

classification system with four classes: tree canopy, turf, bare soil and impervious surface.

When it rains, rank the four classes of land cover classification with respect to the amount of rainfall that would infiltrate into groundwater from “1” being the most infiltration to the least infiltration “4.” (Answer, canopy cover, turf, bare soil, and impervious.)

Discuss the implications of recent land cover changes in a community. Has there been an increase in runoff? What are the consequences of increased runoff? (flooding, poor surface water quality from sediment, changes in stream temperatures, decrease in groundwater resources/levels, etc.)

Geographic Information System (GIS) and Global Positioning System (GPS) enables participants to use Forest Service software for evaluation purposes. Digital aerial photos from PA MAP (www.dcnr.state.pa.us/topo-geo/pamap/index.aspx) or Google Earth (earth.google.com) image is used to identify trees. A software package quantifies the benefits of trees for carbon sequestration, air pollutant uptake, stormwater management, and local climate benefits.

Activity 3:

Tools to Protect Land Resources

Summary: Land is developed for housing, commercial and industrial needs. Roads, parking lots and other forms of transportation need space for the movement of people and goods. As land is developed, communities need to consider protection of natural space as a prime concern. Communities recognize the value of farmland, greenways and natural wild areas. There is an economic price tag that can be placed on protection of open space and must be part of the consideration as communities grow and develop. There is a way to

develop sustainable communities, maintaining farmland, wilderness and unfragmented tracks of land for wildlife migration and human enjoyment. Protecting green space is critical to the health of future generations and for the health of the environment.

Questions: What is the value of protecting open space for a community? What are the tools that will protect land? How can they be implemented?

Preparation

- Divide participants in work groups, following procedures for working in groups.
- Prepare the Declaration of Rights (p 154) for each participant.
- Prepare “Development versus Preservation Worksheet” (p 155) for each group.
- Prepare copies or transparency of both The Last Straw artwork (p 156) and Lancaster County Farmland Photos (p 157).
- Prepare and distribute copies of the Last Straw Worksheet (p 158).
- Prepare information sheets on each area of land preservation:
 - Natural Areas (pp 159-160)
 - Farmlands (pp 161-162)
 - Land Trusts and Environmental Advisory Councils (pp 163-166)
 - Greenways (pp 167-169)
 - Land Recycling (pp 170-171)
- Prepare copies of Community Planning Worksheet (p 172).
- Prepare Land Bingo Sheets (p 173) for each participant.

Procedure

1. DCNR is entrusted to protect the natural resources of Pennsylvania. We are to manage them for the future generations. Read the Declaration of Rights from the Pennsylvania Constitution.

Discuss the importance of the Pennsylvania Constitution. Discuss the importance of the Declaration of Rights. What does it mean to different groups in a community?

In the natural world, everything is interdependent. As the landscape is changed to a network of roads, sewers, parking lots, and roof tops, many parts of the environment are affected. Nature's important cost-free services are taken for granted and abused, or destroyed. Local biodiversity is decreased. Air and water quality are diminished.

2. It is important to note that residential development costs a community much more in increased municipal and school district services than agricultural or open space uses. The following is a mathematical problem for you to compute and determine your own assessment.

We will compare the cost of converting a 100-acre farm to residential use versus the cost of protecting it from development through a conservation easement. A conservation easement is a permanent legal agreement between a landowner and government or a land trust which permanently restricts a property's uses to protect its conservation value. An individual continues to own the property but accepts money to restrict its use. Owners permanently give up agreed upon rights. Future owners would be bound by this agreement.

Distribute the Development vs. Preservation handout to each participant. The figures used are from the Upper Perkiomen School District in southeastern Pennsylvania. Allow participants time to do the mathematical exercise.

3. Analyze and discuss the results. The shortfall of the development is \$322,311 per year. The cost of the easement purchase is \$434,900 which has a 1.3 year break-even period. The shortfall is an ongoing, permanent expense that will tend to increase over time as education, energy, and transportation costs escalate. It does not reflect the capital costs of new school construction or increased municipal costs. By closely examining the true costs of development, community planners can save both money and quality of place.

A community could decide to purchase the property outright. When owners convey property in "fee simple" acquisition, they transfer all ownership rights. A fee simple acquisition of the farm would save the community money but it would take longer to break even on the purchase. Easements are less expensive because not all the ownership rights are being acquired.

4. Artists have captured the landscapes and communities throughout history. Pennsylvania artist Bruce Johnson, born in Allentown, currently resides in Dingman's Ferry, Pennsylvania. Bruce Johnson is highly recognized for his whimsical pen and ink "Statements." These humorous, often outlandish, and always penetrating statements about the human condition have quickly become the prized possessions of collectors everywhere. "Statements" are available in hundreds of galleries across the United States as well as several foreign countries.

Bruce Johnson has graciously and generously granted permission for "The Last Straw" to be used as an educational addition for PA Land Choices. We thank Mr. Johnson for granting permission with restrictions that it only be used for educational use and would not be used for any commercial venture. We respect this request. To learn more about Bruce Johnson and his work visit www.bjohnsonltd.com.

Participants will examine the artwork of Bruce Johnson called “The Last Straw.” The activity provides an opportunity to identify the artist’s rendition of the plight of agricultural lands and the invasion of sprawl and development. Participants are to work in groups, examining the artwork by Mr. Johnson’s “The Last Straw” and discuss the questions outlined on the worksheet.

Participants are to share their comments in large group discussions. Compare the artwork to the Lancaster County farm photo. Describe the similarities. What are the possibilities of future land use surrounding the Lancaster County farm in the next 20 years? What choices could the community enact to protect the agricultural character of the area or to manage future community growth?

5. By maintaining patterns of large woodlands and wetlands (nodes) and protecting wooded stream valleys (corridors), significant natural functions are protected.

Development doesn’t have to destroy the valuable nodes and corridors. Planning and regulating can identify and protect these valuable areas. Tools such as the conservation easement we discussed previously and new terms that define different types of green space. Such tools will help communities and individuals protect valuable natural areas not only for wildlife but for the valuable services they provide, the increase in land value and the quality of human life for future generations.

6. In this activity we will look at some of the tools involved in specific areas of land protection. We will divide into five groups:

- Natural Areas
- Farmlands
- Land Trusts and Environmental Advisory Councils
- Greenways
- Land Protection/Land Recycling

Each group will review information sheets relating to land protection. The task is for each group to look at the map of their community or use the communities we addressed in Lesson 2: Keystone Township. Using your knowledge about land protection, each group will present recommendations describing the tools and terms they learned about in their group research. Each group will justify their recommendations. Use the Community Planning Worksheet.

Using as many tools as you find appropriate, you will present your recommendations to the Planning Commission through visual representation. Be creative in describing your implementation plan.

Groups will describe all tools included in their readings. Distribute Protecting Land Bingo Worksheet (included) to each participant. As the group is reviewing the strategies, participants can jot down descriptions of the different terms for future reference.

7. Discussion: What impact does unplanned development have on the natural resources and agricultural lands in Pennsylvania? How does unplanned development impact wildlife and future generations? What is an Environmental Advisory Council and how does it help a community? What planning tools did we use to protect land for future generations?

Assessment and Evaluation

- 1. What are the important values of natural resources?*
- 2. Develop an action plan for your own community. What actions will protect land for future generations? What partners will help implement the plan? Develop an implementation strategy.*