Land-Use Conflict Identification Strategy
Using GIS to develop future land use scenarios
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Steep slopes. Floodplains. Prime farmland. Water + sewer service. These are just some characteristics that make land suitable for certain land uses and unsuitable for others, all of which are identifiable through GIS. How can communities use this information to develop future land use scenarios?

One method, developed by Margaret Carr and Paul Zwick at the University of Florida, is called “The LUCIS Model”. LUCIS stands for “Land-Use Conflict Identification Strategy”. The LUCIS model identifies areas most suitable for specific land uses as well as where land uses could potentially conflict. It is the areas of potential conflict where LUCIS can help to build multiple future land use and development scenarios, guided by different policy decisions.

This model has set the framework for the strategy in developing future land use scenarios, as the Lehigh Valley Planning Commission (LVPC) updates the Southwestern Lehigh County Multimunicipal Comprehensive Plan (PLANSWL). The model will identify opportunities and conflicts between future land uses including agriculture, urban development and conservation. The LVPC can then apply different policy decisions to the conflict areas, creating multiple future land use scenarios for Southwestern Lehigh County.

The next step involves identifying areas that are suitable for multiple land uses. These areas are the areas of competing land uses or areas in “conflict”. By applying the LUCIS methodology, it is possible to identify all of the possible combinations of land use suitability. The various combinations can be addressed in different ways to develop future scenarios. This application of the rules can be thought of as applying “rock, paper, scissors” to the different combinations.

In this case, any conflicts would follow the rules above: Natural Features “beat” both Agriculture Preservation and Development, and Agriculture Preservation “beats” Development. This scenario would reflect a community’s strong desire to conserve natural resources. The rules can be customized to specific geographic areas or customized based on specific combinations. This is ultimately how a future land use plan can be developed using the LUCIS model as a framework.