvement/participation
  3. Illicit discharge detection and elimination
  4. Construction site stormwater runoff control
  5. Post-construction stormwater management in new development and redevelopment (Low Impact Design – LID)
  6. Pollution prevention/good housekeeping for municipal operations.

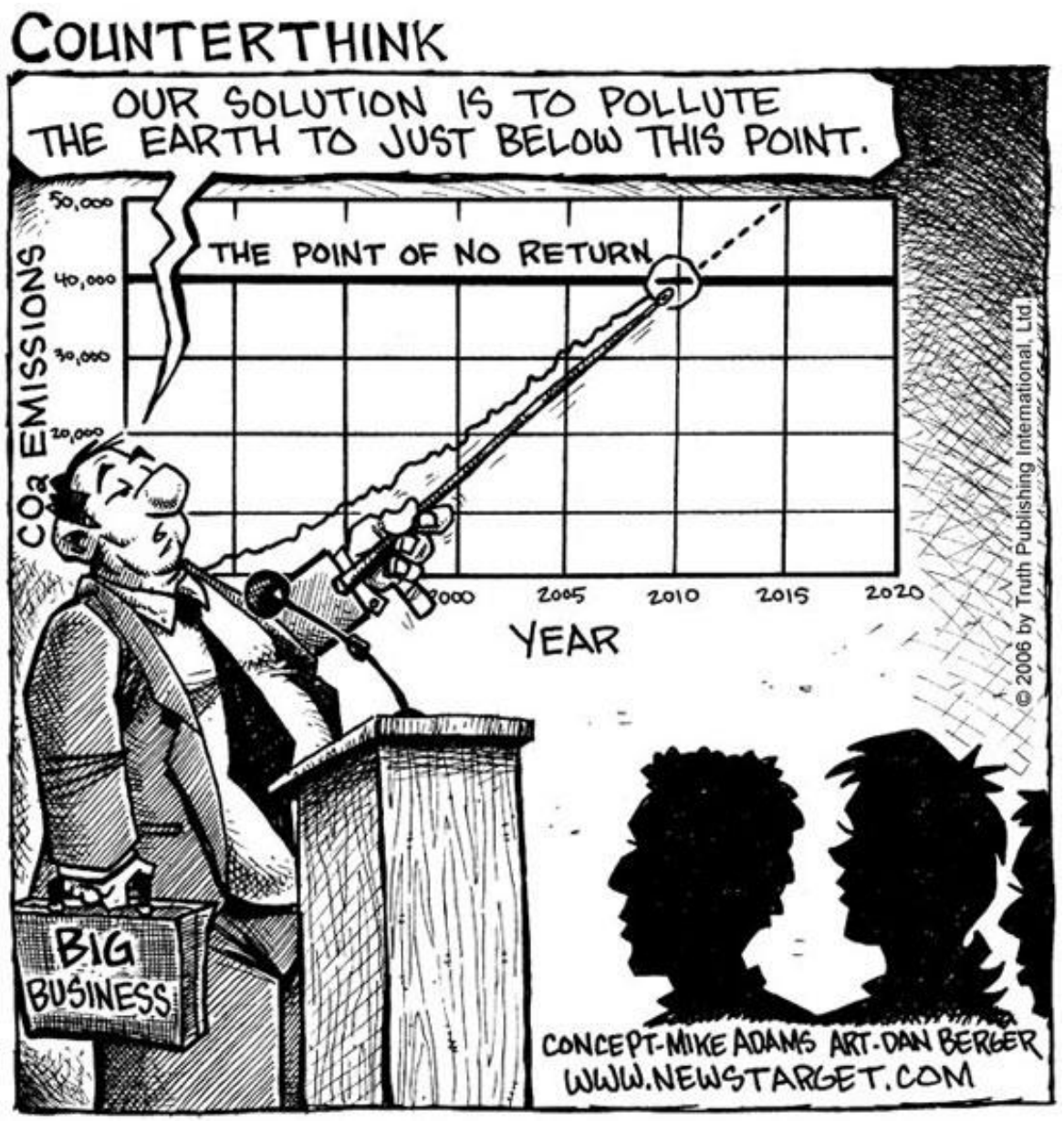
General Terminology, Practices, and Principles of Environmental Restoration: Water Quality

Section 404: Wetlands Permitting

- Regulate the discharge of dredged or fill material into wetlands
- Jointly administered by the U.S. Army Corps of Engineers and the Environmental Protection Agency
- No discharge of dredged or fill material may be permitted if:
  1. a practicable alternative exists or
  2. the nation's waters would be significantly degraded
- Permit review and issuance follows a sequence process
  - avoidance of impacts,
  - minimizing impacts
  - mitigation for unavoidable impacts to the aquatic environment
- General permits are issued for specific classes of activities.
- Projects not covered by a general permit require individual review by the Corps and an individual permit.

General Terminology, Practices, and Principles of Environmental Restoration

AIR QUALITY



General Terminology, Practices, and Principles of Environmental Restoration: Air Quality

Clean Air Act Amendments of 1990: The Nine Titles	
Title I	**National Ambient Air Quality Standards (NAAQS)**
Title II	Mobile Sources
Title III	Hazardous Air Pollutants
Title IV	Acid Deposition (aka Acid Rain)
Title V	**Stationary Source Operating Permits**
Title VI	Stratospheric Ozone & Global Climate Protection
Title VII	Provisions Regarding Enforcement
Title VIII	Miscellaneous Provisions
Title IX	Clean Air Research

General Terminology, Practices, and Principles of Environmental Restoration: Air Quality

NAAQS Have Been Established for Six Pollutants:

Lead (Pb)
Carbon Monoxide (CO)
Nitrogen dioxide (NO_2)
Sulfur dioxide (SO_2)
Particulate matter (PM_{10} & $PM_{2.5}$)
Ozone (O_3)

Title I: NAAQS

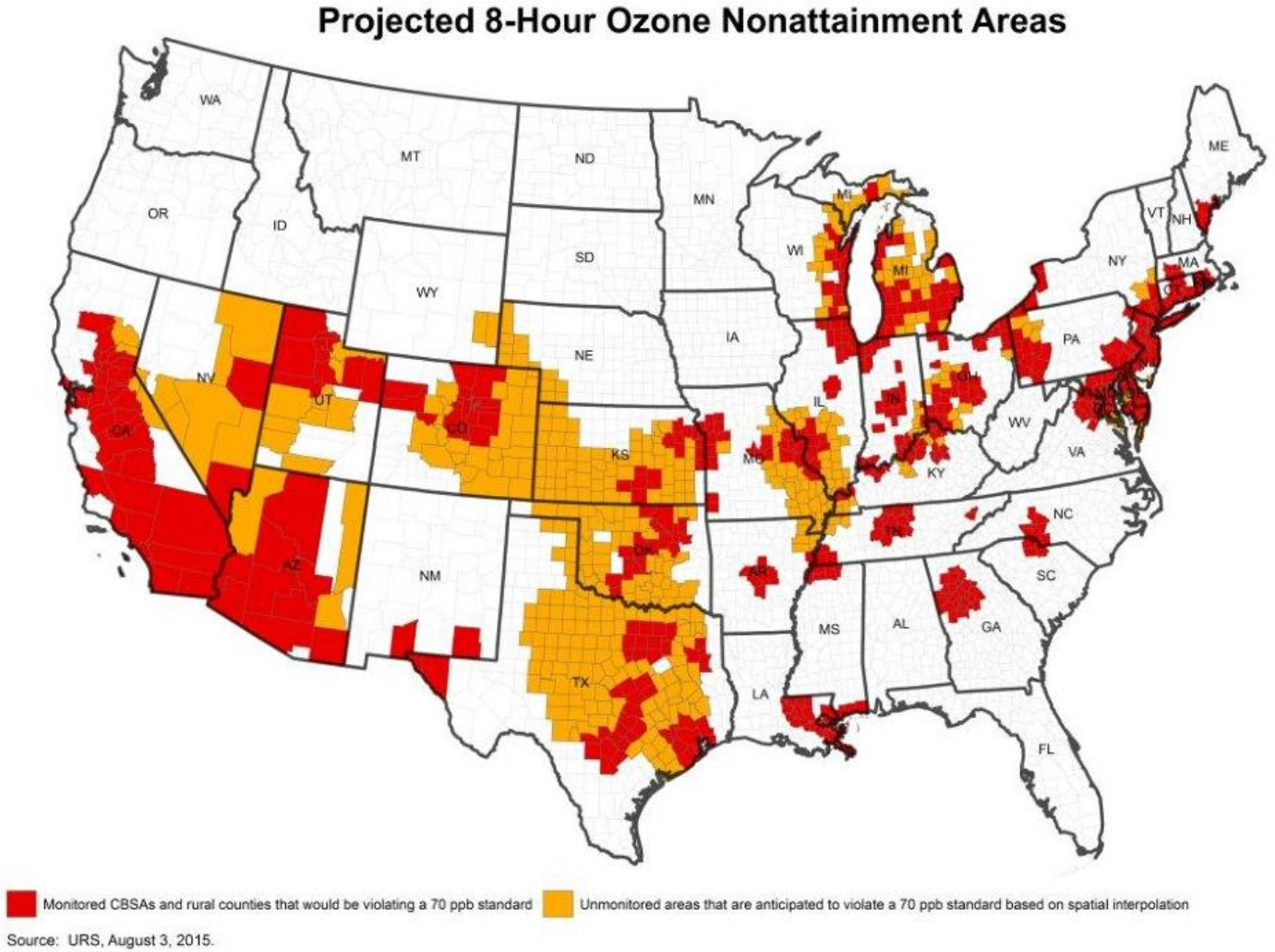
Those that:

1. the emissions of which may be reasonably anticipated to endanger public health and welfare; and,
2. the presence of which in the ambient air results from numerous and diverse mobile and stationary sources.

- Primary standards are set to protect public health.
- Secondary standards are set to protect vegetation and buildings.

General Terminology, Practices, and Principles of Environmental Restoration: Air Quality

Title I: NAAQS



General Terminology, Practices, and Principles of Environmental Restoration: Air Quality

Title I: NAAQS

National Air Quality Framework:

- At the federal level, NAAQS are set to maintain an adequate standard of public health.
- At the state level, state implementation plans (SIPs) are developed by state environmental protection agencies to demonstrate how the NAAQS will be achieved.
- At the level of the pollution emission source, plant operators must obtain Title V permits from state environmental protection agencies subject to the emissions limitations spelled out in the SIP. Auto manufacturers must meet technological control standards of Title II.

General Terminology, Practices, and Principles of Environmental Restoration: Air Quality

Title V: Permitting

Requires all major sources (100 tons per year or more) of air pollution to obtain an operating permit. A Title V permit grants a source permission to operate. The permit includes all air pollution requirements that apply to the source, including emissions limits and monitoring, record keeping, and reporting requirements. It also requires that the source report its compliance status with respect to permit conditions to the permitting authority.

Euharlee, Georgia

General Terminology, Practices, and Principles of Environmental Restoration: Air Quality

Title V: Permitting

New Source Review (The NSR Program)

New major stationary sources of air pollution and operators of major stationary sources undergoing significant modifications are required by the Clean Air Act to obtain an air pollution permit before commencing construction. This process is called new source review (NSR) and is required whether the major source or modification is planned for an area where the national ambient air quality standards (NAAQS) are exceeded (nonattainment areas) or an area where air quality is acceptable (attainment or maintenance areas). Permits for sources in attainment areas are referred to as prevention of significant air quality deterioration (PSD) permits; while permits for sources located in nonattainment areas are referred to as nonattainment NSR (NNSR) permits. The entire program, including both PSD and NAA permit reviews, is referred to as the NSR program.

General Terminology, Practices, and Principles of Environmental Restoration: Coastal Zone Management

Coastal Zone Mgt Act of 1972

The Coastal Zone Management Act (CZMA) provides federal funding, guidelines, and technical help for 30 coastal and Great Lakes states that voluntarily agree to draft plans and manage development in their coastal areas.

Plans must include:

1. the boundaries of the zone,
2. land and water uses permitted in the coastal zone,
3. an inventory of flood zones, habitats of rare or endangered species, and areas best suited for development,
4. an inventory of public access and plans for public land acquisition, and
5. a provisions for coordination of federal, state, and local agencies in administering federal water and air pollution laws.

CZMA is administered by the National Oceanic and Atmospheric Administration (NOAA).

General Terminology, Practices, and Principles of Environmental Restoration: Landfills/Water Supply

Resource Conservation and Recovery Act of 1976 (RCRA)

- The Act is intended to protect water supplies from the disposal of solid waste and empowers EPA to set minimum national standards for states to follow in issuing permits for new, existing, or expanded landfills – public or privately operated.
- RCRA regulates the location of landfills, operating procedures, the design of liners, and the monitoring of groundwater.

Hickory Ridge Landfill Solar Energy Cover, DeKalb County

General Terminology, Practices, and Principles of Environmental Restoration: Superfund

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, CERCLA (The Superfund Law)

- Requires the EPA to identify hazardous waste sites and develop a National Priorities List of the most polluted sites
- Established a “superfund” of $1.6 billion to clean up abandoned sites
- Established a “strict liability” provision making all current and previous owners of a site liable for clean up costs, regardless of knowledge of waste, and a “joint and several liability” clause permitting EPA to require a limited number of owners to fund clean-up if others cannot be found
- CERCLA includes no funds for victims of hazardous waste pollution

General Terminology, Practices, and Principles of Environmental Restoration: Earthquakes

National Earthquake Hazards Reduction Act of 1977

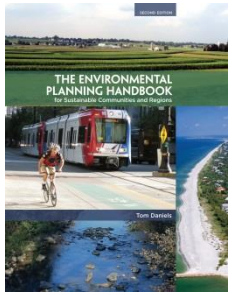
- Established the National Earthquake Hazards Reduction Program under the Federal Emergency Management Agency (FEMA)
- Intent of the Act is to:
  1. identify zones of earthquake hazards,
  2. develop earthquake resistant design and construction standards,
  3. develop emergency preparedness and response plans for earthquake events, and
  4. educate the public about earthquake hazards.

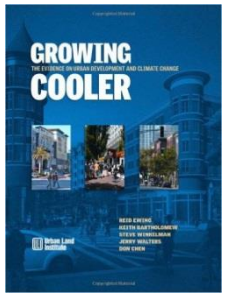
National Palace, Port au Prince, Haiti, 2010

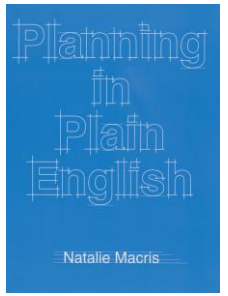
Recommended Reading List…

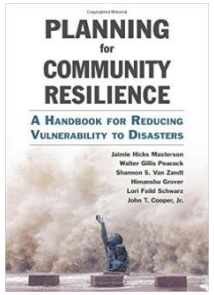
BOOKS

- Daniels, Tom. *Environmental Planning Handbook for Sustainable Communities and Regions* (2nd ed.). Chicago: APA Planners Press. 2014.
- Ewing, Reid, et. al. *Growing Cooler*. Chicago: Urban Land Institute. 2007.
- Marcus, Natalie. *Planning in Plain English, Writing Tips for Urban and Environmental Planners*. Chicago: APA Planners Press. 2000.
- Masterson, Jamie Hicks, et. al. *Planning for Community Resilience: A Handbook for Reducing Vulnerability to Disasters*. Washington, D.C.: Island Press. 2014.









Recommended Reading List…

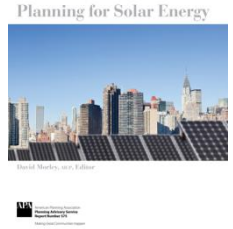
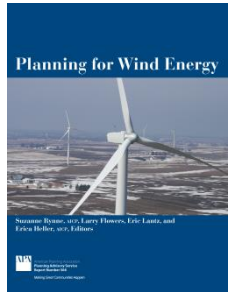
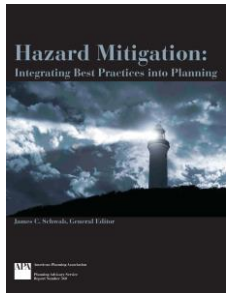
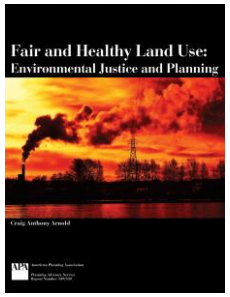
APA PLANNING ADVISORY SERVICE (PAS) REPORTS

576. *Planning for Post-Disaster Recovery: Next Generation*. James C. Schwab, AICP. 2014.

575. *Planning for Solar Energy*. David Morley, AICP (ed.). 2014.

571. *Green Infrastructure: A Landscape Approach*. David C. Rouse, AICP, and Ignacio F. Bunster-Ossa. 2013.

566. *Planning for Wind Energy*. Suzanne Rynne, AICP, Larry Flowers, Eric Lantz, and Erica Heller, AICP (eds.). 2011.

560. *Hazard Mitigation: Integrating Best Practices into Planning*. James C. Schwab, AICP (ed.). 2010.

549/550. *Fair and Healthy Land Use: Environmental Justice and Planning*. Craig Anthony Arnold. 2007.