Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

April 2004

Final Reports:

City of Aurora
City of Batavia
Village of Elburn
Kane County
Kendall County
Village of Montgomery
Village of North Aurora
Village of Sugar Grove
City of Yorkville

funded by:

Illinois Department of Natural Resources

prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Zoning Code Analysis and Ordinance Language Recommendations Project
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City of Aurora Report

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for City of Aurora, following this introduction and a short narrative of the findings regarding City of Aurora's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the City of Aurora's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that the City is currently redeveloping its subdivision and zoning ordinances. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater**
   The City of Aurora has already adopted the Kane County stormwater ordinance that covers most of developments' direct stormwater impacts in both municipal and unincorporated areas. Because of this, the Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance as adopted in the City of Aurora already addresses stormwater standards. The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff, many of which are identified in the City's Countryside Vision Plan.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**

   The City of Aurora recently adopted the Countryside Vision Plan, which identifies significant amounts of open space and conservation-oriented development. The City's Comprehensive Plan contains several policies that address environmental issues, which is necessary if the City plans to adopt supporting regulations. Beyond the Countywide stormwater ordinance, supporting regulations and standards currently do not exist.

This section focuses on protection, restoration, and management of natural areas. These recommendations address remnant landscapes as well as restored/created natural areas.

The Countywide Stormwater Ordinance already requires establishment of buffers along streams, lakes, and wetlands and already requires establishment of a responsible party. The language recommended in this section supplements those standards by suggesting additional activities that are outside the scope of the countywide stormwater authority.

The recommendations within this section are intended to provide more explicit standards for identification, protection, and management of natural areas. In some cases natural areas will be remnant landscapes. In other cases, natural areas may be created or restored landscapes intended to appear and function like native landscapes such as prairies, woodlands, or wetlands.

General Recommendations: The County version of this report recommends creation of a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. The City should participate in development of this district and apply open space zoning to the area covered by the District.

Standards and criteria for open space areas designated in development plans should are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

3. Landscape Standards

The City of Aurora already has tree removal permitting, tree planting and street-side landscaping requirements. Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: It is recommended that parking lot islands and other landscape features be required, which will encourage use of parking lot biofiltration. Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) should also be considered.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management. A survey of significant vegetation should be required to assist the City in its development review process.

4. Parking Requirements

Parking facilities often create large impervious surfaces that result in an increase of stormwater runoff and related water quality issues. Reduced parking area and alternative porous paving materials can help to reduce impervious surfaces and encourage infiltration and groundwater recharge. Coordination of parking needs between adjacent and nearby uses, and the provision of bicycle parking where appropriate can help to alleviate the need for overly large parking areas as well.

General Recommendations: Parking standards can be updated to meet current trends towards shared parking, parking credit programs, and parking for non-motorized vehicles (recommended bicycle parking ratios are provided). Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and sources of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design. The City of Aurora has obviously attempted to balance quality of life issues with the benefits of connectivity and walkability, through requirements for sidewalks in the subdivision code and pedestrian easements described in the Comprehensive Plan.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

The City of Aurora's Countryside Vision Plan will help to ensure open space preservation, impervious areas reduction, compact housing, and the preservation of native landscaping on the western edge of the City. Appropriate codes and ordinances will help to ensure that the vision is realized.

While the low densities of the Countryside Plan may not be appropriate for all areas of the City, many of the conservation and stormwater principals can and should apply to any density of development. Although clustering is discussed in the City's comprehensive plan, there are no codes to manage and control clustering.

As discussed under environmental standards, the countywide stormwater ordinance provides authority to protect water related resources such as streams, lakes, wetlands, and floodplains but does not have authority to protect other potential site resources such as remnant uplands, wildlife connectors, agricultural land, and cultural resources. However, through other measures that fall under zoning and subdivision authority, protection of these areas can be required and/or incentives provided.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that may allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by The City of Aurora, along with the location in The City's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Subdivision Art. V	N/A	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12**:Inf-41
2	Rooftop Runoff Redirection	Subdivision Art. V	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision Art. V	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 10.10	N/A	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the City may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Floodplain Restrictions	Zoning Sec. 10.10	Prevent from development in Comp Plan Policy; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
6	Natural Areas Plan Compliance	Zoning Sec. 10.10	Natural areas preservation encouraged in Comp Plan Policy	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12**:CR-2
7	Natural Areas Reclamation	Zoning Sec. 10.10	N/A	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**
8	Open Space Design	Zoning Sec. 10.10	N/A	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved City plans.	**13:**11

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design - Approved Land Uses	Zoning Sec. 10.10	N/A	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
10	Open Space Design - Phased Development Requirements	Zoning Sec. 10.10	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
11	Remnant Landscapes	Zoning Sec. 10.10	N/A	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
12	Special Zoning - Greenways	Zoning Sec. 10.10	N/A	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
13	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 10.10	N/A	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
14	Stream Buffer Width	Zoning Sec. 10.10	Varies from 15 to 50 feet, depending on drainage area and stream quality (Kane County stormwater ordinance)	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
15	Wetland Buffer Width	Zoning Sec. 10.10	Varies from 15 to 50 feet, depending on wetland area and wetland quality (Kane County stormwater ordinance)	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13**:II-16
16	Wetland Mitigation	Zoning Sec. 10.10	N/A	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
LANDSCAPE STANDARDS					
17	Native Plant Allowances/ Requirements	Subdivision Sec. 43-99	50% of trees must be native/Allowed with stormwater facilities	Landscape designs shall not include invasive plant species.	**CDF**
18	Parking Lot Landscape Requirements - bioretention/infiltration	Subdivision Sec. 43-99	Refer to Kane County Stormwater Runoff Control Regulations	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
19	Parking Lot Landscape Requirements - Landscape Islands	Subdivision Sec. 43-99	N/A	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
20	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Subdivision Sec. 43-99	N/A	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
21	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Subdivision Sec. 43-99	N/A	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
22	Significant Vegetation Preservation	Subdivision Sec. 43-99	N/A	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
23	Street Landscape Requirements	Subdivision Sec. 43-99	8', 30' min.spacing;25'med/20'small	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
24	Tree Planting Requirements	Subdivision Sec. 43-99	1 1/2" caliper at 6" from ground	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
25	Tree Planning Requirements - Gender	Subdivision Sec. 43-99	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
26	Tree Preservation Requirements	Subdivision Sec. 43-99	Tree permit prior to removal	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
27	Alternative Parking Lot Runoff Treatments	Zoning Sec. 10.3	Refer to Kane County Stormwater Runoff Control Regulations	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
28	Alternative Parking Spaces - Bicycle	Zoning Sec. 10.3	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
29	Alternative Parking Spaces - Compact Cars	Zoning Sec. 10.3	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
30	Joint/Shared Parking Lot Allowances	Zoning Sec. 10.3-2	No less than joint (sum of all); Joined parking encouraged in Comp Plan Policy	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
31	Parking Lot Access Aisle Width	Zoning Sec. 10.3-6	12' 1-way @ 90 degrees/20' 2-way	30 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				45 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15**:3-32
				90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15**:3-32
				Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
32	Parking Ratios - Single Family	Zoning Sec. 10.6	2/du	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
33	Parking Ratio - Multi-Family	Zoning Sec. 10.6	2 for 2+bd unit/ 1/unit for efficiency	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
34	Parking Ratio - Clinic	Zoning Sec. 10.6	3/doctor + 1/2 employee	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
35	Parking Ratio - Church	Zoning Sec. 10.6	1/6 seats	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
36	Parking Ratio - Convenience Store	Zoning Sec. 10.6	1/300sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Office	Zoning Sec. 10.6	1/400sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
38	Parking Ratio - Shopping Center	Zoning Sec. 10.6	1/300sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Industrial	Zoning Sec. 10.6	1/4 employees + company vehicles	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Space Area	Zoning Sec. 10.3-6	162 sf min. 8.5'X19'	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
41	Parking Space Reduction	Zoning Sec. 10.3	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
42	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 10.3	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	**CDF**
43	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 10.3	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
44	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 10.3	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
45	Parking Structure (garage) Allowances	Zoning Sec. 10.3	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
46	Paving Requirement and Material	Zoning Sec. 10.3-6	Materials of comparable specifications to Asphalt and Concrete	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
47	Required Parking Minimums and Maximums	Zoning Sec. 10.3	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
TRANSPORTATION REQUIREMENTS					
48	Arterial ROW Width	Subdivision Sec. 42-20	66'-80'	Refer to Table 2	
49	Arterial Street Width	Subdivision Sec. 42-20	39-41'	Refer to Table 2	
50	Bike Trails	Subdivision Sec. 42-20	N/A	Refer to Table 2	
51	Collector ROW Width	Subdivision Sec. 42-20	100'	Refer to Table 2	
52	Collector Street Width	Subdivision Sec. 42-20	49'	Refer to Table 2	
53	Cul-de-Sac ROW Width	Subdivision Sec. 42-20	66'	Refer to Table 2	
54	Cul-de-Sac Width	Subdivision Sec. 42-20	31'	Refer to Table 2	
55	Curb and Gutter Requirements	Subdivision Sec. 42-20	N/A	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
56	Equestrian Trails	Subdivision Sec. 42	N/A	Refer to Table 2	
57	Mid-Block Ped/Bike Easements	Subdivision Sec. 42	Accomplish pedestrian and bike circulations system; Provide public transportation (Comp Plan Policy)	Refer to Table 2	
58	Residential ROW Width	Subdivision Sec. 42-20	66'	Refer to Table 2	
59	Residential Street Width	Subdivision Sec. 42-20	31'	Refer to Table 2	
60	Road Alignment	Subdivision Sec. 42-20	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
61	Sidewalk Materials	Subdivision Sec. 43-98	PCC	Varies, and to ADA standards.	**10:** 3-32
62	Sidewalk Requirements	Subdivision Sec. 43-98	Yes, Both sides of all streets	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
63	Sidewalk Width	Subdivision Sec. 43-98	N/A	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
64	Stream Crossings	Subdivision Sec. 42-20	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
65	Street Paving Material	Subdivision Sec. 42-20	N/A	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for bioinfiltration.	**CDF**
66	Trail Construction Materials	Subdivision Sec. 42	N/A	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
67	Woonerf Overlay District	Zoning Sec. 4	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ZONING/SUBDIVISION STANDARDS					
68	Clearing and Grading	Zoning Sec. 5	N/A	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
69	Clustering	Zoning Sec. 14	Encouraged in Comp Plan	Include within subdivision and zoning code a purpose statement for the benefits of clustering dwelling and commercial units including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
70	Clustering - Objectives	Zoning Sec. 14	N/A	Include within subdivision and zoning code a purpose statement for the benefits of clustering dwelling and commercial units including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**5:** 20; **15:**3-59
71	Density Bonus - incentive actions	Zoning Sec. 14	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
72	Density Bonus/Incentives - Density Limits	Zoning Sec. 14	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
73	Garages	Zoning Sec. 11	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
74	Infill Incentives	Zoning Sec. 5	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
75	Non-Conforming Uses	Zoning Sec. 6	N/A	Non-conforming uses shall not be expanded.	**15**:5-8
76	Open Space Requirements	Subdivision Sec. 43-56	N/A	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements and open space areas may be used for natural drainage and other stormwater management systems designed to reduce runoff volumes. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
77	Planned Unit Development Allowances	Zoning Sec. 14	N/A	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
78	Site Capacity\Yield - Calculation	Zoning Sec. 11&12	Varies by zoning category	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
79	Site Capacity\Yield - Calculation	Zoning Sec. 11&12	N/A	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
80	Site Capacity/Yield - Lot size	Zoning Sec. 11&12	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
81	Site Planning Process - Site Visit Requirement	Zoning Sec. 14.2	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
82	Site Planning Process - Specific Area Plans	Zoning Sec. 14.7	Westside/PUD	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

City of Batavia Report

April 2004

funded by:

Illinois Department of Natural Resources

prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for City of Batavia, following this introduction and a short narrative of the findings regarding City of Batavia's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the City of Batavia's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that changes are continually being made to codes and ordinances based on the demands. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater**
   The City of Batavia specifically allows use of infiltration practices within their subdivision code and has already adopted the Kane County stormwater ordinance that covers most of developments' direct stormwater impacts in both municipal and unincorporated areas. Because of this, Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance as adopted in the City of Batavia already addresses stormwater standards and the City already encourages use of infiltration measures. The language provided here is intended to provide further opportunities to use infiltration and biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   This section focuses on protection, restoration, and management of natural areas. These recommendations address remnant landscapes as well as restored/created natural areas.

   The Batavia Comprehensive Plan describes protection of a buffer along Mill Creek and the Countywide Stormwater Ordinance requires establishment of buffers along

streams, lakes, and wetlands and requires establishment of a responsible party. The language recommended in this section supplements those standards by suggesting additional activities that are outside the scope of the countywide stormwater authority.

The recommendations within this section are intended to provide more explicit standards for identification, protection, and management of natural areas. In some cases natural areas will be remnant landscapes. In other cases, natural areas may be created or restored landscapes intended to appear and function like native landscapes such as prairies, woodlands, or wetlands.

General Recommendations: Consideration should be given to quantifying and more explicitly defining what is and is not allowed in environmentally sensitive areas, providing more requirements on how these areas are to be managed and/or restored, and more detailed regulation for groundwater recharge zones and sensitive areas.

The County version of this report recommends creation of a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. The Village should participate in development of this district and apply open space zoning to the area covered by the District.

Standards and criteria for open space areas designated in development plans are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

3. Landscape Standards

The City of Batavia already has an ordinance requiring the preservation of trees over 5 inches in diameter.

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: It is recommended that parking lot islands and other landscape features be required, which will encourage use of parking lot biofiltration. Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) should also be considered.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management. A survey of significant vegetation should be required to assist the City in its development review process.

4. Parking Requirements

Parking facilities create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. The City's parking ratio requirements are close to what was found in model codes. But in order to further reduce unnecessary impervious surface, our recommendations include:

General Recommendations: Parking standards can be updated to meet current trends towards shared parking, parking credit programs, and parking for non-motorized vehicles (recommended bicycle parking ratios are provided). Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and source of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design. The City of Batavia has obviously attempted to balance quality of life issues that surround transportation issues with the benefits of connectivity and walkability, through the requirement of sidewalks and the riverfront trail system.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

The City of Batavia has detailed setback and floor area ratio standards, along with open space requirements for residential developments. Densities and lot sizes are regulated as well.

As discussed under environmental standards, the countywide stormwater ordinance provides authority to protect water related resources such as streams, lakes, wetlands, and floodplains but does not have authority to protect other potential site resources such as remnant uplands, wildlife connectors, agricultural land, and cultural resources. However, through other measures that fall under zoning and subdivision authority, protection of these areas can be required and/or incentives provided.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once

the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that may allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by The City of Batavia, along with the location in the City's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Subdivision Sec. 11-5-2	Native buffer 25' around wetland detention and dry non-use area, maintenance required; infiltration system allowed	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12**:Inf-41
2	Rooftop Runoff Redirection	Subdivision Sec. 11-5-2	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision Sec. 11-5-2	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Comp Plan	Mill Creek corridor buffer required	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the Village may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Floodplain Restrictions	Zoning Sec. 10-2D-6-G & 10-3-11-C	Not for active recreation and development; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
6	Natural Areas Plan Compliance	Zoning Sec. 10-2D-6-G	N/A	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12**:CR-2
7	Natural Areas Reclamation	Zoning Sec. 10-2D-6-G	N/A	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**
8	Open Space Design	Subdivision Sec. 11-6-2	15 ac/1000 people + forest preserve and regional facilities. 10-20 ac min./1000 people	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved Village plans.	**13:**11

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design - Approved Land Uses	Subdivision Sec. 11-6-2	N/A	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
10	Open Space Design - Phased Development Requirements	Subdivision Sec. 11-6-2	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
11	Remnant Landscapes	Zoning Sec. 10-2D-6-H	Preserve unique environmental resources	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
12	Special Zoning - Greenways	Zoning Sec. 10-9-1	N/A	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
13	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 10-2D-6-G	Minimize the impact	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
14	Stream Buffer Width	Zoning Sec. 10-9-1	15 - 50 feet, depending on drainage area and stream quality (Kane Co. Stormwater Ordinance)	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
15	Wetland Buffer Width	Zoning Sec. 10-9-1	15 - 50 feet, depending on wetland area and quality (Kane Co. Stormwater Ordinance)	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13**:II-16
16	Wetland Mitigation	Subdivision Sec. 11-6-2	N/A	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
LANDSCAPE STANDARDS					
17	Native Plant Allowances/ Requirements	Zoning Sec. 10-3A	N/A	Landscape designs shall not include invasive plant species.	**CDF**
18	Parking Lot Landscape Requirements - bioretention/infiltration	Subdivision Sec. 11-5-2	N/A	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
19	Parking Lot Landscape Requirements - Landscape Islands	Zoning Sec. 10-3A	N/A	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
20	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Zoning Sec. 10-3A	N/A	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
21	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Zoning Sec. 10-3A	N/A	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
22	Significant Vegetation Preservation	Zoning Sec. 10-3A	N/A	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
23	Street Landscape Requirements	Zoning Sec. 10-3A-2	Parkway tree 1/35 lf	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
24	Tree Planting Requirements	Zoning Sec. 10-3A-2	N/A	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
25	Tree Planning Requirements - Gender	Zoning Sec. 10-3A-2	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
26	Tree Preservation Requirements	Zoning Sec. 10-2D-6-D	preserve trees > 5" diameter	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
27	Alternative Parking Lot Runoff Treatments	Subdivision Sec. 11-5-2	Refer to Kane County Stormwater Runoff Control Regulations. A properly designed drainage system shall be installed. The storm sewer system shall be designed to accommodate a two year design storm. The min. pipe size in any drainage system shall be ten inches in diameter.	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
28	Alternative Parking Spaces - Bicycle	Zoning Sec. 10-7-2	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
29	Alternative Parking Spaces - Compact Cars	Zoning Sec. 10-7-2	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
30	Joint/Shared Parking Lot Allowances	Zoning Sec. 10-7-2	N/A	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
31	Parking Lot Access Aisle Width	Zoning Sec. 10-7-1-4	12 ft	30 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				45 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15**:3-32
				90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15**:3-32
				Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
32	Parking Ratios - Single Family	Zoning Sec. 10-7-2	2/du	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
33	Parking Ratio - Multi-Family	Zoning Sec. 10-7-2	2.5/du	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
34	Parking Ratio - Clinic	Zoning Sec. 10-7-2	1/treatment room + 1/100sf waiting room + 1/employee	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
35	Parking Ratio - Church	Zoning Sec. 10-7-2	1/4seats	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
36	Parking Ratio - Convenience Store	Zoning Sec. 10-7-2	6/1000sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Office	Zoning Sec. 10-7-2	4/1000sf	1/300sf; A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
38	Parking Ratio - Shopping Center	Zoning Sec. 10-7-2	6/1000sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Industrial	Zoning Sec. 10-7-2	1/2employees or <25% lot + 1/1 business vehicle	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Space Area	Zoning Sec. 10-7-1-3; 10-7-3	8'6"X19' minimum size	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
41	Parking Space Reduction	Zoning Sec. 10-7-2	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
42	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 10-7-2	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	**CDF**
43	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 10-7-2	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
44	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 10-7-2	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
45	Parking Structure (garage) Allowances	Zoning Sec. 10-7-2	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
46	Paving Requirement and Material	Zoning Sec. 10-7-1-8	asphaltic concrete or some comparable all-weather, dustless material	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
47	Required Parking Minimums and Maximums	Zoning Sec. 10-7-2	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
TRANSPORTATION REQUIREMENTS					
48	Arterial ROW Width	Subdivision Sec. 11-4-2 & 11-5-6	66' or 80'	Refer to Table 2	
49	Arterial Street Width	Subdivision Sec. 11-5-6	28'	Refer to Table 2	
50	Bike Trails	Comp Plan	N/A	Refer to Table 2	
51	Collector ROW Width	Subdivision Sec. 11-4-2 & 11-5-6	100'	Refer to Table 2	
52	Cul-de-Sac ROW Width	Subdivision Sec. 11-4-2 & 11-5-6	66' T-shaped allowed (but discouraged)	Refer to Table 2	
53	Cul-de-Sac Width	Subdivision Sec. 11-5-6	500' long 120'diameter	Refer to Table 2	
54	Curb and Gutter Requirements	Subdivision Sec. 11-5-2	N/A	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
55	Equestrian Trails	Comp Plan	N/A	Refer to Table 2	
56	Mid-Block Ped/Bike Easements	Comp Plan	Bicycle and pedestrian review trails; Riverwalk improvement	Refer to Table 2	
57	Residential ROW Width	Subdivision Sec. 11-4-2 & 11-5-6	66'	Refer to Table 2	
58	Residential Street Width	Subdivision Sec. 11-5-6	28'	Refer to Table 2	
59	Road Alignment	Subdivision Sec. 11-5-6	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
60	Sidewalk Materials	Subdivision Sec. 11-5-9	PCC	Varies, and to ADA standards.	**10:** 3-32
61	Sidewalk Requirements	Subdivision Sec. 11-5-9	Yes	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
62	Sidewalk Width	Subdivision Sec. 11-5-9	5' in residential and industrial areas; 6' in commercial areas; 10' or 14' in CBD	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
63	Stream Crossings	Subdivision Sec. 11-5-9	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
64	Street Paving Material	Subdivision Sec. 11-5-6	Pavements other than bituminous concrete may be constructed if they meet the aforementioned requirements and reflect specific approval of the city.	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for bioinfiltration.	**CDF**
65	Trail Construction Materials	Subdivision Sec. 11-5-6	N/A	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
66	Woonerf Overlay District	Zoning Sec. 10-9	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
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ZONING/SUBDIVISION STANDARDS					
67	Clearing and Grading	Subdivision Sec. 11-5-11	A site grading permit is required, including an erosion control plan.	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
68	Clustering	Comp Plan	33% Min. for open space	Include within subdivision and zoning code a purpose statement for the benefits of clustering including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
69	Clustering - Objectives	Comp Plan	Cluster developments are mandated whenever possible as a means to meet the density provisions while providing for the open space objectives and scenic vistas, and the advantages gained for infrastructure extensions.	Clustering is allowed when it fulfills one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, 100-year floodplain, Slopes > 25%, drainageways, wetlands, remnant native landscapes. etc.; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; and 7) Protection of archaeological sites and existing historic resources.	**5:** 20; **15:**3-59
70	Density Bonus - incentives actions	Zoning Sec. 10-9	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
71	Density Bonus/Incentives - Density Limits	Zoning Sec. 10-9	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
72	Garages	Subdivision Sec. 11-5-9	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
73	Infill Incentives	Subdivision Sec. 11-5-11	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
74	Non-Conforming Uses	Zoning Sec. 10-4-F	Expansion of Nonconforming Use	Non-conforming uses shall not be expanded.	**15**:5-8
75	Open Space Requirements - General	Subdivision Sec. 11-6-2	10 ac/1000 people	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
76	Open Space Requirements - Neighborhood Park	Subdivision Sec. 11-6-2	>3-5 ac, 3ac/1000pp		
77	Open Space Requirements - Village Park	Subdivision Sec. 11-6-2	4-20ac, 2.25/1000pp		
78	Open Space Requirements - Regional Park	Subdivision Sec. 11-6-2	12-30ac, 3.5ac/1000pp		
79	Open Space Requirements - Pocket Park	Subdivision Sec. 11-6-2	>8000sf; school park>5ac, 1.25ac/1000pp		

Table 1: Current Codes and Recommended Code Revisions Table (continued)

City of Batavia Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
80	Planned Unit Development Allowances	Zoning Sec.10-6-1	Yes, allow mixed use	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
81	Site Capacity/Yield	Zoning Sec.10-9-1	Varies by zoning category	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
82	Site Capacity/Yield	Zoning Sec.10-9-1	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
83	Site Capacity/Yield - Lot size	Zoning Sec.10-9-1	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
84	Site Planning Process - Site Visit Requirement	Subdivision Sec. 11-3	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
85	Site Planning Process - Specific Area Plans	Subdivision Sec. 11-3	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

Village of Elburn Report

April 2004

funded by:

Illinois Department of Natural Resources

prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for Village of Elburn, following this introduction and a short narrative of the findings regarding Village of Elburn's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the Village of Elburn's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that changes are continually being made to codes and ordinances based on the demands. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater**
   The Village of Elburn specifically allows use of infiltration practices within their subdivision code and has already adopted the Kane County stormwater ordinance that covers most of developments' direct stormwater impacts in both municipal and unincorporated areas. Because of this, Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance as adopted in the Village of Elburn already addresses stormwater standards and the Village already encourages use of infiltration measures. The language provided here is intended to provide further opportunities to use infiltration and biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   The Village of Elburn has made significant strides to preserve naturalized open space through its Greenbelt initiative. The Village's codes and ordinances provide regulatory framework for Greenbelt areas and are complimented by buffer area management guidelines, erosion control requirements, native landscape preservation, and the protection of steep slopes. To supplement these efforts, there are some additional elements that should be considered, including:

General Recommendations: The Village should consider adding detail into its Greenbelt ordinances. Specifically, there is opportunity to divide the Corridors into three zones that allow for various uses such as passive trails in appropriate locations, and specifically prohibit other uses.

Standards and criteria for open space areas designated in development plans should are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for Greenbelts and other areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

The County version of this report recommends creation of a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. The Village's greenbelt system should be incorporated into a countywide system.

3. Landscape Standards

The Village of Elburn has ordinances already in place to address landscaping within transportation rights-of-way, including landscaped islands within cul-de-sacs.

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: Although trees and landscaping are currently required within parking lots, the recommended language provides additional detail that is intended to facilitate and encourage integration of stormwater features.

Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) is recommended.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management.

4. Parking Requirements

Parking facilities create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. Reduced parking area and allowing alternative porous paving materials can help to reduce impervious surfaces and encourage infiltration and groundwater recharge. The Village allows shared parking, and has parking ratio requirements that are close to what was found in model codes. In order to further reduce unnecessary impervious surface, our recommendations include:

General Recommendations: Parking standards can be updated to meet current trends towards parking credit programs, and parking for non-motorized vehicles (recommended bicycle parking ratios are provided). Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and source of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design. The Village of Elburn has obviously attempted to balance quality of life issues with the benefits of connectivity and walkability, through requirements for sidewalks in the subdivision code.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Specifically, in low density areas, the Village should consider easing the requirement that curb and gutter must be provided along pavement edges. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

As discussed under environmental standards, the countywide stormwater ordinance provides authority to protect water related resources such as streams, lakes, wetlands, and floodplains but does not have authority to protect other potential site resources such as remnant uplands, wildlife connectors, agricultural land, and cultural resources. However, through other measures that fall under zoning and subdivision authority, protection of these areas can be required and/or incentives provided.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This

allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that may allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by The Village of Elburn, along with the location in the Village's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Subdivision Sec. 3-11	Native buffer 25' around wetland detention and dry non-use area, maintenance required; infiltration system allowed	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12:**Inf-41
2	Rooftop Runoff Redirection	Subdivision Sec. 3-11	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision Sec. 3-11	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 7.1-D	100' greenbelt	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the Village may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Floodplain Restrictions	Zoning Sec. 7.1-D & Subdivision Sec. 3-13	Floodplain is included in the greenbelts; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
6	Natural Areas Plan Compliance	Zoning Sec. 7.1-D	NARI>=20-Greenbelt	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12:**CR-2
7	Natural Areas Reclamation	Zoning Sec. 7.1-D	two-inch caliper native trees shall be planted along the perimeter of the greenbelt to define its limit	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**
8	Open Space Design	Zoning Sec. 7.1-D	Parkland dedication /Open space in flood-prone areas	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved Village plans.	**13:**11

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design - Approved Land Uses	Zoning Sec. 7.1-D	A 8' wide recreation path within the greenbelt shall be recorded	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
10	Open Space Design - Phased Development Requirements	Zoning Sec. 7.1-D	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
11	Remnant Landscapes	Zoning Sec. 7.1-D	High quality native plant communities shall be included in the greenbelts	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
12	Special Zoning - Greenways	Zoning Sec. 7.1-D	Open Space/Greenbelt	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
13	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 7.1-D	Greenbelts include floodplain, steep slopes, wetlands, high quality native plant communities, major stand of trees, and riparian zone	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
14	Stream Buffer Width	Zoning Sec. 7.1-D	100' greenbelt for the Village. Varies from 15 to 50 feet, depending on drainage area and stream quality in Kane County stormwater ordinance	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
15	Wetland Buffer Width	Zoning Sec. 7.1-D	100' greenbelt for the Village. Varies from 15 to 50 feet, depending on wetland area and wetland quality in Kane County stormwater ordinance	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13**:II-16
16	Wetland Mitigation	Zoning Sec. 7.1-D	As defined by Army Corps-Greenbelt; Not recommended for detention	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
LANDSCAPE STANDARDS					
17	Native Plant Allowances/ Requirements	Zoning Art. XIV; Subdivision Sec. 3-20	N/A	Landscape designs shall not include invasive plant species.	**CDF**
18	Parking Lot Landscape Requirements - bioretention/infiltration	Zoning Art. XIV Sec. 14.3	Refer to Kane County Stormwater Runoff Control Regulations	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
19	Parking Lot Landscape Requirements - Landscape Islands	Zoning Art. XIV Sec. 14.3	not less than one 9'X18' landscaped island shall be provided for every 25 parking spaces	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
20	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Zoning Art. XIV Sec. 14.3	N/A	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
21	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Zoning Art. XIV Sec. 14.3	Interior landscaping shall include, at a minimum, one deciduous shade tree for each 25 parking spaces.	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
22	Significant Vegetation Preservation	Subdivision Sec. 3-1C	a tree preservation and protection plan shall be prepared for trees measuring six inches in caliper or larger. The ability to save existing trees on the site shall be evaluated by the Developer and the Village.	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
23	Street Landscape Requirements	Subdivision Sec. 3-7J & 3-20	Cul-de-sac island allowed; Trees shall be planted throughout the subdivision along proposed streets, cul-de-sac islands, screenings, and other areas shown on the landscaping plan.	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
24	Tree Planting Requirements	Subdivision Sec. 3-20	2" ca. along greenbelt at 30' ; street trees at 40' spacing, 2 1/2" ca. At 6'	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
25	Tree Planning Requirements - Gender	Subdivision Sec. 3-20	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
26	Tree Preservation Requirements	Subdivision Sec. 3-1C	a tree preservation and protection plan shall be prepared for trees measuring six inches in caliper or larger. The ability to save existing trees on the site shall be evaluated by the Developer and the Village.	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
27	Alternative Parking Lot Runoff Treatments	Zoning Sec. 14.3	Refer to Kane County Stormwater Runoff Control Regulations	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
28	Alternative Parking Spaces - Bicycle	Zoning Sec. 14.3	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
29	Alternative Parking Spaces - Compact Cars	Zoning Sec. 14.3	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
30	Joint/Shared Parking Lot Allowances	Zoning Sec. 14.3	Yes	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
31	Parking Lot Access Aisle Width	Zoning Sec. 14.4	12'/24'	30 Degree: One-way - 12', Two-way - 24'. 45 Degree: One-way - 12', Two-way - 24'. 60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'. 90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'. Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
32	Parking Ratio - Single-Family	Zoning Sec. 14.5	2/du	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
33	Parking Ratio - Multi-Family	Zoning Sec. 14.5	2-2.25/du	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
34	Parking Ratio - Clinic	Zoning Sec. 14.5	3/1000sf for >=5000sf; 5/1000sf for <=5000sf	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
35	Parking Ratio - Church	Zoning Sec. 14.5	1/4seats (1/90" of seat)	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
36	Parking Ratio - Convenience Store	Zoning Sec. 14.5	6/1000sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Office	Zoning Sec. 14.5	3/1000sf for >=5000sf; 5/1000sf for <=5000sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
38	Parking Ratio - Shopping Center	Zoning Sec. 14.5	5/1000sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Industrial	Zoning Sec. 14.5	1/1000sf or 1/1.25 employee (whichever is greater)	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Space Area	Zoning Sec. 14.3G & 14.4	9'X18' (9'X21' Res.)	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
41	Parking Space Reduction	Zoning Sec. 14.3	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
42	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 14.3	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	**CDF**
43	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 14.3	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
44	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 14.3	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
45	Parking Structure (garage) Allowances	Zoning Sec. 14.3	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
46	Paving Requirement and Material	Zoning Sec. 14.3H	Paving required. Pavers, asphalt, concrete	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
47	Required Parking Minimums and Maximums	Zoning Sec. 14.3	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19
TRANSPORTATION REQUIREMENTS					
48	Alley ROW Width	Subdivision Sec. 3-7K	24' non-res.	Refer to Table 2	
49	Alley Width	Subdivision Sec. 3-7L	16' (non-res)	Refer to Table 2	
50	Arterial ROW Width	Subdivision Sec. 3-7K	Primary 80'-100'	Refer to Table 2	
51	Arterial Street Width	Subdivision Sec. 3-7L	varies	Refer to Table 2	
52	Bike Trails	Subdivision Sec. 3-7	N/A	Refer to Table 2	
53	Collector ROW Width	Subdivision Sec. 3-7K	Minor-70'; major 80'	Refer to Table 2	
54	Collector Width	Subdivision Sec. 3-7L	3+ lanes @ 36' minimum	Refer to Table 2	

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
55	Cul-de-Sac ROW Width	Subdivision Sec. 3-7K	130' (res.) diameter	Refer to Table 2	
56	Cul-de-Sac Width	Subdivision Sec. 3-7L	50' (Res.) radius	Refer to Table 2	
57	Curb and Gutter Requirements	Subdivision Sec. 3-7O	Concrete curb and gutter section shall be constructed along the outside lines of all street pavements, and parking lots unless waived by the Village Board	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales. Where raised curbs are not used, proper edge restraint shall be provided to protect the edge of flexible pavements (asphalt and pavers).	**21:** 15
58	Equestrian Trails	Subdivision Sec. 3-7	N/A	Refer to Table 2	
59	Mid-Block Ped/Bike Easements	Subdivision Sec. 3-7	May be required for blocks >800' at 12' ROW easement	Refer to Table 2	
60	Residential ROW Width	Subdivision Sec. 3-7K	frontage Rd.-50' minor-66'	Refer to Table 2	
61	Residential Street Width	Subdivision Sec. 3-7L	40'	Refer to Table 2	
62	Road Alignment	Subdivision Sec. 3-7L	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
63	Sidewalk Materials	Subdivision Sec. 3-7P	PCC	Varies, and to ADA standards.	**10:** 3-32
64	Sidewalk Requirements	Subdivision Sec. 3-7P	Both side of streets	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
65	Sidewalk Width	Subdivision Sec. 3-7P	5'	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
66	Stream Crossings	Subdivision Sec. 3	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
67	Street Paving Material	Subdivision Sec. 3-7O	Asphalt or PCC	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for bioinfiltration.	**CDF**
68	Trail Construction Materials	Subdivision Sec. 3-7	N/A	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
69	Woonerf Overlay District	Subdivision Sec. 3	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ZONING/SUBDIVISION STANDARDS					
70	Clearing and Grading	Subdivision Sec. 3-8	N/A	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
71	Clustering	Zoning Sec. 11.1	N/A	Include within subdivision and zoning code a purpose statement for the benefits of clustering including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
72	Clustering - Objectives	Zoning Sec. 11.1	N/A	Clustering is allowed when it fulfills one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, 100-year floodplain, Slopes > 25%, drainageways, wetlands, remnant native landscapes. etc.; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; and 7) Protection of archaeological sites and existing historic resources.	**5:** 20; **15:**3-59
73	Density Bonus - incentive actions	Zoning Sec. 11.1	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
74	Density Bonus/Incentives - Density Limits	Zoning Sec. 11.1	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
75	Garages	Zoning Sec. 14.3	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
76	Infill Incentives	Zoning Sec. 11.1	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
77	Non-Conforming Uses	Zoning Sec. 5.3	A non-conforming use shall not be changed to any use other than one permitted in the district in which the land is located. When a non-conforming use has been changed to a permitted use, it shall not thereafter be changed back to a non-conforming use	Non-conforming uses shall not be expanded.	**15**:5-8

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Elburn Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
78	Open Space Requirements	Zoning Sec. 7.1D	N/A	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
79	Planned Unit Development Allowances	Zoning Sec. 11.1	Yes	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
80	Site Capacity/Yield	Zoning Art IX-Sec 7 to9	Varies by zoning category	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
81	Site Capacity/Yield	Zoning Art IX-Sec 9	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
82	Site Capacity/Yield - Lot size	Zoning Art IX-Sec 9	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
83	Site Planning Process - Site Visit Requirement	Zoning Sec. 15	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
84	Site Planning Process - Specific Area Plans	Zoning Sec. 15	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

Kane County Report

April 2004

funded by:

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prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for Kane County, following this introduction and a short narrative of the findings regarding Kane County's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of Kane County's current subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). The purpose of the summary is to provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater Standards**
   Kane County already has a well-written stormwater ordinance that covers most of developments' direct stormwater impacts. Because of this, Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance already addresses stormwater standards. The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   This section focuses on protection, restoration, and management of natural areas. These recommendations address remnant landscapes as well as restored/created natural areas.

   The Kane County Stormwater Ordinance already requires establishment of buffers along streams, lakes, and wetlands and already requires establishment of a responsible party. The language recommended in this section supplements those standards by suggesting additional activities that are outside the scope of the countywide stormwater authority.

The recommendations within this section are intended to provide more explicit standards for identification, protection, and management of natural areas. In some cases natural areas will be remnant landscapes. In other cases, natural areas may be created or restored landscapes intended to appear and function like native landscapes such as prairies, woodlands, or wetlands.

General Recommendations: Create a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. Open space zoning should then be applied to the area of the District.

Standards and criteria for open space areas designated in development plans should are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

3. Landscape Standards

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: Although trees and landscaping are currently required within parking lots, the recommended language provides additional detail that is intended to facilitate and encourage integration of stormwater features.

Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) is recommended.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management.

4. Parking Requirements

Parking facilities often create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. Reduced parking area and alternative porous paving materials can help to reduce impervious surfaces and encourage infiltration and groundwater recharge.

General Recommendations: Parking standards can be updated to meet current trends towards shared parking, parking credit programs, and parking for non-motorized vehicles. Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to

be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and source of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision Standards

As discussed under environmental standards, the countywide stormwater ordinance provides authority to protect water related resources such as streams, lakes, wetlands, and floodplains but does not have authority to protect other potential site resources such as remnant uplands, wildlife connectors, agricultural land, and cultural resources. However, through other measures that fall under zoning and subdivision authority, protection of these areas can be required and/or incentives provided.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended

language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of language that is recommended for Kane County.

Table 1: Current Codes and Recommended Code Revisions Table

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER					
1	Alternative Detention/Infiltration Allowances	Subdivision Sec 19-72-2	Stormwater facilities easement 20'	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12:**Inf-41
2	Rooftop Runoff Redirection	Zoning ArtXIV-Sec 14.1-4	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Zoning ArtXIV-Sec 14.1-4	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Subdivision Sec 19-55	N/A	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the County may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Floodplain Restrictions	Subdivision Sec 19-55	Compensatory storage required for floodplain fill (stormwater ordinance)	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
6	Natural Areas Plan Compliance	Subdivision Sec 19-72-3	A conservation easement shall be required to protect unique areas such as wetlands, rivers, streams, creeks, and any other unique areas.	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12:**CR-2
7	Natural Areas Reclamation	Subdivision Sec 19-72-3	N/A	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**
8	Open Space Design	Subdivision Sec 19-55	N/A	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved County plans.	**13:**11

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design - Approved Land Uses	Subdivision Sec 19-55	N/A	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
10	Open Space Design - Phased Development Requirements	Subdivision Sec 19-55	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
11	Remnant Landscapes	Subdivision Sec 19-55	N/A	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
12	Special Zoning - Greenways	Zoning 7.1-5	N/A	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
13	Special Zoning for Environmentally Sensitive Areas	Zoning 7.1-5	Landscaping and conservation easements 50ft buffer zone.	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
14	Stream Buffer Width	Subdivision Sec 19-55	varies from 15 to 50 feet, depending on drainage area and stream quality (stormwater ordinance)	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
15	Wetland Buffer Width	Subdivision Sec 19-55	varies from 15 to 50 feet, depending on wetland area and wetland quality (stormwater ordinance)	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13**:II-16
16	Wetland Mitigation	Subdivision Section 19-55	N/A	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
LANDSCAPE STANDARDS					
17	Native Plant Allowances/ Requirements	Zoning Art XV.-Sec 15.1-4	Allowed	Landscape designs shall not include invasive plant species.	**CDF**
18	Parking Lot Landscape Requirements - bioretention/infiltration	Zoning Art XIV-Sec 14.1-4	Refer to Stormwater Runoff Control Regulations	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
19	Parking Lot Landscape Requirements - Landscape Islands	Zoning Art XIV-Sec 14.1-2	2 native trees/10 parking space	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
20	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Zoning Art XIV-Sec 14.1-2	2 native trees/10 parking space	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
21	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Zoning Art XIV-Sec 14.1-2	2 native trees/10 parking space	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
22	Significant Vegetation Preservation	Zoning Art V-Sec 5.4-3; Subdivision Sec 19-127	Preserve existing tree > 3" diameter	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
23	Street Landscape Requirements	Zoning Art XIV-Sec 14.1-2	N/A	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
24	Tree Planting Requirements	Subdivision Sec 19-127	2 native trees/1 lot	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
25	Tree Planing Requirements - Gender	Subdivision Sec 19-127	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
26	Tree Preservation Requirements	Subdivision Sec 43-99	Tree permit prior to removal	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	**15:**3-18

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
27	Alternative Parking Lot Runoff Treatments	Zoning ArtXIV-Sec 14.1-4	Refer to Stormwater Runoff Control Regulations	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
28	Alternative Parking Spaces - Bicycle	Zoning Art XIV-Sec 14.1-7	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicyle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
29	Alternative Parking Spaces - Compact Cars	Zoning Art XIV-Sec 14.1-7	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
30	Joint/Shared Parking Lot Allowances	Zoning Art XIV-Sec 14.1-7	Mixed uses, no parking space or portion thereof shall serve as a required space for more than one use unless otherwise authorized by the zoning board of appeals	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
31	Parking Lot Access Aisle Width - 30 Degree	Zoning Art XIV-Sec 14.1-1	angular and parallel parking may allow a narrower aisle	30 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
32	Parking Lot Access Aisle Width - 45 Degree	Zoning Art XIV-Sec 14.1-1	angular and parallel parking may allow a narrower aisle	45 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
33	Parking Lot Access Aisle Width - 60 Degree	Zoning Art XIV-Sec 14.1-1	angular and parallel parking may allow a narrower aisle	60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15**:3-32
34	Parking Lot Access Aisle Width - 90 Degree	Zoning Art XIV-Sec 14.1-1	24' min	90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15**:3-32
35	Parking Lot Access Aisle Width - Parallel	Zoning Art XIV-Sec 14.1-1	angular and parallel parking may allow a narrower aisle	Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
36	Parking Ratios - Single Family	Zoning Art XIV-Sec 14.1-7	2/unit	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Multi-Family	Zoning Art XIV-Sec. 14.1-7	2/unit	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
38	Parking Ratio - Clinic	Zoning Art XIV-Sec. 14.1-7	3/treat room+1/doc and employee	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Church	Zoning Art XIV-Sec. 14.1-7	1/4seats	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Ratio - Convinenece Store	Zoning Art XIV-Sec. 14.1-7	1/300sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
41	Parking Ratio - Office	Zoning Art XIV-Sec. 14.1-7	1/300-400sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
42	Parking Ratio - Shopping Center	Zoning Art XIV-Sec. 14.1-7	1/300sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
43	Parking Ratio - Industrial	Zoning Art XIV-Sec. 14.1-7	1/employee (1/2employee if ride sharing/care pooling program applies)	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
44	Parking Space Reduction	Zoning Art XIV-Sec 14.1-1	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
45	Parking Space Reductions for Carpooling Programs.	Zoning Art XIV-Sec 14.1-1	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	**CDF**
46	Parking Space Reductions for Proximity to Mass Transit	Zoning Art XIV-Sec 14.1-1	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
47	Parking Space Reductions from Provision of On-Street Parking	Zoning Art XIV-Sec 14.1-1	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
48	Parking Structure (garage) Allowances	Zoning Art XIV-Sec 14.1-1	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
49	Paving Requirement and Material	Zoning Art XIV-Sec 14.1-1	N/A	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
50	Required Parking Minimums and Maximums	Zoning Art XIV-Sec 14.1-1	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
TRANSPORTATION REQUIREMENTS					
51	Arterial ROW Width	Subdivision Sec 19-89	80'	Refer to Table 2	
52	Arterial Street Width	Subdivision Sec 19-93	commercial and industrial 24'	Refer to Table 2	
53	Bike Trails	Subdivision Sec 19-130-1	8' wide	Refer to Table 2	
54	Collector ROW Width	Subdivision Sec 19-89	120'	Refer to Table 2	
55	Cul-de-Sac ROW Width	Subdivision Sec 19-91	T shape may be allowed	Refer to Table 2	
56	Cul-de-Sac Width	Subdivision Sec 19-93	<500' long, <170' diameter, 70' radius, <15 lots	Refer to Table 2	
57	Curb and Gutter Requirements	Subdivision Sec 19-95	Curb and gutter may be required in urban subdivisions and in country subdivisions where the slop exceeds 7%	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
58	Equestrian Trails	Subdivision Sec 19-72-5	N/A	Refer to Table 2	
59	Mid-Block Ped/Bike Easements	Subdivision Sec 19-72-5	N/A	Refer to Table 2	
60	Residential ROW Width	Subdivision Sec 19-89	66'	Refer to Table 2	
61	Residential Street Width	Subdivision Sec 19-93	urban 30'; country 24'	Refer to Table 2	
62	Road Alignment	Subdivision Sec 19-129	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
63	Sidewalk Materials	Subdivision Sec 19-97	concrete	Varies, and to ADA standards.	**10:** 3-32
64	Sidewalk Requirements	Subdivision Sec 19-97	both sides in urban res, commercial, and industrial; both sides in areas containing lots of 10,000sf and one side in areas containing lots of 20,000-40,000sf	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
65	Sidewalk Width	Subdivision Sec 19-97	4'	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
66	Stream Crossings	Subdivision Sec 19-93	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perienial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
67	Street Paving Material	Subdivision Sec 19-93	Bituminous	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for biofiltration.	**CDF**
68	Woonerf Overlay District	Subdivision Sec 19-130-2	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ZONING/SUBDIVISION STANDARDS					
69	Clearing and Grading	Subdivision Sec 19-56	N/A	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
70	Clustering	Zoning Art XII-Sec 12.1; Subdiv Art IV-Sec 19-131-220	N/A	Include within subdivision and zoning code a purpose statement for the benefits of clustering dwelling and commercial units including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
71	Clustering - Objectives	Zoning Art XII-Sec 12.1; Subdiv Art IV-Sec 19-131-220	N/A	Clustering of units should be used to fulfill one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, Slopes > 25%, drainageways, remnant native landscapes, etc; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; 7) Protection of archaeological sites and existing historic resource; and 8) protection of other unique site features not already protected by this or other ordinances (floodplains, wetlands, etc.).	**5:** 20; **15:**3-59
72	Density Bonus - incentivised actions	Zoning Art IX-Sec 9	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
73	Density Bonus/Incentives - Density Limits	Zoning Art IX-Sec 9	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
74	Lot size	Zoning Art IX-Sec 9	varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may may be reduced to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
75	Garages	Zoning Art IX-Sec 9	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kane County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
76	Infill Incentives	Zoning Art IX-Sec 9	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
77	Non-Conforming Uses	Zoning Art VI-Sec 6.3	N/A	Non-conforming uses shall not be expanded.	**15**:5-8
78	Open Space Requirements	Subdivision Sec 19-252	10ac/1000pp	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements and open space areas may be used for natural drainage and other stormwater management systems designed to reduce runoff volumes. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
79	Planned Unit Development Allowances	Zoning Art XII-Sec 12.1; Subdiv Art IV-Sec 19-131-220	Allowed	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
80	Site Capacity/Yield	Zoning Art IX-Sec 9	Varies by zoning category	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
81	Site Capacity/Yield	Zoning Art IX-Sec 9	N/A	Appliants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
82	Site Capacity/Yield - Lot size	Zoning Art IX-Sec 9	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
83	Site Planning Process - Site Visit Requirement	Zoning Art IV-Sec 4	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
84	Site Planning Process - Specific Area Plans	Zoning Art IV-Sec 4	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

Kendall County Report

April 2004

funded by:

Illinois Department of Natural Resources

prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. Because the County already has stormwater standards and because the Blackberry Creek Watershed Management Plan provided recommended stormwater and floodplain standards, the focus of this effort was not on areas addressed in stormwater and floodplain ordinances but instead focuses on subdivision and zoning code.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community.

In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for Kendall County, following this introduction and a short narrative of the findings regarding Kendall County's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of your county's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). The purpose of the summary is to provide insight into the rational behind the code changes that are recommended in Table 1. Kendall County has recently adopted a new residential planned unit development ordinance. This ordinance was not available in time to be reviewed and used as part of this project. According to the County, the new ordinance has specific guidelines for conservation design within residential developments. Please take into account that this ordinance was not reviewed when reading the text below and the attached tables.

1. **Alternative Stormwater**
   Stormwater ordinances were not reviewed as part of this project and instead those aspects of subdivision and zoning code that encourage or prohibit conservation based stormwater management practices were evaluated. For recommendations related to stormwater (and floodplain management) standards, please see the recommendations in the Blackberry Creek Watershed Management Plan. Because stormwater standards have been addressed in other documents, Alternative Stormwater is the least detailed portion of this report. In order to support efforts already made in the County's Stormwater Ordinance, we recommend language changes and preliminary programmatic work in the following areas:

   General Recommendations: The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   Kendall County has stream and wetland buffer ordinances already in place with standards for buffer width and vegetation. The County also has ordinances that protect environmentally sensitive areas, require the minimization of impacts on sensitive lands, and require management of naturalized open space. The County's zoning code also regulates steep slopes, wildlife habitat areas and ravines as

ecologically sensitive areas. These codes provide a solid foundation for the County for protecting and managing the natural landscape. Recommendations to supplement these standards include:

General Recommendations: It is recommended that the County and municipalities jointly create a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. This plan would be similar to the Green Infrastructure Plan identified in the Blackberry Creek Alternative Futures Analysis report. Open space zoning should then be applied to the area of the District.

Standards and criteria for open space areas designated in development plans are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

3. Landscape Standards

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff. Kendall County already has a mandate for the use of native plants within stormwater conveyance and storage areas to increase infiltration and evaporation.

General Recommendations: Although trees and landscaping are currently required within parking lots, the recommended language provides additional detail that is intended to facilitate and encourage integration of stormwater features.

Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) is recommended.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management.

4. Parking Requirements

Parking facilities often create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. Reduced parking area and alternative porous paving materials can help to reduce impervious surfaces and encourage infiltration and groundwater recharge. The County currently allows shared parking.

General Recommendations: Parking standards can be updated to meet current trends towards parking credit programs, and parking for non-motorized vehicles. Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These

types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and source of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

The permitting process in Kendall County has been designed to encourage, if not require the preservation of environmentally sensitive areas, including, but not limited to floodplains, wetlands and steep slopes. The County also has a density bonus program for innovative design. Site suitability is considered for developments, and planning staff are required to visit sites proposed for development. Again, these codes establish a solid foundation on which to grow. Our recommendations include:

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended

language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

The County has a standard open space requirement that appears to apply to all development. Table 1 has a recommendation to vary the open space requirement with zoning classification (density). For some densities the recommended open space is greater than the County's and for others, it is lower. Also, to encourage use of natural drainage practices, the language allows portions of the open space to be used as naturalized drainage.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by Kendall County, along with the location in the County's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Zoning Sec. 6.06; Subdivision Sec. 10.00-F	N/A	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12:**Inf-41
2	Rooftop Runoff Redirection	Zoning Sec. 6.06; Subdivision Sec. 10.00-F	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Zoning Sec. 6.06; Subdivision Sec. 10.00-F	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 8.03-P	N/A	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the County may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Buffer Ownership	Zoning Sec. 8.03-P	N/A	Buffer areas must be owned by one of the following- 1) Homeowners' Association; 2) Condominium Association; 3) Non-Profit Conservation Organization; 4) Empowered Governmental Body; 5) Private Individual (holds fee title, while other entity holds conservation easement).	**17**:42-44
6	Floodplain Restrictions	Zoning Sec. 4.19 & 8.03-P	Certain development allowed under restrictions; protect floodplains from clearing, grading, filling or construction	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
7	Natural Areas Plan Compliance	Zoning Sec. 8.03-P; Subdivision Sec. 9.00-B	Development shall be located to preserve the natural features of the site, to avoid areas of environmental sensitivity, and to minimize negative impacts and alteration of natural features.	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12:**CR-2
8	Natural Areas Reclamation	Zoning Sec. 8.03-P	Protect wetlands from clearing, grading, filling or construction	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design	Zoning Sec. 8.03-P; Subdivision Sec. 9.01	Provide open space that is reasonably contiguous. To the greatest extent practicable, open space shall be designed as a single block with logical, straightforward boundaries.	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved County plans.	**13:**11
10	Open Space Design - Approved Land Uses	Zoning Sec. 8.03-P; Subdivision Sec. 9.01	N/A	Provide open space that is reasonably contiguous. To the greatest extent practicable, open space shall be designed as a single block with logical, straightforward boundaries.	**13:**11; **46**
11	Open Space Design - Phased Development Requirements	Subdivision Sec. 9.00 & 9.01	Required prior to approval of the final plat; open space ownership and maintenance shall be provided consistent with Kendall County standards	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
12	Remnant Landscapes	Zoning Sec. 8.03-P	N/A	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
13	Special Zoning - Agricultural Preservation	Zoning Sec. 7.01-C	Conservation areas are permitted in agricultural districts	Adopt a County-Wide Agriculture Preservation District protecting land with soil types of Class I-IV Soils or high-quality, productive soils. Consider including sufficient land for wastewater land application treatment systems in Agriculture Preservation Districts.	**12:**GM-9, 76, **12:**Inf-23
14	Special Zoning - Greenways	Zoning Sec. 8.03-P; Subdivision Sec. 9.00-B	buffer zone along rural character; no new primary structures shall be located within 150 ft of a road ROW designated as a scenic route on the Kendall County Transportation Plan	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34:**125
15	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 8.03-P	N/A	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12:**CR-2
16	Stream Buffer Width	Zoning Sec. 8.03-P; Subdivision Sec. 9.00	>75' in length; 25' in width with native species vegetation	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
17	Wetland Buffer Width	Zoning Sec. 8.03-P; Subdivision Sec. 9.00	>75' in length; >25' in width with native plants	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13:**II-16

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
18	Wetland Mitigation	Zoning Sec. 8.03-P	N/A	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**
LANDSCAPE STANDARDS					
19	Native Plant Allowances/ Requirements	Zoning Sec. 8.03-P; Subdivision Sec. 9.00-B	N/A	Landscape designs shall not include invasive plant species.	**CDF**
20	Parking Lot Landscape Requirements - bioretention/infiltration	Zoning Sec. 11.02-G; Subdivision Sec. 10.00-F	N/A	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
21	Parking Lot Landscape Requirements - Landscape Islands	Zoning Sec. 11.02-G	All open automobile parking areas containing more than 4 parking spaces shall be effectively screened on each side adjoining…by…densely planted compact hedge no less than 5 ft nor more than 7 ft in height.	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16:** 28
22	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Zoning Sec. 11.02-G; Subdivision Sec. 10.00-F	N/A	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
23	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Zoning Sec. 11.02-G	N/A	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
24	Significant Vegetation Preservation	Subdivision Sec. 10.00-F	N/A	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
25	Street Landscape Requirements	Zoning Sec. 8.03-P; Subdivision Sec. 9.00-B	cul-de-sac island allowed; parkway tree 1/40lf; planting on both side of the street	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
26	Tree Planting Requirements	Subdivision Sec. 10.00-F	Trees shall be provided at retention/detention ponds and along both sides of new streets	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
27	Tree Planning Requirements - Gender	Subdivision Sec. 10.00-F	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
28	Tree Preservation Requirements	Subdivision Sec. 10.00-F	Wherever possible existing trees shall be preserved	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	**15:**3-18
PARKING REQUIREMENTS					
29	Alternative Parking Lot Runoff Treatments	Zoning Sec. 11.02-G; Subdivision Sec. 10.00-F	N/A	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
30	Alternative Parking Spaces - Bicycle	Zoning Sec. 11.04	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
31	Alternative Parking Spaces - Compact Cars	Zoning Sec. 11.04	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
32	Joint/Shared Parking Lot Allowances	Zoning Sec. 11.02-B	Joint parking allowed	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
33	Parking Lot Access Aisle Width	Zoning Sec. 11.02-D	11-26'	30 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				45 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15**:3-32
				90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15**:3-32
				Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
34	Parking Ratios - Single Family	Zoning Sec. 11.04-A	2/unit	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
35	Parking Ratio - Multi-Family	Zoning Sec. 11.04-A	2/unit	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
36	Parking Ratio - Clinic	Zoning Sec. 11.04-C	1/1doctor & employee + 1/200sf	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Church	Zoning Sec. 11.04-C	1/3seats	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
38	Parking Ratio - Convenience Store	Zoning Sec. 11.04-B	1/200sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Office	Zoning Sec. 11.04-B	1/100sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Ratio - Shopping Center	Zoning Sec. 11.04-B	1/200sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
41	Parking Ratio - Industrial	Zoning Sec. 11.04-B	1/2employees + 1/enterprise vehicle +1/1000sf	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
42	Parking Space Reduction	Zoning Sec. 11.02-D	90 degree 9'-9.5'X18.5'	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
43	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 11.02-D	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	**CDF**
44	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 11.02-D	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
45	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 11.02-D	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
46	Parking Structure (garage) Allowances	Zoning Sec. 11.02-A	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
47	Paving Requirement and Material	Subdivision Sec. 10.00-F	Bituminous concrete	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
48	Required Parking Minimums and Maximums	Zoning Sec. 11.02-D	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19
TRANSPORTATION REQUIREMENTS					
49	Alley ROW Width	Subdivision Sec. 9.03	no alleys allowed in residential except special permission	Refer to Table 2	
50	Alley width	Subdivision Sec. 10.00-Exhibit 1	20' in residential ; 30' in commercial; paved width 24'	Refer to Table 2	
51	Arterial ROW Width	Subdivision Sec. 10.00-Exhibit 1	80'	Refer to Table 2	
52	Arterial Street Width	Subdivision Sec. 10.00-Exhibit 1	40'; paved width 28'	Refer to Table 2	
53	Bike Trails	Subdivision Sec. 9.00 & 9.01	N/A	Refer to Table 2	
54	Collector ROW Width	Subdivision Sec. 10.00-Exhibit 1	100'	Refer to Table 2	
55	Collector Width	Subdivision Sec. 10.00-Exhibit 1	44'	Refer to Table 2	
56	Cul-de-Sac ROW Width	Subdivision Sec. 10.00-Exhibit 1	90'diameter; 100' diameter in commercial and industrial	Refer to Table 2	
57	Cul-de-Sac Width	Subdivision Sec. 10.00-F-1	20' in width ; <1000' long	Refer to Table 2	
58	Curb and Gutter Requirements	Subdivision Sec. 10.00-F-1	Required in urban subdivision; May be required in rural	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
59	Equestrian Trails	Subdivision Sec. 9.00 & 9.01	N/A	Refer to Table 2	
60	Mid-Block Ped/Bike Easements	Subdivision Sec. 9.00 & 9.01	N/A	Refer to Table 2	
61	Residential ROW Width	Subdivision Sec. 10.00-Exhibit 1	70'	Refer to Table 2	

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
62	Residential Street Width	Subdivision Sec. 10.00-Exhibit 1	40', paved width 26'	Refer to Table 2	
63	Road Alignment	Subdivision Sec. 9.02	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
64	Sidewalk Materials	Subdivision Sec. 10.00-F-6	Concrete	Varies, and to ADA standards.	**10:** 3-32
65	Sidewalk Requirements	Subdivision Sec. 10.00-F-6	generally not required	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
66	Sidewalk Width	Subdivision Sec. 10.00-F-6	4' in residential; 5' in commercial	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
67	Stream Crossings	Subdivision Sec. 9.00 & 9.01	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
68	Street Paving Material	Subdivision Sec. 10.00-F-1	Concrete	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for bioinfiltration.	**CDF**
69	Trail Construction Materials	Subdivision Sec. 9.00 & 9.01	N/A	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
70	Woonerf Overlay District	Zoning Sec. 4.00; Subdivision Sec. 9.00 & 9.01	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**
ZONING/SUBDIVISION STANDARDS					
71	Clearing and Grading	Zoning Sec. 8.03-P	Protect floodplains, wetlands, and steep slopes from clearing, grading, filling or construction	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7:**2-18
72	Clustering	Zoning Sec. 4.00	N/A	Include within subdivision and zoning code a purpose statement for the benefits of clustering dwelling and commercial units including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
73	Clustering - Objectives	Zoning Sec. 4.00	N/A	Clustering of units should be used to fulfill one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, Slopes > 25%, drainageways, remnant native landscapes, etc; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; 7) Protection of archaeological sites and existing historic resource; and 8) protection of other unique site features not already protected by this or other ordinances (floodplains, wetlands, etc.).	**5:** 20; **15:**3-59
74	Density Bonus - incentive actions	Zoning Sec. 8.03-C	bonus credit to innovative design	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
75	Density Bonus/Incentives - Density Limits	Zoning Sec. 8.03-C	Regardless of the application of density bonuses, at least 30% of the total acreage must still be designated as open space.	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
76	Garages	Zoning Sec. 8.00	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
77	Infill Incentives	Zoning Sec. 8.06	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
78	Non-Conforming Uses	Zoning Sec. 5.00	Any non-conforming use may be made a Special Use.	Non-conforming uses shall not be expanded.	**15**:5-8
79	Open Space Requirements	Zoning Sec. 8.03-N & 8.04 & 8.05	30% of property or 25% of buildable area should be open space. 25-50% of open space should be active recreation except golf course	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements and open space areas may be used for natural drainage and other stormwater management systems designed to reduce runoff volumes. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
80	Planned Unit Development Allowances	Zoning Sec. 8.06	N/A	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
81	Site Capacity/Yield	Zoning Sec. 8	varies by zoning category	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Kendall County Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
82	Site Capacity/Yield	Zoning Sec. 8	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
83	Site Capacity/Yield - Lot size	Zoning Sec. 8	varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
84	Site Planning Process - Site Visit Requirement	Zoning Sec. 8.06	Required	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
85	Site Planning Process - Specific Area Plans	Zoning Sec. 8.06; Subdivision Sec. 9.01	Four-Step Process, designating the Open Space first; suitability of land should be considered	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

Village of Montgomery Report

April 2004

funded by:

Illinois Department of Natural Resources

prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for Village of Montgomery, following this introduction and a short narrative of the findings regarding Village of Montgomery's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the Village of Montgomery's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that changes are continually being made to codes and ordinances based on the demands. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater**
   The Village of Montgomery has already adopted the Kane County stormwater ordinance that covers most of developments' direct stormwater impacts in both municipal and unincorporated areas. Because of this, Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance as adopted in the Village already addresses stormwater standards. The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff, many of which are identified in the City's Countryside Vision Plan.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   The Village of Montgomery requires drainage easements and encourages natural features to be preserved.

   This section focuses on protection, restoration, and management of natural areas. These recommendations address remnant landscapes as well as restored/created natural areas.

The Countywide Stormwater Ordinance already requires establishment of buffers along streams, lakes, and wetlands and already requires establishment of a responsible party. The language recommended in this section supplements those standards by suggesting additional activities that are outside the scope of the countywide stormwater authority.

The recommendations within this section are intended to provide more explicit standards for identification, protection, and management of natural areas. In some cases natural areas will be remnant landscapes. In other cases, natural areas may be created or restored landscapes intended to appear and function like native landscapes such as prairies, woodlands, or wetlands.

General Recommendations: The County version of this report recommends creation of a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. The Village should participate in development of this district and apply open space zoning to the area covered by the District.

Standards and criteria for open space areas designated in development plans are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

3. Landscape Standards

The Village of Montgomery has ordinances already in place to address landscaping within transportation rights-of-way, parking lots, and tree preservation standards.

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: Although trees and landscaping are currently required within parking lots, the recommended language provides additional detail that is intended to facilitate and encourage integration of stormwater features.

Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) is recommended.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management. A survey of significant vegetation should be required to assist the Village in its development review process.

4. Parking Requirements

Parking facilities often create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. Reduced parking area and alternative porous paving materials can help to reduce impervious surfaces and encourage infiltration and groundwater recharge. Coordination of parking needs between adjacent and nearby uses, and the provision of bicycle parking where appropriate can help to alleviate the need for overly large parking areas as well.

The Village allows compact parking spaces in some lots, depending upon size and associated land use. In order to further reduce unnecessary impervious surface, our recommendations include:

General Recommendations: Parking standards can be updated to meet current trends towards shared parking, parking credit programs, and parking for non-motorized vehicles. Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and source of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design. The Village of Montgomery has obviously attempted to balance quality of life issues with the benefits of connectivity and walkability, through requirements for sidewalks in the subdivision code

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

The Village of Montgomery has detailed setback and floor area ratio standards, along with open space requirements for residential developments. Densities and lot sizes are regulated as well.

As discussed under environmental standards, the countywide stormwater ordinance provides authority to protect water related resources such as streams, lakes, wetlands, and floodplains but does not have authority to protect other potential site resources

such as remnant uplands, wildlife connectors, agricultural land, and cultural resources. However, through other measures that fall under zoning and subdivision authority, protection of these areas can be required and/or incentives provided.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that may allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by The Village of Montgomery, along with the location in The Village's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER					
1	Alternative Detention/Infiltration Allowances	Subdivision Sec. 10.02	N/A	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12**:Inf-41
2	Rooftop Runoff Redirection	Subdivision Sec. 10.05	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision Sec. 10.02	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 6.04	N/A	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the Village may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Buffer Ownership	Zoning Sec. 6.04	N/A	Buffer areas must be owned by one of the following- 1) Homeowners' Association; 2) Condominium Association; 3) Non-Profit Conservation Organization; 4) Empowered Governmental Body; 5) Private Individual (holds fee title, while other entity holds conservation easement).	**17**:42-44
6	Floodplain Restrictions	Zoning Sec. 7.01	Only permitted uses allowed in floodplains (including limited agricultural uses, open type uses, private and public recreational uses, and residential uses). Drainage easement required for streams to flooding area; parking lots allowed, recreation, agriculture, bridges, sand extraction allowed.	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas. Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	**13:**16
7	Natural Areas Plan Compliance	Subdivision Sec 9.04	Natural features preservation encouraged ("shall be given due regard")	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12**:CR-2
8	Natural Areas Reclamation	Subdivision Sec 9.04	N/A	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design	Subdivision Sec. 9.06	N/A	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved Village plans.	**13:**11
10	Open Space Design - Approved Land Uses	Subdivision Sec. 9.06	N/A	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
11	Open Space Design - Phased Development Requirements	Subdivision Sec. 9.06	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
12	Remnant Landscapes	Zoning Sec. 12A.00	N/A	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
13	Special Zoning - Greenways	Zoning Sec. 6.04	N/A	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
14	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 6.04	N/A	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
15	Stream Buffer Width	Zoning Sec. 6.04	varies from 15 to 50 feet, depending on drainage area and stream quality (Kane County stormwater ordinance)	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
16	Wetland Buffer Width	Zoning Sec. 6.04	varies from 15 to 50 feet, depending on wetland area and wetland quality (Kane County stormwater ordinance)	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13:**II-16
17	Wetland Mitigation	Zoning Sec. 6.04	N/A	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
LANDSCAPE STANDARDS					
18	Native Plant Allowances/ Requirements	Zoning Sec. 12A.03; Subdivision Sec. 11.11	encouraged for water conservation	Landscape designs shall not include invasive plant species.	**CDF**
19	Parking Lot Landscape Requirements - bioretention/infiltration	Zoning Sec. 12A.03; Subdivision Sec. 11.11	Detention/retention basins and ponds areas shall be planted. Also refer to Kane County Stormwater Runoff Control Regulations	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
20	Parking Lot Landscape Requirements - Landscape Islands	Zoning Sec. 12A.03	A landscape island shall be provided at the end of each parking row. The island shall have a min. width of 7'. In addition to parking aisle landscape islands, full parking space landscape island, partial parking space landscape island, or continuous parking row landscape island shall be used to divide each row of parking having 20 spaces or more.	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
21	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Zoning Sec. 12A.03	The island shall be protected by a continuous concrete barrier curb.	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
22	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Zoning Sec. 12A.03	Each parking aisle landscape island shall contain two shade trees. Each landscape island required herein shall be landscaped with shrubs, flowers, groundcovers, sod and mulch.	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
23	Significant Vegetation Preservation	Subdivision Sec. 11.11	N/A	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
24	Street Landscape Requirements	Zoning Sec. 12A.03; Subdivision Sec. 11.11	Both sides of street between sidewalk and curb; street trees every 40' on center	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
25	Tree Planting Requirements	Zoning Sec. 12A.03; Subdivision Sec. 11.11	2 1/2" caliper @ 1 foot from the ground	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
26	Tree Planning Requirements - Gender	Zoning Sec. 12A.03; Subdivision Sec. 11.11	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
27	Tree Preservation Requirements	Zoning Sec. 12A.02; Subdivision Sec. 11.11	Yes. 4"+ Caliper requires permit (Not in SF duplex) with replacement standards	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
28	Alternative Parking Lot Runoff Treatments	Zoning Sec. 13.03	Allowed for hotels, offices and manufacturing lots with >=100 spaces. Also refer to Kane County Stormwater Runoff Control Regulations	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
29	Alternative Parking Spaces - Bicycle	Zoning Sec. 13.03	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
30	Alternative Parking Spaces - Compact Cars	Zoning Sec. 13.03	Compact car stalls will be allowed only for hotels, offices, and manufacturing uses. (100-199 parking spaces, 10% compact spaces allowed; every 100 spaces more add 5% more compact spaces; 700 or more spaces, 40% max. allowed)	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
31	Joint/Shared Parking Lot Allowances	Zoning Sec. 13.03	Total for joint is no less than the sum	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
32	Parking Lot Access Aisle Width	Zoning Sec. 13.03	N/A	30 Degree: One-way - 12', Two-way - 24'. 45 Degree: One-way - 12', Two-way - 24'. 60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'. 90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'. Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
33	Parking Ratios - Single Family	Zoning Sec. 13.05	4 (2in,2out) Dup-2 (1in, 1out)	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
34	Parking Ratio - Multi-Family	Zoning Sec. 13.05	2.25/unit (50% in)	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
35	Parking Ratio - Clinic	Zoning Sec. 13.05	12/doctor	1/250sf. A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
36	Parking Ratio - Church	Zoning Sec. 13.05	1/3 seats	1/4seats. A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Convenience Store	Zoning Sec. 13.05	1/200sf	1/300sf. A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
38	Parking Ratio - Office	Zoning Sec. 13.05	1/200sf	1/400sf. A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Shopping Center	Zoning Sec. 13.05	1/200sf	1/300sf. A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Ratio - Industrial	Zoning Sec. 13.05	1/employee + 1/business vehicle (no<1/600sf)	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
41	Parking Space Area	Zoning Sec. 13.03	N/A	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
42	Parking Space Reduction	Zoning Sec. 13.03	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
43	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 13.03	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	
44	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 13.03	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
45	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 13.03	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
46	Parking Structure (garage) Allowances	Zoning Sec. 13.03	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
47	Paving Requirement and Material	Zoning Sec. 13.03	bituminous asphaltic concrete material	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
48	Required Parking Minimums and Maximums	Zoning Sec. 13.05	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19
TRANSPORTATION REQUIREMENTS					
49	Alley ROW Width	Subdivision Sec 9.01	60'	Refer to Table 2	
50	Alley Width	Subdivision Sec 9.01	20' Res/30' commercial (not permitted in res. Areas)	Refer to Table 2	
51	Arterial ROW Width	Subdivision Sec 9.01	80'	Refer to Table 2	
52	Arterial Street Width	Subdivision Sec 9.01	39'	Refer to Table 2	
53	Bike Trails	Subdivision Sec. 9.01	N/A	Refer to Table 2	

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
54	Collector ROW Width	Subdivision Sec 9.01	100' ; 80'-100' (OR1)	Refer to Table 2	
55	Collector Width	Subdivision Sec 9.01	66' (63'-OR1)	Refer to Table 2	
56	Cul-de-Sac ROW Width	Subdivision Sec 9.01	paved (>=84')+28' (inconsistent)	Refer to Table 2	
57	Cul-de-Sac Width	Subdivision Sec 9.01	>=84' diameter (31') (inconsistent)	Refer to Table 2	
58	Curb and Gutter Requirements	Subdivision Sec. 11.04	Barrier type shall be constructed on all streets	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
59	Equestrian Trails	Subdivision Sec. 9.01	N/A	Refer to Table 2	
60	Mid-Block Ped/Bike Easements	Subdivision Sec. 9.01	Yes. Blocks over 1000 ft	Refer to Table 2	
61	Residential ROW Width	Subdivision Sec 9.01	66'	Refer to Table 2	
62	Residential Street Width	Subdivision Sec 9.01	31'	Refer to Table 2	
63	Road Alignment	Subdivision Sec 9.01	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
64	Sidewalk Materials	Subdivision Sec 11.03	PCC Concrete	Varies, and to ADA standards.	**10:** 3-32
65	Sidewalk Requirements	Subdivision Sec 9.01	Yes, both sides	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
66	Sidewalk Width	Subdivision Sec 9.01	N/A	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
67	Stream Crossings	Subdivision Sec 9.01	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
68	Street Paving Material	Subdivision Sec 9.01	PCC	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for biofiltration.	**CDF**
69	Trail Construction Materials	Subdivision Sec 9.01	N/A	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
70	Woonerf Overlay District	Zoning Sec. 6.00	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**
ZONING/SUBDIVISION STANDARDS					
71	Clearing and Grading	Zoning Sec. 8.00	N/A	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
72	Clustering	Zoning Sec. 8.00	N/A	Include within subdivision and zoning code a purpose statement for the benefits of clustering including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
73	Clustering - Objectives	Zoning Sec. 8.00	N/A	Clustering is allowed when it fulfills one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, 100-year floodplain, Slopes > 25%, drainageways, wetlands, remnant native landscapes. etc.; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; and 7) Protection of archaeological sites and existing historic resources.	**5:** 20; **15:**3-59
74	Density Bonus - incentivised actions	Zoning Sec. 8.00	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
75	Density Bonus/Incentives - Density Limits	Zoning Sec. 8.00	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
76	Garages	Zoning Sec. 13.00	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
77	Infill Incentives	Zoning Sec. 5.00	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
78	Open Space Requirements - Neighborhood Park	Subdivision Sec 8.03	5 ac	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
79	Open Space Requirements - Village Park	Subdivision Sec 8.03	4-20ac		
80	Open Space Requirements - Regional Park	Subdivision Sec 8.03	12 ac min.		
81	Open Space Requirements - Pocket Park	Subdivision Sec 8.03	8000 sf		
82	Planned Unit Development Allowances	Zoning Sec. 14.09	Yes; Mixed uses allowed in Downtown area	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Montgomery Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
83	Site Capacity/Yield	Zoning Art IX-Sec 9	N/A	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
84	Site Capacity/Yield	Zoning Sec. 8 to 11	Varies by zoning category	When calculating developable land area, remove perimeter street ROW and non buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
85	Site Capacity/Yield	Zoning Art IX-Sec 9	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
86	Site Capacity/Yield - Lot size	Zoning Art IX-Sec 9	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
87	Site Planning Process - Site Visit Requirement	Subdivision Sec. 8.00	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
88	Site Planning Process - Specific Area Plans	Subdivision Sec. 8.00	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

Village of North Aurora Report

April 2004

funded by:

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Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for Village of North Aurora, following this introduction and a short narrative of the findings regarding Village of North Aurora's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the Village of North Aurora's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that changes are continually being made to codes and ordinances based on the demands. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater**
   The Village of North Aurora has already adopted the Kane County stormwater ordinance that covers most of developments' direct stormwater impacts in both municipal and unincorporated areas. Because of this, Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance as adopted in the Village already addresses stormwater standards. The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   The Village of North Aurora comprehensive plan discusses open space acquisition and scenic view preservation along the Fox River. Additional environmental standards and programs will help implement these goals.

   This section focuses on protection, restoration, and management of natural areas. These recommendations address remnant landscapes as well as restored/created natural areas.

The Countywide Stormwater Ordinance already requires establishment of buffers along streams, lakes, and wetlands and already requires establishment of a responsible party. The language recommended in this section supplements those standards by suggesting additional activities that are outside the scope of the countywide stormwater authority.

The recommendations within this section are intended to provide more explicit standards for identification, protection, and management of natural areas. In some cases natural areas will be remnant landscapes. In other cases, natural areas may be created or restored landscapes intended to appear and function like native landscapes such as prairies, woodlands, or wetlands.

General Recommendations: The County version of this report recommends creation of a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. The Village should participate in development of this district and apply open space zoning to the area covered by the District.

Standards and criteria for open space areas designated in development plans are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

Preparation of management plans should be required for areas designated as open space within development plans and revenue sources for management activities should be institutionalized.

3. Landscape Standards

The Village of North Aurora has ordinances already in place that address tree preservation and street tree planting standards.

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: It is recommended that parking lot islands and other landscape features be required, which will encourage use of parking lot biofiltration. Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) should also be considered.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management. A survey of significant vegetation should be required to assist the Village in its development review process.

4. Parking Requirements

Parking facilities create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. The Village's existing policy in the comprehensive plan and existing regulations on parking standards will help to reduce parking lot area by requiring bicycle parking, allowing shared parking, and through

appropriate parking space ratios. In order to reduce unnecessary impervious surface even further, our recommendations include:

General Recommendations: Parking standards can be updated to meet current trends towards parking credit programs and specific ratios for parking for non-motorized vehicles by land use (recommended bicycle parking ratios are provided). The bicycle parking standards in the comprehensive plan should be codified and the Village should consider modifying automobile parking requirements to reflect the presence of bicycle parking.

Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and sources of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design. The City of Aurora has obviously attempted to balance quality of life issues with the benefits of connectivity and walkability, through requirements for sidewalks in the subdivision code and discussion of pedestrian and bicycle paths in the Comprehensive Plan.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

The Village of North Aurora has detailed setback and floor area ratio standards, along with open space requirements for residential developments. Densities and lot sizes are regulated as well. Planned unit developments are allowed for developments over 200 acres, along with clustering. Constraints and incentives have been included in some of the codes as well. The recommendations below are targeted toward establishing objective standards for clustering to provide more consistent application that benefits the Village and a greater level of predictability to encourage developers to utilize clustering approaches.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that may allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by The Village of North Aurora, along with the location in The Village's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Subdivision Sec. 3-11	N/A	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12:**Inf-41
2	Rooftop Runoff Redirection	Subdivision Sec. 3-11	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision Sec. 3-11	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 6.10	N/A	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the Village may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Floodplain Restrictions	Zoning Sec. 6.10	Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
6	Natural Areas Plan Compliance	Zoning Sec. 6.10	N/A	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12:**CR-2
7	Natural Areas Reclamation	Zoning Sec. 6.10; Comp Plan	Scenic views preservation on Fox River	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**
8	Open Space Design	Zoning Sec. 6.10; Comp Plan	Access management suggested in Comp Plan	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved Village plans.	**13:**11

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design - Approved Land Uses	Zoning Sec. 6.10; Comp Plan	Open space acquisition along Fox River in Comp Plan	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
10	Open Space Design - Phased Development Requirements	Zoning Sec. 6.10; Comp Plan	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
11	Remnant Landscapes	Zoning Sec. 6.10; Comp Plan	N/A	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
12	Special Zoning - Greenways	Zoning Sec. 6.10; Comp Plan	Plan an open space corridor linking the open space along the Fox River with western area open space development (Comp Plan)	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
13	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 6.10	N/A	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
14	Stream Buffer Width	Zoning Sec. 6.10	varies from 15 to 50 feet, depending on drainage area and stream quality (Kane County stormwater ordinance)	Streams and wetlands shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
15	Wetland Buffer Width	Zoning Sec. 6.10	varies from 15 to 50 feet, depending on wetland area and wetland quality (Kane County stormwater ordinance)	Wetlands will have a minimum of 20' buffer to be kept in or restored to a natural state, with minimum building and pavement setback of 35' beyond the outer edge of the buffer.	**13**:II-16
16	Wetland Mitigation	Zoning Sec. 6.10	N/A	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
LANDSCAPE STANDARDS					
17	Native Plant Allowances/ Requirements	Subdivision Sec. 3-19	N/A	Landscape designs shall not include invasive plant species.	**CDF**
18	Parking Lot Landscape Requirements - bioretention/infiltration	Zoning Sec. 12.2-11; Subdivision Sec. 3-19	Refer to Kane County Stormwater Runoff Control Regulations	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
19	Parking Lot Landscape Requirements - Landscape Islands	Zoning Sec. 12.2-11; Subdivision Sec. 3-19	one parking island shall be required for every 20 spaces	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
20	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Zoning Sec. 12.2-11; Subdivision Sec. 3-19	N/A	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
21	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Zoning Sec. 12.2-11; Subdivision Sec. 3-19	Parking island should be planted with one tree for single row parking, 2 trees for double row parking	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
22	Significant Vegetation Preservation	Subdivision Sec. 3-19	6" caliper, 12" off ground. Preservation policy mandated in Comp Plan	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
23	Street Landscape Requirements	Subdivision Sec. 3-19-C	Every 40'/2 per lot/3" caliper @ 12" off ground	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
24	Tree Planting Requirements	Subdivision Sec. 3-19-D	All trees shall have been northern nursery grown	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
25	Tree Planning Requirements - Gender	Subdivision Sec. 3-19	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
26	Tree Preservation Requirements	Subdivision Sec. 3-19-A	6" caliper, 12" off ground. Preservation policy mandated in Comp Plan	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
27	Alternative Parking Lot Runoff Treatments	Subdivision Sec. 3-11	Refer to Kane County Stormwater Runoff Control Regulations	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
28	Alternative Parking Spaces - Bicycle	Zoning Sec. 12.4	1/20 auto spaces non-res. Minimum of 2 spaces (Comp Plan)	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces. Also, include bike parking standards from comprehensive plan into zoning code.	**45**:4.1.20p
29	Alternative Parking Spaces - Compact Cars	Zoning Sec. 12.4	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45:** 4.1.50
30	Joint/Shared Parking Lot Allowances	Zoning Sec. 12.2-2	Allowed for alternately timed uses	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
31	Parking Lot Access Aisle Width - 45 Degree	Zoning Sec. 12.2-6, Appendix A	One-way - 13', Two-way - 24'.	45 Degree: One-way - 12', Two-way - 24'.	**15:**3-32
32	Parking Lot Access Aisle Width - 60 Degree	Zoning Sec. 12.2-6, Appendix A	One-way - 18', Two-way - 24'.	60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15:**3-32
33	Parking Lot Access Aisle Width - 90 Degree	Zoning Sec. 12.2-6, Appendix A	One-way - 24', Two-way - 24'.	90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15:**3-32
34	Parking Lot Access Aisle Width - Parallel	Zoning Sec. 12.2-6, Appendix A	N/A	Parallel Parking: One-way - 12', Two-way - 24'.	**15:**3-32
35	Parking Ratios - Single Family	Zoning Sec. 12.4	1/du	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
36	Parking Ratio - Multi-Family	Zoning Sec. 12.4	2/du for 2 bd units// 1.5/du for 1 bd unit	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Clinic	Zoning Sec. 12.4	4/employee	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**;** **21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
38	Parking Ratio - Church	Zoning Sec. 12.4	1/6 seats	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Convenience Store	Zoning Sec. 12.4	1/200sf (?)	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Ratio - Office	Zoning Sec. 12.4	1/400sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
41	Parking Ratio - Shopping Center	Zoning Sec. 12.4	6/1000sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
42	Parking Ratio - Industrial	Zoning Sec. 12.4	varies - 1/200sf over 2000 sf; 1/2 employees + 1/200 sf over 2000 sf	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
43	Parking Space Area	Zoning Sec. 12.2-5	9'X18.5' (20' for parallel parking)	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
44	Parking Space Reduction	Zoning Sec. 12.2-5	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
45	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 12.2-5	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	
46	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 12.2-5	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
47	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 12.2-5	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
48	Parking Structure (garage) Allowances	Zoning Sec. 12.2	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
49	Paving Requirement and Material	Zoning Sec. 12.2-11	PCC required	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
50	Required Parking Minimums and Maximums	Zoning Sec. 12.4	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19
TRANSPORTATION REQUIREMENTS					
51	Alley ROW Width	Subdivision Sec. 3-7 & Table 1	50'	Refer to Table 2	
52	Alley Width	Subdivision Sec. 3-7 & Table 1	29'	Refer to Table 2	

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
53	Arterial ROW Width	Subdivision Sec. 3-7 & Table 1	100'	Refer to Table 2	
54	Arterial Street Width	Subdivision Sec. 3-7 & Table 1	51'	Refer to Table 2	
55	Bike Trails	Subdivision Sec. 3-7 & Table 1	N/A	Refer to Table 2	
56	Collector ROW Width	Subdivision Sec. 3-7 & Table 1	80'	Refer to Table 2	
57	Collector Width	Subdivision Sec. 3-7 & Table 1	39'	Refer to Table 2	
58	Cul-de-Sac ROW Width	Subdivision Sec. 3-7 & Table 1	66'	Refer to Table 2	
59	Cul-de-Sac Width	Subdivision Sec. 3-7 & Table 1	29' paved width (100' diameter)	Refer to Table 2	
60	Curb and Gutter Requirements	Subdivision Sec. 3-7-O	Required, unless waived by the Village Board	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
61	Equestrian Trails	Subdivision Sec. 3-7 & Table 1	N/A	Refer to Table 2	
62	Mid-Block Ped/Bike Easements	Subdivision Sec. 3-6	Pedestrian/Bike system mentioned in Comp Plan	Refer to Table 2	
63	Residential ROW Width	Subdivision Sec. 3-7 & Table 1	66'	Refer to Table 2	
64	Residential Street Width	Subdivision Sec. 3-7 & Table 1	29'	Refer to Table 2	
65	Road Alignment	Subdivision Sec. 3-7	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
66	Sidewalk Materials	Subdivision Sec. 3-7-P	PCC required	Varies, and to ADA standards.	**10:** 3-32
67	Sidewalk Requirements	Subdivision Sec. 3-7-P	Required on both side in residential and commercial districts	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
68	Sidewalk Width	Subdivision Sec. 3-7-P	5' min	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
69	Stream Crossings	Subdivision Sec. 3-7	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
70	Street Paving Material	Subdivision Sec. 3-7-O	PCC or Asphalt	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for biofiltration.	**CDF**
71	Trail Construction Materials	Subdivision Sec. 3-7-O	N/A	Permable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
72	Woonerf Overlay District	Zoning Sec. 6.10; Subdivision Sec. 3-6	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**
ZONING/SUBDIVISION STANDARDS					
73	Clearing and Grading	Subdivision Sec. 3-8	N/A	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
74	Clustering	Zoning Sec. 6.11	Yes. If development constraints or significant amenities are provided	Include within subdivision and zoning code a purpose statement for the benefits of clustering including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
75	Clustering - Objectives	Zoning Sec. 6.11	N/A	Clustering is allowed when it fulfills one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, 100-year floodplain, Slopes > 25%, drainageways, wetlands, remnant native landscapes. etc.; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; and 7) Protection of archaeological sites and existing historic resources.	**5:** 20; **15:**3-59
76	Density Bonus - incentivised actions	Zoning Sec. 6.11	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
77	Density Bonus/Incentives - Density Limits	Zoning Sec. 6.11	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
78	Garages	Zoning Sec. 4.10	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
79	Infill Incentives	Zoning Sec. 6.10	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
80	Non-Conforming Uses	Zoning Sec. 5.2	N/A	Non-conforming uses shall not be expanded.	**15**:5-8

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of North Aurora Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
81	Open Space Requirements	Subdivision Sec. 6-2-A	10 Acres/1000 people (No private parks for credit, not including wetlands, floodplain and detention areas)	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements. Open space requirement may be	**36**:105; **13:**II-40
	Neighborhood Park	Subdivision Sec. 6-2-A	5 acres min.		
	Community Park	Subdivision Sec. 6-2-A	12-30 acres		
82	Planned Unit Development Allowances	Zoning Sec. 6.11	Yes, 200+ acres; Mixed use allowed but not in residential use	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
83	Site Capacity/Yield	Zoning Art IX	N/A	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
84	Site Capacity/Yield	Zoning Art IX	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
85	Site Capacity/Yield - Lot size	Zoning Art IX	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
86	Site Planning Process - Site Visit Requirement	Subdivision Section 8	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
87	Site Planning Process - Specific Area Plans	Subdivision Section 8	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

Village of Sugar Grove Report

April 2004

funded by:

Illinois Department of Natural Resources

prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Appendices

Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the Kane County Stormwater Ordinance, and the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. While the Kane County Stormwater Ordinance establishes standards for managing stormwater, once it has been generated, the ordinance has little authority to prevent stormwater runoff through land use controls. Conversely, local subdivision and zoning codes can have a significant influence on the amount of runoff generated through street width standards, parking and open space requirements, etc. Thus, rather than focusing on standards already addressed in Kane County's Stormwater Ordinance, this ordinance project suggests standards and codes for facets of development outside the realm and authority of the Stormwater Ordinance.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community. In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for Village of Sugar Grove, following this introduction and a short narrative of the findings regarding Village of Sugar Grove's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the Village of Sugar Grove's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that changes are continually being made to codes and ordinances based on the demands. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. **Alternative Stormwater**
   The Village of Sugar Grove has already adopted the Kane County stormwater ordinance that covers most of developments' direct stormwater impacts in both municipal and unincorporated areas. Because of this, Alternative Stormwater Standards is the least detailed portion of this report. Also, the Kane County Environmental Management Department is currently evaluating its runoff reduction (0.75 inches per impervious acre) and release rate standards and is updating the Stormwater Manual to include infiltration and bioretention stormwater management measures. The recommendations in this section, as well as the other sections are primarily focused on allowing or requiring these techniques.

   General Recommendations: The Kane County Stormwater Ordinance as adopted in the Village of Sugar Grove already addresses stormwater standards. The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

   The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. **Environmental Standards**
   The Village of Sugar Grove has made significant strides to preserve naturalized open space through its Environmental Corridors initiative. The Village's codes and ordinances provide appropriate regulatory framework for Environmental Corridors, which are complimented by buffer area management guidelines, erosion control requirements, native landscape preservation, and the protection of steep slopes. To supplement these efforts, there are some additional elements that could be considered, including:

General Recommendations: The Village should consider adding detail into its Environmental Corridor ordinances. Specifically, there is opportunity to divide the Corridors into three zones that allow for various uses such as passive trails in appropriate locations, and specifically prohibit other uses.

Language could be added to define more succinctly what does and does not qualify as open space, including high-quality agricultural lands, and how and what entities must be established to manage the Corridor land and other preserves.

The County version of this report recommends creation of a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. The Village should participate in development of this district and apply open space zoning to the area covered by the District.

3. Landscape Standards

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff. The Village of Sugar Grove has ordinances already in place to address landscaping within transportation rights-of-way, "significant" tree survey, and parking lot landscaping requirements. The Village's code sets a solid foundation for the following recommendations:

General Recommendations: Although trees and landscaping are currently required within parking lots, the recommended language provides additional detail that is intended to facilitate and encourage integration of stormwater features.

Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) is recommended.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management.

4. Parking Requirements

Parking facilities create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. The Village's parking ratio requirements are close to what was found in model codes. In order to reduce further unnecessary impervious surface, our recommendations include:

General Recommendations: Parking standards can be updated to meet current trends towards shared parking, parking credit programs, and parking for non-motorized vehicles (recommended bicycle parking ratios are provided). Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

A significant proportion of the impervious surfaces and sources of stormwater impacts is related to streets and highways. Limiting the amount of impervious cover to that which is necessary and to the most appropriate areas is a key to ecologically sensitive design. The Village of Sugar Grove has obviously attempted to balance quality of life issues with the benefits of connectivity and walkability, through requirements for sidewalks in the subdivision code.

General Recommendations: More explicit design standards for street width, along with allowances for street designs that utilize naturalized stormwater infiltration and conveyance systems should be incorporated into current codes. Also, since stream crossings can cause significant stream impacts, recommended standards related to the number of crossings and the design of crossings are provided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

As discussed under environmental standards, the countywide stormwater ordinance provides authority to protect water related resources such as streams, lakes, wetlands, and floodplains but does not have authority to protect other potential site resources such as remnant uplands, wildlife connectors, agricultural land, and cultural resources. However, through other measures that fall under zoning and subdivision authority, protection of these areas can be required and/or incentives provided.

General Recommendations: The recommended site planning process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that may allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by The Village of Sugar Grove, along with the location in The Village's codes and ordinances where it may be inserted.

Table 1: Current Codes and Recommended Code Revisions Table

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Subdivision 12-6-3	N/A	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12**:Inf-41
2	Rooftop Runoff Redirection	Subdivision 12-6-3	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision 12-6-3	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 7.1E; Subdivision 12-8-4	N/A	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the County may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Floodplain Restrictions	Zoning Sec. 7.1E; subdivision 12-8-2	Any property, parcels, tracts, lots or lands contained within a floodplain or wetland shall not be developed except as otherwise provided herein. Any such variance request shall be limited to the allowance of construction of parking areas, water retention areas, walkways, bike paths, parks and other open space type uses. Compensatory storage required for floodplain fill (Kane County stormwater ordinance).	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
6	Natural Areas Plan Compliance	Zoning Sec. 7.1E; subdivision 12-8-2	N/A	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12**:CR-2
7	Natural Areas Reclamation	Zoning Sec. 7.1E; subdivision 12-8-2	N/A	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
8	Open Space Design	Zoning Sec. 7.1E; Subdivision Sec. 12-5-8	200' min. width for Environmental Corridor; 75' access easement	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved County plans.	**13:**11
9	Open Space Design - Approved Land Uses	Zoning Sec. 7.1E	Included in the Environmental Corridor	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13:**11; **46**
10	Open Space Design - Phased Development Requirements	Zoning Sec. 7.1E	Included in the Environmental Corridor	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
11	Remnant Landscapes	Zoning Sec. 7.1E	Included in the Environmental Corridor	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
12	Special Zoning - Greenways	Zoning Sec. 7.1E	Included in the Environmental Corridor	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34:**125
13	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 7.1E	N/A	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12:**CR-2
14	Stream Buffer Width	Zoning Sec. 7.1E; Subdivision 12-8-4	Included in the Environmental Corridor width 200' min.; buffer width: 25'; Setback: 75'. Buffer width varies from 15 to 50 feet, depending on drainage area and stream quality (Kane County Stormwater Ordinance)	Streams shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
15	Wetland Buffer Width	Zoning Sec. 7.1E; Subdivision 12-8-4	Included in the Environmental Corridor width 200' min. Buffer width: 25'; Setback: 75'. Buffer width varies from 15 to 50 feet, depending on wetland area and wetland quality (Kane County Stormwater Ordinance).	Wetlands shall be buffered using a three-zone system with the following standards: (1) Undisturbed Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
16	Wetland Mitigation	Zoning Sec. 7.1E	Where wetlands exist within, or adjacent to the greenbelt, a wetland delineation report shall be submitted. Mitigation plan, if applicable, for mitigating negative effects to resources regulated by this title.	Wetlands found within a site proposed to be developed must remain in or be restored to a natural state.	**46**
LANDSCAPE STANDARDS					
17	Native Plant Allowances/ Requirements	Subdivision Sec. 12-6-11	restore and using native plants within buffers	Landscape designs shall not include invasive plant species.	**CDF**
18	Parking Lot Landscape Requirements - bioretention/infiltration	Subdivision Sec. 12-11-18	parking island landscaping required; >5% or 120 sf, 7' wide and 20-30 linear ft per shade tree and 6 shrubs; Countywide Stormwater ordinance requires retention of 0.75 inches of runoff for impervious areas	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
19	Parking Lot Landscape Requirements - Landscape Islands	Subdivision Sec. 12-11-18	N/A	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
20	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Subdivision Sec. 12-11-18	N/A	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
21	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Subdivision Sec. 12-11-18	N/A	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
22	Significant Vegetation Preservation	Subdivision Sec. 12-6-11	N/A	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
23	Street Landscape Requirements	Subdivision Sec. 12-6-11	7' wide and 20-30 lf per shade tree and 6 shrubs	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
24	Tree Planting Requirements	Subdivision Sec. 12-6-11	Parkway trees @ 40 feet	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
25	Tree Planning Requirements - Gender	Subdivision Sec. 12-6-11	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
26	Tree Preservation Requirements	Subdivision Sec. 12-6-11	Credit will be given for each healthy properly pruned existing tree that meets the minimum size and location standards.	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**
PARKING REQUIREMENTS					
27	Alternative Parking Lot Runoff Treatments	Subdivision Sec. 12-11-18	Refer to Kane County Stormwater Runoff Control Regulations	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
28	Alternative Parking Spaces - Bicycle	Subdivision Sec. 12-11-18	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
29	Alternative Parking Spaces - Compact Cars	Subdivision Sec. 12-11-18	N/A	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
30	Joint/Shared Parking Lot Allowances	Subdivision Sec. 12-11-18	N/A	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
31	Parking Lot Access Aisle Width	Subdivision Sec. 12-11-18	12' (one-way) to 24' (two-way) in width	30 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				45 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15**:3-32
				90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15**:3-32
				Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
32	Parking Ratios - Single Family	Subdivision Sec. 12-11-18	<30% or 700sf/unit - 2/du	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
33	Parking Ratio - Multi-Family	Subdivision Sec. 12-11-18	<450 sf/unit - 2.25/du	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
34	Parking Ratio - Clinic	Subdivision Sec. 12-11-18	1 space/2 beds + 1 space/2 employees + 1 space/2 doctors	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
35	Parking Ratio - Church	Subdivision Sec. 12-11-18	1 space/4 seats or 90 inches of seating capacity	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
36	Parking Ratio - Convenience Store	Subdivision Sec. 12-11-18	5/1000 sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
37	Parking Ratio - Office	Subdivision Sec. 12-11-18	5/1000 sf <5,000 sf; 3/1000 sf >5000 sf building size	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
38	Parking Ratio - Shopping Center	Subdivision Sec. 12-11-18	5/1000 sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Industrial	Subdivision Sec. 12-11-18	1/1000 sf floor area or 1 space/1.25 employees, whichever is greater	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Space Area	Subdivision Sec. 12-11-18	8' or 9' or 16'(handicapped) wide, 18'-24' long	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
41	Parking Space Reduction	Subdivision Sec. 12-11-18	N/A	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
42	Parking Space Reductions for Carpooling Programs.	Subdivision Sec. 12-11-18	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	
43	Parking Space Reductions for Proximity to Mass Transit	Subdivision Sec. 12-11-18	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
44	Parking Space Reductions from Provision of On-Street Parking	Subdivision Sec. 12-11-18	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
45	Parking Structure (garage) Allowances	Subdivision Sec. 12-11-18	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
46	Paving Requirement and Material	Subdivision Sec. 12-11-18	concrete or asphalt	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
47	Required Parking Minimums and Maximums	Subdivision Sec. 12-11-18	N/A	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19
TRANSPORTATION REQUIREMENTS					
48	Alley ROW Width	Subdivision Sec. 12-5-3	N/A	Refer to Table 2	
49	Alley Width	Subdivision Sec. 12-5-3	20' (30' commercial)	Refer to Table 2	
50	Arterial ROW Width	Subdivision Sec. 12-5-3	80'	Refer to Table 2	
51	Arterial Street Width	Subdivision Sec. 12-5-3	38'	Refer to Table 2	
52	Bike Trails	Subdivision Sec. 12-5-3	N/A	Refer to Table 2	
53	Collector ROW Width	Subdivision Sec. 12-5-3	100'	Refer to Table 2	
54	Collector Width	Subdivision Sec. 12-5-3	52'	Refer to Table 2	
55	Cul-de-Sac ROW Width	Subdivision Sec. 12-5-3	N/A	Refer to Table 2	
56	Cul-de-Sac Width	Subdivision Sec. 12-5-3	45' outside radius, 65' from property line, <500' long	Refer to Table 2	

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
57	Curb and Gutter Requirements	Subdivision Sec. 12-5-3	N/A	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
58	Equestrian Trails	Zoning Art. II; Subdivision Sec. 12-5-3	N/A	Refer to Table 2	
59	Mid-Block Ped/Bike Easements	Zoning Art. II; Subdivision Sec. 12-5-3	N/A	Refer to Table 2	
60	Residential ROW Width	Subdivision Sec. 12-5-3	66'	Refer to Table 2	
61	Residential Street Width	Subdivision Sec. 12-5-3	28', 32'	Refer to Table 2	
62	Road Alignment	Subdivision Sec. 12-5-3	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
63	Sidewalk Materials	Zoning Sec. 9.7; Subdivision Sec. 12-11-4	concrete	Varies, and to ADA standards.	**10:** 3-32
64	Sidewalk Requirements	Zoning Sec. 9.7; Subdivision Sec. 12-6-9	both side (one side in industrial use)	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
65	Sidewalk Width	Zoning Sec. 9.7; Subdivision Sec. 12-11-4	5'	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
66	Stream Crossings	Subdivision Sec. 12-5-3	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
67	Street Paving Material	Subdivision Sec. 12-5-3	asphalt or concrete	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for biofiltration.	**CDF**
68	Trail Construction Materials	Subdivision Sec. 12-5-3	N/A	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
69	Woonerf Overlay District	Zoning Art. II	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ZONING/SUBDIVISION STANDARDS					
70	Clearing and Grading	Zoning Sec.12-7-9	The topography and geology of the dedicated site as well as its surroundings must be suitable for its intended purpose. Grading on sites dedicated for park and recreational uses shall not differ greatly from surrounding land.	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
71	Clustering	Zoning Art. XI	N/A	Include within subdivision and zoning code a purpose statement for the benefits of clustering including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19
72	Clustering - Objectives	Zoning Art. XI	N/A	Clustering is allowed when it fulfills one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, 100-year floodplain, Slopes > 25%, drainageways, wetlands, remnant native landscapes. etc.; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; and 7) Protection of archaeological sites and existing historic resources.	**5:** 20; **15:**3-59
73	Density Bonus - incentives actions	Zoning Art. XI	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
74	Density Bonus/Incentives - Density Limits	Zoning Art. XI	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
75	Garages	Zoning Sec. 7	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
76	Infill Incentives	Zoning Art. XI	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
77	Non-Conforming Uses	Zoning Art. XI	N/A	Non-conforming uses shall not be expanded.	**15**:5-8
78	Open Space Requirements	Zoning Sec. 7.1E; Subdivision Sec. 12-7-2	10 ac/1000 people	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40

Table 1: Current Codes and Recommended Code Revisions Table (continued)

Village of Sugar Grove Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
79	Planned Unit Development Allowances	Zoning Art. XI	Allow mixed use	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
80	Site Capacity/Yield	Subdivision 7 to 9	Varies by zoning category	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15:**2-15; **17:**21
81	Site Capacity/Yield	Subdivision 12-6-3	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21
82	Site Capacity/Yield - Lot size	Zoning Art IX-Sec 9	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
83	Site Planning Process - Site Visit Requirement	Subdivision Sec. 12-4-2	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
84	Site Planning Process - Specific Area Plans	Subdivision Sec. 12-4-2	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within POD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Blackberry Creek Watershed

Zoning Code Analysis and Ordinance Language Recommendations

City of Yorkville Report

April 2004

funded by:

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prepared for:

Kane County, Illinois

prepared by:

CONSERVATION DESIGN FORUM

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Introduction

The Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project is a continuation of ongoing efforts to reduce the negative impacts of stormwater and improve the quality of life in the Blackberry Creek Watershed. These efforts have begun with the Blackberry Creek Watershed Management Plan and continued with the recently completed Blackberry Creek Watershed Alternative Futures Analysis Project.

Project Purpose: The purpose of this ordinance language project was to provide suggested ordinance revisions to each of the municipalities and counties located within the Blackberry Creek Watershed. Particular attention was paid to zoning and subdivision ordinances and specifically those codes that can influence stormwater runoff and therefore stormwater impacts to the natural and built environments. Because the County already has stormwater standards and because the Blackberry Creek Watershed Management Plan provided recommended stormwater and floodplain standards, the focus of this effort was not on areas addressed in stormwater and floodplain ordinances but instead focuses on subdivision and zoning code.

This project recommends changes to subdivision and zoning code for each of the municipalities and counties in the Blackberry Creek Watershed. While the recommended changes are strongly encouraged and have the potential to provide significant protection for the Blackberry Creek Watershed, it is recognized that municipalities and counties have many issues and concerns that must be balanced when creating development standards. Thus, it should be understood that these are only recommendations and that they must be reviewed in light of overall community conditions and relationships to other community standards prior to adoption.

Background: Stormwater is a significant issue in the Blackberry Creek Watershed, as evidenced by the over $14 million in flood damages associated with the 1996 flood as reported in the Blackberry Creek Watershed Management Plan. In response to the 1996 flood, the Watershed Management Plan for Blackberry Creek was prepared and adopted by the watershed communities and Kane and Kendall Counties in 1999. Several jurisdictions have taken additional initiative to develop specific codes and ordinances that help orient new development towards conservation design, including the City of Aurora's Countryside Vision Plan, Elburn's and Sugar Grove's stream and wetland protection ordinance, and Kendall County's revised conservation-oriented residential zoning code.

Even with these individual efforts, the watershed still remains at risk, as discussed in the Blackberry Creek Alternative Futures Analysis report (2003), unless a coordinated program is developed for addressing stormwater impacts on watershed systems. This project is intended to provide the tools to address the gap between stormwater ordinances and subdivision and zoning code. This was done by researching model codes and standards from around the nation, analyzing local ordinances in the Blackberry Creek Watershed, and providing recommended language for each municipality and county in the watershed. This report presents the recommended language.

Project Participants: The Blackberry Creek Watershed contains seven municipalities and two counties, including Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, Yorkville, and Kane and Kendall Counties. Reports such as this were prepared for each community and each report is specific to the codes and ordinances of that community.

In addition to the specific recommendations, summaries of the models used in preparing these recommendations are also provided so that each community has the opportunity to see exactly how model codes and the research centers from around the country are addressing similar issues through the creation and adoption of innovative ordinances and development standards. This report is designed to provide the necessary tools for each community to update its own codes.

Project Process

This project included several tasks to develop model codes and ordinance language specifically for each community.

(1) **Research Model Codes** – The first task for the project team included the collection of over 40 model code resources relevant to reducing natural resource impacts of urban development. These resources were collected from agencies and organizations around the nation. A reference list from the research can be found in ***Appendix A*** and the results are integrated into **Tables 1** and **Table 2** of this report.

(2) **Review and Analyze Municipal and County Subdivision and Zoning Ordinances** – After the model codes were reviewed and summarized, existing zoning and subdivision ordinances for each of the jurisdictions in the watershed were analyzed. The results of this analysis were used to identify areas where the municipality or the county may wish to revise its code to reduce development impacts to the Blackberry Creek Watershed. Each community was sent their code summary for review and correction. The results were presented to the participating entities to allow them to compare their codes and standards to those of their neighboring communities. The final summarized codes and standards can be found in ***Appendix B*** of this report.

(3) **Meet with Participating Entities to Discuss Model Code Language** – A meeting was held with representatives from the various communities and the two counties to review the model standards and receive additional comments before the final reports were developed. Comments given during and after the meeting were inserted into the model language tables.

(4) **Create Draft Final Report for Review** – To ensure that the recommended code changes were communicated in a readily usable format, a draft of the final report table was created and sent to all participants for their review and comment. Once a majority of the participants responded that the format was acceptable, the final phase was begun.

(5) **Preparation and Dissemination of Final Model Language Reports** – Recommended changes to subdivision and zoning code were prepared for each community and compiled into individual reports in table format as explained in more detail below.

How to Use This Report

Current Codes and Recommended Code Revisions Table (Table 1)
Table 1 summarizes existing code and recommended code revisions for City of Yorkville, following this introduction and a short narrative of the findings regarding City of Yorkville's current codes and ordinances. Also included in Table 1 are the corresponding references used to establish the recommended changes.

Table 1 is divided into five columns, each described below:

Column 1. No. – The first column numbers every item in the code/standard categories that are described in the Column 2.

Column 2. Code/Standard Categories – The second column lists six major categories and general topic areas related to development and to which the model language recommendations apply. The six major categories include:

1) Alternative Stormwater Standards,
2) Environmental Standards,
3) Landscape Standards,
4) Parking Requirements,
5) Transportation Requirements, and
6) Zoning/Subdivision Standards.

Within the major categories above, more specific detailed category areas (or minor categories) are provided (e.g., parking lot landscape requirements, street widths, etc.) and numbered in Column 1.

Column 3. Local Code Reference – If the community's existing codes and ordinances address the category area in the second column, the location of that language within the community's code is referenced in the third column. If the code does not address the category, then an appropriate location for inserting the recommended language within the codes was identified and listed in this column (e.g., Subdivision Code Section 19.72 – 3).

Column 4. Current Standard – The forth column briefly summarizes the community's current language or standard (e.g., bike trails must be a minimum of 8 feet wide). If the community's current code does not address this particular standard, then "N/A" or Not Applicable is indicated.

Column 5. Recommended Standard/Action – The fifth column contains the recommended language for insertion into the community's ordinance (e.g., credit will be given for available on-street parking…). In cases where a standard from the model code research was not applicable, a recommended action is listed (e.g., Adapt a permit process to expedite conservation-oriented designs.) There are a number of locations where wording options are provided (i.e., require/allow) depending on the community's preference.

Column 6. Source – The last column simply lists the sources of the suggested language (e.g., **12:**126 – Reference No. 12, page 126). See ***Appendix A*** of this report for a full list of references.

Recommended Transportation Standards Table (Table 2)
The transportation section of the recommended code was sufficiently complex that additional detail was provided in a separate table with references to it in Table 1. The Table 2 lists recommended street width and bike lane standards and their sources. The model code sources recommend using Average Daily Trips (ADT) for assigning appropriate street widths rather than basing width on a street hierarchy system. Thus, the Table 2 standards are based on ADT.

Recommendations Summary

The following is a brief summary of our analysis of the City of Yorkville's currently adopted subdivision and zoning codes (current as of the beginning of this project in the summer of 2002). It is understood that changes are continually being made to codes and ordinances based on the demands. Even so, this summary will provide insight into the rational behind the code changes that are recommended in Table 1.

1. Alternative Stormwater Standards

Stormwater ordinances were not reviewed as part of this project and instead those aspects of subdivision and zoning code that encourage or prohibit conservation based stormwater management practices were evaluated. For recommendations related to stormwater (and floodplain management) standards, please see the recommendations in the Blackberry Creek Watershed Management Plan. Because stormwater standards have been addressed in other documents, Alternative Stormwater is the least detailed portion of this report. In order to support efforts already made in the County's Stormwater Ordinance, we recommend language changes and preliminary programmatic work in the following areas:

General Recommendations: The language provided here is intended to facilitate and encourage use of biofiltration techniques (bioswales, rain gardens, etc.) to address street and roof runoff.

The language also suggests a stormwater impact fee to provide an incentive for reducing the effective impervious area (hydraulically connected impervious area) of a site and therefore the amount of runoff. This is a short recommendation that would require significant additional study prior to implementation. However, programs like this have completely changed the economics of stormwater in Germany. Methods of "disconnecting" impervious area include use of permeable paving, green roofs, and biofiltration techniques (bioswales, rain gardens, etc.).

2. Environmental Standards

The City has made significant efforts in protecting wetlands and Blackberry Creek. The City is currently adopting a wetland protection ordinance and prevented a sanitary sewer interceptor from being constructed along the Blackberry Creek valley corridor. The wetland ordinance has significant buffer requirements for streams and wetlands and has prevented direct storm sewer discharges to Blackberry Creek through annexation agreements.

The City of Yorkville has made significant strides to preserve natural areas. The City's codes and ordinances provide regulatory framework for buffer areas, and are complimented by buffer area management requirements.

The recommendations within this section are intended to provide more explicit standards for identification, protection, and management of natural areas. In some cases natural areas will be remnant landscapes. In other cases, natural areas may be created or restored landscapes intended to appear and function like native landscapes such as prairies, woodlands, or wetlands.

General Recommendations: It is recommended that the City work with the County and other municipalities to jointly create a Countywide Natural Areas Overlay District that identifies aquatic, as well as upland, resources to be protected along with their buffers. This plan would be similar to the Green Infrastructure Plan identified in the Blackberry Creek Alternative Futures Analysis report. Open space zoning should then be applied to the area of the District.

Standards and criteria for open space areas designated in development plans are recommended. The standards and criteria address identification of potential open space, allowable uses and cover within the open space, buffer transitions, and other design elements.

In addition to stream and wetland management plans required in the proposed wetland ordinance, preparation of management plans should be required for all areas designated as open space within development plans and revenue sources for management activities should be institutionalized. .

3. Landscape Standards

The City of Yorkville has ordinances already in place to address landscaping within transportation rights-of-way and parking lots, and has standards for tree preservation. The City also has species lists in place to guide the types of trees allowed for streetscapes.

Many stormwater management measures can be incorporated into landscape areas. These features include biofiltration swales, rain gardens, and filter strips. Also, the type of landscape can influence the amount and rate of runoff.

General Recommendations: Although trees and landscaping are currently required within parking lots and street right-of-way, the recommended language provides additional language that is intended to facilitate and encourage integration of stormwater features.

Language to specifically allow/require integration of biofiltration into parking islands and street side landscape strips (a.k.a. parkway, tree lawn, etc.) is recommended.

Expansion of tree protection language is recommended to provide protection of other beneficial vegetation and also to allow removal of trees where appropriate for proper forest/natural area management.

4. Parking Requirements

Parking facilities create large impervious surfaces that result in an increase in stormwater runoff and related water quality issues. Reduced parking area and allowing alternative porous paving materials can help to reduce impervious surfaces and encourage infiltration and groundwater recharge. The City has parking ratio requirements that are close to what was found in model codes. In order to reduce further unnecessary impervious surface, our recommendations include:

General Recommendations: Parking standards can be updated to meet current trends towards shared parking, parking credit programs, and parking for non-motorized vehicles (recommended bicycle parking ratios are provided). Specific language to allow permeable parking surfaces such as interlocking concrete pavers, porous asphalt, and porous concrete is recommended. These types of permeable paving systems have been shown to be as durable as conventional asphalt and concrete paving and need not be limited to overflow parking areas.

5. Transportation Requirements

Reducing the amount of unnecessary impervious surface is a key to ecologically sensitive transportation systems. The City of Yorkville has extensive codes regulating street and right-of-way width, paving material and sidewalk construction. There remains opportunity for creating the regulatory framework for a transportation system that accommodates multiple modes of transportation and the appropriate amount of automobile traffic, while at the same time accommodating naturalized stormwater infiltration and conveyance systems that are both aesthetic and hydrologically functional.

General Recommendations: The City currently allows naturalized drainage system and the language provided here is intended to encourage naturalized drainage in higher density areas where curbs may be necessary.

Further, recommendations are made regarding street placement such that the natural contours of the site are considered and an excessive number of stream crossings is avoided.

As outlined in Table 2, pavement width, the number of drive lanes, the presence of bike lanes and parking lanes should be based on average daily trips as well as the type of road. Where traffic counts are high, separate bike lanes should be provided to allow for safe use of bicycles as an alternative means of transportation. Also, because wider drive lanes can encourage higher speeds, narrower lanes are recommended for local roads with low traffic counts.

6. Zoning/Subdivision

The City of Yorkville has detailed setback and floor area ratio standards, along with open space requirements for residential developments. Densities and lot sizes are regulated as well.

General Recommendations: One of the most powerful incentives that the City can use is to streamline its permitting process for conservation design-oriented projects to put them on equal footing with more conventional layouts. More

detail could be added to the City's current codes that would enable developers to create sites that provide room for naturalized stormwater systems and protected open space. Clustering and working with gross densities provides the developer flexibility near ecologically sensitive areas, including wetlands, rivers and floodplains, but does not sacrifice the perceived quality of life benefits of large lots. Density bonus programs can also be used to encourage ecologically sensitive design. To accomplish this, site-capacity or site-yield information should be gathered by the developer and the City well before any plans or designs are drawn up for a development.

The recommended process is to perform a site capacity analysis based on the remaining developable land after removing floodplains, streams, wetlands, and other undevelopable land. Once the developable land is identified, additional resources that should be considered for protection should be identified. Then cluster approaches may be used to protect these additional resources. Also, density bonuses can be given to further facilitate protection of these areas.

Site yield calculations should be required to determine the potential number of units that the site can accommodate after removing undevelopable land. This allows for a more objective analysis of the number of units that the zoning allows and the starting point for density bonuses that allow for additional lots. It is recommended that lot sizes as specified in the zoning code be used to determine site yield but reductions in actual lot size be allowed to provide the required open space as described below.

Open space requirements that vary with development density are recommended. However, to encourage these practices, the recommended language allows the open space to be used for naturalized drainage. The recommendation also allows clustering to achieve the open space requirement.

With the above general summaries in mind, the following tables provide a more detailed description of the language that is recommended for consideration by Kendall County, along with the location in the County's codes and ordinances where it may be inserted.

Table 1 Current Codes and Recommended Code Revisions Table

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
ALTERNATIVE STORMWATER STANDARDS					
1	Alternative Detention/Infiltration Allowances	Subdivision Sec. 8.09& Storm Sewer System Spec	N/A	Native and perennial gardens are required/allowed where the landscape strip within public rights-of-way and public easements is used for bioretention/infiltration of stormwater.	**12**:Inf-41
2	Rooftop Runoff Redirection	Subdivision Sec. 8.09	N/A	For roofs to be considered hydraulically disconnected impervious (for purposes of the stormwater ordinance), the roof runoff shall be directed to a cistern, rain garden or other area of sufficient size and permeability to produce no surface runoff for rainfall events up to 0.75 inches.	**21:**126
3	Stormwater Incentives - Fees	Subdivision Sec. 8.09& Storm Sewer System Spec	N/A	Impose stormwater impact fees on developers based on release of stormwater. European examples suggest a range of $1,260 - $2,860/acre-foot/year (Huert and Bielefeld, Germany). By applying the fee only to "hydraulically connected impervious surfaces" and providing standards for methods of hydraulically disconnecting impervious surfaces, there would be significant incentive to reduce runoff.	**CDF**
ENVIRONMENTAL STANDARDS					
4	Buffer Management - Planning	Zoning Sec. 10-4	Refer to proposed wetland ordinance	Management and preservation plans shall be prepared for all common open space areas and stormwater facilities. A revenue source (e.g., Special Service Area or backup SSA) shall be established to fund the recommended management activities. Where necessary management is not being conducted, the County may conduct those activities and draw on the identified revenue source to fund those activities.	**13**
5	Buffer Ownership	Zoning Sec. 10-4	Homeowner's Association	Buffer areas must be owned by one of the following- 1) Homeowners' Association; 2) Condominium Association; 3) Non-Profit Conservation Organization; 4) Empowered Governmental Body; 5) Private Individual (holds fee title, while other entity holds conservation easement).	**17**:42-44
6	Floodplain Restrictions	Zoning Sec. 10-5	Comp storage required (1:5:1); No fill within 100-year floodplain	Uses allowed within the flood fringe shall be limited to 1) Agriculture; 2) Public and private parks; 3) Passive recreation; 4) Fencing parallel to the direction of water flow; 5) Pervious parking lots subject to flooding depths no greater than 6 inches, 6) yard areas.	**13:**16
7	Natural Areas Plan Compliance	Zoning Sec. 10-4	to be determined-watershed management plan	Development Plan shall comply with Natural Areas Overlay District (See Special Zoning for Environmentally Sensitive Areas)	**12**:CR-2
8	Natural Areas Reclamation	Zoning Sec. 10-4	N/A	Any area designated as naturalized open space shall be planted and maintained with appropriate native vegetation where existing native vegetation does not exist or cannot be preserved.	**46**

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
9	Open Space Design	Subdivision Sec. 7.02	10 ac per 1000 land cash	Officially approved naturalized open space shall be: 1) designed to conserve significant natural features and cultural elements on the site. 2) naturalized to consist of primarily native landscapes. 3) Interlinked with other open space. Passive recreation, farming, sewage treatment, and stormwater facilities may be allowed in these areas where these uses do not impact important natural features and where consistent with approved County plans.	**13:**11
10	Open Space Design - Approved Land Uses	Subdivision Sec. 7.02	N/A	Officially approved naturalized open space may not include: 1) Roads and rights-of-way, 2) Parking, 3) Driveways and access ways (except to support passive uses such as parking, restrooms), etc., 4) Required setbacks (except for naturalized stream or wetland setbacks), 5) Private yards, 6) fragmented or isolated open space, and 7) Land that is subject to preexisting conservation easements or similar limitations on development.	**13**:11; **46**
11	Open Space Design - Phased Development Requirements	Subdivision Sec. 7.02	N/A	In the case of phased developments, open space shall be provided in proportion to each phase of development.	**46**
12	Remnant Landscapes	Zoning Sec. 10-4	N/A	Remnant native landscapes consisting of plant communities indigenous to the site and northern Illinois shall be protected, restored, and maintained.	**CDF**
13	Special Zoning - Agricultural Preservation	Zoning Sec. 10-4	N/A	Adopt a County-Wide Agriculture Preservation District protecting land with soil types of Class I-IV Soils or high-quality, productive soils. Consider including sufficient land for wastewater land application treatment systems in Agriculture Preservation Districts.	**12:**GM-9, 76, **12**:Inf-23
14	Special Zoning - Greenways	Zoning Sec. 10-4	N/A	Apply "Open Space" zoning classification to the Natural Areas Overlay District described in the "Special Zoning for Environmentally Sensitive Areas" as well as to other open space created to provide trails and other networks.	**34**:125
15	Special Zoning for Environmentally Sensitive Areas	Zoning Sec. 10-4	N/A	Create and adopt a County-Wide Natural Areas Overlay District that identifies essential open space as agreed upon by the County and municipalities. This would be similar to the "Green Infrastructure Plan" identified in the Blackberry Creek Alternative Futures Project and could be expanded to include upland remnant areas.	**12**:CR-2
16	Stream Buffer Width	Subdivision Sec. 7	30'-100' (Refer to proposed wetland ordinance)	Streams shall be buffered using a three-zone system with the following standards: (1) Streamside (Undisturbed) Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
17	Wetland Buffer Width	Subdivision Sec. 7	30'-100' (Refer to proposed wetland ordinance)	Wetlands shall be buffered using a three-zone system with the following standards: (1) Undisturbed Zone: 25' or more in width according to the Stormwater Ordinance. Allowable uses are limited to footpaths to provide water access. (2)Middle (Limited Use) Zones: 50'-100" depending upon and reflecting meander belt width, slope and 100 year floodplain. Uses allowed include recreation and bicycle paths, tree removal by permit, and stormwater BMPs. (3)Outer (Transitional) Zone: 25' setback. Uses allowed include ancillary residential uses, yards, gardens, most stormwater BMP's.	**21:**131; **13:**5B-2
LANDSCAPE STANDARDS					
18	Native Plant Allowances/ Requirements	Landscape Sec. 2	Incorporated into Landscape Ordinance	Landscape designs shall not include invasive plant species.	**CDF**
19	Parking Lot Landscape Requirements - bioretention/infiltration	Landscape Sec. 2	Incorporated into Landscape Ordinance	The following landscape and infiltration treatments are allowed/ required within parking lots: 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
20	Parking Lot Landscape Requirements - Landscape Islands	Landscape Sec. 2-3	1 tree/20 spaces and perimeter landscaping	Continuous, ten (10) foot wide planting strips shall be provided between each parking bay. The strips may be used for bioretention.	**16**: 28
21	Parking Lot Landscape Requirements - Perimeter Landscaping, bioretention	Landscape Sec. 2	Incorporated into Landscape Ordinance	A 10 foot wide landscape strip is required around the perimeter of the parking lot. Landscape strips may be used for bioretention.	**21:** 17
22	Parking Lot Landscape Requirements - Perimeter Landscaping, Shade Trees	Landscape Sec. 2	Incorporated into Landscape Ordinance	1 tree is required for every 25 linear feet of parking lot frontage.	**21:** 17
23	Significant Vegetation Preservation	Landscape Sec. 3	N/A	All "significant" trees and native vegetation shall be protected. "Significant" trees are those with 3" trunks at 4' above grade except those determined to be nuisance species and where it is agreed that the density of trees is greater than desirable for proper forest management.	**15**: 3-18
24	Street Landscape Requirements	Landscape Sec. 2-1	1 tree/50' - 10' landscape strip. 21/2" ca'. At 6"	The street ROW landscape strip (parkway) may be/shall be used as a planted bio-infiltration system.	**1**: 2-9
25	Tree Planting Requirements	Landscape Sec. 2	Approved species list; on lot landscape req.	One deciduous canopy tree must be planted for every 40' of street frontage between the sidewalk and curb, except where conflicts occur with existing trees, retaining walls, utilities that can not be relocated, and other similar barriers. Street trees must be 1.5" - 2" caliper.	**1**: 2-9
26	Tree Planning Requirements - Gender	Landscape Sec. 3	N/A	Tree planting must include both male and female trees of each species selected.	**CDF**
27	Tree Preservation Requirements	Landscape Sec. 3.7	credit for saving trees above 3" caliper and permitted types	A "significant" tree and native vegetation inventory must be conducted. "Significant" trees are those with at least 3" trunks at 4 feet above grade.	15:**3-18**

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
PARKING REQUIREMENTS					
28	Alternative Parking Lot Runoff Treatments	Landscape Sec. 2-3	N/A (sheet flow or storm sewer, detention required)	A number of landscape and infiltration treatments are allowed/required within parking lots, including, 1) Infiltration bio-swales, 2) Vegetated swales, 3) Vegetated filter strips, 4) infiltration basins/trenches, 5) Sand filters, and similar measures designed to filter, retain, and infiltrate runoff.	**1**:2-5
29	Alternative Parking Spaces - Bicycle	Zoning Sec. 10-11-3	N/A	The amount of vehicle parking spaces shall/may be reduced by one space for every 8 required bicycle parking spaces. For every 4 additional covered bicycle parking spaces provided over the minimum required, one vehicle space may be eliminated, not to exceed 10% of the required vehicle parking spaces.	**45**:4.1.20p
30	Alternative Parking Spaces - Compact Cars	Zoning Sec. 10-11-3	Allowed for residential parking: 50% or 4 spaces more than required	Between 25% and 40% of total number of parking spaces may/shall be for compact car use.	**10**:3-31; **45** 4.1.50
31	Joint/Shared Parking Lot Allowances	Zoning Sec. 10-11-3	Yes, same as sum	(1) The required number of parking spaces may be reduced a maximum of 50% with approval from zoning board of appeals. (2) A reduction in the total number of spaces may be allowed for: a) Shopping Centers, b) Joint uses at different times (operating hours with little daily or weekly overlap, businesses within 1000' of each other, legal agreement between tenants recorded), or c) Simultaneous uses if only two uses in the same building.	**14:**20
32	Parking Lot Access Aisle Width	Zoning Sec. 10-11-3	shall not exceed 25'	30 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				45 Degree: One-way - 12', Two-way - 24'.	**15**:3-32
				60 Degree: One-way - 18' (standard) 15' (compact), Two-way - 24'.	**15**:3-32
				90 Degree: One-way - 24' (standard) 22' (compact), Two-way - 24'.	**15**:3-32
				Parallel Parking: One-way - 12', Two-way - 24'.	**15**:3-32
33	Parking Ratios - Single Family	Zoning Sec. 10-11-4	2/unit	Single Family Residential - 2/du, no off-street parking located within front yard. Accessory dwelling units have no required parking.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
34	Parking Ratio - Multi-Family	Zoning Sec. 10-11-4	2/unit	A minimum of one bicycle parking space is required for every 2 required automobile parking spaces.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
35	Parking Ratio - Clinic	Zoning Sec. 10-11-4	3/doctor	A minimum of 2 bicycle parking spaces are required, or 1 per 3 required employee automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
36	Parking Ratio - Church	Zoning Sec. 10-11-4	1/6seats	A minimum of 2 bicycle parking spaces are required, or 1 per 10 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
37	Parking Ratio - Convenience Store	Zoning Sec. 10-11-4	1/300sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
38	Parking Ratio - Office	Zoning Sec. 10-11-4	1/400sf	A minimum of 2 bicycle parking spaces are required, or 1 per 20 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
39	Parking Ratio - Shopping Center	Zoning Sec. 10-11-4	1/300sf	A minimum of 4 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
40	Parking Ratio - Industrial	Zoning Sec. 10-11-4	1/employee+1 for each Company vehicle	A minimum of 2 bicycle parking spaces are required, or 1 per 40 required automobile parking spaces, whichever is greater.	**15:**22, 3-28-29**; 21:**16, 61; **12:**ND-36; **45**: 4.1.3
41	Parking Space Area	Zoning Sec. 10-11-3	8.5X20 per 10-11-3C	**Maximum** areas for parking spaces - 1) Compact: 7.5 'x 15' (112.5 sf); 2) Regular: 9'x18' (162sf); 3) Handicapped: 8' x 18' and 5' x 18' aisle (234 sf) to ADA Standards with two ADA parking spaces accessing each aisle; 4) On Street: 8' x 23' (184 sf).	**10**:3-31; **32**:4.3
42	Parking Space Reduction	Zoning Sec. 10-11-3	Parking standard size 8.5X20	The total number of parking spaces can be reduced to 50% of the required if alternative needs are demonstrated.	**14:**20
43	Parking Space Reductions for Carpooling Programs.	Zoning Sec. 10-11-3	N/A	Reduce parking requirement for companies and industries that have organized and formalized carpooling programs.	**CDF**
44	Parking Space Reductions for Proximity to Mass Transit	Zoning Sec. 10-11-3	N/A	Reduce parking ratios for proximity to mass transit.	**21:**16
45	Parking Space Reductions from Provision of On-Street Parking	Zoning Sec. 10-11-3	N/A	Parking space credit will be given for on-street parking for every 24' of uninterrupted curb for parallel parking, and appropriate lengths for 45-60 degree and 90 degree parking.	**15**:3-30
46	Parking Structure (garage) Allowances	Zoning Sec. 10-11-3	N/A	Mixed-use parking garages should be encouraged in downtowns and other locations where land prices are high.	**21:** 68
47	Paving Requirement and Material	Subdivision Spec pS22	Require; Brick pavers, concrete, bituminous	Permeable pavement (interlocking concrete pavers, porous concrete, or porous asphalt) are encouraged except for vehicle service stations, gas stations, and other areas used for transfer or storage of hazardous materials.	**21:**17
48	Required Parking Minimums and Maximums	Zoning Sec. 10-11-3	The total number of accessory parking spaces provided for one-two-and multi-family dwellings shall not exceed that required by this Title for such use or for any equivalent new use by more than 50% or 4 spaces, whichever is greater	Minimum and maximum number of parking spaces allowed should be the same, unless approved by the City Manager.	**14:**19
TRANSPORTATION REQUIREMENTS					
49	Alley Requirements	Subdivision Sec.7.05	Alleys shall be provided in all commercial & industrial, but not in residential unless some exceptional circumstances allowed	Refer to Table 2	
50	Alley Width	Subdivision Sec.7.05	24'	Refer to Table 2	
51	Arterial ROW Width	Subdivision Spec pS23	80'-100'	Refer to Table 2	
52	Arterial Street Width	Subdivision Spec pS23	51'	Refer to Table 2	
53	Bike Trails	Subdivision Spec pS23	8' wide	Refer to Table 2	
54	Collector ROW Width	Subdivision Spec pS23	80'	Refer to Table 2	
55	Collector Width	Subdivision Spec pS23	39'	Refer to Table 2	
56	Cul-de-Sac ROW Width	Subdivision Spec pS23	66'	Refer to Table 2	

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
57	Cul-de-Sac Width	Subdivision Spec pS23	30'	Refer to Table 2	
58	Curb and Gutter Requirements	Subdivision Sec. 8.04	Not required. Vegetated Open Channel is encouraged on a case-by-case basis	Curb and gutter street drainage systems are not required except where the average distance between driveways is less than 100 feet and there are on-street parking needs. Where curb and gutter is required, curb cuts may be used to allow use of naturalized drainage systems and streetside bioswales.	**21:** 15
59	Equestrian Trails	Subdivision Sec. 8.04	N/A	Refer to Table 2	
60	Mid-Block Ped/Bike Easements	Subdivision Sec. 8.04	10'-paved with concrete & fenced for blocks > 900' /buffer areas	Refer to Table 2	
61	Residential ROW Width	Subdivision Spec pS23	66'	Refer to Table 2	
62	Residential Street Width	Subdivision Spec pS23	30'	Refer to Table 2	
63	Road Alignment	Subdivision Sec. 8.04	N/A	To the greatest extent possible, new roadways shall respect natural contours and ridgelines to minimize grading.	**CDF**
64	Sidewalk Materials	Subdivision Spec pS6	PCC, concrete	Varies, and to ADA standards.	**10:** 3-32
65	Sidewalk Requirements	Subdivision Sec. 8.06; Spec pS6	Both sides of st., not in estate res; or asphalt paved trail at 10' with 15' ROW	Sidewalks are required on both sides of the street unless: site constraints prohibit their installation, a trail system is provided, or a "Woonerf" overlay district is used (see model code language below).	**16:** 21
66	Sidewalk Width	Subdivision Spec pS6	5'	4' Minimum to be ADA compliant. Wider walks should be used where pedestrian traffic warrants.	**16:** 21
67	Stream Crossings	Subdivision Spec pS6	N/A	Stream crossings shall be limited to the minimum necessary to provide safe circulation and ensure two ingress/egress locations. Stream crossings shall be located to minimize stream disturbance. Bridges or culverts of sufficient size shall be used for all perennial stream crossings to preserve stream channel width and natural stream substrates.	**13:** 4C-5
68	Street Paving Material	Subdivision Spec pS3	Asphalt	Permeable pavement is allowed as a street paving material (interlocking concrete pavers, porous concrete, or porous asphalt) for low volume, local access streets. Central planting islands within cul de sacs shall/may be used for biofiltration.	**CDF**
69	Trail Construction Materials	Subdivision Spec pS3	Bituminous	Permeable paving surfaces including gravels and other treatments are allowed/required for multi-use trails.	**CDF**
70	Woonerf Overlay District	Zoning Sec. 10-3	N/A	In areas where cul-de-sacs exist, and where the efficiency of the transportation grid would not be interrupted, woonerfs, or landscaped, walking streets should be considered.	**44**
ZONING/SUBDIVISION STANDARDS					
71	Clearing and Grading	Subdivision Sec. 8.00	N/A	On-site clearing and grading shall be restricted to avoid environmentally sensitive areas.	**7**:2-18
72	Clustering	Zoning Sec. 10-3	per Comprehensive Plan	Include within subdivision and zoning code a purpose statement for the benefits of clustering including: 1) decreased impervious surface, 2) decreased pollutant loads, 3) protection of cultural resources and natural features, 4) habitat protection, 5) improved aesthetics, 6) creation of passive recreation opportunities, and 7) reduced costs for development and maintenance.	**10**:3-19

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
73	Clustering - Objectives	Zoning Sec. 10-3	N/A	Clustering is allowed when it fulfills one or more of the following objectives: 1) Minimized impact on natural, cultural and scenic resources; 2) Avoidance of rare plant communities and endangered species; 3) Connection to other existing or potential open space lands; 4) Minimize impacts on prime farmland, 100-year floodplain, Slopes > 25%, drainageways, wetlands, remnant native landscapes. etc.; 5) Prevention of downstream impacts from runoff; 6) Protection of scenic views; and 7) Protection of archaeological sites and existing historic resources.	**5:** 20; **15:**3-59
74	Density Bonus - incentivised actions	Zoning Sec. 10-3	N/A	Density bonuses may be awarded to developers for projects that 1) dedicate land for public use, 2) include affordable housing, 3) designate permanent open space protected by a conservation easement (beyond that space already required by this or other ordinances and statutes), and/or 4) place a 75' buffer around all agricultural lands.	**3**
75	Density Bonus/Incentives - Density Limits	Zoning Sec. 10-3	N/A	Density bonuses may not increase the density of a development more than 15% beyond the number of units allowed prior to the application of bonuses.	**46**
76	Garages	Subdivision Spec	N/A	Attached garages with front access are not permitted on lots with alleys and/or rear parking lots.	**14**:A-30
77	Infill Incentives	Zoning Sec. 10-3	N/A	Local governments should create financial incentives that encourage infill development.	**CDF**
78	Open Space Requirements	Comp Plan	Land Cash Ordinance & Developers Standards (10 ac/1000 pp)&(Park and Rec)	Required open space shall be measured from the site's net developable area and yield (see site yield calculations), following these guidelines - Estate residential: 60% open space. Moderate Rural Residential: 45%. Urban Residential: 30%. Clustering of units is allowed to meet open space requirements. Open space requirement may be waived for smaller parcels (generally less than 10 acres).	**36**:105; **13:**II-40
79	Planned Unit Development Allowances	Comp Plan	Allowed; Neighborhood Commercial only allowed in PUD areas	Develop a mixed-use PUD ordinance that requires conservation-oriented mixed-use development with specific design guidelines and standards.	**CDF**
80	Site Capacity/Yield	Zoning Sec. 10-6 to 10-8	N/A	When calculating developable land area, remove perimeter street ROW and non-buildable and unsuitable land. Unsuitable land includes - 1) FEMA floodplains, 2) Wetlands and their required buffer, 3) Required buffer area for streams and lakes, 4) land of >12% slope, 5) lands with threatened or endangered species, and 6) protected archeological sites.	**15**:2-15; **17**:21
81	Site Capacity/Yield	Zoning Sec. 10-6 to 10-8	N/A	Applicants shall submit site yield calculations that document the number of dwelling units the site can support after excluding lands deemed "unsuitable" due to this or other laws and ordinances and due to losses associated with meeting applicable standards (i.e., detention, streets, required parking, setbacks and buffers, etc. that vary by zoning classification)	**21**:II A2-3; **17**:21

Table 1 Current Codes and Recommended Code Revisions Table (continued)

City of Yorkville Codes and Ordinances Model Language Recommendations Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project					
No.	**CODE/STANDARD CATEGORIES**	**LOCAL CODE REFERENCES**	**CURRENT STANDARD**	**RECOMMENDED STANDARD/ACTION**	**SOURCE**
82	Site Capacity/Yield - Lot size	Zoning Sec. 10-6 to 10-8	Minimum lot size varies by zoning category	The lot sizes specified within the zoning code shall be used to determine site yield. However, actual lot sizes may be reduced (a maximum of 50%) to meet open space requirements and to provide flexibility to protect unique site areas not designated as unsuitable for development.	**CDF**
83	Site Planning Process - Site Visit Requirement	Subdivision Sec. 5.00	N/A	Site visits by the permitting agency are required prior to approval of all development permits.	**13**:II-22
84	Site Planning Process - Specific Area Plans	Subdivision Sec. 5.00	N/A	Local governments should work with multiple property owners to coordinate Sub-Area Master Plans.	**14**:25-26
				Specific Sub-Area Plans shall be guided by Steering Committees that include land owners, neighbors and the community at large.	**14**:A-69
				Master Planned Neighborhoods are applicable and required for sites of 40 acres or larger, and that fall within PUD or other special Districts.	**15**:2-37

Table 2: Recommended Transportation Standards Table

Code Area	ADT	Pavement Width	Driving Lane(s)	Parking Lane(s)	Landscaping	Bicycle Lane(s)	Other Standards	Source
Multiple-Use Trails Mid-Block Ped/Bike Easements	n/a	6'-10'	n/a	n/a	2'-4' both sides	1 -2		
Streets and Roads							Street and road standards are based on Average Daily Trips (ADT) or the expected and designed volumes for each road.	
One-Way Alley	n/a	12'	1	0	not rqrd	n/a		**14:**18
Two-Way Alley	n/a	16'	2	0	not rqrd	n/a		**14:**18
Access Lane	<250	21'	1	1 @ 7'	7' or 6'	n/a		**14:**18
Access Lane	<250	28'	1	2 @ 7'	7'or 6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	2	0	6'-6"	n/a		**14:**18
Local Low Volume Res.	250-750	21'	1	1 @ 7'	6'	n/a		**14:**18
Local Low Volume Res.	250-750	20'	1	2 @ 7'	7'-6"	n/a		**14:**18
Local Medium Volume Res.	>750	20'	2	0	9'	n/a		**14:**18
Local Medium Volume Res.	>750	27'	2	1 @ 7'	8'	n/a		**14:**18
Local Medium Volume Res.	>750	34'	2	2 @ 7'	7'	n/a		**14:**18
Local Res. Queuing	<250	14'	1	1 @ 7'	6'	not rqrd		**16:**21
Local Res. Queuing	<1,500	25'-28'	1	2 @ 7'	7'-8'	not rqrd		**15:** 3-40
Residential Collector	1,500 - 5,000	22'	2	0	8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	25'-27'	2	1 @ 7'	7'-8'	n/a		**15:** 3-40
Residential Collector	1,500 - 5,000	32'-34'	2	2 @ 7'	7'-8'	n/a		**15:** 3-40
Commercial Collector	1,500 - 5,000	28'	2	1 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	36'	2	2 @ 8'	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	37'	3+	0	7'-8'	not rqrd		**15:** 3-40
Commercial Collector	1,500 - 5,000	54'	3+	0	7'-8'	not rqrd		**15:** 3-40
Arterial Boulevard	8,000 - 30,000	34'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	46'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Boulevard	8,000 - 30,000	68'	5	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	32'-33'	2	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Arterial Avenue	3,000 - 10,000	44'	3	bays 8'	7'-8'	2 @ 6'	Bicycle lanes are in addition to sidewalks	**15:** 3-40
Cul-de-Sac	n/a	20'	n/a	1 @ 7'	10' radius landscaped island	n/a	Cul-de-sacs may only be designed into developments when environmental or topographical constraints, existing development patterns, or compliance with other standards preclude street extension.	**6:**39; **7:**39; **21:**15; **15:**3-40
Driveways	n/a	n/a	n/a	n/a	Paving may be limited to tire strips with vegetation between.	n/a	Alternative materials (e.g., brick, permeable pavers, decorative gravel) are allowed.	**13:** II-32

"not rqrd" refers to situations where the element could be used in certain situations, but would not be required by code.

Appendix A

Model Ordinance References

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations

Appendix A Model Ordinance References

The resources listed below were used in the literature review and model language development portions of this project. Each represents a resource for model codes and ordinance standards for elements of development that may have impact on hydrological systems through impact on stormwater systems.

Ref No.	Data Source	Date	Title/Subject/Key Words	Description/Action
	Government			
1	City of Portland	2002	Stormwater Management Manual and Appendices	Stormwater management guidelines, principles and standards.
2	EPA		Web site	Model environmental protection language.
3	Johnson County, IA	2002	Draft Conservation Subdivision Design Ordinance	Draft ordinance for review.
4	Kane County, IL	1996	2020 Land Resource Management Plan	Land use program for County.
5	Northeastern Illinois Planning Commission	1997	Reducing the Impacts of Urban Runoff	Description of alternative site design approaches.
6	Northeastern Illinois Planning Commission	2002	Model Conservation Design Ordinance for Communities within Northeastern Illinois	Draft model ordinance.
7	Prince George's County, MD	1999	Low-Impact Development Design Strategies	Description of LID program and guidelines.
8	State of California		Department of Water Resources	Model Landscape Ordinance.
9	State of California	1993	Model Water Efficient Landscaping Ordinance	Water efficient landscaping ordinance.
10	State of Delaware	1997	Conservation Design for Stormwater Management	Design approach to reduce stormwater impacts from land development.
11	State of Maryland	2000	Stormwater Design Manual Volumes I & II	Development site BMP's.
12	State of Minnesota	2000	From Policy to Reality: Model Ordinances for Sustainable Development	Minnesota Planning's model ordinance for sustainable development.
13	State of Ohio	2002	Countryside Program Resource Manual (I & II)	Ordered on 9/12/02.
14	State of Oregon	1997	Smart Development Code Handbook and Appendix	Codes and ordinances for Smart Growth (with Appendix).
15	State of Oregon	1999	Model Development Code and User's Guide for Small Cities	Model codes and ordinances for small towns and cities.
16	State of Wisconsin	2001	A Model Ordinance for a Traditional Neighborhood Development	State Smart Growth guide.
17	State of Wisconsin	2001	Model Ordinance for a Conservation Subdivision	State's Smart Growth guide.
18	Traverse City, MI	2000	Grand Traverse Bay Region Development Guidebook - 3rd Edition	Development guidelines.

Ref No.	Data Source	Date	Title/Subject/Key Words	Description/Action
	Institutions/Organizations			
19	APA		Research library	Research model codes and ordinances.
20	ASLA		Web site	See if model landscape codes exist.
21	Center for Watershed Protection	1998	Better Site Design	Handbook for changing development rules.
22	Congress for New Urbanism	2002	Model Ordinance List	List of "Smart Codes".
23	Fraser Valley Real Estate Board	1998	Alternative Development Standards for Sustainable Communities	Charette results.
24	Greater Toronto Homebuilders' Association	1991	Residential Development and Environmental Regulations	Model residential code.
25	Inst. of Transportation Engineers	1999	TND Street Design Guidelines	Model TND standards.
26	The Natural Step		The Natural Step	Process guide to sustainable development.
27	Urban Land Institute		Web site	Model ordinance articles.
28	Univ. of Michigan Library		Web-based library search	Model ordinance articles.
29	UM Prof. Elizabeth Brabec		Academic contact	Check for resources.
30	UM Prof. Terry Brown		Academic contact	Check for resources.
31	UM Prof. Peter Pollack		Academic contact	Check for resources.
32	US Department of Justice	1994	ADA Standards for Accessible Design	Accessible parking standards.
	Journals			
33	Journal of the APA		Articles on model codes	Check for articles.
34	Planning Magazine		Articles on model codes	Check for articles.
	Books			
35	Randall Arendt	1996	Conservation Design for Subdivisions	Some process and ordinance information.
36	Randall Arendt	1999	Crossroads, Hamlet, Village, Town	Design guidelines for small communities.
37	Randall Arendt	1999	Growing Greener	Ordinance suggestions for conservation design.
38	Randall Arendt	1998	Rural By Design	Design guidelines for rural communities.
39	Robert France	2002	Water Sensitive Planning and Design	Collection of papers on stormwater, watershed, and riparian areas management

Ref No.	Data Source	Date	Title/Subject/Key Words	Description/Action
	CDF Materials			
40	Mossville Bluffs Report	2001	Mossville Bluffs Watershed Restoration Master Plan	Planning and design guidelines for prevention of ravine erosion.
41	Butterfield Creek Report	2000	Handbook of Sustainable Site Design Techniques	Site planning and design techniques for sustainable development.
42	Coffee Creek Center		Development Guidelines	
43	Plano Properties		Plan Description	
44	Royal Dutch Touring Club	1980	Woonerf	Residential precincts, walkable streets. Not produced by CDF, but the document is a personal copy of a CDF staff member.
	Last Minute Material			
45	City of Covallis, OR Development Code		City of Corvallis, Oregon web site	Parking ratios and other standards.
46	Bath, Ohio Township	2000	Zoning Resolution 1-24-2000	Model Conservation Ordinance.
47	City of Portland, OR Bicycle Master Plan	2003	Planning and Zoning Code, Bicycle Parking website	Required bicycle parking and standards.
48	City of Beaverton, OR Community Development Code	2003	Special Requirements: Off-Street Parking Section 60.30.10	Number of required parking spaces, including bicycle parking.

Appendix B

Codes and Ordinances Comparison

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
ALTERNATIVE STORMWATER RET/DET STANDARDS									
Rooftop Runoff									
Stormwater Discharge (Dis)Incentives			Use drainage tiles emptying into Welch and Blackberry Creeks						Exemption for small developments (2.5 ac. for res.; 1.25 ac. for non res.)
Alternative Detention/Infiltration Allowances		Native buffer 25' around wetland detention and dry non-use area, maintenance required; infiltration system allowed	Native buffer 25' around wetland detention and dry non-use area.	Stormwater facilities easement 20'					

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
ENVIRONMENTAL STANDARDS									
Buffers		Mill Creek corridor buffer required	100' greenbelt						Refer to proposed wetland ordinance
Buffer Maintenance	Maintenance plan and conveyance to responsible entity (Kane Co.)	Maintenance plan and conveyance to responsible entity (Kane Co.)	Maintenance plan and conveyance to responsible entity (Kane Co.)	Maintenance plan and conveyance to responsible entity		Maintenance plan and conveyance to responsible entity (Kane Co.)	Maintenance plan and conveyance to responsible entity (Kane Co.)	Maintenance plan and conveyance to responsible entity (Kane Co.)	Homeowner's Association
Streams Buffer	Varies from 15 to 50 feet, depending on drainage area and stream quality (Kane County stormwater ordinance)	15 - 50 feet, depending on drainage area and stream quality (Kane Co. Stormwater Ordinance)	100' greenbelt for the Village; 15 - 50 feet, depending on drainage area and stream quality (Kane Co. Stormwater Ordinance)	15 - 50 feet, depending on drainage area and stream quality (Stormwater Ordinance)	>75' in length; 25' in width with native species vegetation	15 - 50 feet, depending on drainage area and stream quality (Kane Co. Stormwater Ordinance)	15 - 50 feet, depending on drainage area and stream quality (Kane Co. Stormwater Ordinance)	Included in the Environmental Corridor width 200' min.; buffer width: 25'; Setback: 75'. Buffer width varies from 15 to 50 feet, depending on drainage area and stream quality (Kane County Stormwater Ordinance)	Refer to proposed wetland ordinance
Wetlands Buffer	Varies from 15 to 50 feet, depending on wetland area and wetland quality (Kane County stormwater ordinance)	15 - 50 feet, depending on wetland area and quality (Kane Co. Stormwater Ordinance)	100' greenbelt for the Village. 15 - 50 feet, depending on wetland area and quality (Kane Co. Stormwater Ordinance)	15 - 50 feet, depending on wetland area and quality (Stormwater Ordinance)	>25' with native plants, 75' in length	15 - 50 feet, depending on wetland area and quality (Kane Co. Stormwater Ordinance)	15 - 50 feet, depending on wetland area and quality (Kane Co. Stormwater Ordinance)	Included in the Environmental Corridor width 200' min. Buffer width: 25'; Setback: 75'. Buffer width varies from 15 to 50 feet, depending on wetland area and wetland quality (Kane County Stormwater Ordinance).	30'-100' setback; Refer to proposed wetland ordinance

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
ENVIRONMENTAL STANDARDS									
Floodplain Restrictions	Prevent from development in Comp Plan Policy; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Not for active recreation and development; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Floodplain is included in the greenbelts; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Compensatory storage required for floodplain fill (stormwater ordinance)	Certain development allowed under restrictions; protect floodplains from clearing, grading, filling or construction	Only permitted uses allowed in floodplains (including limited agricultural uses, open type uses, private and public recreational uses, and residential uses). Drainage easement required for streams to flooding area; parking lots allowed, recreation, agriculture, bridges, sand extraction allowed.	Compensatory storage required for floodplain fill (Kane Co. stormwater ordinance)	no development other than open space allowed; Compensatory storage required for floodplain fill (Kane County stormwater ordinance)	Comp storage required (1:5:1)
Natural Areas Plan Compliance	Natural areas preservation encouraged in Comp Plan Policy		NARI > = 20-Greenbelt	A conservation easement shall be required to protect unique areas such as wetlands, rivers, streams, creeks, and any other unique areas.	Development shall be located to preserve the natural features of the site, to avoid areas of environmental sensitivity, and to minimize negative impacts and alteration of natural features.	Natural features preservation encouraged ("shall be given due regard")	Scenic views preservation on Fox River		to be determined-watershed management plan
Open Space Design		15 ac/1000 people + fprest preserve and reginal facilities. 10-20 ac min./1000 people	Parkland dedication /Open space in flood-prone areas		30' access esmnt 30% of the property, 50' wide min., encourage greenway; Provide open space that is reasonably contiguous. To the greatest extent practicable, open space shall be designed as a single block with logical, straightforward boundaries.			200' min. width for Environmental Corridor; 75' access easement	10 ac per 1000 land cash
Other Environmental Codes	Infiltration should be provided (Comp Plan Policy)	66' NIGas as opportunity for green corridor	Open Space/Greenbelt		buffer zone along rural character			restore and using native plants within buffers	

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Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
ENVIRONMENTAL STANDARDS									
Remnant Landscapes		Preserve unique environmental resources	High quality native plant communities shall be included in the greenbelts						
Special Zoning for Environmentally Sensitive Areas		Minimize the impact	Low land conservancy district (50' buffer); Greenbelts include floodplain, steep slopes, wetlands, high quality native plant communities, major stand of trees, and riparian zone	Landscaping and conservation easements 50ft buffer zone.					
Steep Slopes	Development restricted (Comp Plan Policy)		35% or 2.85:1 ~ greenbelt						
Wetland Restrictions	Prevent from development in Comp Plan Policy	Not for active recreation and develoment	As defined by Army Corps- Greenbelt//Not recommended for detention					no development other than open space allowed	Refer to proposed wetland ordinance

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
LANDSCAPE STANDARDS									
Native Plant Allowances/ Requirements	50% of trees must be native/Allowed with stormwater facilities			Allowed		encouraged for water conservation		restore and using native plants within buffers	Incorporated into Landscape Ordinance
Parking Lot Landscape Requirements	Refer to Kane County Stormwater Runoff Control Regulations		not less than one 9'X18' landscaped island shall be provided for every 25 parking spaces	10%, 2 native trees/10 parking space	All open automobile parking areas containing more than 4 parking spaces shall be effectively screened on each side adjoining...by...densely planted compact hedge no less than 5 ft nor more than 7 ft in height.	7' wide min; 2 shade trees per island; 1 island/20 parking spaces; perimeter		parking island landscaping required; >5% or 120 sf, 7' wide and 20-30 linear ft per shade tree and 6 shrubs; Countywide Stormwater ordinance requires retention of 0.75 inches of runoff for impervious areas	1 tree/20 spaces and perimeter landscaping
Street Landscape Requirements	8', 30' min.spacing;25'med /20'small	Parkway tree 1/35 lf	Cul-de-sac island allowed		cul-de-sac island allowed; parkway tree 1/40lf; planting on both side of the street	Both sides of street between sidewalk and curb; street trees every 40' on center	Every 40'/2 per lot/3" caliper @ 12" off ground	7' wide and 20-30 lf per shade tree and 6 shrubs	1 tree/50' - 10' landscape strip. 21/2" ca. At 6"
Tree Planting Requirements	1 1/2" caliper at 6" from ground		2" ca;. Along greenbelt at 30', street trees at 40' spacing, 21/2" cal. At 6"	2 native trees/1 lot		2 1/2" caliper @ 1 foot from the ground		Parkway trees @ 40 feet	Approved species list; on lot landscape req.
Tree Preservation Requirements	Tree permit prior to removal	preserve trees > 5" diameter	a tree preservation and protection plan shall be prepared for trees measuring six inches in caliper or larger. The ability to save existing trees on the site shall be evaluated by the Developer and the Village.	Preserve existing tree > 3" diameter	Wherever possible existing trees shall be preserved	Yes. 4'+ Caliper requires permit (Not in SF duplex) with replacement standards	6" caliper, 12" off ground. Preservation policy mandated in Comp Plan	Tree survey and preservation plan required	credit for saving trees above certain size and type
Turf Grass Requirements			Greenbelt streamedge in riparian area			Yes, within ROW	Yard area requirement with sod		All non-paved ROW areas

Codes and Ordinances Comparison
Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
PARKING REQUIREMENTS									
Alternative Parking Spaces									May for residential parking: 50% or 4 spaces more than required
Compact Cars						Allowed for hotels, offices and manufacturing lots with > = 100 spaces			parking standard size 8.5X20
Bicycle							1/20 auto spaces non-res. Minimum of 2 spaces (Comp Plan)		
Joint/Shared Parking Lot Allowances	No less than joint (sum of all); Joined parking encouraged in Comp Plan Policy		Yes	Mixed uses, no parking space or portion thereof shall serve as a required space for more than one use unless otherwise authorized by the zoning board of appeals	Joined parking allowed	Total for joint is no less than the sum	Allowed for alternately timed uses		Yes, same as sum
Parking Lot Access Aisle Width	12' 1-way @ 90 degrees/20' 2-way	12 ft	12'/24'	24'min.angular and parallel parking may allow a narrower aisle	11-26'		12'-18' 1-way/24' 2-way (13' for 45 degree parking)	12' (one-way) to 24' (two-way) in width	shall no exceed 25'
Parking Lot Drainage	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Stormwater Runoff Control Regulations		Detention/retention basins and ponds areas shall be planted. Also refer	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Kane County Stormwater Runoff Control Regulations	sheet flow or storm sewer

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
PARKING REQUIREMENTS									
Parking Lot Runoff	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Kane County Stormwater Runoff Control Regulations. A properly designed drainage system shall be installed. The storm sewer system shall be designed to accommodate a two year design storm. The min. pipe size in any drainage system shall be ten inches in diameter.	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Stormwater Runoff Control Regulations		Allowed for hotels, offices and manufacturing lots with > = 100 spaces. Also refer to Kane County Stormwater Runoff Control Regulations	Refer to Kane County Stormwater Runoff Control Regulations	Refer to Kane County Stormwater Runoff Control Regulations	detention required
Parking Space Area	162 sf min. 8.5'X19'	8'X22' minimum size	9'X18' (9'X21' Res.)	9'X18' min., 9'X22' for parallel parking; min. 16' in width for handicapped space, per Illinois Accessibility Code Standards	90 degree 9'-9.5'X18.5'		9'X18.5' (20' for parallel parking)	8' or 9' or 16'(handicapped) wide, 18'-24' long	8.5X20
Parking Structure (garage) Allowances									
Paving Material Alternative Allowances	materials of comperable specifications to Asphalt and Concrete		Yes, Pavers, asphal, concrete			bituminous asphaltic concrete material	PCC required		Brick pavers, concrete, bituminous
Paving Requirement	Yes	asphaltic concrete or some comparable all-weather, dustless material	Yes		Bituminous concrete		Yes	concrete or asphalt	Yes
Required Parking Ratios									
Single Family	2/du	2/du	2/du	2/unit	2/1unit	4 (2in,2out) Dup-2 (1in, 1out)	1/du	< 30% or 700sf/unit - 2/du	2/du
Multi-Family	2 for 2 + bd unit/ 1/unint for efficiency	2.5/un	2/du	2/unit	2/1unit	2.25/unit (50% in)	2/du for 2 bd units// 1.5/du for 1 bd unit	< 450 sf/unit - 2.25/du	1in & 1 out/unit

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
PARKING REQUIREMENTS									
Hotel	1/room + 1/employee	1/room + 1/employee + specified	1/room + 1/employee	1/room or unit	1/1unit	1/unit + 1/employee	1/2 rooms + 1/300sf for ancillary activities	1 space/room + 1 space/employee + additional for accessory uses	1/unit + 1 for manager
Clinic	3/dn + 1/2 employee	1/treatment room + 1/100sf waiting room + 1/employee	3/1000sf for > =5000sf// 5/1000sf dor < =5000sf	3/treat room + 1/doc and employee	1/1doctor & employee + 1/200sf	12/doctor	4 per employee	1 space/2 beds + 1 space/2 employees + 1 space/2 doctors	3/doctor
Church	1/6 seats	1/4seats	1/4seats (1/90" of seat)	1/4seats	1/3seats	1/3 seats	1/6 seats	1 space/4 seats or 90 inches of seating capacity	1/6seats
Convenience Store	1/300sf	6/1000sf	6/1000sf	1/300sf	1/200sf	1/200sf	1/200sf (?)	5/1000 sf	1/300sf
Office	1/400sf	4/1000sf	3/1000sf for > =5000sf// 5/1000sf dor < =5000sf	1/300-400sf	1/100sf	1/200sf	1/400sf	5/1000 sf <5,000 sf; 3/1000 sf >5000 sf building size	1/400sf
Shopping Center	1/300sf	6/1000sf	5/1000sf	1/300sf	1/200sf	1/200sf	6/1000sf	5/1000 sf	1/300sf
Industrial	1/4 employees + company vehicles	1/2employees or <25% lot + 1/1 business vehicle	1/1000sf or 1/1.25 employee (whichever is greater)	1/employee (1/2employee if ride sharing/care pooling program applies)	1/2employees + 1/enterprise vehicle + 1/1000sf	1/employee + 1/business vehicle (no<1/600sf)	varies - 1/200sf over 2000 sf; 1/2 employees + 1/200 sf over 2000 sf	1/1000 sf floor area or 1 space/1.25 employees, whichever is greater	1/employee+1 for each Company vehicle

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
TRANSPORTATION REQUIREMENTS									
Greenways Plan Compliance Requirements		Bicycle and pedestrian review trails; Riverwalk improvement					Access management suggested in Comp Plan		
Multi-Use Trails									
Mid-Block Ped/Bike Easements		Bicycle and pedestrian review trails; Riverwalk improvement	May be required for blocks >800' at 12' ROW easement	Pedestrian way easements shall be provided. Bicycle trails shall not be closer than 75' to any house, barn or garage; no closer than 5' to property line or fence		Yes. Block over 1000 ft			10'-paved with concrete & fenced for blocks > 900' /buffer areas
Materials									Bituminous
Other Transportation Codes	Accomplish pedestrian and bike circulations system; Provide public transportation (Comp Plan Policy)								Alleys OK in commercial & industrial, but not in residential
ROW Width									
Alley	Not permitted	18'	24' non-res.		no alleys allowed in residential except special permission	60'	50'		Alleys OK in commercial & industrial, but not in residential
Residential	66'	66'	frontage Rd.-50' minor-66'	66'	70'	66'	66'	66'	66'
Arterial	66'-80'	66' or 80'	Primary 80'-100'	80'	80'	80'	100'	80'	80'-100'
Collector	100'	100'	Minor-70'; major 80'	120'	100'	100' ; 80'-100' (OR1)	80'	100'	80'
Cul-de-Sac	66'	66' T-shaped allowed (but discouraged)	130' (res.) diameter	T shape may be allowed	90'diameter; 100' diameter in commercial and industrial	paved (>=84')+28' (inconsistent)	66'		130' radius
Sidewalk									
Requirements	both sides	Yes	Both side of streets	both sides in urban res, commercial, and industrial	generally not required	Yes, both sides		both side (one side in industrial use)	Both sides of st., not in estate res; or aphalt paved trail at 10' with 15' ROW

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
TRANSPORTATION REQUIREMENTS									
Width		5' in residential and industrial areas; 6' in commercial areas; 10' or 14' in CBD	5'	4'	4' in residential; 5' in commercial		5' min.	5'	5'
Materials	PCC	PCC	PCC	concrete			PCC required	concrete	PCC, concrete
Street Width		Marginal access 20'							
Alley	not permitted; 20' Res./30' Commercial		16' (non-res)		20' in residential ; 30' in commercial	20' Res/30' commercial (not permitted in res. Areas)	29'	20' (30' commercial)	24'
Residential	31'	28'	40'	urban 30'; country 24'	40'	31'	29'	28', 32'	30' 1000 ADT
Arterial	39-41'	28'	varies	commercial and industrial 24'	40'	39'	39'+	38'	51' 2500 ADT
Collector	49'	30'	3+ lanes @ 36' minimum		44'	66' (63'-OR1)	51'	52'	39' 1000-2500 ADT
Cul-de-Sac	31'	500' long 120'diameter	50' (Res.) radius	<500' long, <170' diameter, 70' radius, <15 lots	20' in width< 1000' long	>=84' diameter (31') (inconsistent)	29' paved width (100' diameter)	45' outside radius, 65' from property line, <500' long	30'
Paving Material		Pavements other than bituminous concrete may be constructed if they meet the aforementioned requirements and reflect specific approval of the city.	Asphalt or PCC	Bituminous	Concrete	PCC	PCC or Asphalt	asphalt or concrete	Asphalt
Vegetated Open Channel									Encouraged on a case-by-case basis

Codes and Ordinances Comparison

Blackberry Creek Watershed Zoning Code Analysis and Ordinance Language Recommendations Project

	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
ZONING/SUBDIVISION STANDARDS									
Block Length	600'-1800'	< 1200'		<1500'	500'-1500'	600'-1500'		600'-1200'	res.-1320'
Clearing and Grading		A site grading permit is required, including an erosion control plan.			Protect floodplains, wetlands, and steep slopes from clearing, grading, filling or construction			The topography and geology of the dedicated site as well as its surroundings must be suitable for its	
Clustering (Gross Density)	Encouraged in Comp Plan	Yes, 33% Min. for open space; Cluster developments are mandated whenever possible as a means to meet the density provisions while providing for the open space objectives and scenic vistas, and the advantages gained for infrastructure extensions.					Yes. If development constraints or significant amenities are provided		per Comprehensive Plan
Density					bonus credit to innovative design				
Estate		< 1du/1ac		0.5 du/ac	0.45 du/ac			1 du/ac	1du/ac
Large Lot		< 3du/1ac	3.5 du/ac (R1 SF)	1.1 -1.5 du/ac	0.6-1 du/ac			2du/ac	2.42du/ac
Medium Density		< 4du/1ac	7 duplexes/ac (R2-Duplex)	2.2-4.3 du/ac	2.2 du/ac		SF= 2.2 - 3.5 du/ac	3du/ac	5du/ac
High Density		> 5du/1ac	8units/ac(R3); 12du/ac (R4)	8 du/ac	3.5 du/ac		MD= 3.6 - 8 du/ac	5du/ac	8du/ac
Driveway									
Requirements		Yes, 33% Min. for open space				Yes			Yes
Shared					allowed				No standards
Width			12'						25' min. at property line
Materials						PCC			Concrete, estate res. Allow bring; asphalt or concrete
Lot Size	width 60'/75' min.		General Commercial & Commercial Manufacturing - 30,000 (100')					frontage 10'-50'	10' rear utility esmnt required; Ofc 20,000 sf; NC: 10,000 sf; GC: 10,000 sf
Estate		43560sf	4 ac (125')	4ac, >250' wide	90000-130000sf	18500 sf (125' frontage)	14000 sf	1 ac	1 ac (200')

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ZONING/SUBDIVISION STANDARDS									
Large Lot	10000sf	14000sf	1ac (100') (rural)	1-40 acres, 100'wide max in Rural residential	20000-45000sf	14000 sf (100')	10000 sf (70' average minimum)	18750 sf min. non-res. 40000sf	18000 sf (100')
Medium Density	8000sf	Single Family 7200ft/9500ft	10000sf (75') (R1 and R2)	40000sf, >125' wide (single family)	>15000sf	11000 sf (70')	8400 sf (70')	10000sf, non-res. 40000sf	R2: 12000 sf (80'); R3 Duplex/Trip.:15000 sf(100')
High Density	10000sf (Dup/Trip); Industrial 3 acres, 200' frontage	Two Family 7500sf/du; Multiple Family 100,000sf	5000sf (80') (R3); 3000sf (80') (R4)	20000-60000sf, > 75-150' wide (two-family)	>7000sf	TND 9000 sf (75'); Duplex 7200 sf (60'); Townhome 11000 (75'); Office 25000 (!20')	10000 sf (70')-Duplex; MF = 9000 sf + 3000 sf/unit (60'); Townhome = 9000 sf(75')	10000sf, 6000sf, 4000sf	9000 sf (70'); R4:15000 sf (90')
Mixed Use Zoning Allowances	Downtown	Yes		Allowed		Downtown	Yes but no residential	within PUD	Through PUD
Neighborhood Commercial in Residential Zone Allowances		Per PD Agreement or Annexation Agreement							
Planned Unit Development Allowances		Yes	Yes	Yes		Yes	Yes, 200+ acres	Yes	Yes
Recreational Areas Allowed			Yes, Greenbelt, parks			Park land dedication for all subdivisions			
Open Space Requirements		10 ac/1000 people		Yes, 25% planting	30% of property or 25% of buildable area should be open space.		10 Acres/1000 people (No private parks for credit, not including wetlands,	10 ac/1000 people	Land Cash Ordinance & Developers Stds (10 ac/1000 pp)&(Park and Rec)
Neighborhood Park		>3-5 ac, 3ac/1000pp		3.5 ac minimum, 1ac/1000 people		5 ac	5 acres min.		
Village Park		4-20ac, 2.25/1000pp		4-30 ac, 1.25 ac/1000 people		4-20ac	12-30 acres		
Regional Park		12-30ac, 3.5ac/1000pp		12-30 ac, 2ac/1000 people		12 ac min.			
Pocket Park		>8000sf; school park>5ac, 1.25ac/1000pp		1-5 ac, 1.25/1000 people, scool parks included		8000 sf			
Setbacks	Front/Side/Exterior Side/Rear	Front-Side-Exterior Side-Rear	Front/Side/Exterior Side/Rear	Front-Side-Rear	Front-Side-Exterior Side-Rear		Front/Side/Exterior Side/Rear	Front-Side-Rear	Front/Side/Exterior Side/Rear
Estate Residential		35'-15'-35'-50'	40'/15'/40'/40'	35'-10'-10'	50'-25-50'-50'	40'/20'/40'/40'		50'-30'-30'	50'/20'/50'/40'
Large Lot Residential	30'/8'/15'/20'	30'-15'-30'-30'	40'/15'/40'/40' (Rural); 30'/10'/30'/30' (R1)	35'-10'-10'	30'-10%-50'	35'/15'/25'/30'	30'/8'/30'/40'	30'-15'-30'	40'/15'/40'/50'
Medium Density Residential	30'/8'/15'/20'	30'-12/10'-30'-30'	30'/10'/30'/30' (R2-Duplex)	35'-10'-10'	25-40'-10%-30'	30'/12'/20'/30'	30'/7'/30'/30'	30'-10'-30'	R2:30'/10'/30'/40'; R3: 30'/10'/30'/30'

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	Aurora	Batavia	Elburn	Kane County	Kendall County	Montgomery	North Aurora	Sugar Grove	Yorkville
ZONING/SUBDIVISION STANDARDS									
High Density Residential	25'/10'/10'/30'	30'-30'-30'-30'	25'/15'/25'/30' (R3); 30'/15'/20'/30' (R4)	35'-10'-10'	25-40'-10%-30'	25'/20'/15'/30';TND Res - 25'/20'/10'/20';Duplex - 25'/20'/10'/30'; Townhome - 25'/15'/25'/30'	30'/7'/25'/30' (Dup/Trip); 60' front (MF); 30' (Townhomes), same as Dup/Trip	25-30'-10-15'-25-30	30'/10'/20'/30'; R4:30'/10'/30'/30'
General Commercial	15'-30'/30-/-	25'—	50'/10'/50'/30'	35'-10'-10'	30-50'-10'-20'	10'/5'/20'/20'		60'-10'-30'	0'/20'/30'/20'
Neighborhood Commercial		15'—	60'/35'/60'/50' (Commercial Residential)	35'-10'-10'		10'/5'/10'/20'		20'-5'-20'	0'/20'/20'/20'
Industrial		30'-15'-30'-30'	40'/20'/40'/20' (Commercial Manufacuring)	100' to adjacent land use, 50' to street		25'/20'/20'/20'	30'/15'/30'/30'	40'-25'-50' (75' buffer around district boundary)	25'/20'/20'/10'
Institutional		Office Research 25'-8'-12'-20'	30'/10'/30'/30' (Office)			30'/15'/30'/30'	30'/15'/30'/30'		office: 30'/10'/20'/20'
Site Capacity									
Estate Residential		FRA 0.2	33% (1450 sf one-story)		10-20%	FAR=0.35 at 35%		0.3	0.3
Large Lot Residential	0.4	FRA 0.3	33% (1450 sf one-story)		<75%, total dwelling units < 20%	FAR=0.35 at 35%	0.4	45%, FAR=0.4 max	0.25
Medium Density Residential	0.4	FRA 0.3/.35	33% (1300 sf on-story SF) (R2)		35%, FRA=0.5	FAR=0.35 at 35%	0.4	35%, FAR=0.45 max	R2:20%; R3:30%
High Density Residential	0.4	FRA N/A (practial limitation are 3.0 to 4.0)	50% (R3); 60% (R4)		35%, FRA=0.5	FAR=0.6 at 35%; TND FAR=0.6 @ 35%; Duplex=0.6 @35%; Townhome=.35@35%	Dup/Trip 950 sf-1 story; 850 sf-2 story; MF=40%	50%, FAR=0.45 max	30%; R4: 30%
General Commercial	FAR=1.6	FRA 2.0				FAR = 1.5	FAR<=3.0	<70%, FAR<1.5	0.8
Neighborhood Commercial	FAR=1.0	FRA 1.2			FRA<0.5, impervious <70%	FAR = 1.0		FAR<1.5	0.5
Industrial	1 use/lot	FRA 1-2	75% (Light industrial)		FRA< 0.8, <60%-75%	FAR = 1.5 max	FAR<=2.0	70-75%	0.6
Institutional		Office Research FRA 2.0			<70%	FAR = 0.6			Office: 50%
Site Planning Process									
Site Capacity Calcs									
Specific Area Plans	Westside/PUD				Four-Step Process, designating the Open Space first; suitability of land should be considered				