LIVONIA TOWNSHIP
COMMUNITY VISION FOR LAND USE

FINAL REPORT
February 2006
Livonia Township Community Vision for Land Use

FINAL REPORT
February 28, 2006

Prepared For:
The Board of Supervisors of the Township of Livonia
Prepared By:
Center for Rural Design, University of Minnesota
Livonia Township Community Vision for Land Use

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February 2006
Center for Rural Design
College of Architecture and Landscape Architecture, and
College of Agricultural, Food and Environmental Sciences
University of Minnesota
# Table of Contents

## Background to Project
- Introduction
- Policy Context
  - Jurisdictional Interests in Livonia Township
- The Issues
- Conceptual Approach
- Project Approach
- Planning and Participation Process

## Community Visioning Process
- Community Data Inventory
  - Demographics and Socioeconomics
  - Resource Inventory and Assessment
- Community Workshop One
  - Goals and Intent
  - Process
  - Outcome
- Community Workshop Two
  - Goals and Intent
  - Process
  - Outcome

## Summary of Analysis and Recommendations
- Community Vision Compared to Analysis
- Community Vision Compared to Current Planning Efforts
REFERENCES

APPENDICES

DATA ANALYSIS AND MANIPULATION
PROCESS EXPLANATION
PROCEDURAL MODELS
COMMUNITY PROFILE
WORKSHOP ONE: COMMUNITY INPUT
CITIZENS’ PHOTOGRAPHY PROJECT
ATLAS
BACKGROUND TO PROJECT
INTRODUCTION

This report on the Livonia Township Community Vision for Land Use project documents an inventory and analysis of critical natural and cultural resources and citizen values associated with these resources. The project was undertaken by the University of Minnesota’s Center for Rural Design over the fall and winter of 2006 at the request of the Livonia Township Board.

The goal of the project is to determine a Community Vision of the environmental and cultural resources within Livonia Township. The purpose of the Community Vision is to provide Livonia Township with a document to work with Sherburne County and adjacent townships and cities to manage development while maintaining its unique character and value system.

Managing change to protect the quality of life, economic vitality and environmental health in Livonia Township are key issues central to the community values locally and other fast growing rural areas and small towns throughout the State. By using the community visioning process as a tool in the Township planning process Livonia is on it’s way to proactively managing change to maintain the quality of rural life and distinct sense of place that attract people to live in Livonia Township today.
POLICY CONTEXT

In this fast-growing region of the state, jurisdictional interests ranging from Sherburne County (Comprehensive Land Use Plan, Updated 2004) and the City of Zimmerman (Zoning Map, 2004) to Minnesota Department of Transportation (U.S. Highway 169 Overlay District, 2003), the future North Star Commuter Line and the Township itself, through its Transportation Plan (2005), assume a continuing evolution from agricultural to urban land uses across all but the southern sections of Livonia Township.

At the same time, federal and state regulations are in place to protect the water, habitat and open space resources of the township, through the Federal Emergency Management Agency, Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, Minnesota Historical Society, and Sherburne County.

The essential challenge to policy-makers responsible for land use planning in this and other Twin Cities metropolitan ex-urban regions experiencing change is to find a balance between the demands of growth and the desire to minimize the impact of development on a rural and natural landscape. A functional Comprehensive Plan, through its Zoning Ordinances, sets a framework for managing change to achieve a sustainable tax base while protecting community character and environmental health. In Minnesota, Counties are required to submit Comprehensive plans every ten years. Townships and Cities residing within Counties have the option under Joint Powers agreements to develop their own Comprehensive Plans and work with the County for plan integration.

Livonia Township is capable of remaining an independent township through Joint Powers agreements, Subordinate Service Districts, and the use of Orderly Annexation agreements.

In order to elicit feedback from the Livonia Township’s Powers and Options’s Committee and begin considering approaching an independent Comprehensive Planning process the Livonia town board chose to initiate a Community Visioning process with the Center for Rural Design (CRD) from the University of Minnesota as facilitator.
PROJECT APPROACH

The project approach sought to integrate community input and the planning process with the explicit goal of the production of a Community Vision for Livonia Township’s Land Use. As such, CRD’s charge was to serve as a facilitator to Livonia Township during this planning and participation process. In order to represent the public adequately the Livonia Township Citizen Steering Committee was created. The intent of the Steering Committee was to provide guidance to CRD in respect to the broader community interest as well as, become the “eyes and ears” of the community by learning about their place in the world, verifying data, and conveying what they have learned to neighbors. The project approach consisted of an integral planning and community participation process. The planning and participation processes as diagramed in the image below consisted of five phases: data inventory, community value identification, value documentation, community value prioritization, and prioritization documentation. By approaching the project with community input foremost on the agenda the shape the project and participation processes took similar shape. This means that the relationship of the planning and participation process was inseparable and synergistic.
PROJECT & PARTICIPATION PROCESS

The five phases of the project and participation process: data inventory, community value identification, value documentation, community value prioritization, and prioritization documentation, included numerous Steering Committee meetings and two Community Workshops. The Steering Committee meetings and Community Workshops took place at Livonia Townhall on mid-week nights. The Steering committee meetings usually consisted of a brief overview of existing data or previous meetings products and/or workshop preparations. The workshop programs were specific to the project process. The following paragraphs summarize the five phases of the project and participation process:

The data inventory included information on socio-economic demographics and environmental and cultural resources. The environmental cultural resources of the township were inventoried and assessed in map form, using Geographic Information Systems (G.I.S.) technologies. The socioeconomic demographics were compiled, in large part, from the 2000 U.S. Census. The data inventory was presented the Steering Committee with the intent for group education and comment and correction.

The community value identification phase took part in Workshop One. The first workshop sought to introduce the broader community to their place in the world and stimulate conversation about people’s values as related to environmental and cultural resources within the Township. The goal of Workshop One was to provide a qualitative analysis of the environmental and cultural resources and to obtain the community’s group and individual values as a result.

The value documentation phase took the products of Workshop One and produced a series of maps for Workshop Two. The community values were analyzed and grouped and then presented to the Steering Committee for verification.

The community value prioritization phase took place during Workshop Two. The second workshop used the results of Workshop One with the intent to obtain a broad feel for the community’s prioritized land use values. The goal of Workshop Two was to prioritize the layers of environmental and cultural resources both generally and specifically.

The prioritization documentation took the results from Workshop Two; organized and analyzed the products and produced a composite map. The composite map is a summary of the Livonia Township’s Community prioritized values for the land use.
**Issues**

The central issues are to the project:

- Where, how dense, and what type of development should occur?
- What should Livonia Township protect to preserve its environmental health, natural beauty and remaining rural character?
- What should Livonia Township do about mining and landfills?
- What should Livonia Township do about storm water management and water quality?

The issue of primary importance to the project is the determination of what the citizenry of Livonia Township thinks regarding environmental and cultural resources. By facilitating the integration of the voice of the community into the planning process, the need to recognize and integrate community values in the Vision Land Use Plan is foremost.

**Conceptual Approach**

Critical natural and cultural resources of the township were inventoried and assessed in map form, using Geographic Information Systems (G.I.S.) technologies, for their capacity to support ecological functions, economic initiatives and community well-being; and to show consensus citizen priorities regarding management of these resources as additional map layers.

The cumulative effect of the map layers is to create a composite picture of the ‘green’ infrastructure of the township that identifies the township’s capacity for development and potential for resource protection factoring in community values. The value of visualizing an area’s ‘green’ infrastructure is that it becomes another tool for helping organize and direct an area’s growth so the best locations for new development and highest priority areas to protect are identified (Pitt et al., 2002).
COMMUNITY VISIONING PROCESS
COMMUNITY DATA INVENTORY
DEMographics AND SocioECONOMICS

Livonia Township, residing in the southeast corner of Sherburne County, Minnesota is home to Lake Fremont in the north, the Sugarbush Preserves in the South, a network of wetlands to the southwest, and an abundance of agricultural and aggregate resources to the east and southeast. Livonia Township has a great rural character that keeps long term residents and beckons to newcomers. As such, Livonia is at the precipice of numerous social, economic, cultural, and environmental changes due the townships location within Sherburne County. Sherburne County resides just northwest of the seven county metro area of the Twin Cities, Minneapolis and St. Paul. Sherburne County’s proximity to the Twin Cities on its southeastern end and St. Cloud on the northwest and the expected increase in population in the coming ten to twenty years is the prime driver of this rapid change. Of additional importance to Sherburne County, in general, and Livonia Township specifically, is the increased stress on transportation and development to and from the Twin Cities. The primary modes of transportation are Highway 10, Highway 169 and the planned North Star Commuter Rail. In order to preserve the rural atmosphere, environmental resources, and quality of life, Livonia has to have a clear picture of the demographics and socioeconomics that make up the ever changing land use dynamics of the Township, Sherburne County, and the Twin Cities.
**POPULATION**

Sherburne County grew by 22,472 residents (54 percent) between 1990 and 2000 and is projected to grow 34 percent from 2000-2010 and 89 percent from 2000-2030 (second only to Scott County at 103 percent). Sherburne County is expected to continue growing rapidly and to be among the fastest growing counties in Minnesota over the next 25 years (Minnesota Planning and the State Demographic Center, Faces of the Future). Livonia Township, located within Sherburne County, has had a 72 percent increase in population from 1990-2000 and a 29 percent increase from 2000-2004 (Table 1). Livonia’s population growth in 1990-2000 ranks third and in 2000-2004 ranks fourth among Sherburne’s other townships.

**HOUSING**

This population growth has resulted in a 66 percent increase in housing units from 1990-2000 (Table 2).

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**Table 1. Historical Population Trends Demographers Estimates Sherburne County Townships**

<table>
<thead>
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<td>2412</td>
<td>2909</td>
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<td>40.45</td>
<td>3,917</td>
<td>5,036</td>
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<td>Orrock</td>
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<td>1,474</td>
<td>29.30</td>
<td>2,764</td>
<td>3,436</td>
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<td>Palmer</td>
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<td>Santiago</td>
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<td>Sherburne County</td>
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<td>64,417</td>
<td>81,451</td>
<td>26.44</td>
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Census 2000

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**Table 2. Historical Population and Household Trends Livonia Township**

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<td>3,917</td>
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<td>Persons Per Household</td>
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<td>3.53</td>
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<td>3.2</td>
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<td>Households</td>
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<td>461</td>
<td>707</td>
<td>1,222</td>
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<tr>
<td>Housing Units</td>
<td>233</td>
<td>488</td>
<td>746</td>
<td>1,241</td>
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Census 2000
Livonia Township: a Community Vision for Land Use, is fundamentally an applied research project. This project is based on accepted and proven principles of environmental and landscape planning. Furthermore, the concepts and methodology have evolved through several prior projects. However, it would be useful to review these foundations as they relate to this project before exploring the current methodology.

**Precedent Planning Principles**

Environmental planning is an approach to managing human interaction with the land in a manner that places environmental factors, such as preserving hydrologic function or protecting biological diversity, as a primary consideration in the planning process. Landscape planning integrates human use of the land with environmental planning through a recognition of the essential function of landscape features, processes and systems.

To achieve the goal of an integrative planning process three principal steps need to be accomplished:

1) An environmental inventory of landscape features and resources needs to be completed. For the purposes of this study the definition of environmental features is expanded to include human features in the landscape.

2) An assessment of the inventoried features and resources needs to be accomplished.

3) Analysis of methods to accommodate, integrate, and utilize these features through the planning/design process is the final step. This stage involves testing alternate design schemes against the desired outcome.

This step places objective values, based on size or quality, for example, on the features and resources in order to prioritize their relative significance in a given landscape. In addition, at this stage functional relationships are identified, quantified and qualified.

Step one and, to a significant extent, step two are accomplished in this project. The remainder of step two and all of step three will be accomplished in a later phase of the planning process for Livonia Township.
**Precedent Planning Concepts**

An environmental inventory and the subsequent assessment of the inventoried features can be categorically organized in several ways. The simplest and most objective method would be based on physical similarities of the features. For example, roadways are categorized together. Similarly, waterways, land cover, or topographic data would all have their own category. This approach is particularly useful to the organization of base information.

On the other hand, assessment imposes a somewhat subjective set of concepts on the categorization of data. Based on the underlying intent of the assessment these concepts can vary.

Environmental planning research has defined an extensive set of conceptual models, based primarily on function, for assessing landscape features. For this project a set of four major conceptual models are applied.

These conceptual models are:
- Water Resources
  both surface and ground
- Biological Diversity Resources
  represented as potential habitat
- Socially Significant Resources
  both commodity and amenity
- Development Suitability Resources

**Resource Models**

- **Water Resources**
- **Habitat Resources**
- **Development Resources**
- **Commodity**
- **Amenity**
- **Social Resources**
- **Ground**
- **Surface**
COMMON
GROUND
WATER
HABITAT
COMMODITY
AMENITY
**COMMUNITY WORKSHOP ONE**

Community Workshop One is one of Two Workshops in the planning and participation process for the Livonia Township’s Community Land Use Vision. Workshop One introduced Livonia Township’s unique place in the world and began to demonstrate the complexities of land use planning to the community. CRD used a series of G.I.S. (Geographical Information Systems) maps to show the qualitative analysis of the environmental and cultural resources and then asked the citizenry to form groups and maneuver through a few exercises that posed questions related to their values as related to the Township.

The Workshop held on October 12th, 2005 at 7:00 PM at Livonia Town Hall was a success. There was an attendance of twenty-seven folks from all around Livonia Township and Sherburne County.

**INTENT AND GOALS**

The intent of Community Workshop One was to introduce the many layers of the landscape to the community and begin to suggest the complexities of land use planning.

The goal of Workshop One was to obtain community values for the environmental and cultural resources in the Township.
Process

The process of Community Workshop One focused on introducing the community to a new way of experiencing their home with intent that the community vocalize their values about the landscape. The landscape was divided into environmental and cultural resource layers which included: amenity, commodity, development, environmental, and water resources. The resources layers were analyzed to show a qualitative continuum, meaning each resources was rated individually from lowest to highest quality. The community member were separated into groups and following exercises ensued.

Exercise One

Around Here: Exploring Community Values

The first exercise, meant to start conversation, suggested that everyone list three issues or concerns as related to the particular resource layer. The greatest importance being the first issue or concern. Everyone talked independently about their issues and concerns and grouped their concerns with others in their team with similar topics of concern. These topics were then ranked and represented as the overall voice of the team.

Exercise Two

Placing Place: Mapping Community Values

The goal of the second exercise was to connect the previous issues or concerns with specific places on the map. The teams from the previous exercise were maintained and each team member was given a set of three dots for opportunities and another set of three dots for constraints. Each dot had a number on it that correlated to a sheet of paper where the reason for the dot placement was recorded. As the dots, both opportunities and constraints filled up the maps particular areas stood out as significant.
Outcomes
Amenity Resources

The nature of amenity resources is often specific to a given landscape but can be categorized into scenic amenities, recreational amenities, and cultural amenities. Amenity resources are modeled as the combination of intrinsic scenic value, the opportunity for scenic roadway easements, historic structures, and existing trail systems and public lands.
The Amenity Values Map is the outcome from Exercises One and Two of Community Workshop One. The dots indicate places of opportunity (green) and concern (orange) and the areas in purple are significant areas of amenity value.
Commodity Resources

Commodity resources have tangible value that can readily be assigned in monetary terms. Common commodity resources include, among others, agricultural productivity (generally, the soils that allow the production of agricultural products), stock resources (non-renewable) such as aggregate and minerals, and ‘value-added’ locations for specific land uses such as lake front property for residential development.
The Commodity Values Map is the outcome from Exercises One and Two of Community Workshop One. The dots indicate places of opportunity (green) and concern (orange). The areas in orange are places of significance to commodity resources.
Development offers the opportunity for economic growth and homes for an expanding population. New areas for industrial and commercial development provide places to work. New areas for residential development provide places to live. As such, areas suitable for development are a resource to a community.
The Development Values Map is the outcome from Exercises One and Two of Community Workshop One. The dots indicate places of development opportunity (red), development concern (green), development restraint (purple) and the city of Zimmerman (orange).
WATER RESOURCES

The Ground Water Resource analysis identifies areas that have significant potential to impact ground water quality in terms of the land uses occurring in the area.

The Surface Water Resource analysis identifies areas that have significant potential to impact surface water quality based on the land use occurring in the area. The framework for this model was based in principle on the requirements of surface water quality protection laws in Minnesota.
The Water Quality Values Map is the outcome from Exercises One and Two of Community Workshop One. The dots indicate places of opportunity (green) and concern (orange). The areas in blue are places of significance to water quality health.
Environmental Resources

The Environmental Resource analysis identifies areas that have significant potential to support rare or specialist species that require habitats of specific types, sizes and/or isolation from human disturbance types. In broader terms, these specialized habitats represent areas of high quality environmental function.
The Environmental Values Map is the outcome from Exercises One and Two of Community Workshop One. The dots indicate places of opportunity (green), concern (orange) and places of alternative priorities (red). The areas in green are places to preserve and protect. Areas in olive are places of suitable development. This pertains to the development character in the north west sections of the Township. The areas of red are signified as landfill concerns. And the areas in brown have alternative concerns attached to them.
Workshop Two
Putting the Pieces Together
COMMUNITY WORKSHOP TWO
PUTTING THE PIECES TOGETHER

Earlier in the project the citizens of Livonia Township identified a set of discreet community values founded on an assessment of the physical character and resources of the township. These community values were fully developed as a product of Community Workshop One to provide a spatial reference to the issues and concerns of the citizens. Staff at the Center for Rural Design categorized the issues and expanded their spatial definition to represent areas of opportunity or concern related to the individual physical assessments.

On December 7, 2005, the citizens of Livonia Township gathered together again for Community Workshop Two.

GOALS AND INTENT

The name of this project, ‘Livonia Township: A Community Vision for Land Use’, indicates an over riding goal is to produce a community supported vision that guides decision makers in making choices about land use. These choices inherently involve the need to prioritize issues and willingness to compromise to arrive at consensus.

There were two principle goals for Community Workshop Two:

• First, to introduce the community to the difficult choices often necessary when making land use planning decisions.

• Second, to use compromise in arriving at consensus for prioritizing the individual community values identified in Workshop One.

Through a series of exercises this workshop was intended to guide the citizens through the experience of compromise and consensus building while producing a prioritized set of community values useful in making land use decisions.
Process: Putting the Pieces Together

Community Participation Techniques:
The Community participants were separated into teams of 5-6. Each team table was supplied with a Land Cover / Land Use Map, five Resource Value Maps, one blank map with the Township Boundary, 3x5 cards, pens, and a set 8x11 reference maps from the first community workshop.

Exercise 1: Deciding on how to Decide - Compromise and Consensus on Community Values
The objective in exercise one was to review Workshop One’s results and come to a consensus as to whether or not it makes sense. The intent is to warm-up the team, encourage conversation and introduce the team to compromise. This took place as group conversation and the data was revised with a marker.

Exercise 2: The Big Picture - Prioritizing Community Values in Livonia Township
The goal of this exercise was to prioritize the five layers of resource values in order of importance to the Township. The intent was to provide an overall frame of reference that forms the basis of a shared vision. This took place as a group conversation. Each team member suggested an order. The group leader then prompted conversation to gain consensus.

Exercise 3: One Size May Not Fit All - Prioritizing the Values of Particular Sites
The goal of this exercise was to identify key areas where the “big picture” value system doesn’t quite make sense. The intent of this exercise was to express that significant areas may need the values to be prioritized differently. This exercise took place individually. Team members picked a place or area, re-layer the values on a 3x5 card, and presented it to the group. The group leader then prompted conversation to gain consensus. The new value system was then be sketched out on the blank map with the Township Boundary.
OUTCOME OF COMMUNITY WORKSHOP TWO

The participants of Workshop Two were divided into teams at four tables. Each team proceeded to work through the exercises described on the previous page. The outcome for each team and the group as a whole are outlined below:

**EXERCISE ONE:**
Each team reviewed the outcomes of Workshop One and provided suggested changes that were then incorporated into the process described on the next page.

**EXERCISE TWO:**
The team at each table discussed the individual resource values and its importance to the character of Livonia Township relative to the other resource values. Through a consensus building process, each team prioritized the individual resource values with a rank ranging from 1 (most important) to 5 (least important) as shown:

**TEAM ONE:**
1: Environmental Resources
2: Water Quality Resources
3: Amenity Resources
4: Development Resources
5: Commodity Resources

**TEAM TWO:**
1: Environmental Resources
2: Development Resources
3: Water Quality Resources
4: Commodity Resources
5: Amenity Resources

**TEAM THREE:**
1: Environmental Resources
2: Amenity Resources
3: Water Quality Resources
4: Commodity Resources
5: Development Resources

**TEAM FOUR:**
1: Environmental Resources
2: Development Resources
3: Commodity Resources
4: Amenity Resources
5: Water Quality Resources

Then the rank from each team for individual resource values was totalled to arrive at an overall score for that resource value. The result is the final rank of resource values:

**FINAL RANK**
1: Environmental Resources (4)
2: none
3: Water Quality Resources & Development Resources (13-tied)
4: Amenity Resources (14)
5: Commodity Resources (16)

**EXERCISE THREE:**
Each team, and the group as a whole, reviewed the final rank and agreed that commodity resources are particularly important and should be ranked highest in areas of known reserves. This decision was incorporated into the process described on the next page.
APPLYING THE OUTCOMES OF THE COMMUNITY WORKSHOPS

In Community Workshop 1 the citizens of Livonia Township were asked to identify the issues, concerns, and opportunities Livonia faces related to the physical character of the township. The physical characteristics explored were Environmental Resources, Water Resources, Commodity and Amenity Resources, and Development Resources. Then, in groups they organized the identified issues into themes and ranked the themes by importance to the future of the township. Lastly, each participant placed dots on maps of Livonia Township indicating the location of opportunities or constraints for the themes and issues.

Staff at the Center for Rural Design interpreted the issues and conglomerated the mapped dots into cohesive priority areas of the township where citizens expressed concern over each of the physical characteristics.

In Community Workshop 2 the citizens were asked to review and adjust the priority areas as a means of validating CRD’s interpretation of the products of Workshop 1. Additional exercises asked the citizens to prioritize the mapped community values as they would apply to the whole township and then as they would apply to any special circumstances or particular areas.

Again, staff from CRD interpreted the citizen input, adjusted the priority areas based on the results of Workshop 2, and then combined the maps of the individual community value priority areas.

Throughout the process CRD was assisted by a steering committee of local Livonia Township citizens who guided and verified our interpretations of input from the broader community.

A documented set of community values can be greatly useful in guiding decision making by policy makers and administrative staff. However, these community values are most useful when translated into meaningful and quantifiable values, particularly when used to guide land use planning and administration. Staff at CRD, guided by input from the steering committee, interpreted the final set of community values and translated them into areas of relative development density using the process outlined below.

DEVELOPMENT DENSITY CLASSES

The final map of Development Density Classes was derived by combining the individual maps of Community Value Areas – Environmental Values, Water Quality Values, Amenity Values, Commodity Values, and Development Values. The Community Value areas were identified as a product of Community Workshop #1 and adjusted as a result of feedback from Community Workshop #2. The combination of Community Value Areas was translated into Development Density Classes through a series of steps as outlined below:
**Step 1**

Each Community Value was assigned a value based on its overall priority within the Township identified at Community Workshop #2 (see below). The maps were overlaid and a resulting score summed for each area. Map 1 depicts the resulting scores with the lightest color representing the lowest development priority and the darkest color representing the highest development priority.

- Rank 1: Environmental Values (given a score of 5)
- Rank 2: none
- Rank 3: tie between Water Quality Values (3) and Development Values (-3)
- Rank 4: Amenity Values (2)
- Rank 5: Commodity Values (1)
STEP 2

The raw scores of Map 1 were translated into Development Density Classes (described at the end of this section) based on the following initial assumptions:

- Areas outside of any identified Community Value were placed within the Development Value category and initially assigned to the Medium Density Residential class (based on Sherburne County general rural zoning).
- The corporate limits of Zimmerman were assigned exclusively to the Urban (High Density) class.
- All areas identified as only having Environmental Values were assigned exclusively to the No New Development class.
- Areas identified as appropriate for commercial development in the Development Value category were assigned exclusively to the Commercial class.
- All other areas were divided into five equal groups based on their cumulative scores and initially assigned to density classes (lower scores to higher density classes, higher scores to lower density classes).
STEP 3

The initial density class assignments were checked against the density descriptions assigned in the Development Values map (Workshop #2) and, where ever the assigned densities didn’t match they were adjusted accordingly to coincide with the Development Values map.
**STEP 4**

The area having significant aggregate resources (SE corner of Township, identified on Commodity Values map) was assigned to the Low Density Residential class based on input from Exercise 3, Workshop #2.
**Step 5**

Anomalies were reclassified and edges of class areas were smoothed to produce the final map. The combined areas of each of the development density classes is expressed below as an approximate percentage of the total area of Livonia Township:

- No (Minimal) New Development: 12.5%
- Low Density Residential: 34.25%
- Medium/Low Density Residential: 12.25%
- Medium Density Residential: 22.25%
- Medium/High Density Residential: 8.25%
- Urban: 9.5%
- Commercial: 1%
DEVELOPMENT DENSITY CLASS DESCRIPTIONS

COMMERCIAL
- Based on areas specifically identified by citizens as appropriate for commercial development.

URBAN (HIGH DENSITY RESIDENTIAL)
- Zimmerman city limits.

MEDIUM/HIGH DENSITY RESIDENTIAL
- Community value cumulative scores between -3 and -1.

MEDIUM DENSITY RESIDENTIAL (2 ½ acres/du based on Sherburne County General Rural zoning)
- Community value cumulative scores between 0 and 2.
- Areas not identified in any Community Value map.
- Areas initially assigned to a higher density class and adjusted based on the Development Values map.

MEDIUM/LOW DENSITY RESIDENTIAL
- Community value cumulative scores between 3 and 4.
- Areas initially assigned to a higher density class and adjusted based on the Development Values map.

LOW DENSITY RESIDENTIAL
- Community value cumulative scores between 5 and 6.
- Areas initially assigned to a higher density class and adjusted based on the Development Values map.
- Areas containing significant aggregate resources.

NO (MINIMAL) NEW DEVELOPMENT (preserve for parks, public open space, etc.)
- Areas identified by citizens for environmental preservation/protection with no other identified community value (score = 5)
- Community value cumulative scores between 7 and 11
<table>
<thead>
<tr>
<th>Surface Water</th>
<th>Ground Water</th>
<th>Habitat</th>
<th>Commodity</th>
<th>Amenity</th>
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SUMMARY OF COMMUNITY VISION AND ANALYSIS
Comparing the Community Values to the Resource Analysis

The outcome of this project has produced a community vision for land use in Livonia Township based on a set of identified community values. The vision and values led to the creation of an associated map of proposed development densities for the township. This section of the report compares the community values embodied in the map with the original physical resource assessments and analyses that the community values sprang from.

The original resource analyses compared in this section include:

- Water Resource Analysis
- Environmental Resource Analysis
- Commodity Resource Analysis
- Amenity Resource Analysis
- Development Resource Analysis
WATER RESOURCES
OVERLAIRED ON COMMUNITY VALUES

The entire township is underlain by bedrock and unconsolidated aquifers and this fact needs to be acknowledged through design guidelines for development relating, in particular, to waste water treatment (both individual systems and community systems) and solid waste land filling. Surface water priority areas are predominantly related to the lakes and wetlands located throughout the township.

For the most part, the priority protection zones around Lake Fremont, located north-central, and Stone Lake, located in the southeast, are encompassed in areas designated for No/Limited New Development or Medium/Low Density Residential Development. The priority protection zones around the complex of lakes along the east-central border of the township, including West Hunter Lake, are within areas designated Low or Medium/Low Residential Development providing reasonable protection with appropriate development guidelines in place.

The other large priority protection zone is associated with the complex of wetlands in the southwestern quarter of the township. This area is designated for No/Limited new Development or Low Density Residential Development also providing adequate protection with appropriate development guidelines in place.
**Environmental (Habitat) Resources Overlaid on Community Values**

Livonia Township is gifted with significant environmental resources spread throughout the township associated with areas of natural land cover and water features. The highest quality areas occur in the western half of the township, particularly in the far northwest and throughout the whole southwest quarter.

The area in the northwest is designated for Medium Density Residential and will require careful assessment of development proposals to maintain its character. The community points to the character of The Woodlands development as an example of appropriate development types.

The southwest quarter of the township is primarily designated for Low Density Residential or No/Limited New Development coinciding nicely with the local, high quality environmental resources.

An additional area of significant resource is located in the southeast corner of the township. This area is designated primarily for No/Low New Development.

A smaller but significant high quality area occurs in the northeast corner of the township as part of the drainage into Blue Lake. This area is designated for No/Limited New Development.
Commodity Resources
Overlaid on Community Values

As with environmental resources, Livonia Township has significant deposits of economically important natural resources located throughout much of the township. The principle resources are agricultural soils and aggregate deposits.

Extensive deposits of sorted aggregate, principally gravel, occur in the eastern half of the township. In the southeast, the deposits have been identified, assessed, and are currently being extracted. In a much larger area of east-central and northeast Livonia potential resources have been identified and need further assessment.

Future access to these resources is dependent on the surface land use. Much of the assessed resources falls in areas designated as for Low Density Residential providing some protection for access with careful planning and design of development. Similarly, the same designated land use cover potential resources in east-central Livonia. In the northeast, potential resources occur in areas designated for higher levels of development.

Fairly extensive areas of prime farmland, prime farmland if drained, and farmland of statewide importance occur in the southwest and the east-central portions of the township. Both of these areas are primarily designated for Low Density Residential development.
**Amenity Resources Overlaid on Community Values**

A principle asset of Livonia Township, and the primary reason many of its citizens choose to live here, is the township’s rural character. Rural character embodies a quality of life based upon traditional rural landscapes, activities, lifestyles, and aesthetic values.

Rural areas are characterized by a balance between the natural environment and human uses with low density residential dwellings, farms, forests, mining areas, outdoor recreation and other open space activities. Commercial uses will be small in scale and will provide convenience services to the rural neighborhood. Industrial uses will generally be those that are related to and dependent on natural resources such as agriculture, timber or minerals. Home-based occupations and industries will be allowed throughout the rural area provided they do not adversely affect the surrounding residential uses (MRSC).

The proposed development density plan derived from the combination of community values reflects the rural character of Livonia. It identifies key features and areas for protection and preservation through limited or low levels of new development while also providing for growth in the township. Key to the preservation of rural character will be the development and application of appropriate design guidelines for new development.
DEVELOPMENT RESOURCES OVERRAID ON COMMUNITY VALUES

Most of Livonia Township is well suited to support new development from an engineering perspective. In particular, the northwest quarter of the township is very suitable for development and currently contains both rural residential development and urban/semi-urban development associated with the City of Zimmerman. While much of this portion of the township is already developed, opportunity for significant amounts of infill development exists. This area is designated for Medium or Medium/Low Density Residential development reflecting concerns by the citizens to maintain the existing physical character of the area and protect surface water features in the proximity. These values can accommodate significant growth but may need to be reviewed to coincide with any need for future urban growth of Zimmerman.

The eastern half of Livonia is also well suited to development. In the northeast development is encouraged by designation for Medium or Medium/High Density Residential development except in the area adjacent to Lake Fremont, and its associated wetlands, and in the drainage area of Blue Lake along the northeastern border of the township.

Areas of the southeast best suited for development also contain significant environmental and commodity resources and, therefore, are designated for No/Limited New Development or Low Density Residential.
Comparing the Community Values to Existing Planning Efforts

Several planning efforts affecting decision making in Livonia Township currently exist or are in the development stage. This project has produced a community vision for land use and adds another layer to planning efforts that could provide direction and validation to future decision making. In this section of the report the community vision and its resulting proposed development density map is compared with current planning efforts to assess their degree of similarity or disparity.

The current planning efforts compared in this section include:

- Sherburne County Comprehensive Plan and Zoning Map
- Us Highway 169 Overlay District Plan
- Livonia Township Transportation Plan
- City of Zimmerman Zoning Map
Sherburne County Zoning Overlaid on Community Values

In 2004, Sherburne County adopted an update to its comprehensive plan. This plan provides a foundation for planning efforts throughout the county and constitutes the official planning document for townships that have not implemented separate local plans. Livonia Township has not implemented a separate local plan.

The Sherburne County Zoning map is a product of the comprehensive plan. It provides the base level of development density and character within Livonia Township. Outside the city limits of Zimmerman, the zoning map identifies four zoning categories:

- Urban Expansion - adjacent to Zimmerman.
- Commercial - immediately south of Zimmerman along US 169.
- Heavy Industrial - south-central along US 169 associated with gravel extraction and land fill operations.
- General Rural - the remainder of the township.

The proposed development density map based on community values provides a more sophisticated basis for directing development in the township. In particular, it provides a framework to define the character and density of residential development while providing preservation or protection of key environmental and commodity features within the township.
The proposed US Highway 169 Corridor Overlay District is being developed in partnership between Sherburne County, Livonia Township, and Baldwin Township. Its purpose is to appropriately direct development along the US 169 corridor.

There are three zones and associated development types identified in the overlay district plan:

Zone A - Commercial/Industrial with masonry or better construction.
Zone B - Commercial/Industrial with pole building or better construction.
Zone C - Residential with 200’ highway buffer.

The proposed development density map based on community values suggests new commercial development directly north of Zimmerman which coincides with the proposed US 169 overlay district Zone A for this area. Further to the north both plans suggest residential development.

For most of the US 169 corridor in the southern half of the township the plans also coincide. However, immediately to the south of Zimmerman, the proposed development density map suggests Medium/Low Density Residential with a preserved buffer to preserve scenic character entering Zimmerman while the proposed US 169 corridor plan suggests extending commercial/industrial development.
Livonia Township Transportation Plan
Overlaid on Community Values

In 2005 Livonia Township developed a transportation plan to guide efforts with the county and state in planning for road improvements and additions during the foreseeable future. This plan proposes new construction related to US 169 including upgrade to freeway with associated interchanges and frontage roads, proposed minor arterials, proposed collectors and a proposed recreational trail system.

Transportation and recreational trail networks are essential infrastructure and, therefore, their locations provide a strong stimulus for development.

Overall, the adopted transportation plan appears to work well with the proposed development density map based on community values, with one apparent exception. Several new or upgraded collectors are proposed throughout the southeastern quarter of the township. This area has been proposed as Low Density Residential or No/Limited New Development due to the significant environmental and commodity resources located here. Adjusting the transportation plan may be required, in particular, phasing construction of the road network upgrades proposed for this section of the township to coincide with future gravel extraction.
Land Parcels Already Developed
Overlaid on Community Values

Sherburne County has generated data identifying land parcels that are already developed and unlikely to provide significant opportunity for addition increases in density through new development. The information portrayed is based on the year development was recorded in county records. It is meant to provide a guideline for projecting both the location and extent of future opportunity for development throughout the township.

As indicated by the map, some opportunity exists in the northern half of the township but the bulk of undeveloped land occurs in the southern half. Much of this area contains significant environmental or commodity resources and has been designated for No/Limited New development or Low Density Residential by the proposed development density map based on community values. The possibility of competing interests and development proposals will require careful management.
City of Zimmerman Zoning Compared to Community Values

While the proposed development density map based on community values doesn’t preclude the expansion of Zimmerman it designates Medium and Medium/Low Density Residential development for areas adjacent to the city limits.

Balancing any future need for urban expansion by Zimmerman with the community values identified by the citizens of Livonia Township will require open lines of communication, cooperative spirit, and willing collaboration between the city and the township in long range planning adjacent to the city.
Summary and Next Steps

The high priority given to protecting the environmental resources in Livonia Township is supported, to a great extent, by the density patterns represented by the Community Values map, the outcome of Community Workshop Two. However, the map also embodies some challenges. Intuitively, lower density development in environmentally sensitive areas makes sense. Yet, it could foster a pattern of land division that eliminates public access and control of these resources. For example, the choice between favoring uniformly sized large acre lots or grouping development into smaller units while preserving some land as open space would yield the same gross density but have a dramatically different effect on visual character and environmental function in the township. Preservation and protection of the significant aggregate resources in the southeastern quarter of the township will require similar careful consideration.

Similarly, dealing with wastewater, managing surface water runoff and minimizing nutrient load to area lakes will require a closely coordinated effort between public agencies and the private property owners. Another seeming inconsistency in the Community Values map is in suggesting somewhat lower development density adjacent to Zimmerman, where city services, in particular, water and waste water treatment utilities, could be economically extended and aid in protecting sensitive environmental resources in other parts of the township.

On the positive side, while commercial development and possibly new industry is assumed and anticipated in the township, it was brought out in the workshop discussions, that preserving scenic views to open space and maximizing the natural habitat value of the township is a priority and any new commercial development should be encouraged adjacent to Zimmerman.

The Livonia town board faces a challenge in determining the next logical step in enhancing local control of land use planning. Engaging in an independent comprehensive planning process is one possible option, although a time-consuming and costly one. Other suitable options may exist including enhanced partnerships and/or joint-power agreements with Sherburne County, the City of Zimmerman, and possibly, adjoining townships. It is hoped that the products and outcomes of this project provide the town board with a base of information that informs planning decisions in the short term and guides the exploration of long term solutions to local land use planning control.
REFERENCES
REFERENCES


Hakanson Anderson Assoc., Inc., Livonia Township Transportation Plan, Approved by the Board of Supervisors of Livonia Township, July 2005.

MN Department of Natural Resources, The DNR Data Deli, assorted GIS data


Sherburne County, Department of Planning and Zoning, assorted GIS data.


Sheburne County, Sherburne County Comprehensive Land Use Plan, updated 2004

United States Census Bureau, U.S. Census 2000
APPENDIX I
RESOURCE INVENTORY & ASSESSMENT
Livonia Township, a Community Vision for Land Use, is fundamentally an applied research project. This project is based on accepted and proven principles of environmental and landscape planning. Furthermore, the concepts and methodology have evolved through several prior projects. However, it would be useful to review these foundations as they relate to this project before exploring the current methodology.

**Resource Inventory & Assessment**

Environmental planning is an approach to managing human interaction with the land in a manner that places environmental factors, such as preserving hydrologic function or protecting biological diversity, as a primary consideration in the planning process. Landscape planning integrates human use of the land with environmental planning through a recognition of the essential function of landscape features, processes and systems.

To achieve the goal of an integrative planning process three principal steps need to be accomplished:

1) An environmental inventory of landscape features and resources needs to be completed. For the purposes of this study the definition of environmental features is expanded to include human features in the landscape.

2) An assessment of the inventoried features and resources needs to be accomplished.

3) Analysis of methods to accommodate, integrate, and utilize these features through the planning/design process is the final step. This stage involves testing alternate design schemes against the desired outcome.

This step places objective values, based on size or quality, for example, on the features and resources in order to prioritize their relative significance in a given landscape. In addition, at this stage functional relationships are identified, quantified and qualified.
**Precedent Planning Concepts**

An environmental inventory and the subsequent assessment of the inventoried features can be categorically organized in several ways. The simplest and most objective method would be based on physical similarities of the features. For example, roadways are categorized together. Similarly, waterways, land cover, or topographic data would all have their own category. This approach is particularly useful to the organization of base information.

On the other hand, assessment imposes a somewhat subjective set of concepts on the categorization of data. Based on the underlying intent of the assessment these concepts can vary.

Environmental planning research has defined an extensive set of conceptual models, based primarily on function, for assessing landscape features. For this project a set of four major conceptual models are applied.

These conceptual models are:
- Water Resources both surface and ground
- Biological Diversity Resources represented as potential habitat
- Socially Significant Resources both commodity and amenity
- Development Suitability Resources

**Resource Models**

*Water Resources*  
*Habitat Resources*  
*Ground Resources*  
*Commodity Resources*  
*Development Resources*  
*Social Resources*
**WATER RESOURCES**

**SURFACE WATER RESOURCE MODEL**

The Surface Water Resource model identifies areas that have significant potential to impact surface water quality in terms of the land use occurring in the area. Two subcomponents of this model were identified, Shoreland and Special Protection Area, based on the following discussion.

The framework for this model was based in principle on the requirements of surface water quality protection laws in Minnesota. Two zones of concern for surface water quality are identified in the regulation, Shoreland Management Zones and Special Protection Areas:

Subp. 21. **Shoreland.** “Shoreland” means land, as defined in Minnesota Statutes, section 103F.205, subdivision 4, located within the following distances from the ordinary high water elevation of public waters:

A. land within 1,000 feet from the normal high water mark of a lake, pond, or flowage; and

B. land within 300 feet of a river or stream or the landward side of floodplain delineated by ordinance on such a river or stream, whichever is greater.

Subp. 23. **Special protection area.** “Special protection area” means land within 300 feet of all:

A. protected waters and protected wetlands as identified on Department of Natural Resources protected waters and wetlands maps; and

B. intermittent streams and ditches identified on United States Geological Survey quadrangle maps, excluding drainage ditches with berms and segments of intermittent streams which are grassed waterways.

Each zone was spatially modeled and attributed as ‘Shoreland’ or ‘Special Protection Area’ within its respective model. Since values where essentially ‘in’ (1) or ‘out’ (0) normalization of values was not required. As subcomponents of the Surface Water Resource model these models were treated as equal in significance so no weighting factor was applied.

The subcomponents were combined to create the final model. In the combined Surface Water Resource model any area attributed as ‘Shoreland’, ‘Special Protection Area’, or both was attributed with a surface water sensitivity rating = 1 (inside a surface water priority area). All other areas were attributed with a surface water sensitivity rating = 0.
Surface Water Priority -- Surface Water Priority Map

- Priority Areas

Priority Areas are comprised of the following:

- Special Protection Area as defined in Minnesota Rules, Chapter 7020.0300.
- Subd. 2b. Special Protection Area. *Special Protection Area* means land within 500 feet of all:
  - A. Protected waters and protected wetlands, as identified on Department of Natural Resources Protected Waters and Wetlands Maps; and
  - B. Intermittent streams and ditches identified on United States Geological Survey Quadrangle Maps, excluding drainage ditches with berms and segments of intermittent streams which are grassed waterways.

Shoreland Protection Area as defined in Minnesota Rules, Chapter 7056.0255, Subd. 1B(a)(2):

1. 1,000 feet from the ordinary high water level of a waterbody that is a public water that is at least ten acres in size within municipalities and at least 25 acres in size in unincorporated areas.
**Ground Water Resource Model**

The Ground Water Resource model identifies areas that have significant potential to impact groundwater quality in terms of the land use (animal agriculture) occurring in the area.

This analysis was based partly on the requirements of ground water quality protection laws in Minnesota as it applies to protection zones for water wells.

*7020.2005, Subpart 1. Location restrictions.*

Except as provided in items A and B, a new animal feedlot or a manure storage area must not be constructed within shoreland, a floodplain, 300 feet of a sinkhole, 100 feet of a private well, or 1,000 feet of a community water supply well or other wells serving a public school as defined under Minnesota Statutes, section 120A.05. Within the well data sets the location of each well was buffered with a setback distance of:

- 100 feet for cased wells,
- 200 feet for uncased wells,
- 1000 feet for public/municipal wells.

All setback areas were assigned a well sensitivity rating = 1.

In addition, the assessment was expanded to consider the location of both consolidated and unconsolidated aquifers, the depth to bedrock, and the general permeability of the overburden above bedrock.

Within the hydrogeology data sets the location of all aquifers was identified and assigned an aquifer sensitivity rating = 1.

Within the depth to bedrock data set areas were assigned values based on the following depths:

- 0-100 feet = 1,
- 100-200 feet = 0.5,
- >200 = 0.

The subcomponent model, Overburden Permeability, is the result of combining a rating of potential permeability of features in both the quaternary and geomorphology data sets. Within each data set features were assigned a value of 0-3 based on their potential permeability. These data sets were then combined and the sum of the feature values calculated. The assessment resulted in potential permeability values ranging from 0-6. These values were normalized to a permeability sensitivity rating ranging from 0-1.

The individual assessments were combined to create the Ground Water Resource Model. The sum of the feature values was calculated resulting in an initial ground water sensitivity rating ranging from 0-6. These values were normalized to a final ground water sensitivity rating ranging from 0-1.
Habitat Resource Model

The Habitat Resource model depicts areas that have significant potential to support rare or specialist species that require habitats of specific types, sizes and/or isolation from anthropogenic disturbance types. For purposes of this assessment, ‘habitat’ is defined as a surrogate for potential biological diversity which, in turn, represents the potential for a high level of environmental function. This assessment is based on five subcomponent models:

- Habitat Size (contiguous areas of forest, brushland, grassland, & wetland),
- Core Forest,
- Land Cover Coincidence (potential coincidence between pre-settlement vegetation and current land cover),
- Disturbance Regime (degree of disturbance from human land use),
- Sites of Significant Biological Diversity identified by the MNDNR.

In order to create these models the land use/land cover data set needed to be modified to reflect the presence of linear anthropogenic features, primarily, the transportation network and its associated rights-of-way. The Refined Land use/Land Cover model accomplished this necessary modification.

The Habitat Size model identified areas of forest, grassland, wetland, and shrubland. These separate habitat types were combined into a single habitat type and classified on size in a range of 0-8. These values were normalized to a habitat size rating ranging from 0-1.

It was determined that the presence of areas of core forest added significant additional value to the potential for habitat in the landscape and needed to be identified separately. The Core Forest model was derived as a subset of the Habitat Size Model and classified on size in a range of 0-4. These values were normalized to a core forest size rating ranging from 0-1.

The concept of land cover coincidence assumes that current land cover that is similar in character to pre-settlement/pre-agriculture land cover likely contains characteristics that enhance its value as habitat. The Land Cover Coincidence model identifies areas greater than five acres in which current land cover resembles pre-settlement vegetation. These areas were attributed with a coincidence rating = 1. All other areas were attributed with a coincidence rating = 0.

The concept of disturbance regime builds from the premise that human activity in the landscape can have a significant effect on that landscape’s function as habitat. To a great extent most of Minnesota is influenced by the activities of humans. However, certain activities can have a more significant effect than others. The Disturbance Regime model identifies areas of more significant human effect and adds a variable zone of disturbance to their spatial extent that reflects the potential extent of the effect. The combination of these disturbance types and their associated zones of disturbance were deemed to be ‘more disturbed’ and attributed with a disturbance rating = 0. All other areas were deemed to be ‘less disturbed’ and attributed with a rating = 1.
The individual assessments were combined to create the Habitat Resource Model. The sum of the feature values was calculated resulting in an initial habitat sensitivity rating ranging from 0-7. These values were normalized to a final habitat value rating ranging from 0-1.
**Socially Significant Resources**

Socially significant resources are physical components and features of the landscape within a defined area that have value to the people living within that area. These components and features can be naturally occurring or be the products of social and cultural enterprises engaged in by humans. They have value to society for a variety of reasons:

- Some provide useful or necessary materials to support human life and activity, for example, agricultural fields provide food and gravel pits provide building material,
- Some provide an infrastructure base which supports expansion of human activity in the landscape,
- Some provide desirable locations to accommodate human use such as lake front building sites,
- Some provide enjoyment through their intrinsic beauty such as a scenic highway or trail.

As it relates to resources, value usually refers to economic value however some resources are more readily assigned an economic value than others. Socially significant resources can be broadly separated into two categories based on how readily they lend themselves to being traded in the marketplace.

Commodity resources have tangible value that can readily be assigned in monetary terms. Common commodity resources include, among others, agricultural productivity (generally, the soils that allow the production of agricultural products), stock resources (non-renewable) such as aggregate and minerals, and ‘value-added’ locations for specific land uses such as lake front property for residential development.

Amenity resources are resources that add to the quality of life. They are often readily identified but are subjective in their definition, description and the extent of value they bring to different individuals in a given society or to different societies. As such they are difficult to assign a monetary value to. Amenity resources include, among other things, scenic natural beauty, recreational opportunities such as parks and trails, and cultural artifacts such as historic structures or rural character of the

**Commodity Resource Model**

Commodity resources are very specific to the locale. For purposes of phase one of the Wyoming Township Comprehensive Planning Process commodity resources were modelled as the combination of agricultural productivity, aggregate resources, existing built infrastructure, and land associated with lakes classified for general/recreational development.

Agricultural productivity is defined by the potential corn yield without irrigation as indicated in the most current soils database. Two categories are depicted, the highest representing corn yields of 79-90 bushels per acre, the lower representing 68-79 bushels per acre.

Aggregate resources are derived from data from
the Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Section in 1987.

The built infrastructure includes roadways, existing urban and industrial areas, and additional areas zoned for commercial and industrial uses. It is assumed that these areas and transportation corridors will also include the majority of current and proposed power and communications infrastructure.

Lakes classified for general and recreational development were selected from MnDNR’s Division of Waters Lakes-DBdatabase.
Amenity Resource Model

The nature of amenity resources are often specific to a given landscape but can be categorized into scenic amenities, recreational amenities, and cultural amenities. For purposes of phase one of the Livonia Township visioning process amenity resources were modelled as the combination of intrinsic scenic value, the opportunity for scenic roadway easements, historic structures, and existing trail systems and public lands.

Intrinsic scenic value is derived from physical elements in the landscape, both natural and cultural, and the way they interact to create visually pleasing experiences. Scenic value can be assessed as a combination of two factors:
- Landform Complexity defined as complexity in the shape of the surface of the land,
- Landcover Complexity defined as complexity in the form and character of the things that sit on the land.

Landform complexity factors in both the total extent of topographic change - all of the knobs, depressions, swales and ridges in an area - and the absolute change in elevation - the difference between the highest point and the lowest point in an area.

Landcover complexity factors in the total number of patches of cover in an area, the variation in the height of the different cover types, and the degree of ‘naturalism’ different landcover types possess.

Each of these factors were assessed at the scale of a 10 acre parcel. The factors were then combined to create a scenic score for each parcel ranked from ‘higher’ to ‘lower’.

Roadway easements 500 meters wide were overlaid on federal, state and county state aid highways to identify potential scenic corridors based on the assessment above.
Finally, trail facilities, public lands, and historic features were overlaid to represent recreational and cultural amenities.
**Development Suitability Resources**

Development offers the opportunity for economic growth and homes for an expanding population. New areas for industrial and commercial development provide places to work and new areas for residential development provide places to live. As such, areas suitable for development are a resource to a community.

The physical features that define suitability for development will vary from place to place depending on the location in the landscape. However, these features can be divided into three principal components:
- the suitability of the soil to support development,
- the suitability of the landform to support development,
- proximity to existing infrastructure.

For purposes of the Livonia Township visioning process development suitability resources were modelled as the combination of intrinsic physical suitability of the soil, the slope of the land, and the proximity to the built infrastructure.

Soil suitability for development was modelled as a combination of its suitability to support dwellings, support cultivated landscape vegetation related to buildings, provide an adequate base for roads, and its ease of excavation.

Landform suitability was modelled as a function of slope with slopes $<6\%$ being classified as the most suitable, slopes in the range of $6-18\%$ being less suitable, and slopes $>18\%$ being unsuitable, in general, for development.

The proximity to existing infrastructure was modelled as including roadways, existing urban and industrial areas, and additional areas zoned for commercial and industrial uses. It is assumed that these areas and transportation corridors will also include the majority of current and proposed power and communications infrastructure.
Livonia Township
A Community Vision
For Land Use

Development + Resources

Soil - Dwelling Suitability

Soil - Road Suitability

Soil - Landscape Suitability

Soil - Excavation Suitability

Soil Suitability

Development Suitability Resources
APPENDIX II
COMMUNITY PROFILE
**Population**

Sherburne County grew by 22,472 residents (54 percent) between 1990 and 2000 and is projected to grow 34 percent from 2000-2010 and 89 percent from 2000-2030 (second only to Scott County at 103 percent). Sherburne County is expected to continue growing rapidly and to be among the fastest growing counties in Minnesota over the next 25 years (Minnesota Planning and the State Demographic Center, Faces of the Future).

Livonia Township, located within Sherburne County, has had a 72 percent increase in population from 1990-2000 and a 29 percent increase from 2000-2004 (Table 1). Livonia’s population growth in 1990-2000 ranks third and in 2000-2004 ranks fourth among Sherburne’s other townships.

**Housing**

This population growth has resulted in a 66 percent increase in housing units from 1990-2000 (Table 2).

<table>
<thead>
<tr>
<th>Table 1. Historical Population Trends Demographers Estimates Sherburne County Townships</th>
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Census 2000

| Table 2. Historical Population and Household Trends Livonia Township |
|--------------------------|-----------------|-----------------|-----------------|-----------------|
| Population              | 705  | 1,629| 2,288| 3,917|
| Persons Per Household   | --   | 3.53 | 3.24 | 3.2 |
| Households              | --   | 461  | 707  | 1,222|
| Housing Units           | 233  | 488  | 746  | 1,241|

Census 2000
AGE TREND

The age of the population has changed (Chart 3A and 3B). In 1990 there was a significant amount of 35-44 year olds and 25-34 year old residing in Livonia whereas, in 2000 the 35-44 year old population increased and the 25-34 population decreased.

Livonia’s 2000 population is below 4000 people. If the population of a community is below 4000 aggregated data containing age and sex of the population is not published by the United States Census Bureau. Baldwin Township is projected to have a 48 percent population increase from 2000-2010 and a 53 percent increase from 2010-2020.
## Appendix A

### Age-Gender Population Projections

<table>
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<td>204</td>
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<td>463</td>
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<td>196</td>
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<td>300</td>
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<td>540</td>
<td>106.54</td>
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<td>81.08</td>
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<td>0.00</td>
<td>4</td>
<td>0.00</td>
</tr>
<tr>
<td>85+F</td>
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<td>6</td>
<td>20.00</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>-</td>
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<tr>
<td>Total Population</td>
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<td>4672</td>
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<td>12596</td>
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<tr>
<td>Total % Change</td>
<td>60.61</td>
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<td>52.67</td>
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</table>

Census 2000
Table one shows Baldwin Township’s population projection from 2000-2010 and 2010-2020. Baldwin’s population growth is similar to Livonia and was used because Livonia’s 2000 population is below 4000 people. If the population of a community is below 4000 aggregated data containing age and sex of the population is not published by the United States Census Bureau. Baldwin Township is projected to have a 48 percent population increase from 2000-2010 and a 53 percent increase from 2010-2020.

**Income Status**

Table Two shows Livonia Township’s Income Status in 1999. Of interest, is that on average median family and median household income is around $65,000. The income state per capita is around $24,000, noticeably lower that the median family and household income because this figure is based on population per area. Livonia is a large place so in turn, the income per capita will lower due to less people than overall acerage.

**Education Status**

Table Three shows that in 1999 in Livonia Township, of the 2348 people 25 and over, 90 percent completed high school or higher and 18 percent completed a bachelor’s or higher.

**Employment Status**

Table four shows that in 2000 of the 2,767 persons over 16 in Livonia Township 1,441 were male and 1,326 were female. Of the male and female populations 1,149 males were in the labor force and 936 female were in the labor force. This table shows that the labor force for both sexes was around 1.1 percent.
## Income in 2000

Table five shows in Livonia Township in 1999, out of 1,249 households the median income was around $63,000. The table below states that in Livonia Township in 1990, out of 1,065 families the median income was around $66,000. The table at the bottom of the page states that in Livonia Township in 1999, of the 53,750 non-family arrangement, the median income was around $54,000.

### Table 5. Livonia Township, Income in 2000

<table>
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<th>Households</th>
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<td>$10,000 to $14,999</td>
<td>13</td>
</tr>
<tr>
<td>$15,000 to $19,999</td>
<td>24</td>
</tr>
<tr>
<td>$20,000 to $24,999</td>
<td>26</td>
</tr>
<tr>
<td>$25,000 to $29,999</td>
<td>29</td>
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<tr>
<td>$30,000 to $34,999</td>
<td>72</td>
</tr>
<tr>
<td>$35,000 to $39,999</td>
<td>61</td>
</tr>
<tr>
<td>$40,000 to $44,999</td>
<td>69</td>
</tr>
<tr>
<td>$45,000 to $49,999</td>
<td>45</td>
</tr>
<tr>
<td>$50,000 to $59,999</td>
<td>165</td>
</tr>
<tr>
<td>$60,000 to $69,999</td>
<td>173</td>
</tr>
<tr>
<td>$75,000 to $89,999</td>
<td>279</td>
</tr>
<tr>
<td>$100,000 to $124,999</td>
<td>109</td>
</tr>
<tr>
<td>$125,000 to $149,999</td>
<td>42</td>
</tr>
<tr>
<td>$150,000 to $199,999</td>
<td>65</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>24</td>
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</table>

Median household income in 1999: $63,281

### Table 6. Livonia Township, Income in 1990

<table>
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<th>Families</th>
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<td>12</td>
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<td>16</td>
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<tr>
<td>$15,000 to $19,999</td>
<td>10</td>
</tr>
<tr>
<td>$20,000 to $24,999</td>
<td>0</td>
</tr>
<tr>
<td>$25,000 to $29,999</td>
<td>63</td>
</tr>
<tr>
<td>$30,000 to $34,999</td>
<td>51</td>
</tr>
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<td>41</td>
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<tr>
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<td>45</td>
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Median family income in 1990: $85,453

### Table 7. Livonia Township, Income in 1999

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<td>$60,000 to $69,999</td>
<td>28</td>
</tr>
<tr>
<td>$75,000 to $89,999</td>
<td>31</td>
</tr>
<tr>
<td>$100,000 to $124,999</td>
<td>22</td>
</tr>
<tr>
<td>$125,000 to $149,999</td>
<td>13</td>
</tr>
<tr>
<td>$150,000 to $199,999</td>
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<tr>
<td>$200,000 or more</td>
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</tbody>
</table>

Median nonfamily household income in 1999: $65,260

Overtime:

2000
INCOME TYPE IN 2000

Table six shows in Livonia Township in 2000, out of 1,249 households the mean earning was around $63,000. Of those households 210 of them obtained around $14,000 in mean earnings from Social Security Income. Of the 1,249 households, 190 households obtained around $11,000 in mean earnings from Retirement Income. Of the 1,249 households, 237 households obtained around $18,000 in mean earnings from Self Employment Income.

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<thead>
<tr>
<th></th>
<th>Households</th>
<th>Mean Earnings</th>
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<td>Total</td>
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<td>With Social Security Income</td>
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<td>With Public Assistance Income</td>
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<td>With Retirement Income</td>
<td>190</td>
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<tr>
<td>With Self Employment Income</td>
<td>237</td>
<td>$18,430.31</td>
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</table>

Table 6. Livonia Township, Income Type in 2000
Surface Water + Ground Water + Habitat + Commodity + Amenity
Appendix III
Workshop One: Community Input
**Commodity Resources**

**Exercise 1: Ranked Issues**

1. Preservation of Agricultural Land
2. Strict regulation of mining / Reduce Impacts / Protect Land
3. Shore land Protection / Water Protection
4. Concern for the development along highway 169.
5. No building until gravel is used.
6. If mining increases the job base / population will increase. Cluster housing and the preservation of open space.

**Exercise 2: Opportunities and Constraints**

**Opportunities**

East 169 and North of CSAH 21
3A. A. Mining use, B. Future Land Use, C. identifying all the areas.
2A. Keep Girl Scout Camp in pristine area.
2B. Farmland mined for gravel and reclaimed for farmland.
1A. Keep Open Space for Agriculture and Gravel
1B. Keep Open Space for Agriculture and Gravel
5C. Mining in this area may increase tax base.

South County Hwy 8 and West of CSAH 19.
3B. Agricultural Land, Proper Transition, Protection of Land Use
5A. Potential to increase Agricultural area
5B. Stable Agricultural Area need for preservation.
4C. Mining Potential within, Agricultural Area, Balance

East of 169 and North of County 8 (Southern shore of Fremont Lake
3C. A. Water Quality,
B. Surface and Underground,
C. Ditches and Streams

169 South of County Hwy. 8
1C. Businesses to Start Up

169 South of County Hwy 8 and East of 169.
Development + Resources

Livonia Township
A Community Vision for Land Use

4B. Main Highway Commercial, Potential development, close to city limits
North of CSAH 25 and West of County Road 32
4A. Agriculture preservation, open space, habitat.

Constraints

169 South of County Hwy 8 and West of 169.
4B. City proximity concern for development, loss of agricultural land.

South of County Hwy 8 East of CSAH 19
5A. Mining adverse effect on lake front
5C. Housing Development adverse effect on Agriculture
4A. Water quality concern, scenic effect.

South of County Hwy 8 and West CSAH 19
3A. Development -

169 South of County Hwy 8 Just North of CSAH 25.
3B. Cluster Housing
1A. Traffic
4C. Traffic concerns due to population expansion.

CSAH 4 and County Road 46.
3C. Future School land

North of Township line in the South of Township. West of 169.
2A. Land fill unsightly, smelly.
1B. Land fill ground water and smell
5B. Mining may affect scenic view of area.

South of Township line in the South of Township. West of 169.
2B. 169 has too many accesses and continues to add more.

169 and West of County Road 74
1C. Housing moving in.
**AMENITY RESOURCES**

**EXERCISE 1: RANKED ISSUES**

**Development:**
1. highest and best use of the land,
2. Open space, wildlife, natural
3. Lot size
4. Topographic relief – scenic and drainage issues

**Roads:**
1. Scenic Corridors
2. Accessibility and proximity
3. Traffic concerns

**Gravel and Reclamation:**
1. use

**EXERCISE 2: OPPORTUNITIES AND CONSTRAINTS**

**OPPORTUNITIES**

East 169 and North of CSAH 21
20B. Girl Scout Property
A. One of the last remaining large tracts of land
B. Natural habitat
C. Potential for preservation.
19A. Scenic drive along county border Anoka and Sherburne.

South of CSAH 1 and West of 169
16A. 239th Ave
A. scenic drive
B. an area of wildlife
C. peaceful area
17B. Scenic drives i.e. Co Rd 1, Also Co Rd. 25.
20C. Granis Regional Park
A. Potential Park Development
B. Possible connection to trails
C. Shoreland restoration near Lake Fremont.

South of CSAH 4 (County Road 8) and CSAH 1
17A. Proximity to wildlife (sand dunes) areas
West of 169 and North CSAH 4 (County Road 8)
16C. The Woodlands of Livonia
A. Land was developed with trees intact 2.5 ac per lot.
B. Incorporated bike and walking trails.
C. Well thought out developed as far as house spacing is concerned.
17C. Planned low density housing that preserves natural resources.
18 C. Increase Wildlife areas.
19B. Centrally located between cities and St. Cloud.

East of 169 on North CSAH 4 (County Hwy 8) Fremont Lake
18A. Preserve Lake from pollution for wildlife.
20A. All of Co. Rd 1.
A. Scenic corridor- sod farms, dairy and elk farm, wetlands
B. Great access road to Elk River, Hwy. 10 and back roads to Big Lake, Monticello, Princeton.
C. So far the traffic level isn’t as scary as 169 have come to be.
16B. Lake Fremont Low Maintenance Road.
A. Peaceful
B. Wildlife Area
C. Scenic Drive.

Lake Fremont West of 169.
18B. Increase wild life area.

West of 169 just South of CSAH 4 (County Hwy 8)
19C. New buildings in downtown Zimmerman.

169 North of CSAH 4 (County Hwy 8)
18B. Bring in an Industrial park area.

**Constraints**

West of 169 just South of CSAH 4 (County Hwy 8)
19B. Highway congestion and volume of traffic.
19C. Development of downtown Zimmerman could increase traffic and noise level.
17C. Development too close to wetlands.

East of 169 just South of CSAH 4 (County Hwy 8)
18B. Loss of farm or open property to home development.

16B. Hwy 169 Corridor Area of Commercial Business

A. Sight of wrecking yard.
B. Due to lack of planning in the past the businesses located here are not pleasing to the eye.
C. Corridor could have commercial development but needs to be a thoughtful process.

East of 169 on CSAH 4 (County Hwy 8)

18A. High traffic area- effective scenic areas from noise, litter and air pollution.
17B. Development of open space.

169 Just North of CSAH 25.

20C. Hwy 169: A. I understand people seeking commercial development area, but I don’t want tot see Livonia turn into the same “strip” of stores turning up in the suburbs. I’d like to make/keep the Hwy corridor more scenic.

East 169 and North of CSAH 21

19A. Different services on borders of counties some better in one county than the other. For example: promptness of snowplowing.

North of Township line in the South of Township. West of 169.

18C. Strip Mining of gravel pits destroying land.
17A. Need for a plan to manage landfill, growth, and post landfill.
16A. Odors garbage – litter, increased traffic, unsightly lends to negative entrance to township.
20A. Landfill A. Litter and odors along potentially scenic corridor, B. filling in previously mined area, mine does not make as much effort to keep buffer of trees. C. Reclamation of landfill cannot be planted with long rooted plants (prairie restoration or trees).

North of Township line in the South of Township. East of 169.

20B. Potential Gravel Mining:
A. Spotty mining in between development.
B. Not very far reaching or strict gravel reclamation. Buffer areas lacking.
C. Water quality high K values subsequent reclamation = big issue.
16C. Gravel: A. No specific use planned for reclamation
B. Concern could be another landfill
C. Increased heavy traffic.
**DEVELOPMENT RESOURCES**

**EXERCISE 1: RANKED ISSUES**

1. Overall thoughtful consideration in planning to include: water and social issues, cooperative agreements with Zimmerman, and a rural aesthetic.
2. Commercial Development: ensure access points to 169 are consistent and managed, centralized shopping.
3. Small lots connected to municipal services, lot maintenance of existing large lots.
4. Setting aside open space for recreation and trails.

**EXERCISE 2: OPPORTUNITIES AND CONSTRAINTS**

**OPPORTUNITIES**

North CSAH 4 (County Rd 8), West of County Rd. 46
9B. Managing peoples expectations when they move in near undeveloped land.

West County Rd. 45 and CSAH 4 (County 8)
9C. Cooperative agreement with Zimmerman joint planning of open spaces.

West 169 and North CSAH 4 (County 8) North West of Lake Fremont
9A. Commercial / Industrial development along 169 and planned intersections.
8A. A. Industrial Park,
B. Access,
C. Water/sewer not far away
10A. Opportunity for more commercial development
7B. Retail Center: would like one area designated for all retail development.

West 169 and North CSAH 4 (County 8) South West of Lake Fremont
6B. Retail Space
10C. Retail Development
8C. Control growth until water / sewer.

East 169 and North CSAH 4 (County 8) North of Lake Fremont
7A. Public Park- would like this left natural for bike trails

East 169 and North CSAH 4 (County 8) South East of Lake Fremont
10B. Granis Park expand and develop
CSAH 4 (County 8) and County Rd 39
7C-no Comment

169 East CSAH 4 (County 8)
8B. Gravel Possibilities
6A. Higher Density housing than currently allowed.

**CONSTRAINTS**

South CSAH 4 (County Rd 8), West of County Rd. 46
9A. Buffer zones between high density and low density city/ township.
West 169 and North CSAH 4 (County 8)
7A. A. Dangerous traffic area. B. Too congested every evening.

West County Rd. 45 and CSAH 4 (County 8)
7B. Downtown blight (needs serious face lift).

East 169 and North CSAH 4 (County 8) North of Lake Fremont
10A. Limit Housing leave open for recreational opportunity, public park
8A. Overpass not new access, new housing would create dangerous intersection.

East 169 and North CSAH 4 (County 8)
10B. Need to develop congestion for getting on hwy.

169 and CSAH 25
9B. Well planned intersections

169 Street South of CSAH 25
10C.Law Land- No Development

County Rd 1 and CSAH 25
9C. Growing developing in appropriate areas.

CSAH 25 East of County Rd 1
6B. Develop with water quality care
GROUND AND SURFACE WATER RESOURCES

EXERCISE 1: RANKED ISSUES

1. Ground Water Contamination
2. Preserve Wetlands, lakes, and forested areas.
3. Control Development near water.

GROUND WATER RESOURCES

EXERCISE 2: OPPORTUNITIES AND CONSTRAINTS

OPPORTUNITIES

East of 169 South East of County Rd 74.
27A. Nice area for a park, set it aside now before its too developed.

Livonia in general
14A. Preserve all wetlands and lakes. No roads, No developments.

North of CSAH 4 (County Hwy 8), East of 169 and North West of Fremont Lake
27B. Another park area for the future.
15A. Preservation of any existing surface water.
12A. New culvert put in this spring to help manage run off.

CONSTRAINTS

South on 169, East of 239
12C. Have sod farm dig more drainage ditches and check size of culverts fro meeting the needs of the markedly increased rainfalls.

South on 169, just North of Township line
27B. A. landfill expansion could affect groundwater.
       B. Area too low for landfill.
       C. odors are a problem for nearby housing.

South on 169, just South of Township line
12B. Landfill needs t be watched to prevent intrusion into Rice Lake.
North of CSAH 4 (County Hwy 8), East of 169 and North West of Fremont Lake
North CSAH 4 (County Hwy 8) and West of County Road 46
15B.  A. Home development near ground water threatens property value of existing property.  
    B. Presence of wildlife areas.  
    C. Preserve water resources.  

South CSAH 4 (County Hwy 8) and West of County Road 46
15A.  A. Groundwater contamination from high-density housing developments  
    B. Close proximity of multiple developments can contaminate existing ground water.  
    C. City development for high density homes is too close to surface water areas.  
15C. Surface water areas need larger setbacks from all development.  
14C. Heavy development and filling in wetlands.  
27C.  A. Road should be abandoned- it is in terrible shape.  
    B. Area is a wetland.  

**SURFACE WATER RESOURCES**

**EXERCISE 2: OPPORTUNITIES AND CONSTRAINTS**

**OPPORTUNITIES**

North of CSAH 4 (County Hwy 8) and East of CSAH 19
11B. Gun Club- Sportsman’s Club to be bought by DNR to become a preserve for the wildlife and wetland and wetland to be protected.

South of CSAH 4 and West of CSAH 1
15C. Keep waters wild by area as is.

West of 169 and West of CSAH 25
15B. Keep water surface area as is.

Livonia Township as a whole.
13C. Leave wetland habitat untouched for nature.
13A. Preserve all wet lands and lakes and ponds, river and streams from contamination etc.
13B. Better control of the development of all areas of concern
11A. Preserve all wetlands, forests, lakes, farm lands.
14C. Quality ground water.
CONSTRAINTS

North of CSAH 4 (County Hwy 8) and East of CSAH 19
11A. Water running from housing development onto farm land, causing erosion, water standing, sm. Wetland.

North of Lake Fremont
11C. Lawn fertilizers running into lakes and wetlands are causing weed growth.

West of 169 and CSAH 25
14A. Road through wetlands over flows with heavy rain (25).

Livonia Township as a whole.
11B. Culverts need to be updated to (larger) or cleaned out.
ENVIRONMENTAL RESOURCES

EXERCISE 1: RANKED ISSUES

1. Preservation of environmental amenities
2. Comprehensive Plan

EXERCISE 2: OPPORTUNITIES AND CONSTRAINTS

OPPORTUNITIES

Development in the North West of the Township
23C. A. Wetlands. B. Diversity in Natural Resources.
26B. A. Low density housing. B. Maintain trees, wildlife – no clear cutting.

Lake Fremont North
24B. Preserve Woodlands.
23A. A. Preserve the shoreline.
   B. Buffer land use.
26A. A. Protection of lakefront for recreation.
   B. The north side is still undeveloped.

South of CSAH 4 (County Rd. 8) and West of County Road 46.
24A. Preserve Wetlands.

South of 239.
23B. A. Sugar bush,
    B. Preserve the maple trees.

North of 239.
26C. Preserve Sugarbush area.
25A and C. Preserve South West corner of Township for Public lands/ parks.

South Central of the Township just east of 169
22C. Preserve frontage on 169 plant trees in front of gravel pits.

South East Corner of Township (Girl Scout Property)
22A. Stop run off from road into pond.
**Constraints**

West of 26C and North of Lake Fremont
26C. A. Entrance into Zimmerman Area.
B. Give it a sense of place.

West of 169 and CSAH 4 and (County Hwy 8)
25A. Traffic congestion.

169 in Central Township
22A. Limit commercial business sites.
24B. A. Hwy. 169 Corridor
B. Want to maintain natural areas along several portions,
C. Don’t develop it all.
26A. Cluttered appearance of commercial areas.

169 and CSAH 25
26B. Used Car lot.

North of CSAH 25 and North of CSAH 1
24C. A. Wetlands Area
B. No development at all would like trail system into area.

South Central of the Township just east of 169
24A. A. Gravel areas
B. Need an orderly plan to mine and reclaim.
Negative: Garage more prominent than; could be side-loaded or set back from front

Negative: Why not separate recyclables on site using compartmentalized dumpsters?

Negative: No excuse for this! Could at least use a dumpster
Landfill: Trash along fences. Landfill monitors; has some prevention

Tiller Corp. gravel mining: Future demo debris landfill

Negative: Trash along ditches/fields near landfill; landfill monitors closely
Landfill entrance

Toth gravel mining east side of Hwy 169. Question: What will restoration look like?

Looking northwest along Hwy 169. Natural tree barrier for gravel mining and future landfill may be removed.
Billboards along Hwy 169 south of Zimmerman. Negatives: size, height

Along Hwy 169

Signs south of Zimmerman Hwy 169: Negative - distracting; size, height
County Rd 45: Positive - newly reconstructed, widened shoulders, increased safety

273rd Ave: Negative - trees in R.O.W., example of offset intersection

Snowmobile trail in ditch
Heritage Oaks/City Limits: Negative - high density housing next to 2.5 acre lots without transitional size lots between

253rd Avenue: not suitable for traffic demands; negatives - inadequate road base, shoulders

Cluster Housing: Positives - open space, defined neighborhood; negatives - drainage, erosion control problems, headwalls
Cluster Housing: negative - too many similar houses

Farms: Positives - open space, natural habitat, maintains rural character

Livonia Town Hall: Positives - good meeting facility and offices, example of green building
Minimum maintenance road - north of Lake Fremont. Rustic, beautiful

Lake Fremont - positive: natural habitat

Sod farm on 239th Avenue. Hope to keep this undeveloped
Looking east on 239th Avenue: positives - open space, natural habitat, beautiful. (in right corner of photo: sugarbush -preserve) (bottom right corner=sod farm)

From road to cornfield

253rd Avenue: This road was underwater this summer - taken 11/25/05
Heritage Homes Building - No mailbox

Standing water in ravine

253rd Avenue
Neighbor next to our field

Culvert goes from this house under 101st St. then north

Ravine from road to field
Soil erosion from development

Cars are being driven between city street. The land between the two streets is owned by Livonia Twp.

Road is breaking up and water runs down to our field
Depth/height - Turnaround: Cornfield from road

Erosion ravine (6-8” deep) coming from west side of road to field

No culvert in driveway
APPENDIX V
ATLAS
The maps in this atlas represent probable situations and are intended for reference and discussion purposes only. It is important to note that the data contained within these maps has not been field verified and therefore accuracy is not guaranteed. The data in these maps replaces and supersedes the maps in the main report. Any questions or errors should be directed to the Center for Rural Design. The maps show the inventory components of natural and cultural resources in Wyoming Township that were used in Phase One, Resource Analysis, to discuss and determine community priorities for areas to protect, manage and develop. The composite maps reflect community values overlaid on a composite of the inventory maps.

The atlas includes these maps:

1. Generalized Land Cover/Land Use
2. Surface Water Resources
3. Surface Water Analysis Components
4. Ground Water Resources
5. Ground Water Analysis Components
6. Environmental Resources
7. Environmental Analysis Components
8. Commodity Resources
9. Commodity Analysis Components
10. Amenity Resources
11. Amenity Analysis Components
12. Development Resources
13. Development Analysis Components
14. Community Water Quality Values
15. Community Environmental Values
16. Community Commodity Values
17. Community Amenity Values
18. Community Development Values
19. Combined Community Values
20. Water Resource Analysis Overlaid on Combined Community Values
21. Environmental Resource Analysis Overlaid on Combined Community Values
22. Commodity Resource Analysis Overlaid on Combined Community Values
23. Amenity Resource Analysis Overlaid on Combined Community Values
24. Development Resource Analysis Overlaid on Combined Community Values
25. Sherburne County Zoning Overlaid on Combined Community Values
26. US Highway 169 Overlay District Overlaid on Combined Community Values
27. Livonia Township Transportation Plan Overlaid on Combined Community Values
28. Land Parcels Already Developed Overlaid on Combined Community Values
The Surface Water Resource analysis identifies areas that have significant potential to impact surface water quality based on the land use occurring in the area. The framework for this model was based in principle on the requirements of surface water quality protection laws in Minnesota. Two areas of concern for surface water quality are identified in the regulation. Shoreland Management Zones and Special Protection Areas:

**Shoreland:** Shoreland means land, as defined in Minnesota Statutes, section 103F.205, subdivision 4, treated within the following distances from the ordinary high-water elevation of public waters:

A. land within 1,000 feet from the ordinary high-water mark of a lake, pond, or drainage;
B. land within 300 feet of a river or stream or the landward side of shoreland delineated by ordinance on such a river or stream, whichever is greater.

**Special Protection Area:** "Special protection area" means land and water within 300 feet of:
A. protected waters and protected wetlands as identified in Department of Natural Resources protected waters and wetlands maps, and
B. terrace boundaries and other boundaries identified in United States Geological Survey quadrange maps, including drainage ditches with terraces and segments of interbasin stream channels and gaged waterways.

**Surface Water Resources**

Surface Water Resource Protection Areas

- **Protection Areas**
- **Water Features**
- **Lakes**
- **Streams**

**Standard Geographic Features**

- **Precipitation Boundaries**
- **Roads and Streets**
- **Lakes**
- **Streams**
- **Residential**
- **Commercial**

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*Map 2*
The Ground Water Resource analysis identifies areas that have significant potential to impact ground water quality in terms of the land uses occurring in the area.

The analysis is based partly on the requirements of ground water quality protection laws in Minnesota as it applies to protection zones for water wells. In addition, the assessment identifies the location of both consolidated (bedrock) and unconsolidated (shallow) aquifers, the depth to bedrock, and the general permeability of the overburden above bedrock.
LIVONIA TOWNSHIP
Community Vision for Land Use

GROUND WATER RESOURCES

Depth to Bedrock

Overburden Permeability

Unconsolidated Aquifers

Bedrock Aquifers

Wells and Wellhead Protection Zones
The Environmental Resource analysis identifies areas that have significant potential to support rare or specialist species that require habitats of specific types, sizes and/or isolation from human disturbance types. In broader terms, these specialized habitats represent areas of high quality environmental function.

This analysis is based on five subcomponent models:

- Habitat Size (contiguous areas of forest, brushland, grassland, & wetland),
- Patches of Core Forest (isolated forest interior),
- Land Cover Coincidence (potential coincidence between pre-settlement vegetation and current land cover),
- Disturbance Regime (degree of disturbance from human land use),
- Areas of Significant Biological Diversity (identified in the County Biological Survey).
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ENVIRONMENTAL RESOURCES

Areas of Less Human Disturbance

Pre-Settlement/Current Coincidence of Vegetation

Areas of Core Forest

Potential High Quality Habitat

Areas of Significant Biological Diversity

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Map 7
Commodity resources have tangible value that can readily be assigned in monetary terms. Common commodity resources include, among others, agricultural productivity (generally the soils that allow the production of agricultural products), stock resources (non-renewable) such as aggregate and minerals, and 'value-added' locations for specific land uses such as lake front property for residential development.

Commodity resources are very specific to the locale, for purposes of this project commodity resources are modeled as the combination of agricultural productivity defined by the location of prime agricultural soils, aggregate resources identified in the Aggregate Resource Mapping Project conducted by the MN DNR in 1987, existing built infrastructure, and land associated with lakes classified for general/recreational development or showing significant current shore line development.
LIVONIA TOWNSHIP
Community Vision for Land Use

AMENITY RESOURCES

The nature of amenity resources are often specific to a given landscape but can be categorized into scenic amenities, recreational amenities, and cultural amenities. Amenity resources are modelled as the combination of intrinsic scenic value, the opportunity for scenic roadway easements, historic structures, and existing trail systems and public lands.

Intrinsic scenic value is derived from physical elements in the landscape, both natural and cultural, and the way they interact to create visually pleasing experiences. Scenic value can be assessed as a combination of two factors:
- Landform Complexity defined as complexity in the shape of the surface of the land,
- Landcover Complexity defined as complexity in the form and character of the things that sit on the land.
Development offers the opportunity for economic growth and homes for an expanding population. New areas for industrial and commercial development provide places to work. New areas for residential development provide places to live. As such, areas suitable for development are a resource to a community.

The physical features that define suitability for development will vary from place to place depending on the location in the landscape. However, these features can be divided into three principal components:

- the suitability of the soil to support development,
- the suitability of the slope of the land to support development,
- proximity to existing infrastructure.
The Surface Water Resource analysis identifies areas that have significant potential to impact surface water quality based on the land use occurring in the area. The framework for this model was based on the requirements of surface water quality protection laws in Minnesota. Two zones of concern for surface water quality are identified in the regulation, Shoreline Management Zones and Special Protection Areas.

The Ground Water Resource analysis identifies areas that have significant potential to impact ground water quality impacts of land uses occurring in the area. The analysis is based on the requirements of ground water quality protection laws in Minnesota as it applies to protection zones for water wells. In addition, the assessment identifies the location of both consolidated (bedrock) and unconsolidated (shallow) aquifers, the depth to bedrock, and the general permeability of the overburden above bedrock.
LIVONIA TOWNSHIP
Community Vision for Land Use

ENVIRONMENTAL VALUES

The Environmental Resource analysis identifies areas that have significant potential to support rare or specialist species that require habitats of specific types, sizes and/or isolation from human disturbance types. In broader terms, these specialized habitats represent areas of high quality environmental function.

This analysis is based on five components:
- Habitat Core (contiguous areas of forest, brushland, grassland, & wetland),
- Patches of Core Forest (isolated forest interior),
- Vegetation Coincidence (potential coincidence between pre-settlement vegetation and current land cover),
- Disturbance Regime (degree of disturbance from human land use),
- Areas of Significant Biological Diversity (identified in the County Biological Survey).

Standard Geographic Features:
- Jurisdictional Boundaries
- Roads and Streets

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Map 15
Commodity values have tangible value that can readily be assigned in monetary terms. Common commodity resources include, among others, agricultural productivity (generally the soils that allow the production of agricultural products), stock resources (non-renewable) such as aggregate and minerals, and "value-added" locations for specific land uses such as lake front property for residential development.

Commodity resources are very specific to the locale. For purposes of this project, commodity resources are modeled as the combination of agricultural productivity defined by the location of prime agricultural soils, aggregate resources identified in the Aggregate Resource Mapping Project conducted by the MN DNR in 1987, existing built infrastructure, and land associated with lakes classified for general/recreational development or showing significant current shore line development.
The nature of amenity resources is often specific to a given landscape but can be categorized into scenic amenities, recreational amenities, and cultural amenities. Amenity resources are modeled as the combination of intrinsic scenic value, the opportunity for scenic roadway easements, historic structures, and existing trail systems and public lands.

Intrinsic scenic value is derived from physical elements in the landscape, both natural and cultural, and the way they interact to create visually pleasing experiences. Scenic value can be assessed as a combination of two factors:

- **Landform Complexity** defined as complexity in the shape of the surface of the land.
- **Landscape Complexity** defined as complexity in the form and character of the things that sit on the land.
Development offers the opportunity for economic growth and homes for an expanding population. New areas for industrial and commercial development provide places to work. New areas for residential development provide places to live. As such, areas suitable for development are a resource to a community.

The physical features that define suitability for development will vary from place to place depending on the location in the landscape. However, these features can be divided into three principal components:

- the suitability of the soil to support development,
- the suitability of the slope of the land to support development,
- proximity to existing infrastructure.

**Standard Geographic Features**
- Jurisdictional Boundaries
- Roads and Streets
  - U.S. Trunk Highways
  - County Highways
  - Township Roads
  - Municipal Streets

**Map 18**
Combined Community Values – Step 5

- **LIVONIA TOWNSHIP**
  - Community Vision for Land Use

**COMMUNITY VALUES (COMBINED)**

Combined Community Values Represented as Development Density Classes

- **Development Density Classes**
  - No New Development
  - Low Density Residential
  - Medium/Low Density Residential
  - Medium Density Residential (2.5 au/du)
  - Medium/High Density Residential
  - Urban/High Density
  - Commercial

**Standard Geographic Features**

- Jurisdictional Boundaries
- Roads and Streets
- Lakes, Rivers, Streams
- Municipal Streets
- U.S. T-10 Highway
- County Roads
- Irrigation Canals

**Map 19**
Water Resource Analysis
Overlaid on Combined Community Values
Environmental Analysis
Overlaid on Combined Community Values
Commodity Resource Analysis
Overlaid on Combined Community Values
Amenity Resource Analysis
Overlaid on Combined Community Values
Development Suitability Analysis
Overlaid on Combined Community Values

Combined Community Values Represented as Development Density Classes
Development Density Classes
- No New Development
- Low Density Residential
- Medium/Low Density Residential
- Medium Density Residential (2.5 a/lot)
- Low/Medium Density Residential
- Urban (High Density)
- Commercial

Development Suitability
Suitability Areas
- Lower Suitability
- Medium
- Higher Suitability

Standard Geographic Features
- Jurisdictional Boundaries
- Roads and Streets
- U.S. Toll Highway
- County Road
- Metropolitan
- Lakes, Rivers, Streams
- Municipal Streets

Map 24
Sherburne County Zoning
Overlaid on Combined Community Values

Combined Community Values Represented as Development Density Classes
- No New Development
- Low Density Residential
- Medium-Low Density Residential
- Medium Density Residential (2.5 ac/du)
- Medium-High Density Residential
- Urban (High Density)
- Commercial

Sherburne County Zoning
- Agricultural
- City Limits
- Commercial
- General Rural
- Heavy Industrial
- Urban Expansion

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Map 25
Livonia Township Transportation Plan
Overlaid on Combined Community Values
LIVONIA TOWNSHIP
Community Vision for Land Use

COMMUNITY VALUES (COMBINED)

Land Parcels Already Developed
Overlaid on Combined Community Values

Combined Community Values Represented as Development Density Classes
Development Density Classes
- No New Development
- Low Density Residential
- Medium-Low Density Residential
- Medium-Density Residential (2.5 ac/bo)
- Medium-High Density Residential
- Urban (High Density)
- Commercial

Currently Developed Parcels
Based on Sherburne County Data
- Parcels Already Developed
- Undeveloped Parcels

Map 28