



North Mendota
Future Urban Development Area Planning

FUDA Study

North Mendota Future Urban Development Area Study

January 2013

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Madison WI 53521

**RESOLUTION OF THE NORTH MENDOTA FUTURE URBAN DEVELOPMENT AREA
(FUDA) STEERING COMMITTEE**

RELATED TO THE NORTH MENDOTA FUTURE URBAN DEVELOPMENT AREA STUDY

WHEREAS, the City of Middleton, Village of Waunakee, Town of Westport and Town of Springfield (“participating local governments”) partnered with the Capital Area Regional Planning Commission (“CARPC”) to engage in a collaborative, locally-driven planning effort, known as Future Urban Development Area (“FUDA”) planning for the North Mendota FUDA study area; and

WHEREAS, the purpose of FUDA is to protect vital natural resources, promote efficient development, and preserve farmland through cooperative planning for long-term growth; and

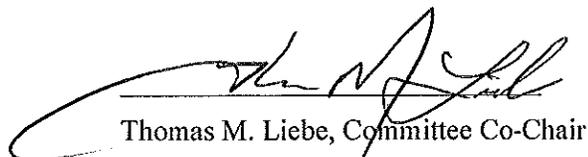
WHEREAS, a FUDA Steering Committee of local Board members, Plan Commissioners and other officials were appointed by the participating local governments to guide the FUDA process; and

WHEREAS, through extensive research, data gathering and analysis, public outreach, and FUDA Steering Committee review, the North Mendota FUDA Study was produced to provide information and analysis on environmental resources, present a future urban development scenario with natural resource and agricultural preservation areas, and provide implementation methods to achieve that scenario; and

WHEREAS, the FUDA Study may be advanced by the participating local governments through subsequent activities, such as amendments or updates to their Comprehensive Plans.

NOW, THEREFORE, BE IT RESOLVED, the North Mendota FUDA Steering Committee hereby:

1. Accepts the North Mendota FUDA Study dated January, 2013 as representing the wishes and direction of the Committee.
2. Encourages that the participating local governments consider incorporating the FUDA Study’s recommended future urban development scenario and implementation measures, when and where practical, into their comprehensive plans and other plans, ordinances, and related activities.
3. Forwards the FUDA Study dated January, 2013 to the Plan Commissions and governing bodies of the participating local governments for review and acceptance, to then be forwarded by the participating local governments in unity to CARPC as a guide for future regional planning efforts affecting the FUDA study area.
4. Recognizes that the applicability, content, and/or recommendations of the FUDA Study dated January, 2013 may change as policies, circumstances, and conditions of and within the participating local governments change over time.


Thomas M. Liebe, Committee Co-Chair


Kenneth Sipsma, Committee Co-Chair

Date Adopted: 1/25/13 Vote: 5-0

Project Team & Qualifications

The project team includes a diverse and well-qualified membership of both appointed steering committee members and local and regional planning staff. Steering Committee members represent three different jurisdictions and several areas of expertise including urban and rural development, agriculture, natural resources, and government process and relations. The steering committee members spent several months reviewing and vetting data and forming Future Urban Development Area (FUDA) recommendations for local and regional consideration. Steering Committee Members include:

Steering Committee

City of Middleton

- Derek Hungness P.E., PTOE, AICP – Plan Commission member, former Middleton Public Works Committee member; M.S., Civil and Environmental Engineering; Master of Community and Regional Planning; B.S., Political Science; Graduate Certificate, Transportation Management and Policy
- Duane Barmore – Plan Commission member, Retired

Village of Waunakee

- Gary Hertzberg – Village Trustee
- Tom Liebe – Village Plan Commissioner, Waunakee/Westport Joint Plan Commissioner, former Public Works Committee and Emergency Medial Services member, VP of Government Affairs, Wisconsin Credit Union League, B.A., Political Sciences and Government

Town of Westport

- Ken Sipsma – Town Board member, Waunakee/Westport Joint Planning Committee member, Middleton Fire District Board member, former Plan Commission member and former Parks Committee Chair; Partner at Sipsma, Hahn & Brophy, L.L.C., Attorneys at Law; J.D., University of Wisconsin Law School; B.A., Economics and Education, University of Wisconsin-Madison
- Mark Trotter, A.I.A – Plan Commission member, Parks Committee member; Regional Healthcare Leader at Flad Architects; B.S. Architecture, University of Wisconsin-Milwaukee, Post graduate studies at London Architectural Association and University of Houston MBA Program

Town of Springfield

- Don Hoffman – Town Chair; Former Plan Commission Chair, former member of Dane County Towns Association and Wisconsin Towns Association
- Jan Barman – Deputy Clerk/Treasurer/Office Manager and Secretary of the Plan Commission; Associate of Arts, Accounting, Madison Business College

The Steering Committee members requested and reviewed materials, made regular progress reports to their local plan commissions and boards, and considered significant amounts of data and community input before developing the recommendations presented in this Study.

Project staff included both local and regional planners, clerks, directors, and administrators. Staff brought significant expertise and practice to the FUDA process and outcomes. Local and regional staff also gave regular reports to local and regional planning commissions.

Staff

City of Middleton

- Eileen M. Kelley AICP – Planning Director and Zoning Administrator, M.S., Business Administration; B.S., Community and Regional Planning
- Abby Attoun-Tucker AICP – Assistant Director of Community Development, M.S., Urban and Regional Planning; B.S., Community and Regional Planning

Village of Waunakee

- Todd Schmidt – Administrator
- Kevin Even – Public Works Director

Town of Wesport

- Thomas G. Wilson – Attorney/Administrator/Clerk-Treasurer; J.D., University of Wisconsin Law School; B.A., Political Science, University of Wisconsin-Madison

Town of Springfield

- Mark Roffers – Planning Consultant, MDROffers Consulting LLC, Masters, Urban and Regional Planning
- Jan Barman – Deputy Clerk/Treasurer/Office Manager and Secretary of the Plan Commission

Capital Area Regional Planning Commission

- Kamran Mesbah P.E. – Deputy Director, M.S. & B.S., Civil & Environmental Engineering; B.A., Urban Studies
- Steve Steinhoff – Senior Community Planner, Masters, Urban Planning & Policy; B.S., Biology & Environmental Studies
- Bridgit Van Belleghem – Senior Community Planner, M.S., Urban & Regional Planning; B.S., Environmental Biology & Management, LEED Legacy Certification, Facilitation Certificate
- Dan McAuliffe – Senior Community Planner & Urban Designer, Masters, Urban Planning; Masters, Architecture; B.S., Architectural Studies
- Rachel Holloway – Community Planner; M.S., Urban & Regional Planning; B.A., Liberal Studies
- Mike Kakuska – Senior Environmental Planner, M.S., Water Resources Management; B.S., Limnology
- Mike Rupiper P.E. – Environmental Engineer; M.S., Environmental Studies; B.S., Civil & Environmental Engineering
- Jason Granberg – Restoration Ecologist/ Biologist, M.S. & B.S., Biology; A.S., Biology
- Steve Wagner – Information Specialist, B.F.A., Graphic Design; A.D., Commercial Photography
- Aaron Krebs – GIS Specialist, B.S. Cartography GIS UW Madison, B.S. in History and Human Geography, A.D.s in Arts, Science, and Applied Science (weather technology)
- Heath Anderson – GIS Specialist, MS, Urban & Regional Planning, concentration in Geographic Information Systems (GIS), UW-Milwaukee (2011); Carthage College, Geography specializing in GIS and Demographics (2005-2008); University of Wisconsin Baraboo/Sauk County (2004-2005); University of Cincinnati (2003-2004)

FUDA Study

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Supplement B: North Mendota FUDA Public Participation Description

Supplement C: Scenario Creation and Process

Supplement D: North Mendota FUDA (HIA) Health Impact Assessment

Supplement E: North Mendota Environmental Conditions Report (ECR) (Included on cd)

Summary

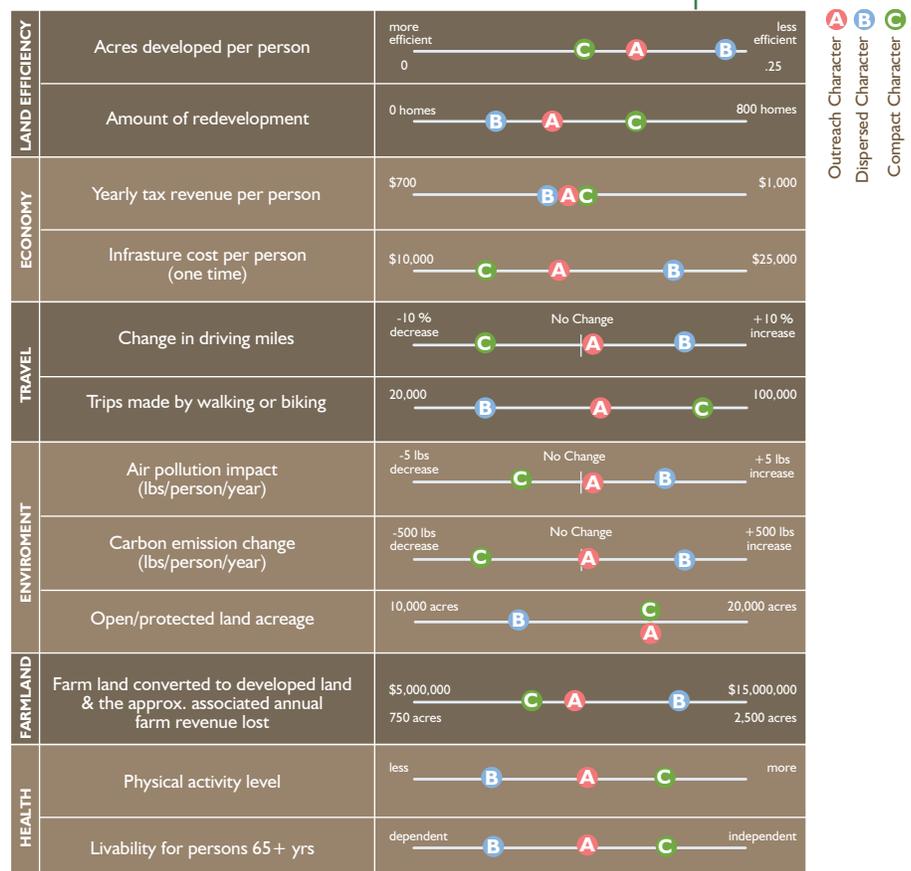
In late 2010, the City of Middleton, Village of Waunakee, Town of Westport and Town of Springfield began working with the Capital Area Regional Planning Commission (CARPC) to pursue a joint North Mendota FUDA project (see enabling resolution in Supplement A). This study describes the North Mendota steering committee’s Recommended Scenario and presents several implementation measures and next steps for future urban development and rural preservation in the North Mendota area.

A multi-jurisdictional steering committee directed project staff to design and implement a process to review existing plans and municipal agreements, historic trends and future demographic projections, natural and agricultural resources, and to gauge public opinion for future development and preservation in the North Mendota Study Area (see Map 1). This steering committee directed 3 major activities: (1) Environmental Conditions Report (ECR), (2) Scenario Evaluation (3)Future Urban Development Area (FUDA) Study. Each activity included public outreach and engagement to inform the steering committee, process, and outcomes. Supplement B describes these methods in greater detail.

FUDA Scenario Overview and Recommendations

The Steering Committee and public evaluated 3 scenarios (see Figure: 1) for the projected 16,000 new residents in these Urban Service Areas. This population growth is anticipated to require 2,600 acres for homes, jobs, schools, roads and other needs. Some of this growth could be accommodated through redevelopment and infill in the existing Urban Service Area. In Middleton and Westport, a significant portion of the projected growth could be absorbed into approved developing neighborhoods, such as Bishops Bay, while the remaining unmet demand could occur on land currently outside the Urban Service Area. Waunakee’s projected growth will require additional land to be added to the Urban Service Area. This land can be added in a phased manner based on demonstrated needs.

Figure 1: Indicator Evaluation for Polling Scenarios



Considering existing plans and inter-jurisdictional agreements, environmental and agricultural conditions, community goals and trends (Supplement E), scenario impacts (Supplement C), citizen participant opinions (Supplement B), and the many opportunities for the future, the steering committee recommends the Future Urban Development Area and conceptual future land use pattern designated in Map 2.

The Recommended Scenario is a hybrid of locally adopted plans and intergovernmental agreements, enhanced with opportunities presented in the Compact Character and Public Outreach Scenarios. Analysis was performed on the Recommended and other Scenarios for several indicator categories including: population; land use and efficiency; housing; taxes, jobs, and shopping; travel; environment; farmland; health; and water (stormwater, water use and waste, and groundwater).

General recommendations for implementing this scenario include:

Redevelopment & Infill Recommendations

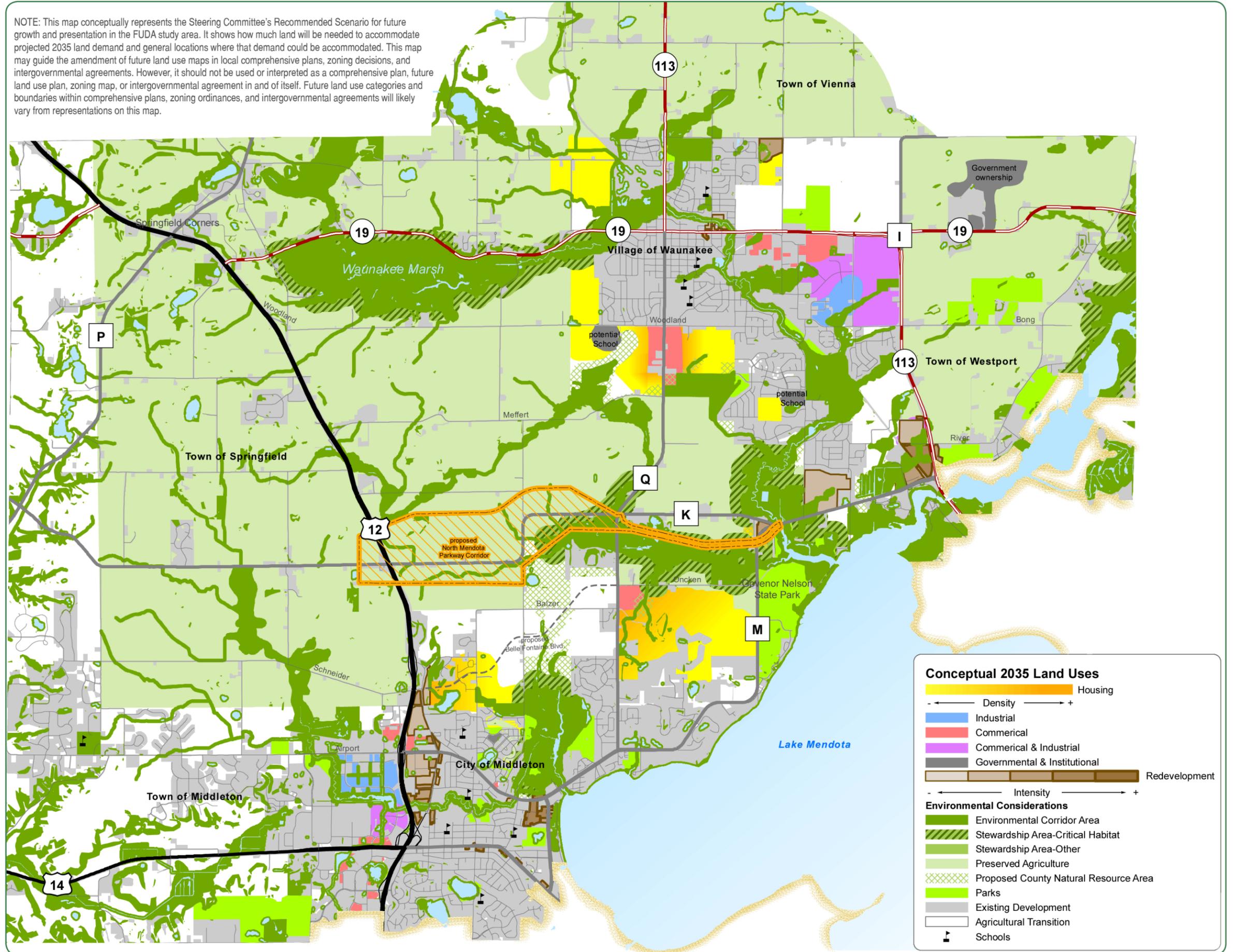
1. Middleton, Waunakee, Springfield and Westport are advised to establish additional redevelopment/infill areas respectively.
2. Middleton, Waunakee and Westport are advised to continue to use incentives and other programs to facilitate a higher redevelopment/infill implementation probability for adopted and recommended sites.

Community and Neighborhood Design Recommendations

3. Middleton, Waunakee, Springfield and Westport are advised to allow for greater density in strategic locations (see Map 2).
4. Middleton, Waunakee and Westport are advised to permit complete neighborhoods that integrate a range of quality residential, civic, open/public and business spaces in the Urban Service Area.
5. Westport is advised to develop and implement streetscaping and community design/character guidelines in its Town Center including necessary ordinance or comprehensive plan revisions, along the central Town corridors, including CTH M, STH 113, the Town Center, and the Yahara River Redevelopment project area.
6. The City of Middleton is advised to continue progress and seek funds for implementing their Sustainability Plan and work with surrounding jurisdictions in the region to enhance efforts in Middleton.
7. The Village of Waunakee is advised to expand its sustainability efforts and incorporate sustainability into its plan updates.
8. North Mendota communities are advised to collaborate to advance sustainability goals and leverage investments made to advance the goals.

The North Mendota FUDA Recommended Scenario is illustrated in Map 2 below and is further described by the recommendations that follow:

NOTE: This map conceptually represents the Steering Committee's Recommended Scenario for future growth and presentation in the FUDA study area. It shows how much land will be needed to accommodate projected 2035 land demand and general locations where that demand could be accommodated. This map may guide the amendment of future land use maps in local comprehensive plans, zoning decisions, and intergovernmental agreements. However, it should not be used or interpreted as a comprehensive plan, future land use plan, zoning map, or intergovernmental agreement in and of itself. Future land use categories and boundaries within comprehensive plans, zoning ordinances, and intergovernmental agreements will likely vary from representations on this map.



Mobility and Access

9. Middleton, Waunakee and Westport are advised to establish a connected street, sidewalk, bike-path and trail network that promotes walking, biking, and transit in addition to motor vehicles in the Urban Service Area and that connects to regional trails, bike-paths and roadways in surrounding rural areas including Westport and Springfield.

Intergovernmental Cooperation

10. North Mendota Communities are advised to continue or establish intergovernmental agreements with each other and surrounding jurisdictions.

Natural Resources (beyond legal requirements for environmental corridors)

11. Middleton, Waunakee, Westport and Springfield are advised to incorporate Stewardship Areas in development planning.
12. Middleton, Waunakee, Springfield and Westport are advised to utilize Environmental Corridors and Stewardship Areas as open-space amenities in developments for residents and patrons.
13. Middleton, Waunakee, Springfield and Westport are advised to protect mineral resource areas (ECR Map 3), evaluate the areas for infiltration and groundwater recharge (ECR Map 9), and extract the resource and reclaim the land before development is permitted.
14. Middleton, Waunakee and Westport are advised to continue to improve stormwater management for new and existing development and protect water quality in Sixmile Creek, Dorn Creek, Pheasant Branch Creek, Black Earth Creek and Lake Mendota.
15. North Mendota Communities are advised to improve public access to outdoor recreational activities.
16. Municipalities and their local water and wastewater utilities are advised to continue their water conservation and reuse practices, and enhance infiltration measures to help mitigate the municipal water withdrawal impacts.

Working Lands

17. North Mendota Communities are advised to support and implement methods to prevent the premature conversion of farmland to developed land.
18. Middleton, Waunakee, Springfield and Westport are advised to prevent agricultural land conversion permanently in locally agreed locations.
19. Springfield and Westport are advised to examine the scope and scale of land management practices to identify, enhance and maintain ecological services and functions on or adjacent to agricultural land.

Utilities

20. Middleton, Waunakee and Westport are advised to ensure effective public water supply, wastewater infrastructure planning and the cost effective provision of drinking water and sewer service for future development areas.

21. Support the use of and appropriately site alternative energy production, such as the biodigester and the EPIC Health Systems wind farm proposed in Springfield and Vienna.

The Study also presents existing conditions and recommendations for seven further analysis areas within the North Mendota study area.

1. Central Springfield
2. Town of Springfield, Vienna and Waunakee Boundaries Interface
3. Community Separation Between Middleton and Waunakee
4. Proposed Dane County 'Dorn Creek Natural Resource Area' Preservation and Enhancement
5. Highway 19 corridor East of County Highway I and West of Interstate 90/94/39
6. Transit Corridor Potential and Opportunity
7. Additional Reinvestment and Redevelopment areas

Implementing Recommendations

The Study also outlines additional opportunities for analysis in the following locations: DeForest and Vienna between Conservancy Place and Hickory Lane, wetland/floodplain preservation area east of Morrisonville, east of the Interstate between Hahn Road and North Street, Highway 19 Corridor West of Interstate, and additional reinvestment and redevelopment sites.

Recommended Scenario Impacts

Many of these recommendations and implementation measures could be incorporated in comprehensive plans, agreements, ordinances, and other governing documents (see Figure 8). Table 8 lists these recommendations and identifies the plans and agreements, ordinances, and other governing documents that could also be updated to reflect the recommendations of this Study. A full assessment of zoning and other ordinances is best completed at the local level.

Finally, the Study is accompanied by several supplements. The most significant supplement is Supplement E: The Environmental Conditions Report (ECR). The ECR provides and analyzes several variables relating to natural resources and systems, agricultural lands and community population growth and land use characteristics. Another valuable tool is the Health Impact Assessment (HIA) conducted by public health professionals. The HIA takes a deeper look into how the scenarios could impact the health of its citizens and offers methods for ensuring a physical active and accessible community.

This FUDA Study is submitted for local consideration and incorporation into existing plans and policy, or in some cases developing new tools, to enhance the quality of life for current residents and generations to come.

North Mendota FUDA Study

Introduction

More and more, communities nationwide are realizing the interconnected and regional nature of their environmental and community challenges, and are coming together to identify where and how they should grow and where they want to preserve ecosystems and “working lands” (e.g., farmland and forestland). One way communities in the region collaborate to guide growth is through Future Urban Development Area planning, or FUDA planning for short. The purpose of FUDA planning is to protect vital natural resources, promote efficient development, and preserve farmland through cooperative planning for long-term growth. FUDA planning focuses on areas that are, or could be, served by municipal water and sewer over the next 25 years. In this study, any development with public water and sewer infrastructure is called “urban.”

Urban

Any development (business, housing, government, schools, etc) with public water and sewer infrastructure.

In restoring the Regional Planning Commission in Dane County in 2007, communities recognized the need for proactive long-range planning to advance local and regional planning and inform the Urban Service Area (USA) amendment process. The USA amendment process is a tool for implementing part of the federal Clean Water Act. Typically, communities seek approval from CARPC and the WI Department of Natural Resources to expand Urban Service Areas. Item 7 in the petitioning resolution reads,

“The *Dane County Water Quality Plan* shall also define a 25-year Future Urban Development Area with 5-year updates. The Plan shall be developed in cooperation with area communities, including towns, and shall consider adopted comprehensive plans and intergovernmental agreements” (for more, see Supplement A).

FUDA planning empowers local jurisdictions with a set of tools and resources to make informed planning decisions and facilitate local comprehensive planning, intergovernmental coordination, the USA amendment review process and regional plan updates.

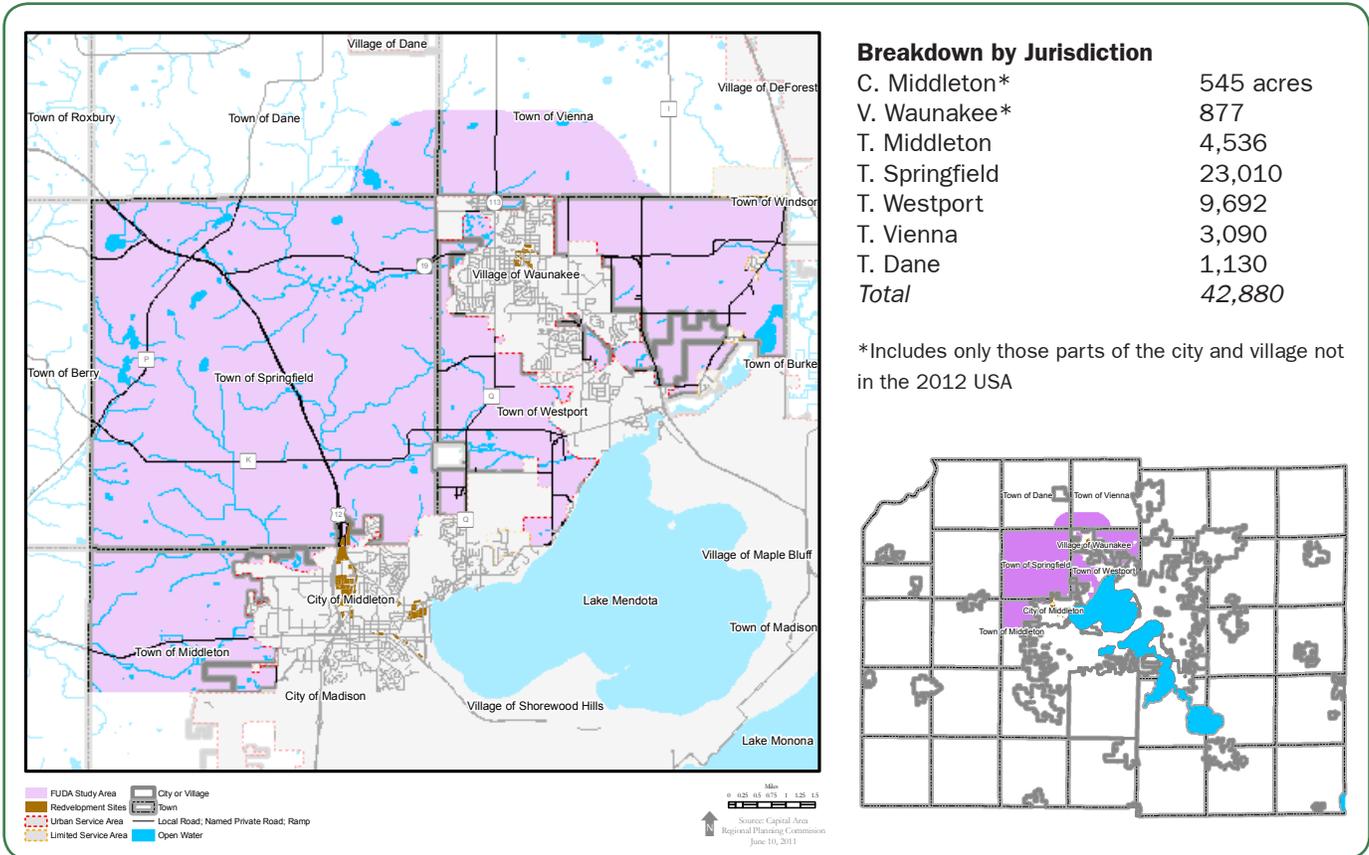
In late 2010, the City of Middleton, Village of Waunakee, Town of Westport and Town of Springfield began working with the Capital Area Regional Planning Commission (CARPC) to pursue a joint North Mendota FUDA project (see enabling resolution in Supplement A). This study describes the North Mendota steering committee’s Recommended Scenario and presents several implementation measures and next steps for future urban development and rural preservation in the North Mendota area.

The North Mendota FUDA steering committee submits these recommendations to respective local governments and CARPC to review and incorporate the recommendations, in whole or in part, into local plans, policies, and implementation decisions. The intent expressed in the enabling resolutions is to update this study every five years to account for significant changes in existing conditions, such as unforeseen population fluctuations and policy changes.

Process and Methodology

A multi-jurisdictional steering committee directed project staff to design and implement a process to review existing plans and municipal agreements, historic trends and future demographic projections, natural and agricultural resources, and to gauge public opinion for future development and preservation in the North Mendota Study Area (see Map 1). The committee met over 20 times to complete this process. This steering committee directed 3 major activities:

Map 1: North Mendota Study Area and Regional Context



Environmental Conditions Report (ECR) development – an in-depth inventory and assessment of the natural and agricultural resources and historic population trends and projections for the study area. The data was used to develop, evaluate, and inform scenarios and implementation measures presented in this FUDA Study. The ECR is provided as a supplement to this Study (though it is not itself part of this FUDA Study). The ECR provides information for planning, engineering, real estate and other related professionals working in these communities.

Scenario Evaluation – the creation and evaluation of different 25-year growth scenarios was based on findings in the ECR, adopted local land use plans and community and steering committee input. Scenarios were derived from locally adopted future land use maps located in participating communities local comprehensive plans. Three public polling scenarios depicting various development areas, land use mixes, redevelopment and densities were developed to illustrate the amount of land acreage required to meet the 25-year population projection. These scenarios are presented in more detail in Supplement C. The steering committee derived a hybrid scenario based on the polling scenarios and community input

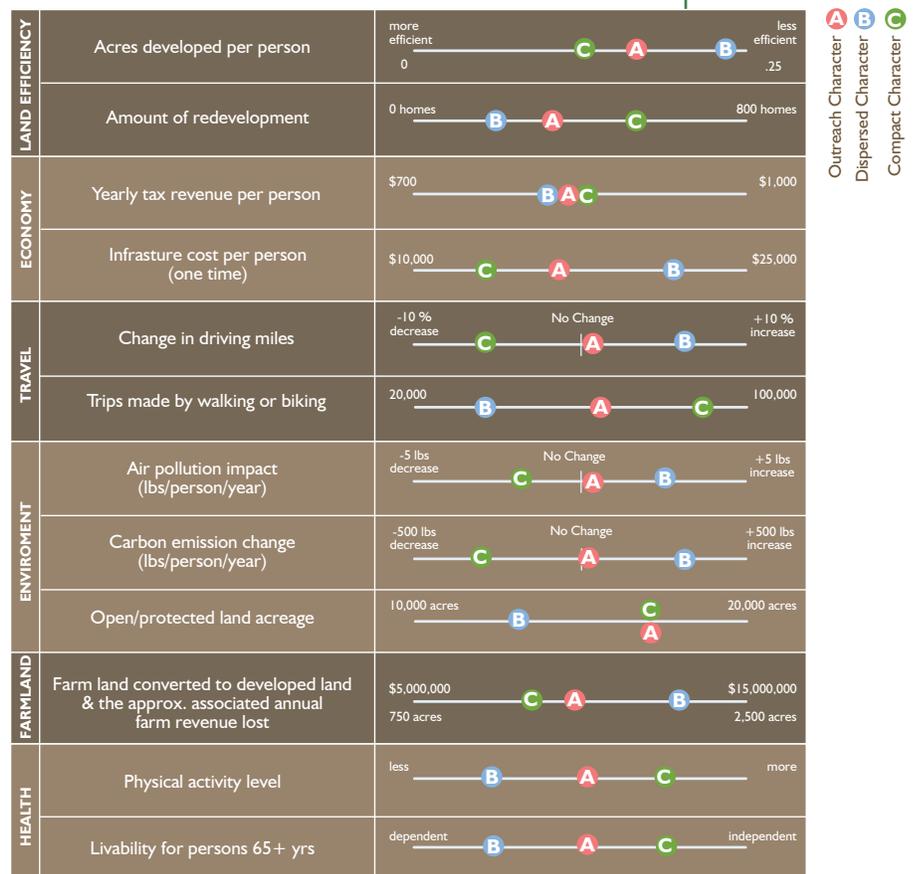
called the “Recommended North Mendota FUDA Scenario,” or “Recommended Scenario.” Evaluation and analysis for the Recommended Scenario is in the Scenario Evaluation section of this Study.

Future Urban Development Area (FUDA) Study— this document illustrates and describes the FUDA scenario the steering committee endorses and the recommendations the jurisdictions could take to implement this Recommended Scenario. The Study analyzes potential impacts of the proposed development pattern and outlines comprehensive plan or other governing document updates the communities could make to implement the FUDA study recommendations. This document is the **North Mendota FUDA Study**.

Each activity included **public outreach and engagement** to inform the steering committee, process and outcomes. The steering committee adopted a Public Participation Plan and engagement strategies that exceeded the requirements in the state comprehensive planning statute (Wis. Stat. 66.1001). Public participation was organized into five phases:

1. Information gathering, preparation and publicity,
2. Introduction to FUDA, community goal affirmation and visual preference survey,
3. Existing conditions education and conceptual scenario mapping,
4. Scenario polling and
5. Municipal and regional commission/board processes.

Figure 1: Indicator Evaluation for Polling Scenarios



Phases 1-4 informed the findings and recommendations in this study. Phase 5 occurred with the release of this report and may continue at the municipal and regional levels until comprehensive and regional plan updates are complete. Supplement B provides more detail on the public participation approach, materials, activities and results.

Each activity also included research on trends, projections, satellite imagery analysis and geographic information systems (GIS) analysis. ECR development included site visits and analysis for environmental quality. Scenario evaluation included calculating various indicators to evaluate community impacts of each scenario.

FUDA Scenario Overview and Recommendations

The steering committee and its staff developed three “polling scenarios” that could accommodate the 2035 projected population to poll the community at large: (A) Dispersed Character Scenario, (B) Public Outreach Scenario (most similar to development proposed in adopted plans and current trends) and (C) Compact Character Scenario.¹ Land use designations (commercial, residential, institutional, natural land, agricultural land, etc.) and implementation standards (density, housing mix, etc.) were adjusted based on input from community members, existing plans, and potential opportunities the steering committee and staff identified.

The projected 16,000 new residents in these Urban Service Areas are anticipated to require 2,600 acres for their homes, jobs, schools, roads and other needs. Some of this growth can and should be accommodated through redevelopment and infill in the existing Urban Service Area. In Middleton and Westport, a significant portion of the projected growth could be absorbed into approved developing neighborhoods, such as Bishops Bay, while the remaining unmet demand could occur on land currently outside the Urban Service Area. Waunakee’s projected growth will require additional land to be added to the Urban Service Area. This land can be added in a phased manner based on demonstrated needs.

The steering committee compared each scenario across indicators, or impacts, on the communities’ future states. Indicator categories include: land efficiency, economy, travel, environment, farmland, and health. See Figure 1 for a complete list of indicators and how the scenarios compare and Supplement C for the methodologies used to develop and analyze the scenarios and indicators. The three scenarios were displayed at seven polling stations and online for a month in spring 2012 for community feedback.

Recommended North Mendota FUDA Scenario

Considering existing plans and inter-jurisdictional agreements, environmental and agricultural conditions, community goals and trends (Supplement E), scenario impacts (Supplement C), citizen participant opinions (Supplement B), and the many opportunities for the future, the steering committee recommends the Future Urban Development Area and conceptual future land use pattern designated in Map 2.

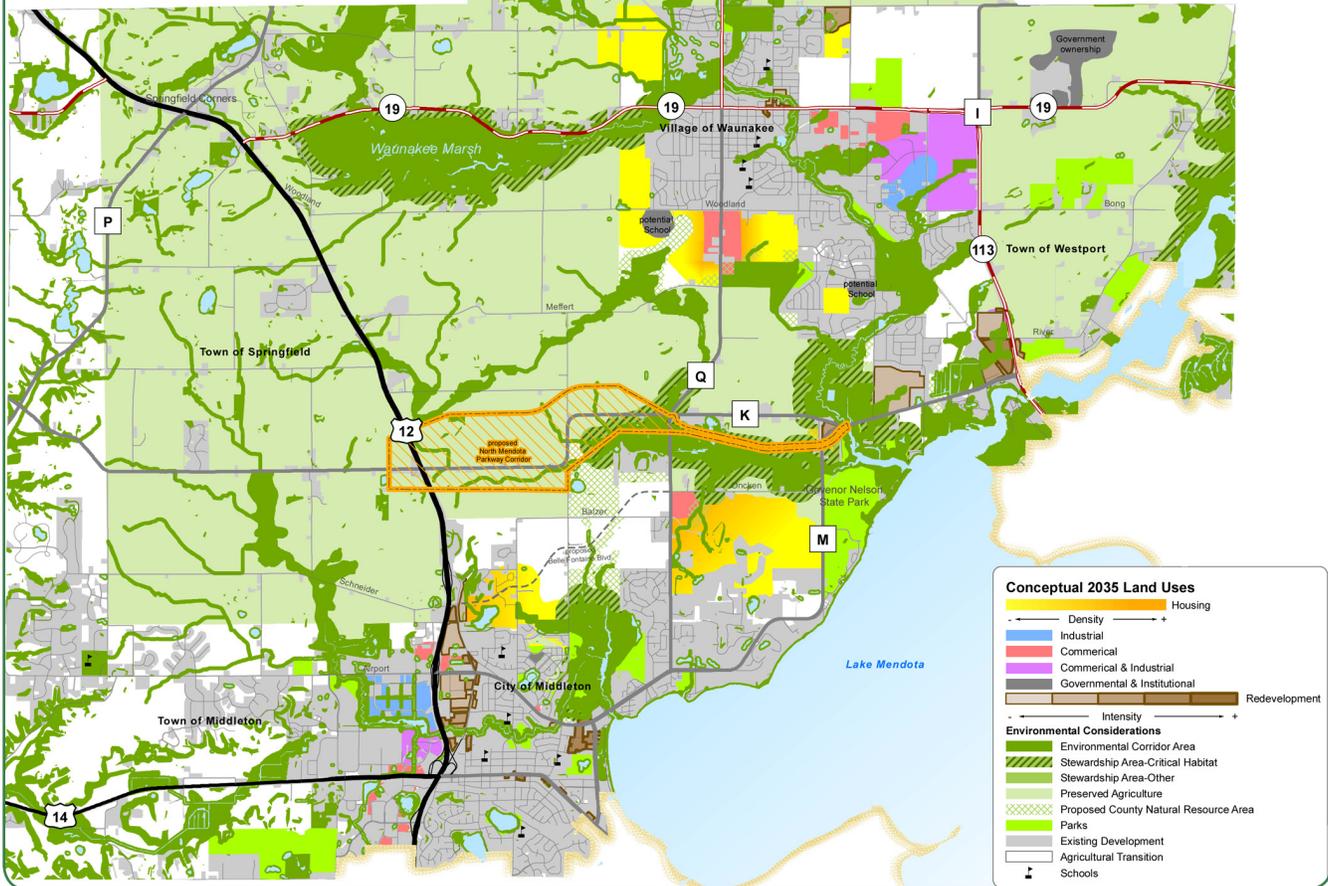
The Recommended Scenario is a hybrid of locally adopted plans and intergovernmental agreements, enhanced with opportunities presented in the Compact Character and Public Outreach Scenarios. Most public participants preferred the Compact and Public Outreach Scenarios over the Dispersed Character Scenario.

Recommendations are divided into two major sections: **Recommended Scenario**, and **Further Analysis Areas**. Each section contains recommendations and associated implementation measures. The steering committee rationale is presented next to the recommendation(s). Following the recommendations, the Study includes potential amendments to local comprehensive plans and other governing documents to advance the recommendations.

¹ Additional scenarios were developed or proposed. The current trends and adopted plans scenarios showed little distinguishable variation compared to the selected scenarios. The steering committee considered the proposed fixed USA boundary scenario and determined that in Middleton a significant portion of the growth within this time horizon could be within the existing USA and the unmet growth could require additional lands outside the service area; and Waunakee will require more land in the Urban Service Area for the projected growth even if all redevelopment and infill were to occur in the planning horizon.

Map 2: North Mendota Future Urban Development Area Recommended Scenario

See larger map insert on Summary page IX



NOTE: This map conceptually represents the Steering Committee's Recommended Scenario for future growth and presentation in the FUDA study area. It shows how much land will be needed to accommodate projected 2035 land demand and general locations where that demand could be accommodated. This map may guide the amendment of future land use maps in local comprehensive plans, zoning decisions, and intergovernmental agreements. However, it should not be used or interpreted as a comprehensive plan, future land use plan, zoning map, or intergovernmental agreement in and of itself. Future land use categories and boundaries within comprehensive plans, zoning ordinances, and intergovernmental agreements will likely vary from representations on this map.

Redevelopment and Infill Recommendations

1. Middleton, Waunakee, Springfield and Westport are advised to establish additional redevelopment/infill areas respectively.

- 1.1 Middleton, Waunakee and Westport are advised to evaluate and plan, or update an existing plan, for redevelopment/infill sites identified in the Land Demand and Supply Section of the Environmental Conditions Report (see brown features on Map 2, Table 1 and Maps 3-6).²
- 1.2 Middleton and Waunakee are advised to identify additional new redevelopment/infill areas presented in "5. Additional Redevelopment Areas."
- 1.3 Springfield is advised to reevaluate and enhance its development plan for the potential development and redevelopment options for Springfield Corners that have been included within its Comprehensive Plan in light of evolving priorities and significant changes to Highway 12 access WisDOT is evaluating (e.g. interchange).
- 1.4 Track redevelopment progress and market strength and opportunities.
- 1.5 Proactively plan for large infill opportunities in accordance with local plans, such as large parcels in Westport.

² Redevelopment estimates in Middleton are assumed higher than the baseline level in existing plans because the land demand projection estimates more commercial demand by 2035 than is planned for.

Rationale for Recommendations 1 & 2

Existing Plans/Goals: Includes existing planned redevelopment and infill sites. Plans reveal a lack of available land for commercial/industrial growth in or outside Middleton's Central USA .

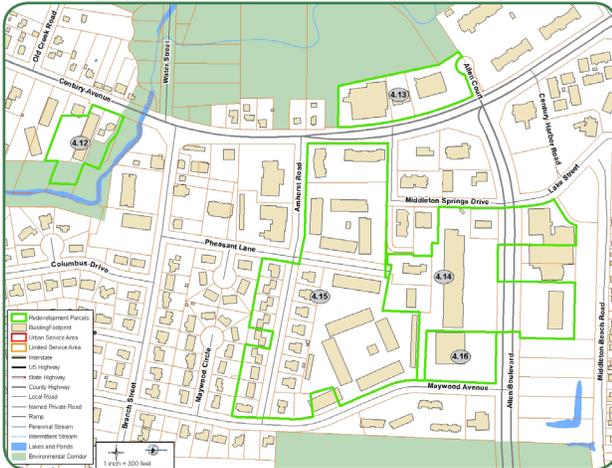
Participant Opinion: Respondents supported redevelopment at greater levels.

Steering Committee Recognizes:

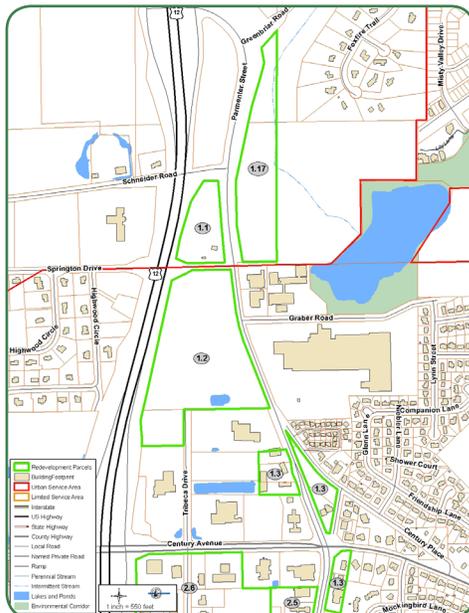
Middleton and Waunakee downtowns and the Westport Town Center are areas with further opportunity for redevelopment and reinvestment than identified in existing BUILD Plans.

- Opportunities for walking and biking exist in these areas.
- Several existing civic uses exist.
- Logistical and market challenges in redevelopment and infill projects. May warrant public action.

Map 3: Middleton TID #5 Century-Allen Sub-area



Map 4: Middleton TID#5 Parmenter US12 North Sub-area



1.6 Middleton is advised to work with large-scale developers and property owners to intensify existing commercial/office developments, including opportunities for incorporating compact residential. This is especially relevant in areas with excellent highway access, such as Greenway Station and other properties west of Highway 12 and south of the Town of Springfield.

1.7 Continue to allow well-designed intensification in appropriate existing urban residential areas including subdividing large parcels into smaller lots, accessory dwelling units, duplex conversion and multi-family.

2. Middleton, Waunakee and Westport are advised to continue to use incentives and other programs to facilitate a higher redevelopment/infill implementation probability for adopted and recommended sites.

2.1 Continue to attract and retain high-activity uses (civic and festive uses) to downtowns to support existing and new business and reduce financial risk for developers.

2.2 Continue to identify funding resources to incentivize redevelopment including Tax Increment Financing, Business Improvement Districts, and specific economic development funds.

2.3 Continue to help assemble redevelopable lands and distribute Request for Proposals (RFPs) to developers.

Community and Neighborhood Design Recommendations

3. Middleton, Waunakee, Springfield and Westport are advised to allow for greater density in strategic locations (see Map 2).

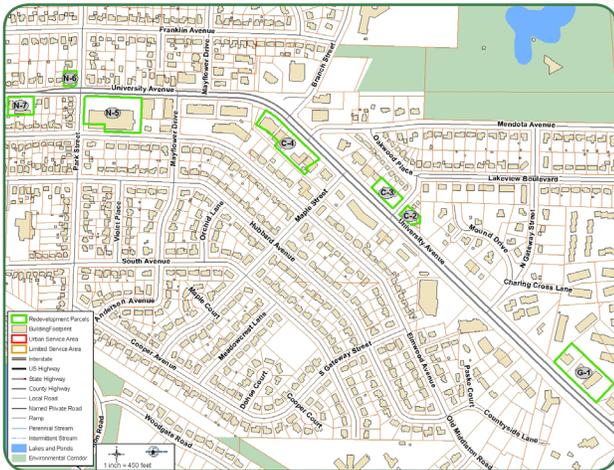
3.1 Westport is advised to permit higher residential and commercial densities and mixed-use development in the Town Center Area, along proposed transit corridors, and in redevelopment infill projects, such as the Yahara River Redevelopment project (created as a capstone project by a UW landscape architecture student).

Table 1: North Mendota Planned and Proposed Redevelopment and Infill Areas

	Sub-Areas	Acres	Existing Uses	Existing Commercial SF	Existing Future Uses	Potential Future Uses	Anticipated Commercial Gain (sf)	Anticipated Res. Gain (units)
Middleton	1	8.97	Vacant and a house	0	1	Office/Research	190,044	-1
	1	27.25	Vacant	0	0	Tribeca Village: retail & office/research; residential	684,000	127
	1	7.97	Various commercial, 12-unit apt., cemetery	16,914	12	Mixed-use, commercial ground floor, residential above	24,281	59
	1	13.70	Vacant	0	0	Office/Research	462,308	0
	2	3.31	Gas station, hotel, apartment	23,147	5	Mixed-use, commercial ground floor, residential above	24,003	79
	3	4.49	Retail, warehouse	27,182	0	Retail and Office/Research	53,704	0
	2.6	31.94	Ballfields, fun park, vacant lots, public garage, bus barn, commercial	133,961	0	Retail and Office/Research	392,567	0
	2.7	12.13	Industrial and vacant auto dealership	16,275	0	Office/Research complimenting industrial use	147,941	0
	2.8	13.65	Office, retail and warehouse. Primarily landscape/nursery business	6,360	0	Reconfiguration and consolidation with retail/residential complementary to landscape/nursery business	40,841	88
	2.9	10.18	Warehouse/office/ retail	53,088	0	Residential - senior, workforce, condo/apt.	-13,272	87
	2	3.66	Vacant retail, SF home, and warehouse	19,189	1	Retail, office & hotel	71,443	-1
	2	3.86	SF and a duplex, bar, office, warehouse	41,444	6	"Comprehensive approach should be taken." Mixed commercial-residential or other multi-use	7,672	21
	4	2.66	Historic Stamm House, SF home, and multi-tenant warehouse/office	12,150	0	Relocate businesses into redevelopment area; redevelop into housing	-6,075	12
	4	3.49	Former grocery and new convenience store/pharmacy and bank buildings	31,960	0	Grocery into mixed residential/retail	-3,861	7
	4	9.97	Athletic club, shopping, restaurant, office & warehouse	64,906	2	Consolidation of athletic club, plus mixed retail/entertainment with residential above	4,958	35
	4	17.18	Residential (14 duplex, 3 apartment between 40 and 128 units, 2 townhouse, and 2 SF = 305 units)	0	305	A complete range of apartments and condos to encourage diverse owner-occupants and renters	0	34
	4	2.15	Empty retail store	20,160	0	Retail with residential above	986	22
	University 1	1.46	Retail, Office Apt, Parking Lot	7,550	2	Mixed Residential Commercial	8,949	13
University 2	0.97	Mixed Commercial	15,520	2	Mixed Residential Commercial	-2,298	8	
University 3	1.27	Drive Through Restaurant, Catering	1,835	0	Mixed Residential Commercial	8,001	27	
Greenway		Commercial, Office			Intensification of existing commercial site	1,446,240	0	
Waunakee	1	1.54	E. Main & N. Madison	4,967	1	Commercial, Mixed Retail, Residential, Office, Public facility library	2,542	9
	2-3	5.93	Former Waunakee Alloy and vacant	0	0	Residential (12-16 du/ac N of Creek; 6-8 du/ac S of Creek), public facility/library	15,553	62
	4	0.90	315 to 321 E. Main St. Vacant & SF	0	1	Commercial, Mixed Commercial & Residential/Office	4,657	9
	6	4.03	American Legion Site	0	0	Residential (12-16 du/ac), office, civic	13,599	54
	7	1.42	Single-Family - N side of 400 E. Main St	0	7	Residential (6-8 du/ac), office, retail, B&B	5,894	8
	8	2.41	Single-family, commercial, vacant	13,115	2	Multi-family residential (12-16 du/ac)	-9,836	27
	9	0.91	Single-family, duplex, MF, and 1 commercial, vacant	1,694	8	Commercial, Mixed Commercial & Residential/Office	4,605	4
	10	1.81	Former Lumber Yard	39,016	0	Commercial, Mixed Commercial & Residential/Office	-8,439	11
	1a	9.02	Mixed commercial spaces, Village Hall, bowling alley	105,375	0	Infill of mixed use buildings on underutilized parking area; no lost development.	13,365	27
	1b	0.65	Mixed commercial, laundromat, St. Vincent De Paul, Manufacturing Residential	10,232	0	Mixed residential	-2,558	5
	2	1.82	Bank, gas station, vacant clinic building	10,160		Mixed-use, residential over commercial	5,773	22
	3	0.79	Oil change and car wash	4,949	0	Commercial, Mixed Commercial & Residential/Office	5,712	0
	4	1.56	Strip commercial, gas station	20,623	0	Mixed-use, residential over commercial	-1,007	19
	5	0.88	Residential, commercial conversions	6,598	2	Longterm conversion to commercial uses	7,267	-1
Westport	1	40.19	Vacant	0	0	Commercial, Mixed Office	264,457	0
	2	1.98	Commercial, Single Family Residential	9,550	1	Commercial Office	14,457	0
	3	27.96	Commercial	13,804	0	Mixed Commercial Residential	35,215	77
	5		Commercial			No Redevelopment Planned: Floodplain		
	6	1.30	Multi-family Residential	0	10	Mixed Commercial Residential	9,486	11
	7	109.21	Vacant	0	0	Mixed Commercial Residential	217,822	327
	8	7.75	Vacant Service Station	47,433	0	Mixed Commercial Residential	13,956	76

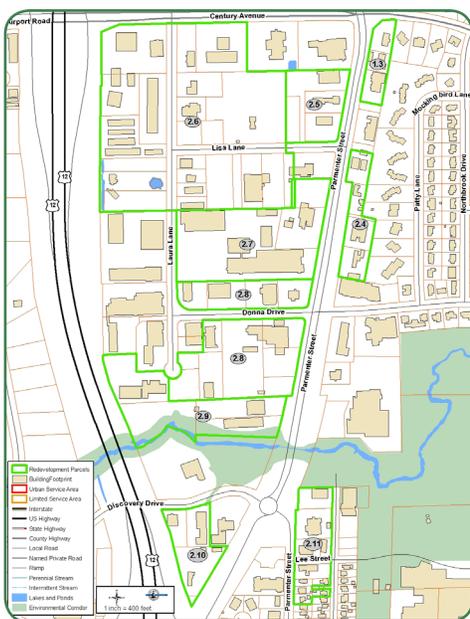
Table 1 summarizes CARPC staff analysis of all infill and redevelopment for areas identified in adopted plans and additional potential areas (grey text). While these opportunities exist, several barriers to redevelopment and infill, such as infrastructure enhancement, lack of staging space, citizen NIMBYism (Not in My Back Yard), and financing challenges for certain types of projects, reduce the likelihood of reinvestment. Consequently, only a portion of this redevelopment/ infill is likely to occur in the 25-year time horizon of this study. Adopted plans allow 2,834,027 commercial square feet and over 636 new housing units on infill and redevelopment sites. Analysis showed potential for an additional 1,316,979 commercial square feet and approximately 539 more housing units on these infill and redevelopment sites. The sites outlined in green on maps 3-9 highlight already adopted infill/redevelopment areas.

Map 5: Middleton University Avenue



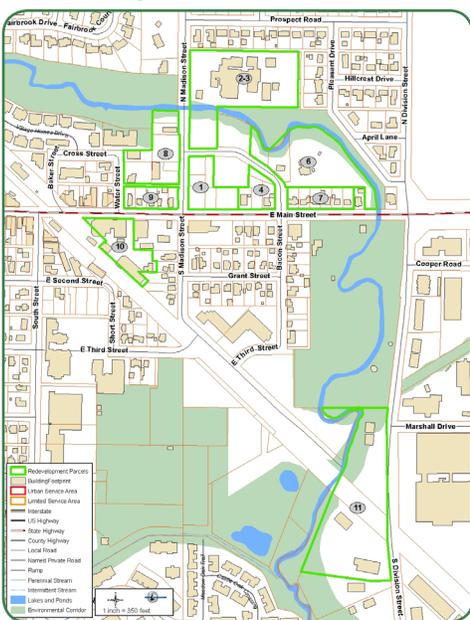
- 3.2 Allow for higher density residential in and around downtowns/town centers to build community and strengthen the customer base for local businesses.
- 3.3 In general, allow for greater commercial and residential density and mixing these uses near existing and future destinations and transit corridors (such as civic uses, entertainment venues, retail) to encourage walking, biking, and when feasible, transit.
- 3.4 Springfield is advised to investigate different design concepts for Springfield Corners, potentially including senior housing.

Map 6: Middleton TID #5 Parmenter US12 South



- 3.5 Waunakee is advised to continue investigating design concepts for the Downtown, including North Century Avenue.
- 3.6 Middleton is advised to compile design guidelines from various BUILD Plans and the Middleton-Westport Joint Planning Area into a single reference document to identify common elements and illustrate the distinct design characters desired.
- 3.7 Ensure multi-family housing is well designed and arranged within the site, integrated amongst surrounding lower-density housing units and sites, and provided with the proper level of utilities and community services.
- 3.8 North Mendota communities are advised to implement traditional neighborhood design for future urban development and refer to Middleton Hills and Bishops Bay neighborhoods as models for future developments.

Map 7: Waunakee Downtown Sub-area



- 3.9 North Mendota communities are advised to consider total cost-of-living when modeling future land use decisions, including home ownership or rental, transportation costs, food access, utilities and access to amenities.
- 3.10 North Mendota communities are advised to ensure excess area is not being dedicated to future urban development by potentially reducing minimum requirements in ordinances and considering maximum requirements, such as for parking spaces.
- 3.11 Evaluate comprehensive plans and land use ordinances to identify and implement changes that support the outcomes in the Recommended Scenario (see "Implementing Recommendations Through Governing Document Updates" section).

4. Middleton, Waunakee and Westport are advised to permit complete neighborhoods that integrate a range of quality residential, civic, open/public and business spaces in the Urban Service Area.

- 4.1 Permit senior residences (life-cycle housing), single-family lots and homes with a broad mix of sizes and price-points and multi-family housing, including homes accessible to people with disabilities.
- 4.2 Mix housing, civic, open/public, and retail and office uses, horizontally and vertically.
- 4.3 Design neighborhoods and street and trail networks to provide convenient walking and biking access for residents to civic, business and recreational uses.
- 4.4 Waunakee is advised to create, adopt, and implement a Traditional Neighborhood Design (TND) district in the Waunakee zoning code.
- 4.5 Leverage the recent investments in trails, and proposed park investments to build community image and enhance development potential and quality in the Urban Service Area.
- 4.6 Ensure commercial and residential uses with shared walls are constructed with adequate sound proofing and durable materials to reduce conflicts and operations and maintenance costs.
- 4.7 Ensure appealing opportunities exist for youth to be productive and engaged community members.

Rationale for Recommendations 3 & 4

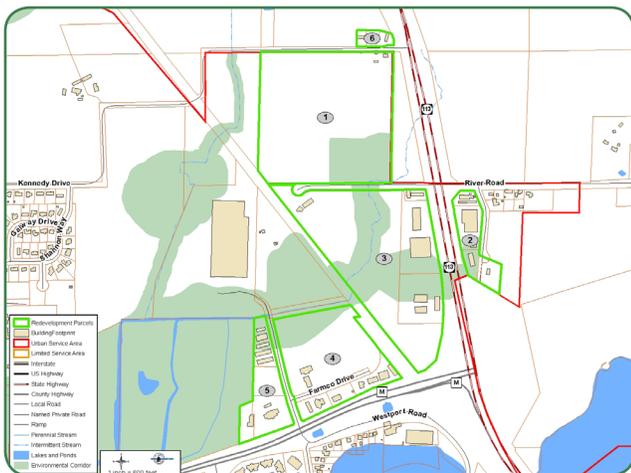
Existing Plans: Existing plans often call for separated commercial and residential uses.

Public Input: The Compact Character Scenario was more popular and proposes a larger commercial area, a mixed-use zone and higher density residential than in the Public Outreach Scenario.

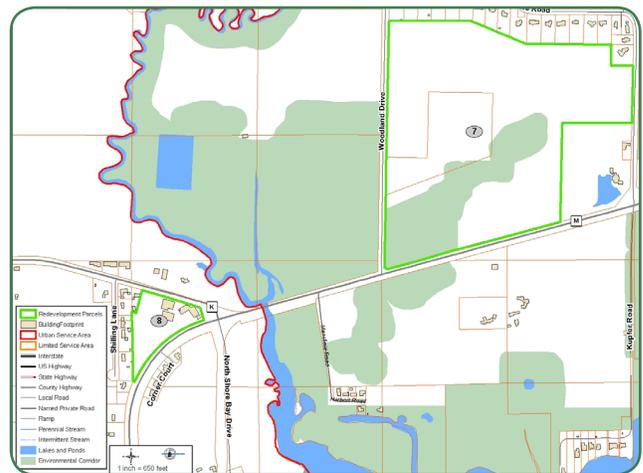
Steering Committee Recognizes:

- The advantage of access off Highways 12, 19, and M in urban areas create opportunities greater intensity of uses.
- The increasing baby boomer population and changing preferences
- Decreasing household sizes and trends to-wards smaller homes.
- Co-locating residential, work and daily destinations fosters walking and social ties.
- Comprehensive Planning Law requires a TND ordinance when a population exceeds 12,500. Waunakee will reach this threshold within 25-years.
- A Transit Corridor Study exploring express bus service to and from the Middleton and Waunakee areas is underway through Sustainable Communities Planning Grant. Middleton, Waunakee and Westport can build on opportunities for transit supportive densities along this potential route.
- Affordability Considerations: Rents/mortgages within 30%, and transportation costs within 15% of household income (www.htaindex.org). Regulations and incentives for energy and maintenance efficient construction, efficient layout and design for non-automobile trips, ability to grow food onsite and age in place in life-cycle housing are some things these communities could do to keep living affordable.

Map 8: Westport Highway 13 and CTH M



Map 9: Westport CTH M & K



Rationale for Recommendation 5-8

Existing Plans/Efforts:

- North Mendota Parkway Planning.
- Town of Westport Comprehensive Plan regarding Town Center development sections.
- Yahara River Redevelopment student capstone project.
- Grant applications and attempts at Dane County BUILD grants by Westport for streetscape work in the Town Center.
- Middleton Sustainability Plan
- Sustain Main in Waunakee

Public Input:

In a visual preference survey, participants preferred images that showed attractive streets and other aesthetic improvements.

Steering Committee Recognizes:

- Middleton, Waunakee and Westport are making significant investments in parks, trails, and open space worth connecting and promoting.
- Westport could take advantage of its significant potential for outdoor recreation in the Town Center area with the Yahara River, Sixmile Creek, Lake Mendota and Daleo Soccer Fields/Westport Town Center Park and connect them to businesses and residents in that area.
- Natural resources are finite and sustainable use of resources is necessary to ensure current and future use.

- 5. Westport is advised to develop and implement streetscaping and community design/character guidelines in its Town Center including necessary ordinance or comprehensive plan revisions, along the central Town corridors, including CTH M, STH 113, the Town Center, and the Yahara River Redevelopment project area.*
- 6. The City of Middleton is advised to continue progress and seek funds for implementing their Sustainability Plan and work with surrounding jurisdictions in the region to enhance efforts in Middleton.*
- 7. The Village of Waunakee is advised to expand its sustainability efforts and incorporate sustainability into its plan updates.*
- 8. North Mendota communities are advised to collaborate to advance sustainability goals and leverage investments made to advance the goals.*

Mobility and Access

- 9. Middleton, Waunakee and Westport are advised to continue to establish a connected street, sidewalk, bike-path and trail network that promotes walking, biking, and transit in addition to motor vehicles in the Urban Service Area and that connects to regional trails, bike-paths and roadways in surrounding rural areas including Westport and Springfield.*

- 9.1 Permit new development with a highly connected travel network for pedestrians, bikers, transit, vehicle, and other travelers.
- 9.2 Evaluate existing development to determine where connectivity can be improved.
- 9.3 Work with Dane County, State, and Federal governments to link recreational trails, identify gaps in the trails and bikeways. Use the communities' involvement in the Capital Region Sustainable Communities partnership to secure bonus points in federal grant applications.
- 9.4 Accommodate transit (traditional and para-transit), ride-share, walking, biking, and other non-vehicular forms of travel to accommodate persons of different ages and abilities.
- 9.5 Continue to establish interconnected transit, bike, and pedestrian networks between the North Mendota Communities and neighboring communities.
- 9.6 Waunakee is advised to establish a sidewalk retrofit plan for existing neighborhoods without sidewalks, evaluate and adjust street standards to ensure the ability to walk, limit impervious surfaces and maintain appropriate traffic speeds.

- 9.7 Middleton, Waunakee and Westport are advised to leverage potential investments in express bus service and ensure residential and employment opportunities are constructed at transit-supportive densities surrounding the proposed express bus corridors.
- 9.8 Improve Pheasant Branch Road to accommodate bicyclists and motorists simultaneously and/or construct a parallel alternative route.
- 9.9 Middleton, Waunakee and Westport are advised to develop safe and effective methods for youth living in the Bishops Bay Neighborhood to travel to Waunakee schools, especially if and when roadways, such as the North Mendota Parkway, expand or are constructed.

Intergovernmental Cooperation

10. North Mendota Communities are advised to continue or establish intergovernmental agreements with each other and surrounding jurisdictions.

- 10.1 Springfield and Waunakee are advised to extend their intergovernmental boundary agreement, or expand it to be a cooperative plan under Section 66.0307 of Wisconsin Statutes, to address preservation, development, and transportation issues in northeast Springfield. See Further Analysis Area 2 for details.
- 10.2 Westport and Waunakee are advised to establish an intergovernmental boundary agreement or joint plan with DeForest to discuss preservation and development opportunities where the communities interface. See Further Analysis Area 3 for details.

Rationale for Recommendation 9

Existing Plans:

- North Mendota communities have Transportation elements in their comprehensive plans.
- These communities share the North Mendota Parkway Study and Plan. Regional and State plans and projects also impact transportation infrastructure here.

Public Input:

The Compact Character scenario emphasized the ability to walk and bike.

Steering Committee Recognizes:

- The automobile is the dominant travel method.
- Many people, young, elder, blind, differently abled persons cannot use a car and are dependent on others to get around reducing their independence.
- Daily walking, biking, etc. are part of a healthy lifestyle.
- A Transit Corridor Study exploring express bus service to and from the Middleton and Waunakee areas is underway through Sustainable Communities Planning Grant.
- Transit and walking supportive density of both people and places can be strategically connected and leveraged for greater return on investment.

Rationale for Recommendation 10

Existing Plans:

The North Mendota Communities are area leaders in intergovernmental cooperation on a variety of topics. Several intergovernmental boundary and service agreements are currently in place.

Public Input:

The North Mendota processes indicated strong support for farmland preservation, compact urban expansion, and community separation.

Steering Committee Recognizes:

- Westport, Waunakee, DeForest and Vienna comprehensive plans show the east edge of Westport for agricultural preservation.
- Existing cooperative efforts expand beyond land use agreements to joint community development, transportation, recreation, and farmland/open space preservation.
- The Village of DeForest has expressed interest in beginning intergovernmental discussions with Westport.
- Interjurisdictional competition can be debilitating, while working together can better advance the region on an international scale.
- Long-term agreements add predictability and reduce risk for municipalities and the many sectors that build them.
- The North Mendota FUDA project and Waunakee Future Land Use Map show current and future land development reaching the Waunakee/Vienna boundary.

- 10.3 Waunakee is advised to establish an intergovernmental boundary agreement with Vienna to discuss preservation and development opportunities. See Further Analysis Area 2 for details.
- 10.4 Westport and Waunakee are advised to extend their intergovernmental boundary agreement.
- 10.5 Maintain existing intergovernmental agreements, such as the Middleton-Springfield boundary agreement, and service agreements, and amend by mutual agreement as necessary.
- 10.6 Middleton, Westport and Waunakee are advised to participate in FUDA planning projects with the City of Madison.
- 10.7 The North Mendota communities are advised to continue to work with Thrive, Dane County Economic Development and the Capital Region Sustainable Communities partnership to foster, leverage and develop other opportunities for intergovernmental and public-private collaboration.

Natural Resources

11. Middleton, Waunakee, Westport and Springfield are advised to incorporate Stewardship Areas in development planning.

- 11.1 Incorporate “Stewardship Areas-Critical Habitat” and “Stewardship Areas-Other” as shown in Map 2: North Mendota FUDA Recommended Scenario into local plans and apply habitat loss mitigation and restoration management standards for new development (see Figure 2).
- 11.2 Explore potential opportunities to establish or expand riparian buffers in Stewardship Areas through pollutant trading between agricultural and urban sources involved in the Rock River Total Maximum Daily Load (TMDL) and the Yahara Watershed Improvement Network projects.
- 11.3 Explore opportunities through the Conservation Reserve Program and other voluntary cost-share/set-aside/nonpoint source control programs administered through the Dane County Land Conservation Department with willing land owners.
- 11.4 Plan for the area between and including Waunakee Marsh and Dorn Creek for long-term preservation to support existing agricultural and open space uses and provide community separation between Middleton and Waunakee. See Further Analysis Area 3 for details.

12. Middleton, Waunakee, Springfield and Westport are advised to utilize Environmental Corridors and Stewardship Areas as open-space amenities in developments for residents and patrons.

- 12.1 Prepare and adopt stewardship guidelines for new development and open space in these areas.
- 12.2 Identify viewsheds and vistas of community value that should be preserved and take steps to accomplish this.

Figure 2

Considerations and Best Practices for Recommendation 11

Ecological Restoration Guidelines: Natural resource area restoration will be necessary to maintain ecological functions and the services they provide to humans, flora, and fauna, and to maintain our natural heritage for future generations. While each location will require tailored designs, restoration projects should generally follow these guidelines:

- Natural resource conservation and management is less costly than ecological restoration.
- For successful restoration, the factor causing the degradation must be identified and removed or abated.
- Often it is not possible to restore or create an ecosystem that is an exact copy of a previous or idealized state.
- Restoring physical attributes within an ecosystem will not always result in positive biotic responses or occupation by desired species.
- Restoration takes time. Depending upon the ecosystem, it may take a few years or several decades before restoration is complete.
- Restoration needs long-term management and monitoring to assess if more work is needed.
- Ecosystem restoration is complicated, not as easily manipulated as human engineered systems, and thus, it may not be possible to control for all aspects within a project.
- Each restoration project will have unique challenges requiring specific approaches.
- The restoration goal is to create a self-organizing and sustaining system that no longer requires active human intervention.
- Large sums of money, time and other resources will not solve ecological problems. Nor will waiting for advances in science and technology. Proactive restoration policies and actions are beneficial to preserving and improving our quality of life.

Habitat Connectivity Guidelines: Biodiversity is rapidly declining worldwide. Habitat fragmentation and loss of connectivity is one of the major reasons for decline and is largely from increasing agriculture, infrastructure and urbanization. Natural resource planning applies landscape ecology principles to overcome fragmentation. For the North Mendota FUDA Study Area, retaining connectivity in this landscape will require:

- (1) Providing buffer protection for the natural resources near Sixmile, Dorn, and Pheasant Branch Creeks and the headwaters of Black Earth Creek. Ideally, these resources should be connected together through contiguous, restored corridors. Should any proposed habitat corridors connect to streams, the buffer around the stream should be expanded to 300 feet on one side.
- (2) Creating restored habitat corridors that will connect Waunakee Marsh to Dorn Creek Conservancy, and Dorn Creek Conservancy to Pheasant Branch Conservancy.
- (3) Providing buffer protection along surface water features and mitigating development impacts on wildlife using native landscaping, appropriate road and building orientation and ensuring low traffic.

Design of preservation systems

A. Size		D. Linearity	
Better	Worse	Better	Worse
			
B. Subdivision		E. Connection	
Better	Worse	Better	Worse
			
C. Separation		F. Edge / Interior Ratio	
Better	Worse	Better	Worse
			

Some "better-worse" comparisons of design of preservation systems as derived from island biogeographic theory. (Modified from Diamond 1975)

Rational for Recommendations 11-16

Existing Plans: Accommodate Environmental Corridor designations and identify critical resources in the Natural, Agricultural, and Cultural Resources comprehensive plan elements.

- Many of these resources and their preservation potential are identified in the Dane County Parks and Open Space Plan.
- In general, the Dane County Water Quality Plan maps Environmental Corridors in Urban Service area as 100 foot no-build buffers around surface water shorelands and the 100-year floodplain, a 200-foot buffer around natural and man-made drainage ways, include wooded slopes over 12 percent, existing and proposed parks, conservancy areas and natural resources areas, and does not include existing development.
- Dane County Shoreland Regulations require 75 foot buffers around floodplains, shorelands and wetlands over 2 acres.

Participant Input: Participants favored community separation, environmental protection of vital resources, and access to open space.

ECR: Stewardship Areas expand certain Environmental Corridors and indicate where development may need to meet stewardship standards.

- Stewardship Areas-Critical Habitat and Stewardship Areas-Other are locations where special conditions might be required to protect critical habitat (Map 38) and ecological services.
- The ECR contains several points of information that form the Environmental Corridor and Stewardship Areas, and other natural features including groundwater infiltration areas (Map 34), prairies (Map 39), woodlands (Map 4), extraction sites (Map 3), springs (Map 30), wetlands (Map 5), slopes (Map 4), watersheds (Map 10 and 11), etc.

The Steering Committee Recognizes:

The Environmental Corridor Expansion Areas in the Compact Character scenario and ECR Map 37, as being converted to “Stewardship Areas - Critical Habitat” in the Recommended Scenario.

- The North Mendota area headwaters include Sixmile, Dorn, and Pheasant Branch Creeks that lead into the Yahara Chain of Lakes.
- Black Earth Creek is a nationally recognized trout stream.
- Preservation requires willing landowners.
- Westport has an environmental conditions checklist for land division that applicants must complete in the filing process.

13. Middleton, Waunakee, Springfield and Westport are advised to protect mineral resource areas (ECR Map 3), evaluate the areas for infiltration and groundwater recharge (ECR Map 9), and extract the resource and reclaim the land before development is permitted.

14. Middleton, Waunakee and Westport are advised to continue to improve stormwater management for new and existing development and protect water quality in Sixmile Creek, Dorn Creek, Pheasant Branch Creek, Black Earth Creek and Lake Mendota.

- 14.1 Prioritize areas with sub-surface glacial till deposits for enhanced infiltration (ECR Map 36).
- 14.2 Middleton, Waunakee and Westport are advised to amend stormwater ordinances to maintain pre-development stay-on volumes and recharge rates.
- 14.3 Minimize impact from impervious areas in new construction using best management practices and pervious surfaces.
- 14.4 Increase financial resources to implement broad agricultural best management practices to reduce negative impacts on natural resources.
- 14.5 Increase financial resources for broader implementation of retrofit urban best management practices in older urban areas.
- 14.6 Explore restoring wetlands, woodlands, prairies, and pastures in appropriate areas (ECR Maps 5, 12, 23, and 39), including poorly drained hydric soils that regularly fail to produce cash crops in agricultural areas.
- 14.7 Capitalize on opportunities for capturing phosphorus within the watershed and exporting it outside the region, for example the proposed manure digester in Springfield.
- 14.8 Continue to develop and adopt reduction standards for both urban and agricultural nonpoint pollution sources (see Working Lands Recommendation 16.5).
- 14.9 Actively participate in the Yahara Watershed Improvement Network (WIN) Pilot Project with the Madison Metropolitan Sewerage District.

15. North Mendota Communities are advised to improve public access to outdoor recreational activities.

15.1 Middleton and Westport are advised to add public access to lake and river frontage where opportunities exist including small parks, boardwalks and water-river trails.

15.2 Communities are encouraged to build adult fitness opportunities in new developments and existing parks.

15.3 Consider an improved bicycle route or path along Highway 19/north side of Waunakee Marsh to connect Waunakee with Springfield Corners and the Highway 12 path, and to improve public enjoyment of the Waunakee Marsh.

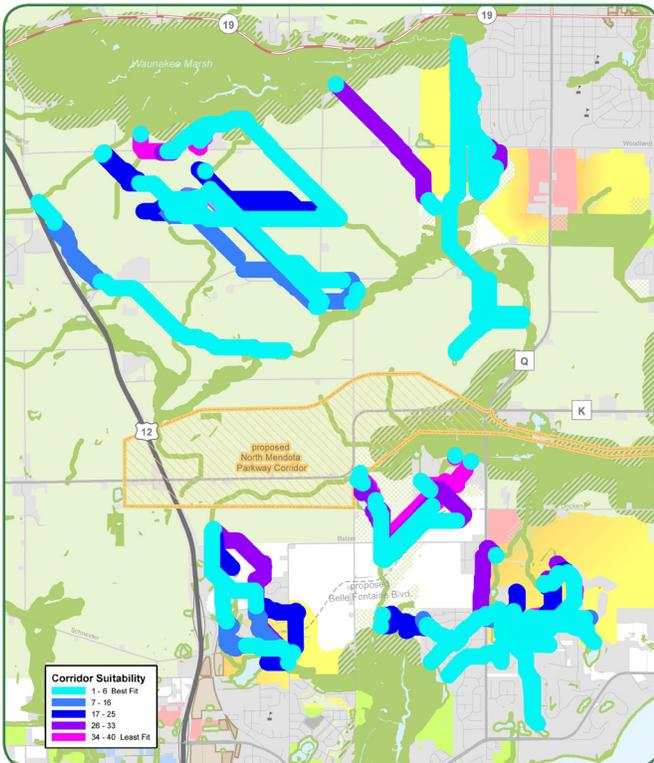
15.4 The North Mendota communities are advised to establish an E-way through the area to leverage environmental, exercise, and educational opportunities. This E-way could follow the North Mendota Parkway corridor and link the Waunakee Marsh to rivers and creeks leading through the area communities towards Lake Mendota (see Further Analysis Area 3).

15.5 Explore potential to link E-way with natural resources in communities participating in the North Yahara FUDA project and the Black Earth Creek watershed.

Rational for Recommendations 11-16 Continued

- Water quantity and quality management is a regional concern with responsibility dispersed among many jurisdictions. Numerous local and regional strategies will need to be implemented in these communities to protect the watershed and those downstream.
- Water quality impacts come from point sources and nonpoint sources. Extensive efforts for point sources have occurred. Nonpoint sources, e.g. agricultural or urban runoff, present challenges.
- Dane County is phosphorus rich while many places around the globe are reporting low phosphorus availability. Discussions about exporting phosphorus are beginning at the County level with the new biodigester.

Map 10: Best Fit Pathway Options for E-Way



The light blue lines represent best fit corridors for potential E-Way connections between Environmental Corridor features. The lighter shades, starting at teal and turning to medium blue, are the most efficient paths organisms could take between major habitats. If communities desire to implement E-Way connectors, they should select a two sets of lines; one to connect Waunakee Marsh to Dorn Creek, and another to connect Dorn Creek to Pheasant Branch Conservancy. These corridors will need to be 100 m (330 ft) wide, and restored with natural vegetation. In sections where the line is straight, communities have additional flexibility in the exact placement of the E-Way.

16. Municipalities and their local water and wastewater utilities are advised to continue their water conservation and reuse practices, and enhance infiltration measures to help mitigate the municipal water withdrawal impacts.

- 16.1 Middleton, Waunakee and Westport should continue to collaborate with each other and the large regional community on promoting water conservation, increasing the efficient operation of their municipal water supply systems, and minimizing the potential impacts of these systems on the local and regional water resources.
- 16.2 Employ a series of best management practices (BMPs) such as directing downspouts to vegetated areas and lawns, installing rain gardens, and constructing active infiltration basins as part of urban stormwater treatment and management.
- 16.3 Increase water conservation with low flow fixtures and rainwater harvesting for irrigation purposes.

Working Lands

17. North Mendota Communities are advised to continue to implement and enhance methods to prevent the premature conversion of farmland to developed land.

- 17.1 Support and help maintain the Agricultural Enterprise Areas (AEAs) Vienna/Westport/Dane, which is a State program that further denotes agricultural commitment and increases tax credit opportunities for included farmers.
- 17.2 Springfield and Westport are advised to identify and assist farmers to establish a new regional AEA spanning the two communities.
- 17.3 In new and extended intergovernmental agreements (see Recommendation 6) consider coming to mutual understanding on acceptable agricultural practices within mutually-agreed agricultural preservation areas (e.g., manure digesters, other value-added agricultural businesses). See the DeForest-Windsor Cooperative Plan, Recommendation 7, and Further Analysis Areas 1 and 3 for ideas and details.
- 17.4 Maintain A-1: Ag-exclusive zoning and allow housing at or below current “1 per 35” density ratios in planned Agricultural Preservation Areas in Springfield and Westport.
- 17.5 Increase financial resources to implement broad agricultural best management practices.
- 17.6 To minimize the impact of new development on agriculture and rural character, Springfield is advised to continue to utilize its Development Design Guidelines (included as an appendix to its Comprehensive Plan) and expand them as appropriate to address other types of development in the rural area.

18. Middleton, Waunakee, Springfield and Westport are advised to continue to prevent agricultural land conversion permanently in locally agreed locations.

- 18.1 Continue to use conservation easements and deed restrictions in farmland preservation areas in conjunction with new development approvals under Town density policies.
- 18.2 Westport is advised to continue utilizing its Comprehensive Plan policies regarding the allowance of farm related land divisions in rural preservation areas, and to make better use of Section 10-2-24, Westport Code, Land Development Policies to Preserve Rural Character.

- 18.3 Springfield is advised to implement its planned Transfer of Development Rights (TDR) program. The communities are advised to explore interjurisdictional transfers of development rights as part of new or expanded intergovernmental agreements, when TDR program success is proven in Springfield.
- 18.4 Attempt to identify mutually-agreed, permanent or very long term (20+ year) agricultural preservation areas as part of new, extended, or expanded intergovernmental agreements or cooperative plans.
- 18.5 Continue to incorporate Community Supported Agriculture, community gardens, edible landscapes, agrarian urbanism and other agricultural experiences into new and existing urban developments and parks to provide food, showcase and pass on the area's agricultural heritage to new residents and future generations.

19. Springfield and Westport are advised to examine the scope and scale of land management practices to identify, enhance and maintain ecological services and functions on or adjacent to agricultural land.

- 19.1 Use the Environmental Corridor Area in Map 2 as a guide and resource to create a network of permanent agricultural and open space conservation areas protected from development. Unify and reconcile the different labels and boundaries of "no build" areas as part of local comprehensive plan updates.
- 19.2 Encourage the restoration of former wetlands drained with underground drainage tiles and ditching, where opportunities exist. See Map 5 in ECR.
- 19.3 Where Environmental Corridors or Stewardship Areas are taken out of agricultural production, the land owner should continue to benefit financially from the land. This can be done through product sales from these conservation areas (e.g., switchgrass for energy) or through compensation for the ecosystem service being provided (through the CRP program or otherwise).
- 19.4 Continue to support and expand the potential for manure digesters, methane capture, and other creative ways to deal with agricultural waste in Springfield and Westport.

Rationale for Recommendations 17-19

Existing Plans: The North Mendota communities' comprehensive plans identify large areas west of Interstate 39-90-94 and on both sides of Highway 12 for agricultural preservation, use A-1 Agricultural Exclusive zoning, and include portions of an Agricultural Enterprise Area (AEA) in Westport. Several intergovernmental boundary agreements reinforce these intentions. A CSA farm is part of Bishops Bay development plans and agricultural buildings and animal areas are being proposed in commercial areas at the new southern entry development in Waunakee.

Participant Input: Participants rated agricultural preservation highly and supported the greater preservation in the Compact Character scenario.

Steering Committee Recognizes:

- The Springfield/Westport/Vienna area boasts a highly successful agricultural sector.
- This area boasts large areas of contiguous agricultural lands, enabling a stronger agricultural land base. See ECR Map 51.
- All local comprehensive plans show northeast Westport in agricultural preservation, and the North Yahara and North Mendota FUDA processes indicated support for community separation here.
- The Towns of Westport, Vienna and Dane established an AEA in 2012.
- Several agricultural support services exist in the urban areas and along County Highways.
- Waunakee growth is at the Vienna boundary.
- The conflict between ideal development conditions and ideal agricultural conditions often put large scale development and agriculture at odds. See ECR Map 43.
- Agricultural land is valuable in its own right, not only for holding land for development, and is worth protecting from development.
- Dane County provides AEA application assistance.

- 19.5 Support best management practices, such as vegetative buffers, improving farming practices, and reducing soil inputs, that will reduce the pollution burden on local and regional water resources.
- 19.6 Incorporate agriculture and agri-business curriculum in Middleton-Cross Plains schools, learning from the Waunakee Community School District model, or encourage students from the Middleton-Cross Plains District to participate in the Waunakee program via open enrollment.

Rationale for Recommendations 20-21

Existing Plans: Participating communities have Utilities and Community Facilities elements in their Comprehensive Plans. Middleton has and is advancing a Sustainability Plan. Springfield’s “Rural Development Design Guidelines” do not yet incorporate siting for energy production.

Participant Input: Participants rated efficient and effective provision of infrastructure and services highly.

Steering Committee Recognizes:

- Collaboration on services works well for these communities.
- EPIC Systems is developing a wind farm and US Biogas/GL Dairie Biogas LLC is developing a manure biodigester in Springfield.
- Where and how utilities and infrastructure are sited can negatively impact human and natural environments. In some cases, these impacts can be prevented.
- Leveraging investments across these communities can create scale and cost efficiencies.

Utilities

20. Middleton, Waunakee and Westport are advised to ensure effective public water supply, wastewater infrastructure planning and the cost effective provision of drinking water and sewer service for future development areas.

- 20.1 Coordinate and leverage investments in infrastructure and community building within the North Mendota communities and the greater region.
- 20.2 Continue municipal collaboration on utility services between the Middleton and Westport Utility Districts and between the Waunakee and Westport Utility Districts.
- 20.3 Continue to protect existing infrastructure from flooding and avoid placing new infrastructure in the 100-year floodplain where possible to maintain resilient infrastructure systems.

- 20.4 Evaluate the impact of future municipal water wells/withdrawal on sensitive springs and surface waters including Frederick Springs and Black Earth Creek. See ECR Map 31 and 32.
- 20.5 Water utilities should continue to foster and participate in collaborative strategies with other communities to mitigate well water withdrawal impacts on surface water features.

21. Support the use of and appropriately site alternative energy production, such as the biodigester and the EPIC Health Systems wind farm proposed in Springfield and Vienna.

Further Analysis Areas (FAAs) Recommendations

This section provides area recommendations, issues and opportunities for 7 further analysis areas within the North Mendota study area. Rather than coming to any definitive conclusions during this FUDA study process, these areas are presented for future study.:

1. Central Springfield
2. Town of Springfield, Vienna and Waunakee Boundaries Interface
3. Community Separation Between Middleton and Waunakee
4. Proposed Dane County 'Dorn Creek Natural Resource Area' Preservation and Enhancement
5. Highway 19 corridor East of County Highway I and West of Interstate 90/94/39
6. Transit Corridor Potential and Opportunity
7. Additional Reinvestment and Redevelopment areas

Recommendations and issues and opportunities are presented for each area. Note that pursuing recommendations to preserve or restore land will require willing landowners.

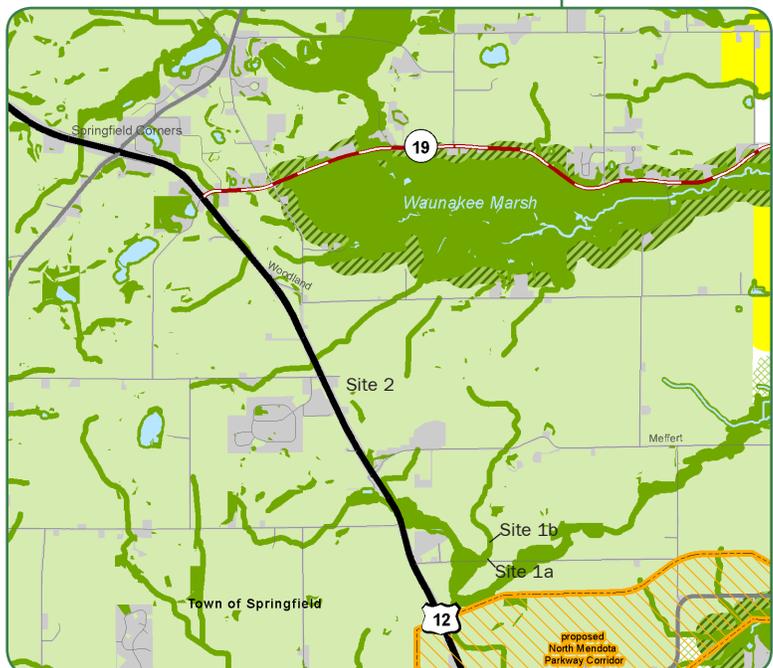
1. Central Springfield

This is a rich agricultural area with low hills, bisected with Highway 12 and other State and County highways. Concentrated non-farm development, including public facilities, exists in the Springfield Corners area bounded by Highway 12, Highway 19, Highway P, and Lodi-Springfield Road.

Area Recommendations

1. Continue to work with WisDOT and its consultants on plans to construct an interchange in the Springfield Corners area and otherwise further limit access in the Town.
2. Restrict new non-farm development in the proposed North Mendota Parkway Corridor to the extent practical, until a final corridor, timetable, funding, and jurisdictional approach for construction are finalized.
3. Reevaluate the Conceptual Neighborhood Plan for the Springfield Corners area that is included in the Springfield Comprehensive Plan, considering opportunities for senior housing and a park, and constraints and opportunities associated with a potential interchange. Include amendments to that Conceptual Neighborhood Plan in the Town's Comprehensive Plan update, anticipated by 2015.

Map 11: Further Analysis Area 1



4. Require a minimum 75 foot buffer for the wetland at Environmental Site 1a on Map 11. Include this area within an expanded Environmental Corridor/Conservancy District within Map 6 of the Springfield Comprehensive Plan.
5. In advance of any development in or near the area north of Fisher Road (Environmental Site 2), require a delineation to determine if there is a wetland. If the delineation report indicates that it is a wetland, require a minimum 75 foot buffer.
6. Encourage the private restoration and management the prairie at Environmental Site 2. The most common management tool for prairies of this size is reintroducing a fire regime. Attempt to collaborate with a group such as the Natural Heritage Land Trust on such an effort, and/or require or encourage restoration as part of any cluster development proposed for this general area. See Environmental Site 2 below for details.
7. Explore the potential for a safer bike route or bike path along Highway 19, between Waukegan and Springfield Corners/Highway 12 bike path.

Issues and Opportunities

Interchange and Parkway Proposals: Two major transportation projects could impact the future of this area. The North Yahara communities have adopted the North Mendota Parkway corridor presenting a general corridor for that roadway. The project is not funded and awaiting further action. Additionally, as part of its US Highway 12 Corridor Study, the State has released Highway 12 concepts for an interchange and elevated highway at Springfield Corners, which would replace existing at-grade intersections at Highways 19 and P. These two projects could impact a significant amount of agricultural land in Springfield and Westport and future development opportunities in Springfield Corners.

Environmental: Waunakee Marsh and the headwaters of regionally important streams are located in this area, which could be affected by the aforementioned roadway projects and potential development they spur. Future roadway and private development plans should incorporate design considerations that maximize protection, restoration and enhancement of these critical natural resources. The natural resources section of the Environmental Conditions Report provides useful information and guidance for tailoring more resource sensitive development plans and designs.

Environmental Site 1a: This small, degraded wetland is located east of Highway 12 and south of Fisher Road. This wetland is approximately 7 acres and has an unnamed, channelized, intermittent stream running through it. Reed canary grass (*Phalaris arundinacea*), a highly disruptive invasive species, almost entirely comprises the wetland. Satellite and aerial imagery taken from different years and seasons indicate that depressions intermittently fill with water. These depressions appear to be occasionally colonized by duckweed species (*Lemna minor* and *Wolffia* sp.). This wetland has low habitat forming species diversity and likely is not useful for higher organisms. Further, a lack of additional habitat or cover in the surrounding areas prevent a productive foraging site.

Environmental Site 1b: The area north of this feature, on the opposite side of Fisher Road, is not classified as a wetland according to DNR wetland data and appears to be colonized by reed canary grass, with inundation and disturbance patterns similar to the mapped wetland to the south (1a). This area appears to have engineered drainage throughout and has frequent vehicle traffic. This site has similarities in vegetation structure, topography, and hydric soil extent to Environmental Site 1a.

Environmental Site 2: This hillside prairie exists east of Highway 12, south of Kickaboo Road and north of Meffert Road. This prairie covers approximately 11.6 acres and is on a west facing slope of greater than 12 percent, with large sections having a slope greater than 20 percent. This steep topography is likely what prevented converting this area to cropland and may have preserved local plant genetic and species diversity. Still, this area has not been studied to determine if it qualifies as a prairie remnant. This site has shown degradation from continued vehicle activity and likely has not been managed by fire or mowing. If a fire regime is used for management, the following burning buffer distances are advised: 30-foot buffer away from adjacent agriculture, a 100-foot buffer from any buildings, and a 100 to 120-foot buffer from any above ground infrastructure. The remaining space between the prairie and any buildings can be landscaped with low flammability plants or roads. Power lines may be compromised if located within management buffer area. The existing trail parallel the eastern prairie border will help serve as an additional firebreak and should be preserved. Properties located near the southern tip will need to be cleared of excess woody debris to prevent fires from moving into the tree crowns. Woody species along the edge of the prairie should be retained for nesting habitat for bird species.

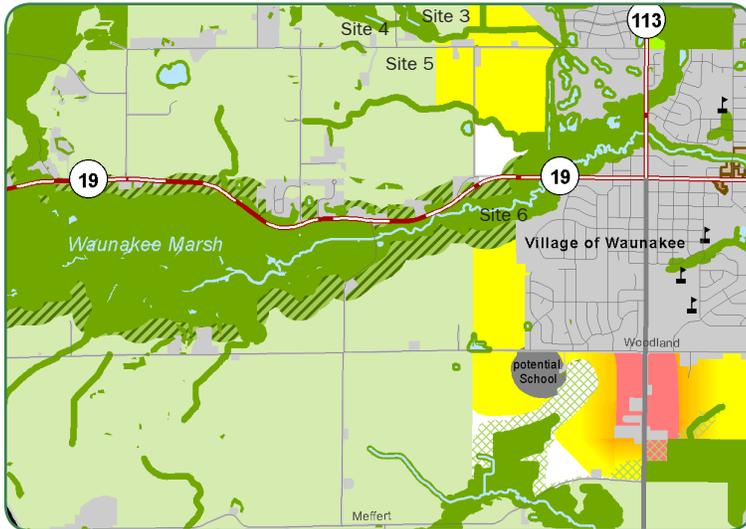
Agricultural: Currently, the Central Springfield FAA is predominantly zoned A-1 Exclusive Agricultural. Agricultural use amounts for roughly 65 percent of the land use in this area and increases to over 70 percent north of Highway 19. Moreover, a majority of this land is in large contiguous blocks with several agricultural land areas between 501 and 1,000 acres consisting primarily of row crops (corn, soy, oats, etc). Much of Springfield's highest quality soils are in this area, especially close to the Town of Westport border.

Public Input: Participants supported the Compact Character and the Public Outreach Scenarios featuring continued agricultural use in this area (except Springfield Corners). Participants strongly support local and regional goals to preserve agriculture. Participants also proposed recreational bike and trail way connections, such as along Highway 19.

2. Springfield, Vienna and Waunakee Boundaries Interface

The area is on the fringe of Waunakee's western municipal limits and planned urban expansion areas, and is bisected by the Waunakee Marsh, its tributaries, and Highway 19. Along Highway 19 in Springfield, there are pockets of small rural subdivision with no plans for expansion aside from very limited infill.

Map 12: Further Analysis Area 2



Area Recommendations

1. Extend the existing Waunakee-Springfield intergovernmental agreement in geographic area, timeframe, and/or topics coverage. For example, the agreement could also address future maintenance and upgrade responsibilities for Hellenbrand Road. Consider expanding this agreement to include Westport
2. Require a minimum 100 foot buffer for the wetland at Environmental Site 3 on Map 12. Include this area within an expanded Environmental Corridor/Conservancy District within Map 6 of the Springfield Comprehensive Plan.
3. Facilitate restoration of the wetland at Environmental Site 4 by removing invasive species, increasing available open water, and retaining the woodland features for the multiple species that use both woodlands and wetlands to fulfill life requirements.
4. Facilitate preservation of the woodland at Site 5, and when the area is proposed for non-farm development, require additional surveys to determine the herbaceous and shrub species content, structure and biomass.
5. Facilitate wetland management in Environmental Site 6, including retaining existing sedge meadow from further reed canary grass infestation and removing cottonwood and willow trees to allow for native species.

Issues and Opportunities

Existing Plans: The Waunakee expansion area in the Waunakee-Westport Joint Planning Area abuts the Town of Springfield border. Further, the Recommended Scenario suggests expansion of neighborhood development west of Hellenbrand Road and the recently approved Westbridge subdivision. As Waunakee continues to grow, urban development could expand to the west and occur on lands designated in the Springfield Comprehensive Plan and current Waunakee Comprehensive Plan for agricultural preservation.

Environmental: Waunakee Marsh is a significant natural resource feature in this area. Future development plans should incorporate design considerations that maximize protection, restoration, and enhancement of this critical natural resource. The natural resource section of the Environmental Conditions Report provides useful information and guidance for tailoring more resource sensitive development plans and designs.

Environmental Site 3: This area includes two wetlands located north of Kopp Road. The wetland east of Karls Road is degraded with an unnatural water boundary and predominantly colonized by reed canary grass.

Environmental Site 4: To the west of Karls Road is a larger wetland that contains cattails and open water habitat for some species. However, invasive reed canary grass surrounds the water.

Environmental Site 5: This site is a large woodland, south of Kopp Road that follows the road curve. This woodland covers nearly 28 acres—twice the area required to have a self-sustaining woodland ecosystem. The woodland also has the appropriate perimeter-to-area ratio for woodland core habitat functions. Oaks dominate the woodland. Oak woodlands are good representations of natural, pre-European, woodland ecosystems.

Agricultural: Currently, the land in Springfield is in A-1 Exclusive Agricultural zoning. Agricultural use amounts for roughly 65 percent of the land use in this area and increases to over 70 percent north of Highway 19. Moreover, much of this land is in large contiguous blocks with several agricultural land areas between 300 and 500 acres consisting primarily of row crops (corn, soy, oats, etc.) and pasture closer to Waunakee Marsh. Quality agricultural soils are present immediately adjacent to the Village of Waunakee limits north and south of Highway 19, with slightly poorer soils closer to Waunakee Marsh.

Public Input: Participants supported this area for community separation and identified a desire to have pathways and trails for passive recreation.

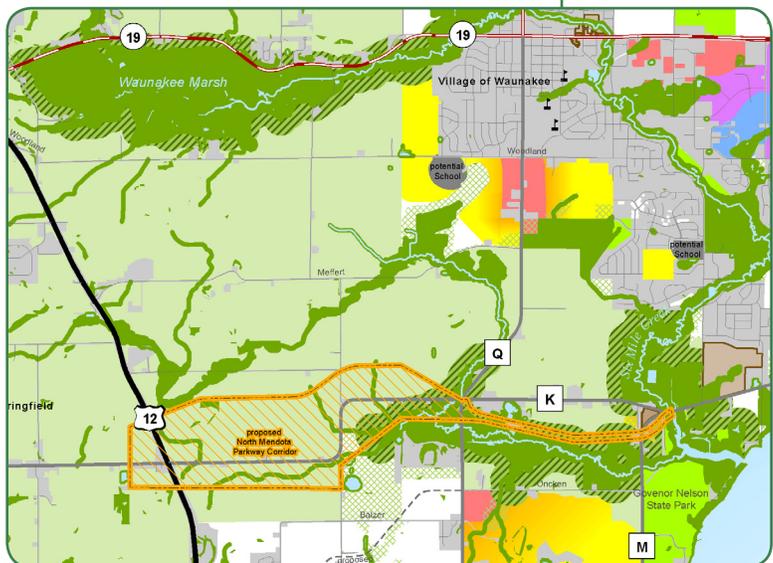
3. Community Separation between Middleton, Westport and Waunakee Developing Areas

This area primarily consists of agricultural and natural resource lands intersected with both highways and rural roads.

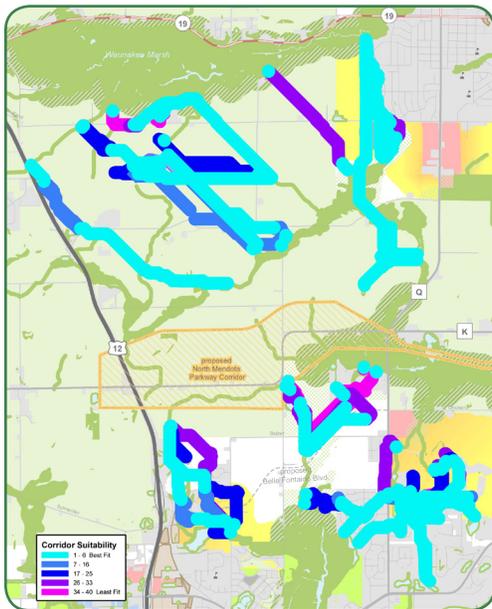
Area Recommendations

1. Maintain existing town, city and village plans and zoning to preserve this area from further development beyond “1 house per 35” acre housing.
2. Springfield and Westport are advised to work with land owners to guarantee preservation of the land in this area through conservation easements, TDR, PDR and Agricultural Enterprise Areas.
3. Work with land owners to implement best management practice for agriculture and natural resource protection.
4. Work with the County to identify lands for public acquisition in the Natural Resource Area identified in the North Mendota Park-

Map 13: Further Analysis Area 3



Map 14: Best Fit Pathway Options for E-Way



The light blue lines represent best fit corridors for potential E-Way connections between Environmental Corridor features. The lighter shades, starting at teal and turning to medium blue, are the most efficient paths organisms could take between major habitats. If communities desire to implement E-Way connectors, they should select a two sets of lines; one to connect Waunakee Marsh to Dorn Creek, and another to connect Dorn Creek to Pheasant

Branch Conservancy. These corridors will need to be 100 m (330 ft) wide, and restored with natural vegetation. In sections where the line is straight, communities have additional flexibility in the exact placement of the E-Way.

way Impact Analysis and the Dane Parks and Open Space Plan.

5. Connect this area as part of a large E-way that travels through Waunakee, Middleton, and Westport to Lake Mendota, with the potential to connect with natural resource areas in DeForest, Vienna and Windsor (see Map 14).
6. Within future updates to local Comprehensive Plans, expand the Environmental Corridor around Dorn Creek (Environmental Site 7) to 300 feet on each side of the stream to facilitate organism movement. If this corridor will also be used as trail recreation, place the trail 130 to 170 feet away from the restored corridor edge and restrict access across the corridor.
7. Work with and leverage any investments in infrastructure in the proposed Badger Coulee Transmission lines to advance natural resource preservation goals in this area.

Issues and Opportunities

Existing Plans: Existing comprehensive plans and intergovernmental agreements recommend maintaining this area as agriculture and open lands in the 25 year FUDA Study horizon. The North Mendota Parkway Impact Analysis and the Dane County Parks and Open Space Plan (See ECR Map 41) identify the North Mendota and Pheasant Branch Natural Resource Areas. These areas show where Dane County indicated it might acquire land in the future.

Environmental: Waunakee Marsh, Dorn Creek, and Governor Nelson State Park are significant natural resources that should be protected and enhanced where opportunities permit. Joining these resources together via an E-way could enhance habitat for species and provide recreation. This area presents an opportunity to restore natural connectivity. A 300+ foot wide Environmental Corridor could link the southern edge of Waunakee Marsh to Dorn Creek, Governor Nelson State Park, and potentially to Pheasant Branch Conservancy (FAA #4 below). Map 14 represents the possible locations where an E-way connecting Environmental Corridors around Waunakee Marsh to Dorn Creek could be established. Environmental Corridors designed for wildlife help ensure the long term biodiversity, ecosystem function and ecosystem services. Habitat corridors that include recreation access should place trails 130 to 170 feet away from the edge of the corridor. Access across the corridor should be restricted to as few areas as possible.

Agricultural: Currently, the land in Springfield and Westport is predominately in A-1 Exclusive Agricultural zoning. Agricultural use amounts for roughly 65 percent of the land use in this area. Moreover, a majority of this land is in large contiguous blocks with several agricultural land areas between 501 and 1,000 acres consisting primarily of row crops (corn, soy, oats, etc.) and two areas over 1,000 acres. Much of Springfield’s highest quality agricultural soils are in this area, especially close to the Town of Westport border.

Public Input: Participants supported the Compact and Public Outreach Scenarios. These scenarios designated this area as ‘open/protected/community separation’ and identified opportunities for enhanced preservation and passive recreation.

Other: The American Transmission Company and Xcel Energy is proposing alternative routes for electrical line infrastructure and several pass through this area. For more information visit <http://www.atc-projects.com/projects/badger-coulee/>.

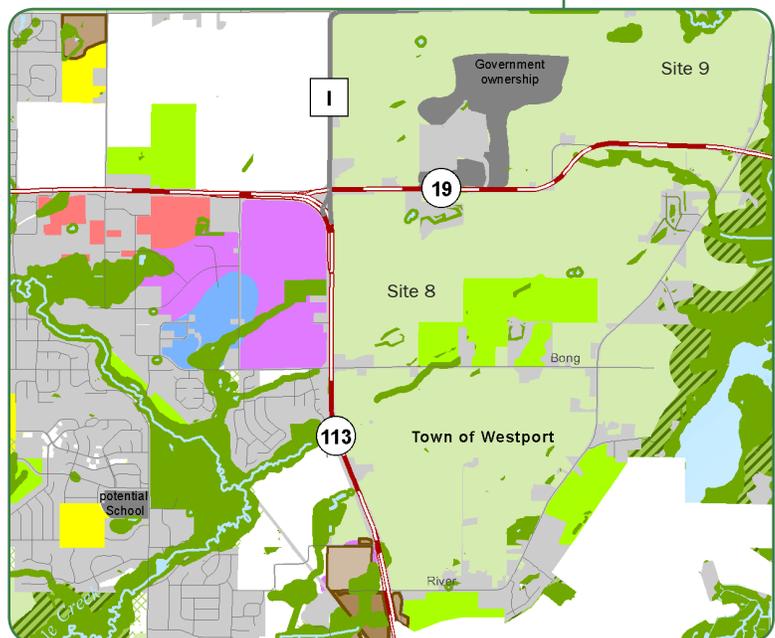
4. Highway 19 Corridor East of County Highway I and West of Interstate

This area is primarily agricultural and open lands north and south of Highway 19 and west of river Road with a major Dane County facility between the growing urban areas of Waunakee and DeForest.

Area Recommendations

1. Consider compatible land use transitions, progressive stormwater management, preservation and enhancement of the Yahara River corridor, and good transportation access.
2. Communicate with neighboring communities including DeForest on future plans.
3. Work towards an intergovernmental agreement with DeForest to discuss issues and areas of mutual concern for lands west of River Road.
4. Jurisdictions are advised to manage Environmental Site 8 prairies by reducing excess woody plant species and removing invasive species. If a burn management regime is used, then a 100 to 120 foot buffer is recommended.
5. Preserve Environmental Site 9 and the natural waterways that connect them, with 100 foot buffers. Retain the existing prairie resources adjacent to these wetlands if development occurs.

Map 15: Further Analysis Area 4



Issues and Opportunities

Existing Plans: Westport and Waunakee Plans designate this area as agricultural, open land or community separation. The Village of DeForest plans call for agricultural preservation for the area west of River Road. The North Yahara FUDA Study indicates the potential for inter-governmental planning between DeForest, Westport and Waunakee.

Environmental: Lands north of Highway 19 and east of River Road are undeveloped, have the Yahara River winding through them, are currently outside of the Urban Service Area, are partially held by development interests and are planned for future development in the Village of DeForest Comprehensive Plan. Future development plans should incorporate design considerations that maximize protection, restoration, and enhancement of this significant natural resource feature. The natural resource section of the Environmental Conditions Report provides useful information and guidance for tailoring more resource sensitive development plans and designs.

Environmental Site 8 Several isolated woodland and prairie features exist in the middle and west of this FAA. Most are small and cover less than 5 acres, with one exception being a 12 acre prairie on Dane County property. The woodland and prairie resources appear to be preserved from conversion to agriculture due to their steep topography. Almost all of the acreage for these resources are sloped with a 20 percent or higher grade. These small prairies may be remnants and contain native species. The prairies may host native plant species though does not persistently host higher vertebrates. If a burn management regime is used, then a 100 to 120 foot buffer is recommended. However, it may be possible to manage these areas using mowing.

Environmental Site 9: A chain of wetlands can be found in north-east corner of this FAA. The wetland follows constructed drainage and an unnamed perennial stream that drains into the Yahara River. The wetland resources are part of a longer chain of wetlands. Thin rows of trees that separate agricultural boundaries will not be a constraint on development. Prairie resources exist adjacent to these wetlands can be managed through mowing.

Agricultural: Lands west of River Road are in the Town of Westport, and currently planned by all local governments for agricultural preservation. During this FUDA Study process, committee members discussed the potential for future community separation and/or development west of River Road in the Highway 19 corridor. In Westport large agricultural blocks over 500 acres dominate the landscape over to Highway 113. High quality lands are present along Highway 19, especially along the eastern Waunakee border and dissipates going south approaching Lake Mendota. This area is not suggested in this FUDA Study or the North Mendota FUDA Study (involving the towns of Westport and Springfield, the Village of Waunakee and the City of Middleton) for future urban development at this time. Several conservation easements exist in this area preventing development on affected parcels.

Public Input: The participants generally supported this area for community separation between DeForest, Waunakee and Madison, and supported the broader community goal of community separation.

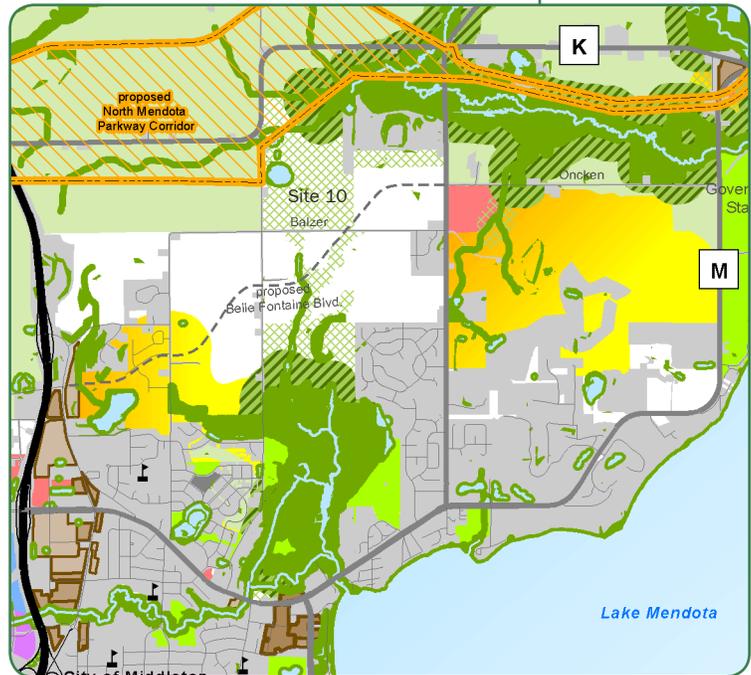
5. Proposed Dane County Dorn Creek Natural Resource Area Preservation and Enhancement

This area shows natural resource lands in Westport along and connecting Dorn Creek and Environmental Corridors directly south that lead to Frederick Springs, Pheasant Branch Marsh and Lake Mendota.

Area Recommendations

1. Middleton and Westport are advised to maintain an Environmental Corridor-Critical Habitat between Dorn Creek and Lake Mendota.
2. Middleton and Springfield are advised to connect this area with the recommended E-way in Further Analysis Area 3 (see Map 14).
3. Restore Environmental Site 10 to establish habitat connectivity, including potential for a 300+ foot wide corridor to link Dorn Creek to the Pheasant Branch Conservancy. A trail buffer should add another 300 feet to the width to the corridor to reduce the effects of human activity on wildlife. This corridor can be restored as a prairie, consistent with similar vegetation found in the northern areas of Pheasant Branch Conservancy, an area Dane County identified for potential acquisition.
4. Development plans should incorporate design considerations that maximize protection, restoration, and enhancement of these significant natural resource features.

Map 16: Further Analysis Area 5



Issues and Opportunities

Existing Plans: Existing comprehensive plans and boundary agreements recommend development in this area while maintaining the Natural Resource Areas as agriculture and open lands in the 25 year time horizon. The Dane County Parks and Open Space Plan identifies the Natural Resource Areas, shown in green cross hatching, where Dane County may acquire natural resource land in the future.

Environmental: Dorn Creek and Governor Nelson State Park are significant natural resource features in this area. The natural resources section of the Environmental Conditions Report provides useful information and guidance for tailoring more resource-sensitive development plans and designs.

Environmental Site 10: This site hosts prominent wetlands and habitat corridor connections that could also serve for recreational trails. Uninterrupted access to this site is important for some organisms to complete daily life cycle and for others it will help ensure long term population health.

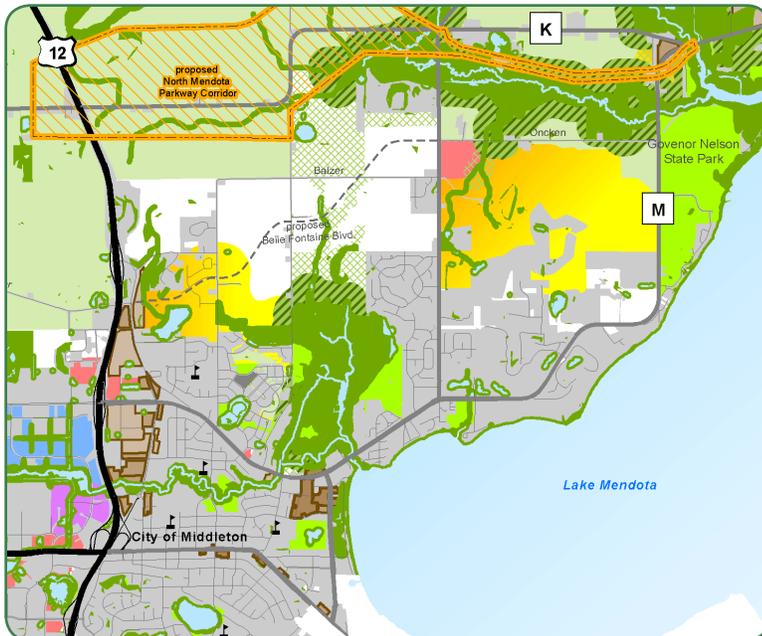
Agricultural: In Springfield, medium-sized agricultural blocks between 200 and 500 acres meet the City of Middleton border. These areas are dominated with row crops and some pasture. High quality agricultural lands exist in pockets.

Public Input: Participants supported the Compact and Public Outreach Scenarios designating showing the Natural Resource Areas as 'Environmental Corridor.' Participants identified opportunities for enhanced preservation and passive recreation in an around the corridors.

6. Transit Corridor Potential and Opportunity

Two areas have long-term potential for express bus or other form of regional transit (1) Highway Q Connecting Highway M in Middleton and Westport to Waunakee and (2) Highway 113 connecting Westport and Waunakee to the City of Madison.

Map 17: Further Analysis Area 6



Area Recommendations

1. In designated development areas, permit development at transit supportive density. Especially within a ½ mile trip of potential transit stops.
2. Work with the Madison Area Transportation Planning Board to develop best routes and context sensitive designs for stops and stations.
3. Middleton, Westport and Waunakee can develop alternatives for safe routes to school and ensure the perspective and safety of school aged children be a major determinant of transportation expansions or enhancements, such as North Mendota Parkway.

Issues & Opportunities

Existing Plans: Existing comprehensive plans identify these traffic corridors as regional routes. Express Bus Service to these areas is under investigation by the Madison Area Transportation Planning Board (Madison Area MPO).

Environmental: Several environmental features are present near and around the transit corridors. See the other FAAs for details and opportunities for alignments between the transit network stops and conservation.

Public Input: Participants supported the Compact and Outreach Scenarios designating these development areas within the transit corridor with transit supportive densities.

Other: School children traveling from Bishops Bay to Waunakee schools could face obstacles

7. Additional Reinvestment and Redevelopment

The steering committee identified additional properties that might become redevelopable in the coming decades that are not yet included in local plans.

Area Recommendations

1. The City of Middleton is advised to explore redevelopment opportunities for properties along University Avenue and infill at large scale commercial centers such as Greenway Station (see Table 1).
2. Waunakee is advised to explore redevelopment potential for properties on Main Street and Century Avenue (see Table 1).
3. Identify the potential redevelopment market with regional developers and builders to determine where redevelopment is feasible and what development types have market support.
4. When redeveloping properties with or adjacent to Environmental Corridor features, Middleton, Waunakee, Westport and property owners are advised to restore features to capture the economic value and restore the ecological value.

Issues and Opportunities

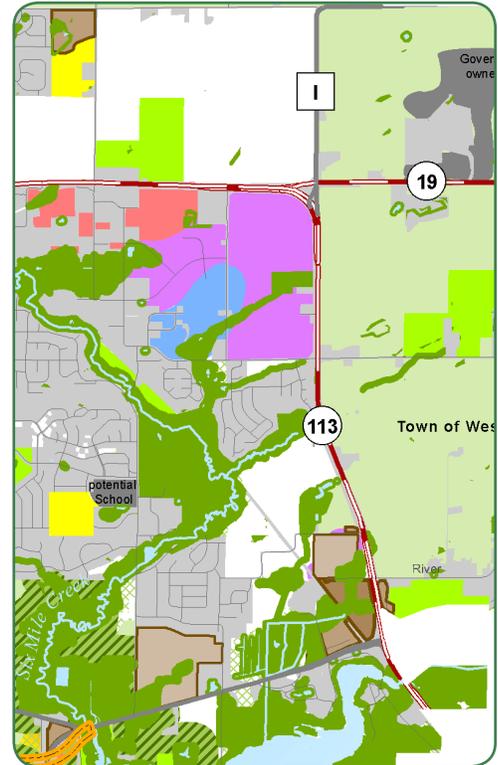
Existing Plans: Adopted plans allow 2,834,027 commercial square feet and over 636 new housing units on infill and redevelopment sites across the communities.

Environmental: Explore stormwater retrofits in re-development designs that will help restore more natural flow regimes and reduce pollutant loads to Pheasant Branch Creek, Lake Mendota and the Yahara Lake Chain system.

Public Input: Participants supported higher redevelopment levels and more locations.

Other: CARPC staff analysis showed potential for over one million commercial square feet and approximately 500 more housing units on these infill and redevelopment sites (see Table 1). In Middleton these areas primarily along University Avenue and in large commercial retail centers such as Greenway Station and in several sites in and around downtown Waunakee. When projects on these streets become feasible, communities are advised to ensure new development's design and character are coordinated with the central corridors as described in mobility recommendation #9.

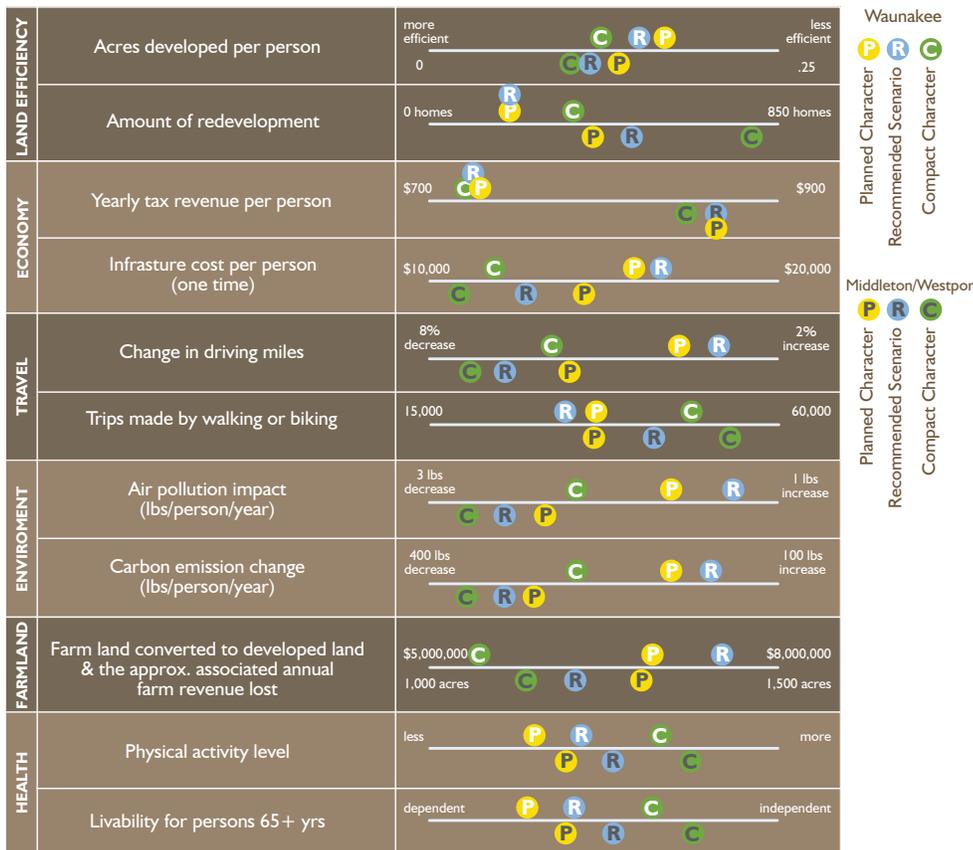
Map 18: Further Analysis Area 7



Recommended Scenario Impacts

The Recommended Scenario presented earlier was developed using a series of information sources and analyses performed on the initial three scenarios (compact, public outreach and dispersed). For the purpose of this Study, analysis was performed on the Recommended Scenario for several variable and indicator categories including: population; land use and efficiency; housing; taxes, jobs, and shopping; travel; environment; farmland; health; and water (stormwater, water use and waste, and groundwater). Note that flexibilities in land use plans (such as a mixed-use districts allowing commercial and/or residential) could allow outcomes and impacts which are different from those discussed below. Note also that Waunakee's portion of the Recommended Scenario in Map 2 has a lower density than existing plans. This is because while the Compact Scenario was the most popular choice in overall numbers, the Public Outreach Scenario was the preferred alternative for those electing either the Compact or Dispersed Scenarios as their first choice.

Figure 3: Indicator Evaluation for Recommended and Compact Scenarios and Existing Plans



Population

The Recommended Scenario could accommodate about 16,400 new residents in houses with public water and sewer in Middleton, Waunakee and urban Westport in the future urban development area on Map 2. With roughly 31,500 residents within Urban Service Areas in these communities in 2010, this scenario represents over a fifty percent population increase in the future urban area plus the additional people accommodated through redevelopment and infill in the existing Urban Service Area.

Housing

The Recommended Scenario estimates roughly 7,400 homes could be built in this area to accommodate the

future population, with an average of 2.45 people per housing unit in Waunakee and 1.98 people per housing unit in Middleton and urban Westport combined. According to plans and additional analysis, redevelopment and infill sites could accommodate nearly 200 housing units in Waunakee and nearly 500 units in Middleton and Westport.

The Recommended Scenario applied an average, density to all residential land. This figure averages a mix of residential characters, including higher density neighborhoods located adjacent to frequent destinations, such as commercial areas, schools and parks. Placing a greater portion of the population close to these destinations encourages more activity, reduces trip length and allows more options for walking and biking. The variability of housing also provides opportunity for more affordable options for both homeowners and renters.

In the Recommended Scenario, 74 percent of new housing units in Waunakee and 59 percent of housing units in Middleton and Westport are projected to be single family. While density would likely vary by location, new single family homes could be on lot sizes similar to lot sizes in Middleton Hills. For multi-family homes, the Recommended Scenario reflects the public participant preference for smaller multi-family buildings, including townhomes and duplexes; mixed-use buildings with apartment-style units over commercial space were also preferred.

The Recommended Scenario includes a projected FUDA-wide residential density increase to help preserve farmland and natural areas, maintain a compact and walkable community character, and respond to expected market demand in Middleton and Westport, while Waunakee is slightly less dense. The projected net residential density for 'greenfield' development within the Recommended Scenario is 7.1 housing units per acre in Middleton and urban Westport (higher than in adopted plans) and 4.2 in Waunakee (lower than in adopted plans). Net density assumes that 25 percent of land that is developed for new housing is actually in roads, stormwater areas or common open space.



Image from the Visual Preference Survey rated highly by public participants

Land use and efficiency

The Recommended Scenario would result in the development of approximately 1,500 acres in Waunakee and 1,679 acres in Middleton and urban Westport to accommodate demands for residential, commercial, industrial, civic and transportation uses. A majority of the population growth in Middleton and urban Westport will be accommodated in the Bishops Bay development. This development is already approved, in the Urban Service Area, and under construction.

As mentioned, the Recommended Scenario increases residential density above current rates and within the guidelines established by communities' comprehensive plans. Increasing residential density will cause the largest reduction on total land consumption in growing communities, as residential areas account for 40 percent of all developed land in Dane County³. The scenarios explored changing commercial densities, however the Recommended Scenario did not assume a change from existing commercial densities in the North Mendota area. Market forces arising from land values, site development standards



Image from the Visual Preference Survey rated highly by public participants

³ CARPC 2005 Land Use Inventory.

required for businesses (such as parking requirements), consumer and business preferences, conservative lending practices, production efficiencies for industrial uses, and other factors work against higher densities in suburban areas. Regional market studies currently underway, Return on Investment analysis (ROI) and continued conversation with developers may identify opportunities for greater densities and mixed-uses, increasing value to the developer and community.

Another area investigated was infill and redevelopment. The Recommended Scenario incorporates more redevelopment than identified in the Public Outreach Scenario in Middleton and Westport. The Public Outreach Scenario incorporated redevelopment sites identified in adopted plans, generally clustered in and around the downtowns of Middleton and Waunakee and Westport Town Center. Middleton and Westport plans estimate 450 dwelling units and commercial space equivalent to roughly 70 acres of greenfield development. The Compact Character Scenario incorporated additional sites in Middleton along University Avenue and assumed a higher redevelopment rate (a greater likelihood of redevelopment, not larger buildings or higher density development), increasing the total to nearly 500 dwelling units and 90 commercial acres. Additional redevelopment areas on University Avenue in Further Analysis Area 9.

Redevelopment estimates in Middleton were raised above a baseline level in existing plans because the land demand projection estimates more commercial demand by 2035 than is planned for. To give a more equal comparison of scenario indicators, it was assumed commercial demand beyond the capacity of greenfield land and a baseline redevelopment level would be accommodated in additional redevelopment areas. Increased redevelopment is one potential outcome, however redevelopment may not meet projected demand due to the complexity, costs and other challenges.

Overall, the Recommended Scenario estimates a total developed area per person of approximately 0.18 acres in Waunakee and 0.14 in Middleton and Westport. This compares to existing planned areas per person of 0.17 in Waunakee, Middleton and urban Westport. In Middleton and Westport, this is largely due to projected increases in residential density.

Taxes, jobs and shopping

The Recommended Scenario includes substantial amounts of commercial and industrial development, increasing the tax base and balancing the urbanized area with greater employment opportunities and local shopping opportunities for residents. The scenario projects 42 jobs for every 100 new residents in Waunakee and, 154 jobs for every 100 new residents in Middleton and Westport's future growth areas. Population growth could bring over \$250,000,000 in new annual consumer spending, enough to support over 550,000 commercial square feet (110 stores at 5,000 sq. ft. each).

Travel

Transportation impacts were evaluated several ways during scenario evaluation. Communities with a more compact development pattern tend to result in lower amounts of driving (miles per person), due to shorter trips and greater ability to walk, bike or take transit. Following this pattern, new growth areas in the Recommended Scenario are projected to experience a six percent reduction in the amount of driving miles per person in Middleton when

compared to the existing community. A decrease in density will likely lead to more travel, however, ensuring connectivity could reduce the negative impacts of barriers in through movement for pedestrians and bicycle riders.

Mixing uses and having more employment opportunities in the North Mendota area is expected to support this decrease in vehicle miles traveled per person. An estimated 62,000 trips per year could be made by walking or biking to commercial destinations in newly developed areas (based on the number of residents living within a quarter mile from those destinations and observed non-motorized trip data for Dane County).

Character images of this scenario also suggest a more interconnected street pattern. This allows more direct trips and further enables walking and biking. Many comments during the scenario evaluation process cited interest in a multi-jurisdictional path system to better connect areas of the City, Village and Towns.



Increased street connectivity rated highly by public participants

Additionally, if homes and businesses are located closer together, fewer miles of local roads and other infrastructure are needed. The Recommended Scenario could require 55 percent less road miles per person than the Dispersed Character Scenario, providing significant cost savings to future home and business owners and reducing municipal maintenance costs from \$61 to \$46 per person in Waunakee and \$60 to \$39 per person in Middleton and Westport. According to the Compact Character Scenario evaluation. Even more compactness could reduce costs an additional \$12 in Waunakee and \$4 in Middleton and Westport.

Finally, the Recommended Scenario reflects existing transit in Middleton and a long-term desire to have increased transit service in areas not currently served in Middleton, Waunakee and urban Westport. This Scenario strategically locates higher density mixed-use areas on and near corridors with express bus service. The Madison Area Transportation Planning Board (aka MPO) is studying the potential for extended bus service, express bus service to the Middleton, Westport and Waunakee areas. The MPO is also studying the long-term potential to implement Bus Rapid Transit (BRT) along Middleton corridors connecting to the City of Madison's BRT network.

Environment

The Recommended Scenario incorporates protected areas from adopted plans and highlights other opportunities for preservation and restoration in the community separation area between these communities and neighboring communities. Environmental Corridors will protect water resources and enhanced buffers with Stewardship guideline offer habitat protection. Additionally, the E-way, if implemented, could provide additional habitat protection and enhancement and offer recreational opportunities between the Waunakee Marsh, area creeks, and Lake Mendota.

Beyond these land based protections, numerous other environmental factors are impacted by changes in other indicators. For example, increased walking and biking could indicate fewer car trips for short distances, and therefore less tail-pipe emissions. The Recommended Scenario models an approximate 315 pound reduction in annual carbon emissions per driver compared to adopted plans in Middleton and Westport.

Farmland

The Recommended Scenario, if built-out, could consume 2,600 acres of farmland. This is less farmland than in the Public Outreach and Dispersed Scenarios and about 400 more than in the Compact Scenario (see Supplement C for more details). The Recommended Scenario maintains all existing legal farmland preservation policies and plans as reflected in municipal boundary agreements. Several conservation easements and a recent AEA in Westport aim to preserve a small amount of farmland west of Interstate 39-90-94 and east of Waunakee. In general, the rural communities have their highest quality soils for cropping between Highway 12 and Waunakee, which are generally identified for continued preservation in this FUDA Study.

Figure 4:

Health Impact Assessment Process

- Screening - determines the added value and the potential impact of conducting an HIA
- Scoping - determines the focus of the HIA, including deciding on related indicators and research questions.
- Assessment - gathering information on the existing conditions and potential health impacts related to the proposed plan.
- Recommendations – develop relevant and reasonable recommendations based on information gathered during assessment to avoid, minimize, or mitigate adverse effects and to optimize beneficial ones.
- Reporting – disseminating recommendations and/or mitigation strategies to decision-makers, stakeholders, and community members.
- Monitoring - evaluates the ways in which the HIA recommendations impact the proposed plan’s implementation, the process in which the HIA is conducted and the effect the results have on health outcomes.

While there are varying degrees in which HIA’s are implemented in communities, this HIA was performed as a “rapid” HIA over the course of two months. The Wisconsin Public Health Association (WPHA) HIA Section is the project lead for this HIA.

Human health

The root causes of poor health are complex and extend beyond healthcare to a variety of community contextual factors. The UW Population Health Institute estimates that 50% of modifiable health determinants pertain to the social, economic, and environmental context.

According to the International Association for Impact Assessment, a Health Impact Assessment (HIA) is formally defined as a “combination of procedures, methods and tools that systematically judges the potential and sometimes unintended effects of a proposed project, plan or policy on the health of a population and the distribution of those effects within the population (2006).” An HIA also proposes enhancing positive impacts and managing or eliminating any negative effects. The steering committee asked the HIA project team to focus on two indicator areas (1) physical activity/obesity and (2) livability for persons 65 years and older. A full “rapid” HIA for the three polling scenarios and the Recommended Scenario is available as Supplement D.

Table 2: Physical Activity/Obesity Indicators used for HIA

1	Trails and bike lanes and walking and biking
2	Traffic-related accidents, complete streets and pedestrian and cyclist safety
3	Transit and transit oriented development
4	Social interaction, gathering places, recreational amenities, and crime prevention through environmental community design
5	Mixed-used development & clustered activities; linking existing and future housing development with employment and services; trip reduction and reduced VMT; walking and biking; senior services
6	Food Access: Local food production, contiguous agricultural land, healthy food outlets
7	Maps of large recreational facilities, community gardens, schools, large parks and open space

Table 3: 65+ Livability Indicators used for HIA

1	Affordable, good quality, life-cycle housing and energy efficient building codes
2	Developments with views of greenery/vistas for mental health and tree canopy preservation
3	Emergency department visits related to asthma
4	Climate change and allergic diseases
5	Greenhouse gases and pollutants

Table 4: Impact Analysis – Recommended Scenario

Determinant	Effect of Recommended Scenario on Indicators
Housing Impact	Higher density housing districts adjacent to frequent destinations encourages more physical activity through more walking and biking. Sensitive environmental areas will be preserved, allowing for views of greenery and tree canopy preservation, increasing mental health. Higher density reduces trip length, increasing air quality and reducing asthma triggers. More affordable housing options increase health through better quality housing, reducing exposure to allergen triggers, and reducing stress associated with unaffordable housing.
Environmental Impact	Higher density reduces trip length, increasing air quality, reducing air pollutants and greenhouse gas emissions. Sensitive environmental areas will be protected, and a balance will be created between preserving farmland and open space and maintaining small village character, increasing mental health and social cohesion.
Mobility and Access	Interconnected street patterns allow for direct trips and encourage walking and biking. Reduction in need for road space per person provides cost savings to home owners, business owners and municipalities, reducing financial stress and increasing disposable income available for other health related activities/issues/etc. as well as for public services. A long-term desire for transit service, which higher-density mixed-used areas in plan will support, will decrease vehicle miles traveled and encourage more walking and biking to and from transit stations.
Density	Increased residential density preserves farm and open spaces, providing green space beneficial to mental health. Infill and redevelopment increase density, providing health benefits and helping preserve green space, benefiting mental health. A mix of higher density residential and commercial uses encourages more physical activity through more walking and biking, reduces trip length, increasing air quality and reducing asthma triggers. Increased tax base and employment opportunities improve the quality and quantity of public services and increases income leading to lower stress levels. Local jobs decrease vehicle miles traveled, improving air quality and reducing greenhouse gas emissions.
Food Access	Mix of higher-density residential and commercial land uses will increase food access. Preservation of farmland will protect local food production. Dense residential areas may enable more farmer's markets, improving access to healthy foods.

The Recommended Scenario will benefit health in a number of ways, though mainly through increased density. The following methods will encourage or increase positive health effects of the scenario while at the same time mitigating any negative health effects of the proposed scenario.



- *To both encourage and protect walkers incorporate sidewalks into redevelopment and new development plans and integrate them into existing neighborhoods where practical. Prioritize sidewalks and bike paths into denser neighborhoods with convenient access to destinations to maximize usage. In busy commercial districts, consider a “road diet,” lowering speed limits for vehicles, adding button operated pedestrian signals, longer stop lights at popular crossings, more stop signs and bump outs for shorter pedestrian crossings.*
- *To both encourage and protect bikers designate bike lanes, bike sharrows (see image of pavement markings on shared roads) and bike paths be integrated into communities. To encourage and facilitate biking, incorporate bike racks into commercial districts. Reach out to the community with information on bike safety (helmets, lights, reflectors) and road rules.*
- *To facilitate aging in place and encourage physical activity of senior citizens, create walking paths that incorporate their needs such as frequent benches for resting, water fountains for rehydrating and shade trees. In addition, these walking paths could include low impact exercise structures to encourage physical activity. Other improvements include adding bump outs at busy intersections with signage and user-activated crossing signals that are clear and easy to understand for pedestrians with limited faculties (eye-sight, hearing, etc.).*
- *Creating a local food council could encourage more frequent farmers’ markets with more local vendors, increasing access to healthy local foods. This food council could also provide community outreach a information on how to obtain, store, prepare and enjoy healthy foods.*

Stormwater

Stormwater modeling shows that without volume control stormwater best management practices (BMPs), the Recommended Scenario would significantly change runoff volume from pre-development conditions (2010 Land Use Inventory, CARPC). Existing stormwater ordinances in the North Mendota communities typically require volume control to a 90% pre-development stay-on standard. While this results in 45% less runoff volume on an average annual basis than no controls, it still allows 79% more runoff volume on an average annual basis than pre-development conditions or a 100% pre-development stay-on standard (see Figure 5). The City of Middleton does require a 100% pre-development stay-on standard in closed basins and the Town of Westport requires no increase in runoff volume for the 100-year storm. These communities have also agreed to require a 100% pre-development stay-on standard for the Bishops Bay Development.

Wastewater

Combined, the Village of Waunakee, the City of Middleton, and the five sanitary districts in the Town of Westport generated an average of 3,998,400 gallons of wastewater per day in 2011. This was about 10.3 percent of the average daily wastewater received at the Madison Metropolitan Sewerage District's (MMSD) Nine Springs Treatment Plant in 2011. A combined total of over 311 miles of sanitary sewer and force main are necessary for wastewater collection within these communities.

Under the Recommend Scenario, wastewater generation within the North Mendota Future Urban Development Area is expected to increase to a total of 5.92 million gallons per day in 2035 based on current water and wastewater rates and the projected population increase. In 2008 CARPC completed a collection system capacity evaluation for MMSD. The projected population increase and future urban development locations in the recommended FUDA scenario are generally consistent with the range of future development possibilities considered in the MMSD Collection System Study and do not change the results of the capacity evaluation.

Public Water System

The City of Middleton, the Village of Waunakee, and the Westport Water Utility District all operate public water supply systems. The population served by the public water supply in these communities in 2011 is estimated to be 30,412. Combined these public water supply systems distributed an average of 3,542,000 gallons per day of water in 2011. The public water demand within the North Mendota Future Urban Development Area is expected to increase to 5.38 million gallons per day in 2035 based on current water rates and the projected population growth and land uses in the Recommended Scenario. Table 5 breaks down this water use for this and the polling scenarios.

Figure 5: Stormwater Run-Off Volume

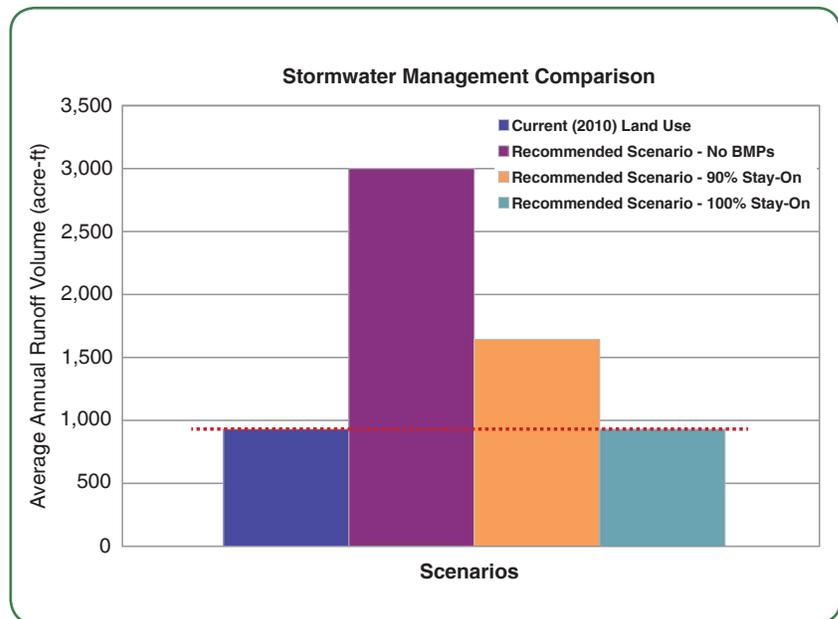


Table 5: Estimated Water Use for Various Alternative Development Scenarios

Well water withdrawals within the North Yahara FUDA are expected to increase to between 2.13 and 3.73 million gallons per day (mgd) based on four development scenarios and associated water use projections.

	2010	Recommended	Adopted Plans	Dispersed	Compact
Incremental Population Served ¹		16,340	16,340	16,342	16,346
Total Population Served ²	30,271	46,611	46,611	46,613	46,617
Incremental Water Pumped (gpy) ³		700,376,000	700,376,000	700,417,000	700,525,000
Incremental Water Pumped (mgd)		1.92	1.92	1.92	1.92
Total Water Pumped (gpy) ⁴	1,262,596,000	1,962,972,000	1,962,972,000	1,963,013,000	1,963,121,000
Total Water Pumped (mgd)	3.46	5.38	5.38	5.38	5.38

Notes:
 1 Projected population increases for each scenario
 2 2010 population served is US Census population adjusted to remove those not served by the public water supply system.
 3 Calculated from projected population growth + 2010 avg. Commercial and industrial water use per acre for each community projected future acres
 4 Middleton, Waunakee, and Westport Water Utility District PSC Annual Reports for 2010
 Source: Capital Area Regional Planning Commission 2012

Groundwater

Pumping and Diversion

Pumping groundwater from one location and then discharging it to another can alter the local ground and surface water balance; particularly in urban areas where concentrated pumping can lower water table levels and reduce baseflow to area waters.

Groundwater modeling was conducted to estimate the impacts of high capacity municipal well water withdrawals for the Dane County Regional Hydrologic Study (DCRPC 2004). As seen in Table 6, baseflows fell 65 percent in the Black Earth Creek headwaters and nearly half (45 percent) in the Yahara River (measured at McFarland), compared to pre-development conditions (no wells pumping). Note that these figures include the influence of other wells in the Madison Metropolitan Area. Projected future pumping is expected to result in additional reductions of between 24 percent and 12 percent, respectively, and 15 percent in the Sixmile Creek and the Upper Yahara River near Windsor. This provides important regional context since groundwater does not recognize political boundaries.

Table 6: Well Withdrawal Simulation Results for Dane County

	Pre-Development (Wells off)	2000 (% reduction)	2030 (% reduction)
Upper Black Earth Creek	1.70 cfs	0.60 (65%)	0.19 (89%)
Pheasant Branch Creek	2.20 cfs	0.85 (61%)	0.29 (87%)
Sixmile Creek	4.46 cfs	3.40 (24%)	2.27 (38%)
Upper Yahara River	11.71 cfs	10.00 (15%)	8.14 (30%)
Yahara R. @ McFarland	127.28 cfs	70.00 (45%)	54.21 (57%)

Source: Dane County Regional Hydrologic Study 2004

Groundwater modeling for the FUDA communities was conducted using projected well water withdrawals based on 2035 population estimates and historic per capita water use (Table 7). The modeled baseflow reductions in Table 7 account for a relative (smaller) portion of the reductions in Table 6. These results help reflect the local versus regional cumulative impacts to area waters. Both local efforts and regional collaboration will be needed to successfully address this issue.

Groundwater Modeling Methodology

Wisconsin Geological and Natural History Survey
Groundwater modeling used projected well withdrawals based on future population projections and historic per capita water use without mitigation.

Table 7: Well Withdrawal Simulation Results for FUDA communities

	Pre-Development (Wells off)	2000 (% reduction)	2030 (% reduction)
Upper Black Earth Creek	0.78 0	0.60 (23%)	0.54 (31%)
Pheasant Branch Creek	1.39 cfs	0.85 (39%)	0.72 (48%)
Sixmile Creek	3.99 cfs	3.40 (15%)	2.97 (26%)
Upper Yahara River	10.16 cfs	10.00 (2%)	9.85 (3%)
Yahara R. @ McFarland	73.72 cfs	70.00 (5%)	67.66 (8%)

Source: Capital Area Regional Planning Commission 2012

Groundwater Recharge Loss

When rain or snow melt soaks into the ground the water recharges groundwater and provides the baseflow for streams, keeps water temperatures low, augments oxygen levels, and favors habitat for fish and other sensitive aquatic species. Alternatively, water that does not infiltrate into the ground typically runs off the land picking up pollutants from impervious surfaces (roads, rooftops, parking lots), requiring treatment to protect surface waters. The increase in impervious surfaces absent active stormwater infiltration practices (such as rain gardens) causes substantial reduction in the natural groundwater recharge. Furthermore, additional runoff volumes, if not controlled, can result in higher stream flows and, if allowed to accumulate, can cause extensive stream bed and bank erosion and habitat damage.

In 2011, Dane County adopted a stormwater ordinance requiring runoff volume control for all new development to 90 percent of pre-development stay-on volumes. Municipalities in Dane County are required to meet these requirements. The Village of DeForest adopted an ordinance requiring runoff volume control to 100 percent of pre-development stay-on volumes and maintain pre-development groundwater recharge to provide additional mitigation and resource protection. Strategies focused on maintaining and restoring stormwater infiltration can reduce both volumes of stormwater and pollutant loads to receiving surface waters.

Implementing Recommendations

Many of these recommendations and implementation measures could be incorporated in comprehensive plans, agreements, ordinances, and other governing documents. Table 8 lists these recommendations and identifies the plans and agreements, ordinances, and other governing documents that could also be updated to reflect the recommendations of this Study. A full assessment of zoning and other ordinances is best completed at the local level.

Existing Area Plans and Agreements as of November 2012

Waunakee Comprehensive Plan
Waunakee South Downtown Area Plan
Waunakee BUILD Plan-N. Madison St. Area
Waunakee Central Business District Master Plan
Waunakee Park & Open Space Plan
Waunakee Economic Development Strategy Plan
Waunakee-Westport Joint Planning Area Plan
Town of Westport Comprehensive Plan
Town of Springfield Comprehensive Plan (includes Rural Development Design Guidelines and Springfield Corners Concept Plan)
Springfield TDR Program (Pending)
Springfield-Middleton Intergovernmental Agreement
Springfield-Waunakee Intergovernmental Agreement
City of Middleton Comprehensive Plan
City of Middleton Comprehensive Parks and Open Space Plan
Middleton Northwest Quadrant Plan
Middleton BUILD Plan-Allen Blvd
Allen Blvd. Concept Plan
Amherst-Redevelopment Concept Plan
City of Middleton Sustainability Plan
Middleton Parmenter Neighborhood Plan
Middleton Redevelopment District 3
Middleton TID 5 Plan
University Avenue BUILD Project
Middleton Food Initiative
North Mendota Parkway Impact Analysis

Regional Sustainability Consideration

In our region, conventional urban development pumps groundwater to provide the municipal drinking water supply. The wastewater is treated at a municipal treatment plant and discharged as surface water, typically far away from the drinking water source. This system can be made more sustainable by increasing the infiltration of stormwater to recharge groundwater, and/or returning treated effluent to recharge the groundwater used for the drinking water source.

Table 8: Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)			
Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
Map 2	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Issues and Opportunities (Map 2), Land Use	
1.1 Evaluate/Update Redevelopment/infill	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Land Use, Economic Development	"Middleton Redevelopment District 3, Middleton TID 5 Plan, University Ave BUILD Project, Amherst-Redevelopment Concept Plan, Allen Blvd. Concept Plan, Middleton BUILD Plan-Allen Blvd, Middleton Northwest Quadrant Plan, Waunakee Economic Development Strategy Plan, Waunakee Central Business District Master Plan, Waunakee BUILD Plan-N. Madison St. Area, Waunakee South Downtown Area Plan"
1.2 Identify new redevelopment/infill opportunities	Middleton Comprehensive Plan, Waunakee Comprehensive Plan	Land Use	"Middleton Redevelopment District 3, Middleton TID 5 Plan, University Ave BUILD Project, Amherst-Redevelopment Concept Plan, Allen Blvd. Concept Plan, Middleton BUILD Plan-Allen Blvd, Middleton Northwest Quadrant Plan, Waunakee Economic Development Strategy Plan, Waunakee Central Business District Master Plan, Waunakee BUILD Plan-N. Madison St. Area, Waunakee South Downtown Area Plan"
1.3/3.4 Springfield Corners	Springfield Comprehensive Plan	Land Use	County Zoning Ordinance
1.5 Plan for large infill	Westport Comprehensive Plan	Land Use	Waunakee-Westport Joint Planning Area Plan
1.6 Large-scale developers	Middleton Comprehensive Plan	Land Use	Middleton Northwest Quadrant Plan, Middleton BUILD plan-Allen Blvd, Allen Blvd Concept Plan, Amherst-Redevelopment Concept Plan, Middleton Redevelopment District 3, Middleton TID 5 Plan, University Avenue BUILD project
1.7 Allow well-designed intensification	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Land Use	Middleton TID 5 Plan, University Ave BUILD Project, Amherst-Redevelopment Concept Plan, Allen Blvd. Concept Plan, Middleton BUILD Plan-Allen Blvd, Middleton Northwest Quadrant Plan,
2.2 Redelopment infill incentives	Middleton Comprehensive Plan, Waunakee Comprehensive Plan	Land Use	Middleton TID Plans, Middleton Downtown Revitalization Plan, Waunakee Economic Development Strategy Plan, Waunakee Central Business District Master Plan
3.1 Mixed Use Development	Westport Comprehensive Plan	Land Use	County Zoning Ordinance

Table 8:
Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)

Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
3.2 Higher Density	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan (Town Center), Springfield Comprehensive Plan (Springfield Corners)	Land Use	
3.3 Density and Mixing Uses in future destinations	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Land Use	City, Village and County Zoning Ordinances
3.6 Design Guidelines	Middleton Comprehensive Plan	Land Use	Middleton BUILD-Allen Blvd, University Avenue BUILD Project, Waunakee-Westport Joint Planning Area Plan
3.7 Multi-family Design Guidelines	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Land Use,	Site Plan Ordinances, Design Guidelines
3.10 Reduce Parking Standards	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Land Use, Transportation	Zoning Ordinance, Site Plan Ordinances
4.1 Permit affordable senior housing	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Land Use, Housing	
4.2 Mixed Uses horizontally and vertically	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Land Use	PUD Zoning Plans
4.3 Walking and Biking Access	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Transportation, Housing	Official Maps
4.4 Traditional Neighborhood Design (TND)	Waunakee Comprehensive Plan	Land Use, Housing	Zoning Ordinance

Table 8:
Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)

Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
4.6 Building Guidelines	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Land Use, Economic Development	Site Plan Ordinances, Design Guidelines, Building Codes
5 Coordinate streetscaping and way-finding programs	Westport Comprehensive Plan	Land Use	Corridor Plan, Way-finding Sign Program
6-8 Sustainability Planning	Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Utilities and Community Facilities, Land Use, Issues and Opportunities, Implementation	Capital Improvement Plans
9.1 Highly connected travel network	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Transportation	PUD Zoning Plans, Official Map
9.2 Evaluate existing connectivity	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Transportation	Safe Routes to School Plan?
9.3 Connectivity of Trails and bikeways	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Transportation, Housing, Open Space	Waunakee Park & Open Space Plan
9.4 Transit, ride share, biking, walking, etc.	Middleton Comprehensive Plan, Waunakee Comprehensive Plan	Transportation	Safe Routes to School Plan
9.6 Sidewalk retrofit	Waunakee Comprehensive Plan	Transportation	Safe Routes to School, Neighborhood Plans
9.8 Pheasant Branch Road Deign	Middleton Comprehensive Plan	Transportation	
10.1 Springfield Waunakee boundary agreement	Springfield Comprehensive Plan, Waunakee Comprehensive Plan	Intergovernmental Cooperation	Waunakee-Springfield Boundary Agreement
10.2 Westport Waunakee Deforest boundary agreement	Westport Comprehensive Plan, Waunakee Comprehensive Plan	Intergovernmental Cooperation	Waunakee-Westport Joint Planning Area Plan, DeForest-Westport-Waunakee Boundary Agreement

Table 8:
Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)

Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
10.3 Waunakee Vienna boundary agreement	Waunakee Comprehensive Plan	Intergovernmental Cooperation	Waunakee-Vienna Boundary Agreement
10.4 Westport Waunakee boundary agreement	Westport Comprehensive Plan, Waunakee Comprehensive Plan	Intergovernmental Cooperation	Waunakee-Westport Joint Planning Area Plan
10.5 Middleton Springfield boundary Agreement	Middleton Comprehensive Plan, Springfield Comprehensive Plan	Intergovernmental Cooperation	Middleton-Springfield Boundary Agreement
11.1 Stewardship Areas	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources, Land Use	
11.2 Expand riparian buffers	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources, Land Use	
11.3 CRP, cost-share	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources	
11.4 Open Space Preservation	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources, Land Use	Waunakee Parks and Open Space Plan, Boundary Agreements, Springfield TDR Program
12.1 Stewardship Guidelines	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources	Zoning Ordinance, Subdivision Ordinance, Development Design Guidelines

Table 8: Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)			
Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
13. Mineral resources, recharge, and extraction	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources	
14.2 Stormwater Ordinances	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Natural Resources	Stormwater Ordinance, Subdivision Ordinance
14.4 Financial resources for ag BMPs for natural resource protection	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Natural Resources	
14.5 Retrofit urban BMPs for natural resource protection	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Agricultural and Natural Resources	"Middleton Redevelopment District 3, Middleton TID 5 Plan, University Ave BUILD Project, Amherst-Redevelopment Concept Plan, Allen Blvd. Concept Plan, Middleton BUILD Plan-Allen Blvd, Middleton Northwest Quadrant Plan, Waunakee Economic Development Strategy Plan, Waunakee Central Business District Master Plan, Waunakee BUILD Plan-N. Madison St. Area, Waunakee South Downtown Area Plan"
14.7 Phosphorus Capture	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources, Economic Development	
14.8 Reduction Standards nonpoint pollution sources	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources	Stormwater Ordinance, Subdivision Ordinance
14.9 Yahara watershed improvement network	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Natural Resources	
15.1 Public access points	Middleton Comprehensive Plan, Westport Comprehensive Plan	Natural Resources, Community Facilities	
15.2 Fitness areas	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Natural Resources, Community Facilities	Waunakee Open Space and Parks Plan, City of Middleton Comprehensive Parks and Open Space Plan

Table 8:
Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)

Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
15.4 E-way	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources, Transportation	Waunakee Open Space and Parks Plan, City of Middleton Comprehensive Parks and Open Space Plan
15.1 Water resources	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Natural Resources	
16.3 Water conservation, fixtures, and harvesting	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Natural Resources	Building Codes, Stormwater Ordinance
17.1 & 17.2 AEA	Springfield Comprehensive Plan, Westport Comprehensive Plan	Agriculture	AEA Plan and Applications
17.3 BMPs for agriculture	Springfield Comprehensive Plan, Westport Comprehensive Plan	Agriculture	
17.6 Springfield Rural Design Guidelines	Springfield Comprehensive Plan	Agriculture, Housing	Springfield Design Guidelines Appendix
18.1 Deed restrictions	Springfield Comprehensive Plan, Westport Comprehensive Plan	Agriculture, Housing	
18.2 Conservation Easements	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Agriculture	
18.3 TDR	Springfield Comprehensive Plan	Agriculture, Housing	Springfield TDR Program Rules
18.4 Intergovernmental agricultural preservation	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Agriculture, Land Use, Intergovernmental Cooperation	Boundary Agreements

Table 8:
Potential Comprehensive Plan and other Governing Document Updates (not an exhaustive list)

Recommendation	Plans to amend or update	Plan Element(s)	Other Documents to Prepare, Amend, or Update
18.5 Urban agriculture	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Agriculture, Land Use, Housing	Zoning Ordinances
19.1-19.4 Rural Open space Corridors, former wetlands, and stewardship design	Westport Comprehensive Plan, Springfield Comprehensive Plan	Natural Resources, Land Use, Agriculture	Design Guidelines
20.1 Leverage investments in utilities and infrastructure	Middleton Comprehensive Plan, Waunakee Comprehensive Plan, Westport Comprehensive Plan	Utilities and Community Facilities, Issues and Opportunities	Intergovernmental Agreements
21 Alternative energies	Waunakee Comprehensive Plan, Westport Comprehensive Plan, Springfield Comprehensive Plan	Utilities and Community Facilities, Issues and Opportunities	Springfield Design Guidelines

Conclusion

This FUDA Study is submitted for local consideration and incorporation into existing plans and policy, or in some cases developing new tools, to enhance the quality of life for current residents and generations to come. According to the local resolutions petitioning the governor to establish CARPC, local communities requested that the findings of this Study be updated every five years to account for changing conditions. Participating governments should maintain contact to track progress toward implementation and evaluate the outcomes of the FUDA Study.

Supplement A: Enabling Resolutions and Authorizing Actions

Supplement A includes enabling resolutions and authorizing actions, taken by participating communities, regarding FUDA planning.

CARPC Resolutions

The Capital Area Regional Planning Commission (CARPC) was created on May 2, 2007, by Executive Order #197 of Wisconsin Governor James Doyle pursuant to §66.0309 Wis. Stats. The creation was requested in the form of adopted resolutions by local units of government in Dane County representing over 87 percent of the population and equalized property valuation in the county. The resolutions included language regarding Future Urban Development Area (FUDA) planning in Section 7 of the model resolution (used as the basis for resolutions adopted by local municipalities) that reads:

7. The CARPC shall work with communities to update the Dane County Water Quality Plan. In addition to the elements required by NR 121 of the Wisconsin Administrative Code, the Water Quality Plan shall also define areas that should be protected from development based on provisions to protect water quality as contained in NR 121 of the Wisconsin Administrative Code. The Plan shall also define areas that can be developed with measures to protect, restore or minimize degradation of water quality.

The Plan shall also define a 25-year Future Urban Development Area with 5-year updates. The Plan shall be developed in cooperation with area communities, including towns, and shall consider adopted comprehensive plans and intergovernmental agreements. The Plan shall be developed as follows:

- a. CARPC staff shall provide communities with environmental condition reports consisting of maps, text, and information identifying environmental issues that should be addressed.
- b. The CARPC shall give priority to areas of the highest environmental sensitivity and growth pressure. These areas are: all communities within the Central Urban Service Area; all communities within the Northern Urban Service Area; all urban service areas with a year 2000 Census population of 3,000 or more; and the Black Earth Urban Service Area. The CARPC should, in general, provide assistance with planning for the Future Urban Development Area of other urban service areas after assisting the priority communities. The CARPC's Executive Director shall provide to the CARPC a 3-year work plan with points of reference and an annual progress report with recommendations.
- c. The Plan, which will identify the 25 Future Urban Development Area, shall be based on the requirements of NR 121 and shall also consider other factors including the impacts on natural and built systems, the efficient use of land including urban densities, and the ability to efficiently provide services to support the development and farmland preservation planning.
- d. There shall be separate rules and policies for limited service areas.

- e. The CARPC shall adopt policies and procedures for the considerations of amendments to the Water Quality Plan between five-year updates of the Water Quality Plan.
- f. The CARPC shall provide the information described in Item a. to areas with the highest environmental sensitivity and growth pressure within three years of the date the CARPC commences operations.
- g. Communities shall submit their proposed Future Urban Development Area within 24 months of the date they receive the data from the CARPC. If a community does not meet this timeline, the CARPC shall not act on any individual USA expansion requests until the proposed plan is submitted. CARPC may grant one six-month extension to this timeline.
- h. The CARPC shall act on the proposed Future Urban Development Area plan within a year of the plan's submission. If CARPC fails to do so, the plan shall be acted upon by the Budget and Personnel Panel.
- i. The CARPC may not shift its staff work and analysis responsibilities to the local communities.

Resolutions with the above language were adopted by participating FUDA communities.

FUDA Steering Committee Appointments

Communities approved appointments to the FUDA steering committee. The following are excerpts from City, Village and Town Board meeting minutes, approving appointments.

City of Middleton: Excerpt from Village Board Meeting Minutes, September 14, 2010

10. *Plan Commission Appointees for Steering Committee for the Future Urban Development Areas (FUDA) Planning Process*
Barmore nominated Hungness for the steering committee. Sonntag nominated Barmore for the steering committee. Moved by Hilbert, seconded by Hubbard, to approve Hungness and Barmore for the FUDA steering committee. Motion carried 6-0.

Village of Waunakee: Excerpt from Village Board Meeting Minutes, October 04, 2010

- CONSENT AGENDA (Items under the consent agenda may be acted upon by one motion. If, in the judgment of any Board Member, a consent agenda item needs discussion, the item may be moved to later on the agenda for discussion and/or action).*
- 1. Approve September 20, 2010 Village Board Minutes*
 - 2. Approve Routine Bills*
 - 3. Approve Non-Routine Bills*
 - 4. Approve Proclamation Recognizing Waunakee Lions and Lioness Clubs*
 - 5. Approve Transfer of Current Green Valley Waste and Recycling Contract from Republic to Veolia*
 - 6. Approve Resolution Approving Fund Transfers and Budget Amendments*
 - 7. Approve Appointments to the FUDA Committee*
 - 8. Approve Temporary Class "B" Application for Knights of Columbus- Council 6371 for November 13, 2010*
 - 9. Approve Temporary Operator Applications for Richard H. Maier and James R. Kluck*

Proclamation Recognizing Waunakee Lions and Lioness Clubs, transfer Green Valley waste and recycling contract from Republic to Veolia, subject to revisions requested by Village Attorney, Resolution Approving Fund Transfers and Budget Amendments, appointment of Gary Herzberg and Tom Liebe to the FUDA Committee, approve temporary Class "B"/"Class B" license for Knights of Columbus for annual Thanksgiving Dance for

November 13, 2010, licensed premise is identified as the kitchen, cafeteria, and gym located within the building at 114 East Third Street, approve temporary operator license application for Richard H. Maier and James R. Kluck. Motion carried, 6-0.

Town of Springfield: Excerpt from Town Board meeting Minutes, May 17, 2011

Discuss & Approve the Public Participation Plan for FUDA

Motion (Pulvermacher/Dresen) to approve to Public Participation as presented. Motion carried. 5-0 as Resolution #2011-411.

Discuss & Approve the Memo of Understanding for FUDA

Motion (Pulvermacher/Meinholz) to approve to Memo of Understanding for FUDA as presented. Motion carried. 5-0 as Resolution #2011-412.

Town of Springfield: Excerpt from Town Board meeting Minutes, June 21, 2011.

Assign staff rep for FUDA

FUDA Staff rep will be Jan Barman, also steering committee rep.

Town of Westport: Excerpt from Town Board meeting Minutes, February 14, 2011

Item 7: FUDA Steering Committee Report/Items for Action

An Oral Report will be given on this item. Ken and Mark are the Town members of this Committee.

Supplement B: North Mendota FUDA Public Participation Description

The following supplement discusses public participations efforts and results that occurred as part of the North Mendota Future Urban Development Area (FUDA) planning study.

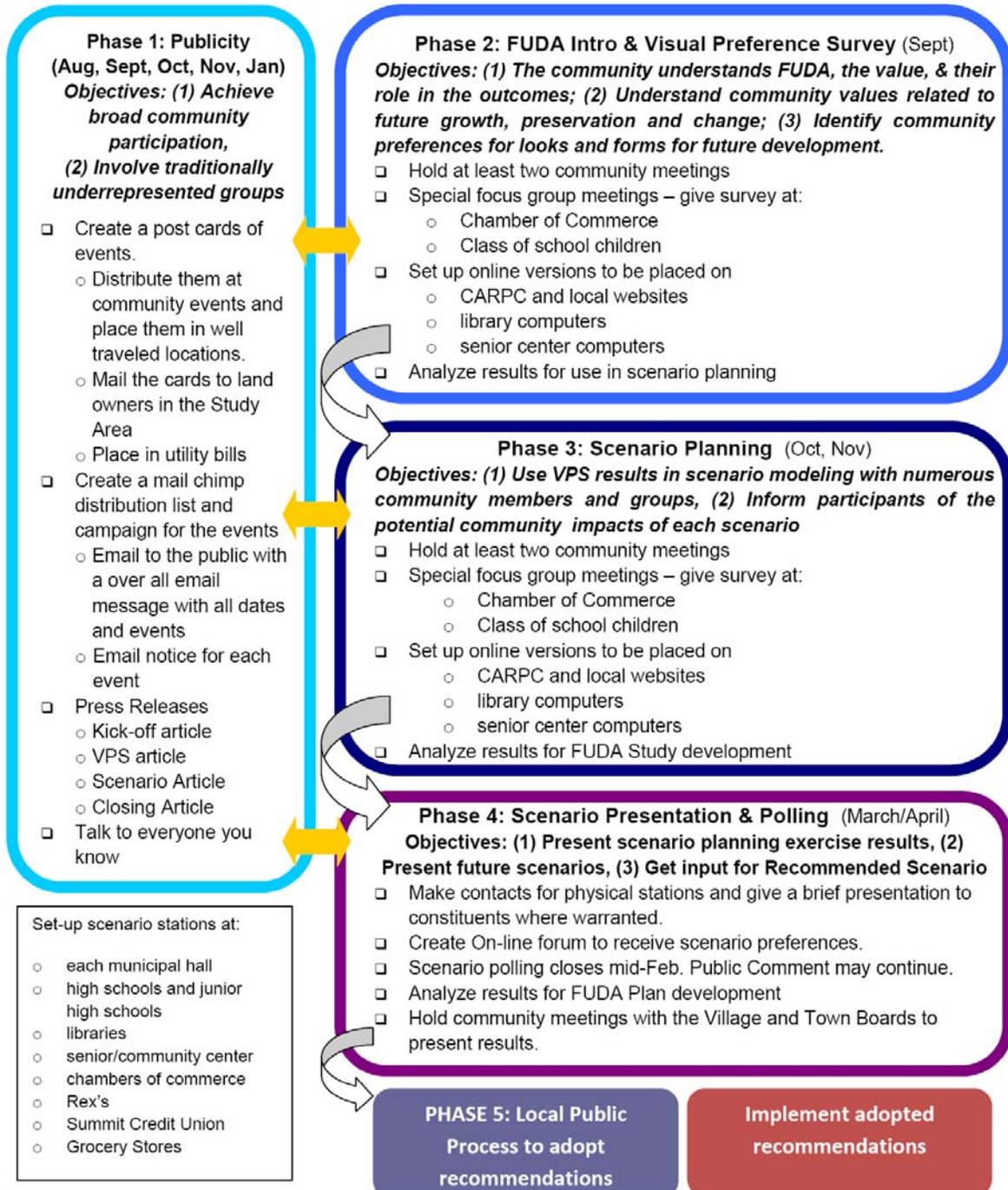
Below is the contents of this supplement:

- Public Participation Overview
- North Mendota FUDA Public Participation Plan
- Participant Demographics
- Phase 2: Regional Goal Survey and Visual Preference Survey Responses (attached)
- Phase 3: Scenario concept maps generated at Phase 3 meetings
- Phase 4: Summary of scenario polling results and written comments (attached)
- Public Participation Plan (adopted)
- CARPC staff response to preliminary requests by Capital Region Advocacy Network for Environmental Stewardship (CRANES)
- CARPC staff response to CRANES request for a 2050 growth scenario within the current urban service area boundaries.

Public Participation Overview

In accordance with the Wis. Stat. 61001 the North Mendota steering committee adopted a Public Participation Plan (attached) and a subsequent Strategic Engagement Plan (below) outlining specific activities for outreach and engagement in four phases. A fifth phase will occur when FUDA results enter local processes.

Strategic Planning Phases and Actions - Leading up to FUDA Study preparation



Outreach included several methods feasible within the project timeline.

Below are some samples of outreach materials that include event details:

Phase 2 & 3

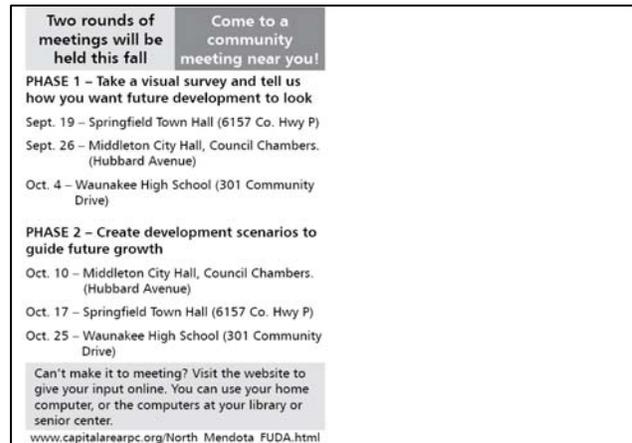
Postcard mailed directly to residents in Westport and Springfield. Postcards were distributed by hand to local centers, businesses and at area football games.

Outreach Materials:

- Postcard (mailed Sept.)
- Press Release (Sept.)
- Public Hearing Notice to local municipalities (Sept.)
- Town Newsletter pieces (Sept.)
- Poster for Middleton Senior Center (Nov.)
- A-frame Ground Signs (for day of meetings)
- Phase 4 "Coming Soon" Poster (Jan.)
- Letter to the Editor (Feb.)
- Phase 4 Press Release #1 (Feb.) and #2 (Mar.)
- Email/phone outreach to community organizations (Mar.)
- Town Newsletter pieces (Mar.)
- Phase 4 Pamphlet
- Phase 4 Polling Station Displays
- Emails to local and project-based listservs (throughout)



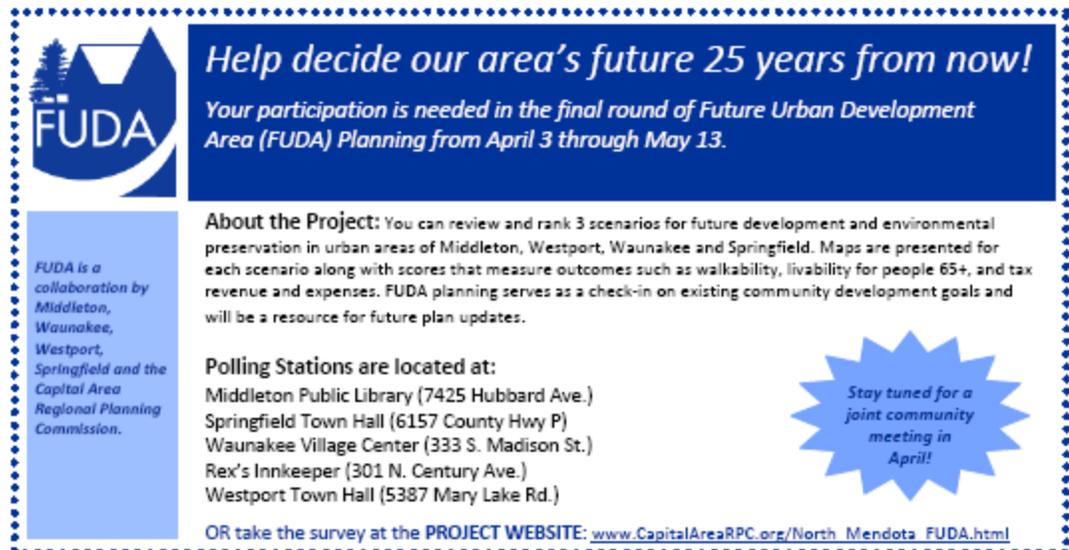
front



back

Phase 4

The "insert" graphic created for distribution in community newsletters:



The tri-fold pamphlet, poster and postcard distributed through all local municipal offices, individual staff and steering committee members and at every polling station:

About the Project: The purpose of FUDA planning is to protect vital natural resources, promote efficient development and preserve farmland through cooperative planning for long-term growth.

FUDA serves as a check-in on existing community development goals and is a resource for future plan updates.

The City of Middleton, Village of Waunakee, Towns of Westport and Springfield, and the Capital Area Regional Planning Commission are working together on this project.



Thanks to everyone who came to meetings last fall and helped create these visions of the future!

More information @ www.CapitalAreaRPC.org/North_Mendota_FUDA.html
Or Contact Bridgit bridgitvb@capitalarearpc.org

Participate in the final round of Future Urban Development Area (FUDA) Planning through May 13...

Take the survey at the project website:

www.CapitalAreaRPC.org/North_Mendota_FUDA.html

OR

Visit a polling station near you:

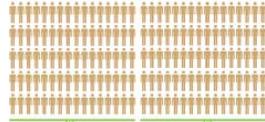
- Middleton Library 7425 Hubbard Ave.
- Middleton Senior Ctr 7448 Hubbard Ave.
- Springfield Town Hall 6157 County Hwy P
- Westport Admin Bldg 5387 Mary Lake Rd.
- Waunakee Library 710 South St.
- Waunakee Village Ctr 333 S. Main St.
- Rex's Innkeeper 301 N. Century Ave.



outside

DECIDE YOUR COMMUNITY'S FUTURE

POPULATION 2025



8,000 new people in Middleton and urban Westport
8,300 new people in Waunakee

inside

What future will you choose?

This month, rank three possible scenarios for the urban areas in Middleton, Waunakee, Westport and Springfield.

(1) Take the ONLINE SURVEY www.CapitalAreaRPC.org/North_Mendota_FUDA.html

OR

(2) Visit a POLLING STATION at the Middleton Library, Middleton Senior Center, Springfield Town Hall, Waunakee Community & Senior Center, Waunakee Library, Westport Admin. Building and Rex's Innkeeper.



Your opinion helps determine how many people could live here in the years to come, and how quickly farmland will be developed into neighborhoods and commercial centers.

You can also attend a joint community meeting in April or May (exact date TBD) to learn about the results and how they will be used.

Thank you for participating – and please tell your friends!

– the FUDA Team

SAMPLE BOARD

A Public Outreach Character

New construction could look like this

What can we afford for roads & infrastructure?

Will we need more variety in housing?

Here is new construction and where it could be if communities pursue development based on surveys.

How much natural and open lands do we want to preserve?

How much farmland will be developed?

How many jobs will be available?

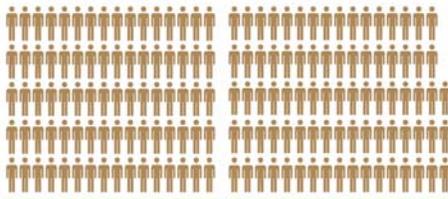
Will it be easy for kids and older residents to get around?

WHAT'S NEW? Middleton/Waunakee Waunakee

front

DECIDE YOUR COMMUNITY'S FUTURE

POPULATION 2025



8,000 new people in Middleton & urban Westport
8,300 new people in Waunakee

Where will they go?

www.CapitalAreaRPC.org/North_Mendota_FUDA.html

back

Participate in the Future Urban Development Area (FUDA) Planning public participation activities through May 13...

Take the online survey at www.CapitalAreaRPC.org/North_Mendota_FUDA.html

Visit a polling station

- Middleton Library
7425 Hubbard Ave.
- Middleton Senior Ctr
7448 Hubbard Ave.
- Springfield Town Hall
6157 County Hwy P
- Westport Admin Bldg
5387 Mary Lake Rd.
- Waunakee Library
710 South St.
- Waunakee Village Ctr
333 S. Main St.
- Rex's Innkeeper
301 N. Century Ave.

Joint Community Meeting coming soon to Middleton!



Public Participant Overview and Demographics

In phases 2-4 of the public participation plan, a total of 1,837 participants gave input into FUDA planning (individuals who attended multiple meetings are counted multiple times). This section summarizes data collected about who participated in this FUDA project and how their demographics compare to those of the FUDA communities as a whole. A standard form with demographic questions was provided at most meetings,¹ and in all online and paper opinion polls. These questions were voluntary and sometimes given as separate questionnaires to ensure confidentiality of individual responses..

In general, participants at meetings were representative of those in typical municipal planning processes (such as affected land owners) and did not represent the full breadth of the communities. To engage a greater variety of residents, the outreach targeted people typically underrepresented in planning and government processes, with varying success. The project engaged women, rural residents, especially in Westport², and the elderly more effectively than it did youth, renters, people from medium to low-income households, and residents of color. Attempts were made to organize special activities with youth and low-income households that did not come together in the outreach time period. Charts comparing these phase to the overall community demographics illustrate how these participants differed from the overall citizenry.

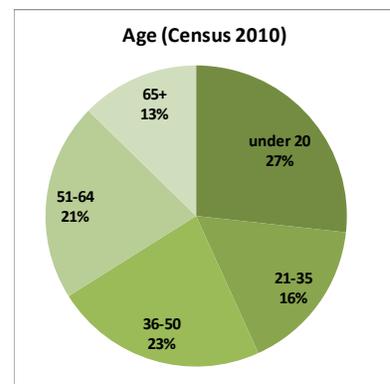
Phase 2: 1,289 individuals took a community goals and visual preference survey in this phase. A total of 68 participated in one of three community meetings, either at a meeting (32) or online (199) on existing community goals and preferences for development and preservation.

Phase 3: 51 participants used the survey results to brainstorm scenario options for future development, growth and preservation using large printed maps, markers and a variety of chips representing different building styles.

Phase 4: 497 participants ranked their most preferred growth option during scenario polling.

The following charts compare participant demographics to those of the overall FUDA study area.

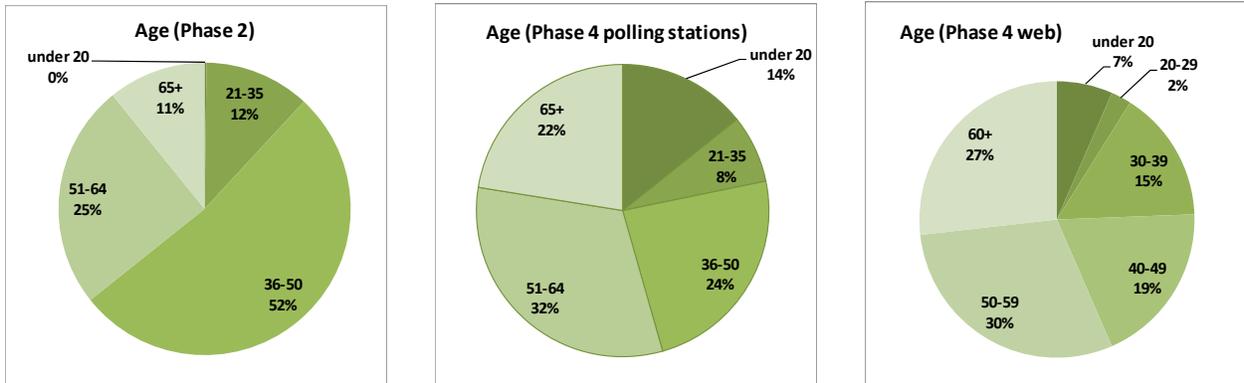
Age: Participants generally better represented older segments of the age spectrum. In phase 2, 36-50 year olds dominated participation with approximately half of responses, compared to less than ¼ of the population of the four communities. In phase 4, ages 50 and older accounted for over half the participants, while accounting for approximately 1/3 of the population. Ages 35 and



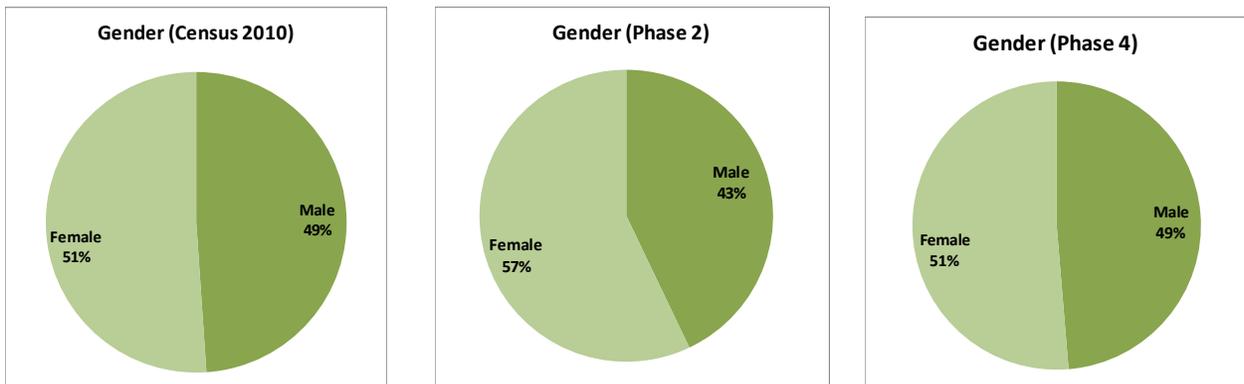
¹ Demographic forms were intended to be collected at every meeting, but in some Phase 3 meetings staff did not collect the forms before participants left. This is one area of improvement planned for future FUDA projects.

² The Town of Westport, while mostly rural, does have urbanizing areas and it is likely that some participants indicating Westport residence may live in more intensely developed areas.

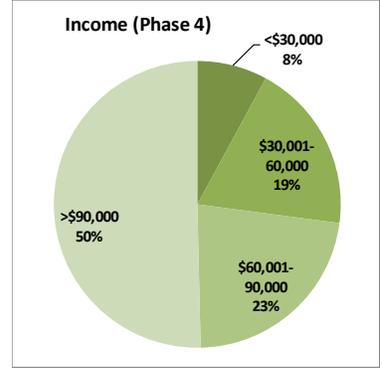
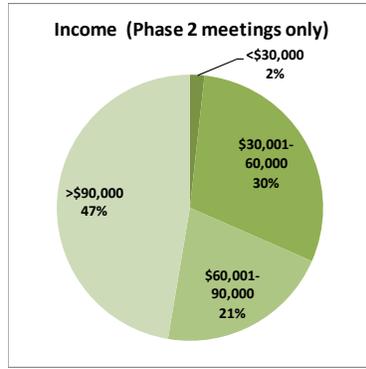
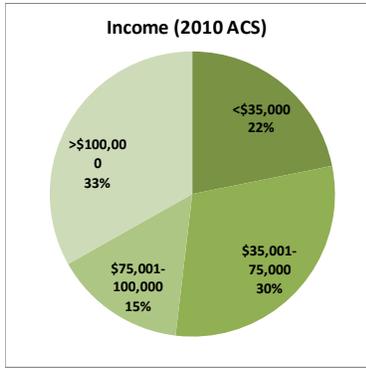
under were generally underrepresented in phase 2, but improved in phase 4 due to targeted outreach to high schools.



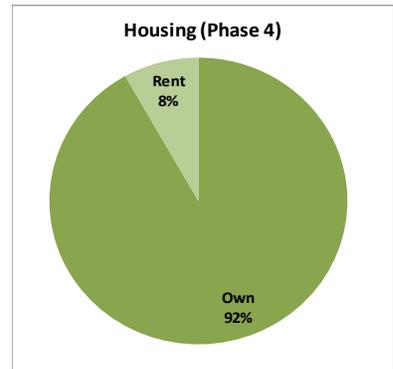
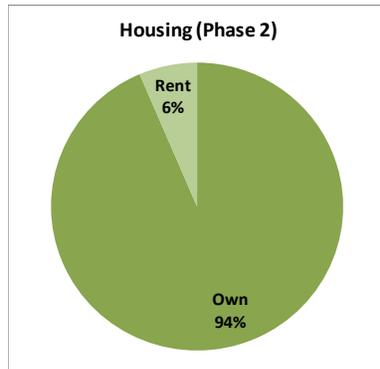
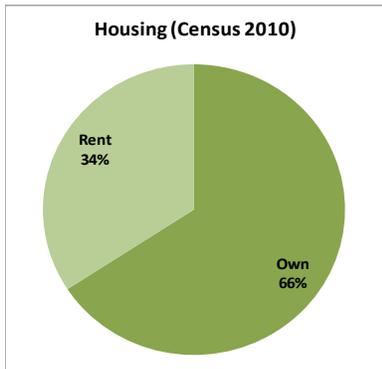
Gender: Gender was generally balanced among participants, with somewhat greater participation by women in the second phase. This may be attributed to utilizing the school districts listserv for promotion of the web-based survey.



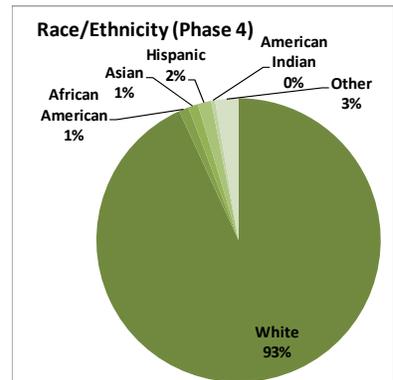
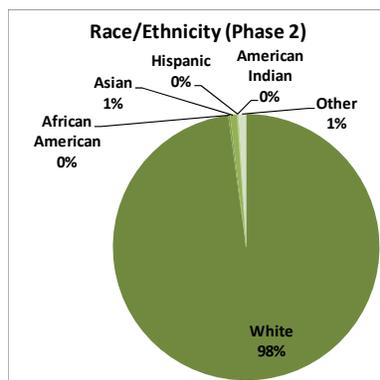
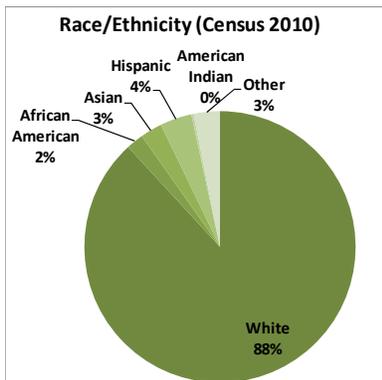
Income: Participants generally were of higher incomes however this is not atypical for the communities which have higher overall incomes. Residents with incomes below \$30,000 had lower levels of participation, however it is difficult to compare to recent census data due to different intervals being used.



Housing: More than 92% of participants were part of an owner-occupied household. This is significantly higher than the overall communities rate of 66%, meaning renters were under-represented.



Race: Participants were largely white, with minorities comprising 2% of participants in phase 2 and 7% in phase 4. Overall, minorities comprise approximately 12% of the population in the four communities.



Results and Methodology

The following are the results that the steering committee drew upon from the community engagement activities. The methods used to get the information is explained in the text boxes complementing each section.

Phase 2: Intro to FUDA and Visual Preference Survey

Goals Affirmation Survey Results: Respondents supported existing goals (with a score from 3.5 to 5)

North Mendota Regional Goals	Rating
AGRICULTURAL, NATURAL AND CULTURAL RESOURCES	
1. Limit the loss of agricultural land to non-farm development.	3.8
2. Preserve and protect areas with prime agricultural soils.	4.1
3. Maintain active family farms and preserve the rural family farming lifestyle.	4.1
4. Protect surface and groundwater quality.	4.7
5. Protect scenic views and the visual character of the North Mendota communities.	4.2
LAND USE	
6. Promote balanced communities that provide adequate housing and offer commercial services and employment.	4.1
7. Preserve open space separation between communities.	3.8
HOUSING	
8. Provide a range of housing opportunities in the North Mendota communities, where appropriate, that meets existing and forecasted needs of persons of all income levels and age groups and persons with special needs.	3.4
9. Encourage housing that contributes to compact urban form.	3.3
TRANSPORTATION	
10. Address the region's transportation needs without encouraging development.	3.5
11. Transportation planning should be multi-modal, not just auto-oriented.	3.8
UTILITIES AND COMMUNITY FACILITIES	
12. Provide an integrated park and open space plan to link the communities in the region.	4.0
13. Identify and evaluate the impacts of new development on public services.	4.2
ECONOMIC DEVELOPMENT	
14. Promote the development of balanced communities with sufficient commercial, industrial, residential and open spaces to meet the needs of existing and future residents.	4.0
15. Maintain healthy and economically viable downtown business districts in Middleton and Waunakee that reflect a "small town" atmosphere.	4.4
16. Attract businesses and industries that are compatible with the character of the communities and do not adversely impact the environment.	4.3
INTERGOVERNMENTAL COOPERATION	
17. Coordinate planning between local governments, Dane County and Wisconsin.	4.0
18. Maintain a strong regional planning agency.	3.9

Visual Preference Survey Results: A large number of participants supported images with higher density housing than currently exists in the urban service areas (VPS images, ratings and comments are provided at the end of this section). Respondents generally reacted to the:

- Character and overall “feel”
- Placement and proximity
- Design and streetscapes
- Automobile and pedestrian accessibility
- Variety of building types available
- Scale/Size
- Land use as single or mixed

Outcome

The steering committee learned respondents support existing community goals and used the visual preferences for development densities, layout and construction to develop and describe the scenarios presented to participants in Phase 4 .

Phase 3: Scenario Brainstorm Mapping

Four group brainstorm maps were created in 3 meetings, each illustrating a potential scenario based on the group’s conversation. Staff analyzed the maps for the steering committee, identifying points of general agreement, stand-alone visions, and points of disagreement.

Outcomes

Areas of agreement:

- Preservation between Middleton and Waunakee from Waunakee Marsh to Lake Mendota.
- Mixed use infill and redevelopment in Middleton and Waunakee near downtown and highway access.
- Mixed use and highway commercial along Highway 12.
- Waunakee can grow on east side due to assets of airport and Interstate.

Areas of disagreement:

- Preserve land in Westport east of Waunakee.

These areas of agreement and disagreement were used to inform the steering committee’s scenario alternatives developed for Phase 4.

Phase 4: Scenario Polling

Phase 2 Methods
<ul style="list-style-type: none"> • Public meetings and Survey Monkey online • Presented “introduction to FUDA” concepts and process • Conducted a survey on community goals stated in comprehensive plans • Conducted a visual preference survey (VPS) showing various images of development types that could occur in the area, in 5 categories: single-family and multi-family residential, commercial along highways and arterials, downtowns or neighborhood centers and open spaces. Images were selected to show a range of densities and forms, controlling where possible for aesthetic differences (such as building materials of landscaping). Out of nearly 100 images, 59 were included. • Participants scored the images from -2 to 2 • Facilitated group discussion at meetings

Phase 3 Methods
<ul style="list-style-type: none"> • Public meetings only • Reviewed existing conditions for natural and agricultural resources, VPS image results, population growth, and land supply and demand data. • In small groups, participants used the most popular VPS icons of different building types and densities and marked growth and preservation areas on a map. Scratch paper maps and discussion questions helped participants think through the options. They also helped convey residents’ ideas to staff and steering committee.

Polling Results

Majority Rules: Compact Scenario with 69%
 Instant Runoff Voting (IRV): Adopted Plans Scenario with 64%

According to IRV results, most respondents will be content if these grow as planned for the next few decades. The majority of these selected the compact scenario as their first option, and in their comments made a strong case for more open/protected land and agricultural preservation and land efficiency. Respondents also cited increased redevelopment, employment, and physical activity options in supporting a more compact urban area.

All Respondents Overall Rankings

	Dispersed	Outreach	Compact
1st Choice	10%	30%	69%
2nd Choice	18%	61%	20%
3rd Choice	72%	12%	17%

Using an Instant run-off methodology, the Compact Scenario was the most preferred scenario in Middleton and Westport presented and the Public Outreach Scenario was the most preferred in Waunakee. Instant run-off eliminated the lowest ranked scenario, Dispersed, then changed the first place votes of the eliminated scenario to those of its second place responses. In this case, nearly all of the respondents who chose Dispersed as their first choice selected the Public Outreach Scenario as their second choice. This method of analysis gave the Public Outreach Scenario nearly 50% of the remaining first choice responses.

All Respondents Instant Run-off Results

	Dispersed	Outreach	Compact
Instant Run-off	-	34%	66%

Reasons for Rankings: All Areas

Most respondents in the scenario polling indicated why they chose a particular scenario as their first choice. A common theme seems to be emerging from the most popular responses of protecting open land, the amount of land used per person and the amount of farmland preserved. Other popular responses was the scenarios impact on driving, physical activity and livability for older persons.

Phase 4 Methods

Scenario polls open for one month:

- 4 polling stations with large poster display (at Middleton and Waunakee Libraries, Middleton Senior Center, Springfield and Westport Town Halls); matching online survey.

Information included:

- Polling instructions and intent
- Scenario titles (“public outreach,” “dispersed,” and “compact”) and brief descriptions
- Images and info-graphics to show new population, housing and commercial development, and environmental protection standards; corresponding images of development types from the VPS; a conceptual map showing land use mix and density
- Indicators/performance metrics for each scenario to compare outcomes
- A ballot box, ballots, pamphlets, and pens.

Additional outreach:

- Student outreach options at Middleton High School and Middleton Alternative High School.
- Email and phone contact to area organizations

Reasons for Preferring 1 Choice?	Responses
Open/protected land acreage	44
Acres developed/new resident	27
Change in driving miles	24
Farmland acres & revenue preserved	19
Physical activity	19
Livability for persons 65+ years	17
Amount of redevelopment	14
Air pollution per person	13
Infrastructure cost per person	13
Yearly tax revenue/person	8
Jobs	5
Stores (5,000 sq. ft. each)	2

Responses By Community:

Below are tables showing the responses for each community and their preferred scenario via the instant run off methodology. Web-polling indicated Middleton and Waunakee residents have the strongest support for the Compact Scenario, followed by the Public Outreach Scenario. Westport differed and preferred the Public Outreach Scenario followed by the Compact Scenario.

Middleton

	Total Rankings 63		
	Dispersed	Outreach	Compact
1st Choice	3%	25%	73%
2nd Choice	15%	66%	17%
3rd Choice	82%	10%	10%
Instant Run-off	-	25%	75%

Waunakee

	Total Rankings 26		
	Dispersed	Outreach	Compact
1st Choice	19%	23%	58%
2nd Choice	15%	58%	27%
3rd Choice	65%	19%	15%
Instant Run-off	-	35%	65%

Westport

	Total Rankings 10		
	Dispersed	Outreach	Compact
1st Choice	10%	50%	40%
2nd Choice	40%	50%	10%
3rd Choice	50%	0%	50%
Instant Run-off	-	60%	40%

Outcome

This phase concluded with several presentations to local plan commissions. The rankings and comments informed the joint meetings' discussion and subsequent steering committee discussions developing the preferred scenario. They also inform implementation recommendations to their local plan commissions, councils and boards for future urban development.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



This document contains the final results from the Visual Preference Survey (VPS), held as part of the public outreach efforts for the North Mendota Future Urban Development Area (FUDA) plan. The purpose of the VPS is to gain a better understanding of the types of development the public feels are appropriate and desirable over the next 25 years. The VPS addresses single family and multifamily residential, development on highways and arterials, development in downtowns or neighborhood centers, and open spaces. A total of 59 images were scored by participants and the average scores and ranks of images are provided for each community. Comments that were made at public meetings or online were also compiled and summarized for each image.

Public outreach sessions were held on the following dates to reach participants of each community.

Sept. 19 – Town of Springfield (Town Hall)

Sept. 26 – City of Middleton (City Hall)

Oct. 4 – Village of Waunakee - Town of Westport (Waunakee High School)

An additional meeting was held at the Middleton Senior Center on November 4. A web-based survey was also available between September 22 and November 22.

Over 1,000 participants completed the VPS at these meetings or online. The individual community response is as follow:

City of Middleton: 175

Village of Waunakee: 620

Town of Westport: 106

Town of Springfield: 120

Other participants (non-residents): 51

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Single Family

1

	Middleton	Waunakee	Westport	Springfield
Rank	2	2	5	4
Score	0.89	0.69	0.42	0.48

Summary of comments:

- Liked the individually of the homes, the presence of sidewalks, street trees and how garages were not visible.
- Side driveway creates spaces between homes while minimizing impervious surface.
- Front porches added to the appeal of the neighborhood.
- Portrays a calm, quiet and not crowded feeling.

2

	Middleton	Waunakee	Westport	Springfield
Rank	11	4	2	2
Score	-0.52	0.60	0.74	0.70

Summary of comments:

- Not efficient use of land; too spread out; would result in the loss of too much farm land.
- Liked the openness, space and privacy offered by this type of development.
- Grass requires too much water/fertilizer/pesticides

3

	Middleton	Waunakee	Westport	Springfield
Rank	8	11	11	11
Score	-0.31	-0.81	-0.88	-0.73

Summary of comments:

- Too monotonous as homes are very similar with like colors
- Garages/driveways/parked cars appear too prominently.
- Homes too close together.
- Lacks neighborhood character; feels anonymous.

4

	Middleton	Waunakee	Westport	Springfield
Rank	10	3	3	3
Score	-0.49	0.66	0.57	0.54

Summary of comments:

- Not efficient use of land; not dense enough.
- Nice to have space for each home.
- Homes are different but feel monotonous and cookie cutter.
- Homes are too expensive, should be more affordable.
- Nice to have high end homes.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Single Family

5

	Middleton	Waunakee	Westport	Springfield
Rank	5	9	9	9
Score	0.27	-0.18	-0.14	-0.24

Summary of comments:

- Too repetitive in building form - cookie cutter
- Compact development is good use of land
- Houses a bit too close together; not enough space between houses
- Garages in back is nice

6

	Middleton	Waunakee	Westport	Springfield
Rank	7	6	4	6
Score	-0.21	0.51	0.48	0.24

Summary of comments:

- Preserved open space nice, but could be better used as a community park instead of a field.
- Homes could be given more individual space.
- Lack of trees detracts from neighborhood.

7

	Middleton	Waunakee	Westport	Springfield
Rank	1	7	8	8
Score	0.95	0.23	-0.02	0.00

Summary of comments:

- Like compactness of development, but understand its not for everyone.
- Some additional space between the homes would be desirable.
- Landscaping, mature trees, front porch create neighborhood feel.

8

	Middleton	Waunakee	Westport	Springfield
Rank	9	5	6	5
Score	-0.41	0.59	0.25	0.25

Summary of comments:

- House too big and too expensive
- Lacks individual character - McMansion
- Wooded area next to home creates nice environment
- Sidewalks are important in subdivisions.
- Larger lot sizes and high-end homes are good to have in the community.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Single Family

9

	Middleton	Waunakee	Westport	Springfield
Rank	6	8	7	7
Score	0.13	-0.03	0.19	0.21

Summary of comments:

- Affordable home with appropriate size
- Space in front/between houses nice
- Sidewalks would be preferable
- Garage facing street undesirable
- Should maintain/reinvest in older neighborhoods to limit need for outward development

10

	Middleton	Waunakee	Westport	Springfield
Rank	3	1	1	1
Score	0.87	1.03	0.85	0.88

Summary of comments:

- Well balanced density: home appears part of a neighborhood but provides some space between adjacent homes
- Liked the scale of the home, the landscaped front yard and the large porch
- Front-facing garage was practical for this condition, preferred over an alley configuration and results in less impervious surface

11

	Middleton	Waunakee	Westport	Springfield
Rank	4	10	10	10
Score	0.62	-0.47	-0.20	-0.31

Summary of comments:

- Like landscaping, open space
- Modest size, smaller scale, makes the homes more affordable, which is needed in the community
- Homes too close together; too cluttered
- Homes need individual space, not just shared open space.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Multi-Family

12

	Middleton	Waunakee	Westport	Springfield
Rank	6	4	5	4
Score	0.41	-0.04	-0.05	-0.01

Summary of comments:

- Like that its facing the street, appealing
- Could use a bit more space between the sidewalk and building
- Relates to neighborhoods and creates a sense of community
- Prefer townhomes to apartment buildings

13

	Middleton	Waunakee	Westport	Springfield
Rank	5	6	6	6
Score	0.47	-0.21	-0.09	-0.13

Summary of comments:

- Would be a good fit for a downtown area
- Like materials and quality of construction; appears high-end.
- Mature street trees help create pleasant environment
- Massing and flat roof make it too “urban”

14

	Middleton	Waunakee	Westport	Springfield
Rank	1	1	1	1
Score	1.13	0.90	0.77	0.83

Summary of comments:

- Multi-family (duplex) with a single-family character most desirable.
- Better fit for neighborhoods than large apartment buildings.
- Landscaping, open space, porch, create community character

15

	Middleton	Waunakee	Westport	Springfield
Rank	4	5	4	5
Score	0.49	-0.15	-0.01	-0.04

Summary of comments:

- Open space, landscaping and trees create inviting character.
- Architecture more residential with pitched roofs and frequent bays.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Multi-Family

16

	Middleton	Waunakee	Westport	Springfield
Rank	3	3	3	3
Score	0.72	0.46	0.33	0.39

Summary of comments:

- Like smaller scale, better fit with residential neighborhoods.
- Parking not visible, behind the building, creates attractive street character.
- Like materials and variety of colors; attractive.

17

	Middleton	Waunakee	Westport	Springfield
Rank	8	7	7	7
Score	10.12	-0.49	-0.36	-0.28

Summary of comments:

- Building appears flat/mundane; could use better materials.
- Typical of existing multi-family; should have more variety.
- Small greenspace, large tree a nice addition.

18

	Middleton	Waunakee	Westport	Springfield
Rank	7	8	9	9
Score	-0.01	-0.51	-0.44	-0.34

Summary of comments:

- Too urban; “big city” character not appropriate.
- The buildings are too tall.
- Greenspace in front of the building very nice
- The combination of urban and community creates a desirable building; more of a city-look with nice greenery.

19

	Middleton	Waunakee	Westport	Springfield
Rank	12	11	11	10
Score	-0.62	-0.71	-0.52	-0.44

Summary of comments:

- Unappealing because of the fence, the building setback and the monotone architecture.
- Vinyl, blank building design seems mass-produced.
- Fence is off-putting to the community.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Multi-Family

20

	Middleton	Waunakee	Westport	Springfield
Rank	9	10	8	8
Score	-0.28	-0.56	-0.41	-0.29

Summary of comments:

- Too tall, uninteresting.
- Open space is nice but should have features that encourage its use. Lawn doesn't appear to get much use.

21

	Middleton	Waunakee	Westport	Springfield
Rank	11	9	10	11
Score	-0.49	-0.54	-0.50	-0.50

Summary of comments:

- Bulky, too tall and too massive.
- Too urban, looks like a dormitory; not appropriate for this community.
- Cheap materials with no variation make for a boring facade.
- Lacks distinction.

22

	Middleton	Waunakee	Westport	Springfield
Rank	10	12	12	12
Score	-0.43	-0.97	-0.75	-0.89

Summary of comments:

- Building design, massing and flat roof have too urban of a character.
- Lack of green space: where do kids play?
- Too tall, dense for this area. Not compatible with the existing character.
- High-end condos like these could be nice for the downtown area.

23

	Middleton	Waunakee	Westport	Springfield
Rank	2	2	2	2
Score	0.78	0.57	0.48	0.45

Summary of comments:

- Nice residential character, compatible with and resembling single family homes.
- Maintains community/neighborhood feel while adding density; doesn't feel too congested.
- Small lawn adds to the attractiveness.
- Nice materials and building design.
- Like the front doors facing the street; walkable and inviting.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Highway/Arterial Districts

24

	Middleton	Waunakee	Westport	Springfield
Rank	8	5	6	6
Score	-0.10	0.30	0.07	0.12

Summary of comments:

- Small town character, community feel.
- Typical retail architecture, not unique.
- Screening of parking by landscape nice, parking in front of the building ok in limited quantities.
- Clock tower away from building artificial, waste of space.

25

	Middleton	Waunakee	Westport	Springfield
Rank	9	7	7	7
Score	-0.14	0.12	-0.07	0.08

Summary of comments:

- Like two stories, higher density.
- Larger setback and parking on side good configuration for arterials.
- Bike lanes on road important.

26

	Middleton	Waunakee	Westport	Springfield
Rank	1	4	4	5
Score	0.57	0.47	0.22	0.13

Summary of comments:

- Like building at the street, parking in rear.
- Nice architectural character/materials.
- 1-2 story buildings a good scale
- Limited room for trees - could be bigger
- Sidewalks, nice - encourage walking.
- Boutique, small town character

27

	Middleton	Waunakee	Westport	Springfield
Rank	6	2	3	3
Score	-0.07	0.50	0.29	0.19

Summary of comments:

- Nice materials; attractive for a grocery store.
- Would like more landscaping, less parking as it appears underutilized.
- Parking should not dictate the appearance of the community.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Highway/Arterial Districts

28

	Middleton	Waunakee	Westport	Springfield
Rank	2	1	1	2
Score	0.56	0.68	0.56	0.33

Summary of comments:

- Attractive building with nice details fits in nicely with the community aesthetic
- Individual buildings preferable to several abutting buildings.
- Clock on corner tower creates hometown character, sense of place.
- Signage tasteful; small but legible.
- Like that parking is not visible.

29

	Middleton	Waunakee	Westport	Springfield
Rank	11	12	11	12
Score	-0.71	-0.69	-0.63	-0.58

Summary of comments:

- Any-place, USA development; strip mall not individual or customized to a community.
- Unattractive building, stucco and bad signage detracts from appearance.
- Building too long, appears to extend forever.
- Landscaping at building base not well designed and not enough room for trees on street.

30

	Middleton	Waunakee	Westport	Springfield
Rank	12	8	8	9
Score	-0.78	-0.08	-0.21	-0.19

Summary of comments:

- Participants had divided opinions on whether big box retail was desirable/appropriate for the study area, however more felt it was not desirable/appropriate.
- Too much parking; could be like Hilldale Target with structured parking.
- Should have more landscaping in parking lot.
- Setback too large; not accessible to pedestrians.

31

	Middleton	Waunakee	Westport	Springfield
Rank	10	11	12	11
Score	-0.38	-0.66	-0.78	-0.53

Summary of comments:

- Building is not attractive, too much glass, not enough details.
- Needs more space/buffering from street.
- Like density of employment but building too tall, too bulky.
- Maybe ok along Belt Line but not appropriate for other areas.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Highway/Arterial Districts

32

	Middleton	Waunakee	Westport	Springfield
Rank	7	6	5	4
Score	-0.08	0.22	0.19	0.16

Summary of comments:

- Smaller scale and design make it unobtrusive and fit in well; compatible with residential development
- Could be put anywhere, no customization, not unique.
- Too much roof in the design of the building and fake dormers are simply tacked on.
- Like parking hidden by garden wall.

33

	Middleton	Waunakee	Westport	Springfield
Rank	3	3	2	1
Score	0.53	0.50	0.30	0.47

Summary of comments:

- Reasonable scale and attractive materials makes the building appealing.
- Like small setback of building with well-maintained landscaping present.
- Decorative paving and wide sidewalk enhance the scene; on street parking would be good in this condition.

34

	Middleton	Waunakee	Westport	Springfield
Rank	5	10	10	10
Score	0.37	-0.25	-0.31	-0.34

Summary of comments:

- Higher density is good in areas where it makes sense, though it may be too tall in some places.
- Mixed-use retail developments promote walkability and active places.
- Like the sidewalks with trees, landscaping and cafe tables. Makes the ground floor interesting.
- Parking a concern; should use underground parking.
- Signage design integrated into building design and does not detract from overall aesthetic.

35

	Middleton	Waunakee	Westport	Springfield
Rank	4	9	9	8
Score	0.40	-0.08	-0.27	-0.17

Summary of comments:

- Like mixed-use/higher density and the scale is reasonable and a good fit.
- Like materials and cohesive building design which has a lot of character but blends well with the context.
- Landscaping, trees along road provide good buffer for the building and sidewalk
- Parking not visible; parking behind the building and underground are both good options.
- Would be good for a downtown redevelopment site.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011

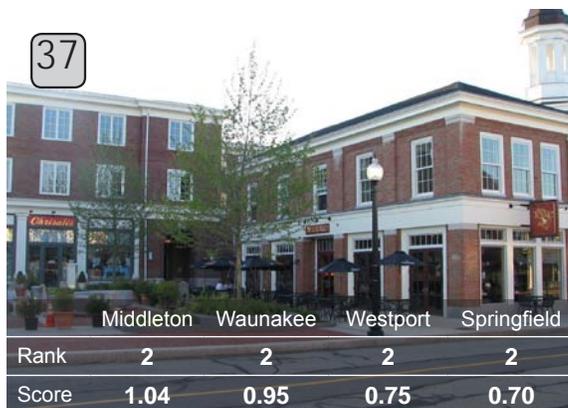


Downtown/Neighborhood Centers



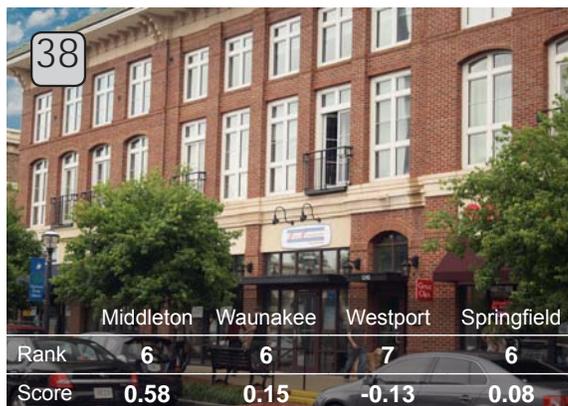
Summary of comments:

- Not downtown-like; single story buildings are too short/not dense enough.
- Building not interesting or inviting; not worth spending time or money in.
- Parking in front makes pedestrian connectivity difficult and detracts from the appearance of the development.



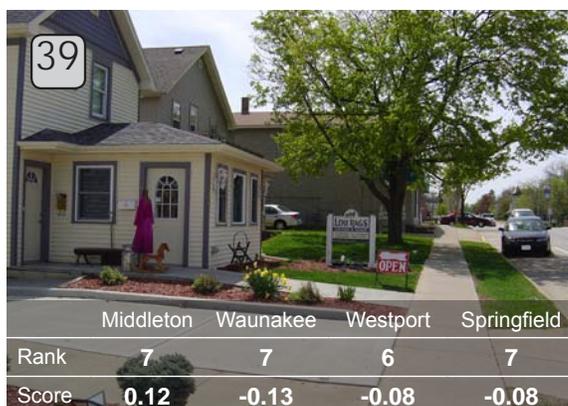
Summary of comments:

- Plaza, landscaping and tables create inviting character.
- Two to three story mixed-use buildings are an appropriate scale; not too big but enough to create activity.
- Attractive materials, timeless design with cohesive storefronts blends well with rest of downtown and maintain a community feel.



Summary of comments:

- Like mixed-use buildings with retail on the ground floor.
- Traditional building design is attractive.
- Needs wider sidewalks with outdoor seating, not just trees, benches and planters.
- Good for downtowns but may be too urban of a character for certain places.



Summary of comments:

- Houses converted for commercial uses may be practical; acceptable if close to downtown areas.
- Not appropriate for residential neighborhoods.
- Renovations for commercial use should be better; not visually appealing and appears haphazard and unplanned.
- Makes a good transition to residential areas outside of downtown; takes a way a bit of the commercial look.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Downtown/Neighborhood Centers

40

	Middleton	Waunakee	Westport	Springfield
Rank	5	4	5	5
Score	0.63	0.53	0.35	0.24

Summary of comments:

- Small parking area to the side of the building a better design than in front.
- Could be denser/taller, but acceptable for downtowns.
- Walkable street created by storefronts, trees and decorative lighting.

41

	Middleton	Waunakee	Westport	Springfield
Rank	9	11	10	11
Score	-0.12	-0.68	-0.49	-0.54

Summary of comments:

- Renovating/re-using of older building good in downtown areas.
- Side of the building and parking area seem run down a bit.
- New buildings should not be designed to look old.
- Very urban character; may not be most appropriate in certain areas.

42

	Middleton	Waunakee	Westport	Springfield
Rank	10	8	8	8
Score	-0.31	-0.15	-0.25	-0.09

Summary of comments:

- Contains lots of parking for downtown area.
- Wall, landscaping and trees improve the appearance of the area and do a good job of screening the parking lot.

43

	Middleton	Waunakee	Westport	Springfield
Rank	1	1	1	1
Score	1.16	0.98	0.77	0.84

Summary of comments:

- Inviting, livable and walkable with a distinctive/unique community feel.
- Wide sidewalks with tables and nice storefronts create an attractive character.
- Mixed-use multi-story buildings good for downtowns.
- Good mix of on-street parking and off street lots behind the building.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Downtown/Neighborhood Centers

44

	Middleton	Waunakee	Westport	Springfield
Rank	3	3	4	3
Score	0.80	0.74	0.43	0.51

Summary of comments:

- Architecturally interesting buildings with nice details would work well in downtowns.
- Materials/designs creates a sophisticated without
- Streetscaping with brick pavers is a nice addition.
- Variety of design between buildings is cohesive and attractive.
- Buildings could use a bit more space from the street, could be used for a small seating area.

45

	Middleton	Waunakee	Westport	Springfield
Rank	11	12	12	12
Score	-0.67	-0.88	-0.85	-0.81

Summary of comments:

- Contemporary design is stark, cold and unattractive.
- Needs some landscaping or trees at the street.
- Roof garden/terrace is a nice feature.
- Scale is too big and design is bulky.

46

	Middleton	Waunakee	Westport	Springfield
Rank	4	5	3	4
Score	0.80	0.49	0.44	0.40

Summary of comments:

- Hometown character very appealing and inviting.
- Mixture of one to three stories creates a comfortable scale.
- Good blend of traditional character with new improvements and additions.

47

	Middleton	Waunakee	Westport	Springfield
Rank	8	9	11	9
Score	-0.10	-0.45	-0.53	-0.20

Summary of comments:

- Mix of uses is good but, the scale appears too large for a downtown area; difficult to create small town atmosphere with buildings this large.
- Blockiness of the building design is unattractive
- Plaza next to the building is a nice feature.

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Open Space

48

	Middleton	Waunakee	Westport	Springfield
Rank	5	5	5	6
Score	0.81	0.87	0.77	0.75

52

	Middleton	Waunakee	Westport	Springfield
Rank	6	9	6	7
Score	0.82	0.55	0.70	0.59

49

	Middleton	Waunakee	Westport	Springfield
Rank	1	1	1	1
Score	1.70	1.57	1.57	1.56

53

	Middleton	Waunakee	Westport	Springfield
Rank	3	3	4	5
Score	1.17	1.08	0.82	0.86

50

	Middleton	Waunakee	Westport	Springfield
Rank	11	11	12	11
Score	0.18	0.09	-0.20	-0.07

54

	Middleton	Waunakee	Westport	Springfield
Rank	8	10	10	10
Score	.066	0.25	0.05	0.25

51

	Middleton	Waunakee	Westport	Springfield
Rank	10	8	9	9
Score	0.52	0.60	0.40	0.44

55

	Middleton	Waunakee	Westport	Springfield
Rank	9	7	8	8
Score	0.66	0.62	0.47	0.55

North Mendota Future Development Area (FUDA)

Visual Preference Survey Final Results: Nov. 23, 2011



Open Space

56

	Middleton	Waunakee	Westport	Springfield
Rank	12	12	11	12
Score	0.00	-0.07	-0.01	-0.09

58

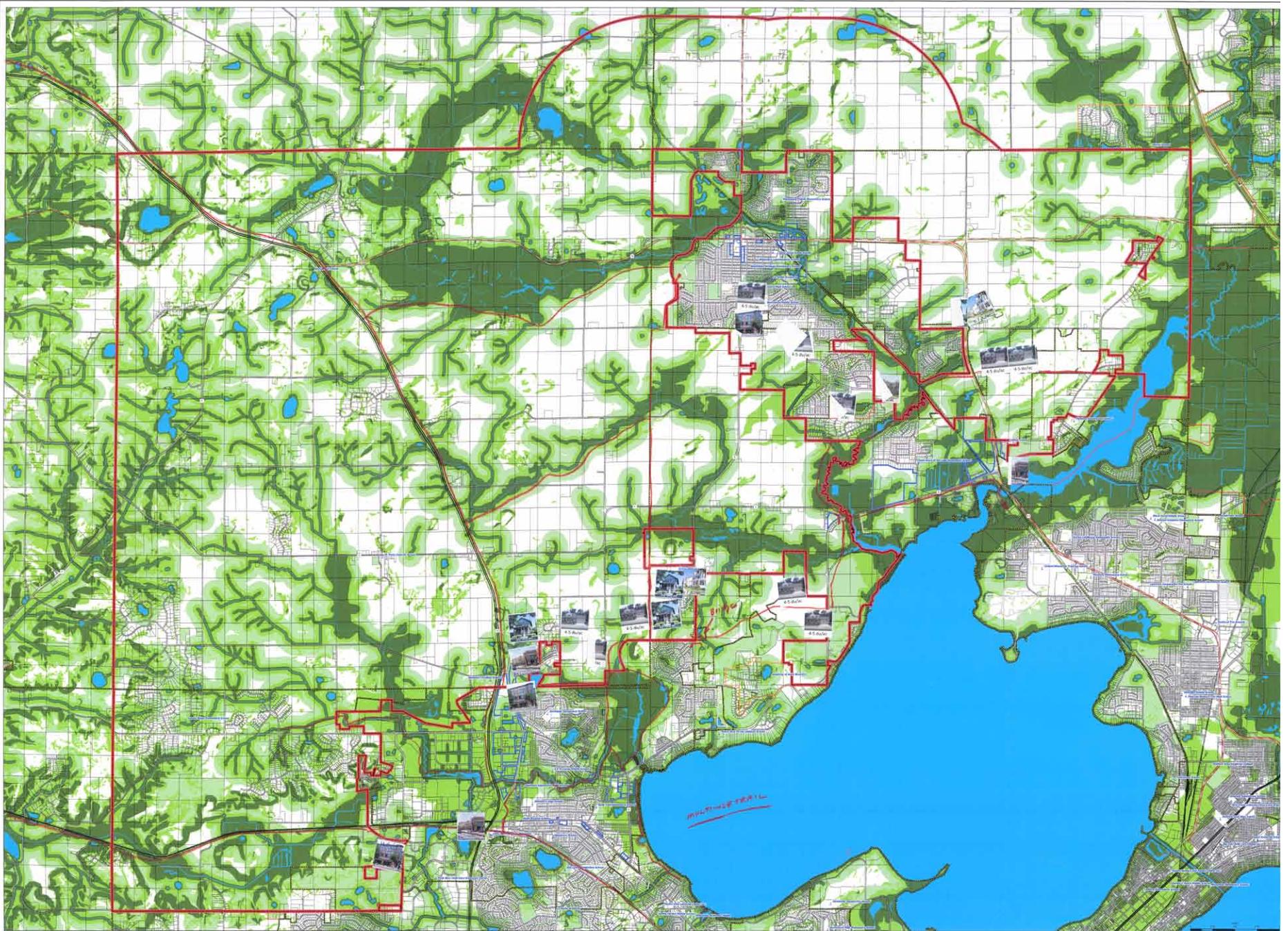
	Middleton	Waunakee	Westport	Springfield
Rank	2	2	2	2
Score	1.46	1.36	1.29	1.27

57

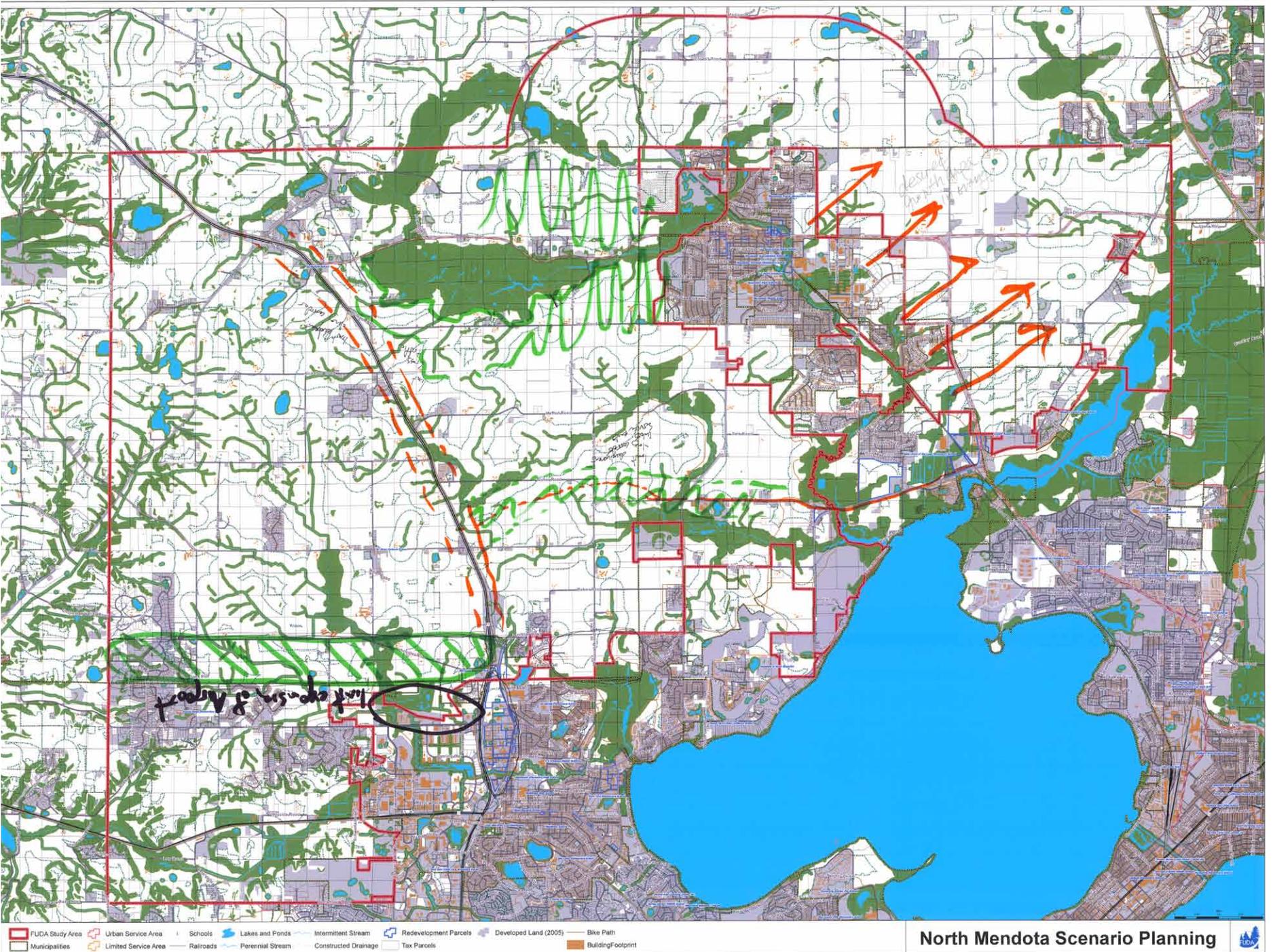
	Middleton	Waunakee	Westport	Springfield
Rank	7	6	7	4
Score	0.75	0.85	0.69	0.88

59

	Middleton	Waunakee	Westport	Springfield
Rank	4	4	3	3
Score	1.15	0.98	1.01	0.94

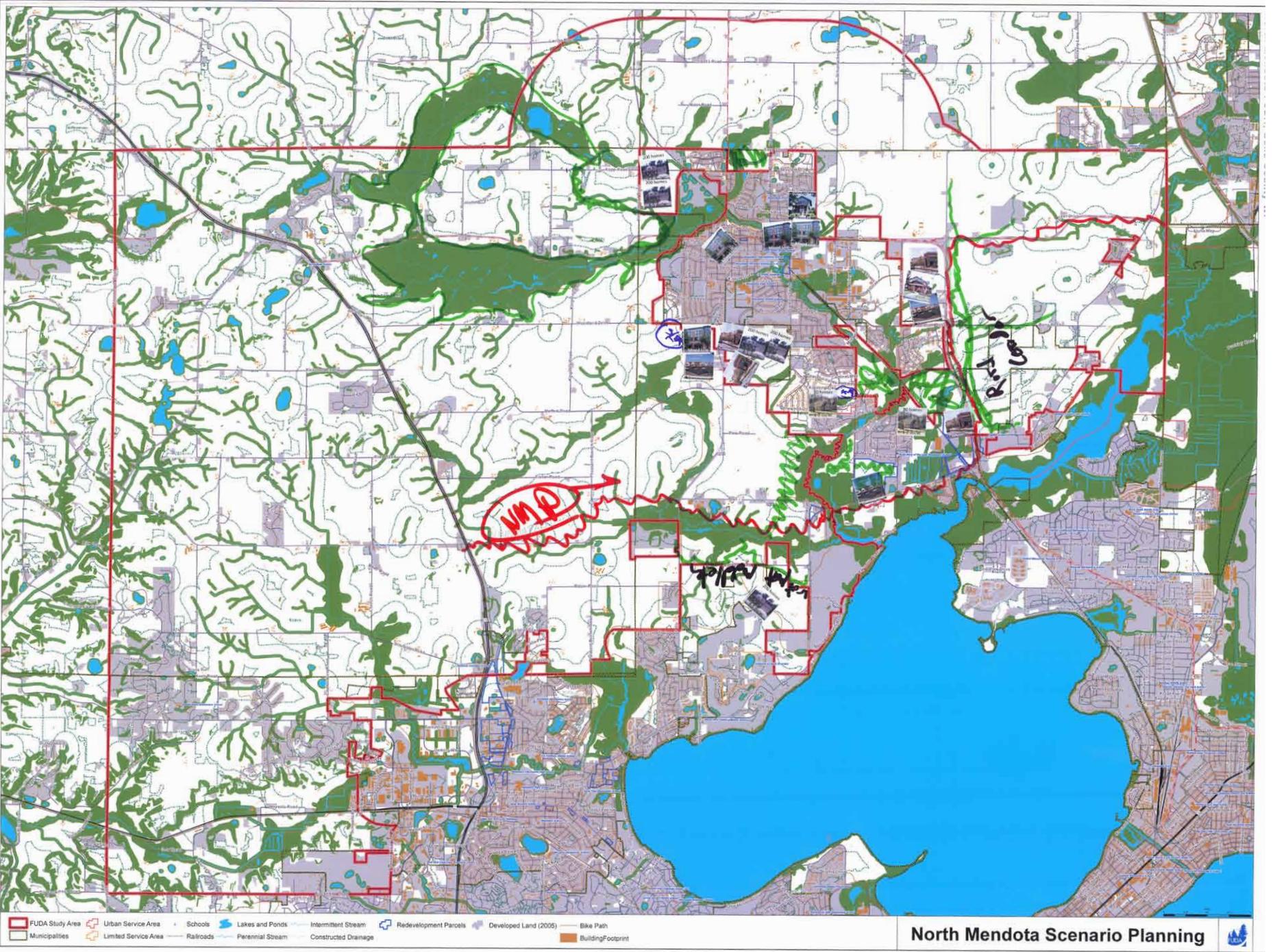


FUDA Study Area	Urban Service Area	Schools	Interstate	State Highway	Local Road	Ramp	Lakes and Ponds	Intermittent Stream	Redevelopment Parcels	Corridor Area	Amenity Area
Municipalities	Limited Service Area	Tax Parcels	US Highway	County Highway	Named Private Road	Railroads	Perennial Stream	Constructed Drainage	Developed Land (2005)	Stewardship Area	



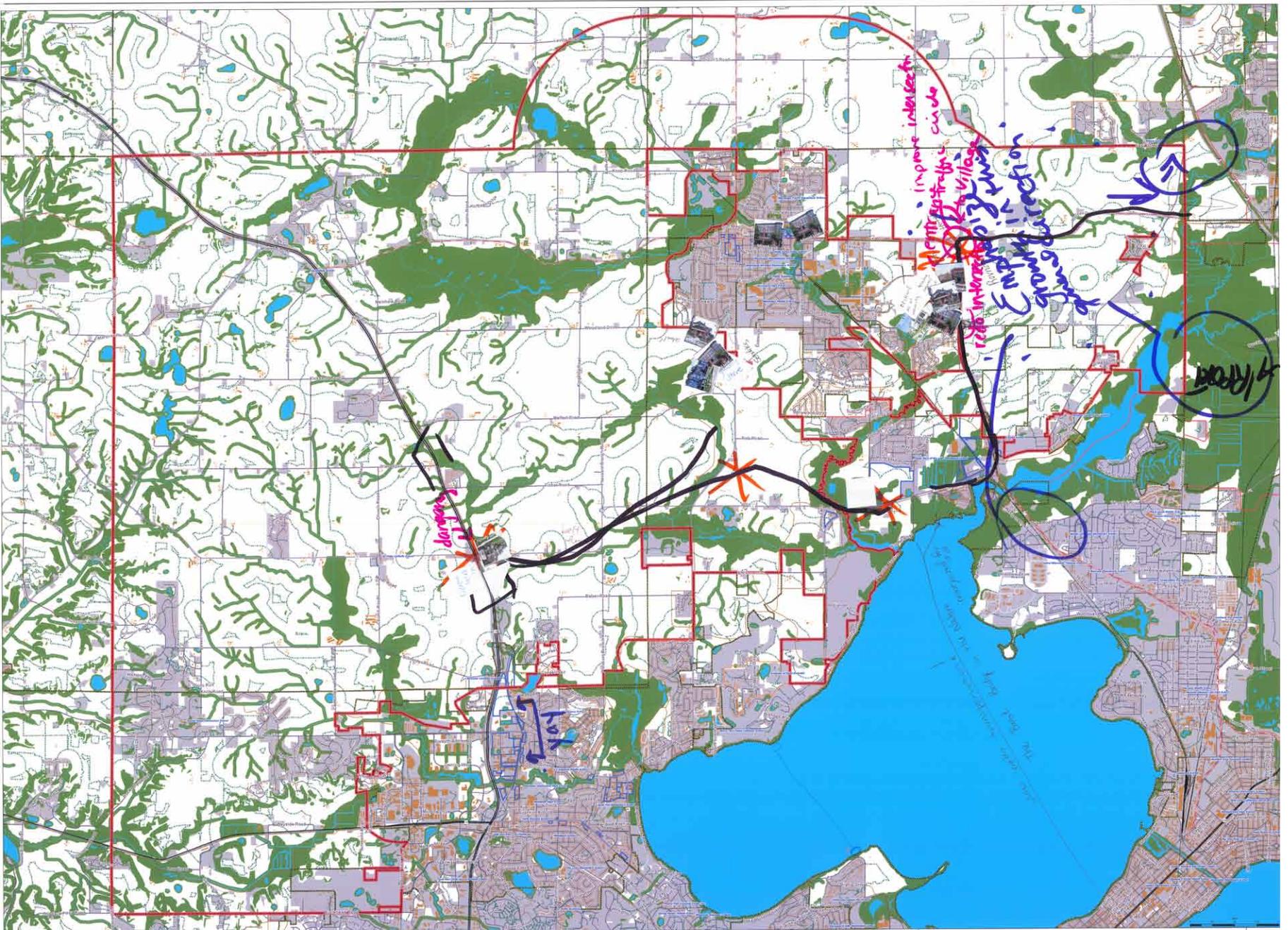
North Mendota Scenario Planning



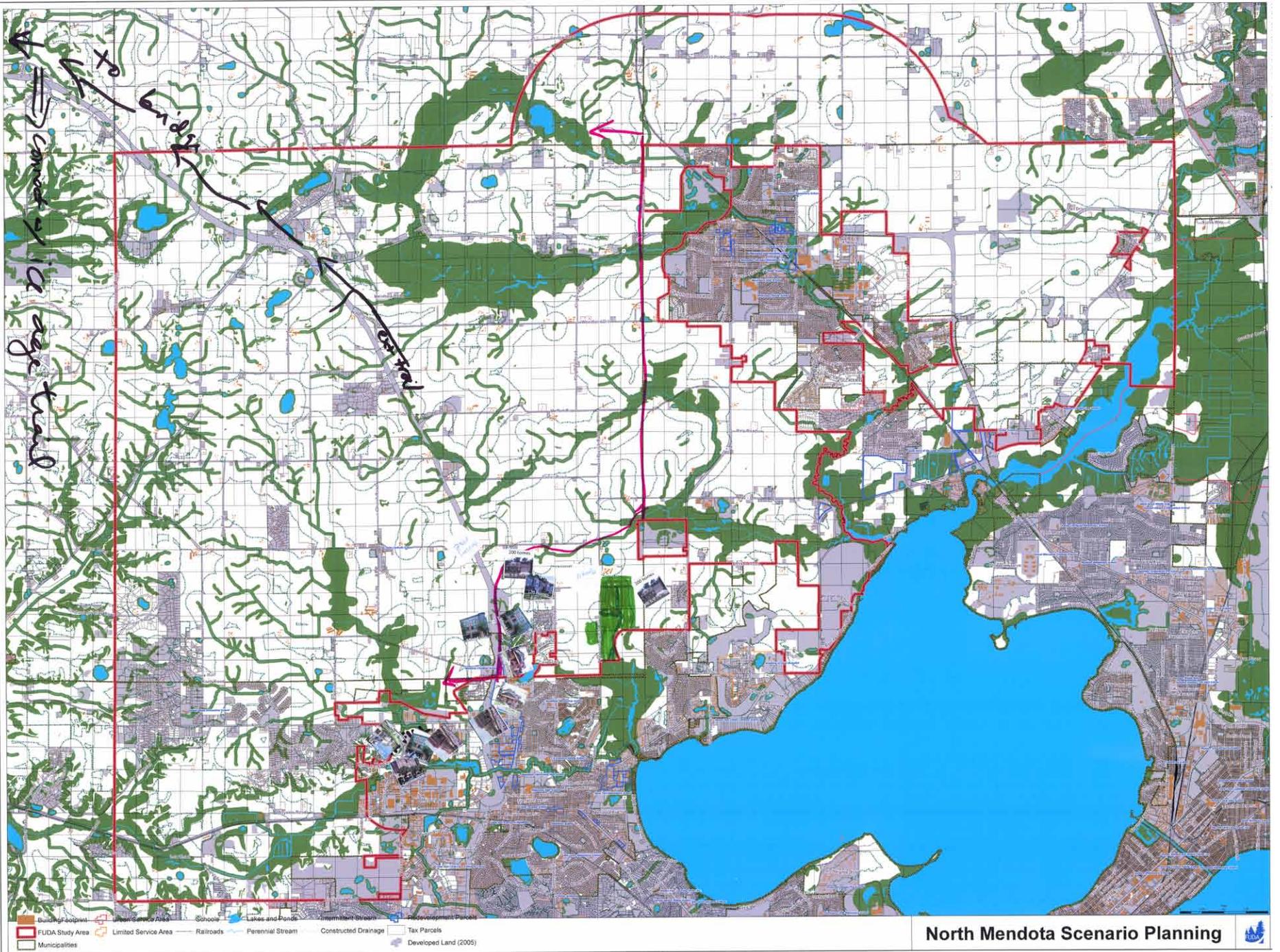


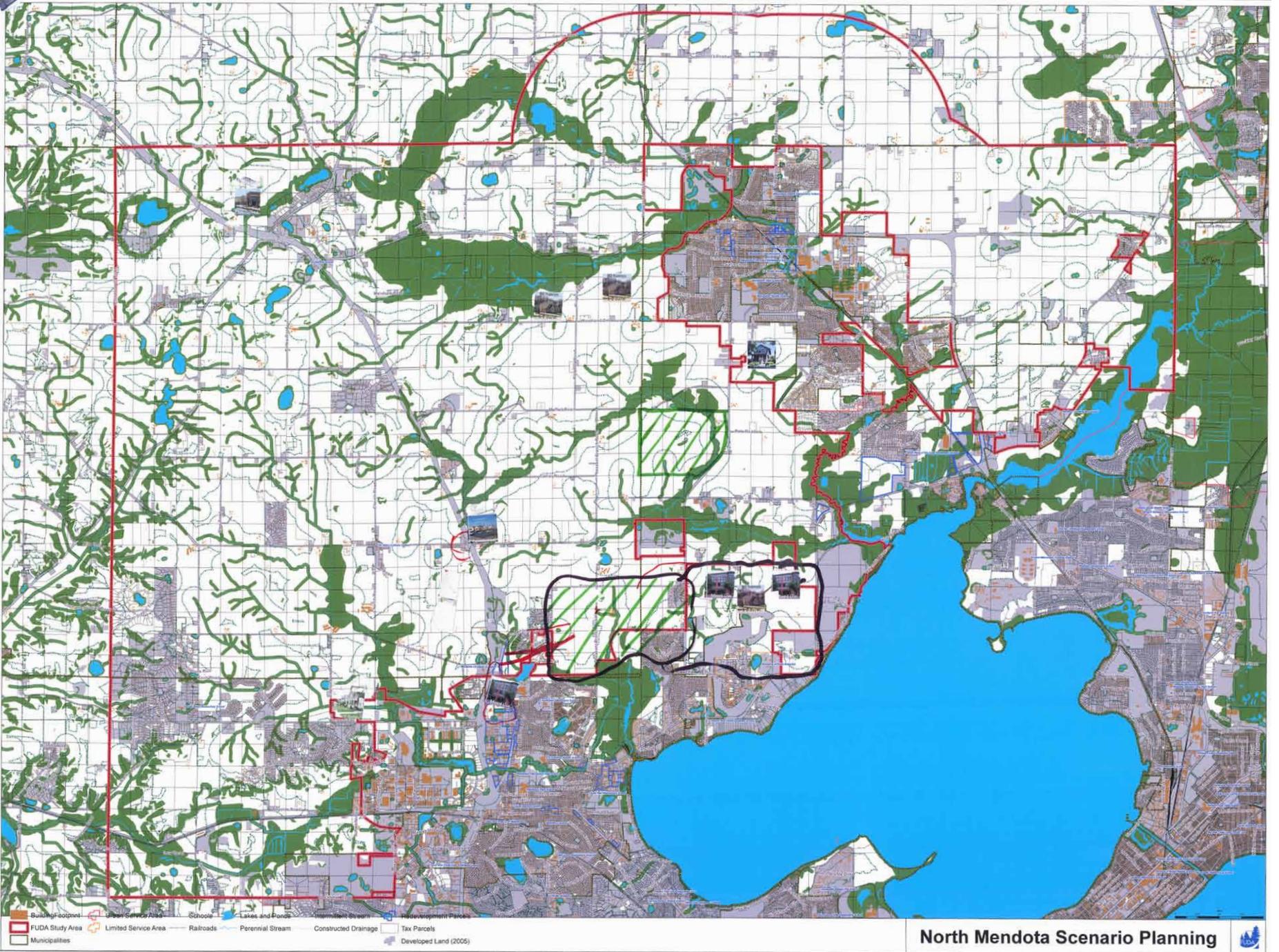
North Mendota Scenario Planning





North Mendota Scenario Planning





North Mendota Scenario Planning



Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Middleton	Compact	Non auto centric - better for elderly, health	promotes community and interactions among neighbors, neighborhoods and communities
Middleton	Compact	more conservation of open space	
Middleton	Compact	Easier neighbors; open spaces	More redevelopment than other scenarios
Middleton	Compact	Like having a downtown/commercial area you can go to and walk around to get all shopping done.	
Middleton	Compact		Restrict development. Preserve the land.
Middleton	Compact	protection of open space; dense development	
Middleton	Compact	More multifamily housing, more compact, reduced driving, preserved open space	
Middleton	Compact	Protect open areas	I think we need to protect farmland and open spaces. Once they are gone, that's it. Focus on re-developing areas that have fallen "out of favor" rather than move into new areas just because they are new.
Middleton	Compact	Appears to be the most sustainable over time	
Middleton	Compact	Protection of environment and livability for older citizens	
Middleton	Compact	farm land protection, open space, protection of groundwater, exercise choices	I like the consideration of protecting Lake Mendota's water source. I opportunities for recreation and outside experiences. I like the lower infrastructure costs of plan C. I like the idea of living independently here in Middleton when I am older. It seems balanced between all the needs.
Middleton	Compact	More natural environment preserved and higher property tax base	The way I read the comparisons below, C scored best for every aspect considered.
Middleton	Compact	More sustainable with much less negative impact on the environment. Better public cost/benefit ratio.	Scenario C provides the most sensible, sustainable model. Allows controlled yet reasonable development but maintains the environmental character that makes Middleton a great place to live. Does the most to protect the Pheasant Branch Conservancy and allow for future trail expansion linking Pheasant Branch and Governor Nelson State Park.
Middleton	Compact	The diversity it would create in choices of lifestyle: there is already much development like scenarios A and B inside or near the study area.	
Middleton	Compact	It provides most environmental preservation and is least wasteful of resources.	
Middleton	Compact	green space preservation and alternative transportation options	
Middleton	Compact	environmental protection, variety of transportation, livability for older	

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Middleton	Compact	Like the protection of land, the infill development, the walking and biking opportunities, the increased opportunity for physical activity, and the independence for the +65 age group. Most important is the protection of open land for small farms and community agriculture and preserved parkland, in particular the preservation of open spaces for potential trails for skiing and biking which could connect communities	do not like the residential development of scenario B along Pheasant Branch Road. I much prefer that area to open space. I don't like the commercial development in the area of Pheasant Branch Road and CTH K. I really think that should wait until the North Beltline corridor is developed and put commercial development along that corridor. It is premature to have commercial development where it is shown in all 3 scenarios. We don't want to bring traffic into that area where I prefer to see preservation of land.
Middleton	Compact	More to enjoy in the same amount of land. More walkable.	
Middleton	Compact	It's the best long term approach to address future health and well being of our community.	
Middleton	Compact	Environmental conservation and accessibility, and affordable housing are important.	
Middleton	Compact	Connectivity of streets & paths (ped, bike, carts & transit)	
Middleton	Compact	There should be energy savings along with preservation of open space	
Middleton	Compact	health and environmental benefits	
Middleton	Compact	more urban-y, more to do, less wasted space, less strip malliness	
Middleton	Compact	More effecient, easier transportation, on environment.	
Middleton	Compact	Better transport choices; affordable; increased human interactions	
Middleton	Compact	Less sprawl, more outdoor activity possible, less pollution from car emissions	
Middleton	Compact	best for environment	
Middleton	Compact	more options: transportation, housing, ages, conservancy attention	
Middleton	Compact	Less pollution, environmental preservation, multi-modal transporation options	Redevelop existing urban centers in Middleton and Waunakee for mixed-high density use (residential/retail-business). Dense urban cores will help reduce dependence on automobiles and reduce related pollution. Open space and protected water supplies are key for quality of life. A boost in yearly taxes would be worth adding additional open space. Quality of life features would be valuable in attracting businesses that required high skill work forces.
Middleton	Compact	density, min need for car, public spaces scattered throughout	physical activity, likelihood that aged can stay in their homes because they can walk to shopping, likelihood that neighborhood groups will form - people will have more contact with each other.

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Middleton	Compact	the additional environmental protections; elderly access; farmland preservation	
Middleton	Compact		We need preserve as much land for environmental protection and farming as possible.
Middleton	Compact	More preservation of open areas	
Middleton	Compact	Will allow more development with keeping our beautiful environment in mind	
Middleton	Compact	If natural and farm lands have to be taken for development, the compact character concept preserves the most land and it offers the best chance for a non-automobile-based transportation arrangement, and is better in pretty much every way.	The Dispersed Character plan is a terrible waste of resources across the board. It is not a good direction for Middleton and would be a detriment to those of us who live in a part of town that would be strongly affected by the development.
Middleton	Compact		Compact is more sustainable
Middleton	Compact	more open areas	
Middleton	Compact		Best scenario in all respects; to continue our present course of dispersed development is wrong in every regard
Middleton	Compact	Preservation of Pheasant Branch Conserv Park and Road	
Middleton	Compact	adequate level of density	
Middleton	Compact	Efficiency, highest tax potential	
Middleton	Compact	True neighborhood community is possible with limited environmental impact	
Middleton	Compact	More preservation of open space and farmland	The dispersed plan would be so disruptive to the quality of the land and water.
Middleton	Compact		Farmland - greater percentage remains as is.
Middleton	Compact	Greater protection of natural resources and human health, more open space; concern about development of Pheas. Brnch Spgs recharge area. Put new housing out at Green way Station near bus line!	Very concerned about residential development on the Pheas. Branch Spgs recharge area. Strongly suggest putting new housing out at Green Way Station near bus line, stores, shops, businesses with trails that connect to downtown, conservancy, community(s), university, etc.!
Middleton	Compact	More environmental protection; less pollution.	
Middleton	Compact		help elderly be more independent
Middleton	Dispersed	Provides for more of a rural feeling - clearly not urban/city	
Middleton	Dispersed	gives greater sense of privacy less noise pollution	
Middleton	Dispersed	Gives more of a natural feel, not cramped and less concentrated pollution - noise and air	The compact scenarios seem like there would be more run off and to much hard surface in one concentrated area. I also fee this survey is not really allowing people to make their own decision it is very slanted to one side and is written to make the decision for the survey taker. Don't assume we are all that dumb that we can't think for ourselves. To much one side opinion and it is distracting.

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Middleton	Dispersed		Assumptions appear to be taken from Soviet style command and control by central planners- the central committee approach of knowing the future leaving little room for innovation or the acceptance of radical changes in individual transportation- biased towards mass transit controlled by unelected bureaucrats
Middleton	Dispersed		None of the choices are suitable, people are not invested in community.
Middleton	Dispersed		Models are biased towards Options A and C.
Middleton	Public Outreach		Unfortunate that Bishops Bay expansion is a forgone conclusion. Would have liked that discussion to be part of this larger one.
Middleton	Public Outreach	Compact Development near Middleton. Maintained space. Reasonable street/development plan.	
Middleton	Public Outreach	Fits with the current character of the area	
Middleton	Public Outreach	Least extreme	
Middleton	Public Outreach	Balance for all parties	Sadly, none of these scenarios have more schools indicated and how we'll pay for them. Building new houses is great, but not if the schools aren't able to handle new students. I also have concerns about increased traffic. I see what's happened on Cty M to Verona since living in Verona in the mid-90's and I hope we can avoid that here particularly on Cty Q.
Middleton	Public Outreach		The least impact on environment, the better. Urban sprawl is not an option.
Middleton	Public Outreach	Fits the character of the area. Would blend in to existing development.	Option 2 is by far my least favorite. It appears to be too "suburban sprawl" like, and that is not what Middleton/Waunakee should be.
Middleton	Public Outreach	Seems to strike the best balance to meet the needs of the larger population.	
Middleton	Public Outreach	Design is compact, but not too dense. Also, the revenue per person is higher than my #2 choic3.	
Middleton	Public Outreach		I would like to see more bigbox options. I dont like to drive 10-20 miles to find a inexpensive place to buy food/lumber/cloths. Its an option vs little stores that may not have everything in one stop.
Middleton	Public Outreach		Would not prefer to live so close to neighbors, but value land preservation.
Middleton	Public Outreach	It's a good middle ground between B & C- not too spread out but not overly compact either.	
Middleton	Public Outreach	The correct blend of B and C. Not extreme to either side.	

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Middleton	Public Outreach	Has a good balance of green space and housing not too crowded look.	I prefer the Outreach version because I do think it keeps with the current feel of the city and towns.
Middleton	Public Outreach	Reasonable amount of personal living space	
Middleton	Public Outreach	mix of character	
Middleton	Public Outreach	Offers the best mix of all three options.	
Middleton	Public Outreach		Fix our streets, then bicyclists benefit too.
Waunakee	No Answer	the all suck	the only reasonable option is to designate the road north of waunakee.to much time was wasted in this process and the job loss when putting the road in your current area is completely unacceptable but right in line with this areas liberal base
Waunakee	No Answer		None of the above options.
Waunakee	Compact	It uses less resources and has less carbon emissons	
Waunakee	Compact	It's better for the environment.	
Waunakee	Compact	preserves open space	decrease driving required
Waunakee	Compact	better sense of neighborhood-greater density	
Waunakee	Compact	preserves open land, and healthier for people	Development decisions should limit the amount of urban sprawl
Waunakee	Compact	It is more environmentally friendly, and there is the oppertunity for more housing,	My one concern for Option C is having small yards for young children.
Waunakee	Compact	I like how it will help the air pollution problem	
Waunakee	Compact	Offers the most overall benefits and the least environmental impacts	
Waunakee	Compact	It is the best of both worlds.	
Waunakee	Compact	preservation of natural areas	I have traveled extensively in the midwest and found that very few communities are walkable. I believe a walkable community is much more user friendly. It also encourages residents to get involved and shop locally.
Waunakee	Compact	Less costly government, more efficient, preserves ag.	C reduces public cost to support an aging population. Easier on families.
Waunakee	Compact	preserving open space and agricultural land; encouraging strong neighborhood relationships	
Waunakee	Compact	Lowest environmental impact and preserve small/agricultural community	
Waunakee	Compact	I like how the scenario decreased the amount of undesireable things, like pollution. Pollution and subjects of the like are very important.	Scenario C seems to be a very positive change and expansion.
Waunakee	Compact	land use/preservation	
Waunakee	Compact	Promotes best environmental long range sustainability, especially farmland and pollution	

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Waunakee	Compact	Relatively improved energy efficiency, transit capability, and open space preservation.	I question whether more and more driving is even plausible in the "long term" under any scenario. Looking forward, we all need to face practical constraints: fuel availability (and costs), household budgets, traffic congestion, and finite minutes per day. This region desperately needs high quality transportation alternatives at the regional scale if it is to pursue any new development beyond infill. New fringe and leapfrog developments - however compact they may be - will fail or become a detriment to the regional housing market if they, too, are designed predominantly for cars and not equipped with adequate transit service.
Waunakee	Compact	Allow's better access to businesses by walking or biking, preserves more land for agriculture	
Waunakee	Compact		don't like number of new homes
Waunakee	Compact		slower growth
Waunakee	Compact		slower growth
Waunakee	Dispersed	Not too close	
Waunakee	Dispersed	Freedom and Privacy	We are a suburban community not a city. We don't want to walk we want to drive our cars. If you want compact living go to Madison or Milwaukee.
Waunakee	Dispersed	less traffic on road used between Waunakee and Madison/Middleton	
Waunakee	Dispersed	Space - I do not like living on top of my neighbors.	
Waunakee	Dispersed	Less crowded, less burden on schools, higher property values, more suburban feel and look.	Downtown main street in Waunakee needs to have strict building and architectural guidelines and a remodeling/redevelopment program. Currently it is not very prosperous looking and does not attract retail shoppers. Needs a total updating.
Waunakee	Dispersed		need hwy 19 bypass
Waunakee	Public Outreach	it's right in the middle... not too packed, not too spread out	
Waunakee	Public Outreach	Homes still provide the people with comfortable living space and it is much better than scenario B in terms of cost and efficiency aspects.	
Waunakee	Public Outreach	Walkable, bikeable communities with more diverse development and less environmental impact and more undeveloped open space.	
Waunakee	Public Outreach	Balance	
Waunakee	Public Outreach	least offensive	Plan to leave the county for retirement anyway. Dane county is so messed up. Madison controls everything. Born and raised here, but don't plan to stay. Taxes are outrageous! What a mess that's been made of this once great place.

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Waunakee	Public Outreach	Logical controlled growth as chosen by the people through planning and input	scenario b is too costly. A and C are much better and fairly similar. Since A is current plan driven and confirmed by public input, it is my chosen scenario.
Waunakee	Public Outreach		lower taxes
Waunakee	Public Outreach		individual property rights
Westport	Compact	all the forward thinking indicators on which it leads: less air pollution, greater land use mix, mor physical activity per person, etc.	This non-sprawl version has so many social benefits in addition to the land & resource benefits!
Westport	Compact	Most important to me is the reduced carbon emissions, and the protection of undeveloped land. I also look forward to an increase in physical activities and alternate transportation methods, all of which become more available with a compact design.	
Westport	Compact	More efficient density, better suited for high oil prices, least agricultural land wasted	
Westport	Compact	Seems to preserve more open space & separation between communities.	
Westport	Compact	Less conversion of farm land.	
Westport	Compact	best on almost every indicator	
Westport	Compact	open/protected land acreage	I
Westport	Compact		I like straighter street grids than all of these.
Westport	Compact		Compact.
Westport	Dispersed	more open/green space at more places than option C	
Westport	Dispersed		People will drive everywhere even in a more compact neighborhood.
Westport	Dispersed		I am not a homeowner or renter, but a student.
Westport	Dispersed		We have outgrown the school already.
Westport	Dispersed	more space	
Westport	Public Outreach		I would have pick C, but it isn't really the America dream of owning your own home and not sure about noise issues and the world we live in with everyone complaining about the other person.
Westport	Public Outreach	Preservation of open spaces	I believe current route for parkway will detract from our neighborhood and we will likely relocate away at that time.
Westport	Public Outreach	Seems a more reasonable approach and easier for people to accept	
Westport	Public Outreach	A is an ideal mix of the 3 options and similar to our current environment.	
Westport	Public Outreach	more prsonal space	
Westport	Public Outreach	middle-of-the road values on scales provided	
Westport	Public Outreach		Maintaining more rural and less dense character of area is important. Happy medium of the 3 options.

Respondent's Community	First Choice Scenario	What do you like about your first choice scenario?	Other Comments
Westport	Public Outreach		Not a homeowner or renter.
Springfield	Compact		more independence
Other	Compact	I think we need to preserve the length of trips(gas and time) for future generations. We are too dependent on foreign oil.	We can't spread out at the current rate indefinitely. We will need the farmland as our population increases.
Other	Compact	Increased physical activity and access for walking/biking	
Other	Compact	Less CO2 emissions, less infrastructure costs	Why no mention of public transit?
Other	Compact	How little driving you need to do and the commercial areas.	I like the walkable busier feel of the commercial areas in C but I like the more community feel of the housing in A.
Other	Compact	better for the environment and least expensive long term	
Other	Compact	walkability, less driving, more greenspace options	
Other	Compact	C provides the most sustainable future.	
Other	Compact	Max. preservation and more sq. ft. for development	
Other	Compact	Most environmentally friendly choice.	
Other	Compact	Neighborhoods	
Other	Compact	It reduces amount of farmland that is lost while investing in redeveloping underused land in the village.	The compact scenario is the most efficient for meeting multiple important goals (everything from protecting high-quality farmland to livability for seniors).
Other	Compact	Keeping ag land in production	Makes a person stop and think about the extended future not just 2-5 years from now Keep all the green mumbo jumbo about alternative energy sources (other than geothermal) out of this. Solar and wind are incredibly inefficient and defeat any gains you might make in infrastructure cost. Prime goal is to chew up less land for housing.....
Other	Compact	Works like a charm in California - lots of public use/park space	live in vienna
Other	Compact		Please, no more "B" developments.
Other	Compact		more open land
Other	Dispersed	More open space for homes	
Other	Dispersed		Option A is between Options B + C.
Other	Public Outreach		Online survey does not work.

CRANES

Preliminary Requests for North Mendota Pilot Sub-FUDA ~ 16 SEP 2011

1. There should be an effort within the North Mendota Sub-FUDA study area to identify the larger remaining unfragmented or roadless parcels of natural resource lands and their potential for expansion to achieve ecological stability or sustainability, as well as an analysis of how to protect the viewsheds and soundscapes of these areas. There should also be an analysis of infiltration/recharge areas, similar to the micro-mesh study done for Pheasant Branch. I.e., for natural areas, there should be analyses similar to the effort by the RPC Pilot Sub-FUDA staffers to analyze and map agricultural lands for basic soils, farming types (e.g., appropriateness for row crops vs livestock) and contiguity.
2. Similar to #1, there should be an analysis of cultural landscapes and protection of their viewsheds/soundscapes. During the public participation phase, there should be an invitation to nominate additional areas of the study area for protection of their viewsheds/soundscapes. Dane County Example: Mt. Horeb (Vandewalle Associates).
3. Public participants should be offered a scenario that accommodates the DOA's 2010 USA census-based population forecasts for 2035 within the existing NUSA footprint. Similarly, there should be another scenario accommodating the population forecast for 2050. Both of these backcasting scenarios should include the resulting residential and commercial densities, as well as cost/benefit analyses (with data broken out for both municipalities and households).
4. There should also be an analysis of foreclosures and shadow stock, as well as realty demand by type, based on demographic trends and market studies. Additionally it should be established whether or not fuel prices are affecting residential realty or commercial/business site decisions in the outlying municipalities of the Capital region. Additionally, there should be a USA 2010 census-based analysis of commuter traffic flow to/from the North Mendota Sub-FUDA study area, for Dane and adjacent counties.
5. There should be a cost/benefit analysis of the proposed North Mendota Parkway when compared with transit options (e.g., commuter rail, BRT, etc.) including the commuter rail option from Middleton to Downtown Madison to Sun Prairie, as proposed in the Dane Transportation 2030 study.

CRANES

Preliminary Requests for N. Mendota Pilot Sub-FUDA ~ 15 SEP 2011

Below are requests submitted by CRANES and staff responses (indented).

Staff requests that CRANES respect the local FUDA process by calling it FUDA planning instead of "Sub-FUDA."

1. There should be an effort within the N. Mendota Sub-FUDA study area to identify the larger remaining unfragmented or roadless parcels of natural lands...

Staff: this was done in the Scenario Base Map showing the Corridor, Stewardship and Amenity areas, although the presence of roads within these areas was not identified specifically on the map itself, these areas can be pulled out and discussed for preservation in the FUDA plan.

and their potential for expansion to achieve ecological stability or sustainability, as well as an analysis of how to protect the viewsheds and soundscapes of these areas.

Staff: Staff is conducting an ecological investigation of the entire planning area. If something looks like it needs to be protected ecologically, staff will flag it. We do not have the capacity for further analysis for the first ecological inventory of FUDA areas. More detail may be possible with updates of these FUDAs.

There should also be an analysis of infiltration/recharge areas, similar to the micro-mesh study done for Pheasant Branch. I.e., for natural areas, there should be analyses similar to the effort by the RPC Pilot Sub-FUDA staffers to analyze and map agricultural lands for basic soils, farming types (e.g., appropriateness for row crops vs livestock) and contiguity.

Staff: A detailed, telescoped study such as was done for the Pheasant Branch springs is beyond the scope of our current work. With the update of the groundwater model, better modeling capability will be available. However, a detailed study would only be justified for specific resources, and that would be contingent on the availability of funds and someone to do this study as a research project.

2. Similar to #1, there should be an analysis of cultural landscapes and protection of their viewsheds/soundscapes. During the public participation phase, there should be an invitation to nominate additional areas of the study area for protection of their viewsheds/soundscapes. Local Example: Mt. Horeb (Vandewalle Associates).

Staff: We will try to incorporate viewshed identification into scenario planning. GIS Specialist is assessing resource requirements for conducting a GIS-based viewshed analysis, similar to that of Mt. Horeb or New Glarus.

3. Public participants should be offered a scenario that accommodates the DOA's 2010 USA census-based population forecasts for 2035 within the existing N. Mendota footprint.

Staff: This will be done for scenario planning.

Similarly, there should be another scenario accommodating the predicted population for 2050. Both of these backcasting scenarios should include the resulting residential and commercial densities, as well as cost/benefit analyses with data broken out for both municipalities and household.

Staff: A build-out scenario will be more useful than using highly uncertain 2050 population projections. Staff will try to incorporate a build-out scenario within the current North Mendota footprint and study area.

4. There should also be an analysis of foreclosures and shadow stock, as well as realty demand by type, based on demographics trends and market studies.

Staff: Current foreclosure data is available from MLS. Foreclosure data can also be retrieved by identifying a time period (like how many foreclosures over the last 30 days) in a search of Wisconsin Court records in a couple hours. Vacancy rate comparisons can be made between 2000 and 2010. We are unaware of a source for local shadow stock information. Comparisons over time and between other areas may be needed to determine significance of local numbers, which would require further time and investigation.

Presumably, the purpose of examining foreclosure and shadow rates is because they may indicate a lower growth rate than projected. However, there are many factors that could influence the rate of future development in either direction that should also be considered if the question of growth trends influences is considered.

Regarding realty demand by type, staff has conducted a demographic analysis for Dane County of housing demand by age groups. A white paper on this topic is available.

Additionally it should established whether or not fuel prices are affecting residential realty or commercial/business site decisions in the outlying municipalities of the Capital region.

Staff: This is beyond staff -capacity and FUDA scope.

Additionally, there should be a USA 2010 census-based analyses of commuter traffic flow to/from the N. Mendota, for Dane and counties.

Staff: Staff can ask MPO for most recent commuting data as relevant to FUDA areas.

5. There should be a cost/benefit analysis of the proposed North Mendota Parkway when compared with transit options (e.g., commuter rail, BRT, etc.) including the commuter rail option from Middleton to Downtown Madison to Sun Prairie, as proposed in the Dane Transportation 2030 study.

Staff: This is beyond staff capacity and FUDA scope.

Supplement C: Scenario creation and process

A major element of the FUDA process was to create and evaluate future growth scenarios. The scenarios are intended to provide public participants and the steering committee with information about the positive and negative consequences of future growth to make more knowledgeable decisions about preservation and growth options in their communities.

The scenarios were derived from a land demand analysis that was created by the staff team. This used a similar methodology as CARPC's state approved land demand methodology for urban service areas, though it differed in a couple significant ways. First, it utilized Wisconsin Department of Administration (DOA) population projections at the municipal level (CARPC's USA population projections, which frequently cross municipal lines, are calculated using regression-based formula based on county-wide growth). Second, historic residential development patterns were evaluated to determine how much of the municipal growth would be urban (served by sewer) and how much would be rural. The urban population combined with recent residential density trends and non-residential development patterns yielded the baseline land demand.

After initial demands were established, a redevelopment inventory established the quantity of new space that could be accommodated on sites identified in existing redevelopment plans. This value was then factored based on existing site characteristics, such as assessments, the amount of built space on the site, and the age of buildings, to establish an estimated amount of redevelopment that would be likely. The redevelopment was then translated into acres required for the equivalent amount of greenfield development and deducted from the overall land demand for greenfield development.

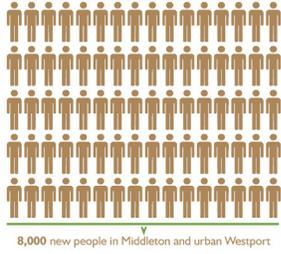
Prior to scenario evaluation, two rounds of public involvement were used to gain community input on future growth. The first round utilized a visual preference survey, where participants rated and discussed various development images. In the second round, participants created their own scenario by placing icons representing a specific amount of new development on the map where they deemed appropriate.

Initially, five different scenarios were envisioned, including baseline/trends, adopted plans, public input, dispersed and compact scenarios. They would all utilize an equal population and amount of commercial and other non-residential development, but would vary the density, levels of environmental protection, amount of open space, and other factors. The number of scenarios was eventually reduced to three (Adopted Plans/Public Input, Compact and Dispersed Characters) because of the difficulty in comparing multiple scenarios.

The three scenarios were developed based on the existing future land use plans, comments made during public outreach meetings, and input from the staff team and steering committee. Scenarios contained land use designations for every parcel within the defined scenario evaluation area (note the scenario evaluation area differed from the FUDA study area). A range of residential districts were used in each scenario, and each district defined density for single family, multifamily and their mix (ie % of all residential units that are single family). Mixed-use, commercial and industrial areas were also located and varied in each scenario. The amount of open space and environmental protection varied in each

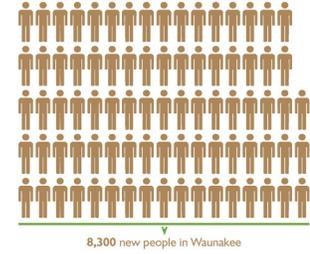
scenario. Certain scenarios featured community separation areas, expanded environmental corridors and other areas that could be appropriate for preservation.

- **Public Outreach Scenario:** This scenario closely followed residential density patterns that emerged from participants responses to the visual preference survey held in phase 2 of the public participation plan. Middleton's and Westport's densities were slightly higher than densities of their current plans or recent trends, while Waunakee's were slightly lower. Overall residential density averaged to 7.3 units per acre (net) with 58% single family housing in the Central Urban Service Area (Middleton and Westport) and 4.2 units per acre (net) and 74% single family in the Waunakee Urban Service area. This scenario also includes preserved areas to provide community separation.
- **Compact Character Scenario:** This scenario takes a more compact approach to future growth, using higher density residential and commercial development and more areas that would be classified as mixed-use. Placing more residence in closer proximity to frequently visited destinations, including commercial areas, parks, schools and natural areas, creates a more walkable/bikeable pattern and increased the potential for improved current and future transit service. Residential density averaged 7.8 units per acres and the portion of single family units decreasing slightly to 58% in the Central USA. Likewise in the Waunakee USA, residential density increases to 5.8 units per acre with the rate of single family also dropping 1%. Commercial density is assumed to increase from an assumed FAR of 0.2 to 0.28, allowing for a greater amount of commercial space per acre. In addition, the amount of redevelopment projected to occur is assumed to increase by 50% because policies will encourage reutilization. Commercial redevelopment is an especially important focus for Middleton, which has a shortage of land planned for commercial development (vs projected demand) and will have to rely on redevelopment to capture this growth. The Compact Scenario includes a larger community separation area at the periphery of the communities and incorporates a potential environmental corridor expansion area that would protect environmentally sensitive area beyond environmental corridors.
- **Dispersed Character Scenario:** This scenario shows a more dispersed future development pattern, with lower densities and fewer areas that mix uses. The residential density drops to 3.6 and 2.6 units per acre (which includes multi-family) in the Central and Waunakee USAs, and the portion of single family homes increase to 61 and 79% respectively. Commercial density decreased to an assumed FAR of .16 from .2). The scenario also sees a 50% decrease in the amount of redevelopment, as the density required for these project would not be consistent with dispersed community growth. No additional preservation efforts are contained in this scenario beyond environmental corridors.



DECIDE YOUR COMMUNITY'S FUTURE

POPULATION 2035- Where will they go?



WELCOME FUDA PLANNING POLLERS

The Future Urban Development Area (FUDA) project is a planning process in the City of Middleton, Village of Waunakee and Towns of Westport and Springfield, with the Capital Area Regional Planning Commission. The effort studies urban growth (served by sewer and water) for the coming 25 years.

MAKE YOUR OPINION COUNT

- Please review scenario A, B, & C images, descriptions, maps, and impacts and consider how you might rank the options. After viewing the information, submit your ballot to:
1. Rank the 3 scenarios
 2. Name 2 reasons you ranked your #1
 3. Insert the ballot in the box
 4. Spread the word!



COMPARE SCENARIOS & OUTCOMES

Scenarios A, B, & C offer trade-offs in land development and preservation. For example, B leaves more space for yards and parking, making it hard to protect open land and encouraging people to drive more. C brings homes closer together, making it easier to protect open land and allowing for walking, biking, transit, and driving, lowering travel costs and reducing pollution. And A is somewhere in between B & C.

Category	Metric	Scenario A	Scenario B	Scenario C
LAND EFFICIENCY	Acres developed per person	more efficient (C) < A < B less efficient		
	Amount of redevelopment	0 homes (B) < A < C 800 homes		
ECONOMY	Yearly tax revenue per person	\$700 (B) < A < C \$1,000		
	Infrastrure cost per person (one time)	\$10,000 (C) < A < B \$25,000		
TRAVEL	Change in driving miles	-10% decrease (C) < No Change (A) < +10% increase (B)		
	Trips made by walking or biking	20,000 (B) < A < C 100,000		
ENVIRONMENT	Air pollution impact (lbs/person/year)	-5 lbs decrease (C) < No Change (A) < +5 lbs increase (B)		
	Carbon emission change (lbs/person/year)	-500 lbs decrease (C) < No Change (A) < +500 lbs increase (B)		
FARMLAND	Open/protected land acreage	10,000 acres (B) < A < C 20,000 acres		
	Farm land converted to developed land & the approx. associated annual farm revenue lost	\$5,000,000 (C) < A < B \$15,000,000		
HEALTH	Physical activity level	less (B) < A < C more		
	Livability for persons 65+ yrs	dependent (B) < A < C independent		

Outreach Character
Dispersed Character
Compact Character

2nd choice for 61% of participants, highest overall ranking

A Public Outreach Character

New construction could look like this

Here is new construction and where it could be

If communities pursue development based on participation events, than development and preservation would reflect recent construction and plans.

WHAT'S NEW?
Middleton/Westport
Housing
Stores
Environmental preservation

B Dispersed Character

3rd choice for 72% of participants, lowest overall ranking

New construction could look like this

Here is new construction and where it could be

If communities pursue dispersed development in growth areas, minimal preservation and greater distance between land uses then adopted in plans, these are the results.

WHAT'S NEW?
Middleton/Westport
Housing
Stores
Environmental preservation

MAP & ICON LEGEND

- Green: Open/protected land
- Yellow: Farmland
- Blue: Water
- Grey: Urban/developed land
- Red: Environmental preservation
- Black: Major roads
- White: Minor roads
- Green circle: Environmental preservation
- Yellow circle: Farmland
- Blue circle: Water
- Grey circle: Urban/developed land
- Red circle: Environmental preservation
- Black circle: Major roads
- White circle: Minor roads

1st choice for 66% of participants, middle overall ranking

C Compact Character

New construction could look like this

Here is new construction and where it could be

If these communities pursue compact development in growth areas, more preservation, and a greater land use mix then adopted in plans, these are the results.

WHAT'S NEW?
Middleton/Westport
Housing
Stores
Environmental preservation

HOW WOULD YOU RANK OPTIONS A B & C?

Take a pamphlet or few and get others involved.

THANK YOU FROM:
MIDDLETON WESTPORT SPRINGFIELD

Questions? Contact Bridgit Van Belleghem - bridgitvb@capitalarearpc.org - (608) 266-4637

Additional scenarios were requested in public comment. These scenarios included all projected 2035 growth within the 2012 USA boundary and a build-out using projections out to 2060. The steering committee did not elect to evaluate these scenarios. The official comment and steering committee response are in Supplement B Public Comments.

While the scenarios were being created, a series of indicators were developed to evaluate the potential impacts of future growth. These are the indicators and how they were calculated:

- **Population and Housing:** Population and housing counts are based on Wisconsin Department of administration population projections. In each scenario, a specific residential mix was created, containing single family and multifamily densities and the percent mix of housing type. Both single family and multifamily units had a specific number of residents per units, which was used to calculate the population. The number of residential acres represent the general amount required to reach the population projections, but some small variations between the scenarios did occur.
- **Acres of Development Per New Resident:** The total amount of land developed per new resident, which includes land used for housing, commercial, industrial, civic/institutional and transportation.
- **Amount of Redevelopment:** Redevelopment potential is estimated on a site-by-site basis, with guidance from existing plans and local staff. The likelihood of redevelopment on each site was evaluated, and assigned a hypothetical to derive the anticipated amount of redevelopment. For example, if a redevelopment site could have a 10,000 square foot building, and has a 50% chance of redevelopment, 5,000 square feet would be anticipated. Different scenarios alter the amount of redevelopment by changing the likelihood of redevelopment, based on the idea that more compact development would accompany policies that encourage greater redevelopment. Middleton also uses an elevated level of redevelopment in its public input scenario to accommodate the commercial demand without identifying additional land for greenfield commercial development.
- **Yearly Tax Revenue Per Person:** Tax revenue is estimated from an average value for each single family and multi-family home and an average commercial and industrial use value per acre. Total revenue is divided by the new population to determine the per-capita revenue. This is not the amount of tax paid by each resident. Rather, a higher revenue per person reflects a greater amount of commercial and industrial uses (residential tax revenue is generally constant).
- **Infrastructure Costs Per Person:** This estimates the costs of new roads, sewer and water lines associated with new development. The amount of new roads needed is based on an analysis of the length of road and housing units in 4,500 census blocks in Dane County. Costs were estimated by reviewing several infrastructure replacement projects in the City of Madison.
- **Commercial Space and Stores:** Future commercial space is estimated in a couple of ways. First, the communities' future land use plans identify where commercial is to go and the amount of acres it will occupy. An average ratio of commercial building space to land area (known as floor area ratio or FAR) estimates building square feet. This ratio changes between the scenarios; more building space on the same amount of land is used in the compact scenario and less building in the dispersed scenario. Secondly, concepts discussed in existing community plans are used to estimate commercial redevelopment space. Finally, retail space is determined using an average of how much retail each household could support.
- **Jobs:** The total number of jobs is estimated by using employment data reported in the 2007 Economic Census and the number of acres used by employers, including commercial and industrial uses. Increases or decreases in the scenario's commercial space per acre were reflected.
- **Change in Driving Miles and Air Pollution:** The change in driving miles per person is based on findings of multiple studies evaluating how the built environment impacts peoples' driving habits. Generally, these studies conclude that people in more compact neighborhoods drive less because more destinations are closer. Trips in the car are shortened and some can be made by walking or biking. The reduction/increase in driving miles is used to calculate the impact on air pollution.

- **Yearly Water Use:** Yearly water use measures the total water use of the community, attributable to residential, commercial and industrial uses. This is based off water usage reports submitted by local utilities to the Public Service Commission. The statistic is presented per-resident though much of the water is sold to commercial and industrial users, not residential; it is not the amount of water used by each person. Greater water use will generally reflect a greater amount of commercial and industrial users. Water use is essentially the same in all scenarios since they have the same population.
- **Open/Protected Area:** The scenarios have a varying levels of environmental protections in them. All include existing legal standards that protect environmental corridors and other sensitive areas. The Adopted Plan and Compact scenarios require less land per person, and therefore are able to incorporate a community separation area that is envisioned to remain open in the future. The Compact scenario also includes recommendations to incorporate additional lands into the legally-protected environmental corridor, based on the findings of a restoration biologist.
- **Farmland and Annual Agricultural Revenue Lost:** This measure the amount of farmland consumed by future development and the estimated revenue loss attributed to that farmland. Revenue loss is estimated by the average revenue per agricultural acre in Dane County.
- **Health:** Physical Activity and Livability (independence) for persons at or above 65 years of age. These summary indicators were prepared by staff at the Wisconsin Department of Health. Several aspects of the scenario are incorporated into these indicators, including factors that encourage physical activity and overall well-being (such as the ability to walk between destinations, proximity of parks and open spaces, etc.).

North Mendota Future Urban Development Area Health Impact Assessment

Prepared by:

Wisconsin Public Health Association Health Impact Assessment Section

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December, 2012

Executive Summary

Similar to individual and population health, the health of a community is multifaceted and complex. Healthy community design is a comprehensive strategy for shaping and organizing our communities, taking into account the myriad factors, such as policies, plans, and programs, which affect physical and mental health and social well-being. Health Impact Assessment (HIA) are one way to help shape and organize our communities for health, focusing on the complicated intersection between health and social, economic and environmental factors in a systematic way, to see how various policies, plans and programs may positively and/or negatively affect health. One important advantage of HIA is that it can pinpoint and focus on the needs of disadvantaged populations, thus attempting to address some of the health disparities in a community.

The Wisconsin HIA Collaborative, a newly emerging entity and the project lead, in collaboration with Capital Area Regional Planning Commission (CARPC) conducted this HIA in four communities in Dane County, Wisconsin (the city of Middleton, village of Waunakee, and town of Westport and Springfield). The Wisconsin HIA Collaborative is currently composed of nonprofits, academic institutions, government agencies, and residents. The [Wisconsin Public Health Association \(WPHA\) HIA Section](#), established in March 2011, has played a role in convening and tracking Wisconsin HIA efforts; this was the first HIA demonstration project conducted by the Section and will inform future HIAs conducted by the group. The other partner in this HIA process, CAPRC, was created in 2007 and is charged with the duty of preparing and adopting a master plan for the physical development of Dane County, and maintaining a continuing area wide water quality management planning process in order to manage, protect and enhance the water resources of the region, including consideration of the relationship of water quality to land and water resources an uses.

The six main steps of an HIA were addressed in this rapid HIA process, though because the HIA is a demonstration project, some steps were addressed differently than a traditional HIA. Those steps include: Screening, Scoping, Assessment, Recommendations, Reporting and Monitoring & Evaluation.

During the Screening phase, the goals of the project were outlined, and background research was conducted on the policies being addressed in the HIA. These policies focused mainly on the FUDA process and alternatives and the Capital Regional Sustainable Communities Initiative.

The Scoping phase, due to time constraints, moved forward with the information already gathered. Scoping meetings were held during which the pathway diagram with prioritized health indicators and research question tables were generated. It was at this point

that the project focus prioritized the aging populations and physical activity and obesity as important health issues.

During the Assessment phase, research questions were developed based on the prioritized health areas outlined in the Scoping phase. Despite data limitations both in existing conditions of various health indicators and in lack of information available regarding the three original scenarios, the scenario that best fit each health determinant was discussed and a comprehensive impact analysis is provided ranking each scenario against the various health determinants. Based on these rankings, Scenario C (Compact Character), ranked most highly when graded based on health determinants. The final impact analysis was determined based on the recommended hybrid scenario which was derived from community feedback and created by the steering committee. The recommended hybrid scenario will likely enhance public health through its denser land use plans.

The Recommendations chosen were prioritized based on the specific health issues the communities involved were most interested in addressing: aging populations and physical activity and obesity. The Recommendations were tailored to address the plans outlined in the recommended hybrid scenario and include the following (for full Recommendations, see pgs. 55-56):

- ⊕ *Physical Activity – Safe Routes to Schools*: To ensure that school children receive physical activity getting to and from school, implement a Safe Routes to Schools program in the communities as mentioned in Further Analysis Areas (FAA), issue 6.
- ⊕ *Physical Activity – Walking and Biking*: Ensure that Recommendations in Section 6 of FUDA Scenario Overview and Recommendations are implemented (establishing connected streets, sidewalk, bike-path and trail networks that promote walking, biking).
- ⊕ *Physical Activity – Aging Population*: To facilitate aging in place and encourage physical activity of senior citizens, walking paths and “adult fitness circuits” should be created that incorporate the needs of seniors.
- ⊕ *Physical Activity & Social Cohesion*: Ensure that as part of the hybrid scenario, social gathering places and open spaces for recreational use are included in the design.
- ⊕ *Access to Healthy Foods*: The creation of a local food council could encourage more frequent farmers’ markets with more local vendors, increasing access to healthy local foods.

- ⊕ *Access to Primary Care Physicians (PCS)*: Ensure that there are PCPs easily accessible to the aging population and provide transportation services to ensure accessibility.

The HIA report will be disseminated to public health professionals and will be through CAPRC's brochures, posters and public community meetings. The HIA section will create and disseminate a PowerPoint presentation and brief handout to the public through the Wisconsin Public Health Association (WHPA) and its HIA website. The report will be made available to stakeholders as well as the general public who can review and comment.

Because this HIA was a demonstration project, the Monitoring and Evaluation steps are recommendations rather than having been conducted as they would have been if this had been conducted as a traditional HIA.

The HIA process helped inform recommendations for mitigating potentially negative health outcomes and increasing positive health outcome. The HIA process was able to accomplish this by looking at the complicated intersection between health and social, economic and environmental factors in a systematic way. The HIA process also provided these communities with the ability to focus on specific health, aging populations and physical activity and obesity issues, and address health disparities.

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1. Introduction: The Relationship between Health and Community Planning

The U.S. Department of Health and Human Services *Healthy People 2010* report describes a healthy community as one that is, “designed and built to improve the quality of life for all people who live, work, worship, learn, and play within their borders,” and in which there are a variety of options available that are healthy, accessible and affordable (CDC, 2009). Healthy community design is a comprehensive strategy for promoting public health and the creation of healthy communities (CDC, 2009). Healthy community design accomplishes this goal through planning, designing, developing, revitalizing, and building our communities with a lens towards health (CDC, 2009). Population health can be improved through healthy community design when comprehensive planning aims to improve physical and mental health, and social well-being.

Health Impact Assessment (HIA) has strong potential to promote healthy community design by sustainably integrating health factors into decision-making processes and fostering multidisciplinary, nontraditional partnerships. According to the International Association for Impact Assessment, an HIA is formally defined as a “combination of procedures, methods and tools that systematically judges the potential and sometimes unintended effects of a proposed project, plan or policy on the health of a population and the distribution of those effects within the population” (Human Impact Partners, 2006). HIA is a multi-step process that draws upon community input, prioritizes health concerns using multiple criteria, and utilizes data to project the health implications of a decision on a population and the distribution of impacts within a community (Human Impact Partners, 2006). HIA offers a flexible framework for timely application to inform proposed policies, plans or projects prior to their execution, placing an emphasis on multidisciplinary, non-traditional partnerships (e.g., land use planning, transportation, business, and environmental experts) and stressing consideration of vulnerable populations and health equity (Human Impact Partners, 2006). Based on the synthesis of the best available evidence, HIA then disseminates recommendations or mitigation strategies to ameliorate the negative and bolster the positive elements of a proposed policy, plan or project (Human Impact Partners, 2006). Finally, HIA entails monitoring and evaluating the utility and influence of the methodology on the decision-making process and health outcomes (Human Impact Partners, 2006).

The root causes of poor health are complex and extend beyond healthcare to a variety of community contextual factors. The UW Population Health Institute estimates that 50% of modifiable health determinants pertain to the social, economic, and environmental context (What Works for Health, 2010). If Wisconsin’s communities are to reduce chronic diseases,

promote physical activity, secure access to basic community resources and eliminate health inequities, we must address the complicated intersection between health and social, economic, and environmental factors. HIA, given its ability to look at complex issues in a systematic way, can address this need. With increased consideration of health factors in decision-making processes, many of the root causes of poor health outcomes and health inequities will begin to be addressed at the community contextual level, which can then have a significant impact on population health.

A Wisconsin HIA Collaborative is emerging and is currently composed of nonprofits, academic institutions, government agencies, and residents. This project builds on recent HIA-related momentum in Wisconsin, moving the state closer increasing efforts to include health perspectives in decision-making processes and building capacity among local community leaders who can advocate for public health as a priority early in decision-making processes. The Wisconsin Public Health Association (WPHA) HIA Section is the project lead for this HIA.

The WPHA HIA Section was established in March 2011 and has played a key role in convening and tracking Wisconsin HIA efforts. This project is the first HIA conducted by the Section and will inform future HIAs conducted by the group.

2. Community Context

The communities participating in this project include the City of Middleton, Village of Waunakee, Towns of Westport and Springfield. All four communities are in Dane County, Wisconsin.

Community Information	Village or Township			
	Middleton	Waunakee	Westport	Springfield
Latitude & Longitude	43.10 N, 89.50 W	43.19 N, 89.45 W	43.16 N, 89.43 W	43.17 N, 89.55 W
Zip Codes	53562	53597	53597	53529
2010 Population	17,442	12,097	3,778	2,762
Elevation	940 feet	925 feet	680 feet	1,056 feet
Land Area	8.07 sq miles	5.96 sq miles	22.2 sq miles	36.4 sq miles
Population Density	2160 people per sq mile	2031 people per sq mile	170 people per sq mile	76.3 people per sq mile
Estimated household income (2009)	\$59,790 (WI \$49,993)	\$74,176 (WI \$49,993)	\$75,884 (WI \$49,993)	\$68,663 (WI \$49,993)
Estimated per capita income (2009)	\$39,503	\$36,692	\$51,071	\$26,946
Racial Make-up (2000 data)				
Total	17,442	12,097	3,778	2,762
White alone	14,694	11,412	3,483	2,598
Black alone	582	117	22	15
Hispanic	984	269	28	20
Two or more races	375	127	11	22
Asian alone	730	142	31	15
American Indian	41	23	6	2
Other	36	7	5	10

Minority % of total	15.8%	5.7%	2.8%	6.1%
Educational attainment (Population 25 yrs and over)				
High school or higher	95.0%	92.2%	94.8%	n/a
Bachelor's degree or higher	50.3%	32.3%	38.2%	n/a
Graduate or professional degree	21.2%	7.7%	16.8%	n/a

(City-Data.com, zipcodes.com, Wikipedia.com)

3. HIA Process

3.1 HIA Benefits

Health Impact Assessment can provide a mechanism for different sectors to consider potential positive and negative health impacts of decisions on communities and populations. HIA can help to advance the well-being of all individuals, by improving community health and focusing on the needs of disadvantaged populations (Gostin & Powers, 2006).

HIA was founded on the core values of democracy, equity, sustainable development, and the ethical use of evidence. In addition to clear implications for improving decision-making, particularly as decisions relate to health promotion and protection, HIA also improves evidence, raises awareness of policy-makers and the general public, provides a tool for cross-sector partnerships, and enhances the participatory nature of decisions (National Research Council “Improving the Health in the United States: the Role of Health Impact Assessment 2011). There are six main steps to an HIA process are outlined below.

- *Screening* - determines the added value and the potential impact of conducting an HIA
- *Scoping* - determines the focus of the HIA, including deciding on related indicators and research questions
- *Assessment* - gather information on the existing conditions and potential health impacts related to the proposed plan
- *Recommendations* – develop relevant and reasonable recommendations based on information gathered during assessment to avoid, minimize, or mitigate adverse effects and to optimize beneficial ones
- *Reporting* – disseminates the recommendations and/or mitigation strategies to decision-makers, stakeholders, and to community members
- *Monitoring* - evaluates the ways in which the HIA recommendations impact the proposed plan’s implementation, the process in which the HIA is conducted and the effect the results has on health outcomes

While there are varying degrees in which HIA’s are implemented in communities, this HIA was performed as a “rapid” HIA over the course of two months.

3.2 Health Equity

Addressing equity concerns within a HIA helps in identifying and responding to the requirements and needs of diverse communities within populations being served. HIA provides the opportunity to assess health equity concerns and to develop and implement measures to mitigate or eliminate negative health and maximize positive health opportunities for vulnerable and marginalized groups. These communities identified that they are particularly concerned about potential impacts on the aging population.

4. HIA Process: Screening

The goals of this project are to: conduct a rapid HIA to assess potential impacts of the Future Urban Development Area (FUDA) alternate scenarios, provide recommendations to the community steering committee, and to disseminate this project as a case study to inform future partnerships between community planners and public health in Wisconsin.

4.1 Background of Policy

4.1.1 FUDA Process and Alternatives

The Capital Area Regional Planning Commission (CARPC) was created in 2007 by Wisconsin Governor James Doyle. The creation was requested in the form of adopted resolutions by local units of government in Dane County representing over 87% of the population and equalized property valuation in the county. The territory of the CARPC is Dane County and the cities and villages with incorporated areas in Dane County. The Commission is composed of thirteen Commissioners appointed by the Mayor of the City of Madison (4), the Dane County Executive (3), the Dane County Cities and Villages Association (3), and the Dane County Towns Association (3). The Commission is charged with the duty of preparing and adopting a master plan for the physical development of the region, and maintaining a continuing area wide water quality management planning process in order to manage, protect, and enhance the water resources of the region, including consideration of the relationship of water quality to land and water resources and uses.

4.1.2 Capital Region Sustainable Communities Initiative

Last fall, the U.S. Department of Housing and Urban Development (HUD) awarded the Capital Region a \$2 million, three-year Sustainable Community Regional Planning Grant (SCRPG). The Sustainable Communities is a federal partnership initiative between the HUD, the Department of Transportation, and the Environmental Protection Agency (<http://www.epa.gov/smartgrowth/partnership/>). Twenty-seven governmental and private entities came together as Capital Region Sustainable Communities (CRSC) to successfully compete for these grant funds. CARPC serves as the lead agency for the CRSC. Recognizing that regional challenges - healthy environment, mobility, economic opportunities for all, and quality of life - require collaborative and integrated approaches, (CRSC) fosters regional collaboration, conducts planning and pursues demonstration projects for sustainable communities. One of the major projects is CARPC's Future Urban Development Area (FUDA) planning.

The intent of FUDA planning is to protect vital natural resources, promote efficient development, and preserve farmland through cooperative planning for long-term growth. The FUDA plans shall also consider other factors including the impacts on natural and built systems, the efficient use of land including urban densities, and the ability to efficiently provide services to support the development and farmland preservation planning. Though the grant specifies health as a key priority, health and public health partners have not been formal partners.

After months of conversations with CARPC staff, the FUDA plans emerged as an opportunity to collaborate with public health. A rapid HIA would add value to the FUDA process by bringing a health lens to the table. In addition, it would be feasible based on the number of people willing to contribute time to conduct the HIA. A local steering committee acts as the decision-maker in determining the scenario that would eventually be selected. After a brief presentation to the FUDA community steering committee, we received the go-ahead to conduct the rapid HIA.

5. HIA Process: Scoping

By the time the decision was made to include an HIA in the FUDA process, CARPC had been working with the community for over a year. During this time they had established a steering committee and conducted surveys to better understand the desires of the community. The information gathered from the steering committee and the community surveys informed the scoping process for the rapid HIA.

Though more in-depth community engagement would be ideal, due to time constraints the HIA team, including CARPC staff and members of the WPHA HIA Section, decided to move forward with the information already gathered.

5.1 Scoping Meeting

The Scoping Meeting to determine vulnerable populations, decide health pathways, and identify research questions occurred during the winter and spring of 2012. Present at this meeting were three CARPC staff and five WPHA HIA Section members. The process was informal and was informed by the knowledge the CARPC staff had of the community, work to date done by the CARPC team related to land use indicators, and information gathered by WPHA HIA Section members related to comprehensive planning and HIA. Much of the information gathered were resources and reports prepared by the Minnesota Department of Health.

The pathway diagram and research question table generated represents prioritized health areas. A broad overview of the potential links to health of the FUDA plan can be found in Appendix 1, pg. 71. The health areas included in the pathways are largely based on areas CARPC was considering and areas identified in previous related work done by the Minnesota Department of Health. Based on the knowledge of the community, CARPC staff felt strongly about prioritizing pathways that would impact the aging population and physical activity and obesity. Three alternatives would be compared for the assessment phase: (A) "Community Outreach" reflecting preferences expressed at public meetings and earlier on-line polling with modestly higher levels of density and mix of uses than their Adopted Planss, (B) "Dispersed Character" which includes the most sprawl of the three plans, and (C) "Compact Character".

CARPC was already doing a significant amount of assessment and modeling regarding related impacts of each of the alternatives. In order to complement this work, the HIA team decided to conduct literature reviews to link existing CARPC indicators to health and then to fill in the gaps with existing data sources related to the two priority areas of aging populations and physical activity and obesity.

5.2 Economic Determinants

Links to Health: Job Access

People of low socioeconomic status are more likely to suffer economic marginalization. Areas concentrated with low-income populations are also likely to suffer a migration of jobs, increasing the rate of unemployment in such populations (Giles & Liburd, 2007). Low income earners are also known to have lower perceived control over life events, resulting in higher levels of stress. This, coupled with a lack of resources to cope with stressful events, including lack of access to adequate health care, may result in such populations reverting to coping mechanisms which may consist of risky behaviors, such as alcoholism or smoking, which could adversely affect both mental and physical health (MMWR, 2003).

Negative health outcomes themselves can have severe impacts on economic development, since they can lead to economic inactivity, loss of productivity and loss of income due to ill health (Voskuil, Palmersheim, Glysch, & Jones, 2010). Providing opportunities for sustainable business growth and industrial diversity may bring new jobs to the area and thus aid in attaining a better quality of life for insecurely employed and low income earners living in the areas under consideration (Minnesota DOH, 2011).

Town	Current Employment and Poverty Conditions
Middleton	<ul style="list-style-type: none"> ⊕ Unemployment in March 2012: 5.0% (WI 7.5%) ⊕ Percentage of residents living in poverty in 2009: 5.6% (WI 8.7%) ⊕ Workers who live and work in this city: 2,308 (24.8%)
Waunakee	<ul style="list-style-type: none"> ⊕ Unemployment in March 2012: 5.0%, (WI 7.5%) ⊕ Percentage of residents living in poverty in 2009: 3.1% (WI 8.7%) ⊕ Workers who live and work in this village: 1,346 (27.6%)
Westport	<ul style="list-style-type: none"> ⊕ Unemployment in March 2011: 5.0%, (WI 7.5%) ⊕ Percentage of residents living in poverty in 2009: 3.0% (WI 8.7%) ⊕ Workers who live and work in this town: n/a
Springfield	<ul style="list-style-type: none"> ⊕ Unemployment in March 2011: n/a (WI 8.1%) ⊕ Percentage of residents living in poverty in 2009: n/a (WI 8.7%) ⊕ Workers who live and work in this town: n/a

The reason economic indicators were not included in this HIA was because the information CARPC will provide in their analysis will cover this area. We did not feel an additional analysis would add value. However, we included to information regarding the link to health so that it is clear that economic factors do shape health. In the future, considering the current employment and poverty conditions in each of the respective areas, as well as the impact of job access on health outcomes may be useful for the community, therefore the following research questions to assess current job opportunities in the area are provided.

Research Questions: Employment, Job Access and Economic Conditions

1. What is the current level and security of employment in the area?
2. What is the proportion of area residents who are employed?
3. What is the proportion of area residents living in relative or absolute poverty?
4. Are there any hazardous employment conditions/work environments in the area?
5. What are the current employment quality or job benefits in the area?
6. Which share of jobs in the area meet health supporting criteria: self-sufficiency incomes, paid sick leave, health insurance, etc.?
7. What is the level of industrial diversity and resilience in the area?
8. What is the cost of new infrastructure?
9. What is the cost of including additional civic amenities?
10. What are the costs of public works/road maintenance?
11. What is the cost of emergency services?
12. What is the tax revenue in the area?
13. What will the potential cost savings to school districts be as a result of walking not bussing?
14. Do the FUDA plans promote economic opportunities for low income and underemployed or insecurely employed individuals?
15. What is the current consumer expenditure in the area and how will this be impacted by the FUDA plans?

(Adapted from CDPH, 2010, p. 14, 27)

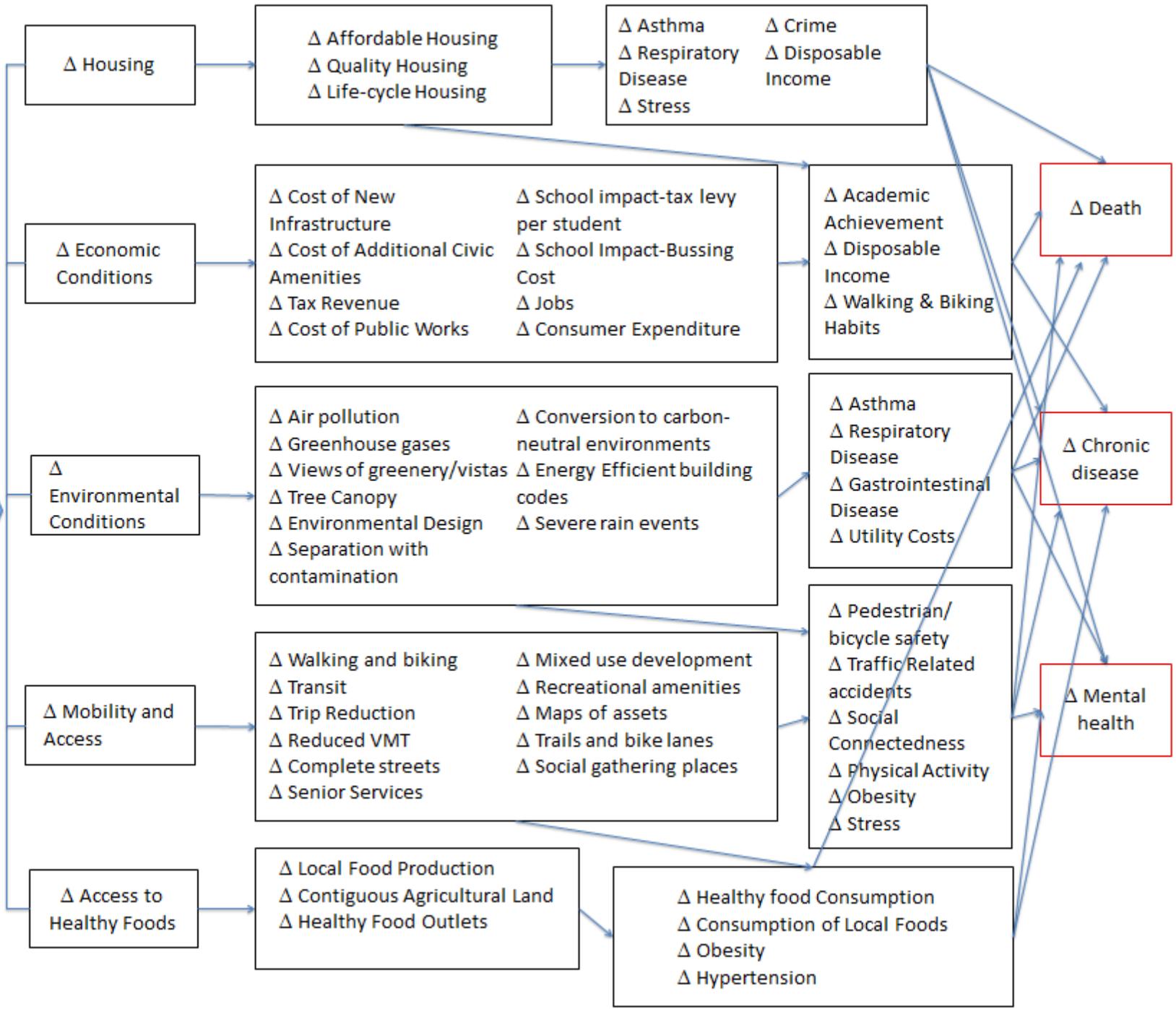
5.3 Pathway diagram

Scoping pathway diagram on following page

A: Adopted Plans

B: Dispersed Character

C: Compact Character



5.4 FUDA HIA Scope

Baseline Conditions				
Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
What are the existing demographics of the area?	How will the FUDA alternative plan impact the demographics of the area?	Age	CARPC	*Community has a particular interest in elderly population
		Income	CARPC	
		Employment	CARPC	
		Race/Ethnicity	CARPC	
What is the existing health status of the area?	How will the FUDA alternative plan impact the health status of the area?	Overweight/obesity	DPH	*Community Interest
		Common diseases	DPH	
		Health Insurance	DPH	
		Physical Activity	DPH	*Community Interest
		Elder Health	DPH	*Community Interest
		Mental Health	DPH	
		Social Cohesion	DPH	
		Respiratory diseases	DPH	
		Emergency Department data	DPH	
		Crime	DOC	

Baseline Conditions				
Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
		Traffic Related Injury	IRC	

Health Priority: Aging Populations				
Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
What is the current status of housing availability in the area?	How will the FUDA alternative plan impact housing availability?	Affordable housing (MN)	CARPC	Affordable housing goal
		Quality housing (lead, air quality, temperature, humidity)	DPH	
		Life-cycle housing (Douglas)		Town homes, senior housing, apartments, and rental unites
What are the current environmental (broadly defined) conditions of the area?	How will the FUDA alternative impact the area environmentally (broadly defined)?	Air pollution	CARPC	
		ED visits related to Asthma	DPH	
		Greenhouse gas	CARPC	
		Climate Change (CC) and allergic diseases	DPH	
		Developments have views of greenery/vistas for mental health (Douglas)		

Health Priority: Aging Populations

Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
		Tree canopy preservation (MN)	CARPC	
		Energy efficient building codes (LEED)	Local ordinances	
		Severe rain events or increased precipitation (MN) Storm water Generated (CARPC)	CARPC	
		Transit	CARPC	Portion of new residents within walkable (1/4 mile) distance to “high capacity” transit stop
		Trip Reduction	CARPC	Trips reduced due to proximate land uses
		Reduced VMT	CARPC	Reduction in VMT due to reduced trips
		Complete streets, shared streets, and traffic calming (Douglas)	Local ordinances	
		Senior Services (Douglas)		Hospitals, healthcare facilities, churches, shopping malls, and community centers
		Transit Oriented Development (MN)	CARPC	

Health Priority: Aging Populations				
Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
		Mixed Used Development (MN)	CARPC	
		Social Interaction or gathering places (MN)		
What is the current access to healthy foods in the area?	How will the FUDA alternative impact the area's access to healthy food?	Local food production (MN)		Community gardens, protection of agricultural land
		Contiguous Ag land	CARPC	
		Healthy Food Outlets	DPH	

Health Priority: Physical Activity and Obesity				
Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
What are the current environmental (broadly defined) conditions of the area?	How will the FUDA alternative impact the area environmentally (broadly defined)?	Air pollution	CARPC	
		ED visits related to Asthma	DPH	
		Greenhouse gas	CARPC	
		Developments have views of greenery/vistas for mental health (Douglas)		

Health Priority: Physical Activity and Obesity

Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
		Tree canopy preservation (MN)	CARPC	
What is the current state of mobility and access in the area?	How will the FUDA alternative impact the area's mobility and access?	Walking and Biking	CARPC	Portion of new residents within walkable (1/4mile) and bikable (2 miles) distance to one or more common destinations (schools, park, grocery store, employment)
		Trails and bike lanes	DPH	
		Pedestrian/bicycle safety (MN)		
		Trip Reduction	CARPC	Trips reduced due to proximate land uses
		Reduced VMT	CARPC	Reduction in VMT due to reduced trips
		Complete streets, shared streets, and traffic calming (Douglas)	Local ordinances	
		Maps of large recreational facilities, community gardens, schools, large parks and open space, trails and bike lanes (Douglas)		Will the final plan include this? Checklist
		Transit	DPH	
		Transit Oriented Development	CARPC	Transit: Portion of new residents within walkable (1/4 mile) distance to

Health Priority: Physical Activity and Obesity

Existing Conditions	Impact Research Questions	Indicators	Data Sources/ Methods	Notes
		(MN)		“high capacity” transit stop
		Mixed Used Development (MN)	CARPC	
		Social Interaction (MN)		
		Gathering places and recreational amenities (MN)	DPH	
What is the current access to healthy foods in the area?	How will the FUDA alternative impact the area’s access to healthy food?	Local food production (MN)		Community gardens, protection of agricultural land
		Contiguous Ag land	CARPC	
		Healthy Food Outlets	DPH	

6. HIA Process: Assessment

Building off of work completed in the Scoping Phase, research questions were developed based on the prioritized health areas to begin the Assessment Phase. To answer the research questions the following work plan was drafted.

Tasks	2012				July – Dec.
	February	March	April	May	
Group Meetings				→	
Existing Conditions Data Collection	→				
Literature Review	→				
Data and Literature Synthesis		→			
Impact Analysis			→		
Recommendation Development			→		
Complete report					→

6.1 Baseline Conditions: Dane County

Dane County (WI) Population 2010: 488,073	
Factor	Population number 2010
Age	
0	5,933
1-14	83,054
15-24	80,121
25-44	143,637
45-64	125,184
65-84	42,370
85+	7,774

Gender	
Female	246,662
Male	241,411
Race	
White	430,790
Black	29,777
American Indian	2,666
Asian	24,840
Ethnicity	
Hispanic	28,925
Non-Hispanic	459,148

(<http://www.dhs.wisconsin.gov/population/10demog/dane.htm>)

Baseline Conditions: Dane County	Dane County	Error Margin	National Benchmark*	Wisconsin	Rank (of 72 counties)
Health Outcomes					9
Mortality					6
Premature death	4,753	4,542-4,964	5,564	6,230	
Morbidity					35
Poor or fair health	9%	8-11%	10%	12%	
Poor physical health days	3.2	2.8-3.6	2.6	3.2	
Poor mental health days	3.0	2.6-3.3	2.3	3.0	
Low birthweight	6.3%	6.0-6.5%	6.0%	6.8%	
Health Factors					3

Baseline Conditions: Dane County	Dane County	Error Margin	National Benchmark*	Wisconsin	Rank (of 72 counties)
Health Behaviors					2
Adult smoking	17%	15-19%	15%	21%	
Adult obesity	25%	22-29%	25%	28%	
Excessive drinking	24%	22-27%	8%	25%	
Motor vehicle crash death rate	11	10-12	12	15	
Sexually transmitted infections	325		83	375	
Teen birth rate	20	19-21	22	32	
Clinical Care					7
Uninsured adults	13%	10-15%	13%	11%	
Primary care physicians	464:1		631:1	744:1	
Preventable hospital stays	48	47-50	52	61	
Diabetic screening	91%	85-97%	89%	89%	
Mammography screening	74%	68-79%	74%	71%	
Social & Economic Factors					6
High school graduation	90%		92%	89%	
Some college	79%		68%	63%	

Baseline Conditions: Dane County	Dane County	Error Margin	National Benchmark*	Wisconsin	Rank (of 72 counties)
Unemployment	5.7%		5.3%	8.5%	
Children in poverty	10%	8-12%	11%	14%	
Inadequate social support	14%	12-17%	14%	17%	
Children in single-parent households	25%		20%	29%	
Violent crime rate	263		100	283	
Physical Environment					8
Air pollution-particulate matter days	4		0	5	
Air pollution-ozone days	0		0	1	
Access to healthy foods	71%		92%	59%	
Access to recreational facilities	18		17	12	

(<http://www.countyhealthrankings.org/wisconsin/dane>)

Dane County (WI) Poverty Status and Health Insurance Coverage, 2007-2009		
Status	Estimated Number	Estimated Percent
Dane County Population	445,000	100%
Poverty Status		
Less than 100% of FPL	39,000	9%

100%-199% of FPL	59,000	13%
200% or more of FPL	349,000	76%
Unknown	9,000	2%
Insurance Status		
Insured all of the past year	414,000	91%
Insured part of the past year	13,000	3%
Uninsured all of the past year	28,000	6%
Primary Insurance Type		
Currently uninsured	39,000	9%
Employer-sponsored	347,000	76%
Private	16,000	3%
Medicaid	25,000	5%
Medicare	21,000	4%
Others	9,000	2%

(<http://www.dhs.wisconsin.gov/localdata/pdf/fhs/0709dane.pdf>)

N.B. The Wisconsin Family Health Survey is a random-sample telephone survey conducted each year by DHS. An adult in each sampled household answers the survey questions on behalf of all people living in that household. Survey data represent all household residents. **Persons living in group quarters such as nursing homes, dormitories, and jails are not represented by survey results.** More information about the survey is on-line:

<http://dhs.wisconsin.gov/stats/healthinsurance.htm>

6.2 HIA Process : 65+ Livability Indicators

Indicators Reviewed in this Section	
1	Affordable, Good Quality, Life-Cycle Housing and Energy Efficient Building Codes
2	Developments with Views of Greenery/Vistas for Mental Health and Tree Canopy Preservation
3	Outdoor Air Quality (Emergency Department Visits related to Asthma Climate Change and Allergic diseases Greenhouse Gases and Pollutants Trip Reduction & Reduced VMT)

6.2.1 Affordable, Good Quality, Life-Cycle Housing & Energy Efficient Building Codes

⊕ *Link to Health*

Affordable housing not only provides residential stability but also frees up family resources which can be used for other essential needs such as nutritious food and health care requirements (ECP Inc. &CHP, 2007). For example, homeless people are less likely to maintain treatment regimes for chronic diseases (such as HIV/AIDS and hypertension). Residential stability in itself reduces stress and can restore self-esteem. Evictions and frequent housing moves have been known to lead to feelings of helplessness and depression, with homeless children being at a greater risk of developing mental health problems. Crowding, such as doubling up with other families or living in very small homes, increases the risk for psychological distress, hypertension, and even acquiring infectious diseases (ECP Inc. &CHP, 2007).

Affordable housing also provides low income families and individuals with access to neighborhoods of opportunity and amenities (ECP Inc. &CHP, 2007). People removed from public housing in high poverty neighborhoods into low poverty neighborhoods were found to report significantly less distress than people who remained in high poverty neighborhoods (Leventhal & Brooks-Gunn, 2003). Affordable housing provides an opportunity for victims of domestic violence to leave abusive homes and not end up homeless in the process. It thus plays an important role in improving both the physical and mental health of such victims (ECP Inc. &CHP, 2007).

Good quality housing can improve health outcomes by reducing health problems generally associated with substandard housing (such as those arising from exposure to allergens and neurotoxins). The table found in Appendix 2, pg. 77, provides examples of indoor pollutants or elements associated with poor quality housing and their impacts on health.

Life-cycle housing incorporates fixed accessible and adaptable features which could easily be modified to meet the changing requirements of the home-owners overtime, thus ensuring that they maintain a good quality of life. Such changing needs may include old age, disability, having children, and caring for ageing parents (University of Kentucky). Life-cycle housing can thus reduce the strain on nursing homes by providing independent living alternatives for senior generations and for people with disabilities. They are also a means to provide safer working environments for home care workers (Disability Council of NSW).

Energy efficient building codes are useful for community design and building strategies because they aim to achieve sustainable site development. They focus on sustainable material selection for building projects, water-savings mechanisms and infrastructure, energy efficient design and infrastructure, and measures required to achieve a healthy indoor-environment quality. Energy efficient building codes establish minimum energy efficiency requirements for

buildings which provide energy savings throughout the lifetime of the building (U.S Department of Energy, 2011). An example of an energy efficiency certification mechanism is provided by LEED, the Leadership in Energy and Environmental Design (U.S. Green Building Council, 2011.)

Some of the environmental health benefits of ‘green’ building and energy saving building practices include:

- Protecting occupant’s health through appropriate physical and mechanical design as well as building materials;
- Protecting community health through sustainable land-use and transportation planning (reduction in vehicle trips);
- Promoting sustainable production thus reducing emission of a number of toxic pollutants including persistent/ bioaccumulative toxic compounds, carcinogens, endocrine disruptors; this leads to improved air and water quality, as well as a reduction in generated waste streams (including construction and demolition waste);
- Enhancing and protecting biodiversity and ecosystems;
- Conserving and restoring natural resources; and
- Limiting climate change impacts
(San Francisco Department of Public Health, 2006; U.S. Department of Energy, 2011; U.S. Environmental Protection Agency, 2010).

Other benefits of energy efficient building code include:-

- Preventing long-term financial burdens for owners/tenants which can arise from short-term design and construction decisions;
- Optimizing the life-cycle economic performance of buildings;
- Monetary savings from consumer energy bill savings, air pollution remediation and reduction in greenhouse gas emissions. These can all improve the state’s economy by strengthening consumer spending power and through reducing environmental costs to the state.
(U.S. Department of Energy, 2011; U.S. Environmental Protection Agency, 2010)
- Reduced energy expenditures which correlate to a reduced dependency on foreign oil which impacts national security (U.S Department of Energy, 2011).

⊕ Existing Conditions

Good Quality Housing	
Child Lead Poisoning Prevalence, Dane County WI 2009	
Age	Lead Poisoning Prevalence
0 - <1	0.19%
1 - <2	0.29%

2 - <3	0.81%
3 - <6 NPT	0.31%
3 - <6 PT	0.00%
Total	0.35%
Carbon Monoxide Poisoning Emergency Department Visits, Dane County WI 2009	
Rate per 10,000 population	4.96 – 10.62.

(http://www.dhs.wisconsin.gov/epht/CHP/Dane_profile.pdf)

Affordable Housing				
Community Information	Village or Township			
	Middleton	Waunakee	Westport	Springfield
Mean prices in 2009:				
• All housing units	• \$321,434	• \$318,115	• \$461,637	• n/a
• Detached houses	• \$333,396	• \$320,948	• \$528,548	• n/a
• Townhouses or other attached units	• \$331,607	• \$294,367	• \$285,461	• n/a
• In 2-unit structures	• \$306,345	• \$277,114	• \$372,194	• n/a
• In 3-to-4-unit structures	• \$185,972	• \$371,353	• \$263,961	• n/a
• Mobile Homes	• n/a	• n/a	• n/a	• n/a
Median gross rent in 2009	\$803	\$819	n/a	n/a
Estimated median house or condo value in 2009	\$280,846	\$286,440	\$298,497	n/a
Percentage of residents living in poverty in 2009	5.6% (WI 8.7%)	3.1% (WI 8.7%)	3.0% (WI 8.7%)	n/a (WI 8.7%)
Estimated median household income in 2009	\$59,790	\$74,176	\$75,804	\$68,663
Estimated per capita income in 2009	\$39,503	\$36,692	\$51,071	\$26,946

✦ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator <small>(outlined in Scoping Phase)</small>	Best Fit FUDA Scenario

	(Compact Character)
Affordable Housing	Scenario C (Compact) provides the most affordable housing. It has the densest (6 units/acre) land use plan as well as the most multi-family housing, resulting in the greatest number of affordable housing units.
Good Quality Housing	It is not clear from the information provided on the scenarios which scenario would provide the best quality housing.
Life-Cycle Housing	It is not clear from the information provided on the scenarios which scenario would provide life-cycle housing.
Energy Efficient Building Codes	It is not clear from the information provided on the scenarios which scenario would provide energy efficient building codes.

✦ *Recommendations see Appendix 4, pg. 85*

6.2.2 Developments with Views of Greenery/Vistas for Mental Health and Tree Canopy Preservation

✦ *Link to Health*

Inclusion of green spaces into urban designs has been found to improve both social and cognitive functioning and result in decreased episodes of depression (Dannenberg et al, 2003). Research has shown that interactions with nature and natural environments have shown to lead to marked increases in cognitive control, as opposed to interaction with urban environments. Moreover, lack of access to natural environments in a community can lead to increased feelings of isolation and an increased incidence of mental illness. Inclusion of natural spaces and community gardens into urban designs can provide people with opportunities for socializing, thus overcoming feelings of isolation, and ultimately strengthening community cohesion (Maller et al, 2005).

Tree canopies play an important part in reducing air pollution by absorbing gaseous air pollutants (such as carbon dioxide) through their leaves. They have also been found to reduce concentration of ground level ozone, and airborne particulate matter (City of Covington, 2012; Nowak et al, 2006). Trees and tree roots conserve soil and prevent erosion into nearby water bodies thus maintaining high water quality (City of Covington, 2012). Extensive paving, typically occurring in urban environments for new roads and parking spaces and rooftops, can reduce the ground's natural absorption and filtering capacities which can lead to flooding and an accumulation of runoff pollutants in water supplies and associated negative health outcomes such as gastroenteritis (Dannenberg et al, 2003). Tree canopies provide shade for sidewalks and buildings, and can play a part in reducing the urban heat island effect through the process of

transpiration whereby trees lose water by evaporation from leaves, which works towards cooling the urban environment (City of Covington, 2012).

✦ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator (outlined in Scoping Phase)	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Character), or Scenario C (Compact Character)
Developments with Views of Greenery/Vistas for Mental Health	The best Scenario for mental health based on views of greenery/vistas is Scenario A. This Scenario provides the most views of greenery/vistas through less dense development/redevelopment (4 units/acre residential) while limiting farmland development which also provides views of greenery/vistas.
Tree Canopy Preservation	Scenario C has the most Natural Resource Protection, preserving the most tree canopy. Scenario C also provides the densest redevelopment/ development plan thus preserving already existing tree canopies and reducing the need for new development that could potentially destroy existing tree canopies.

✦ **Recommendations see Appendix 4, pg. 85**

6.2.3 Outdoor Air Quality (Emergency Department Visits Related to Asthma; Climate Change and Allergic Diseases; Greenhouse Gases and Pollutants; Trip Reduction & Reduced VMT)

✦ **Link to Health**

- There is a body of literature that supports the association of ground-level ozone (O₃) exposure and asthma exacerbation.
 - One study focused on emergency department (ED) rates of asthma in New York City and ground-level ozone levels to project future childhood asthma ED cases; it concluded that increased ozone levels would cause childhood asthma visits to increase by 7.3% in the region by the 2020s (Sheffield et al. 2011).
 - A different study examined the Olympic Game time period in Atlanta, Georgia, and found a significant reduction in childhood asthma events (hospitalizations, acute care visits) after a reduction in ozone pollution (Friedman et al. 2001).

- A study by Bell et al. examined ozone concentrations in 50 US cities as related to predicted health impacts (2007). The study concluded that climate change-induced increases in ground-level ozone would increase hospital admissions for asthma.
- Studies have shown that climate change could have an impact on aeroallergen concentrations. Since the development scenarios have an impact on climate change, by extrapolation they also could have an impact on allergic diseases. More research is needed to support the link between climate change and allergic diseases, but there is some literature that supports the link between climate change and aeroallergen concentrations:
 - Kinney’s paper reviewed pollen studies and found that there was consistent evidence supporting the link between the onset of pollen seasons and warming trends. However, Kinney cautioned that more evidence is needed to establish whether or not this relationship extends to the trends to allergic diseases (2008).
 - D’Amato and Cecchi’s review paper stated that airway mucosal damage induced from air pollution can make it easier for allergens to enter the immune system. Furthermore, climate change may cause the pollen season to be extended and warmer temperatures may produce stronger allergenicity in tree pollen (2008).
 - One experimental study compared pollen production of ragweed in warmed versus unwarmed plots and found that total pollen production increased by 84% in the warmed plots. This has implications for allergies since ragweed is an allergenic species (Wan et al. 2002).
- By mitigating greenhouse gases, air pollution can be reduced, which has a powerful impact on human health. Exposure to air pollution can contribute to negative health impacts such as premature death, asthma, bronchitis, lost days of work, restricted-activity days, and lung damage (Cifuentes et al. 2011).
- Short-lived greenhouse pollutants include sulphates, which have been researched in exposure studies that have linked them to increased mortality, specifically from all-cause mortality, cardiopulmonary and cardiovascular mortality, and lung cancer (Krewski et al. 2009).
- Another short-lived greenhouse pollutant, black carbon, is linked to negative health impacts (Smith et al. 2009).

⊕ **Existing Conditions**

- In a comprehensive report about asthma in Wisconsin, Dane County was ranked 62 (out of 72 counties) in terms of ED visit rate per 10,000 and was ranked 24 in terms of

asthma hospitalizations (WI DHS, 2010). Note that lower ranks signify higher county rates.

- On a finer geographic scale there were 707 emergency department cases of asthma in 2010 for the zip codes of residence that were pertinent to this study (53562, 53597, 53529). Cases of asthma were defined as those that used a principal diagnosis code of 493, the ICD-9 code for asthma. The total population of these five ZCTA's according to the 2010 Census was 55,793; thus, prevalence rates can be calculated. Furthermore, the 2010 asthma cases can be stratified by age:

Age (yr)	FUDA study area (zip codes of 53562, 53597, 53529) in 2010	
	ED Asthma cases	Prevalence per 1,000 (cases/55,793)x1,000
<10	13	.31
10-19	10	.24
20-29	10	.24
30-39	**	**
40-49	11	.26
50-59	6	.14
60-69	**	**
70+	**	**
All ages	54	1.27

**Suppressed data because the number of cases was under 5.

- In addition to being able to stratify how many cases of asthma occur in particular zip codes by age, we can also characterize the cases by race, gender, and co-occurring morbidities. Likewise, other health outcomes (e.g., injuries) available in the emergency department dataset can be described in these categories. Furthermore, when linked with demographic data from the U.S. Census, rates can be calculated.

⊕ Impact Assessment: Which of the 3 different scenarios best fits each indicator?

Indicator	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Character), or Scenario C

	(Compact Character)
ED visits related to asthma	Scenario C provides the most affordable, multi-family housing, cutting back on exposure to asthma triggers through quality, affordable housing, reducing ED related asthma visits. This scenario also provides for the densest plan, reducing the most VMT, thus reducing air pollutants, another asthma related trigger.
CC & Allergic diseases	Scenario C provides the most affordable, multi-family housing, cutting back on exposure to allergic triggers through quality, affordable housing, thus reducing allergic diseases. This scenario also reduces VMTs, reducing green-house gas emissions which are linked to climate change which could have an impact on aeroallergen concentrations.
Greenhouse gases and pollutants	Scenario C provides for the densest plan, reducing the most VMT, thus reducing air pollutants, another asthma trigger, and reducing climate changing emissions which could impact aeroallergen concentrations.
Trip Reduction	Scenario C provides a mixed use plan with dense, connected street grids with that will decrease trips, and length of trips, reducing air pollution and green-house gas emissions. This scenario allows for more pedestrian and bike travel, thus reducing trips and increasing physical activity.
Reduced VMT	Scenario C provides a mixed use plan with dense, connected street grids with that will decrease trips, and length of trips, reducing air pollution and green-house gas emissions.

✦ *Recommendations see Appendix 4, pg. 85*

✦ *Comprehensive Impact Assessment: Scenario rankings based on indicators*

Indicator (outlined in Scoping Phase)	Rankings 1-3 (1 = best, 3 = worst)		
	Scenario A	Scenario B	Scenario C
Affordable Housing	2	3	1
Good Quality Housing	N/A	N/A	N/A
Life-Cycle Housing	N/A	N/A	N/A

Energy Efficient Building Codes	N/A	N/A	N/A
Developments with Views of Greenery/Vistas for Mental Health	1	3	2
Tree Canopy Preservation	2	3	1
ED visits related to asthma	2	3	1
CC & Allergic diseases	2	3	1
Greenhouse gases and pollutants	2	3	1
Trip Reduction	2	3	1
Reduced VMT	2	3	1
Total	1.875	3	1.125

6.3 HIA Process : Physical Activity & Obesity Indicators

Indicators Reviewed in this Section

1	Trails and Bike Lanes & Walking and Biking
2	Complete Streets and Pedestrian and Cyclist Safety
3	Transit and Transit Oriented Development
4	Neighborhood Characteristics (Social Interaction, Gathering places & Recreational Amenities, & Senior Services)
5	Mixed Used Development
6	Food Access: Local Food Production, Contiguous agricultural land, healthy food outlets

6.3.1 Trails and Bike Lanes & Walking and Biking

⊕ *Link to Health*

Outdoor physical activity yields both health benefits, such as reducing the incidence of chronic disease and social benefits, through providing opportunities for people to meet and thus strengthen community ties (Addy et al, 2004). Barriers to outdoor physical activity include lack of pedestrian oriented infrastructure, poorly maintained footpaths and dangerous street crossings and the volume of traffic passing through a neighborhood (Adyy et al, 2004; Pikora et al, 2003). Good neighborhood designs which include sidewalks, adequate street lighting and easily accessible public recreational facilities such as parks, playgrounds, walking and biking trails, tend to encourage outdoor physical activity (Pikora et al, 2003). Low traffic speeds and low volumes of traffic, as well as the presence of wide bicycle lanes have been found to be important determinants in using a bicycle as a means of transport (Pikora et al, 2003).

⊕ *Existing Conditions*

Dane County Data	
Overweight or Obese, 2010	
Not overweight (BMI <25.0)	35.2%
Overweight (BMI 25.0-29.9)	45.3%
Obese (BMI 30.0 or greater)	19.4%
Any Exercise, 2010	
Yes	85.9 %
No	14.1 %
Myocardial Infarctions (Heart Attack) Hospitalizations, 2009	
Age-adjusted rate per 10,000 population	6.04 – 13.64

(http://www.dhs.wisconsin.gov/epht/CHP/Dane_profile.pdf)

⊕ **Trails and Bike Lanes**

http://madisonareampo.org/maps/documents/public_bike_map_2012_new_design_web.pdf

⊕ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator (outlined in Scoping Phase)	Best Fit FUDA Scenario
	Scenario A (Community Outreach Plan), Scenario B (Dispersed Plan), or Scenario C (Compact Plan)
Trails & Bike Lanes	It is not clear from the information provided on the scenarios which scenario would provide the most trails and bike lanes.
Walking and Biking	Scenario C provides for the most compact street pattern, encouraging and best enabling walking and biking.

⊕ **Recommendations see Appendix 4, pg. 85**

6.3.2 Complete Streets and Pedestrian and Cyclist Safety

⊕ **Link to Health**

Research has shown that vehicle volumes, traffic speeds exceeding 25 mph, and even high densities of curb-side parking are directly proportional to traffic collision rates as well as injury severity from such collisions (CDPH, 2010; IPH Ireland, 2006). Elderly people and children are particularly susceptible to pedestrian-traffic related injuries. High speed traffic may also discourage parents from letting children engage in outdoor physical activities, thus leading to more sedentary lifestyles. Such behavioral patterns set in childhood can result in negative health impacts in adulthood. Adequate and appropriate road design can be employed to reduce care speeds and in turn encourage outside physical activities and thus social interaction opportunities (IPH Ireland, 2006).

Complete street designs provide safe access of a number of users including pedestrians, bicyclists, motorists and transit riders of all ages and abilities (National Complete Streets Coalition, 2011; Wisconsin Department of Transportation, 2011). Enhancing street access to pedestrians and people with disabilities improves transportation equity within a community, particularly for people who cannot afford modes of private transport, and rely on walking,

cycling and public transport for their transportation needs. This reduces the risk of social isolation (Minnesota complete Streets Coalition & Blue Cross Blue Shield, 2010).

Improving the convenience of alternative modes of transport, reduces dependency on automobiles, and encourages people to engage in outdoor physical activity, which reduces the risk of diseases associated with a sedentary lifestyle including type 2 diabetes and heart disease (Minnesota complete Streets Coalition & Blue Cross Blue Shield, 2010). Adequate and integrated bicycle and pedestrian features and facilities include sidewalks, striped bike lanes or wide paved shoulders, frequent pedestrian crossing signals and crosswalks, bicycle parking (bike racks) and adequate lighting (DHSS, 2010). Complete street designs may also contain the following elements: special bus lanes, comfortable and accessible public transportation stops, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, roundabouts (National Complete Streets Coalition, 2011), and small block sizes to achieve good pedestrian street connectivity (DHSS, 2010).

✦ Existing Conditions

Dane County Data	
Number of traffic-related deaths, 2004	
Total	49
15-44 age group	32
45-64 age group	10
65+ age group	5
Number of Count of Injury Hospitalizations resulting from Motor vehicle traffic crash, 2010	
	10

[\(http://wish.wisconsin.gov/results/\)](http://wish.wisconsin.gov/results/)

✦ Impact Assessment: Which of the 3 different scenarios best fits each indicator?

Indicator (outlined in Scoping Phase)	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Plan), or Scenario C (Compact Plan)
Complete Streets & Pedestrian and Cyclist Safety	Scenario C provides for the densest compact street grid which will require lower speed limits, increasing biker and pedestrian safety and thus encouraging bikers and pedestrians.

✦ *Recommendations see Appendix 4, pg. 85*

6.3.3 Transit and Transit Oriented Development

✦ *Link to Health*

Transit oriented development (TOD) facilitates transport access for community members by maximizing access to public transportation systems and services, and through creating walkable environments (TransitOrientedDevelopment.org). Adequate and easy access to employment and educational facilities as well as parks and health care facilities, is essential to maintain a healthy lifestyle. Those lacking private transport may find such access to be hindered (CDPH, 2010).

The design of a TOD neighborhood has a center with a transit bus-station, train station or a tram stop. Such a center is generally surrounded by high density development which becomes progressively less-dense away from the center (Victoria Transport Policy Institute, 2011).

Health and other benefits of TOD design include reduced traffic congestion and driving (and thus less air pollution), reduced car accidents and injuries, adoption a healthier lifestyle with more walking and less stress, reduced household spending on transportation, diversion of resources for more affordable housing, an increased incentive for compact development (less urban sprawl), and increased foot traffic and customers to area businesses (TransitOrientedDevelopment.org).

✦ *Existing Conditions*

Community Information	Village or Township			
	Middleton	Waunakee	Westport	Springfield
Nearest Amtrak Stations	<ul style="list-style-type: none"> 6.2 miles: MADISON (800 LANGDON ST.) - Bus Station. Services: enclosed waiting area, public payphones, public transit connection. 19 miles: COLUMBUS (359 LUDINGTON ST.). 	<ul style="list-style-type: none"> 12.8 miles: MADISON (800 LANGDON ST.) - Bus Station. Services: enclosed waiting area, public payphones, public transit connection. 19 miles: COLUMBUS (359 LUDINGTON ST.). 	<ul style="list-style-type: none"> 9.9 miles: MADISON (800 LANGDON ST.) - Bus Station. Services: enclosed waiting area, public payphones, public transit connection. 19 miles: COLUMBUS (359 LUDINGTON ST.). 	<ul style="list-style-type: none"> 14.6 miles: MADISON (800 LANGDON ST.) - Bus Station . Services: enclosed waiting area, public payphones, public transit connection. 19 miles: COLUMBUS (359 LUDINGTON ST.) .

	Services: ticket office, partially wheelchair accessible, enclosed waiting area, public restrooms, public payphones, free short-term parking, free long-term parking, call for car rental service, call for taxi service.	Services: ticket office, partially wheelchair accessible, enclosed waiting area, public restrooms, public payphones, free short-term parking, free long-term parking, call for car rental service, call for taxi service.	Services: ticket office, partially wheelchair accessible, enclosed waiting area, public restrooms, public payphones, free short-term parking, free long-term parking, call for car rental service, call for taxi service.	Services: ticket office, partially wheelchair accessible, enclosed waiting area, public restrooms, public payphones, free short-term parking, free long-term parking, call for car rental service, call for taxi service.
Mean travel time to work	17.1 minutes	20.5 minutes	21.3 minutes	n/a

⊕ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator (outlined in Scoping Phase)	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Character), or Scenario C (Compact Character)
Transit	It is not clear from the information provided on the scenarios which scenario would provide the best transit options, if any, though it can be assumed that Scenario C is most likely to provide the opportunity for transit because of its density, mixed use, and compact pattern.
Transit Oriented Development	It is not clear from the information provided on the scenarios which scenario would provide transit oriented development, though it can be assumed that Scenario C is most likely to provide the opportunity for transit oriented development because of its density, mixed use, and compact pattern.

⊕ **Recommendations see Appendix 4, pg. 85**

6.3.4 Neighborhood Characteristics (Social Interaction, Gathering Places & Recreational Amenities; Senior Services; Maps of Large Recreational Facilities, Community Gardens, Schools, Large Parks and Open Space)

✦ Link to Health

Social support networks and social interaction can positively impact a community’s health by providing emotional, instrumental (such as residential resources), informational (such as knowledge how to access health care systems), and appraisal (a sense of belonging) support to communities (Chavez, 2008). This support can be particularly essential for low income and ethnically segregated community groups, who may experience a higher rate of negative health outcomes and social isolation (Cave & Coutts, 2002; CDPH, 2010). It prevents isolation, feelings of helplessness and ultimately depression (Chavez, 2008; CDPH, 2010). Instrumental support in the form of adequately planned and maintained neighborhoods (which include the availability of recreational facilities such as parks, playgrounds and walking and biking trails, and adequate street and neighborhood lighting) are great incentives for communities to participate in outside physical activity and thus engage in social interaction (Addy et al, 2004).

Crime and fear of crime may prevent people from using public spaces and thus discourage outdoor physical activity and lead to social isolation. Other health impacts associated with fear of crime include loss of productivity related to continual anxiety and stress of being a victim of crime (Dolan & Peasgood, 2007; IPH Ireland, 2006). Fear of crime may also result in people being reluctant to use public transport. In such cases, people not having access to a private means of transport may become even more socially isolated (Cave & Coutts, 2002). Children living in neighborhoods deemed as unsafe may be at a greater risk of developing behavioral disorders such as hyperactivity, aggression or withdrawal (IPH Ireland, 2006). Social cohesion can thus serve to prevent crime and violence in a community (CDPH, 2010). Formation of clubs and neighborhood based organizations can create solidarity and mutual trust amongst community members (Benard, 2007).

✦ Existing Conditions

Violent Crime Rates	
Dane County WI, 2010 (Population: 491,677)	
Total violent crime	261 per 100,000 population
Murder	0.8 per 100,000 population
Forcible Rape	24.2 per 100,000 population
Robbery	87 per 100,000 population
Aggravated Assault	149 per 100,000 population
Middleton, WI, 2010 (Population: 17,442)	

Total Violent Crime reported by the Middleton PD	18 per 100,000 residents
Murder	0 per 100,000 population
Forcible Rape	3 per 100,000 population
Robbery	10 per 100,000 population
Aggravated Assault	5 per 100,000 population
Waunakee, WI, 2010 (Population: 11,623)	
Total Violent Crime reported by the Waunakee PD	9 per 100,000 residents
Murder	0 per 100,000 population
Forcible Rape	0 per 100,000 population
Robbery	2 per 100,000 population
Aggravated Assault	7 per 100,000 population

(<http://oja.wi.gov/docview.asp?docid=21985&locid=97>)

Property Crime Rates	
Dane County WI, 2010 (Population: 491,677)	
Total Property Crime	2,878 per 100,000 population
Burglary	511 per 100,000 population
Theft	2,236 per 100,000 population
Motor Vehicle Theft	113 per 100,000 population
Arson	18 per 100,000 population
Middleton, WI, 2010 (Population: 17,442)	
Total Property Crime reported by the Middleton PD	2,407 per 100,000 residents
Burglary	336 per 100,000 population
Theft	2,002 per 100,000 population
Motor Vehicle Theft	64 per 100,000 population
Arson	6 per 100,000 population
Waunakee, WI, 2010 (Population: 11,623)	
Total Property Crime reported by the Waunakee PD	998 per 100,000 residents
Burglary	155 per 100,000 population
Theft	817 per 100,000 population
Motor Vehicle Theft	26 per 100,000 population
Arson	0 per 100,000 population

(<http://oja.wi.gov/docview.asp?docid=21985&locid=97>)

Open Spaces and Recreational Areas	
Location	Park/Conservancy
Middleton	<ul style="list-style-type: none"> ⊕ Quarry State Park ⊕ Lakeview Park ⊕ Firemen's Park ⊕ Parisi Park ⊕ Orchid Heights Park

	<ul style="list-style-type: none"> ⊕ Middleton Hills Neighborhood Park ⊕ Stricker Park ⊕ Quarry Park ⊕ Middleton Bike Park ⊕ Metropolitan Community Park ⊕ Stonefield Park ⊕ Parkside Heights Park ⊕ Meadows Park ⊕ Boundary Road Park ⊕ Hillcrest Park ⊕ Baskerville Park ⊕ Hawkridge Park ⊕ Pheasant Branch Creek Resource Area ⊕ Stricker Pond ⊕ Tiedeman Pond ⊕ Graber Pond ⊕ Esser Pond ⊕ Middleton Dog Exercising Area ⊕ Keva Sport Center ⊕ Capitol Ice Arena ⊕ Middleton-Cross Plains Area Indoor Swimming Pool
Waunakee	<ul style="list-style-type: none"> ⊕ Centennial Park ⊕ Hanover Park ⊕ Ripp Park ⊕ Savannah Village Park ⊕ Tierney Park ⊕ Village Park ⊕ Waunakee Marsh State Wildlife Area
Westport	<ul style="list-style-type: none"> ⊕ Schumacher Farm Park ⊕ Christina Park ⊕ Mary Lake Neighborhood Park ⊕ Westshire Conservancy-Jackson's Landing Park/Trails ⊕ Steeplechase Park ⊕ Town Center Park ⊕ Governor Dodge Nelson State Park ⊕ Yahara Heights County Park ⊕ Cherokee Marsh Natural Resource Area ⊕ Mendota County Park ⊕ Dorn Creek Fishery Wildlife Area ⊕ North Mendota Natural Resource Area ⊕ Madison Street Land & Water Legacy Wetland Site ⊕ Yahara River Open Space/Hunting Area

	<ul style="list-style-type: none"> ✦ Six Mile Creek Open Space and Trails ✦ Cherokee Marsh State Natural Area ✦ Empire Prairie State Natural Area ✦ Governor Nelson State Park ✦ Holy Wisdom Prairie Preservation/Trails ✦ Westport Drumlin Preservation Area ✦ Daleo Soccer Fields ✦ Willows Softball Field ✦ Bishops Bay Country Club Golf and Tennis Facilities ✦ Cherokee Golf and Tennis Club Facilities
Springfield	<ul style="list-style-type: none"> ✦ Dane County Highway Garage

<http://www.ci.middleton.wi.us/Default.htm>; <http://www.waunakee.com/index.aspx?NID=4>; <http://townofwestport.org/index.htm>

Gathering Places	
Public Buildings/Spaces	<ul style="list-style-type: none"> ✦ Middleton High School Indoor Pool ✦ Walter R. Bauman Outdoor Aquatic Center ✦ Middleton Senior Center ✦ Middleton Public Library ✦ Middleton-Cross Plains School District ✦ Westport Town Hall ✦ Village of Waunakee Village Center ✦ Waunakee Public Library ✦ Waunakee Community High School ✦ Waunakee Prairie Elementary School ✦ Waunakee Arboretum Elementary School ✦ Waunakee Community Intermediate School ✦ Waunakee Community Middle School ✦ Waunakee Heritage Elementary School ✦ Springfield Town Hall ✦ City Center West ✦ Middleton Municipal Court
Churches/Places of Worship	<ul style="list-style-type: none"> ✦ St. Mary's Of the Lake ✦ Crossroads United Methodist ✦ Mission Hill Lutheran Church ✦ St. Andrew Lutheran Church ✦ First Presbyterian Church ✦ St. Michael's Parish ✦ St. Peter's Catholic Church ✦ St. John the Baptist Catholic Church ✦ First Baptist Church ✦ Christian Life Assembly of God ✦ St. Therese Chapel ✦ St. .Martin's Catholic Church ✦ Vineyard Church of Christ ✦ Metro Believer Church

	<ul style="list-style-type: none"> ⊕ Kingdom Hall of Jehovah’s Witnesses ⊕ Church of Jesus Christ of Latter Day Saints ⊕ Middleton Community United Church of Christ ⊕ Northern Light Church ⊕ St. Bernard Parish ⊕ Gateway Community Church
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(Google Earth 7-18-12)

⊕ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator <small>(outlined in Scoping Phase)</small>	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Plan), or Scenario C (Compact Plan)
Social Interaction	Scenario C provides the most opportunity for neighborly interaction with its denser residential patterns, mixed use compact design that will allow neighborhoods to meet one another walking and biking to various destinations.
Gathering Places & Recreational Amenities	It is not clear from the information provided on the scenarios which scenario would provide the most gathering places and recreational amenities. It can likely be assumed that Scenario C is most likely to provide for gathering spaces and recreational amenities because of its density, mixed use, and compact pattern which will likely incorporate such spaces into its design.

⊕ **Recommendations see Appendix 4, pg. 85**

6.3.5 Mixed Used Development

⊕ **Link to Health**

Compact development, integration of different land uses (for example having retail outlets, food markets, drug stores and offices in close proximity to each other), and pedestrian oriented urban designs facilitate neighborhood accessibility and lead to a decrease in car dependency and associated air pollution (Krizek, 2003; & Kockelman, 2007) while sprawling developments and suburbs encourage use of automobiles (Dannenberg et al, 2003). The presence of destinations such as retail facilities and services in a neighborhood has been shown to serve as incentives for people to engage in walking activities (Pikora et al, 2003). Mixed use and pedestrian friendly neighborhood designs are thus more likely to promote social networking, by encouraging people to perform daily chores without the use of automobiles (Leyden, 2003). The quality of life amongst older generations can be improved by anticipating

as well as responding to ageing-related needs in the community environment (WHO, 2007). Compact development can serve to address these needs.

✦ **Existing Conditions**

Community Information	City, Village or Township			
	Middleton	Wauunakee	Westport	Springfield
Daytime population change due to commuting	+3,657 (+23.2%)	-719 (-8.0%)	n/a	n/a
Workers who live and work in this town/village	2,308 (24.8%)	1,346 (27.6%)	n/a	n/a
Nearest hospitals/medical centers	<ul style="list-style-type: none"> • Madison VA Medical Center (Acute Care - Veterans Administration, Government Federal, about 3 miles away; MADISON, WI) • University of Wisconsin Hospitals and Clinics (Acute Care Hospitals, Government - Hospital District or Authority, provides emergency services, about 5 miles away; MADISON, WI) • Meriter Hospital (Acute Care Hospitals, Voluntary non-profit - Private, provides 	<ul style="list-style-type: none"> • Madison VA Medical Center (Acute Care - Veterans Administration, Government Federal, about 8 miles away; MADISON, WI) • University of Wisconsin Hospitals and Clinics (Acute Care Hospitals, Government - Hospital District or Authority, provides emergency services, about 9 miles away; MADISON, WI) • Meriter Hospital (Acute Care Hospitals, Voluntary non-profit - Private, provides 	<ul style="list-style-type: none"> • Madison VA Medical Center (Acute Care - Veterans Administration, Government Federal, about 7 miles away; MADISON, WI) • University of Wisconsin Hospitals and Clinics (Acute Care Hospitals, Government - Hospital District or Authority, provides emergency services, about 7 miles away; MADISON, WI) • Meriter Hospital (Acute Care Hospitals, Voluntary non- 	<ul style="list-style-type: none"> • Madison VA Medical Center (Acute Care - Veterans Administration, Government Federal, about 14 miles away; MADISON, WI) • University of Wisconsin Hospitals and Clinics (Acute Care Hospitals, Government - Hospital District or Authority, provides emergency services, about 14 miles away; MADISON, WI) • Meriter Hospital (Acute Care Hospitals, Voluntary non-profit - Private,

	<p>emergency services, about 6 miles away; MADISON, WI)</p> <ul style="list-style-type: none"> • St. Mary's Hospital partner with Dean (non-profit provides emergency services, about 6 miles away; MADISON, WI) 	<p>emergency services, about 10 miles away; MADISON, WI)</p> <ul style="list-style-type: none"> • St. Mary's Hospital partner with Dean (non-profit provides emergency services, about 10 miles away; MADISON, WI) 	<p>profit - Private, provides emergency services, about 7 miles away; MADISON, WI)</p> <ul style="list-style-type: none"> • St. Mary's Hospital partner with Dean (non-profit provides emergency services, about 7 miles away; MADISON, WI) 	<p>provides emergency services, about 18 miles away; MADISON, WI)</p> <ul style="list-style-type: none"> • St. Mary's Hospital partner with Dean (non-profit provides emergency services, about 6 miles away; MADISON, WI)
<p>Local PCP and Podiatry Clinics</p>	<ul style="list-style-type: none"> • Dean Health Systems Inc 8301 Old Sauk Rd • Middleton Village Nursing 6201 Elmwood Ave • Associated Physicians 6201 Elmwood Ave • Meriter Medical Group Elmwood Ave. • Meriter Deming Way • University Podiatry Associates 6255 University Ave Ste 204 • Preferred Podiatry Group PC 8301 Old Sauk Rd Attic Angel Community • Isthmus Eye Care 	<ul style="list-style-type: none"> • Dean Health Systems Inc Century Ave. • Aggeus Healthcare, P.C. 801 S Klein Dr • Stellar Rehabilitation, LLC 5469 Westshire Cir • Preferred Podiatry Group PC 5475 Westshire Cir 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A

	SC 7601 University Ave Ste 102			
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www.city-data.com; <http://www.medicare.gov/find-a-doctor/practice-results.aspx?searchtype=GP&loc=53562&pref=No&lat=43.1156039&lng=-89.53089030000001>

⊕ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator (outlined in Scoping Phase)	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Plan), or Scenario C (Compact Plan)
Mixed Used Development	Scenario C incorporates the most mixed used development into its plan.

✦ *Recommendations see Appendix 4, pg. 85*

6.3.6 Food Access Impact: Healthy Food Outlets and Local Food Production

✦ *Link to Health*

Good nutrition is essential for good health. It helps with disease prevention and is essential for children's growth and development. Evidence shows that a diet of healthy, nutritious foods, in conjunction with physical activity, can help reduce the incidence of the leading causes of death in the United States, namely heart disease, cancer, and diabetes (CDC, 2010).

Access to healthy foods is a key issue, especially for individuals lacking private transport. To ensure access to healthy foods, supermarkets or fruit and vegetable stores need to be located within a mile of residents or convenient transit needs to be available within half a mile (.8 km) to go to such stores (Univ. Minn., 2007).

Evidence from numerous cross-sectional studies consistently demonstrates that some elements of food environments are associated with obesity. People who live in communities with easy access to healthy foods tend to have more healthful diets. Minority and low-income communities have disparities in access to healthful foods (Sallis & Glanz, 2009). The food environment thus plays role in peoples' ability to access and purchase affordable, healthy and nutritious foods (Walker, Keane, & Burke 2010). Research shows that neighborhood residents with better access to supermarkets and limited access to convenience stores tend to have healthier diets and lower levels of obesity (Larson, Story & Nelson, 2009).

The current food production system puts financial pressures on food producers to grow cheap food which is linked to the current rise in obesity levels (O'Kane, 2011). Community foods systems might play an important role in mitigating the environmental, economic and social effects of the current food production system through the use of more sustainable food production which create fewer environmental impacts (reduced fuel consumption and pollution), develop local economies by creating local jobs, and foster ties between farmers and consumers, creating stronger social networks and healthier communities (Pederson RM, Robertson A, & deZeeuw H., 2000; O,Kane, 2011).

✦ *Existing Conditions: Food Outlets*

Food outlets are licensed retail establishments that include gas stations and convenience stores that sell at least one perishable item such as dairy, as well as grocery stores and coffee shops or delis that sell milk or prepared foods (DPH, Licensed Food Estb.). There are a total of 226 Food Outlets in the five zip code area.

Type of Food Outlet	Number of Outlets	Additional Information
Farmers Market	3	<ul style="list-style-type: none"> ⊕ Middleton: 2 ⊕ Waunakee: 1
Primarily Restaurant	128	<ul style="list-style-type: none"> ⊕ tavern, pub, pizza, burger, sports bar, saloon: 23 ⊕ chain fast food restaurants: 14 ⊕ travel center, snack bar: 6 ⊕ school: 6 ⊕ apartment/inn/hotel/motel: 8 ⊕ bakery/café: 2 ⊕ sandwich shop: 8 ⊕ other restaurant: 61
Restaurant Mobile Base/Cart	7	<ul style="list-style-type: none"> ⊕ mobile food base:3 ⊕ mobile food cart:4
Retail Food Establishment	52	<ul style="list-style-type: none"> ⊕ gas station: 15 ⊕ drug store:4 ⊕ hardware store:1 ⊕ grocery store: 4 ⊕ liquor store: 2 ⊕ specialty store: 20 ⊕ dollar store: 2 ⊕ concessions/snacks: 3 ⊕ unknown: 1

(Wisconsin DPH, Licensed Food Establishments, <http://www.reapfoodgroup.org/farmers-markets/farmers-markets>)

⊕ **Existing Conditions: Local Food Production**

This area of Wisconsin is rich in commercial farming. In the five zip code region under investigation, there are commercial farms that produce animal products (beef, poultry, eggs, lamb, etc.), berries, fruit and tree nuts, milk and other dairy, orchard products, and vegetables. The table below provides a break-down of the number of each type of commercial farmer in the area:

Type of Product	Number of Farms
Animals	260
Berries	3
Fruit & Tree Nuts	7
Milk & Other Dairy	125
Orchards	7
Vegetables	21
Total	423

http://quickstats.nass.usda.gov/?agg_level_desc=ZIP%20CODE#BDD9F7A5-1D07-340E-9EDE-A52274D1B500

This three zip code area of Wisconsin also contains one CSA (Community Supported Agriculture), Equinox Community Farm. There are three farmers markets in the area.

✦ **Impact Assessment: Which of the 3 different scenarios best fits each indicator?**

Indicator (outlined in Scoping Phase)	Best Fit FUDA Scenario
	Scenario A (Adopted Plans), Scenario B (Dispersed Character), or Scenario C (Compact Character)
Healthy Food Outlets	Scenario C will provide the most access to healthy food outlets because of its mixed used layout and compact nature that allows for multiple modes of transportation to access food outlets.
Local Food Production	Scenario C plans for the most redevelopment, reducing new development, thus providing for the most farmland preservation, allowing for the most local food production.

✦ **Recommendations see Appendix 4, pg. 85**

✦ **Comprehensive Impact Assessment: Scenario rankings based on indicators**

Indicator (outlined in Scoping Phase)	Rankings 1-3 (1 = best, 3 = worst)		
	Scenario A	Scenario B	Scenario C
Trails & Bike Lanes	N/A	N/A	N/A
Walking and Biking	2	3	1
Complete Streets & Pedestrian and Cyclist Safety	2	3	1
Transit	2	3	1

Transit Oriented Development	2	3	1
Social Interaction	2	3	1
Gathering Places & Recreational Amenities	2	3	1
Mixed Used Development	2	3	1
Healthy Food Outlets	2	3	1
Local Food Production	2	3	1
Total	2	3	1

7. Impact Analysis

FUDA planning intends to empower local jurisdictions with a set of tools and resources to make informed planning decisions and facilitate local comprehensive planning, intergovernmental coordination, the USA amendment review process and regional plan updates. In order to do within the current HIA for Middleton, Waunakee, Westport and Springfield, the FUDA process initially began with three scenarios for future growth and land use. The creation and evaluation of these three growth scenarios were based on findings in the Environmental Conditions Report (ECR), a land demand analysis that was created by the CARPC staff team and developed based on existing future land use plans, adopted local land use plans and community and steering committee input. Those original scenarios included Scenario A (Adopted Plans), Scenario B (Dispersed Character), and Scenario C (Compact Character) and were presented to the public who were given the opportunity to vote on each scenario and whose input helped inform steering committee decisions. The health impacts and outcomes discussed in this rapid HIA were based on the original three scenarios laid out by the steering committee. However, the public polling process and community input resulted in a recommendation by the steering committee of a hybrid scenario, incorporating elements of both Scenario A and Scenario C, called the “Recommended North Mendota FUDA Scenario.” Because the process moved forward with the “Recommended North Yahara FUDA Scenario,” the Impact Analysis in this section is based on the recommended hybrid scenario rather than any of the original three scenarios.

Impact Analysis – FUDA Hybrid Scenario	
Determinant	Effect of Hybrid Scenario on Indicators
Housing Impact	Higher density housing districts adjacent to frequent destinations encourages more physical activity through more walking and biking. Sensitive environmental areas will be preserved, allowing for views of greenery and tree canopy preservation, increasing mental health. Higher density reduces trip length, increasing air quality and reducing asthma triggers. More affordable housing options increases health through better quality housing, reducing exposure to allergen triggers, and reducing stress associated with unaffordable housing or low-income housing.
Environmental Impact	Higher density reduces trip length, increasing air quality, reducing air pollutants and greenhouse gas emissions. Sensitive environmental areas will be protected, and a balance will be created between preserving farmland and open space and

	maintaining small village character, increasing mental health and social cohesion.
Mobility and Access	Interconnected street patterns allow for direct trips and encourage walking and biking. Reduction in need for infrastructure per person provides cost savings to home owners, business owners and municipalities, reducing financial stress and increasing disposable income available for other health related activities/issues/etc. as well as for public services. A long-term desire for transit service, which higher-density mixed-used areas in the plan will support, will decrease VMTs and encourage more walking and biking to and from transit stations.
Density	Increases residential density (in Middleton and Westport), preserving farm and open spaces, providing green space beneficial to mental health. Infill and redevelopment will preserve green space, benefiting mental health. A mix of higher density residential and commercial land encourages more physical activity through more walking and biking. Higher density reduces trip length, increasing air quality and reducing asthma triggers. Increases in the tax base and employment opportunities increase quality and quantity of public services and increases income which promote health. Local jobs decrease VMTs, improving air quality and reducing greenhouse gas emissions.
Food Access	Mix of higher-density residential and commercial land uses will increase food access. Preservation of farmland will protect local food production. Dense residential areas may encourage an increase in farmer's markets, increasing access to healthy foods.

8. HIA Process: Recommendations

Prioritized Health Impact	Recommendation to Maximize Health Gain/Reduce Health Loss	Party responsible for Implementing the Recommendation
Physical Activity: Safe Routes to School	To ensure that school children receive physical activity getting to and from school, implement a Safe Routes to Schools program in the communities as mentioned in Further Analysis Areas (FAA), issue 6.	TBD
Physical Activity: Pedestrian Walking and Biking	For all communities, ensure that Recommendations in Section 6 of FUDA Scenario Overview and Recommendations are implemented (establishing connected streets, sidewalk, bike-path and trail networks that promote walking, biking). The community of Waunakee should ensure that they implement recommendation 6.6 (establishing a sidewalk retrofit plan for exiting neighborhoods without sidewalks, evaluating and adjusting street standards to include sidewalks, street trees, and limit impervious surfaces and traffic speeds), particularly since they will be decreasing density.	CARPC
Physical Activity: Aging Population	<p>Recommendation 12.2 should be implemented with a focus on making these “adult fitness circuits” accessible for seniors as explained below:</p> <p>To facilitate aging in place and encourage physical activity of senior citizens, walking paths (or “adult fitness circuits”) should be created that incorporate the needs of seniors such as frequent benches for resting, water fountains for rehydrating, and shade trees to protect from the sun. In addition, these walking paths could include low</p>	CARPC

	<p>impact exercise structures to encourage increased physical activity.</p> <p>Additional senior fitness focused plans: Create bump outs at busy intersections and longer stop lights to facilitate pedestrian crossings. Make sure road signs and traffic signals are clear and easy to understand for pedestrians who may possibly have limited faculties (eye-sight, hearing, etc).</p>	
Physical Activity and Social Cohesion	<p>Ensure that as part of the hybrid scenario, social gathering places and open spaces for recreational use are included in the design. Social gathering places will increase social cohesion and open spaces that provide greenery and vistas will not only increase mental health but will also provide space for physical activity and social cohesion. Emphasize that these open spaces be located near senior and multi-family housing where density may limit open space and there may be less financial ability to participate in private recreational facilities.</p>	CARPC
Access to Healthy Foods	<p>The creation of a local food council could encourage more frequent farmers' markets with more local vendors, increasing access to healthy local foods. This food council could also provide community outreach and information on how to obtain, store, prepare and enjoy healthy foods. Emphasis should be placed on locating farmer's markets in areas otherwise not well served with healthful food outlets and near senior and multi-family housing where need for access to healthy foods may be greatest.</p>	CARPC
Access to Primary Care Physicians	<p>Accessibility to PCPs is a particular concern to the aging population. Make sure that this need is addressed in future planning conversations and ensure that there is adequate public transportation or shuttle services to provide access.</p>	

9. HIA Process: Reporting

Capital Area Regional Planning Commission (CARPC)

- ⊕ To ensure The HIA report will be widely and appropriately disseminated, the report will be shared with our partner, CAPRC. CARPC will include the HIA report in their dissemination to the community by including it in their Future Urban Development Area (FUDA) report and presentations.

Wisconsin HIA Collaborative

- ⊕ The Wisconsin HIA Collaborative will create a brief PowerPoint presentation as well as a brief brochure to be disseminated through Wisconsin Public Health Association (WPHA) and online via the WPHA HIA website. Additionally, the HIA section created a case study (see below) for further dissemination.

Case Study

Case Study: Capital Area Regional Planning Commission: Public Health in Regional and Local Comprehensive Planning

Sector: Government Agency

Taking steps to: Implement Strategies

Organizational Description

The Capital Area Regional Planning Commission (CARPC) was created in 2007 by Wisconsin Governor James Doyle. The creation was requested in the form of adopted resolutions by local units of government in Dane County representing over 87% of the population and equalized property valuation in the county. The territory of the CARPC is Dane County and the cities and villages with incorporated areas in Dane County. The Commission is composed of thirteen Commissioners appointed by the Mayor of the City of Madison (4), the Dane County Executive (3), the Dane County Cities and Villages Association (3), and the Dane County Towns Association (3). The Commission is charged with the duty of preparing and adopting a master plan for the physical development of the region, and maintaining a continuing area wide water quality management planning process in order to manage, protect,

and enhance the water resources of the region, including consideration of the relationship of water quality to land and water resources and uses.

Capital Regional Sustainable Communities Initiative

In the fall of 2010, the U.S. Department of Housing and Urban Development (HUD) awarded the Capital Region a \$2 million, three-year Sustainable Community Regional Planning Grant (SCRPG). The Sustainable Communities partnership is a federal initiative between the HUD, the Department of Transportation, and the Environmental Protection Agency (<http://www.epa.gov/smartgrowth/partnership/>). Twenty-seven governmental and private entities came together as Capital Region Sustainable Communities (CRSC) to successfully compete for these grant funds. CARPC serves as the lead agency for the CRSC. Recognizing that regional challenges - healthy environment, mobility, economic opportunities for all, and quality of life - require collaborative and integrated approaches. CRSC fosters regional collaboration, conducts planning and pursues demonstration projects for sustainable communities. One of the major projects is CARPC's Future Urban Development Area (FUDA) planning.

Need for Public Health Lens

The Sustainable Communities Regional Planning Grant prioritizes livability principles (<http://www.epa.gov/smartgrowth/partnership/index.html#livabilityprinciples>) and all have important public health implications; however, the CRSC does not have formal public health partners. After ongoing outreach, the Wisconsin Public Health Association's Health Impact Assessment (HIA) Section and CARPC staff went through an informal assessment process to understand how each partner might benefit from working together.

Action Steps Highlight

- ⊕ **Assess Needs & Resources** Nationally, urban growth continues to accelerate and mixed-use land redevelopment initiatives proliferate. Increasingly, public health practitioners need evidence-based methodologies to effectively engage in the policy-making process and encourage informed decision-making about critical public health strategies for reducing chronic disease, promoting physical activity, and securing access to basic community resources, among others. Wisconsin's public health community is no exception to the national trends. The public health community faces an intensifying need to measure the health impact of the built environment as it evolves with community growth and public policy. In fact, Wisconsin passed legislation requiring municipalities to develop "smart-growth" plans (includes public participation) to comprehensively plan for policy or infrastructure changes in both urban and rural settings.¹ Historically, public health was missing in conversations on community

planning. Thus, this is an optimal time for Wisconsin public health practitioners to seek new partnerships with municipalities, agencies and organizations at many levels to engage in this comprehensive planning process and begin evaluating health impacts from changes in the built environment.

- ⊕ **Pick Priorities** Understanding the potential for planners and public health, the HIA Section and CARPC staff determined that conducting rapid HIAs (<http://www.dhs.wisconsin.gov/hia/>) on the FUDA scenarios would be an opportunity to partner. The purpose of FUDA planning is to protect vital natural resources, promote efficient development, and preserve farmland through cooperative planning for long-term growth. Dane County's Water Quality Plan will identify the 25-year FUDA and will consider other factors including the impacts on natural and built systems, the efficient use of land including urban densities, and the ability to efficiently provide services to support the development and farmland preservation planning.
- ⊕ **Find Programs & Policies That Work** HIA is a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects (International Association for Impact Assessment, 2006). The purpose of the HIAs is to provide a public health lens to inform the communities' decision-making processes as they select their FUDA plans.
- ⊕ **Implement Strategies** The HIAs will be conducted from February 2012- April 2012 and will focus on potential health impacts on the aging population and determinants and outcomes related to physical activity.
- ⊕ **Evaluate Efforts** Intended outcomes for this process include: (a) assessing the health impacts of two future urban development area pilot projects to aid in the decision of the selection of a final scenario and associated implementation measures; and (b) the development of a case study to guide future public health and planning partnerships.

10. HIA Process: Monitoring & Evaluation

Because this rapid HIA was a demonstration project, the monitoring and evaluation processes were enacted differently than they would have been for a full HIA. That being said, there is still important monitoring and evaluation information that can be shared through this rapid HIA process to get a better understanding of how these steps of an HIA are important to the overall process.

Monitoring Plan

In general, a monitoring plan for a full HIA is done for the following reasons and should be done in the following ways:

- ⊕ To determine whether the recommendations set forth were actually implemented.
- ⊕ The monitoring plan should include provisions on how to report monitoring findings to decision makers and HIA stakeholders.
- ⊕ Indicators required for monitoring and measuring the health impacts and long-term effects of the proposal need to be determined and set up during the scoping stage, rather than at the end of the HIA process. Monitoring of the proposal's implementation should be a continual process.

Evaluation Process

In general, the evaluation process is meant to accomplish the following:

- ⊕ To determine whether the HIA was effective in carrying out its objectives and ultimately achieving its health goals.
- ⊕ To determine whether the methodologies employed were effective or suitable.
- ⊕ To determine the HIA's usefulness as seen by its target audience(s).
- ⊕ To assess the accuracy of predictions made during appraisal stage of the HIA.
- ⊕ To establish how effective the process was in influencing decision-making processes and developments.

More specifically, had this HIA been conducted as a full HIA rather than a rapid demonstration HIA, various process, impact and outcome questions would be asked as part of the evaluation process. Examples of these evaluation questions appear below:

- ⊕ **Process Evaluation:**

- Where the individuals in the communities that the identified health priorities focus on (the aging population and overweight/obese populations) fully incorporated into the HIA process to ensure that their needs, concerns, and comments were heard and addressed?
- Where the health needs of the communities that the identified health priorities focus on (the aging population and overweight/obese populations) addressed in the hybrid scenario because of the HIA process?

⊕ **Impact Evaluation:**

- Does the chosen hybrid scenario disproportionately affect the health of one or more groups of individuals? If so, what groups of individuals and how are they disproportionately affected?
- Were the recommendations for the aging population, specifically to create walking paths and cross walks that address their needs, as well as recommendations for physical activity, such as including more sidewalks and biking facilities enacted? If not, why?

⊕ **Outcome Evaluation:**

Because of the long term time frame of these growth plan scenarios, it is difficult to track the long term health impacts of HIA recommendations. Typical HIAs are better able to determine the long-term health effects of HIA recommendations because the time frame they are working with is generally shorter than a 20+ year comprehensive plan such as is the case with the particular rapid demonstration HIA.

If this were a full HIA, the following outcome questions could be asked as part of the outcome evaluation:

- Did levels of physical activity increase due to better sidewalks, walking paths and bike paths/facilities as recommended by the HIA? If so, can this increase in physical activity be linked to any decreases in overweight/obesity?
- Did the health of the aging populations increase do to better access to recreation and better access to healthful foods?

11. Discussion

⊕ *Strengths*

The rapid HIA conducted was able to add value to the FUDA process by bringing a health lens to the table. It did so by assessing potential impacts of the Future Urban Development Area (FUDA) alternate scenarios, providing recommendations to the community steering committee, and to disseminating this project as a case study to inform future partnerships between community planners and public health in Wisconsin. The HIA was also able to bring attention to the specific health concerns of the community members in the FUDA area (the aging population and physical activity and obesity) and provide recommendations to help address these specific health concerns.

The partnership created between CAPRC and DPH has value outside of this HIA process. There are many projects the two organizations can partner on in the future that incorporate plans, policies or programs that focus on both planning and health issues.

Finally, as a demonstration project, this HIA adds value to the HIA community because it provides experiences and information on how HIA can be used in the field of community planning to help bring a health lens to the planning process.

⊕ *Limitations*

Due to the time constraints associated with this project, this HIA was conducted as a rapid HIA. This means that the data collection process was less intensive than in a traditional, longer term HIA. There were limitations in ability to obtain data which restricted the impact analysis. Some data limitations were related to data on existing conditions, while others were related to details about how the three original scenarios related to each indicator.

For example, data limitations on existing conditions were related to affordable housing, good quality housing, life-cycle housing, and energy efficient building codes: no data was obtained regarding the percent of families/individuals who live in affordable housing, and no data was obtained and/or available on good quality housing, life-cycle housing, and energy efficient building codes.. Other existing conditions data that was lacking related to emergency department (ED) visits related to asthma and climate change (CC) and allergic diseases. Finally, other existing conditions data that was not available related to healthy food outlets and local food production: no data was available on the “healthiness” of foods at local foods outlets, and no data was available on what percent of locally produced foods are sold and/or consumed locally.

Some of the data limitations were related to lack of detailed information in the three original scenarios related to the prioritized health determinants. It was not possible from the

information provided on the three scenarios to determine which scenario would have the most views of greenery/vistas for mental health or which would provide for the most tree canopy preservation. This was also true for health indicators such as trails and bike lanes, transit, transit oriented development and gathering places and recreational amenities. In these cases, it was necessary to make a recommendation based on the limited information related to these health indicators or to make no recommendation at all.

Because this rapid HIA was conducted in conjunction with a long-term comprehensive plan for these communities, the monitoring phase will not be followed through to completion. This type of long-term comprehensive plan is usually a 20 to 50 year plan and thus makes it difficult to evaluate the long term outcomes of conducting an HIA.

12. Conclusion

Just like individual and population health, the health of a community is multifaceted and complex. Healthy community design is a comprehensive strategy for shaping and organizing our communities, taking into account the myriad factors, such as policies, plans, and programs, which affect physical and mental health and social well-being. HIA is one way to help shape and organize our communities for health, by looking at the complicated intersection between health and social, economic and environmental factors in a systematic way, to see how various policies, plans and programs may positively and/or negatively affect health. One important advantage of HIA is that it can pinpoint and focus on the needs of disadvantaged populations, thus attempting to address some of the health disparities in a community.

This rapid HIA addressed the traditional six steps of the HIA process in a slightly different fashion than a traditional HIA because it was a demonstration project. After deciding to move forward with an HIA, the goals of the HIA were articulated, certain health pathways were prioritized, and vulnerable populations were identified. This rapid HIA was able to provide the communities involved with information on which of the original three scenarios best fit each health determinant, to help inform and educate community members on how various health determinants are affected by different land use plans. The HIA process was also able to provide these communities with recommendations on how to best promote health and mitigate any potential negative health effects of the recommended hybrid scenario.

This demonstration HIA will help inform future HIA projects. The partnership that has been established between CARPC and the Wisconsin HIA Collaborative will be beneficial in the future.

13. References

- Addy, C. L., Wilson, D. K., Kirtland, K. A., Ainsworth, B. E., Sharpe, P., & Kimsey, D. (2004). Associations of perceived social and physical environmental supports with physical activity and walking behavior. *American Journal of Public Health*, 94, 440–443.
- Bell ML, Goldberg R, Hogrefe C, Kinney PL, Knowlton K, Lynn B, Rosenthal J, Rosenzweig, Patz JA. Climate change, ambient ozone, and health in 50 US cities. *Climatic Change* 2007;82:61-76.
- Benard, B. (2007). The hope of prevention. Individual, family and community resilience. In Cohen, L., Chavez, V., & Chehimi, S. (Eds.) *Prevention is Primary. Strategies for Community Well-Being* (pp. 63-89). San Francisco, CA: Jossey-Bass.
- Berman, M.G., Jonides, J., & Kaplan, S. (2008). The cognitive benefits of interacting with nature. *Psychological Science*, 19 (12), 1207-1212.
- Cave, B. & Coutts, A., (2002). Health evidence base for the Mayor's draft Cultural strategy. Retrieved from <http://london.gov.uk/lhc/docs/publications/hia/evidencesummary/culture.pdf>
- Centers for Disease Control and Prevention, (2010): Healthy Food Environment. Retrieved from http://www.cdc.gov/healthypplaces/healthtopics/healthyfood_environment.htm
- Centers for Disease Control and Prevention, (2009): About Healthy Places. Retrieve from <http://www.cdc.gov/healthypplaces/about.htm>
- CDPH, (2010). A Guide for Health Impact Assessment. Retrieved from <http://www.cdph.ca.gov/pubsforms/Guidelines/Documents/HIA%20Guide%20FINAL%2010-19-10.pdf>
- Chávez, V. (Speaker) (2008). *Social Support Networks. On Social and Behavioral and Cultural factors in Public Health*. [DVD]. Baltimore, MD: Laureate Education, Inc.
- Cifuentes L, Borja-Aburto VH, Gouveia N, Thurston G, Davis DL. Hidden health benefits of greenhouse gas mitigation. *Science* 2001;293:1257-1259.
- City-Data.com.
- City of Covington, (2012). Tree Preservation Ordinance. Retrieved from <http://www.cityofcovington.org/Departments/ForestPreservation/Pages/TreePreservationOrdinance.aspx>
- D'Amato G, Cecchi L. Effects of climate change on environmental factors in respiratory allergic diseases. *Clinical and Experimental Allergy* 2008;38:1264-1274.

- Dannenber, A.L, Jackson, R.J., Frumkin, H., Schieber, R.A., Pratt, M., Kochtitzky, C., & Tilson, H.H. (2003). The impact of community design and land-use choices on public health: A Scientific Research Agenda. *American Journal of Public Health*, 93(9), 1500-1508.
- Delaware Health and Social Services, (2010). Healthy Communities: The Comprehensive Plan Assessment Tool. Retrieved from <http://www.ipa.udel.edu/healthydetoolkit/docs/CompPlanAssessmentTool.pdf>
- Disability Council of NSW. Lifecycle Housing. Retrieved from <http://www.disabilitycouncil.nsw.gov.au/portfolios/uhd/LifecycleHousing.pdf>
- Dolan, P., & Peasgood, T., (2007). Estimating the Economic and Social Costs of the Fear of Crime. *British Journal of Criminology*, 47, 121–132. doi:10.1093/bjc/azl015.
- Douglas County Public Health & Minnesota Public Health Department, (2011). Douglas County Comprehensive Plan Update Health Impact Assessment. Retrieved from
- Enterprise Community Partners, Inc. & The Center for Housing Policy, (2007). The Positive Impacts of Affordable Housing on Health: A Research Summary. Retrieved from <http://www.nhc.org/media/documents/HousingandHealth.pdf>
- FairShare CSA Coalition, (2012). Madison Area CSA Coalition. Retrieved from <http://www.csacoalition.org/>
- Friedman MS, Powell KE, Hutwagner L, Graham LM, Teague WG. *JAMA* 2001;285(7):897-905.
- Giles, W.H., & Liburd, L.C., (2007). Achieving Health Equity and Social Justice. In Cohen, L., Chavez, V., & Chehimi, S. (Eds.) *Prevention is Primary. Strategies for Community Well-Being* (pp. 25-40). San Francisco, CA: Jossey-Bass.
- Gostin, L., & Powers, M. (2006). What does social justice require for the public's health? Public health ethics and policy imperatives. *Health Affairs*, 25(4), 1053–1060.
- Human Impact Partners (2006). FAQ about HIA. Retrieved from <http://www.humanimpact.org/faq#Questions>
- Institute of Public Health in Ireland, (2006). Health Impacts of the Built Environment: A Review. Retrieved from http://www.publichealth.ie/files/file/Health_Impacts_of_the_Built_Environment_A_Review.pdf
- Jarosz, L. (2008). The city in the country: Growing alternative food networks in Metropolitan areas. *Journal of Rural Studies*, 24(3):231–244.
- Kinney, PL. Climate change, air quality, and human health. *Am J Prev Med* 2008;35(5):459-467.

- Kockelman, K.M. (2007). Travel behavior as function of accessibility, land use mixing, and land use balance: evidence from San Francisco Bay area. *Transportation Research Record: Journal of the Transportation Research Board*, 1607, 116-125.
- Krewski D, Jerrett M, Burnett RT, Burnett RT, Ma R, Hughes E, Shi Y, Turner MC, Pope III CA, Thurston G, Calle EE, Thun MJ. Extended analysis of the American Cancer Society study of particulate air pollution and mortality. Boston: Health Effects Institute, 2009.
- Krizek, K.J. (2003). Operationalizing neighborhood accessibility for land use – travel behavior research and regional modeling. *Journal of Planning Education and Research*, 22, 270-287.
- Larson, N.I., Story, M.T., & Nelson, M.C. (2009) Neighborhood environments: disparities in access to healthy foods in the U.S. *Am J Prev Med*. 36(1):74-81.
- Leventhal, T., & Brooks-Gunn, J. (2003). Moving to opportunity: an experimental study of neighborhood effects on mental health. *American Journal of Public Health*, 93 (9), 1576-1582.
- Leyden, K. M., (2003). Social Capital and the Built Environment: The Importance of Walkable Neighborhoods. *American Journal of Public Health*, 93(9), 1546-1551.
- Maller, C., Townsend, M., Pryor, A., Brown, P., & St Leger, L. (2005). Healthy nature healthy people: ‘contact with nature’ as an upstream health promotion intervention for populations. *Health Promotion International*, 21(1), 45-54.
- Minnesota Complete Streets Coalition & Blue Cross Blue Shield, (2010). Complete Streets: Supporting safe and accessible roads for everyone. Local advocates toolkit. Retrieved from <http://www.mncompletestreets.org/gfx/MnCSLocalAdvocatesToolkit.pdf>
- Minnesota DOH, (2011). Douglas County Comprehensive Plan Update Health Impact Assessment. Retrieved from http://www.co.douglas.mn.us/LRM/PDFs/HIA_Rpt2011_lowres.pdf
- MMWR, (2003). Health-Related Quality of Life Among Low-Income Persons Aged 45–64 Years — United States, 1995–2001. In *Morbidity and Mortality Weekly Report*, 52, 1120-1124. Centers for Disease Control and Prevention. Retrieved from <http://www.cdc.gov/mmwr/PDF/wk/mm5246.pdf>
- National Complete Streets Coalition, (2011). Complete Streets FAQ. Retrieved from <http://www.completestreets.org/complete-streets-fundamentals/complete-streets-faq/>
- Nowak, D., Crane, D., & Stevens, J., (2006). Air pollution removal by trees and shrubs in the United States. *Urban Forestry and Urban Greening*, 4,115-123. Retrieved from http://www.fs.fed.us/ne/newtown_square/publications/other_publishers/ne_2006_nowak001p.pdf

- O'Kane, G. (2011). What is the real cost of food? Implications for the environment, society and public health nutrition. *Public Health Nutrition*, 15(2):268-276.
- Pederson RM, Robertson A, deZeeuw H. (2000). Food, health, and the urban environment. *Rev Environ Health*. 15(1-2):231-247.
- Pikora, T., Giles-Corti, B., Bull, F., Jamrozik, K. & Donovan, R. (2003). Developing a framework for assessment of the environmental determinants of walking and cycling. *Social Science and Medicine*, 56, 1693-1703.
- University of Kentucky. LIFE-CYCLE HOUSING Evaluate Before Buying, Building or Remodeling. Retrieved from <http://www.ca.uky.edu/hes/fcs/FACTSHTS/HF-LRA.030.PDF>
- University of Minnesota, (2007). Design for Health. Key questions: Food Access. Retrieved from http://www.designforhealth.net/pdfs/Key_Questions/BCBS_KQFood_082207.pdf
- U.S. Department of Energy, (2011). Retrieved from http://www.energycodes.gov/why_codes/
- U.S. Environmental Protection Agency (EPA), (2008). Wisconsin's strategy for reducing global warming.. Retrieved March 9, 2012, from <http://www.epa.gov/statelocalclimate/state/state-examples/ghg-inventory.html#wi>.
- U.S. Environmental Protection Agency, (2010). Why Build Green?. Retrieved from <http://www.epa.gov/greenbuilding/pubs/whybuild.htm>
- U.S. Environmental Protection Agency, (2011). An Introduction to Indoor Air Quality (IAQ). Lead (Pb). Retrieved from <http://www.epa.gov/iaq/lead.html>
- U.S. Department of Agriculture. Agricultural Statistics Survey. Retrieved from http://quickstats.nass.usda.gov/?agg_level_desc=ZIP%20CODE#BDD9F7A5-1D07-340E-9EDE-A52274D1B500
- U.S. Green Building Council, (2011). Retrieved from <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1991>
- Sallis J.F. & Glanz K. (2009). Physical activity and food environments: solutions to the obesity epidemic. *Milbank Q*. 87(1):123-154.
- San Francisco Department of Public Health, (2011). Indicator ES.1.h Number of buildings that are LEED certified Retrieved from <http://www.thehdmt.org/indicators/view/219>
- Scheffield, P.E., Knowlton, K., Carr, J.L., Kinney, P.L., (2011). Modeling of regional climate change effects on ground-level ozone and childhood asthma. *Am J Prev Med*, 41(3), 251-257.
- Smith, K.R., Jerrett, M., Anderson, H.R., Burnett, R.T., Stone, V., Derwent, R., Atkinson, R.W., Cohen, A., Shonkoff, S.B., Krewski, D., Pope III, C.A., Thun, M.J., Thurston, G., (2009).

Public health benefits of strategies to reduce greenhouse-gas emissions: health implications of short-lived greenhouse pollutants. *Lancet*, 374, 2091-2103.

TransitOrientedDevelopment.org. Transit Oriented Development. Design for a livable sustainable future. Retrieved from <http://www.transitorienteddevelopment.org/tod.html>

United States Department of Agriculture, National Agricultural Statistics Service. Quick Stats. http://quickstats.nass.usda.gov/?agg_level_desc=ZIP%20CODE#BDD9F7A5-1D07-340E-9EDE-A52274D1B500

Victoria Transport Policy Institute, (2011). Transit Oriented Development. Using Public Transit to Create More Accessible and Livable Neighborhoods. Retrieved from <http://www.vtpi.org/tdm/tdm45.htm>

Voskuil, K., Palmersheim, K., Glysch, R., Jones, N, (2010). Burden of Tobacco in Wisconsin: 2010 Edition. University of Wisconsin Carbone Cancer Center. Madison, WI. Retrieved from <http://sep.uwcarbone.wisc.edu/downloads/Documents/programbriefs/The%20Burden%20of%20Tobacco%20Report%202010.pdf>

Walker, R.E., Keane, C.R., & Burke, J.G. (2010). Disparities and access to healthy food in the United States: A review of food deserts literature. *Health Place*. 16(5): 876-884.

Wan S, Yuan T, Bowdish S, Wallace L, Russell SD, and Luo Y. Response of an allergenic species, *Ambrosia psilostachya* (Asteraceae) to experimental warming and clipping: implications for public health. *American Journal of Botany* 2002;89(11):1843-1846.

What Works for Health, (2010). UW Population Health Institute. Retrieved from <http://whatworksforhealth.wisc.edu/index.asp>

Wisconsin Department of Health Services, (2010). Licensed Food Establishments. Retrieved on March 7, 2012.

Wisconsin Department of Health Services (WI DHS), (2010), Division of Public Health, Bureau of Environmental and Occupational Health. Burden of asthma in Wisconsin. PPH 45055 (Rev. 12/10). Retrieved from <http://www.dhs.wisconsin.gov/publications/p4/p45055.pdf>

Wisconsin Department of Transportation, (2011). Complete Streets. Retrieved from <http://www.dot.state.wi.us/projects/state/complete-streets.htm>

WHO, (2007). Global Age-friendly Cities: A Guide. Retrieved from http://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf

Zai Inc. Homes that Respond to the Human Life Cycle. Retrieved from http://www.agingwashington.org/events/june09/Emory_Baldwin.pdf

Appendix 1 Additional FUDA HIA Scoping

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
What are the existing demographics of the area?	How will the FUDA alternative plan impact the demographics of the area?	Age	CARPC			*Community has a particular interest in elderly population
		Income	CARPC			
		Employment	CARPC			
		Race/Ethnicity	CARPC			
What is the existing health status of the area?	How will the FUDA alternative plan impact the health status of the area?	Overweight/obesity	DPH			*Community Interest
		Common diseases	DPH			
		Health Insurance	DPH			
		Physical Activity	DPH			*Community Interest
		Elder Health	DPH			*Community Interest
		Mental Health	DPH			
		Social Cohesion	DPH			
		Respiratory diseases	DPH			
		Emergency Department data	DPH			
		Crime	DOC			

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
		Traffic Related Injury	IRC			
What is the current status of housing availability in the area?	How will the FUDA alternative plan impact housing availability?	Affordable housing (MN)	CARPC			Affordable housing goal
		Quality housing (lead, air quality, temperature, humidity)	DPH			
		Life-cycle housing (Douglas)				Town homes, senior housing, apartments, and rental unites
What are the current economic conditions of the area?	How will the FUDA alternative impact the area economically?	Cost of new infrastructure	CARPC			
		Cost of additional civic amenities	CARPC			
		Cost of public works/road maintenance	CARPC			
		Cost of emergency services	CARPC			
		Tax revenue	CARPC			
		School impact: Assessment	CARPC			Comparison of tax levy per student
		School impact: Bussing	CARPC			Potential saving to school districts due to walking not bussing

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
		Jobs	CARPC			New employees added between 2010 and 2035, and between 2010 to “build out)
		Job Access (Douglas)				Does the plan promote economic opportunities for low income and underemployed or insecurely employed individuals
		Consumer Expenditure	CARPC			Additional Spending by new residents
What are the current environmental (broadly defined) conditions of the area?	How will the FUDA alternative impact the area environmentally (broadly defined)?	Air pollution	CARPC			
		Asthma/ Respiratory diseases	DPH?			
		ED visits related to Asthma	DPH?			
		Greenhouse gas	CARPC			
		Developments have views of greenery/vistas for mental health (Douglas)				
		Tree canopy preservation (MN)	CARPC			
		Crime Prevention through environmental	Local ordinances			

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
		community design				
		Separation of potentially contaminating land used with residential areas and natural resources (MN)	CARPC			
		Conversion of community facilities, fleets and operations to carbon-neutral environments (MN)	Local ordinances			
		Energy efficient building codes (LEED)	Local ordinances			
		Severe rain events or increased precipitation (MN) Storm water Generated (CARPC)	CARPC			
What is the current state of mobility and access in the area?	How will the FUDA alternative impact the area's mobility and access?	Walking and Biking	CARPC			Portion of new residents within walkable (1/4mile) and bikable (2 miles) distance to one or more common destinations (schools, park, grocery store, employment)

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
		Pedestrian/bicycle safety (MN)				
		Transit	CARPC			Portion of new residents within walkable (1/4 mile) distance to “high capacity” transit stop
		Trip Reduction	CARPC			Trips reduced due to proximate land uses
		Reduced VMT	CARPC			Reduction in VMT due to reduced trips
		Traffic related accidents (Douglas)	IRC			
		Complete streets, shared streets, and traffic calming (Douglas)	Local ordinances			
		Senior Services (Douglas)				Hospitals, healthcare facilities, churches, shopping malls, and community centers
		Linking existing and future housing development with employment and services (Douglas)				

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
		Recreational amenities (Douglas)				Parks, open space, and recreational facilities
		Maps of large recreational facilities, community gardens, schools, large parks and open space (Douglas)				Will the final plan include this? Checklist
		Trails and bike lanes (Douglas)				
		Clustered activities (Douglas)	CARPC			Mixed-used developments, planned unit develops, transit-oriented developments
		Transit Oriented Development (MN)	CARPC			
		Mixed Used Development (MN)	CARPC			
		Social Interaction or gathering places (MN)				
What is the current access to healthy foods in the area?	How will the FUDA alternative impact the area's access to healthy food?	Local food production (MN)				Community gardens, protection of agricultural land
		Contiguous Ag land	CARPC			
		Healthy Food Outlets	DPH			

Existing Conditions	Impact Research Questions	Indicators	Data Sources	Methods	Priority	Notes
What is the current level of preparedness for emergencies?	How will the FUDA alternative impact the area's level of preparedness for emergencies?	Documented Risks	SOVI			Extreme heat, winter weather, chemical spills
		Documented plans or resources	SOVI/DPH?			

Appendix 2 Additional Good Quality Housing Information

1. Good Quality Housing

Indoor Air Pollutants and their Health impacts	
Indoor Pollutant/Element	Impacts in Health
Air Pollutants (Elderly people, children and people with respiratory conditions/diseases are particularly susceptible to indoor air pollution)	
Lead (from lead-based paint)	<ul style="list-style-type: none"> ⊕ Lead exposure in fetuses and children can lead to delays in their physical and mental development
Radon: radioactive gas released from the ground that can migrate into buildings	<ul style="list-style-type: none"> ⊕ Damages lung cells and can lead to lung cancer
Volatile organic compounds (VOCs): emitted by furniture and building materials, as well as when using household cleaning products	<ul style="list-style-type: none"> ⊕ Some are carcinogenic ⊕ Other health impacts include: - <ul style="list-style-type: none"> • Eye, nose, and throat irritations • Headaches • Dizziness • Visual disorders • Memory impairment
Asbestos: used in fire proof materials	<ul style="list-style-type: none"> ⊕ Causes mesothelioma and cancer
Indoor Temperature	<ul style="list-style-type: none"> ⊕ Low indoor temperatures increases the risk of elderly mortality ⊕ Temperature extremes can exacerbate negative health conditions and lead to increased morbidity.
Humidity	<ul style="list-style-type: none"> ⊕ Dampness and mold growth in homes can cause respiratory diseases, allergies as well as skin problems. Other negative health impacts include fatigue, headache, chronic anxiety and depression.
Noise	<ul style="list-style-type: none"> ⊕ Exposure to noise pollution can lead to depression and may have negative impacts on cardiovascular, respiratory musculo-skeletal systems in adults. ⊕ In elderly people, exposure to noise pollution has been associated with increased risk of stroke.

	<ul style="list-style-type: none"> ⊕ Exposure to noise pollution in children has been associated with an increased risk of respiratory disease. ⊕ Exposure to noise pollution has also been linked to asthma, due to an inability to open windows as a means to minimize noise impacts.
Light	<ul style="list-style-type: none"> ⊕ Lack of adequate daylight has been associated depression.
Space	<ul style="list-style-type: none"> ⊕ Inadequate space inside the home has been associated with poor mental health outcomes. ⊕ Children living in high rise housing may be at a greater risk of developing behavioral problems and have poor mental and general health outcomes than children living in low rise or single family housing due to overcrowding and a restricted access to play areas.
Pests such as dust motes, rats and cockroaches	<ul style="list-style-type: none"> ⊕ These are all sources of allergens that can lead t asthma and other respiratory diseases.
Unsafe condition inside the home	<ul style="list-style-type: none"> ⊕ Can lead to an increased risk of accidental burns and injuries.

(IPH Ireland, 2006; US EPA, 2011).

Appendix 3 Additional Considerations per Indicator

Affordable, Good Quality, Life-Cycle Housing & Energy Efficient Building Codes

- ⊕ What current proportion of the population in the area is living in overcrowded conditions?
- ⊕ Does the plan incorporate a variety of housing densities? Variety of housing cost?
- ⊕ Are at least 50% of residential units affordable to persons at or below the medium household income, and/or is there at least a 20% ownership and 20% rental unit housing mix in a neighborhood or census tract?
- ⊕ How many of the existing buildings in the area are LEED or Green Point certified? Map the locations of life-cycle housing (i.e. town homes, senior housing, apartments, and rental units).
- ⊕ Do current development plans include integrated pest management plans, allergen removal plans and lead-paint testing and removal?
- ⊕ Are housing vouchers available to help families move to healthier and safer housing?
- ⊕ Do all homes have smoke detectors and window guards?

Developments with Views of Greenery/Vistas for Mental Health and Tree Canopy Preservation

- ⊕ What is the quality, proximity to and the current number of acres of natural spaces, habitats and parks in the area under consideration?
- ⊕ What is the current proportion of population living within ¼ mile of neighborhood or regional park, open space, or publicly accessible shoreline?
- ⊕ Is a tree canopy provided in parks, open space, and streetscapes to establish a 50% to 100% canopy coverage in the development area?

Trails and Bike Lanes & Walking and Biking

- ⊕ Is an off-street trail system planned to serve all residential areas, preferably within 400-600m of all residential areas?

Traffic-Related Accidents, Complete Streets and Pedestrian and Cyclist Safety

- ⊕ What are the current number, type, and location of traffic collisions, in the area?
- ⊕ Are all residential areas, schools, day care facilities, playgrounds and sports fields required to be more than at least 200 m (656 ft) from a major road?
- ⊕ What is the current hazard or frequency of transportation related accidents?

- ⊕ What are the current vehicle volumes or speeds and how shall these be impacted by the plan?
- ⊕ Are any of the following features or traffic calming measures included in the current and /or future street plans? :

Accessible pedestrian signals	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Police Enforcements	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Bike Lanes (or wide paved shoulders)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Raised Crossings	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Bump Outs	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Roundabouts	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Center Islands	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Sidewalks (five feet wide)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Comfortable and accessible public transportation stops	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Signage	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Curb extensions	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Small block sizes	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Frequent and safe crossing opportunities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Special bus lanes	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Landscaping	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Speed Humps	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Median Islands/Barriers	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Striping	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure
Narrower travel lanes	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure	Other	

(Douglas County PH & Minnesota PH Department, 2011; DHSS, 2010; National Complete Streets Coalition, 2011)

- ⊕ Does the development plan supporting cycling and walking? How will it impact the number of walking and bicycling trips?
- ⊕ How will the plan impact the current vehicle miles traveled (VMTs) in the area?

Transit and Transit Oriented Development

- ⊕ What is the current availability and convenience of public transit services? Are the current public

transport services reliable and frequent (including services at night and at weekends)?

- ⊕ What is the current transit access to jobs, goods, services, and educational resources?
- ⊕ What is the current proportion of households commuting to work by public transit?
- ⊕ Are there existing or planned transit stops for all residential areas in urbanizing and redevelopment areas as well as in employment areas (preferably within 1200m of all such areas)?
- ⊕ Are there a variety of nearby destinations for residents (e.g., employment, health care, grocery stores, etc.) and can these destinations be reached by a variety of transportation modes (e.g., bicycling, walking, automobile, transit)?
- ⊕ What is the proportion of new residents living within walkable (1/4 mile) distance to a “high capacity” transit stop?
- ⊕ Are there sufficient specialized transport services available for people with disabilities?
- ⊕ Are public transit vehicles age-friendly (e.g. have floors that lower, have low steps, have wide seats, have clear signage indicating vehicle number and destination)?
- ⊕ Are the current public transport services affordable to all older people?
- ⊕ Do the current public transport services enable older people to reach key destinations such as hospitals, health centers, public parks, shopping centers, banks and senior centers?
- ⊕ Are all areas well-served with adequate, well-connected transport routes within the city (including the outer areas) and between neighboring cities?
- ⊕ Are current transport routes well-connected between the various transport options?
- ⊕ Are designated transport stops located in close proximity to where older people live?
- ⊕ Are transport stops provided with seating and with shelter from the weather, are they clean and safe, and are adequately lit?
- ⊕ What is the current proportion of the senior population living within ½ mile of regional transit stop and ¼ mile of local public transit stop?
- ⊕ What will be the proportion of new residents living within walkable (1/4 mile) distance to a “high capacity” transit stop?

Neighborhood Characteristics (Social Interaction, Gathering places & Recreational Amenities, Senior Services)

- ⊕ What is the current quality or frequency of contacts with friends, family members, and neighbors?
- ⊕ What are the current attitudes towards or stereotypes of racial, social, and ethnic groups in the area?
- ⊕ What is the current residential segregation by race/ethnicity and income, in the area?
- ⊕ What is the current proportion of voting age population participating in elections in the area?

- ⊕ What is the current level of and access to participation in voluntary organizations and activities?
- ⊕ What is the current degree of inequality in income or wealth, or segregation by race, ethnicity, or income?
- ⊕ What is the current degree or quality of participation in public decision making?
- ⊕ What is the current perceived level of safety and “trust” of neighbors in the area?
- ⊕ Are there sufficient specialized transport services available for people with disabilities?
- ⊕ Are public transit vehicles age-friendly (e.g. have floors that lower, have low steps, have wide seats, have clear signage indicating vehicle number and destination)?
- ⊕ Are the current public transport services affordable to all older people?
- ⊕ Do the current public transport services enable older people to reach key destinations such as hospitals, health centers, public parks, shopping centers, banks and seniors’ centers?
- ⊕ Are all areas well-served with adequate, well-connected transport routes within the city (including the outer areas) and between neighboring cities?
- ⊕ Are current transport routes well-connected between the various transport options?
- ⊕ Are designated transport stops located in close proximity to where older people live?
- ⊕ Are transport stops provided with seating and with shelter from the weather, are they clean and safe, and are adequately lit?
- ⊕ What is the current proportion of the senior population living within ½ mile of regional transit stop and ¼ mile of local public transit stop?
- ⊕ What will be the proportion of new residents living within walkable (1/4 mile) distance to a “high capacity” transit stop?
- ⊕ What is the current proportion of the senior population living within a 30 minute transit or walking commute of a hospital or health care facility?
- ⊕ Are residential care facilities, such as retirement homes and nursing homes, located close to services and residential areas so that residents remain integrated in the larger community?
- ⊕ Are home care services offered in the community, such as health services, personal care and housekeeping?
- ⊕ Does current emergency planning include the needs of older people, taking into account their capacities in preparing for and responding to emergencies?
- ⊕ What will be the proportion of new residents living within walkable (1/4mile) and bikable (2 miles) distance to one or more common destinations (schools, park, grocery store, employment)?
- ⊕ Does the plan allow for clustering of different activities together (to make it easier to access a variety of services at one stop via public transit, bicycling, walking, and by car)?
- ⊕ Does the plan link existing and future housing development with employment and services?

Mixed Used Development

- ⊕ Are there appropriate ordinances or policies used for mixed-use design of neighborhood, village, town, and city centers?
- ⊕ What is the proportion of new residents living within walkable (1/4mile) and bikable (2 miles) distance to one or more common destinations (schools, park, grocery store, employment)?
- ⊕ Are services clustered as well as located in close proximity to where older people live?
- ⊕ Can services be easily accessed by elderly customers (e.g. are located on the ground floor of buildings)?
- ⊕ What is the current proportion of the senior population in the area living within ½ mile of a full-service grocery store or fresh produce, shopping malls, community centers, places of worship?
- ⊕ What is the current proportion of the senior population living within a 30 minute transit or walking commute of a hospital or health care facility?
- ⊕ Are residential care facilities, such as retirement homes and nursing homes, located close to services and residential areas so that residents remain integrated in the larger community?
- ⊕ Are home care services offered in the community, such as health services, personal care and housekeeping?
- ⊕ Does current emergency planning include the needs of older people, taking into account their capacities in preparing for and responding to emergencies?
- ⊕ What will be the proportion of new residents living within walkable (1/4mile) and bikable (2 miles) distance to one or more common destinations (schools, park, grocery store, employment)?
- ⊕ Does the plan allow for clustering of different activities together (to make it easier to access a variety of services at one stop via public transit, bicycling, walking, and by car)?
- ⊕ Does the plan link existing and future housing development with employment and services?

Appendix 4 Recommendations per Indicator

Affordable, Good Quality, Life-Cycle Housing & Energy Efficient Building Codes

- ⊕ The development plan must include at least 50% of residential units affordable to persons at or below the medium household income.
- ⊕ The development must include at least a 20% ownership and 20% rental unit housing mix in a neighborhood or census tract.
- ⊕ The development plan should include an evaluation program of lead-bearing substances in exposed surfaces of dwelling units (as well as child care facilities, schools, or recreation facilities) used by children. The program should also include assistance schemes for lead-paint testing, removal, coverall or tenant relocation.
- ⊕ The development plan should also include integrated pest management plans, and assistance programs provided for allergen-testing, removal (for example carpet replacement etc), coverall or tenant relocation.
- ⊕ Household quality evaluations should include assessments for heavy metals, inorganic solvents, pesticides, crowding and transportation noise, and required safety standards such as smoke detectors.
- ⊕ The development plans should also include schemes/policies which facilitate the transfer rental housing from neglectful owners to owners who take their maintenance and management responsibilities seriously.

Developments with Views of Greenery/Vistas for Mental Health and Tree Canopy Preservation

- ⊕ The development plan should require that all developments have views of greenery for mental health benefits.
- ⊕ The development plan should strive to incorporate greenways to provide natural, non-motorized open space corridors (often following roadways, ridge tops and waterways).
- ⊕ The plan should require that at least a small amount of green space be provided for all development.
- ⊕ The development plan should encourage the inclusion and maintenance of the natural environment in the area.
- ⊕ The development plan should include a tree planting/tree canopy plan. The tree planting/ tree canopy plan should cater for 50% to 100% tree canopy coverage in the development areas,

provided in parks, open spaces, and streetscapes.

Traffic-Related Accidents, Complete Streets and Pedestrian and Cyclist Safety

- ⊕ Speed limits in the locality should be set at or below 35 mph (optimally 20 mph) for 70-90% of streets, to ensure pedestrian/bicyclist safety.
- ⊕ The development plan should ensure that adequate street lighting is provided along all major streets.
- ⊕ All residential areas, schools, day care facilities, playgrounds and sports fields should be required to be located more than at least 200 m (656 ft) from a major road.
- ⊕ The development plan should make use of pedestrian overlay zones. The pedestrian overlay zones should include policies that encourage walking and bicycling through streetscape amenities, such as benches, trash receptacles, planters, pole lights, kiosks, telephones, news-stands, drinking fountains and bike racks. Pedestrian plans should also provide protection through parallel parking and street trees as features.
- ⊕ Traffic calming measures should also form part of the development plan.

Transit and Transit Oriented Development

- ⊕ The development plan should ideally incorporate neighborhood commercial and/or mixed use development to encourage transportation related walking.
- ⊕ The development plan should also include a multimodal transportation plan that connects all residential areas to services (i.e. employment centers, grocery stores, hospitals, etc), as well as policies/plans that prioritize the transportation needs of underserved populations (e.g., seniors, children, persons with disabilities, low-income residents, etc.).

Neighborhood Characteristics

- ⊕ Planned residential areas should be located with 600m (preferably 400m) of playing areas, parks, and trails.
- ⊕ Adequate lighting should be provided in parks so that pedestrians on paths see other pedestrians at least 200 meters away.

Supplement E: North Mendota FUDA Environmental Conditions Report

(Included on CD)

