Sustainability Basics

Definitions – Three “Rs”

Reduce, Reuse and Recycle - the basis for sustainability

- Reduce - reduction in the use of resources by providing energy efficient systems and water conservation measures
- Reuse - the reuse of resources such as renovating an old building as opposed to tearing them down to build another decreases resource demand
- Recycling – use of recycled materials decreases new resource demand and keeps resources out of landfills

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Definitions of Sustainability

The capacity to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the ecosystems and natural resources.

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Definitions of Sustainability

National Academy of Science sees 1979 as the year of the earth's "tipping point" – that is, the year when the consumption of natural resources exceeded the earth's ability to replenish them. While there is a multiplicity of collective and individual solutions, a culture of sustainability offers significant hope that humanity can take action to address its overuse of resources

Sustainable Cannon Beach

An outline for a Sustainable City

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Sustainable Thinking

- Think outside the box
- Have a beginners mind
- Explore new ideas and grow old ideas
- Expand and enhance existing programs and sustainable practices
- Utilize category thinking (or systems thinking) – pick a category to go green in and focus on that one category until you are complete and then move on to the next.
- Become familiar with concepts but adjust the recipe to meet your needs
- ***Consider ordinances for new construction, new development and businesses***

Sustainability Community Basics

- Sustainable Energy Use
- Sustainable Transportation
- Sustainable Infrastructure
- Sustainable Economics
- Sustainable Natural Resources
- Sustainable Solid Waste Management

Sustainable Energy Use

- Street and Site Lighting
  - Minimize light pollution
  - Conserve energy
    - Consider solar lighting
    - Consider lighting controls
- Vehicles
  - City operations – use energy efficient or alternative energy vehicles
  - Provide and encourage public transportation
- Facilities
  - Blue Sky Renewable Energy Program (Wind power)

Building Facts

Buildings account for:

- 36% of the total energy use in the U.S.
- 65% of the electricity consumed in the U.S.

Building Facts

Buildings generate:

- 30% of the greenhouse gas emitted in the U.S.
- 39% of landfilled waste in the U.S.
  - 95% of which is recyclable

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Building Facts

Buildings use:

- 12% of the potable water withdrawn in the U.S.
  - 15 trillion gallons / year
- 30% of all raw materials, including
- 25% of timber harvests

Sustainable Transportation

- Parking
  - Provide parking that is strategically located to encourage walking
- Vehicles
  - Use energy efficient or alternative energy vehicles for City business
- Trails
  - Provide access through town and into natural areas
- Bicycle Access
  - Maximize bicycle access through town
  - Minimize potential vehicular conflict

Sustainable Infrastructure

- Stormwater
  - Minimize pervious surfaces
  - Treat stormwater and monitor water quality
  - Maintain roadway catch basins
  - Encourage private property owners to maintain catch basins that trap oil
  - Revegetate with natives
  - Use strong erosion control and require same of private properties

Sustainable Infrastructure

- Wastewater Treatment Facility
  - Water quality monitoring
  - Natural resource benefit (bird viewing opportunities – Oregon Birding Trail)
  - Reclaim unused land area

Sustainable Infrastructure

- Water System
  - Practice water conservation and encourage in private residence and businesses
  - Protect water supply (watershed)
  - Monitor water quality

Green Streets

- Surface vegetated facilities (planters and swales) slow, treat and infiltrate stormwater at the source
- Attractive streetscapes with park-like elements for neighborhoods
- Urban greenways to connect neighborhoods, parks, recreation facilities, schools and main streets
- Incorporated into pedestrian and bicycle safety enhancements

SEA Streets in Seattle: Two years of monitoring show that reduced total volume of stormwater leaving the street by 98% for a 2-year storm event

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Site Development

- Use strong erosion control during construction
- Orient site design to maximize solar to buildings
- Protect existing trees and native vegetation
- Minimize area to be disturbed
- Replant disturbed area with native vegetation
- Pervious surfaces and stormwater treatment swales *where possible* and when they will not create geologic problems by concentrating water in unstable ground
- Recycle existing materials when feasible
- Existing concrete or pavement can be crushed and reused for road base

Site Development

Rain Garden

- Design transportation to minimize fuel use and accommodate pedestrian and bicycle use
- Avoid creation of heat islands and consider roof top landscaping
- Avoid creating light pollution by providing the minimum site lighting required for safety and security purposes
- Use landscaping that reduces water use and lawnmower use (Gas lawnmowers are an uncontrolled carbon emission source)
- Treat stormwater runoff to minimize pollution of nearby water bodies

Sustainable Economics

- Green business certification
- But domestic products – as local as possible
- Grow a green marketplace
- Tourist – take home value in the education and exposure to staying in a sustainable community
- Infrastructure value
- Natural resource value

Sustainable Natural Resources

- Haystack Rock Awareness Program
- Ecola Park
- Ecola Creek Forest Reserve
  - Public access and use
  - Education component

Sustainable Solid Waste Management

- Community Recycling
  - City operations
  - Businesses
  - Residences
- Reuse practices
- Reduction of material consumption
- Educational component

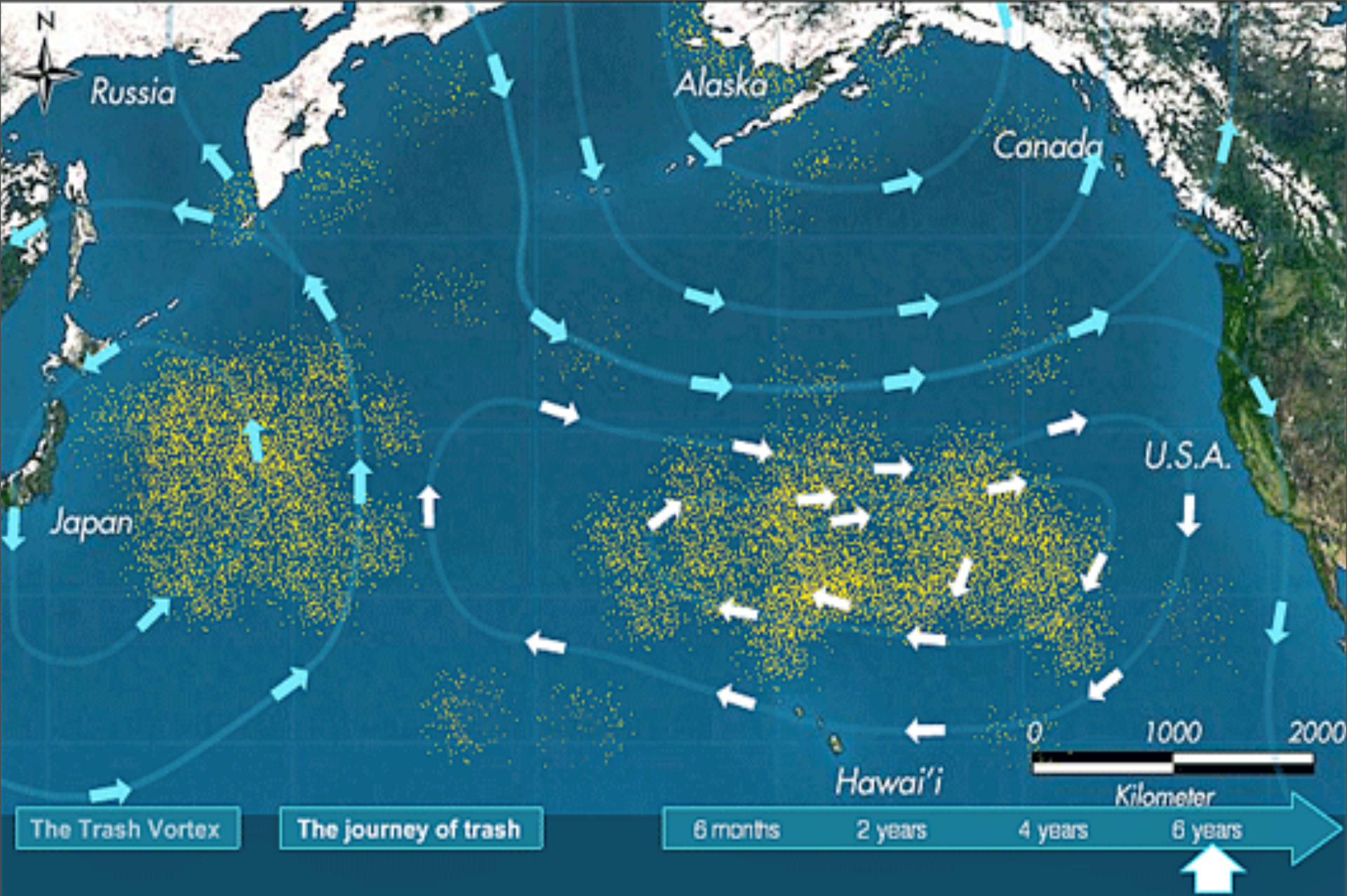
Recycling Opportunities

- Asphalt Pavement
- Carpet
- Ceiling Panels
- Concrete & Rubble
- Corrugates Cardboard
- Drywall
- Electrical Wire
- Fluorescent Lighting
- Gravel
- Hazardous Waste & Paint
- Land-clearing Debris
- Metals
- Pesticides
- Plant Salvage
- Plastics
- Plumbing Materials
- Roofing
- Sod & Soils
- Thermostats
- Vinyl Siding
- Windows
- Wood

Plastics

- Invented in the late 1800's
- Heavy use started in about 1950, post WW II
- Have proven to be very bad for the environment
- We need to move toward the exclusive use of biodegradable plastics
- The use of plastic should be minimized
- Plastics give off harmful emissions, especially in warm environments

PLASTICS -AMERICAN AS APPLE PIE



The animation shows how trash (orange dots) entering the sea from land along the Pacific coast is caught by the gyre. On its way the trash is concentrated and eventually ends up in one of the two shown vortices. As a consequence, in these areas, the surface water contains six times more plastic than plankton biomass (dry weight).

Santa Monica Sustainable City Plan

- Resource Conservation
- Environmental and Public Health
- Transportation
- Economic Development
- Open Space and Land Use
- Community Education and Civic Participation
- Human Dignity

Sustainability Links

- City of Santa Monica Office of Sustainability and the Environment (http://www.santa-monica.org/epd/)
- Blue Planet Foundation (Alternative Energy) (http://www.blueplanetsummit.org/)
- Guiding Principles of Sustainable Design (http://www.nps.gov/dsc/dsgncnstr/gpsd/)
- Green Infrastructure - Sprawl Watch Clearinghouse (http://www.sprawlwatch.org/greeninfrastructure.pdf)
- Preparing for Climate Change – King County (http://cses.washington.edu/db/pdf/snoveretalgb574.pdf)
- Puget Sound Sustainable Development Center Business Plan (ftp://dnr.metrokc.gov/dnr/library/green/BusinessPlanSDCenter.pdf)

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The End