

Model Development Principles

The Center for Watershed Protection's (CWP) Code and Ordinance Worksheet walks users through the process of evaluating how their community's codes and ordinances measure up to 22 better site design principles. The worksheet is geared specifically toward water quality, but provides a good overall assessment of the environmental friendliness of local codes and ordinances.

Why review our local ordinances?

Sustainable development combines economic growth with protection of the natural environment. Communities have long struggled to achieve this goal. However, we often find that our own development codes and standards can actually work against our own efforts to achieve sustainable, "low-impact" development. For example, local codes and ordinances often require inflexible standards that result in overly wide residential streets, expansive parking lots, and mass clearing and grading of forested areas. At the same time, local codes often give developers little or no incentive to conserve natural areas.

What is the Code and Ordinance Worksheet?

The Code and Ordinance Worksheet (COW) allows an in-depth review of the standards, ordinances, and codes that shape how development occurs in our local communities. The COW guides the participant through a systematic comparison of a government's local development rules against a set of model development principles. Institutional frameworks, regulatory structures and incentive programs are included in this review. The worksheet consists of a series of questions that correspond to each of the model development principles. Points are assigned based on how well the existing development rules agree with the site planning benchmarks derived from the model development principles.

What are the Model Development Principles?

In 1996, the Maryland-based CWP convened a Site Planning Roundtable of diverse interests involved in planning, designing, and building new communities. This group worked for nearly two years to develop a set of 22 model development principles. Applied together, the model development principles can measurably reduce impervious cover, conserve natural areas and reduce stormwater pollution from new development. Application of these principles can enhance both the natural environment and improve the quality of life in local neighborhoods.

The model development principles generally fall into one of three categories: Residential Streets and Parking Lots; Lot Development; and Conservation of Natural Areas. Each principle represents a simplified design objective in site planning. To find more detail on these principles, refer to CWP's Better Site Design: A Handbook for Changing Development Rules in Your Community (August 1998).

Residential Streets and Parking Lots

These principles focus on those codes, ordinances, and standards that determine the size, shape, and construction of parking lots, roadways, and driveways in the suburban landscape.

1. Design residential streets for the minimum required pavement width needed to support travel lanes; on street parking; and emergency, maintenance, and service vehicle access. These widths should be based on traffic volume.
2. Reduce the total length of residential streets by examining alternative street layouts to determine the best option for increasing the number of homes per unit length.

3. Wherever possible, residential street right-of-way widths should reflect the minimum required to accommodate the travel-way, the sidewalk, and vegetated open channels. Utilities and storm drains should be located within the pavement section of the right-of-way wherever feasible.
4. Minimize the number of residential street cul-de-sacs and incorporate landscaped areas to reduce their impervious cover. The radius of cul-de-sacs should be the minimum required to accommodate emergency and maintenance vehicles. Alternative turnarounds should be considered.
5. Where density, topography, soils, and slope permit, vegetated open channels should be used in the street right-of-way to convey and treat stormwater runoff.
6. The required parking ratio governing a particular land use or activity should be enforced as both a maximum and a minimum in order to curb excess parking space construction. Existing parking ratios should be reviewed for conformance taking into account local and national experience to see if lower ratios are warranted and feasible.
7. Parking codes should be revised to lower parking requirements where mass transit is available or enforceable shared parking arrangements are made.
8. Reduce the overall imperviousness associated with parking lots by providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spillover parking areas.
9. Provide meaningful incentives to encourage structured and shared parking to make it more economically viable.
10. Wherever possible, provide stormwater treatment for parking lot runoff using bioretention areas, filter strips, and/or other practices that can be integrated into required landscaping areas and traffic islands.

Lot Development

Principles 11 through 16 focus on the regulations which determine lot size, lot shape, housing density, and the overall design and appearance of our neighborhoods.

11. Advocate open space development that incorporates smaller lot sizes to minimize total impervious area, reduce total construction costs, conserve natural areas, provide community recreational space, and promote watershed protection.
12. Relax side yard setbacks and allow narrower frontages to reduce total road length in the community and overall site imperviousness. Relax front setback requirements to minimize driveway lengths and reduce overall lot imperviousness.
13. Promote more flexible design standards for residential subdivision sidewalks. Where practical, consider locating sidewalks on only one side of the street and providing common walkways linking pedestrian areas.
14. Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together.
15. Clearly specify how community open space will be managed and designate a sustainable legal entity responsible for managing both natural and recreational open space.

16. Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas and avoid routing rooftop runoff to the roadway and the stormwater conveyance system.

Conservation of Natural Areas

The remaining principles address codes and ordinances that promote (or impede) protection of existing natural areas and incorporation of open spaces into new development.

17. Create a variable width, naturally vegetated buffer system along all perennial streams that also encompasses critical environmental features such as the 100-year floodplain, steep slopes and freshwater wetlands.
18. The riparian stream buffer should be preserved or restored with native vegetation that can be maintained throughout the delineation, plan review, construction, and occupancy stages of development.
19. Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build lots, allow access, and provide fire protection. A fixed portion of any community open space should be managed as protected green space in a consolidated manner.
20. Conserve trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native plants. Wherever practical, manage community open space, street rights-of-way, parking lot islands, and other landscaped areas to promote natural vegetation.
21. Incentives and flexibility in the form of density compensation, buffer averaging, property tax reduction, stormwater credits, and by-right open space development should be encouraged to promote conservation of stream buffers, forests, meadows, and other areas of environmental value. In addition, off-site mitigation consistent with locally adopted watershed plans should be encouraged.
22. New stormwater outfalls should not discharge unmanaged stormwater into jurisdictional wetlands, sole-source aquifers, or sensitive areas.

Codes and Ordinances Worksheet

1. Street Width

a. What is the minimum pavement width allowed for streets in low density residential developments that have less than 500 average daily trips (ADT)?

If the answer is between 18-22 feet, award 4 points

b. At higher densities are parking lanes allowed to also serve as traffic lanes (i.e., queuing streets)?

If the answer is YES, award 3 points

2. Street Length

a. Do street standards promote the most efficient street layouts that reduce overall street length?

If the answer is YES, award 1 point

3. Right-of-Way Width

a. What is the minimum right-of-way (ROW) width for a residential street?

If the answer is less than 45 feet, award 3 points

b. Does the code allow utilities to be placed under the paved section of the ROW?

If the answer is YES, award 1 point

4. Cul-de-Sacs

a. What is the minimum radius allowed for cul-de-sacs?

If the answer is less than 35 feet, award 3 points

If the answer is 36 feet to 45 feet, award 1 point

b. Can a landscaped island be created within the cul-de-sac?

If the answer is YES, award 1 point

c. Are alternative turn arounds such as "hammerheads" allowed on short streets in low density residential developments?

If the answer is YES, award 1 point

5. Vegetated Open Channels

a. Are curb and gutters required for most residential street sections?

*If the answer is **NO**, award 2 points*

b. Are there established design criteria for swales that can provide stormwater quality treatment (i.e., dry swales, biofilters, or grass swales)?

*If the answer is **YES**, award 2 points*

6. Parking Ratios

a. What is the minimum parking ratio for a professional office building (per 1000 ft² of gross floor area)?

*If the answer is **less than 3.0 spaces**, award 1 point*

b. What is the minimum required parking ratio for shopping centers (per 1,000 ft² gross floor area)?

*If the answer is **4.5 spaces or less**, award 1 point*

c. What is the minimum required parking ratio for single family homes (per home)?

*If the answer is **less than or equal to 2.0 spaces**, award 1 point*

d. Are the parking requirements set as maximum or median (rather than minimum) requirements?

*If the answer is **YES**, award 2 points*

7. Parking Codes

a. Is the use of shared parking arrangements promoted?

*If the answer is **YES**, award 1 point*

b. Are model shared parking agreements provided?

*If the answer is **YES**, award 1 point*

c. Are parking ratios reduced if shared parking arrangements are in place?

*If the answer is **YES**, award 1 point*

d. If mass transit is provided nearby, is the parking ratio reduced?

*If the answer is **YES**, award 1 point*

8. Parking Lots

a. What is the minimum stall width for a standard parking space?

*If the answer is **9 feet or less**, award 1 point*

b. What is the minimum stall length for a standard parking space?

*If the answer is **18 feet or less**, award 1 point*

c. Are at least 30% of the spaces at larger commercial parking lots required to have

smaller dimensions for compact cars?

If the answer is YES, award 1 point

d. Can pervious materials be used for spillover parking areas?

If the answer is YES, award 2 points

9. Structured Parking

a. Are there any incentives to developers to provide parking within garages rather than surface parking lots?

If the answer is YES, award 1 point

10. Parking Lot Runoff

a. Is a minimum percentage of a parking lot required to be landscaped?

If the answer is YES, award 2 points

b. Is the use of bioretention islands and other stormwater practices within landscaped areas or setbacks allowed?

If the answer is YES, award 2 points

11. Open Space Design

a. Are open space or cluster development designs allowed in the community?

If the answer is YES, award 3 points

If the answer is NO, skip to question No. 12

b. Is land conservation or impervious cover reduction a major goal or objective of the open space design ordinance?

If the answer is YES, award 1 point

c. Are the submittal or review requirements for open space design greater than those for conventional development?

If the answer is NO, award 1 point

d. Is open space or cluster design a by-right form of development?

If the answer is YES, award 1 point

e. Are flexible site design criteria available for developers that utilize open space or cluster design options (e.g, setbacks, road widths, lot sizes)

If the answer is YES, award 2 points

12. Setbacks and Frontages

a. Are irregular lot shapes (e.g., pie-shaped, flag lots) allowed in the community?

If the answer is YES, award 1 point

b. What is the minimum requirement for front setbacks for a **one half (½) acre** residential lot?

*If the answer is **20 feet or less**, award **1 point***

c. What is the minimum requirement for rear setbacks for a **one half (½) acre** residential lot?

*If the answer is **25 feet or less**, award **1 point***

d. What is the minimum requirement for side setbacks for a **one half (½) acre** residential lot?

*If the answer is **8 feet or less**, award **1 points***

e. What is the minimum frontage distance for a **one half (½) acre** residential lot?

*If the answer is **less than 80 feet**, award **2 points***

13. Sidewalks

a. What is the minimum sidewalk width allowed in the community?

*If the answer is **4 feet or less**, award **2 points***

b. Are sidewalks always required on both sides of residential streets?

*If the answer is **NO**, award **2 points***

c. Are sidewalks generally sloped so they drain to the front yard rather than the street?

*If the answer is **YES**, award **1 point***

d. Can alternate pedestrian networks be substituted for sidewalks (e.g., trails through common areas)?

*If the answer is **YES**, award **1 point***

14. Driveways

a. What is the minimum driveway width specified in the community?

*If the answer is **9 feet or less (one lane) or 18 feet (two lanes)**, award **2 points***

b. Can pervious materials be used for single family home driveways (e.g., grass, gravel, porous pavers, etc)?

*If the answer is **YES**, award **2 points***

c. Can a "two track" design be used at single family driveways?

*If the answer is **YES**, award **1 point***

d. Are shared driveways permitted in residential developments?

*If the answer is **YES**, award 1 point*

15. Open Space Management

- a. Does the community have enforceable requirements to establish associations that can effectively manage open space?

*If the answer is **YES**, award 2 points*

- b. Are open space areas required to be consolidated into larger units?

*If the answer is **YES**, award 1 point*

- c. Does a minimum percentage of open space have to be managed in a natural condition?

*If the answer is **YES**, award 1 point*

- d. Are allowable and unallowable uses for open space in residential developments defined?

*If the answer is **YES**, award 1 point*

- e. Can open space be managed by a third party using land trusts or conservation easements?

*If the answer is **YES**, award 1 point*

16. Rooftop Runoff

- a. Can rooftop runoff be discharged to yard areas?

*If the answer is **YES**, award 2 points*

- b. Do current grading or drainage requirements allow for temporary ponding of stormwater on front yards or rooftops?

*If the answer is **YES**, award 2 points*

17. Buffer Systems

- a. Is there a stream buffer ordinance in the community?

*If the answer is **YES**, award 2 points*

- b. If so, what is the minimum buffer width?

*If the answer is **75 feet or more**, award 1 point*

- c. Is expansion of the buffer to include freshwater wetlands, steep slopes or the 100-year floodplain required?

*If the answer is **YES**, award 1 point*

18. Buffer Maintenance

- a. Does the stream buffer ordinance specify that at least part of the stream buffer be

maintained with native vegetation?

*If the answer is **YES**, award 2 points*

b. Does the stream buffer ordinance outline allowable uses?

*If the answer is **YES**, award 1 point*

c. Does the ordinance specify enforcement and education mechanisms?

*If the answer is **YES**, award 1 point*

19. Clearing and Grading

a. Is there any ordinance that requires or encourages the preservation of natural vegetation at residential development sites?

*If the answer is **YES**, award 2 points*

b. Do reserve septic field areas need to be cleared of trees at the time of development?

*If the answer is **NO**, award 1 point*

20. Tree Conservation

a. If forests or specimen trees are present at residential development sites, does some of the stand have to be preserved?

*If the answer is **YES**, award 2 points*

b. Are the limits of disturbance shown on construction plans adequate for preventing clearing of natural vegetative cover during construction?

*If the answer is **YES**, award 1 point*

21. Land Conservation Incentives

a. Are there any incentives to developers or landowners to conserve non-regulated land (open space design, density bonuses, stormwater credits or lower property tax rates)?

*If the answer is **YES**, award 2 points*

b. Is flexibility to meet regulatory or conservation restrictions (density compensation, buffer averaging, transferable development rights, off-site mitigation) offered to developers?

*If the answer is **YES**, award 2 points*

22. Stormwater Outfalls

a. Is stormwater required to be treated for quality before it is discharged?

*If the answer is **YES**, award 2 points*

b. Are there effective design criteria for stormwater best management practices

(BMPs)?

*If the answer is **YES**, award 1 point*

c. Can stormwater be directly discharged into a jurisdictional wetland without pretreatment?

*If the answer is **NO**, award 1 point*

d. Does a floodplain management ordinance that restricts or prohibits development within the 100 year floodplain exist?

*If the answer is **YES**, award 2 points*

TOTAL

Scoring

90 - 100	Community has above-average provisions that promote the protection of streams, lakes and estuaries.
80 - 89	Local development rules are good, but could use minor adjustments or revisions in some areas.
70 - 79	Opportunities exist to improve development rules. Consider creating a site planning roundtable.
60 - 69	Development rules are likely inadequate to protect local aquatic resources. A site planning roundtable would be very useful.
less than 60	Development rules are definitely not environmentally friendly. Serious reform is needed.