

Land Conservation... Just for Pittsburgh.

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JUST AS PITTSBURGH REGION LANDOWNERS, businesses and city and county government are planning buildings and transportation options that are making our area increasingly “green”, Allegheny Land Trust is making land conservation decisions to keep our land green.

Development of land for homes and businesses is a constant in our future. But while it provides jobs for tradespeople and opportunities for residents, it adds pressures to fragile land and an already overburdened infrastructure. Strategic conservation of fragile lands and development plans that protect these lands while preserving natural topography avoids issues such as landslides, sewage overflow into our rivers and streams and reduced air quality before they even become problems.

PROTECTING OUR STEEP SLOPES



Disturbing slide prone Pittsburgh Red Beds and altering the hydrology of this site are two possible causes of the Kilbuck landslide.

Development projects require moving soil—in some cases millions of tons of soil—and sometimes all the vegetation from a site in order to grade the terrain and build the development as planned. The steep slopes of our region exist because they have found their own balance of a combination of highly erosive poor soils and underlying rocks. Because of their composition they are naturally unstable, often held in place only by the vegetation growing on the surface. In addition, the Pittsburgh Red Beds, a clay layer that is found in many municipalities, are notoriously slide prone and naturally given to mass slumping. When either of these unstable types are disturbed by grading or clear cutting of the vegetation that helps to stabilize them, the fragile equilibrium that they have reached over millennia is altered and the result can be catastrophic.

Removing dense woodlands can also destabilize slopes and change the hydrology, or flow of surface and groundwater, of a site. Mature trees and understory layers of vegetation act like skin protecting the soil from washing away when it rains. The tree trunks, branches, leaves and ground cover can intercept up to 76% of the annual precipitation, and the root structure helps to hold the slope in place.

When the vegetative layer is removed, suddenly 100% of the rainfall now reaches the unprotected ground. Most of this rain rapidly runs off the site carrying with it topsoil and other sediments that clog municipal storm pipes and reduce the carrying capacity of streams, which can increase flood frequency. Some rain water finds its way into the ground, which in most cases is good—unless the underlying geology is slide prone. In this case the water acts like a lubricant that can trigger the layers of a slide prone slope to move or fail.

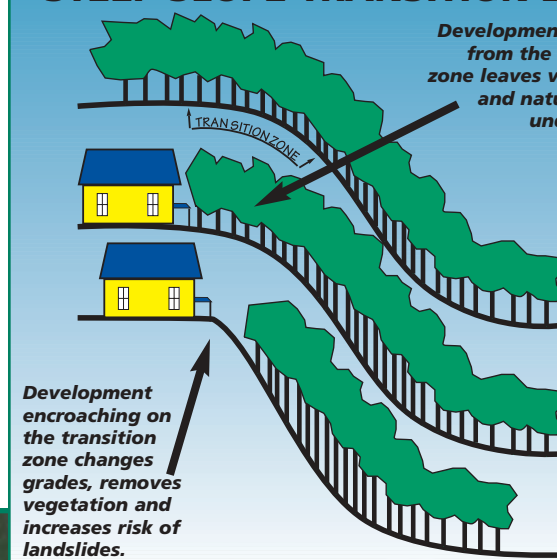
Woodlands also serve to absorb carbon and trap particulates which helps maintain air quality. In a region struggling to meet air quality standards, a comprehensive effort to protect woodlands should be a high priority.

Where possible, developers should work closely with the natural lay of the land and preserve as much woodland as feasible, and compensate for any disturbance or impervious surfaces in a way that doesn't change the hydrology of the land.



Tree removal and grading too close to the ridgeline caused a serious landslide exposing building foundations. Walls are being built in an attempt to stabilize the site, and black plastic being used to prevent water from further saturating the soils. This landslide scar will take decades to heal.

STEEP SLOPE TRANSITION ZONE



PROTECTING OUR RIDGELINES

Perhaps the most vulnerable landscape feature in our area today is the ridgeline. Ridges are very desirable development sites because they can offer commanding views of meandering river and stream valleys and sometimes distant and dramatic views of Pittsburgh.



Good example of development set back from ridge and for the most part maintaining the tree line.

However, as desirable as they may be, developing the ridgeline has its risks. The ridge is the transition zone between the flatter stable ground and the less stable steep slope. When this sensitive transition zone is

disturbed by grading and clear cutting of vegetation the risk of that slope sliding increases, just like the steep slope outlined above.

When a slide occurs the community may acquire expensive repairs—the City of Pittsburgh has budgeted between \$200,000 and \$550,000 annually over the past four years for landslide restoration. Blocked railroad lines and highways and other forms of property damage or losses can also occur.

Municipal codes should strictly manage ridgeline development with setbacks from the edge of steep slopes and protection of woodlands that define the ridgeline and stabilize the transition zone.

The aesthetic impact of ridgeline breeching can be judged by the beholder. To someone viewing the ridgeline, a filtered view of a ridge top development through the trees is more attractive than buildings and retaining walls precariously perched atop a barren treeless hillside.

PROTECTING OUR WATERWAYS

Unlike landslides and erosion, water pollution isn't easily seen by the general public, and most people associate water pollution with industrial dumping of chemical substances, not even realizing that the last but biggest problem is our own ancient sewer system used every day.

Allegheny County is being challenged with one of the nation's largest public sewer improvement efforts. This is due to the 414 combined sewer overflow (CSO) structures and an estimated 150 sanitary sewer overflow structures in the county which are spilling billions of gallons of raw sewage into our waterways. As little as one-tenth inch of rain can cause raw sewage to overflow. Therefore, local, state and federal regulatory agencies have taken action and are mandating communities repair their systems, which will cost more than 3 billion dollars. Tap-in restrictions have occurred in some areas of the county. Yet, new development is increasing the volume of stormwater and sewage exacerbating the problem in areas where the system is already overloaded.



Ridge top development provides dramatic and distant views of our region's wooded hills, ridgelines, and meandering river valleys. Is this development trend killing the goose that laid the golden egg?

This especially needs to be addressed by communities where development is a growing trend, because pollutants dumped into a waterway in one community flow into the next without stopping, affecting people who have no control over the source.

STRATEGIC LAND CONSERVATION

Development without consideration of the land's natural assets and structures can increase the risk of landslides, the frequency and height of flood events and the amount of raw sewage in our waterways. One solution to all the issues above is strategic land conservation. Allegheny Land Trust is working hard to conserve the land that helps address these problems and we are also working hard to position land conservation as a solution in the minds of local and county decision makers.

Strategic Conservation Practices to Protect Our Ridgelines, Our Hillside and Our Waterways