

Staff Analysis of Proposed Amendment to the *Dane County Water Quality Plan*, Revising the Cambridge Urban Service Area Boundary and Environmental Corridors in the Village of Cambridge

1. Applicant: Village of Cambridge

2. Description of Proposal

The amendment adds 62.6 acres to the Cambridge Urban Service Area, including 13.7 acres of environmental corridor and 4.6 acres of existing development, for a net added developable area of 44.3 acres (see maps 1, 2, and 3). The amendment area is located south of CTH PQ (Water Street), west of Koshkonong Creek, and northwest of CamRock Park, in the Village of Cambridge. The amendment area is planned for residential development. The proposal calls for 96 single-family housing units and 38 duplex units, for a total of 134 housing units. These units will accommodate about 316 residents, including 70 school children.

Table 1 summarizes the land use details of the proposal.

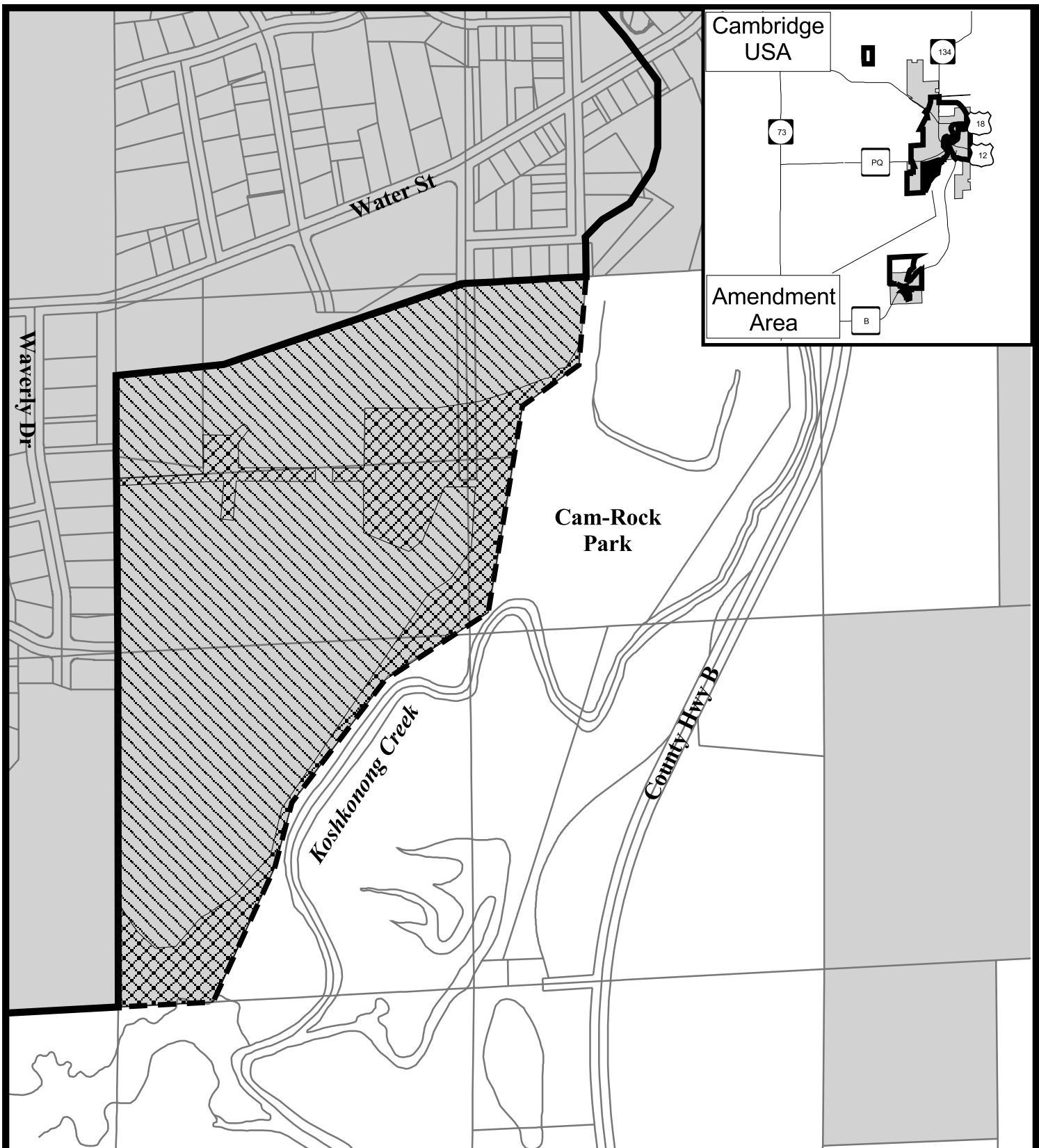
Proposed Land Use	Density (units/acre)		Total (ac.)	% of Total	Housing Units	No. of Persons	No. of Students	Existing Develop.	Environ. Corridor	Developable
	Proposal	Cam.USA								
Single Family Residential	3.4	3.3	30.0	47.9%	96	249	58	1.7		
Other Residential	4.6	5.6	8.2	13.1%	38	68	12			
Residential Total	3.7	3.8	38.2	61.0%	134	316	70	1.7		
Other (church)			2.9	4.6%				2.9		
Street ROW			7.8	12.5%						
Stormwater Management			4.5	7.2%					4.5	
Parks			0.6	1.0%					0.6	
Environmental corridor			8.6	13.7%					8.6	
Total			62.6	100.0%	134	316	70	4.6	13.7	44.3

Source: Village of Cambridge Planning Submittal and Dane County Community Analysis & Planning Division %Single Family: 72%






3. Existing Environment

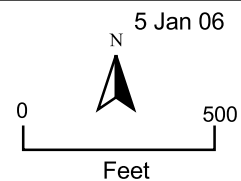
Existing Land Use. The lands within the proposed addition include 1.7 acres with an existing farm residence and 2.9 acres owned by St. Pius X Roman Catholic Church in institutional use. The remainder of the proposed addition is under agricultural production or vacant. Land uses adjacent to the amendment area are as follows:

- North: Residential (Village of Cambridge)
- South: Wetlands, an intermittent tributary of Koshkonong Creek, and agricultural lands farther to the south (Town of Christiana)
- East: Residential, county parkland (CamRock Park), wetlands (Village of Cambridge), and Koshkonong Creek
- West: Residential development and environmental corridors (Village of Cambridge)

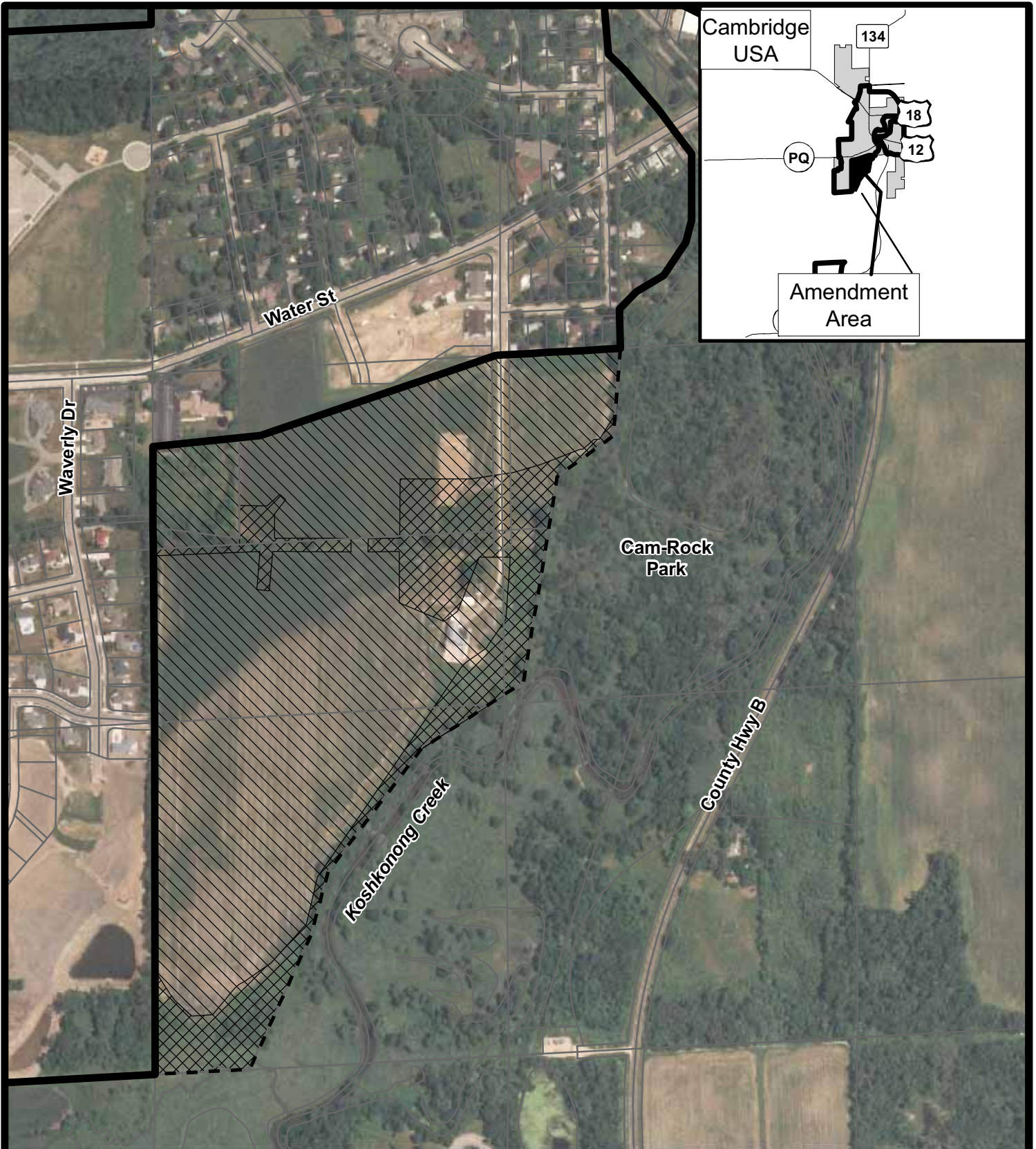


Map 1
Amendment
to the Cambridge
Urban Service Area,
Village of Cambridge





-  Service Area to be added
-  Proposed Environmental Corridor
-  Existing Urban Service Area Boundary
-  Proposed Urban Service Area Boundary
-  Incorporated Area



Prepared by staff
 of the CAPD.

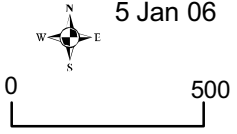


**Map 2
Amendment
to the Cambridge
Urban Service Area,
Village of Cambridge**

-  Service Area to be added
-  Proposed Environmental Corridor
-  Existing Urban Service Area Boundary
-  Proposed Urban Service Area Boundary

2005 aerial courtesy of FSA/NRCS

5 Jan 06



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Feet

Prepared by staff
of the CAPD.

Map 3

Concept Plan
SCOTT FARM
Village of Cambridge
October 31, 2005

Development concept Plan
USAA Boundary and
Existing Rights-of-Way (ROW)



Natural Resources. The area proposed for addition is in the Koshkonong Creek watershed. The amendment area drains to the east, toward Koshkonong Creek. A drainageway traverses the property from west to east and defines the northerly quarter of the amendment area. The southernmost portion and part of the southeastern edge of the amendment area is composed of wetlands. The wetlands in the southwest edge of the amendment area are adjacent to, and complement, existing environmental corridors in the Summer Prairie development to the west. Koshkonong Creek flows south of the Village of Cambridge through CamRock Park, which is adjacent to and southeast of the amendment area. Koshkonong Creek supports a warm water sport fishery.

The surficial geology of the site is composed of glacial till with uplands created by drumlins. Depth to groundwater is 10 to 25 feet, except in and adjacent to the wetlands where it is less than 10 feet. Depth to the bedrock of sandstone is over 50 feet. The amendment area contains wetlands, drainageways, and floodplains. These resources have been proposed for inclusion in environmental corridors.

The soils of the amendment area are mostly in the Batavia-Houghton-Dresden association. These soils are well drained and poorly drained, deep and moderately deep silt loams and mucks that are underlain by silt, sand, and gravel. Approximately 87% of the amendment area is composed of prime agricultural soils. Soils posing severe limitations to development due to seasonally high water table make up approximately 54% of the amendment area.

Although a portion of the amendment area with problem soils is proposed for inclusion in environmental corridors, there are areas proposed for development in the north half of the amendment area composed of Wacousta and Virgil soils. These soils pose severe limitations to development due to seasonally high water table and poor stability. Construction in these areas, especially of structures with basement, can result in the seasonal flooding of the basement and premature failure of foundation walls. The Village should provide additional oversight in these areas to ensure that proper design and construction methods are used.

Details of soil characteristics for the amendment area are summarized in Table 2 on the next page (also see Map 4).

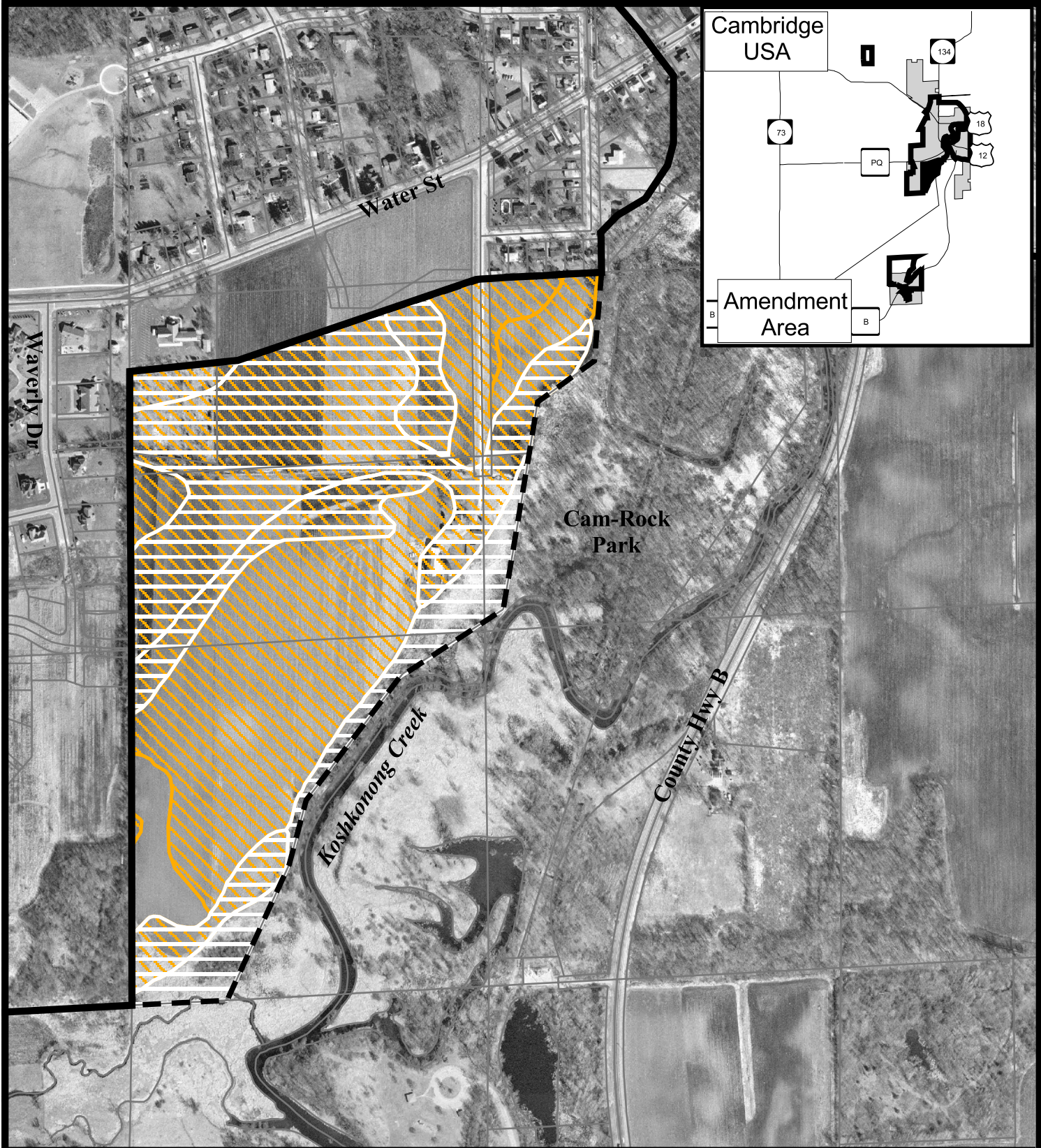
Archaeological records at the State Historical Society do not indicate the presence of archaeological resources in or near the proposed amendment area.

The Natural Heritage Inventory, maintained by the Department of Natural Resources, does not indicate the presence of threatened or endangered species in the area.





**Table 2
Soil Classification**

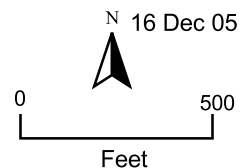
Soil	% of Area	General Characteristics
Kegonsa Silt Loam; KeB	36	Moderately deep, well drained soils on benches in stream valleys. Soils have medium fertility, moderate permeability in the subsoil, and rapid permeability in the substratum. Poses slight to moderate limitations for development. Prime agricultural soil with corn yield of 125 Bu/acre.
Wacousta Silty Clay Loam; Wa	31	Deep, poorly drained soils on low benches in old lake basins. Soils have low fertility and moderately slow permeability. Subject to seasonally high water table. Poses severe to very severe limitations for development due to seasonally high water table and poor stability. Prime agricultural soil where drained, 110 Bu/acre corn yield.
Virgil Silt Loam, Gravelly Substratum; VwA	11	Deep, somewhat poorly drained soils on low benches in outwash plains formed on sand and gravel outwash. Substrate has moderately rapid permeability. Subject to seasonally high water table. Poses severe limitation for development due to seasonal high water table and poor stability. Prime agricultural soil with corn yield of 150 Bu/acre.
Alluvial Land, Wet; Af	9	Poorly drained, stratified, silty and loamy stream deposits on the lower part of flood plains along major streams. Soils have high fertility and high available water capacity and are frequently flooded. Poses very severe limitations for development due to seasonally high water table and flooding.
Batavia Silt Loam, Gravelly Substratum; BbA	6	Deep, well drained soils on high benches. Soils have high fertility and moderate permeability. Poses slight to moderate limitations for development, with some severe limitations due to rapid permeability of the substratum. Prime agricultural soil with corn yield of 155 Bu/acre.
Dresden Silt Loam, eroded; DsC2	4	Well drained soils on outwash plains and benches in stream valleys. Soils have medium fertility, moderate permeability in the subsoil, rapid permeability in the substratum, and severe hazard of erosion. Poses moderate limitations for development.
Marshan Silt Loam; Mc	3	Moderately deep, poorly drained soils on low benches in major stream valleys. Soils have medium fertility, moderate permeability in the subsoil and rapid permeability in the substratum. Poses severe to very severe limitations for development due to seasonal high water table. Prime agricultural soil with corn yield of 110 Bu/acre.

Source: Dane County Soil Survey



**Map 4 Soil Characteristics
Amendment
to the Cambridge
Urban Service Area,
Village of Cambridge**

-  Prime Agricultural Soils
-  Severe Limitations for Development
-  Existing Urban Service Area Boundary
-  Proposed Urban Service Area Boundary



Prepared by staff
to the DCRPC.

Existing Transportation System. The proposed amendment area is located south of Water Street (CTH PQ) and northwest of Koshkonong Creek and CamRock Park. Existing access to the property is from Scott Road. Scott Road enters the property from the north, extending south from Water Street. Chickadee Drive ends at the east edge of the Summer Prairie development to the west of the amendment area. The proposed addition would extend Chickadee Drive east and north through the amendment area, providing a connection to Water Street (see Map 3).

Public transit service is not available in the Village of Cambridge. Personal and group transportation services are provided for people needing transportation assistance, particularly the elderly, through Retired Senior Volunteer Program (RSVP).

4. Consistency or Conflict with Adopted Plans and Policies

The Cambridge USA was established in 1977 and was last amended in June 2004. The Cambridge Urban Service Area had a 2000 Census population of 1,010 has a 2005 population estimate of 1,131 and its 2030 population forecast is 1,452. The Cambridge Urban Service Area Housing and Land Use Analysis limits the size of the Cambridge Urban Service Area to 584 acres to maintain consistency with the official 2030 population forecast. The current urban service area covers an area of 465 acres (excluding the environmental corridor acreage). Based on this information, the urban service area can be expanded by a maximum of 119 developable acres. The proposed amendment would add 44.3 developable acres to the urban service area, well within the maximum allowable addition acreage.

The land to be added to the urban service area is adjacent to Village utilities to the north and west and is a logical extension of development. The proposal will create residential development for the Village.

The Village of Cambridge has addressed the USA amendment request criteria through information presented in its amendment proposal dated November 2005, and in the “Village of Cambridge Smart Growth 2025 Comprehensive Plan” adopted in January 2005.

Table 3 presents the goals achievement checklist for the eleven major goals of the *Dane County Land Use and Transportation Plan*. The proposed amendment is supportive of the following goals: 1) Provides a range of housing choice by including multifamily as well as single-family housing in the proposal; 2) protects environmental resources by preserving wetlands, floodplains, and drainageways; and 3) protects environmental corridors by designating 13.7 acres as environmental corridor.

The amendment has neutral or off-setting effects with regards to eight other goals, including the goal of protecting agricultural lands. It is off-setting in this regard because although 87% of the amendment area is composed of prime agricultural soils, it is a relatively small and isolated piece of land in the middle of an urban and urbanizing area, not likely to remain a viable agricultural parcel.

The proposed amendment has neutral or off-setting effects with regards to the goal of promoting compact urban development because although the proposed amendment has a density which is lower than the current USA average, when the development is considered as a whole (area already in the USA and the proposed amendment) it has a density greater than the USA.

Table 3

Dane County Land Use and Transportation Plan
Goals Achievement Checklist

Goals	Strongly Conflicts	Conflicts	Neutral or Offsetting Effects	Supports	Strongly Supports
Promote balanced communities with a mix of development			X		
Promote compact urban development			X		
Promote distinct communities and mixed use neighborhoods with a full range of public services			X		
Provide a full range of safe and affordable housing choices				X	
Provide an integrated all-mode transportation system			X		
Concentrate employment and activity centers along transit corridors			X		
Maintain Downtown Madison as region's major activity center			X		
Provide employment opportunities and a diverse economic base			X		
Protect agricultural lands by limiting non-farm development in agricultural areas			X		
Protect environmental, cultural and historic resources				X	
Develop a system of open space corridors to preserve environmental functions, scenic value, and recreational opportunities				X	

Proposal: Revising the Cambridge Urban Service Area Boundary and Environmental Corridors in the Village of Cambridge

Applicant and

Submittal Date: Village of Cambridge; November 2005

5. Proposed Urban Services

Public Water System. Water service will be provided by the extension of the existing 10-inch water main on Water Street. The extension will be looped into the existing distribution system serving the development to the west of the amendment area. The amendment is estimated to consume an average of 33,000 gallons per day (gpd) of potable water.

The annual average pumpage for the Village of Cambridge is about 214,000 gpd. The water system is supplied by two wells with a total pumping capacity of 700 gallons per minute (gpm) (one well is a standby well with a rated capacity of 400 gallons per minute and no treatment facilities). The Village has a 400,000-gallon elevated storage tank. The existing facilities are adequate for providing a fire fighting flow of 2,500 gpm for 2 hours.

Wastewater. Gravity sanitary sewer service will be provided by extending the existing 8-inch sewer main located south of Water Street northeast of the amendment area. The amendment is estimated to generate an average of 32,000 gallons per day (gpd) of wastewater.

A new wastewater treatment plant will serve the Cambridge-Oakland area and is currently under construction. The new facility will have an average daily capacity of 0.644 million gallons per day (mgd). This expansion will be adequate to serve the service area through 2030. Current average daily flow to the wastewater treatment facility is 0.372 mgd.

A new gravity interceptor sanitary sewer is also needed to serve the amendment area, and construction is planned for 2006. The Village has made the development of the Scott Farm subdivision contingent on the completion of the new interceptor.

Stormwater Management System. Stormwater management will comply with Village ordinance (consistent with Dane County Stormwater standards) and DNR guidelines.

The amendment area slopes generally to the east. Stormwater retention ponds are proposed to be located at the east edge of a drainageway located on the northern quarter of the addition. The stormwater ponds will be owned and managed by the Village. The basins have been designed to meet local, County, and State regulations and will provide quantity and quality treatment. Two stormwater basins are proposed which will be constructed prior to or concurrent with any development.

However, stormwater ponds will not provide stormwater treatment to the entire amendment area. Proposed lots along the Koshkonong Creek wetlands along the east and south edge of the amendment area will not receive stormwater treatment (lots 63-78). The condominium lot (lot 63) along the south edge of the amendment area will have a sedimentation basin during construction.

Environmental Corridors. There are 13.7 acres of environmental corridor in the amendment area. This includes wetlands, an existing drainage ditch, and stormwater retention facilities.

Public Safety Services. Fire protection and emergency medical service will be provided by the Cambridge Fire and EMS Station, located on Main Street (USH 12), approximately one-half mile from the amendment area. Response time for fire service is 7 minutes. Response time for EMS ranges from 4 to 12 minutes. The proposed amendment area is already within the area serviced by the Cambridge Fire Department and EMS.

Police service will be provided by the Village of Cambridge, which contracts with Dane County to provide local policing services. The Police Department has 3 FTE officers serving the Village of Cambridge as well as the Village of Rockdale.

Other Village Services. The Village of Cambridge will provide solid waste collection and recycling to the amendment area as it does for other areas of the Village, through contracts with private vendors.

Parks and Open Space Plan. The amendment proposal includes a park of 0.6 acres in the northwest portion of the amendment area. The Village's West Side Park (Dewey Park) is located one block east of the proposed amendment, on County Highway PQ (Water Street). The CamRock County Park System is adjacent to the proposed amendment on the southeast. The closest access point is two blocks east on Water Street. The possibility of providing direct access from the Scott Farm subdivision is being explored with Dane County.

Urban Transportation System. Four new local streets will be constructed by the developer within the subdivision. Chickadee Drive will be extended from the Summer Prairie subdivision (west of the proposed amendment) to Water Street north of the amendment, providing continuity and alternative access and egress. Scott Road will be extended from the north (see Map3).

A multi-use trail for recreational and transportation purposes is planned for the subdivision. The exact route of the trail has not yet been determined. It may connect to a trail in the adjacent Summer Prairie subdivision, and possibly to the multi-use trail system in CamRock Park. The feasibility of these connections is under discussion with the developer of the Scott Farm property, Summer Prairie, Inc., and the Dane County Parks Commission. The developer is responsible for funding or acquiring grants to cover all costs related to the development of the trail.

6. Impacts or Effects of Proposal

Water Resource Impacts. The typical water resource impacts of urban development is to increase runoff rates and volumes, introduce pollutants into water bodies and change their hydrologic regime, and reduce the natural recharge of groundwater by increasing the area of impervious surfaces (road pavements, parking areas, and roofs) and increasing groundwater withdrawal for potable water.

The Village has adopted the Dane County Stormwater standards the enforcement of which would protect adjacent water bodies from the adverse impacts of construction erosion.

The stormwater management plan for the northern portion of the amendment area provides stormwater management exceeding the Dane County standards by controlling post development runoff rates at pre-development rates for all storm events up to and including the 100-year storm. This is necessary to protect downstream areas from the adverse impacts of increased flooding and erosion. The stormwater facilities serving the south portion of the amendment area should also be designed to meet the same high standard.

The lots along the Koshkonong Creek wetlands, on the east and south edge of the amendment area (lots 63-76) are not served by any stormwater facility. The condominium lot on the south edge (lot 63) will be served by a temporary sedimentation basin during construction, but not as a long-term stormwater management facility. This results in a less than adequate stormwater quality measure in this area. The single family lots (lots 64-76) similarly can have impacts on the wetlands beyond their back yards through increased

runoff flow concentration and resultant erosion, as well as discharge of herbicides and pesticides into these wetlands.

In order to minimize and mitigate the potential adverse impacts of runoff from lots 63-76, properly sized bioretention facilities should be designed and installed in the back yards to treat the average annual runoff from each lot. These bioretention facilities should be designed to discharge through spreaders to prevent concentrated discharge and erosion. The discharge should maintain a minimum of 35 feet from the edge of the wetland. The lots already include a 75-foot vegetative buffer for the wetlands. However, to protect the wetlands from encroachment by landscaping, a 35-foot no mow portion of the 75-foot buffer (the portion of the 5-foot buffer immediately adjacent to the wetland edge) should be delineated and clearly marked for future homeowners. The no mow area would also serve as a filter strip for herbicide and pesticides that would otherwise flow into the wetlands. The same approach should be taken on lot 28 where the original farmhouse is located, when and if this lot is redeveloped.

The amendment area is located in an area with no significant impact from development on groundwater quantity and elevation. The proposed amendment is not expected to have an appreciable adverse impact on the baseflow of Koshkonong Creek.

Wastewater Impacts. The Village is in the process of upgrading its wastewater treatment plant. The new plant has been sized to accommodate the 20-year growth of the service area.

School System Impacts. School enrollment will increase by 70 as a result of the proposed amendment. The proposal is within a mile of Cambridge School District schools. Cambridge School District enrollment is currently declining.

7. Alternatives

The Comprehensive Plan for the Village of Cambridge was adopted in 2005 and designates the proposed amendment area as low density residential. Therefore, the plan for residential development is consistent with the Village plan. The amendment proposal represents a logical expansion of urban development in the area.

8. Controversies, Comments Received, Unresolved Issues

A public hearing before the Division Administrator of the Community and Analysis and Planning Division of the Dane County Department of Planning and Development is scheduled for February 9, 2006. No controversies are noted, and the Town of Christiana, Town of Oakland, and Village of Rockdale have been notified of the amendment. No comment has been received by CAPD to date.

9. Conclusions and Staff Recommendation

The proposed amendment is consistent with adopted plans and policies and with criteria for urban service area amendments. Staff recommends approval of the amendment conditioned on the Village of Cambridge pursuing the following:

Submit a detailed stormwater quality and quantity management plan for the amendment area for CAPD and DCLCD staff review and approval prior to development. Stormwater management measures should provide the following:

- 1) Install facilities prior to other land disturbing activities;

- 2) Include measures to maximize infiltration;
- 3) Protect downstream areas from erosion and increased flooding and control post-development rates of runoff at pre-development levels for all storms up to and including the 100-year storm;
- 4) Maintain a 35-foot no mow buffer for all wetland areas as part of the 75-foot vegetative buffer;
- 5) Provide bioretention treatment facilities for lots 63-76 (lots along Koshkonong Creek wetlands) and provide spreader outlets to prevent channel erosion of the wetlands;
- 6) Provide conditions #4 and #5 for lot 28 (the original farmhouse parcel) if and when the lot is re-developed.

It is also recommended that the Village pursue the following:

- 1) Provide oversight for the design and construction of structures in areas that pose severe or very severe limitations for development due to seasonally high water table and poor stability.

Report approved by: Kamran Mesbah, Deputy Administrator/Director of Environmental Resources Planning, Dane County Community Analysis and Planning Division.