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Conservation subdivision design:

Considerations on common perceptions

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This publication clarifies the principles of designing, developing, and permitting conservation subdivisions by addressing common perceptions surrounding residential development.

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Conservation subdivision design (CSD) is a site-planning approach that clusters residences in smaller lots to reserve a significant portion of a subdivision for common open space. CSD is promoted as a superior alternative to conventional residential development in suburban, exurban, and rural areas and as mutually beneficial for residents, developers, local governments, and the environment. Despite these advantages, conservation subdivision development lags behind conventional subdivision development. Moreover, some conservation subdivisions do not meet ecological conservation expectations. This publication clarifies the principles of designing, developing, and permitting conservation subdivisions by addressing common perceptions surrounding residential development.

Perception: Developing a conservation subdivision creates a greater burden on schools and roads.
Not true!

The principle behind CSD is density neutrality (Arendt 1996), which means that the total number of residences is the same for a conservation subdivision versus a conventional subdivision. For example, both Christopherson Fields conservation subdivision (figure 1) and Hideaway Acres subdivision (figure 2) have 22 lots. Both subdivisions are located in the town of Merton, Wisconsin. Each subdivision is designed to accommodate 22 single family homes—in other words, 22 households. There will be no additional burden on the community's schools and roads because Christopherson Fields is designed as a conservation subdivision as opposed to a conventional subdivision.

To promote the construction of conservation subdivisions, some community-based ordinances provide density bonuses, which allow developers to build additional units in a subdivision. Local governments differ in the ways they determine density bonuses. Some jurisdictions will provide a density bonus based on the number of units proposed for the subdivision whereas some will provide a density bonus if the proposal meets certain criteria such as the preservation of environmentally significant areas (Göçmen 2013). Yet, density bonuses are not commonly granted. When implemented, density bonuses are often limited and are not expected to cause additional burdens to schools, roads, and other infrastructure and services.

Figure 1. Christopherson Fields conservation subdivision

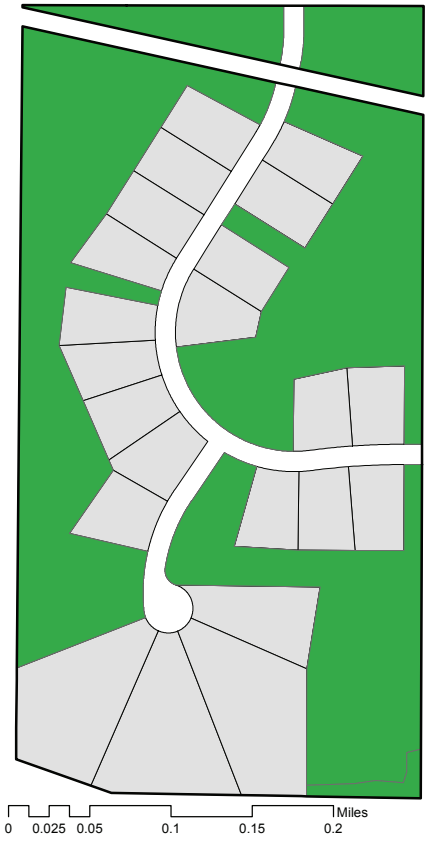
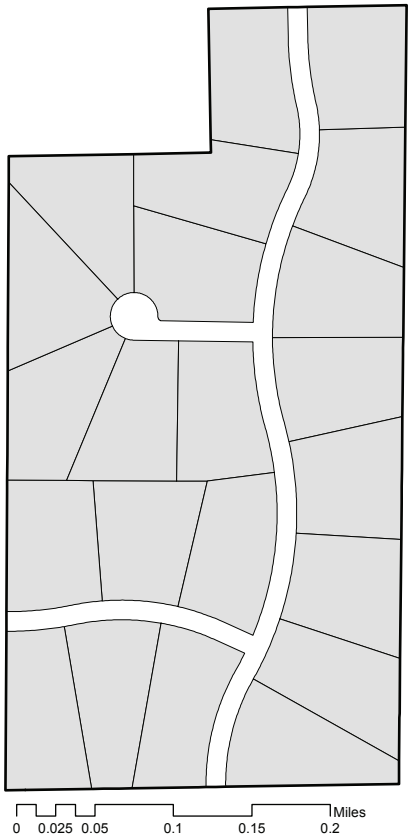


Figure 2. Hideaway Acres conventional subdivision



Perception: Conservation subdivisions result in higher densities. Mostly not true!

The design principle behind CSD is density neutrality, where the total number of residences is the same for a conservation subdivision versus a conventional subdivision. Because the residences within a conservation subdivision are clustered in smaller lots, a conservation subdivision may appear to have a higher density (and would have a higher density at the parcel scale). However, the overall density would remain the same if it were developed as a conventional subdivision.

For instance, Christopherson Fields conservation subdivision in figure 1 has an overall density of 0.29 dwelling units per acre while Hideaway Acres conventional subdivision in figure 2 has a density of 0.30 dwelling units per acre. In this example, the minor difference in density results from slightly different areas of the subdivisions (Christopher Fields is 75.08 acres and Hideaway Acres is 72.33 acres).

In the rare case when considerable density bonuses are granted for conservation subdivision projects, a conservation subdivision may result in a higher overall density than a conventional subdivision.

Perception: Developing a conservation subdivision results in fewer residential lots. Not true!

In order to maintain the gross density of a conventional subdivision, the lot sizes would be reduced in a conservation subdivision, while keeping the same number of residential lots based on the zoning code. For instance, in Christopherson Fields conservation subdivision, the average lot size is 1.41 acres (ranging from 1.01–3.55 acres), whereas the average lot in Hideaway Acres conventional subdivision is 3 acres (ranging from 2.99–3.01 acres).

Perception: It is more expensive to develop a conservation subdivision. It doesn't have to be!

Developing a conservation subdivision may have some increased expenses. Preserving natural features, for instance, can be more expensive than grading them for development (Tuttle, Enz, and Apfelbaum 2007). Conservation subdivisions typically necessitate greater design expertise partly due to community-based development requirements. For example, the developer may need to hire a landscape architect in addition to other professionals for a particular project, adding significant costs.

However, if residences are truly clustered, costs can be saved in infrastructure, due to the reduced length of necessary roads and utilities such as sanitary sewers, water, natural gas, and electricity (Tuttle, Enz, and Apfelbaum 2007). In addition, if conservation subdivisions are permitted by right, land developers will not face the financial burdens, additional steps, and time associated with permitting conditional uses (Göçmen 2013).

Finally, a well-designed conservation subdivision will likely pay off for the developer.

Perception: The profits for developers from conservation subdivisions are not as high as those from conventional subdivisions. It depends!

Subdivision open space and natural scenery add to property value, but smaller lot size typically decreases property value. Empirical evidence is mixed for price premiums as well as appreciation and absorption rates for conservation subdivisions (see Bowman et al. 2009; Hannum et al. 2012; Kopits et al. 2007; Mohamed 2006; Reichert and Liang 2007). Of these empirical studies, those conducted by R. Mohamed and C. Hannum et al. showed evidence that conservation subdivision properties sell with a price premium. R. Mohamed also found that conservation subdivision properties sell faster than conventional subdivision properties.

Perception: All common open space in a subdivision is equally valuable for wildlife. Not true!

The size, shape, configuration, and vegetation of open spaces contribute greatly to wildlife presence and movement (Beier and Noss 1998; Forman 1995; Göçmen 2014; Hostetler and Drake 2009; Lenth, Knight, and Gilbert 2006). The common open space in figure 3 is likely to provide better food, shelter, and movement opportunities than the common open space in figure 4.

If the common open spaces depicted in figures 5 and 6 were maintained with similar vegetation and land cover, the intact open space in figure 5 would provide better opportunities for wildlife to roam, find shelter, and procure food.

Figure 3. Common open space in a conservation subdivision

Figure 4. Reduced common open space in a conventional subdivision

Figure 5. Intact open space in a conservation subdivision

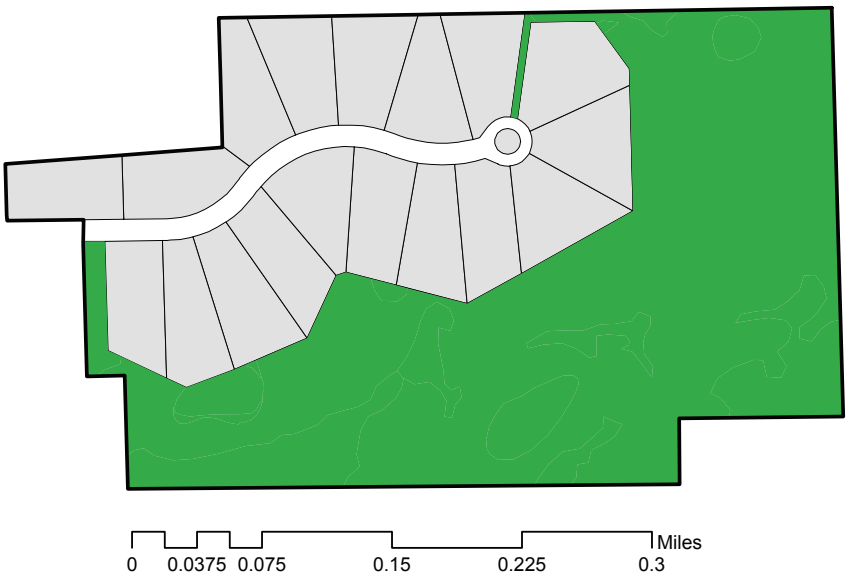
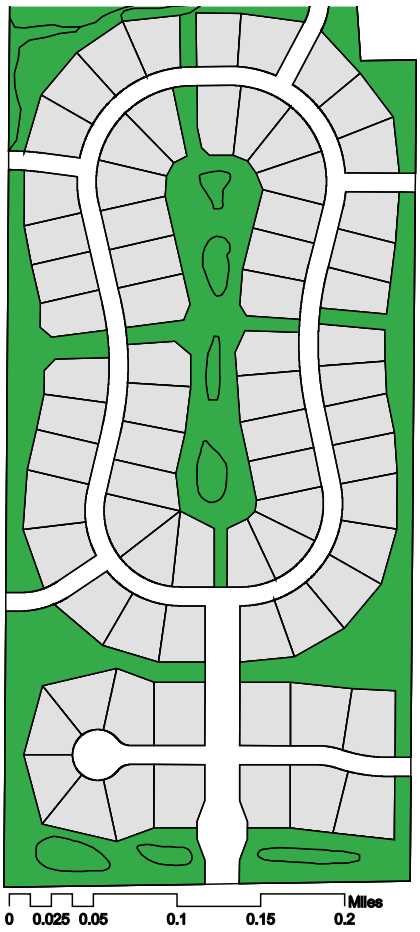


Figure 6. Scattered open space in a conservation subdivision



Perception: Smaller lots in conservation subdivisions provide fewer ecological benefits than larger lots in conventional subdivisions. Mostly not true!

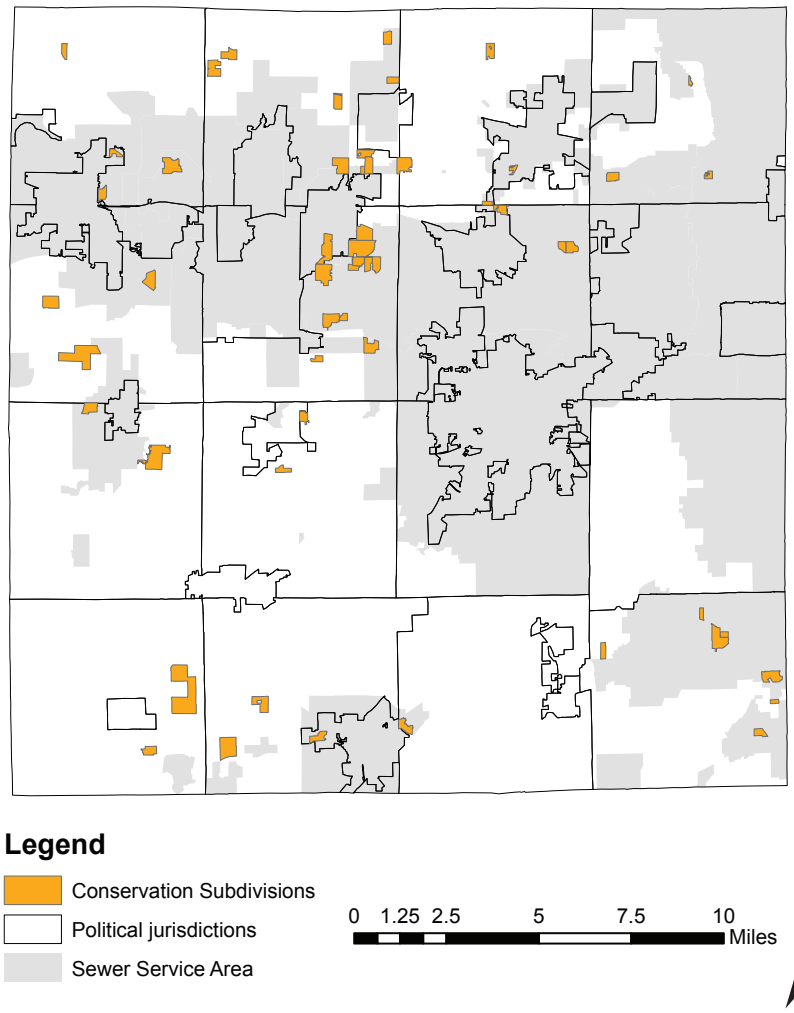
Due to the lack of community- or subdivision-based regulation, private properties are often significantly altered and lack large areas of native vegetation to encourage ecological benefits. Common open spaces in conservation subdivisions are often larger than the unbuilt portions of private lots within conventional subdivisions, are less likely to be altered, and therefore have great potential for stormwater management and wildlife vitality.

Perception: CSD can stop sprawl. Not true!

CSD uses clustering as its main design technique and is an alternative residential development approach in suburban, exurban, and rural areas. In a region that recently experienced significant land conversions in the rural–urban fringe (Conway and Lathrop 2005), a modeled effort comparing different land use policies found that the cluster-based design technique did not significantly alter the regional development.

Figure 7 illustrates conservation subdivisions in Waukesha County, Wisconsin—the county with the highest number of conservation subdivisions in the state. Many Waukesha County conservation subdivisions are not within sewer service areas, and thus are not likely to be adjacent to developed areas. Because of its primary location in exurban and rural areas, the absence of a mix of land uses, its overall low-density residential pattern, and its residents' dependency on the automobile, the design displays many characteristics of sprawl.

Figure 7. Conservation subdivisions built between 1990 and 2005 in Waukesha County, WI



Conclusion

While CSD does not promote independence from the automobile, if implemented correctly, it can provide several ecological, economic, and societal benefits (Arendt 1996; McMahon 2010). These benefits include the protection of environmentally sensitive and ecologically significant lands through expanded wildlife habitats, reduced impervious surfaces, and better management of stormwater runoff. In addition to meeting community needs for open and recreational spaces, CSD can reduce infrastructure maintenance.

It is, however, critical to guide local governments, community decision makers, and land developers in best practices for conservation subdivision implementation and site planning. Good site planning can accomplish multiple goals of conservation subdivisions. For instance, preserving and maintaining prairies in common open spaces can conserve wildlife habitats, allow for stormwater to infiltrate into ground water, and provide aesthetic value.

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