

2.4 CONSERVATION DESIGN

Conservation design, also known as open space design or cluster development, includes laying out the elements of a development project in such a way that the site design takes advantage of a site's natural features, preserves the more sensitive areas, and identifies any site constraints and opportunities to prevent or reduce impacts. Techniques include:

- Preserving undisturbed areas;
- Preserving stream buffers;
- Reducing clearing and grading;
- Locating projects in less sensitive areas;
- Reducing front and side yard setbacks;
- Aggregating shared open space rather than individual yards; and
- Clustering built features so as to minimize the amount of disturbed area.

As mentioned above, these natural conservation areas are typically identified through a site assessment. Depending on the site, an assessment can be performed by professionals on the project development team (engineers, landscape architects or planners for example). However, to fully examine a site and its ecological conditions which will influence drainage design, more in-depth site analysis should be done by hydrologists, ecologists, biologists or other professionals with site assessment experience. These professionals will be able to test infiltration rates, assess soil type and quality, and be able to properly identify existing vegetation. In many cases, a geotechnical report may also be required to assess depth to groundwater, among other factors. When done before the concept plan phase, the identification of sensitive features outlined above and the designation of conservation areas can be used to guide the layout of a project. For more guidance on conducting a site assessment, visit the Sustainable Sites Initiative™ guidelines, at <http://www.sustainablesites.org/>.

Conservation subdivisions typically incorporate smaller lot sizes to reduce overall impervious cover while providing more undisturbed open space and protection of water resources. This approach concentrates structures and impervious surfaces in a compact area in one portion of the development site in exchange for providing open space and natural areas elsewhere on the site. Typically, smaller lots and/or nontraditional lot designs are used to cluster development and create more conservation areas on the site.

Conservation developments have many benefits compared with conventional commercial developments or residential subdivisions. They can:

- Reduce impervious cover and thus reduce runoff volume and rate;
- Reduce development and construction costs by reducing grading, landscaping, and the need for expensive stormwater conveyance infrastructure;
- Place development above flood levels and potential stormwater hazard areas;
- Protect floodplains, tidal waters, and wetlands;
- Enhance the community experience;
- Enhance access to natural amenities;
- Enhance the sense of place and character; and
- Provide a safer pedestrian environment.

Along with reduced imperviousness and its associated benefits, conservation designs provide a host of other environmental benefits lacking in most conventional designs. They can prevent encroachment on conservation and buffer areas. They create community-wide interconnected networks of protected meadows, fields and woodlands. They can help provide larger areas of contiguous habitat in order to protect farmland and other natural resources while still allowing the maximum number of residences under current community zoning. As less land is cleared during the construction process, alteration of the natural hydrology and the potential for soil erosion are also greatly diminished. Perhaps most importantly, open space design can preserve 25 to 50% of development sites in conservation areas that would not otherwise be protected.

Conservation developments can also be significantly less expensive to build than conventional projects. Most of the cost savings are due to reduced infrastructure cost for roads and stormwater management controls and conveyances. Furthermore, developers find that these properties often command higher prices than those in more conventional developments because of the enhanced quality of life they provide. Several studies including one in Texas estimate that residential properties in open space developments garner premiums that are higher than conventional subdivisions and moreover, sell or lease at increased rates (Crompton 2007).

Once established, common open space and natural conservation areas must be managed by a responsible party able to maintain the areas in a natural state in perpetuity. Typically, these conservation areas are protected by legally enforceable deed restrictions, conservation easements, and maintenance agreements.

Preservation of natural areas and the use of conservation designs can help preserve pre-development hydrology of sites and aid in reducing stormwater runoff and pollutant load. Undisturbed vegetated areas also promote soil stabilization and provide for filtering and infiltration of runoff. Maintaining existing vegetation can be particularly beneficial to sites with floodplains, wetlands, stream banks, steep slopes, critical environmental features, or where erosion controls are difficult to establish, install, or maintain.

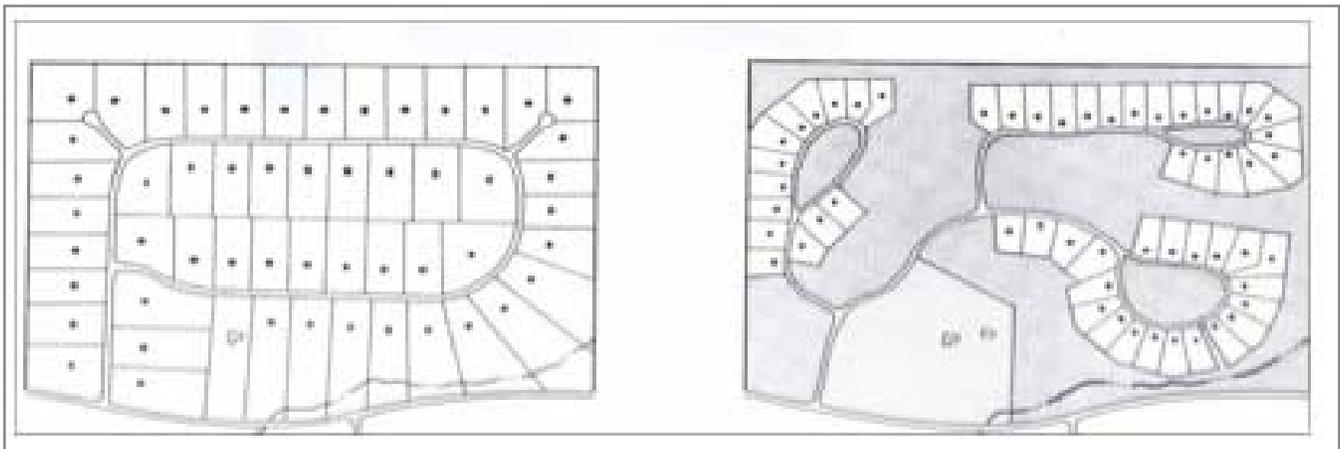


Figure 2-2: Conventional design (left) and conservation design (right). (Photo courtesy of Town of Pine Plains, NY)