

**SHADY WOOD
NEIGHBORHOOD DEVELOPMENT PLAN**

Recommendations for Land Use and Development

DRAFT

**City of Madison
Department of Planning & Community & Economic Development
Planning Division**

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SHADY WOOD NEIGHBORHOOD DEVELOPMENT PLAN

INTRODUCTION

The Shady Wood Neighborhood Development Plan was prepared to guide the future growth and development of a new neighborhood located on the City of Madison's southwest side. The Shady Wood planning area was recognized as a potential location for future urban expansion in the 2006 Peripheral Area Development Plan, which was completed as part of the 2006 City of Madison Comprehensive Plan. The Peripheral Area Development Plan identified lands at the edges of the City most suitable for Madison's near and longer-term growth. The Shady Wood planning area was identified as having near-term potential for beginning urban development and recommended that a detailed plan for the neighborhood be prepared and adopted.

The Shady Wood Neighborhood Development Plan was prepared through a joint planning effort that included the participation of neighborhood property owners, City staff and officials, representatives of other municipalities, and other interested individuals and organizations. Throughout the planning process, there was communication between property owners and City staff as public and private planning objectives were identified. Two public meetings were held at Country View Elementary School in Verona to present and discuss background information, a conceptual land use plan and the draft neighborhood development plan. The neighborhood development plan reflects an effort to balance the interests and objectives of all participants, while providing a comprehensive, long-range vision for future neighborhood development.

The Shady Wood Neighborhood Development Plan includes recommendations for land use and design, open space preservation, transportation, urban services delivery, development phasing and plan implementation. It will be adopted as a supplement to the City of Madison Comprehensive Plan as a guide for future development within the planning area and the vision against which future development proposals will be evaluated.

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BACKGROUND INFORMATION AND PLANNING CONTEXT

SHADY WOOD NEIGHBORHOOD PLANNING AREA

The Shady Wood planning area is generally bounded by Mid-Town Road on the north, Woods Road on the east, County Trunk Highway PD on the south and Shady Oak Lane on the west. The planning area covers 639.9 acres. **See Map 1.**

MUNICIPAL JURISDICTION

The lands covered by the Shady Wood Neighborhood Development Plan are currently in the City of Madison or Town of Verona. About 34.0 acres, or 5.3 percent, are in the City of Madison and 605.9 acres, or 94.7 percent, are in the Town of Verona. **See Map 2.**

PROPERTY OWNERSHIP

Several large property ownerships account for over half of the land within the planning area. Larger property ownerships within the planning area are listed in **Table 1** and shown on **Map 2**.

Table 1: Property Ownership	
Property Owner	Approximate Acreage
Dreger	107.1
Keryluk	101.4
Kuechmann	39.5
Cowling	39.1
Blake	59.0
Heath	39.8
Hawk's Creek LLC	27.9

SCHOOL DISTRICTS

The planning area is currently within the Verona Area School District and is currently served by Country View Elementary School, Savanna Oaks Middle School and Verona Area High School. In 1999, the Verona Area School District and the Madison Metropolitan School District approved a Boundary Agreement, which will transfer some of the land within the planning area to MMSD after the land is annexed to the City of Madison if applicable provisions are met. Under MMSD's current configuration of school attendance areas, Olson Elementary School, Toki Middle School and Memorial High School would serve the MMSD portion of the planning area. **See Appendix Map 1.**

TOPOGRAPHY AND NATURAL FEATURES

Topography

The planning area is located along the terminal moraine of the most recent glacier that reached the area. The glacier left unique features in this area including a large and very defined terminal moraine that traverses the planning area between the northwest corner and southeast corner of the planning area, a glacial outwash area located to the southwest moraine and terrain to the northeast of the moraine that is very undulating.

The elevation in the planning area ranges from approximately 1,012 feet U.S.G.S. near the intersection of Shady Oak Lane and CTH PD to approximately 1,170 feet U.S.G.S. along the terminal moraine near the intersection of the Heath, Kuechmann and Cowling properties. Topography and other natural features are shown on **Map 3**.

Richardson's Cave

Richardson's Cave, called by the some the "Great Cave of Dane County," is located adjacent to a pond within the Lower Badger Mill Creek corridor. Documentation of the cave dates back to 1845. In the 1960s University of Wisconsin researchers mapped the areas of the cave that they were able to access. Those explorations extended approximately 1,000 feet in length from the opening of the cave and 40 feet underground. In the past, large amounts of stormwater from the Lower Badger Mill Creek basin entered the cave during rain events. The cave has silted in over the years as land within the basin has been converted from woodlands and more natural ground covers to agricultural uses that cause more erosion. Currently, the opening within the cave is only about 500 square feet in area.

The owners of the land containing the cave have been good stewards of the resource. They have occasionally removed silt from the cave with their own equipment. Several years ago they had a large berm constructed, at the request of the Wisconsin DNR, to prevent stormwater from entering the cave which was contaminating nearby private water wells. The landowners have also permitted area spelunkers to explore the cave and community groups to have gatherings at the cave. Overall, Richardson's Cave is a very unique resource, with an interesting history, which should be preserved in some fashion.

Woodlands

The planning area includes extensive woodlands. In total, they cover approximately 221 acres of the planning area's 640 acres, including a contiguous plot of approximately 175 acres located on several properties in the southeastern portion of the planning area. The primary woodland areas are located along the steep slopes of the terminal moraine and the undulating topography northeast of the moraine. These areas are less desirable for agriculture uses, which would require clearing and grading to be productive.

Water Resources

Watersheds

The planning area is almost entirely within the Lower Badger Mill Creek watershed except for a small area along Woods Road that is in the Upper Badger Mill Creek watershed. Both of these watersheds are part of the larger Upper Sugar River watershed. Since the Upper Sugar River

watershed is a coldwater community, special regulations apply to development in the watershed that exceed the typical stormwater regulations in Dane County.

Lower Badger Mill Creek

Lower Badger Mill Creek travels southwesterly through the planning area. Within the planning area it bisects agricultural fields and past Richardson's Cave before entering a deep ravine between Nor-Del Hill Road and Rolling Meadow Road. The Creek then parallels Shady Oak Lane before meandering through agricultural fields south of the planning area. Lower Badger Mill Creek is classified as an intermittent stream within the planning area. It is considered a non-navigable waterway by the Wisconsin Department of Natural Resources.

Kettle Ponds

There are also several kettle ponds or depressions within the planning area that hold water on an intermittent or continuous basis. These features were probably formed from large blocks of ice within the glacier, which reserved space as the glacier melted and disintegrated. The blocks of ice eventually melted and the surface of the land collapsed leaving a depression in its place. The larger of these features are located on the Dreger, Keryluk and Cowling properties.

Wetlands and Floodplain

According to the Wisconsin Department of Natural Resources Wetland Inventory maps, there are areas where wetlands may exist but have not been officially designated as wetlands. The maps also indicate areas that contain soil types that often signify the existence of wetlands. If wetlands do exist, the exact boundaries of them must be delineated in the field prior to development. Federal Emergency Management Agency (FEMA) floodplain maps classify much of the area along Lower Badger Mill Creek as being within the 100-year floodplain. Special regulations apply to developments that contain or are adjacent to wetlands or floodplains.

Soils

The soils within the planning will support most types of development, but areas with hydric soils and soils with hydric inclusions are located in the lower elevations and along the natural drainageways such as Lower Badger Mill Creek. These soils are generally less suitable for development, and are primarily located where development is limited or not recommended, or where stormwater management facilities are likely to be located. Soil conditions will need to be carefully evaluated on any lands with these soil characteristics that may be considered for development.

EXISTING LAND USE

The planning area is currently comprised of agricultural/vacant, residential, or open space land uses. There are about 329.6 acres of agricultural and vacant land; 277.7 acres of residential land, including several very large rural homesites; and 7.9 acres of open space, which consists of the property currently owned by the Ice Age Park and Trail Foundation. There are also 24.7 acres of road right-of-way within the limits of the planning area. Existing land uses are listed in **Table 2** and shown on **Map 4**.

Table 2: Existing Land Use		
Land Use	Acres	Percent of Total
Agricultural/Vacant	329.6	51.5%
Residential*	277.7	43.4%
Parks and Open Space	7.9	1.2%
Road Right-of-Way	24.7	3.9%
Total	639.9	100.0%

* Existing land use is tabulated on a parcel basis. Many rural homesites are much larger than a typical urban lot, and may include open fields, woods or other natural areas, in addition to a formal yard around the house and buildings. Unless a portion of the lot is being used for another land use activity, such as farming, the entire lot is considered to be residential for purposes of this tabulation.

Agricultural and Vacant Land

A little over one-half of the land in the Shady Wood planning area is currently either being farmed or is vacant land. The vacant lands include extensive woodlands and areas with steep slopes or undulating topography that are less suitable for farming or development.

Residential Uses

A substantial portion of the planning area consists of residential homesites, and the planning area currently contains 50 homes. These homes are located along the roads that form the perimeter of the planning area, Mid-Town Road, Woods Road, and Shady Oak Lane, and along the three cul-de-sac roads off of Shady Oak Lane. Many of the homes are on relatively large rural lots, parts of which may also include steep slopes, woods, and other natural areas.

Parks and Open Space

The only park and open space use identified within the planning area at this time is a property adjacent to Mid-Town Road that was recently purchased by the Ice Age Park & Trail Foundation. It is intended that this property will eventually become a part of the Ice Age Trail route.

Historical and Cultural Structures and Sites

The Wisconsin Historical Society's Architecture and History Inventory identifies four archaeological sites in the planning area. Three sites are located along Lower Badger Mill Creek in the area of Richardson's Cave and were documented during surveying for a utility corridor. The fourth site is located near the intersection of CTH PD and Nine Mound Road. It has been determined that two of the sites are not eligible for inclusion on the National Register of Historic Places. The remaining two sites may require additional investigation.

EXISTING ZONING

The zoning for land within the planning area is a combination of City of Madison zoning regulations, which apply to lands within the City, and Dane County zoning regulations, which apply to lands within the Town of Verona. **See Map 5.**

The property that is in the City of Madison is zoned Agriculture (A). The Agriculture zoning district is utilized as an interim zoning designation for future development lands that have been annexed or attached to the City. It is anticipated that the property will be rezoned to a more appropriate zoning classification as part of the future approval of a development project. One of the key factors in determining whether a development should be approved, and which zoning district classification should be assigned, is the consistency of the proposed development with the recommendations of an adopted neighborhood development plan. Existing uses at the time of attachment to the City may continue under the Agriculture district classification either as conforming or non-conforming uses, but only conforming uses may be expanded.

The Dane County Zoning Ordinance applies to lands in the Town of Verona. Most of the lands currently in the Town are classified Exclusive Agriculture (A-1 EX). This district permits a variety of agricultural uses, residential uses for farm owners and operators, single-family homes for owners of at least 35 acres and other selected uses. The remaining areas are primarily within the Rural Homes District (RH-1). This district permits single-family homes on lots that are a minimum of two acres in size. Other areas are zoned to a variety of residential districts that permit homes on a range of lot sizes.

EXISTING TRANSPORTATION FACILITIES

Roadways

Existing roadways in the planning area are classified as arterial or local roads. Mid-Town Road and CTH PD are classified as arterial roads. The remaining roadways are classified as local roads. All of the roads within the planning area are currently two-lane rural roadways.

Transit Service

Currently, the only transit service near the planning area is provided through Madison Metro's supplemental school day service. This service includes a route through the Mid-Town neighborhood to the north of the planning area, which operates on days when the Madison Metropolitan School District is in session. The nearest routes within the City of Madison that are not associated with school service are located about two miles from the planning area. This includes routes that travel to the east of the planning and a route that travels to the Epic campus to the south of the planning area. All of these routes begin and end at the West Transfer Point.

Pedestrian and Bicycle Facilities

Currently there are no designated pedestrian or bicycle facilities within the planning area.

EXISTING ADOPTED PLANS

The City of Madison has adopted a wide array of plans to guide land use and development within the City and its planned growth areas. Several of these plans include recommendations that specifically address the planning area or lands that are adjacent to the planning area. Additionally, other entities have adopted plans that affect planning for the neighborhood.

City of Madison Comprehensive Plan

The City of Madison Comprehensive Plan, adopted in January 2006, includes numerous goals, objectives, policies and recommendations that apply generally to all areas. These recommendations are not limited to land use and development, but cover all of the elements of a Comprehensive Plan including, for example, transportation, housing, utilities and community facilities, agricultural, natural and cultural resources, economic development and intergovernmental cooperation. However, two sections within the Land Use chapter of the Comprehensive Plan provide the initial framework for the Shady Wood Neighborhood Development Plan.

2006 Peripheral Planning Areas

The Comprehensive Plan defines nine Peripheral Planning Areas (PPAs) at the edges of the urban area. The PPAs are areas that have at least some near or long-term potential for future urban development and City of Madison expansion, but for which no detailed planning has been done to define the City's interests and develop more refined recommendations. The PPAs are recommended as planning areas, and more detailed planning will not necessarily recommend that all lands within each PPA should eventually be developed with urban uses, or that Madison should seek municipal jurisdiction over the entire area.

The Shady Wood planning area is located within Peripheral Planning Area A, a "Group 1" District recommended as a potential location for relatively near-term City of Madison expansion and future urban development. Urban development under City of Madison jurisdiction is anticipated to begin in at least portions of all of the Group 1 Peripheral Planning Areas within one to five years. A key recommendation in the Comprehensive Plan is that a detailed neighborhood development plan must be prepared and adopted prior to initiating urban development in any peripheral area.

Generalized Future Land Use Plan Map

The Comprehensive Plan also makes broad land use recommendations for the entire City of Madison planning area, including the Peripheral Planning Areas beyond the current City limits for which a detailed neighborhood development plan has not yet been prepared. The land use recommendations for the PPAs are necessarily relatively broad, and provide the initial framework for the more detailed recommendations in the neighborhood development plans that will be prepared for these areas prior to their development. The Comprehensive Plan includes recommendations for approximately the northeast portion of the Shady Wood planning area. Specific land use recommendations are not made for the southwest portion, but it is identified as a future neighborhood planning area. The two specific recommended land uses within the Shady Wood planning area are described below. **See Appendix Map 2**

Neighborhood Planning Area - Low Density Residential

This two-part designation is applied to the area located between Mid-Town Road and the area recommended in the Comprehensive Plan recommended for Park and Open Space. This area currently consists of primarily undeveloped agricultural lands and several large residential lots.

- Neighborhood Planning Areas are areas for which a neighborhood development plan with detailed land use recommendations has not yet been adopted, and needs to be prepared before urban development can begin.
- Low-Density Residential districts are characterized by relatively low densities and a predominance of single-family and two-unit housing types. An average of less than 16 dwelling units per net acre is recommended in Low-Density Residential districts. At the higher end of the density range, rowhouse development and smaller three and four-unit apartment buildings may be compatible with the Low-Density Residential designation at locations specified in an adopted neighborhood plan, but large-scale apartment buildings or complexes would not be.

Park and Open Space

The Park and Open Space designation is applied to a corridor that includes some of the natural features in the area and a corridor for Lower Badger Mill Creek. These areas are proposed for consideration as potential open space preservation areas in more detailed planning such as this neighborhood development plan. The Comprehensive Plan's Generalized Future Land Use Plan Map includes a note (Note 31) that provides further direction for planning an open space corridor. Note 31 states: *There are significant natural glacial features along this corridor which should be preserved and incorporated into a future extension of the Ice Age National Scenic Trail connecting the planned trail segment within the University Ridge Golf Course with trail segments extending north along the terminal moraine. City plans for future development of adjacent lands should include plans for permanent preservation and trail development within this recommended open space corridor.*

Mid-Town Neighborhood Development Plan

The Mid-Town Neighborhood Development Plan, adopted in 1999, applies to an area north of the planning area across Mid-Town Road. The Mid-Town Plan centers on Hawk's Landing, which is primarily a golf course and residential development. The Plan recommends additional residential development outside of Hawk's Landing, with higher densities recommended for the southwest corner of CTH M and Valley View and in the vicinity of the Hawk's Landing clubhouse. The recommendations in the Shady Wood Neighborhood Development Plan are intended to be consistent and compatible with the recommendations in the Mid-Town Neighborhood Development Plan.

City of Madison and City of Verona Intergovernmental Cooperation Agreement

the authority of Section 66.030(2) Wisconsin Statutes. The Intergovernmental Agreement includes In 1996, the City of Madison and City of Verona entered into an Intergovernmental Agreement under an ultimate boundary between the two municipalities for which neither municipality will annex beyond. The boundary is CTH PD adjacent to the planning area. The 20-year agreement remains in

effect until 2016 and automatically renews for an additional 20-year term unless either municipality requests that the agreement not be renewed.

Verona Area School District and Madison Metropolitan School District Boundary Agreement

In 1999, the Verona area School District and the Madison Metropolitan School District entered into a Boundary Agreement under the authority of Section 117.13 Wisconsin Statutes that establishes a long-term permanent boundary between the two districts. **See Appendix Map 1.**

Pursuant to the agreement, some of the land within the planning area that is currently within the VASD will be transferred to the MMSD. Properties slated for transfer to MMSD that are not resident owned, as defined in the Agreement, are transferred to the MMSD after annexation to the City of Madison. Properties that were resident owned at the time of the agreement will remain in VASD until the property is annexed to the City of Madison and one of the following criteria is met:

- The owner of the parcel, at the time of the agreement, no longer owns the land
- The parcel is rezoned by the City of Madison to a non-agricultural zoning district and the rezoning was initiated or consented to by the owner
- A subdivision plat is filed with the City of Madison
- A certified survey map is approved by the City of Madison (parcels with resident owners would remain in VASD)
- The owner initiated annexation of the property and was notified that annexation to the City of Madison would prompt attachment to the MMSD

Ice Age National Scenic Trail

A segment of the planned Ice Age National Scenic Trail traverses the Shady Wood planning area. In 1980, the Ice Age Trail was authorized as a National Scenic Trail by the United States Congress. The approximately 1,100-mile trail generally follows the farthest southern extent of the most recent glacial advance. The Ice Age Trail is one of eight National Scenic Trails within the United States, and is one of only two contained within a single state. National Scenic Trails are similar in status to the nation's national parks. **See Appendix Map 3.**

The Ice Age Trail has the support of many levels of government in addition to the federal government. In 1987, the Department of Natural Resources' Natural Resources Board designated the Ice Age Trail as a State Trail, and subsequently approved a general trail corridor. In 1990, the Dane County Board included the trail corridor in the Dane County Park and Open Space Plan. In 2006, the City of Madison Comprehensive Plan was adopted by the Madison Common Council. The Comprehensive Plan recommended preservation of an open space corridor through the Shady Wood planning area that is more defined than the general trail corridor adopted by the State and County. This open space was specifically recommended to preserve the significant natural features along the corridor and incorporate them into a future extension of the National Ice Age Scenic Trail.

II

RECOMMENDATIONS

GENERAL DEVELOPMENT CONCEPT

The development concept for the Shady Wood neighborhood envisions an engaging residential community that provides a variety of housing options and recreational opportunities, and that is sensitively integrated with a large recommended open space conservation corridor encompassing the unique glacial features in the planning area.

The recommended open space conservation corridor will preserve and protect the unique natural features associated with the glacial moraine, and provide an appropriate setting for the Ice Age National Scenic Trail, which was created to preserve features such as those found within the neighborhood so they can be experienced by future generations. Providing a continuous unbroken corridor which encompasses the area's diverse variety of glacial features and other natural amenities will make the corridor as a whole and each individual feature that much more impressive.

Most of the balance of the neighborhood is recommended for residential uses. Housing choices in the neighborhood include a mix of single-family homes with a wide range of house and lot sizes, as well as duplexes, rowhouses and townhomes; and may also include limited amounts of smaller-scale multi-family housing types. All types of housing include units suitable for a variety of households of different sizes, ages, incomes and lifestyles, including families with children. The residential area is served by a system of well-located public parks, including a large area park adjacent to Ice Age Trail corridor.

Travel into and within the neighborhood is enhanced by an interconnected network of local streets that provide multiple routes to most destinations. On-street bicycle lanes and off-street paths provide additional linkages to key neighborhood destinations and the regional bicycle network, and supplement bicycle and pedestrian travel on local streets. Future transit service to the area would provide additional transportation options.

TRADITIONAL NEIGHBORHOOD DEVELOPMENT DESIGN PRINCIPLES

The 2006 Madison Comprehensive Plan recommends that new peripheral neighborhoods be encouraged to incorporate the principles of Traditional Neighborhood Development, or TND, to the extent feasible, given the neighborhood's location and existing land uses. The development concept for the Shady Wood neighborhood incorporates and recommends the following TND design principles in particular:

Variety of Housing Choices

Housing types recommended within the Shady Wood neighborhood as a whole include single-family houses on both large and small lots, duplexes, rowhouses and townhomes, and smaller apartment or condominium buildings. It is recommended that housing types be distributed to provide locational choices and opportunities throughout the neighborhood. The relatively small

Phase A development area is expected to have primarily single-family housing, with perhaps some rowhouse or cluster housing. Later phases of development on the larger Dreger property may include limited amounts of small-scale multi-family housing, but this level of planning detail is not shown at this time since these lands are not expected to be developed for many years.

Interconnected Street Pattern

The neighborhood features an interconnected street pattern which provides multiple routes to most neighborhood destinations and encourages pedestrian and bicycle travel. Proposed blocks are relatively small (generally about 300 feet wide and 600 feet long) with mid-block connections provided where needed. Narrow street pavement widths are encouraged where appropriate.

Land Use Transitions

The range of recommended land uses and development densities in the Shady Wood neighborhood is not large, but it is expected that transitions between different uses, and different intensities, be well-designed. In general, major changes in land use, density or the scale of development should occur at the rear of properties so that similar uses face each other across the street.

Strong Orientation to the Street

It is generally recommended that buildings in the neighborhood be oriented toward the street to provide definition to a block face and create a more engaging street environment. Relatively small front yards in residential areas also help to define a block and promote a pedestrian-friendly scale. Porches are encouraged to provide more opportunities for community interaction at the street level.

Street trees are important elements in establishing an attractive visual framework along public rights-of-way, and it is recommended that street trees in the neighborhood be full-canopy trees to the extent compatible with other community objectives. The selection of street trees needs to be coordinated with the design width of street terraces and other street characteristics, and this should occur as part of detailed subdivision planning.

Limited Visual Exposure of Garages and Parking Areas

The design of developments in the neighborhood should locate garages and parking where they will not dominate the view from the street. In general, it is recommended that parking facilities be located behind, beneath, or at the sides of buildings, rather than in front. Alleys can be used to prevent garage doors from dominating the front facades of homes, particularly on narrower lots. On-street parking should be available on most streets.

Architectural Character

While the neighborhood development plan can lay the foundation, individual development projects will to a large extent determine the future character of the neighborhood and how well it reflects TND design principles. The design and architectural character of the buildings and other structures are important elements in creating the unified “feel” of a Traditional Neighborhood Development, and in creating an attractive and engaging “public realm.” Design objectives include providing architectural variety within the neighborhood while maintaining general neighborhood harmony in building characteristics such as height and massing; roof pitch; the proportion and profile of windows, doors and other elements of the facade; the orientation of doors, windows, balconies, porches and roof decks toward the street; and the choice of facade materials and colors.

RECOMMENDED LAND USE

The recommended land uses shown on the Shady Wood Land Use and Street Plan reflect the general development concept described above, and are summarized below. No land use recommendations are made at this time for an area located between Shady Oak Lane and the glacial moraine that is currently in agricultural use. **See Table 3 and Map 6.**

TABLE 3: RECOMMENDED LAND USE			
Recommended Land Use	Acres	Percent of Total	Estimated Housing Units
Low Density Residential (less than 16 units/acre)	284.3	44.4%	647
Phase A Development Area	22.5	3.5%	135
Phase B Development Area	77.7	12.1%	466
Existing Residential Use Areas*	159.9	25.0%	46
Parks and Minor Open Space	16.6	2.6%	
Proposed Ice Age Trail Open Space**	163.6	27.2%	
Stormwater Management	35.9	5.6%	
Future Planning Area	81.3	12.7%	
Street Rights-of-Way	72.4	11.3%	
Total	639.9	100.0%	

* Acreage for the existing residential use areas excludes portions of existing lots that have been identified as having long-term potential for additional development, are recommended for potential inclusion in an open space corridor, or are shown as future street rights-of-way.

** Acreage for the Proposed Ice Age Trail Open Space includes the lands identified as most appropriate to seek to preserve from urban development in order to protect significant glacial features, provide essential trail connectivity, and create a corridor width adequate to maintain a sense of relative seclusion and a natural environment along the trail. The recommended conservation area can include both public and privately-owned open space, and can include portions of lots that are otherwise developed. The exact alignment for the future trail and the extent and configuration of the associated open space corridor will need to be determined through future negotiations with land owners and more detailed planning. The resulting open space corridor may differ to some degree from that illustrated in the Land Use and Street Plan. The Proposed Ice Age Trail Open Space acreage presented in Table 3 includes the areas identified as Potential Conservation Development areas, and excludes some lands in the vicinity of Richardson's Cave that are tabulated as a Stormwater Management use.

RESIDENTIAL USES

The Shady Wood Neighborhood Development Plan recommends that most existing residential areas continue in their current use essentially unchanged, and additional housing opportunities be provided in new residential areas. It is also recommended that residential development areas include a variety of housing types to serve households of different sizes, ages, incomes and lifestyles. Although the mix of housing types will vary in different parts of the neighborhood, it

is intended that all housing developed within the neighborhood be well-integrated into the community as a whole, and be located and designed to enhance neighborhood identity and encourage engagement and participation in neighborhood activities.

RECOMMENDED HOUSING TYPES AND DENSITIES

Residential land use recommendations in recent City of Madison neighborhood development plans are defined using the concept of Housing Mix districts based on the principal housing types and range of housing densities proposed in each district. All of the recommended residential areas on the Shady Wood Land Use and Street Plan are identified as Housing Mix 1 districts because, taken as a whole, the neighborhood is expected to develop predominantly with housing types and densities consistent with that district. It is also recommended that housing developed in the relatively small Phase A development area be consistent with a Housing Mix 1 recommendation.

However, within the larger Phase B development area, limited amounts of Housing Mix 2 development might also be appropriate at some locations---although the overall density of the area as a whole would still be within or close to the Housing Mix 1 average. The Land Use and Street Plan does not identify specific locations for Housing Mix 2 within the Phase B development area at this time because most of this area is not expected to develop for many years, and specific locations for relatively higher density housing will be recommended as part of more detailed planning prior to the time of development.

A variety of housing types and densities is expected to be developed at appropriate locations within all Housing Mix districts, but many alternative development patterns could create the desired variety, and specific locations for the individual housing types are generally not identified on the Land Use and Street Plan. This approach provides prospective developers with reasonable flexibility and opportunities to be creative and innovative in advancing the objectives of the neighborhood plan, but it is expected that developments will provide a variety of housing choices. Specific locations for particular housing types will be identified during the review process as proposed projects are brought forward for consideration and approval.

An area adjacent to the small park in the northeast portion of the neighborhood is identified as a recommended location for the relatively higher-density types of Housing Mix 1 housing. This location would place higher density housing closest to a neighborhood focal point and activity center, and uses the park to help organize and enhance the development across from it.

The two recommended Residential Housing Mix land use categories discussed above and their general characteristics are described further below.

Residential Housing Mix 1

The predominant recommended housing type in Housing Mix 1 residential areas is detached single-family housing on individual lots; but limited areas within this district may be developed with duplexes, rowhouses and townhomes at appropriate locations identified as development plans for specific subdivisions are prepared.

Housing Types

- Single-family detached homes with a wide range of house and lot sizes
- Duplexes
- Rowhouses
- Townhomes

Density Range

- Individual developments: less than 16 units per acre
- District average: less than 8 units per acre

The Housing Mix 1 district comprises the vast majority of the recommended residential area within the neighborhood, and is the only district mapped on the Land Use and Street Plan at this time. It is specifically recommended that single-family developments include a range of lot sizes that will support a range of house types from relatively large homes to smaller homes and bungalows. The use of alleys to provide rear access to garages is encouraged at appropriate locations within a subdivision, and can provide additional design flexibility and reduce the tendency for garages to dominate the streetscape, particularly on relatively small or narrow lots.

Creative housing concepts, such as a small cluster of houses around a central courtyard, might be appropriate at a few select locations within the Housing Mix 1 district where they could be carefully integrated into the overall neighborhood design and would be in harmony with the general character of surrounding development.

Duplexes, rowhouses and townhomes provide higher-density housing options that can be appropriate at some locations. These housing types may be grouped at select locations, such as by a park or other shared open space, or as a transition to more intensive development, but may also be interlaced within areas comprised primarily of single-family homes. In either case, careful site and building design is important in order to maintain compatibility and consistency with the character of surrounding development.

Individual housing types developed in the Housing Mix 1 district should be within the Low Density Residential density range of less than 16 units per acre defined in the Comprehensive Plan; but the average density of the district as a whole should be less than eight units per acre. An average net density of 6 units per acre is assumed for purposes of estimating the number of potential dwelling units in the Housing Mix 1 district.

Residential Housing Mix 2

The predominant recommended housing types within Housing Mix 2 residential areas are attached single-family dwellings (row houses or townhouses), small scale apartment and condominium buildings and duplex and single-family housing developed at relatively high densities on smaller lots.

Housing Types

- Single-family detached homes on relatively small lots
- Rowhouses and townhomes

- Duplexes on relatively small lots
- Low-density apartment and condominium buildings
 - Buildings with up to 12 units
 - Building lots generally provide front, side and rear yards
 - Buildings up to two stories in height

Density Range

- Individual developments: up to 16 units per acre
- District average: between 8 and 16 units per acre

As discussed above, Housing Mix 2 areas are not specifically identified at this time on the Land Use and Street Plan map, but may be recommended at appropriate locations during the more detailed planning for the Phase B area that will occur prior to initiating development in that portion of the neighborhood. Appropriate locations could include areas along the major entry boulevards or closest to planned parks or other neighborhood focal points or activity centers.

The density of the individual housing types developed in the Housing Mix 2 district should generally be within the Low Density Residential range of less than 16 units per acre defined in the Comprehensive Plan; and the average density of the district as a whole will be in the 8 to 16 unit per acre range. Although future detailed planning may identify limited areas within the Phase B area as appropriate for Housing Mix 2 development, for purposes of estimating potential dwelling units in the Phase B area as a whole, an average density of 6 units per acre is assumed. This estimate can be adjusted as future planning identifies specific areas that may be developed with various housing types.

EXISTING RESIDENTIAL AREAS

Large areas within the Shady Wood neighborhood consist of existing residential developments on large lots that range from just over one acre up to 40 acres. Most of these existing lots have limited or no potential for further development due to size, shape, topography, limited accessibility, the established character of surrounding uses, and other factors. However, some lots have more potential, and as portions of the neighborhood begin to develop, some owners may eventually want to consider dividing their existing lot to permit additional development.

The residential areas along Shady Oak Lane, Nor-Del Hill Road, Rolling Meadow Road and Oak Hill Court are not recommended for additional development for several reasons. These are established residential enclaves with a generally consistent character and context that would be significantly changed by excessive subdivision or development at urban densities. Access to these areas is provided by cul-de-sac streets or long driveways that traverse steep slopes which can hamper access by personal and emergency vehicles, particularly during inclement weather. In the case of very deep lots, there often is no reasonable way to provide separate access to rear portions of the property. Finally, these home sites located along the terminal moraine are characterized by significant natural features, including steep slopes, diverse topography, kettle ponds, and extensive woodlands and natural open areas that would be compromised by more intensive development. As noted in the Open Space recommendations, portions of some of these properties are recommended as potential components of the Ice Age Trail open space conservation corridor.

The large existing residential lots located along Woods Road and Mid-Town Road have greater potential for additional subdivision and more intensive development, although only a few of the owners have expressed interest in considering additional subdivision at this at this time. Many of these lots are relatively narrow and very deep, with the house located on the front part of the lot near the road. Because of this, it would be difficult, if not impossible, to provide the street access to the rear portions of the lots that would allow them to be further subdivided independently, even if the existing house were to be removed, and any future additional development will need to be coordinated with development schedules on adjacent properties. The Land Use and Street Plan illustrates how future additional development in these areas could be integrated with the surrounding neighborhood. The map illustrates the concept with the existing houses remaining on the frontage lots, but the frontage areas also could be further subdivided by extending additional new streets. This again would usually require coordinated development by several adjacent properties in order to provide the necessary street connectivity.

POTENTIAL CONSERVATION DEVELOPMENT AREAS

Potential Conservation Development areas are identified conceptually on the larger properties along the southern segment of Woods Road. These properties are generally wooded with several smaller fields, and are characterized by the varied topography and natural features associated with the glacial moraine. Because of these unique features and their relatively unaltered state, these properties are recommended for inclusion in the proposed Ice Age Trail open space conservation corridor intended to preserve and provide access to this special natural environment. However, if all of the desirable lands cannot be preserved as open space, any development that is considered within this area should take the form of a “conservation development” that minimizes its impacts on the land and exhibits a high degree of compatibility with the surrounding natural areas.

Conservation development differs from the urban residential development recommended elsewhere in the neighborhood in that it seeks to preserve as much as possible of the natural land form and existing trees and ground cover. Typical subdivisions often begin by grading the entire development site to accommodate new roadways, utilities, stormwater management facilities and the preparation of essentially rectangular building sites arranged along a grid-like street system. In contrast, conservation development usually provides a more limited system of access roads, and clusters the building sites more compactly at selected locations within the project area. Substantial areas are left undisturbed, either as the “rear” portions of private lots or as shared open space, in order to preserve the important natural characteristics of the site and provide additional amenity to the areas that are developed. Although this arrangement may limit the amount of development on a given area of land compared to a typical urban subdivision, these developments can provide high value building sites because of the open space amenity. Protected open space within Conservation Developments could also add to the effective width of the recommended Ice Age Trail corridor and provides additional visual buffering between the trail and adjacent developed areas. In some case, additional landscaping may be recommended within the Conservation Development area to enhance the effectiveness of the visual buffer.

The Potential Conservation Development areas shown on the Land Use and Street Plan map are conceptual and indicate the general locations where it is considered most feasible to provide for some limited development while still maintaining a substantial, continuous open space corridor along the Ice Age Trail alignment. In order to avoid having local streets cross the Ice Age Trail

corridor, it is recommended that Conservation Development areas have access either from Woods Road or from future streets in the Phase B residential development areas. While this configuration would not provide all of the potential Conservation Development areas with internal street connections to the rest of the neighborhood, this is considered an acceptable trade off to maintain the character of the open space corridor.

The Ice Age Trail route illustrated on the Land Use and Street Plan is conceptual, so if conservation developments are considered, they would need to be carefully located and designed in coordination with detailed planning to determine a specific alignment for the Ice Age Trail and its associated open space corridor. It is also recommended that any potential conservation developments be implemented only after the configuration of the open space conservation corridor is determined and adequate arrangements are made to ensure its long-term preservation.

ESTIMATED AMOUNT OF RESIDENTIAL DEVELOPMENT

If all of the lands in the planning area recommended for additional residential development were built out with the housing types, there would be an estimated total of 647 dwelling units in the neighborhood. The estimate includes existing residential uses, but does not include the Potential Conservation Development areas. This is a general estimate for planning purposes and assumes that some of the higher-density housing types, such as rowhouses, will be built in the Phase A residential area, and that some Housing Type 2 development will occur in the Phase B area. The actual number of future dwelling units will depend on the amount of land developed with residential uses and the density of individual housing projects. (See Table 4)

PARK AND OPEN SPACE USES

The areas recommended in the Shady Wood Neighborhood Development Plan for park and open spaces uses are designed to provide recreational opportunities for the neighborhood and the community, prevent urban development on unsuitable or fragile lands, and conserve and protect the unique glacial features in the planning area that still exist in a largely unspoiled natural state. Recommendations include a large open space conservation corridor that will provide a proper setting for a future extension of the Ice Age Trail, and two neighborhood parks and a larger area park at locations that will provide convenient access to a variety of recreational opportunities, add significant aesthetic character to the neighborhood and complement the proposed conservation corridor. Other recommended open space areas encompass lands characterized by steep slopes, wetlands or floodplains, or which are the planned locations for stormwater management facilities needed to prevent erosion and protect ground and surface water quality.

ICE AGE TRAIL OPEN SPACE CONSERVATION CORRIDOR

As described above in the Background section, the National Ice Age Scenic Trail is a long-term program authorized by Congress to establish an educational and recreational hiking trail generally following the southern edges of the most recent glacial advance in Wisconsin. The Shady Wood planning area includes a relatively undisturbed segment of the glacial moraine, and the neighborhood development plan recommends preservation of a wide open space corridor that encompasses many of the significant natural features that characterize a terminal moraine

environment. The proposed open space conservation corridor is entirely within the general Ice Age Trail corridor approved by the Wisconsin Department of Natural Resources and included in the Dane County Parks and Open Space Plan, and is consistent with the broad open space corridor recommended in the City of Madison Comprehensive Plan. The recommended open space area is intended to protect a unique natural environment for the enjoyment of future generations, and provide an outstanding setting for the Ice Age Trail that will support both its recreational and educational objectives. The proposed conservation area will also help maintain viable wildlife habitat and provide additional groundwater protection by limiting more-intensive development on this unique glacial terrain.

The abundance and significance of natural glacial features is the reason that a large portion of the planning area is included the Ice Age National Scenic Trail Corridor also recognized by the State and included in Dane County, City of Madison Plans. This segment of the proposed Ice Age Trail corridor includes what is considered to be among the highest-quality natural glacial areas remaining in Dane County, if not the State. The Ice Age Trail open space conservation corridor recommended in the Shady Wood Neighborhood Development Plan seeks to identify and include the lands that are most critical to substantial preservation of the unique glacial features of the area, and to creation of a secluded natural setting for a future public trail that will not only provide linkages with other segments the Ice Age Trail, but also provide access for the public to enjoy and learn from these unique assets.

Conservation Corridor Design Parameters

The recommended Open Space Conservation Corridor illustrated in the Shady Wood Land Use and Street Plan is conceptual, rather than exact, and the extent and configuration of the corridor that is ultimately implemented may differ to some degree. Factors considered in defining the Open Space Conservation Corridor illustrated in the Land Use and Street Plan include:

- The corridor should seek to encompass and preserve a substantial portion of the lands that contain the unique natural features characteristic of a glacial moraine environment, including:
 - The steep, generally wooded, ridge along the southern edge of the moraine.
 - The irregular “hummocky” topography north of the moraine ridge, also generally wooded.
 - Glacial kettles and kettle ponds.
- Future development, including roadways, should not extend across the open space conservation corridor.
- The corridor should seek to encompass and preserve other natural environments along the general corridor alignment, such as remaining wooded areas and meadows.
- Cultivated farm fields and pastures are included in the open space corridor when less disturbed alternatives are unavailable. Agriculture is an open space use, but consideration should be given to restoring such lands to a more naturalized state at a future time.
- The open space corridor should provide sufficient width to create a sense of seclusion along the trail route, and a sense of privacy for developments adjacent to the corridor.
- The corridor should provide sufficient width to facilitate use of secondary ridgelines to help visually screen and buffer the trail route from adjacent development areas.
- The open space corridor should provide opportunities to create an interesting trail alignment that reflects and respects the topography, and provides the public with opportunities to view or access the unique glacial features within the corridor.

Key Features within the Conservation Corridor

The conceptual open space conservation corridor illustrated on the Land Use and Street Plan encompasses approximately 163.6 acres in its full configuration, which includes the generalized areas identified in the Residential Uses section as Potential Conservation Development areas where some development might occur if the lands cannot not be preserved as open space. Features included within this recommended open space corridor include:

- An approximately 2,000 foot segment of the steep, wooded terminal moraine ridge.
- A high point along the moraine that can provide an overlook to the outwash plain.
- Approximately 127 acres of wooded land.
- Six kettle ponds or natural depressions.
- Richardson's Cave located adjacent to Lower Badger Mill Creek.
- Approximately 36 acres of currently cultivated lands, meadows, and open fields.

If the areas identified as Potential Conservation Developments are excluded, the total area of the open space corridor would be reduced, but the Conservation Developments are mapped only as broad illustrations of this concept and it would be premature to attribute a specific configuration or acreage to them at this time. It also is emphasized that these areas are proposed as a less-desirable alternative to a wider open space corridor. If they do become part of the development mix eventually allowed in this neighborhood, the Conservation Development areas would need to be carefully planned and designed in close conjunction with the adjacent open space,

Potential Open Space Conservation Corridor and Ice Age Trail Route

Implementation of the Ice Age Trail is viewed as a long-term undertaking. It may take years, or even decades to acquire the land and access rights needed for a particular trail segment, and the actual route for the Trail will not be planned until the necessary lands or rights are secured. When access is available, trail designers walk the corridor to determine the best route given the available options. Even after a trail segment is designed and built, the trail can be modified at a later time to incorporate any additional acquisitions or easements on adjacent areas.

The recommended open space corridor and Ice Age Trail route through the Shady Wood planning area illustrated on the Land Use and Street Plan and described below is conceptual, but it reflects the design parameters discussed above. The exact boundaries of the corridor will be determined as acquisition efforts come to fruition, and as developments are approved on adjoining lands. The open space corridor follows the location of the significant glacial features that the Ice Age National Scenic Trail project is primarily intended to protect and enjoy. But it also includes other woodlands and meadowlands worthy of preservation, as well as agricultural fields that provide the only logical route for the Trail due to the existing residential development north of Shady Oak Lane, constraints created by Lower Badger Mill Creek and its associated floodplain, or both. The proposed open space conservation corridor and Ice Age Trail route is located on portions of eight properties within the planning area:

Kuechmann Property. As illustrated on Map 6 and shown with additional detail on Map 7, the proposed extension of the Ice Age Trail starts on the Kuechmann property at Woods Road, opposite the current western end of the trail segment through the University Ridge Golf Course. This currently-vacant property is over 80 percent wooded and features the "hummocky"

topography characteristic of a moraine. The main Trail route continues generally westward to the Keryluk property, while a branch extends south following the undeveloped portion of the moraine to the Cowling Property.

Cowling property. The Cowling property is located south of the Kuechmann Property along Woods Road. This property is also currently vacant and is entirely wooded. Like the Kuechmann Property, it is substantially comprised of “hummocky” lands. It also contains several glacial kettle ponds within an area of hydric soils. A proposed branch of the Ice Age Trail travels south along the high moraine ridge that provides the best opportunity to create an observation point for long views to the southwest, including the outwash plain below. From the proposed observation point, the branch could continue southeastward to a potential trailhead on Woods Road. The Kuechmann and Cowling properties include some of the best relatively-undisturbed glacial features in Dane County.

Keryluk Property on CTH PD. One of two Keryluk properties within the planning area is located primarily along CTH PD, but also has short frontage at the southern end of Woods Road. The recommended open space covers the easternmost end of the property between the lower edge of the moraine and Woods Road. The wooded moraine ridge creates a visual “gateway” between the hilly, wooded lands along CTH PD to the east, and the open plain to the west, and should be preserved. If there is future development on the open land at the Woods Road/CTH PD corner, it should seek to harmonize with the open space and minimize potential visibility from the open space corridor. This could be a potential trailhead for the Ice Age Trail.

Keryluk Property on Shady Oak Lane. The other Keryluk property within the planning area is a large residential lot accessed from Shady Oak Lane, with the home and other buildings located in the southern one-half. Much of the property is wooded, including the northern one-half, which also contains several kettle ponds. Although the property is developed with an existing residential use, the northern portion is included in the recommended open space conservation corridor because the woods and kettles are considered worth preserving. The main branch of the conceptual Ice Age Trail route illustrated on Maps 6 and 7 continues west from the Kuechmann Property across the northern portion of the Keryluk property to provide at least visual access to the kettles, which would greatly enhance the trail experience.

Kendrick and Bitzer Properties. The recommended open space conservation corridor also includes the northernmost portions of the Kendrick and Bitzer properties. Both of these are narrow, deep residential properties extending north from Shady Oak Lane, with the homes located near the southern end. The Kendrick property is wooded, while the Bitzer property is wooded and also includes a nice meadow that has been used as a pasture. The western edge of this meadow has rows of conifers that provide effective screening from the existing residential uses immediately to the west. The illustrated Ice Age Trail route extends northwesterly through the meadow on the Bitzer Property.

Dreger Property. The Dreger property is currently an active farming operation, and the owners have indicated that they hope to continue farming for a long time. The recommended open space conservation corridor includes an existing wood lot on the southern edge of the Dreger property, and a larger agricultural field that forms the western part of the property. The woods is included because it would provide a good buffer from future development areas, and the woods also include a kettle. The illustrated Ice Age Trail route extends northwesterly across the

agricultural field to the Blake Property. While there are no special open space characteristics associated with the field, its shape and location makes it unlikely that it could reasonably be developed with urban uses (except perhaps as a long, isolated cul-de-sac that would leave little room for even a minimal trail corridor). While the property is being farmed, a limited corridor for the Ice Age Trail could be negotiated that would skirt along the field edges, but it is recommended that the property ultimately be restored as a more natural open space and the trail shifted farther from the developed areas.

Blake Property. The situation on the Blake property is similar to the Dreger property in that the existing narrow, L-shaped agricultural field provides the only possible route for a trail connection with the existing Ice Age Park and Trail Foundation property on Mid-Town Road that will be the western trailhead for the trail segment through the Shady Wood planning area. Here also, one approach to acquiring a trail corridor could be to seek limited access along the field edges while the field is being cultivated, with acquisition of the field and restoration to a more natural state as the longer-term goal.

As illustrated on Map 7, the recommended open space conservation corridor is wide enough not only to encompass important glacial features, but also to encompass wooded areas and secondary ridges parallel to the trail that help provide a visual buffer between the trail and existing or planned development areas adjacent to the corridor. The open space corridor and potential Ice Age Trail route presented in this neighborhood plan are very conceptual, and alternative open space configurations and trail alignments are possible. However, an open space corridor and trail route that can fully realize the goals of the Ice Age National Scenic Trail and this neighborhood plan will encompass most of the characteristics of the corridor illustrated on Maps 6 and 7 and described above.

Property Owner Concerns

The owners of several of the properties included within the proposed Ice Age Trail open space conservation corridor have objected to the extensive open space recommendation applied to their properties. The primary concern appears to be related less to possible constraints the recommendation might place on the near-term use of their properties, and more with the loss of flexibility in how the properties might be developed in the future, and with how prospective purchasers might value the property in light of the recommendation. They have also expressed concern that the proposed Ice Age Trail route crosses through their properties, rather than staying near property lines.

While these concerns are appreciated, an open space corridor of substantial width is considered essential to fully realize the potential this area has to become an exceptional component of the Ice Age National Scenic Trail. A narrower or more-direct trail corridor could provide a physical connection for the Trail across the planning area, but would achieve little else. Maps 6 and 7, illustrate the conceptual trail route within a narrow grey corridor about 100 feet wide. This is estimated to be the minimum corridor width that would allow a hiking trail to be constructed and maintained through uneven terrain. Such a narrow corridor, however, would include none of the unspoiled natural areas and significant glacial features whose protection and enjoyment is the primary purpose of the Ice Age Trail, and would provide no sense of seclusion or privacy to trail users or to residents in the adjacent developed areas. However, as noted elsewhere in this plan, the exact width and boundaries of the corridor will be determined through negotiations

with property owners and additional planning as the Ice Age Trail is implemented in the Shady Wood neighborhood.

Neighborhood Connections to the Ice Age Trail

The recommended open space conservation corridor will create an excellent location for a segment of the Ice Age Trail, and will be a tremendous amenity for the neighborhood. The Land Use and Street Plan provides multiple opportunities for connections between future residential development areas and the Trail. The appropriate number and location of access points to the Ice Age Trail will be determined through future detailed planning as the Trail is established. Future connections to the Trail should be footpaths that complement the nature of the Trail and prevent access by bicycles or other prohibited forms of transportation.

The Shady Wood Neighborhood Development Plan does not illustrate any connections to the Ice Age Trail from existing residential areas, although this would improve access for residents of Shady Oak Lane and the three cul-de-sac roads off Shady Oak. Future access for these residents should be explored, however, if it can be provided in an appropriate location. Provision of a more general pedestrian connection between this area and the planned residential areas north of the proposed open space corridor may also be worth considering at a future time. Residents of the Shady Oak Lane area will otherwise have to travel to Mid-Town Road, CTH PD or Woods Road (or cross private property) to reach the Trail or areas north of the open space corridor.

Implementation of the Ice Age Trail and Open Space Corridor

Long-Term Approach

Given the scope of the Ice Age Trail project, it is anticipated that the process of securing and preserving the trail corridor and constructing the trail will take many years, if not decades. The Shady Wood planning area contains just one portion of a trail that is approximately 1,100 miles in length; travels through 30 counties, 191 cities, towns or villages; and will involve about one thousand property owners. This project, which started in earnest in the 1970s, will take a long time to complete. The entities working to acquire and preserve the Trail corridor take a very long-term approach to the project, and it is important that those involved in implementing the recommended open space area in the Shady Wood neighborhood have a similar perspective. Because implementation is a long-term process, there is also flexibility in how and when the lands and access rights needed for the trail corridor are acquired, and when those acquisitions take effect.

Preservation Mechanisms

Preservation of the natural qualities of lands within the recommended open space conservation corridor could be preserved through a variety of means. The goal is open space preservation, but this can occur on private as well as public land. While there are some advantages to public ownership, the entire recommended conservation area would not necessarily need to be publicly owned. Nor would public access to all the open space necessarily be required (even on public land), except for access to the actual hiking trail.

Preservation methods could include fee acquisition of title to the land; acquisition of conservation or scenic easements; and acquisition of access easements. Some land may be acquired through land donations. Small amounts of land may be acquired through required dedications as part of land divisions, but these are more important when the amount of land

needed is relatively small compared to the size of the development, and of course, will not occur until the land is subdivided. It is also possible to include conservation restrictions on portions of privately-owned properties as part of development approvals on other portions of those properties; and other mechanisms. Requirements to maintain a no-build zone on portions of a property, or to maintain a landscaped buffer area are examples of this approach. Securing the proposed Ice Age Trail open space corridor is seen as a long-term process, and might include such approaches as purchases that wouldn't take effect for a delayed period, purchase of long-term options and similar techniques.

Implementation Entities and Funding

A significant amount of funding may be needed to implement the recommended Ice Age Trail open space conservation corridor. The area recommended for preservation already has some standing because it is located entirely within the Ice Age Trail corridor adopted by the State and County, and is consistent with the open space corridor recommended in the City of Madison Comprehensive Plan. This Shady Wood Neighborhood Development Plan provides additional recommendations regarding the areas most important to preserve, and will help protect the public's investment in the Ice Age Trail and trail open space conservation corridor, by guiding the quality and character of future development on lands adjacent to the corridor. Private contributors can also be assured that their participation is part of a coordinated effort to which the public sector is also committed.

The proposed conservation corridor should also be successful with the entities that consider funding applications based on pre-determined criteria. Common review criteria include the significance of natural features within the project area and the proximity of the project area to an urban area, which indicates that more people will be able to visit the resource. The proposed corridor includes many significant natural features, and in particular, glacial features, and is located within the greater Madison urbanized area. While this may make land acquisition more expensive or difficult compared to locations in more-remote, less developed areas, it also means that the Ice Age Trail and the open space conservation corridor will be fairly accessible to a large resident population, as well as to larger proportion of the public who will be helping to fund its preservation through their tax dollars.

There are several typical sources of funding for preservation efforts and any other potential funding sources will be sought. A review of the typical funding sources for activities within Dane County are outlined below:

- The National Park Service is charged with overseeing the country's National Parks and National Scenic Trails. The legislation that created the Trail does not presently authorize the National Park Service to directly acquire land for the Ice Age Trail. However, funds for the Ice Age Trail have been allocated in the federal government's Land and Water Conservation Fund that is passed through to a separate entity such as the Wisconsin Department of Natural Resources, which then can acquire land for the Trail. There also is legislation pending that would allow the National Park Service to make direct acquisitions for the Trail.
- The Ice Age Trail is eligible for funding through the State of Wisconsin's Knowles-Nelson Stewardship Fund. The Stewardship Fund is funded at \$60 million dollars per year through 2010. Funding will increase to \$85 million dollars per year for the years 2011 through 2020. Within these annual amounts, \$3 million is recommended for land acquisition for state trails

including the Ice Age Trail. The Stewardship Fund has a 50 percent matching requirement that can be met from other public or private sources.

- The Ice Age Trail is eligible for funding through the Dane County Conservation Fund, which has been funded at approximately \$5 million in recent years. This Fund also has a 50 percent matching requirement.
- The Ice Age Park & Trail Foundation is a non-profit organization that helps protect, promote, build and maintain the Ice Age Trail. The Foundation often applies to governmental agencies to receive funding for these activities, but also receives private contributions. The Foundation also has staff and volunteers that participate in trail development and management activities.

The ultimate configuration for the Ice Age Trail open space conservation corridor, and the route for the Trail within the corridor, will be largely determined through negotiations with property owners within the recommended corridor to acquire title or access rights to portions of these lands needed to complete the trail. These negotiations may occur over an extended period of time, partly dependant on property owner interest and resources available to the implementing entities, and may result in a corridor different than that illustrated in the Land Use and Street Plan. To the extent possible, however, preserving an open space area with attributes comparable to the corridor recommended in this plan should be the goal.

PARKS

The Shady Wood Land Use and Street Plan recommends one City of Madison Area Park and two small Neighborhood Parks within the neighborhood. The proposed parks are located where they provide convenient recreational opportunities for the neighborhood and enhance the visual character of the neighborhood. The proposed park sites all have significant public street frontage, and will have high visibility to persons traveling along neighborhood roadways. The park sites are also designed to provide attractive “terminal views” at the ends of local street segments. These relationships are considered important, and are among the many small attributes that collectively will make the neighborhood an interesting and enjoyable place.

Since the parks are located at prominent locations, it is recommended that a variety of tree species be planted in the parks, including large canopy trees. Large canopy trees can be shown to full advantage in the more-open spaces of public parklands, and can help create a dramatic setting for other park activities.

The recommended parks all have a substantial amount of frontage on public streets. There are multiple advantages to having streets front the parks, including increased visibility for the park and convenient access for the neighborhood, and opportunities for on-street parking. This configuration also creates potentially higher costs to the City, however, since fronting properties are generally responsible for the cost of street improvements. If these costs become a potentially limiting factor in the ability to implement the recommended parks, it is recommended that alternative approaches to paying for street improvements adjacent to public parks be explored, rather than modifying park configurations to significantly reduce street frontage.

Area Park

An large Area Park of approximately 9-acres is recommended on the Dreger property. The recommended location for the park is generally central to the neighborhood as a whole, and is adjacent to the planned Lower Badger Mill Creek stormwater drainageway and the proposed Ice Age Trail open space conservation corridor. Area parks are intended to serve an area within about a one-half mile radius, and contain many recreational facilities and amenities to serve a relatively large residential population. Future detailed park development planning will be needed to determine the exact park configuration and facilities, but conceptually, the Area Park might contain open playfields that can be adapted for soccer, softball, ultimate Frisbee and similar sports; tennis courts, basketball courts; a picnic shelter and a playground. The need for a parking area within the park will be partly dependent on the specific facilities developed, the amount of on-street parking available, and whether the park also serves as a local trailhead for the Ice Age Trail. As noted above, the proposed park site has significant street frontage and will be an attractive amenity to the neighborhood.

Neighborhood Parks

Two small Neighborhood Parks approximately one to two acres in size are also recommended to serve the recreational needs of parts of the neighborhood that are more distant from the proposed Area Park, and which may develop sooner than the part of the neighborhood where the Area Park is planned. These smaller neighborhood parks might be suitable for some forms of active recreation, such as a playground, basketball court, and limited field space; but they are also intended to provide general amenity and more passive enjoyment to the neighborhood through picnic areas, benches and attractive landscaping that includes trees, shrubs and possibly naturalized areas.

The neighborhood park in the Phase A development staging area is recommended because this small residential area is expected to develop many years before the lands to the west or south are developed, and it relatively distant from other existing or planned parks. The proposed park will provide some recreational opportunity for neighborhood residents, and will also provide a visual focal point and activity node that will help define this otherwise somewhat isolated development. Maintenance costs for small public parks are considered more difficult to justify than the costs for larger parks, and alternatives to address this situation might include consideration of private or shared public-private maintenance of smaller parks.

The small neighborhood park shown in the development area west of Lower Badger Mill Creek is only illustrative of a general location, and could be shifted as the area is planned in more detail at a future time. The need for neighborhood parks generally is largely determined by the residential population, and if the neighborhood develops with residential densities substantially different than the densities estimated in the neighborhood development plan, additional (or fewer) parks may be required. When more detailed planning for the larger Phase B development area occurs nearer to the expected time of development, the number and placement of the recommended parks will be reviewed again.

Community Gardens

The Madison Comprehensive Plan recommends that plans for future neighborhoods include recommended locations for community gardens. Community gardens are organized places where residents can rent small garden plots to grow produce for consumption; but they also provide a place where people can meet their neighbors and enjoy shared interests. Community gardens have been established at various locations in Madison, but one problem community gardens face

is finding suitable locations that can be maintained over time, rather than only temporarily until the land is needed for some other activity.

At least one or two acres of suitable land with access to a water supply is considered desirable for establishing a community garden. Gardens should also be located where potential undesirable impacts on adjacent activities will be minimal. While community gardens on private land are encouraged, and can be provided as part of larger subdivisions or multi-family developments, community gardens can also be located on public land. The current feeling by City staff is that the gardens work best when located within or adjacent to City parks that also have other activities, rather than on isolated sites. Park locations typically provide greater visibility, playgrounds and playfields that non-gardening family members can use while others are working in the garden, opportunities for shared parking, and often, access to a water supply. In the Shady Wood neighborhood, it is recommended that the larger Area Park be considered as a potential location for a community garden, and that this potential be evaluated as part of more detailed park planning. Other locations in the neighborhood, not associated with a public park, may also be appropriate for community gardening, and it is not the intent of this recommendation to limit consideration of alternative suitable locations. One possibility might be to continue community gardening or urban agriculture on portions of the present agricultural fields that are included in the recommended open space conservation corridor.

TRANSPORTATION RECOMMENDATIONS

Transportation recommendations for the Shady Wood planning area include improvements to the existing roadways that serve as the primary routes to and around the neighborhood, an interconnected local street network that provides internal access and circulation within the neighborhood, and on-street and off-street pedestrian and bicycle facilities integrated with the planned regional bicycle system. The neighborhood street network is designed to accommodate future transit service when it becomes available. **See Map 8.**

ARTERIAL AND COLLECTOR ROADWAYS

Mid-Town Road and CTH PD will continue to serve as arterial roadways. These roadways are anticipated to carry regional as well as local traffic, and will have the highest traffic volumes. Woods Road and Shady Oak Lane are planned to serve as collector roadways, primarily carrying traffic from the Shady Wood neighborhood and adjacent neighborhoods, and will have lower traffic volumes. **(See Map 8)**

Mid-Town Road

It is recommended that Mid-Town Road be planned as a four-lane divided roadway with marked bicycle lanes. The median will provide landscaping space, create a refuge for pedestrians at street crossings, and a location for turning lanes at intersections. A 108-foot right-of-way is recommended to accommodate future improvements. It is recommended that additional driveway access to Mid-Town Road be limited.

County Trunk Highway PD

It is recommended that CTH PD be planned as a four-lane divided roadway with marked bicycle lanes. The median will provide landscaping space, create a refuge for pedestrians at street crossings, and a location for turning lanes at major intersections. A 120-foot right-of-way is

recommended to accommodate future improvements. The Shady Wood Neighborhood Development Plan does not make development recommendations for lands adjacent to CTH PD at this time, and recommendations regarding driveway access and building orientation along CTH PD will be partly dependent on the types and intensity of land uses developed along this corridor.

Woods Road

It is recommended that Woods Road be planned as primarily a two-lane undivided roadway with marked bicycle lanes. The northern segment of Woods Road that will have development on both sides of the road should be planned as a two-lane divided roadway. A pedestrian island at least eight-feet in width should also be provided in a median where the Ice Age Trail crosses Woods Road to provide a refuge for hikers crossing the road. The recommended right-of-way width for Woods Road is 66 feet for areas without a median, and approximately 80 to 90 feet in areas with a median. Although there will be a median, driveway access will generally be allowed along Woods Road. It is possible that along some segments of Woods Road, the right-of-way may need to be shifted from the current centerline when the road is widened to maintain an adequate distance from the existing homes. The design of future roadway improvements should also be particularly sensitive to the woodlands and topography adjacent to the roadway.

Shady Oak Lane

It is recommended that Shady Oak Lane be planned as a two-lane undivided roadway with marked bicycle lanes. The recommended right-of-way width is approximately 66 to 70 feet. The design of future roadway improvements should be sensitive to the topography, woodlands and segment of Lower Badger Mill Creek located along the roadway.

LOCAL STREETS

The proposed street layout illustrated on the Land Use and Street Plan is a “modified grid” pattern that provides a high degree of connectivity within the neighborhood, and multiple routes to most destinations. Blocks are relatively small, and the street pattern is designed to accommodate factors such as topography, property ownerships and solar orientation, while providing curves and bends that will help slow traffic, add interest and provide an engaging streetscape and distant views while traveling through the neighborhood. Many street segments are also designed so that parks or other open spaces will provide interesting terminal views; and all proposed parks have significant street frontage to increase visibility and accessibility.

Topography

The street pattern generally avoids areas with steeper slopes and seeks to minimize the amount of grading that will be required to accommodate development. Often, streets run up and down the more moderate slopes so that streets and development can follow the natural contour of the land. This arrangement minimizes steeper slopes in backyards and provides positive drainage for sanitary and storm sewers that are in the street rights-of-way.

Property Boundaries

The recommended street layout largely respects existing property boundaries, and seeks to minimize odd shaped development areas along property lines or where roads intersect property lines. In some cases, however, the most effective street pattern does create small areas of a property that would be difficult to develop as a separate parcel. In these cases, property owners

are encouraged to exchange land with adjacent owners to create parcel configurations more suitable for development.

Solar Orientation

The street pattern seeks to maximize solar orientation through both the street pattern and potential building placement and design. The City's Land Subdivision Regulations (Chapter 16.23) include standards for maximizing solar orientation of streets, blocks and lots.

Lower Badger Mill Creek Crossing

The Land Use and Street Plan illustrates a street connection across the Lower Badger Mill Creek corridor. Although construction of this road would require some extra expense, the connection is considered important to the neighborhood since it would be the only interior connection between the recommended development areas east and west of the Creek. Mid-Town Road will provide an indirect connection, but will carry increasingly higher traffic volumes and may not be a safe alternative for younger residents of the neighborhood.

The feasibility of a roadway crossing Lower Badger Mill Creek, the best crossing location, and the design, appearance and cost sharing arrangements for this improvement will have to be investigated further when the adjacent lands are considered for development. The location of the crossing shown on the Land Use and Street Plan is conceptual and might need to be modified based on soils conditions, possible wetland delineations, and other factors. A street crossing Lower Badger Mill Creek would require large culverts to handle stormwater within Creek corridor. A span bridge, which would probably be more attractive but expensive, could also be considered. It is anticipated that developers of the adjacent lands and the City of Madison would contribute to the cost of the crossing. If a street crossing the Creek is not feasible, a pedestrian-bicycle crossing should be established in this general location.

Typical Local Streets

The typical right-of-way width in a new residential subdivision is 60 feet with a pavement width of 32 feet. These dimensions can vary depending on the location and the type of development along the street. The City's Subdivision Ordinance allows narrower street pavement in relatively low-density areas where criteria regarding average density, the amount of off-street parking provided, and other factors can be met.

It is recommended that narrower pavement widths and tighter corner radii be considered in all parts of the neighborhood as this enhances the pedestrian scale of the neighborhood and helps encourage street-oriented development. The use of narrower streets also reduces the amount of impervious surface. However, it is recommended that street rights-of-way be at least 60 feet in width. This would provide wider terraces to support larger street trees and accommodate snow and leaf storage. It would also provide more opportunity to locate rain gardens in the terrace while still preserving space for street trees at adequate intervals.

Boulevards

Boulevards are recommended on several streets that provide a gateway into the neighborhood or connections between the park and open space areas that are primary neighborhood focal points. The right-of-way for these streets is recommended to be approximately 70 feet to accommodate a center median. The median of the boulevard streets could be used for several purposes. The median could be planted with trees to enhance neighborhood aesthetics and strengthen the

connection between the urban portion of the neighborhood and its adjacent natural features. The boulevard median could also contain rain gardens or similar features that provide localized stormwater infiltration. The ultimate design and functions of the local boulevard streets should be determined during detailed development planning.

ROUNDBABOUTS

Roundabouts may provide a safer, more cost-effective alternative to other methods of traffic control at many types of street intersection. Well-designed roundabouts can reduce traffic speeds, improve traffic flow and increase safety for pedestrians and bicyclists. Roundabouts are conceptually illustrated on the Shady Oak Neighborhood Development Plan maps at selected intersections, but other intersections may also be appropriate locations. It is recommended that the alternative of a roundabout be considered at all intersections where traffic signals are planned or may be planned in the future.

PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian mobility in the planning area is encouraged by the interconnected “grid-like” street system, which provides multiple routes to most destinations. All City of Madison streets will have public sidewalks and are designed to also accommodate bicycle travel. Mid-block pedestrian-bicycle paths are recommended where a reasonably direct street connection is not available. Marked bicycle lanes are recommended on the primary roads, and off-street multi-purpose trails are integrated with planned regional bicycle facilities.

Three types of bicycle facilities identified in the 2000 Madison Urban Area and Dane County Bicycle Transportation Plan are recommended in the Shady Wood planning area. Bicycle lanes on more heavily traveled roads such as arterials and collectors provide more-direct routes, have fewer stops and are often preferred by commuters and long-distance bicyclists. The local neighborhood street network also provides relatively direct routes, but has much lower traffic volumes and is suitable for a wider biking population. Off-street pedestrian-bicycle paths also serve a wider population, including recreational riders and younger riders. Recommended bicycle facilities are shown on **Map 8** and described further below.

Marked Bicycle Lanes

Marked bicycle lanes are recommended on Mid-Town Road, CTH PD, Woods Road and Shady Oak Lane, which will be classified as either arterial or collector roadways.

Local Street Network

While many roadways are planned to have dedicated bicycle lanes, the recommended street network also provides alternative routes for bicycle travel through the neighborhood on local streets that are relatively direct and continuous, but will generally have lower traffic volumes. The street alignments shown in a neighborhood development plan are often modified as individual developments are approved, but it is important that the street linkages providing these low-traffic routes be maintained.

Pedestrian-Bicycle Paths

Perimeter Path. An off-street pedestrian-bicycle path is recommended along the perimeter of the planned development area in the northeast portion of the neighborhood. This path would serve as an extension of a planned regional path along Lower Badger Mill Creek which will extend several miles to the north. Within the neighborhood, the off-street path would parallel the Lower Badger Mill Creek drainageway, travel through the Area Park and then head east along the northern edge of the recommended open space corridor and terminate at Woods Road.

Lower Badger Mill Creek Crossing. If the street connection across the Lower Badger Mill Creek corridor discussed above in the Local Streets section is not feasible, then construction of a pedestrian-bicycle path across the Creek should be considered. This crossing would also require large culverts to accommodate stormwater flow within the Creek corridor. A span bridge, which would probably be a more attractive but more expensive alternative, could also be considered.

FUTURE TRANSIT SERVICE

Currently, Madison Metro bus service is not provided to the planning area. Supplemental school day service by Madison Metro vehicles will begin to be provided to areas transferred to the Madison Metropolitan School District as they are developed with residential uses. The southwestern portion of the neighborhood will remain in the Verona Area School District, and will not receive Madison Metro supplemental school day service.

Metro Transit service to the neighborhood other than supplemental school day service could come through an extension of current routes serving areas adjacent to the Shady Wood neighborhood, or through the creation of new transit routes to serve development on the City's southwest side. The most likely transit routes to serve the neighborhood would travel along Mid-Town Road or CTH PD to serve what might eventually be relatively more-intensive development areas near these roadways. Only limited development is anticipated along Woods Road, but it could also be part of a future transit route since it is an important north-south connection in the area.

Ridership potential will remain relatively low until substantial additional development has occurred, and transit service to the neighborhood probably will not be financially feasible in the foreseeable future. It is recommended that other transportation options, such as vanpools or rideshare programs, be pursued both before and after transit service is provided to the neighborhood.

OTHER PUBLIC UTILITIES AND SERVICES RECOMMENDATIONS

Lands that are annexed to the City of Madison will be served by the full range of urban services including sanitary sewer and municipal water service. Until annexation to the City occurs, parts of the planning area will remain in the Town of Verona, and will continue to receive the Town or County services that are provided currently, or which may be arranged in the future. Municipalities may also enter into inter-governmental agreements to provide urban services in the most efficient manner regardless of jurisdiction.

SANITARY SEWER SERVICE

Lower Badger Mill Creek Watershed

The planning area is almost entirely within the Lower Badger Mill Creek basin, and will eventually be served by the planned Madison Metropolitan Sewerage District's Lower Badger Mill Creek Interceptor. It is anticipated that the small area along Woods Road that is within the Upper Badger Mill Creek watershed can also be served by the Lower Badger Mill Creek Interceptor. This Interceptor will be extended northward from the City of Verona along the Lower Badger Mill Creek drainageway, and continue along the Lower Badger Mill Creek drainageway within the Shady Wood planning area. Local sewers connecting to the Lower Badger Mill Creek Interceptor will be built to serve new development areas. Local sewers are typically constructed within public streets and drainageways, and are built at the time of development. If areas that are currently developed request sanitary sewer service, sewer extensions are typically located in existing road rights-of-way. **(See Map 9)**

Lower Badger Mill Creek Interceptor

The timing of construction of the Lower Badger Mill Creek Interceptor is dependent on the available capacity of a new lift station that will be built in 2009 along the north side of Mid-Town Road. Effluent from development in the Lower Badger Mill Creek watershed north of Mid-Town Road will continue to be pumped via this lift station eastward along Mid-Town where it eventually reaches gravity-flow interceptors. When the Mid-Town Road lift station nears its capacity, the Lower Badger Mill Creek Interceptor will be constructed to relieve the station and provide gravity flow service for the Lower Badger Mill Creek watershed. The pace of development in the area served by the lift station will determine when the Interceptor is needed. Current estimates indicate that this may be around 2020.

Near-Term Sanitary Sewer Service

The topography of the Shady Wood planning area will allow development in the northeast portion of the neighborhood to be served by sanitary sewer infrastructure that will be constructed in the Mid-Town neighborhood during 2009. A preliminary analysis of the topography indicates that approximately 75 acres that are recommended for development can be served by this infrastructure, including the Hawk's Creek LLC property that was annexed into the City in 2006. The owners of this property have indicated that they would like to develop in the relatively near term.

Gravity sanitary sewer service for the Hawk's Creek LLC property would require construction of a sanitary sewer main across the Dreger property between the lower elevations of the Hawk's Creek property and the lift station that will be built adjacent to Mid-Town Road. The sewer main could be located sufficiently beneath the agricultural fields to permit continued cultivation. To the extent possible, the sewer would follow the alignment of planned future streets. The sanitary sewer could also be located under a grassy swale, which does not currently exist, that could be built to provide a defined channel for overflow stormwater conveyance from the Hawk's Creek detention pond. Construction of a swale would decrease the area available for cultivation, but might improve farming conditions on the adjacent fields. In either case, easements would need to be obtained from the Dreger property owners.

Sewer Charges

All developing parcels can expect one or more charges from the Madison Sewer Utility for the privilege of connecting to public sanitary sewer. This charge can be in the form of an impact fee, direct or deferred assessment or a simple connection charge. Certain parcels could reside in multiple fee districts. These charges represent a prorated share of the costs for the City to extend sewer service to the respective parcel. In addition, all development parcels will incur sewer area

charges from the Madison Metropolitan Sewerage District for downstream facilities and treatment plant connection charges. All charges are adjusted annually for interest or inflation.

PUBLIC WATER SERVICE

Water Distribution System

Public water service to the Shady Wood planning area will be provided by the Madison Water Utility through the extension of water mains within Pressure Zones 8 and 10, which cover lands on the far west side of Madison. The area is within two zones due to the large differences in elevation. Most of the planning area is within Pressure Zone 8, but the highest elevations in the southeast corner of the planning area between the terminal moraine and Woods Road are within Pressure Zone 10. Currently, water mains are located along Mid-Town Road and north of the planning area in the Hawk's Landing subdivision. As development occurs, larger water mains will be extended along the primary roads, with smaller water distribution mains constructed along local streets developed within the neighborhood. The Water Utility will also seek to loop the larger mains to increase service reliability.

Reservoirs and Water Towers

Pressure Zone 8 is pressurized by a ground storage reservoir. Pressure Zone 10 is pressurized by a water tower. Because of the varying elevations on the Madison's far west side, water mains within the different pressure zones serve different elevations. The mains within Pressure Zone 8 have the ability to provide adequate water pressure to elevations between about 970 and 1,120 feet U.S.G.S., while the mains within Pressure Zone 10 can serve areas between about 1,090 and 1,240 feet U.S.G.S. This range of service should be sufficient for all parts of the neighborhood.

Public Wells

In the near term, Wells 26, 16 and 28 will provide potable water for the Shady Wood planning area. Continued development on the far west side of Madison will increase the demand for water, and eventually new municipal wells will be required to ensure a reliable supply. The Water Utility Master Plan includes a conceptual location for a future Well 32 near South Point Road between Mineral Point Road and Valley View Road. If constructed, this well would potentially serve the Shady Wood planning area. The Master Plan also identifies a conceptual location for a future Well 37 in the northeast corner of planning area, which would likely be developed after Well 32. This future well location is also very conceptual as the siting of a new well requires a considerable amount of detailed analysis and review.

STORMWATER MANAGEMENT

Lower Badger Mill Creek Watershed

The Shady Wood planning area is almost entirely within the Lower Badger Mill Creek watershed, which encompasses an area on the far west side of Madison and extends south to the City of Verona. The watershed is tributary to the Upper Sugar River, which is a coldwater sport fishery, so the Lower Badger Mill Creek watershed is considered a coldwater community. Coldwater communities are subject to stormwater requirements for development that are more restrictive than the general standards that typically apply. Generally, these requirements include:

- Detention of the peak flows for at least the pre-development 100-year rain event.
- Infiltration of at least 90 percent of the pre-development infiltration volume.

- Development must meet the infiltration requirement to satisfy the requirements for thermal control of stormwater runoff; otherwise, additional mechanisms to control the temperature of stormwater runoff must be implemented.

Another important consideration for stormwater planning in the Shady Wood planning area is the existence of Karst features, which are direct conduits to the groundwater. Richardson's Cave is a dramatic example. These features can influence stormwater management planning because stormwater should be directed away from areas with known or potential Karst features and directed to areas that provide more reliable separation from the groundwater.

Lower Badger Mill Creek Stormwater Management Analyses

In 2003, the *Lower Badger Mill Creek Stormwater Management Analyses* was completed, covering the Lower Badger Mill Creek watershed approximately between Old Sauk Road and CTH PD. The analysis was intended to facilitate better stormwater management planning within the watershed, which was beginning to experience rapid urban development. The project modeled the entire watershed under current conditions and under anticipated post-development conditions, and recommended strategies to mitigate potential adverse impacts of development on the watershed. The recommendations in the project report have been utilized in developing the Shady Wood neighborhood plan, and specifically the stormwater management recommendations.

Shady Wood Land Use and Street Plan

The Land Use and Street Plan illustrates a basic framework of proposed stormwater management facilities within the Shady Wood neighborhood, including a large, open drainageway corridor along Lower Badger Mill Creek and stormwater detention facilities at several locations within the planned development areas. The facilities shown on the map are preliminary, but their locations and approximate sizes are based on an analysis of drainage patterns and the amount of land and potential future development within the many neighborhood sub-basins. Detailed stormwater management planning and engineering for specific development projects may result in some modifications to these conceptual facilities, but it is expected that any revisions will be generally consistent with the framework recommended in the Land Use and Street Plan.

Lower Badger Mill Creek Drainageway

Lower Badger Mill Creek will be accommodated within an open drainageway approximately 200 feet in width. Improvements to the corridor will occur at the time the adjacent land is developed or earlier. Open drainageways provide environmental benefits, such as an increased opportunity for water to infiltrate back into the ground and a location for wildlife habitat and movement, and it is recommended that this drainageway be maintained in a relatively natural, undeveloped state.. To the extent compatible with stormwater management objectives and other intended uses of the corridor, more natural groundcovers are encouraged as an alternative to mowed swales. Natural-appearing drainageways also provide additional visual open space amenity within the neighborhood.

A stormwater management corridor is not illustrated along Lower Badger Mill Creek where it travels through a gully on the back portions of the residential lots between Nor-Del Hill Road and Rolling Meadow Road. It is expected that as long as the property remains in private ownership, the gully will remain generally in its current state. At this time, there is no reason to expect that this gully won't remain essentially as it is for the foreseeable future. If this area

begins to experience problems related to stormwater flow through this gully, however, property owners and the appropriate government agencies should consider ways to improve the situation.

Storm Sewers

The network of paved streets supplemented by underground storm sewers will accommodate the majority of “upstream” stormwater conveyance, collecting stormwater that will eventually flow into detention facilities. In some situations, larger storm sewers will be necessary to convey stormwater to its ultimate destination. Storm sewers will also be used to connect drainageways where maintaining an open drainageway is a not reasonable approach, given the proposed land uses and urban street pattern.

Stormwater Detention/Retention Facilities

Preliminary locations for stormwater detention and retention facilities are illustrated on the Land Use and Street Plan. In locating the facilities, it is generally assumed that individual properties will develop separately and that about ten percent of each property will be required for storm water detention. If the development of several properties is coordinated, it may be possible to shift the locations of some of the required stormwater facilities among them, and perhaps eliminate some. In any case, the actual percentage of any property that will be utilized for stormwater management will be determined during detailed development planning, and will vary based on the type of development proposed, the stormwater management mechanisms used within the development, soil conditions, and applicable stormwater regulations. Currently, dry detention basins are recommended to promote infiltration and collect sediment before stormwater is released to wet basins, wetlands or streams.

Localized Infiltration Techniques

It is recommended that as the neighborhood develops, other techniques be incorporated into the developments that will promote stormwater infiltration closer to the source of the runoff. Facilities such as rain gardens and bioswales capture stormwater locally and infiltrate it into the ground, rather than directing it to a drainageway or storm sewer system. This can help reduce non-point source pollution and preserve the groundwater resources that not only supply pumped water for drinking, agriculture and other human activities, but also the baseflow that supports springs, streams and other area water features.

These techniques could be incorporated into many different areas within the neighborhood. It is currently anticipated that features could be located on public property in the street terraces and within boulevard streets. They could also be located on private property in many different locations to serve individual lots or an entire block. These features are most effective in areas with permeable soils, and the Dane County Soil Survey indicates that most of the areas recommended for future development have relatively permeable soils. Specific locations for water infiltration features, as well as specific system designs should be determined as part of more detailed development planning when more precise soil information is available.

Madison Storm Water Utility

The Madison Storm Water Utility, established in 2001, handles stormwater management in the City of Madison for both existing conditions and post-development conditions. The Utility

charges user fees to all City of Madison parcels for this service. Fees are set by the Madison Common Council.

POLICE PROTECTION SERVICES

The City of Madison Police Department will provide police protection services to lands within Shady Wood neighborhood that are in the City the Madison. Lands located in the Town of Verona will continue to receive services from the Dane County Sheriff's Office, or through another arrangement that the Town may make in the future.

The planning area is part of the Madison Police Department's West District. The West District operates out of a station located on McKenna Boulevard near its intersection with Raymond Road. This station is about three miles from the edge of the neighborhood. The City of Madison continues to grow and expand, and additional police officers and support personnel will be needed in order to maintain the staffing levels required to serve a larger population and more spread-out community.

FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

The City of Madison Fire Department will provide fire protection and emergency medical services to Shady Wood neighborhood lands within the City of Madison. Lands within the Town of Verona will continue to receive these services through service arrangements that the Town has established with other municipalities.

Currently, the closest Madison fire station is Station No. 7, located on McKenna Boulevard near its intersection with Raymond Road. This station is located next to the headquarters of the Police Department's West District. Response time to the Shady Wood planning area from the nearest fire station is about 4 to 6 minutes, depending on weather and traffic conditions. Fire Station No. 12 is currently under construction at South Point Road just south of Mineral Point Road, about 2.5 miles north of the planning area. This station will provide improved service to the far west side of Madison including the Shady Wood neighborhood.

STREETS AND SANITATION SERVICES

For lands within the City of Madison, the Madison Streets Division provides collection of solid waste, large items and recyclable materials on year round basis; the collection of yard waste and brush on a monthly basis; and leaf collection in the Spring and Fall. The Streets Division also provides street repair, street cleaning and snow and ice control to the City of Madison portions of the planning area. Currently, these services are provided to the area from the West Side Public Works Facility located on Badger Road. Lands within the Town of Verona will continue to receive services through service arrangements that the Town establishes.

DEVELOPMENT PHASING

Urban development in the Shady Wood neighborhood will occur incrementally over what is likely to be a fairly long time period. Development will begin in the northeast portion of the planning area, where lands are adjacent to other developing City of Madison neighborhoods and to existing and planned public sewer and water service infrastructure. Development on lands to the south and west is expected to occur later, and will be determined by a combination of the schedules for construction of the necessary sewer and water facilities, property owner interest, and market conditions.

PHASING AREAS

Three development-phasing areas are identified within the planning area. The lands within each phasing area share certain characteristics regarding the schedule for future urban services extensions and necessary connections with the planned neighborhood street network that make it reasonable recommend that they begin to develop with urban uses at about the same time. The boundaries of the three phasing areas should be considered approximate. The actual sequence of development will depend on a variety of factors including property owner interest, the development plans for adjacent properties, the budgeting and scheduling of public infrastructure and urban service extensions, and market conditions. **(See Map 9)**

Phasing Area A

Phasing Area A comprises the northeast corner of the planning area and contains approximately 43 acres. This phasing area includes lands that are currently within the City of Madison, or are adjacent to lands in the City. It is also in close proximity to other developing City of Madison development and existing service infrastructure to the north and east. Phasing Area A primarily consists of recommended residential land uses, along with a small neighborhood park to serve residents of the immediate area, and stormwater management facilities. Once the Shady Wood Neighborhood Development Plan is adopted, it is recommended that the City request an amendment to the Central Urban Service Area to include all of Phasing Area A. Development could then begin in the area once the necessary utility connections are available.

Phasing Area B

Phasing Area B contains approximately 229 acres and generally comprises the balance of the lands in the portion of the planning area located north of the proposed Ice Age Trail open space conservation corridor. Most of the landowners within Phasing Area B have indicated an interest in continuing their current land use for the foreseeable future. This includes the large Dreger farm located just west of Phasing Area A, and most of the residential lots along Woods Road. Future development in most of this phasing area is also dependent on construction of the Lower Badger Mill Creek Interceptor for gravity sanitary service, which is not currently anticipated until at least 2020. This phasing area is primarily recommended for residential development, but also includes the large area park, a small neighborhood park, the stormwater management corridor for Lower Badger Mill Creek, and a portion of the recommended Ice Age Trail open space conservation corridor.

Phasing Area C

Phasing Area C comprises the southern portion of the planning area and contains approximately 368 acres. This phasing area includes all of the entire existing residential developments along Shady Oak Lane and the three cul-de-sac streets off it, and the balance of the recommended Ice Age Trail open space conservation corridor, including the Potential Conservation Development

areas. Phasing Area C also includes the Future Planning Area north of CTH PD, for which no recommendations are made at this time.

The recommended Phasing Areas establish the general sequence for beginning development within the three defined, but it is not intended that the start of development in any phasing area necessarily be deferred until development within another phasing area extends to a particular point or reaches a certain percentage of full build-out. Simultaneous development at multiple locations within the planning area can benefit the neighborhood by increasing development opportunities and choices and by facilitating completion of desirable street connections and improving accessibility. The appropriate time to begin development in any phasing area will depend on the availability of City infrastructure improvements and services as much as on the pace of development in other phasing areas.

III

PLAN IMPLEMENTATION

This section of the development plan recommends the actions needed to prepare the neighborhood for development with the full range of urban services, and to ensure that future development is consistent with the recommendations of this neighborhood development plan.

Neighborhood Development Plan Adoption

The City of Madison Comprehensive Plan, adopted in January 2006, includes broad growth and land use recommendations for the planning area, which is identified as part of Peripheral Planning Area A and recommended as a potential location for relatively near-term City of Madison expansion and future development. The Comprehensive Plan also requires that a more-detailed plan for future City growth areas be prepared and adopted prior to beginning urban development within them. The Shady Wood Neighborhood Development Plan has been prepared to provide detailed land use, transportation, and public service recommendations to guide the future growth and development of the neighborhood.

It is recommended that the Shady Wood Neighborhood Development Plan be adopted as a supplement to the City of Madison Comprehensive Plan. It is also recommended that the Comprehensive Plan Generalized Future Land Use Plan map be amended as appropriate during the next review and evaluation to reflect the land use recommendations in the Shady Wood Neighborhood Development Plan.

Central Urban Service Area Amendments

The planning area is not currently within the Central Urban Service Area. In order for the City of Madison to provide public sanitary sewer and the full range of urban services to future development in the neighborhood, the lands proposed for development must first be included within the Urban Service Area.

Following adoption of the Shady Wood Neighborhood Development Plan as a supplement to the Comprehensive Plan, the City should prepare and submit to the Capital Area Regional Planning Commission an application to amend the Dane County Water Quality Plan to include all of the lands within Phasing Area A in the Central Urban Service Area. Future requests to amend the Central Urban Service Area to include all or portions of the lands within Phasing Areas B and C should be submitted at the time it is determined appropriate to begin urban development in those areas, or to extend public sanitary sewer to serve existing developments that currently do not have it.

City of Madison Annexations

It is generally recommended that future urban development on lands within the planning area occur only after the lands are annexed to the City of Madison and the full range of urban services can be provided at the time of development.

Zoning Map Amendments

Most of the land within the Shady Wood neighborhood, both in the City of Madison and in the Town of Verona (which uses Dane County zoning), is currently zoned to an agricultural zoning district, and can only be used for agriculture and limited other purposes. The remaining lands are zoned to one of several residential districts.

It is recommended that the zoning classification of lands within the planning area conform to the land use recommendations of the adopted Shady Wood Neighborhood Development Plan. It is further recommended that lands be rezoned to another district only in conjunction with consideration of a specific subdivision and/or a specific development proposal sufficiently detailed to ensure that development within the district will be consistent with the neighborhood plan. Lands annexed to the City are typically placed in the Agriculture zoning district at the time of annexation. In the City of Madison, the agricultural zoning district is used as an interim classification placed on lands that will eventually be rezoned to permit urban development in accordance with adopted plans.

Design Standards

The Madison Comprehensive Plan recommends that plans for new development areas incorporate the principles of Traditional Neighborhood Development. Urban design and architectural design are particularly important elements in Traditional Neighborhood Development; but current City of Madison ordinances provide only limited design regulations and standards, and only a few zoning districts include design criteria beyond basic bulk standards. The City of Madison is currently working with a consultant to develop new Zoning Code, which will include form-based standards that will provide more effective design controls as an integral part of the zoning regulations. However, the new Code is not expected to be implemented until mid-2020. In the meantime, and potentially also to supplement the requirements in the new Zoning Code, there are several ways that design standards can be incorporated into future development approvals to ensure consistency with the neighborhood development plan's design recommendations.

- Some single-family zoning districts in the current City of Madison Zoning Code were created specifically to promote Traditional Neighborhood Development, and may be used in many situations beyond those for which they were originally created to incorporate desired design standards into a project.

For example, the R2S District was created to allow single-family development on lots as small as 4,000 square feet, with a minimum lot width of 40 feet, and a minimum front yard-building setback of 15 feet (not counting porches)¹. This is an appropriate zoning district for parts of subdivisions where lots this small are intended; but it may also be used as a way to allow larger lots to have a narrower lot width or smaller front yard setback. In comparison, the R2 district permits relatively small lots of 6,000 square feet, but requires a lot width of at least 50 feet and a front yard setback of at least 30 feet. A

¹ This description illustrates only a few of the standards for the zoning districts cited. Many other standards also apply.

6,000 square foot lot in the R2S district, on the other hand, could be narrower and have less front yard setback.

- Design standards can be included in private deed restrictions and covenants applied to the property. In some cases, it may be appropriate to require that such design standards be established as a condition of zoning or subdivision approvals.
- Design standards can be incorporated in the General Development Plan and Specific Implementation Plan for projects developed with Planned Unit Development district zoning.

It is recommended that zoning and subdivision approvals for development projects in the Shady Wood Neighborhood establish design standards that address the Traditional Neighborhood Development principles outlined in the neighborhood development plan. The appropriate standards may be contained within the regulations of the zoning districts assigned to the project, particularly once the new Zoning Code is adopted, or could be applied as a part of the conditions of development approval.

Land Subdivision Regulations

Most lands in the neighborhood will need to be subdivided into smaller parcels before they can be developed with urban uses. As these lands are proposed for development, many of the neighborhood plan recommendations can be implemented through the review and approval of subdivision plats and application of the City of Madison's land subdivision regulations. In Madison, requests for approval of a land subdivision are usually considered in conjunction with a request to rezone undeveloped property to allow urban development.

Subdivision approvals establish the location of public streets, parks and stormwater management facilities. The rights-of-way and other lands required for these purposes will largely be acquired through dedications as provided in the subdivision regulations. The spatial relationships between the proposed streets, proposed parks, and other land uses illustrated in the Land Use and Street Plan reflect important neighborhood planning objectives. These relationships need to be maintained as the land in the neighborhood is developed if these objectives are to be realized.

Subdivision also establishes the sizes and arrangement of individual development parcels. Subdivision applications will be reviewed together with the corresponding rezoning application to ensure that the proposed division will support the land uses recommended for the site in the neighborhood plan, and that plan recommendations regarding provision of a variety of housing types and densities in residential areas are implemented.

It is recommended that future subdivisions in the Shady Wood neighborhood conform to the recommendations in the adopted Neighborhood Development Plan, particularly regarding the locations of local streets, off-street paths, public parks, and stormwater management facilities. Future subdivisions should provide building lots that facilitate development of the types of land uses recommended in the plan. For higher-density types of development, proposed subdivisions may also be required to provide information showing how the lots may be developed with building designs that maintain the desired street orientation and pedestrian-friendly street character.

It is further recommended that local streets within proposed subdivisions either generally conform to the pattern of local streets shown in the neighborhood plan, or similarly reflect the objectives illustrated in the neighborhood development plan. Some of these objectives include the provision of connecting streets through the neighborhood, provision of multiple routes to neighborhood destinations, the orientation of streets to visual features in the neighborhood and the streets' function as part of the stormwater management drainage system.

Official Map

The City of Madison Official Map is used to reserve rights-of-way and other sites for specified future public uses until such time as they are acquired through dedication or other means. Currently, the City's Official Map does not include any planned rights-of-way or other proposed sites for public uses within the neighborhood.

It is recommended that the City of Madison Official Map be revised to identify the proposed right-of-way widths of Mid-Town Road, Woods Road, CTH PD and Shady Oak Lane recommended in the Shady Wood Neighborhood Development Plan.

While it is not a specific recommendation that these sites be identified on the Official Map, the proposed locations of the Area Park and neighborhood parks are important elements in the recommended arrangement of land uses and activities in the neighborhood. It is recommended that the City of Madison Parks Division take appropriate steps to secure the future ability to acquire public park sites at the recommended locations at the time they are needed.

Capital Improvement Program and Capital Budget

The Shady Wood Neighborhood Development Plan proposes several types of public improvements and facilities for which public funds may be required. Public improvements and facilities that might require some public funding include proposed public parks and open spaces, arterial, collector and local streets, stormwater management facilities, sanitary sewer facilities and water distribution facilities. Implementation of some of the public improvements recommended in the neighborhood development plan will also require participation and cost sharing by other units of government.

It is recommended that the responsible City agencies include within future capital improvement programs and the capital budget those public improvements and facilities for which public funding is required to implement the Shady Wood Neighborhood Development Plan. It is further recommended that the City continue to work cooperatively with other agencies and units of government to seek their participation in the development planning and the costs of public improvement projects of mutual benefit recommended in the neighborhood development plan.

Interagency and Intergovernmental Cooperation

The Shady Wood Neighborhood Development Plan provides a framework for coordinating the activities of City of Madison agencies and other units of government in the implementation of the neighborhood concept. Many important elements of the plan will require continued cooperation and coordination, including siting and development of planned public parks and securing the recommended open space area for the Ice Age Trail. Additional information

regarding implementation of the Ice Age Trail and the associated open space conservation corridor is provided above in the Park and Open Space Recommendations section.

It is recommended that the of City of Madison work with the appropriate agencies and other units of government to fully implement the Shady Wood Neighborhood Development Plan.

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LIST OF MAPS

- Map 1: Planning Area (Aerial Photograph)**
- Map 2: Municipal Jurisdiction and Property Ownership**
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APPENDIX MAPS

- Appendix Map 1: School Districts**
- Appendix Map 2: Madison Comprehensive Plan-Generalized Future Land Use**
- Appendix Map 3: Ice Age National Scenic Trail**