



City of Tonka Bay

2009 – 2030 COMPREHENSIVE PLAN

Tonka Bay: Where Community and the Lake Meet

City Council

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*This Comprehensive Plan 2009-2030 was adopted
by the City Council on _____, by Resolution. _____*

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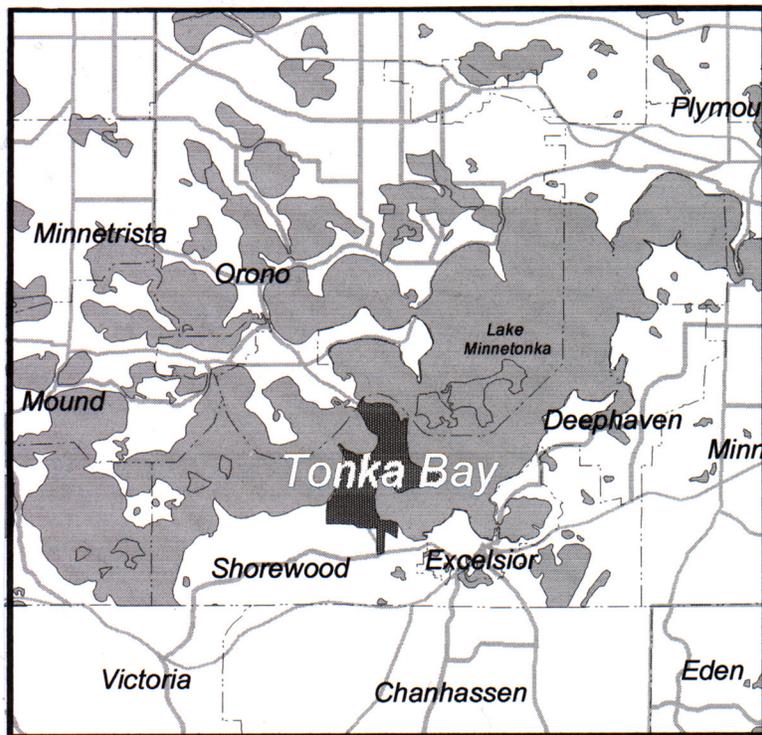
Table 1: Existing Land Use
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INTRODUCTION

The process of preparing this Comprehensive Plan for Tonka Bay began with a strategic planning session with the City Council. In this session the City Council identified and ranked Tonka Bay's strengths, unique qualities, needs and goals. Content for the draft vision statement was also developed. A field inventory was made in the summer of 2000 to determine existing land use for each parcel and the condition of structures and yards. City, county, state and historical records provided additional information on which to base this new twenty year Comprehensive Plan.

Figure 1
Context Map



HISTORY

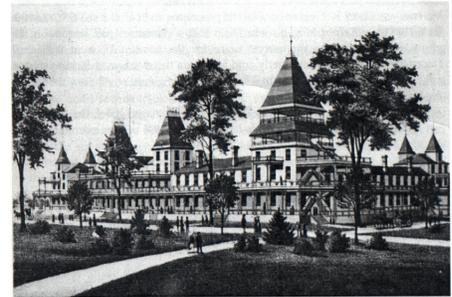
Most of Tonka Bay's history can be traced to its natural history which still shapes the City. Early settlement was based entirely on the lake. Tonka Bay could be described as a peninsula of bays favorably located between Upper and Lower Lake Minnetonka.

A general timeline leading to the present is as follows:

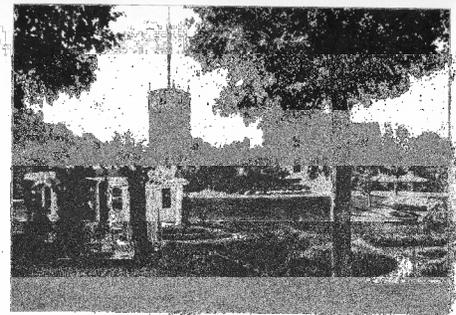
- Circa 10,000 B.C. – Tonka Bay forms during the recession of the last glaciation – the Wisconsin. Upper and Lower Lake Minnetonka and the

peninsula and bays that now make up Tonka Bay forms as the ice sheet retreats.

- 1852 – Signing of Treaty of Traverse des Sioux that opens up the Lake Minnetonka area to white settlement.
- 1852 – Territorial Governor Alexander Ramsey explores Lake Minnetonka and officially names it “Minne” (Sioux for water) and “Tonka” (Sioux for big or strong).
- 1853 – Reverend Stephen Hull comes to the area. He creates the first narrows, “Hull’s Narrows,” located nearby present-day County Road 19 north of West Point Road. The Narrows allows boats to pass between Upper and Lower Lake Minnetonka.
- 1864 – Peter Gideon develops the “wealthy apple tree” that can survive the harsh Minnesota winters.
- 1879 – The Lake Park Hotel is built as part of the Chautauqua movement.
- 1887 – Old Orchard House is built by John Finley Wilcox. He plants hundreds of acres of orchards that once stood alongside County Road 19.
- 1890 – Fred B. Snyder buys the 28-acre Clay Cliffe Estate for \$56.
- 1901 – Tonka Bay incorporates in response to the need to provide services for its increasingly stable population. Wilcox becomes Tonka Bay’s first mayor.
- 1904 – Tonka Bay elementary school is built.
- 1908 – The Twin Cities Rapid Transit Company purchases the Lake Park Hotel and changes its name to the Tonka Bay Hotel. It closes in 1911.
- 1911 – The first bridge over the narrows is built in Tonka Bay.



**Lake Park Hotel – renamed
Tonka Bay Hotel**



Old Orchard House

- 1913 –Tonka Bay Marine is founded by the Westman Family.
- 1953 –Tonka Bay’s elementary school becomes Tonka Bay Village Hall.
- 1955 – Minnetonka Plaza constructed.
- Late 1980s to mid 1990s– New developments are built on the grounds of great estates of the past, such as the Clay Cliffe Estate, Arbor Shores, and the W.O. Winston Estate, now known as the subdivision of Gideon’s Point.
- 2002- Police/Fire Campus constructed.
- 2003 to 2004 – Plaza renamed Tonka Village Shopping Center, Liquor Store sold to County for demolition to make way for County Road 19 reconstruction.

Sources:

Ellis, S.E. Picturesque Lake Minnetonka. Excelsior-Lake Minnetonka Historical Society: 1975.

Jester, Dale, “Tonka Bay: Village Between Two Lakes.” 1971.

Knowlton, Grace. Historic Excelsior. Excelsior-Lake Minnetonka Historical Society: 1988.

Meyer, Ellen Wilson. Lake Minnetonka’s Historic Hotels. Excelsior-Lake Minnetonka Historical Society: 1997.

Meyer, Ellen Wilson. Tales From Tonka. Excelsior-Lake Minnetonka Historical Society: 1993.

Prusak, John T., “Tonka Bay history mixed with lake charm.” 1989.

Roehl, James R., Orono, Minnesota. City of Orono, Minnesota and Western Hennepin County Pioneer Assn.: 1989.

Thibault Associates.

ENVIRONMENT

Although small in size, Tonka Bay’s habitats have great diversity. This “peninsula of bays” is located in the middle of the largest lake in the Twin Cities area. Habitats include open water, wetlands, low land woods and upland woods which are remnants of the big woods.

The woods and water moderate the temperatures providing natural air conditioning in summer months. This “store” of warm energy in the lake

reduces the possibility of late spring freezes. Such climatic conditions could have favored certain types of horticulture e.g. apple orchards.

The made environment consists primarily of houses and roads and a small amount of commercial development.

The City of Tonka Bay is between Upper and Lower Lake Minnetonka. Virtually the entire City is within only a few hundred feet of the lake.

EXISTING LAND USE

Existing land uses were determined through a field survey conducted in 2008 and from City and county records. The City has a total of 618 acres. The dominate land uses are residential (45.4%) and open water/wetlands (28.2%). The existing land uses for the year 2008 are shown on Figure 2 with areas provided in Table 1.

Figure 2: Existing Land Use 2008



6-19-09

Table 1 provides existing land use information.

Table 1		
Existing Land Use 2008		
Land Use Type	Acres	Percent
Residential	280.90	45.40%
<i>Single Family</i>	<i>268.89</i>	<i>43.46%</i>
<i>Multi-Family</i>	<i>12.01</i>	<i>1.94%</i>
Commercial	22.46	3.63%
<i>Retail/Service</i>	<i>15.17</i>	<i>2.45%</i>
<i>Private Marinas</i>	<i>7.29</i>	<i>1.18%</i>
Public	37.81	6.11%
<i>City Hall / Public Works</i>	<i>6.01</i>	<i>0.97%</i>
<i>City Parks</i>	<i>13.98</i>	<i>2.26%</i>
<i>Open Spaces</i>	<i>17.82</i>	<i>2.88%</i>
Right-Of-Way (ROW)	76.26	12.32%
<i>Public</i>	<i>71.93</i>	<i>11.62%</i>
<i>Private</i>	<i>4.33</i>	<i>0.70%</i>
Water Features	174.36	28.18%
<i>Open Water</i>	<i>53.30</i>	<i>8.61%</i>
<i>Wetlands</i>	<i>121.06</i>	<i>19.56%</i>
Vacant	26.96	4.36%
TOTAL CITY	618.76	100%

Source: calculations reflect acreages of land uses depicted in Figure 2.

DEMOGRAPHICS

According to the US Census, the population for 2000 is 1,547. The biggest increase in population took place in the 1950s. The rate of growth has declined since the 1950s. See Table 2 for Tonka Bay's population information.

Table 2			
Population			
Year	Population	Number Change	Percent Change
1930	193	--	--
1940	361	+168	+87%
1950	899	+538	+149%
1960	1,204	+305	+34%
1970	1,397	+193	+16%
1980	1,354	-43	-3%
1990	1,472	+118	+9%
2000	1,547	+75	+5%

Source: U.S. Census, Metropolitan Council,.

In September 20, 2000 a total of 382 children ages 0 to 18 were living in the City of Tonka Bay. See Table 3 for the City's population information by age.

Table 3		
Population by Age		
Age	Total	Percent
Children	382	24.7%
0 – 4	79	5.1%
5 – 12	157	10.1%
13 – 18	146	9.4%
Adults	1,165	75.3%
Over 18	1,165	75.3%
Total	1,547	100.0%

Source: School District 276 Census Report

TAX BASE

Tonka Bay has a solid tax base due primarily to the lake and associated high amenities. In the year 2008, land values accounted for over 50 percent of the assessor's estimated market value of property in Tonka Bay. See Figures 3, 4, and 5 for further estimated market value information. The average total market value per gross acre is \$961,213 or about \$1,134,853 per net acre (net area = gross area – right-of-way).

The high natural amenities favor residential use which accounts for 88% of the assessor's estimated market value, see Table 4.

Table 4				
Year 2008 Estimated Market Values				
	Land	Building	Total	Percent of Total Value
Single Family	\$375,890,000	\$190,168,500	\$566,058,500	93.18 %
Multi-Family	\$5,412,000	\$8,298,000	\$13,710,000	2.26 %
Commercial	\$8,702,000	\$2,754,000	\$11,456,000	1.89 %
Other	\$14,645,400	\$1,617,000	\$16,262,400	2.68 %
Totals	\$404,649,400	\$202,837,500	\$607,486,900	100 %

Source: 2008 Hennepin County Assessor's Records.

EMPLOYMENT

Based on an inventory conducted in 2007, the total number of employees working in businesses located in the City is 165. At the time of the survey, some commercial buildings were not being used to their maximum.

Figure 3: 2008 Land Economic Value per Square Foot

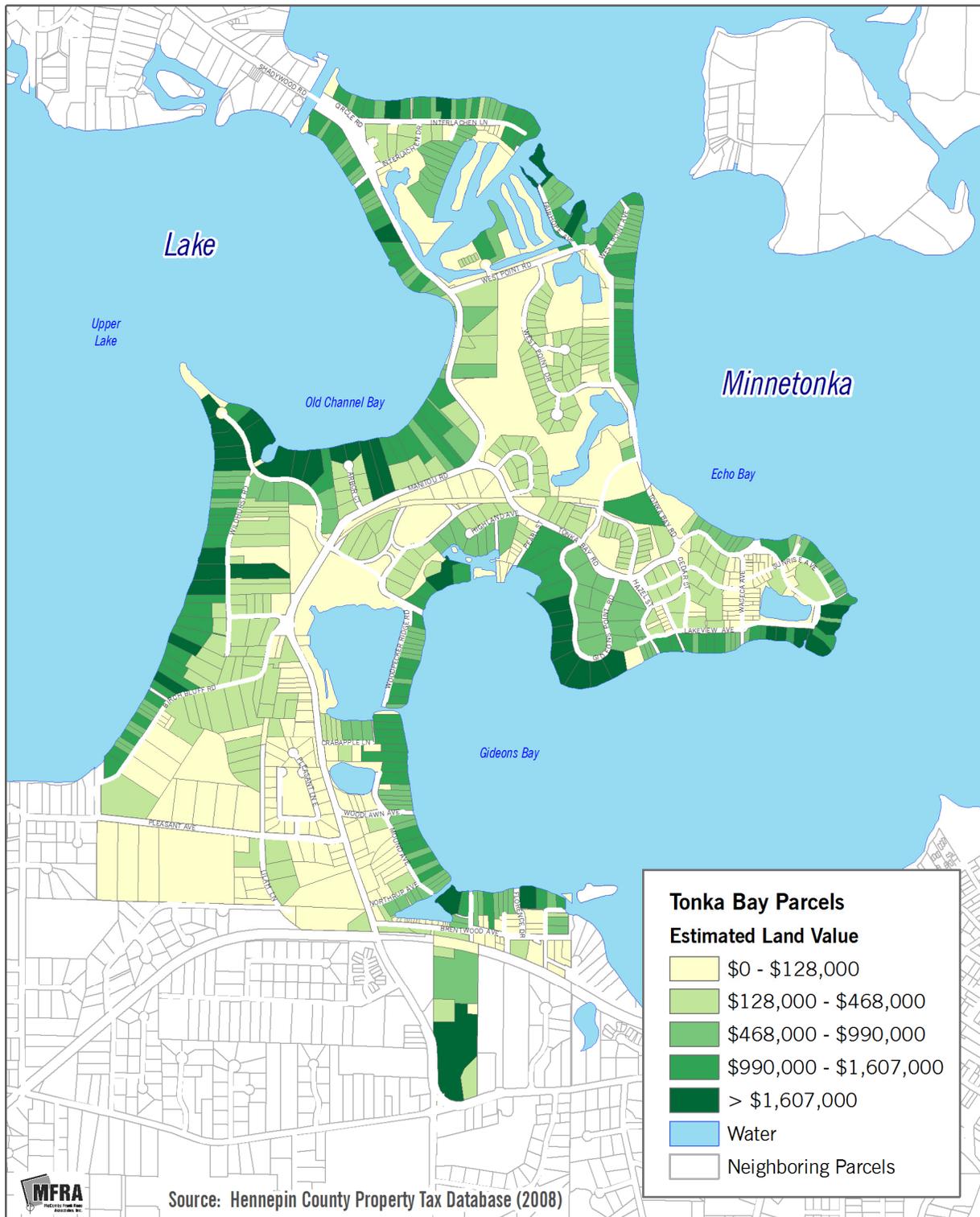


Figure 4: 2008 Building Economic Value per Square Foot of Land

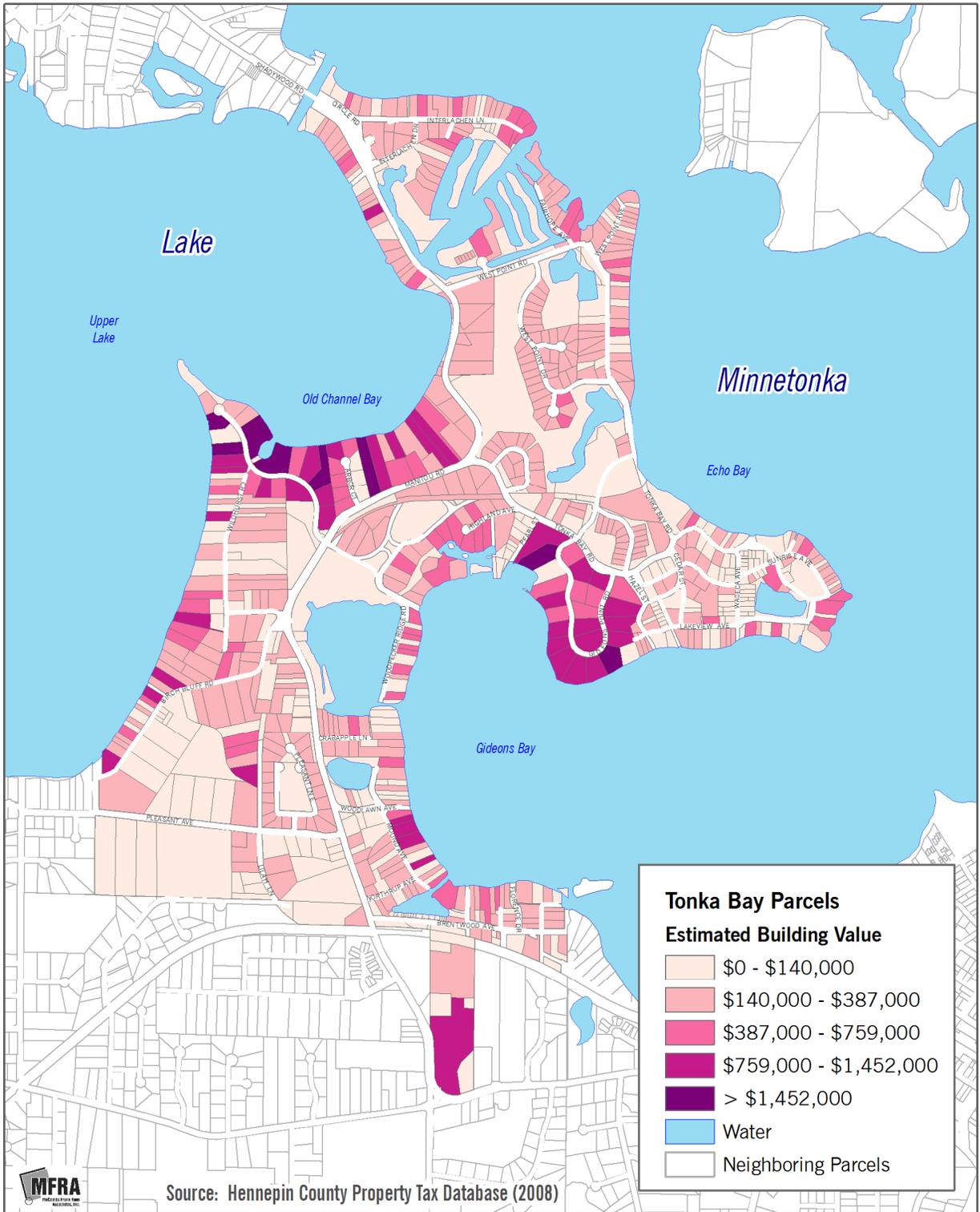
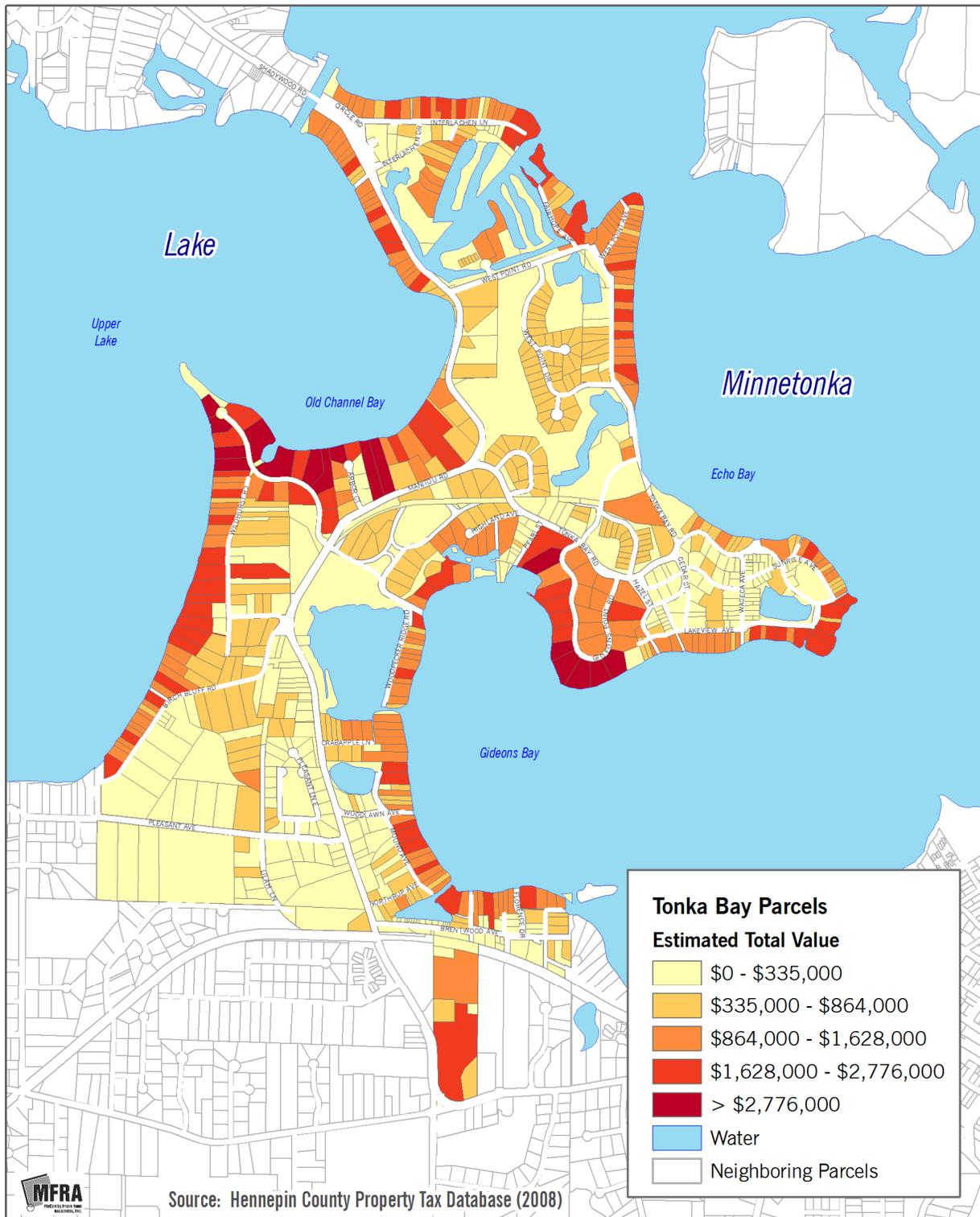


Figure 5: 2008 TOTAL Economic Value per Square Foot of Land



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Chapter 2: The Plan

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Solar Preservation
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Table 7: Net Density of Residential Development
Table 8: Net Density of Proposed Residential Development
Table 9: Forecast of Population, Households, Employment

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INTRODUCTION

The Plan Defined

This Comprehensive Plan is Tonka Bay's guide for preserving and enhancing the community. The Plan includes a vision, goals, policies, plans, and programs to guide land use, transportation and community facilities. The Plan extends from the year 2009 to the year 2030.

VISION

The City Council developed a vision statement for Tonka Bay through a strategic planning process.

The vision is: Tonka Bay: Where Community and the Lake Meet

Comment: The vision expresses the essence of what Tonka Bay is to be. To a considerable extent the City already reflects the vision. The lake is important in shaping the City's beauty, views, and for the recreation it offers. Thus, the quality of the lake is and will be of the utmost importance. Protection, enhancement, and enjoyment of the natural amenities are present and future pursuits. Furthermore, the importance of housing and community quality and preservation are recognized. Lastly, the elements in the vision are to be kept in the most compatible and harmonious state possible. If this is achieved, then so will be the vision!

GOALS

Goals for Tonka Bay were also developed through the strategic planning process and during preparation of the Plan. The goals forming the foundation for this Plan are listed below.

GOAL 1: *Housing Quality and Preservation.* Retain the highly valued neighborhood qualities and preserve the City's housing.

GOAL 2: *Parks, Trails, The Lake, and Open Spaces.* Establish a system that blends park land, trails, the lake, and natural open spaces into a unified system.

GOAL 3: *Commercial Viability.* Allow for change and some redevelopment to achieve a more viable and economically sound commercial base which adequately serves the community.

GOAL 4: *Transportation Harmony and Compatibility.* Create and maintain a harmonious system which achieves compatibility between residential use and use of transportation facilities by automobiles, bicycles, pedestrians, transit, and boats.

GOAL 5: *Infrastructure Quality and Enhancement.* Maintain and upgrade the infrastructure to provide high quality water with reduced hardness, a sewer system with reduced inflow/infiltration, functional and highly aesthetic streets, and provide a natural drainage system that is harmonious with nature and the lake.

GOAL 6: *Water.* Provide the community with high quality potable water with reduced hardness under normal as well as during emergency conditions without adverse impacts to the resource.

GOAL 7: *Economic.* Retain and enhance the economic base to ensure fiscal soundness.

GUIDE PLAN MAP – COMPREHENSIVE PLAN

The vision and goals were used to prepare a conceptual Comprehensive Plan. Key components to the concept are protecting and enhancing the lake environment, improving parks and open spaces, providing critical trails which provide important links, improving the viability of business areas, allowing some multi-family housing at two locations and fiscal soundness with city control. The conceptual plan was then transformed into the Comprehensive Plan.

The Comprehensive Plan consists of this document (which includes text, tables, and maps), and the Comprehensive Plan Map which includes land use, transportation, and community facilities. The plan has stayed consistent with the previous 2000 plan except for the timing of proposed redevelopment and additional specificity as to minimum allowable residential densities within the different land use categories.

Figure 6: 2008 Existing Land Use



6-19-09

Figure 7: Planned Land Use



LAND USE DESCRIPTIONS

The following table provides a description of each land use category and a reference to possible corresponding zoning districts.

Table 5		
Land Use Categories Descriptions and Corresponding Zoning Districts		
Land Use Category	Description	Possible Zoning
Single Family	A land use category intended to provide for low density single-family detached residential dwelling units and directly related complementary uses.	R-1A or R-1B
Multi Family	A land use category intended to provide for a wide variety of housing styles at differing residential densities and their directly related complementary uses.	R-2A, R-2B, R-3 or R-4
Mixed Use	A land use category intended to provide for a mixture of owner occupied housing and commercial uses.	PUD
Commercial	A land use category which provides opportunity for conducting commercial activities of varying intensities.	C-1 and C-2
Private Marinas	A specialized commercial land use category identifying boat storage operations within the City.	C-1
Institutional	A land use category identifying lands utilized by the City for a public purpose.	R-1B
Parks/Open Space	A land use category identifying lands intended for recreational public access.	P

EXISTING AND PLANNED LAND USE

Existing and planned land use (as shown in Figures 6 and 7) are listed in acres by year within Table 6.

Table 6 Existing and Planned Land Use Table								
Land Use within the MUSA	Residential Density (units/acre)		Existing Land Use in acres 2008	Planned Land Use Changes				Change
	Min	Max		2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	
RESIDENTIAL								
Single-Family	0.0	> 2.9	268.89	270.64	271.50	273.25	274.98	+ 6.09
Multi-Family	2.9	14	12.01	12.01	12.01	13.24	13.24	+ 1.23
COMMERCIAL								
Commercial	-	-	15.17	15.17	6.52	6.52	6.52	- 8.65
Mixed Use (primary C)	6	> 10.0	0.00	0	8.88	8.88	8.88	+ 8.88
Private Marinas	-	-	7.29	7.29	7.29	7.29	7.29	0
PUBLIC/SEMI PUBLIC								
Institutional	-	-	6.01	6.01	6.01	6.01	6.01	0
Parks & Recreation	-	-	13.98	23.22	23.22	23.22	23.22	+ 9.24
Open Space	-	-	17.82	8.58	8.01	8.01	23.09	+ 5.27
Road ROWs	-	-	76.27	76.27	76.27	76.27	76.27	0
UNDEVELOPED								
Vacant	-	-	26.96	25.21	24.69	21.71	4.9	- 22.06
Wetlands	-	-	121.06	121.06	121.06	121.06	121.06	0
Open Water	-	-	53.30	53.3	53.3	53.3	53.3	0
TOTALS:	-	-	618.76	618.76	618.76	618.76	618.76	0

Land Use Changes Summary:

- Each year: Currently vacant land which is potentially buildable transitions to single family use (11.88 acres total).
- 2010: The SW Environmental Park & Trail is transitioned from “open space” to “parks & recreation.”
- 2015 & 2020: No major changes
- 2025: Residential, commercial, and open space lands transition to Mixed Use and Multi Family. Undevelopable lands classified as “vacant” (15.08 acres) transition into “open space.”

NET RESIDENTIAL DENSITIES

All communities within the metropolitan area are required to calculate existing net residential densities to gauge compliance with minimum density requirements, and to illustrate capacity to accommodate future residential development. Table 7 below provides a calculation of net developed acres and net density in accordance with the Metropolitan Council’s standard calculation methodology. Gross acreages for residential land uses were calculated using Hennepin County Parcel data. Using a GIS, acreages for wetlands, water bodies, parks, open space and rights-of-way were removed from the City as a whole resulting in the net acreages shown.

Table 7									
Net Density of Existing Residential Development									
Land Use	Single Family # of Units	Multi Family # of Units	Acres Gross Residential	Acres Wetland & water-bodies	Acres Public Parks & Open Space	Acres Arterial Roads ROW	Acres Other / Undeveloped land*	Net Residential Acres	Net Density Units/Acre
Single Family	619	–	304.88	–	–	–	–	275.87 ¹	2.24
Multi Family	–	35	12.69	–	–	–	–	12.01	2.91
Mixed Use	0	0	0.00	–	–	–	–	0.00	0.00
Commercial	–	–	–	–	–	–	15.17	–	–
Private Marinas	–	–	–	–	–	–	7.29	–	–
Institutional	–	–	–	–	–	–	6.01	–	–
Parks/Open Space	–	–	–	–	31.8	–	–	–	–
ROW	–	–	–	–	–	76.27	–	–	–
Wetlands & Open Water	–	–	–	174.36	–	–	–	–	–
Vacant	–	–	–	–	–	–	19.98 ²	–	–
ACREAGE TOTALS:				174.36	31.8	76.27	48.45	287.88	–
COMBINED ACREAGE TOTAL:				618.76					
<p>1 The total net residential acres of single family includes the 268.89 acres of currently developed land and the 6.98 acres of vacant land that currently is developable as single family home sites (see the vacant land breakdown under the heading of “Development Outlook” on page 20).</p> <p>2 The 19.98 acres of vacant undeveloped land includes land that is unbuildable and/or could only be utilized in a redevelopment scenario with surrounding property (see the vacant land breakdown under the heading of “Development Outlook” on page 20).</p>									

The net density of proposed residential development based on the land use plan is documented below in Table 8.

Table 8										
Net Density of Proposed Residential Development										
Residential Land Use Category	Allowed Density Ranges (units/acre)		Existing Land Use (acres)	Change (acres)	Min. Mixed Use % Res.	Final Net Res. Acres	Existing Units	Minimum Unit Change	Final Units	Final Net Density (units/acre)
	Min	Max	2008	2008 to 2030		2030				
Single Family Residential	0.0	< 2.9	268.89	6.09		274.98	619	0	619	2.3
Multi Family Residential	2.9	< 14.0	12.01	1.23		13.24	35	3	38	2.9
General Mixed Use	6	< 10.0	0	8.88	45%	3.996	0	23	23	5.8
Redevelopment Summary	–	–	5.23 acres				26 new units			5.0
ALL LAND pre redevelopment	–	–	280.90 acres				654 existing units			2.3
ALL LAND post redevelopment	–	–	292.22 total acres				680 units			2.3

DEVELOPMENT OUTLOOK

Tonka Bay is classified as a “developed” community by the Metropolitan Council and rightly so given that existing development patterns largely prohibit new development outside of a redevelopment context. In examining the existing land use acreages, the following key points come to light:

- **43.5% (268.89 acres) of the City is currently built-out and utilized by single family residences.**
- **1.9% (12.01 acres) is currently built-out and utilized by multi-family residences.**
- **28.2% (174.36 acres) of the City’s total area is encumbered by wetlands or open water.**

- **18.4% (144.08 acres) of the City’s total area is devoted to public uses such as right-of-way, parks, open spaces, or municipal operations (e.g. city hall and public works).**
- **Built-out commercial operations take up roughly 3.6% (22.46 acres) of the City.**
- **The remaining 4.4% of land (26.96 acres) classified as “vacant” does not equate to new development opportunities.** Examination of each individual “vacant” parcel characteristics results in the following breakdown:

<u>Acres</u>	<u>Category (Explanation)</u>
1.97.....	Developable/Buildable (land that could either be used for building a new home or constructing multiple home sites)
5.01.....	Buildable but not developable (land upon which a single home could be constructed, but which is not suited for development due to size or location constraints)
4.90.....	Linked (land that is currently unbuildable and is reliant upon the redevelopment of adjacent property in order to be used)
15.08.....	Unbuildable (land that is only suited for permanent open space or public uses)

As illustrated in Table 8, the proposed land use plan will result in compliance with the City’s 2030 housing forecast of 680 units. Additionally, the net density of areas guided for potential redevelopment is greater than 5.0 units per acre in compliance with Metropolitan Council guidelines for “developed” communities.

The Tonka Village Shopping Center is a potential location for future Mixed Use development.



KEY PLAN FEATURES

Key features of the Comprehensive Plan are described below:

1. Manitou Road

- Upgrade this road functionally and aesthetically for vehicular and pedestrian/trail use by:
 - Employing traffic calming techniques that are consistent with the Metropolitan Council’s Transportation Policy Plan definition of an “A Minor Arterial.”
 - Providing a continuous trail separated from the main road by a landscaped boulevard.
 - Providing intersection improvements at Tonka Bay Road and City Hall.

2. Trails

- Provide a continuous north-south trail on Manitou Road and an east-west trail extending from Crescent Beach to Manitou Road and from Manitou Road to Wekota Park.

3. Marinas

- Old Orchard Park – Expand the park and marina. (Expansion to occur in stages.)

4. Selective New Development

- Allow for selective new development near County Road 19 and Brentwood Ave., and possibly at County Road 19 north of Smithtown Road.

5. Commercial

- Promote and encourage revitalization of commercial areas, especially Tonka Village. Consider the potential and suitability of some mixed use at this location.

6. Fiscal Soundness

- Insure the City’s fiscal soundness by effectively implementing changes proposed by the Plan in a coordinated and effective manner.

7. Environmental Park

- Establish an environmental park north and south of Pleasant Avenue and extent a trail through the park from Crescent Beach to Manitou Park.

8. Lagoons

- Enhance the lagoons for active and passive recreation consistent with the City's vision and goals.

9. Entrance Gateways/Monuments

- Establish more prominent gateway areas and monument signs at the north and south ends of the City.

10. Other

- Maintenance of infrastructure – street improvement program.
- Intersection improvements.

PROJECTED DEMOGRAPHICS

Tonka Bay's 2000 population is approximately 1,547 housed in 614 dwellings.

Between 2010 and 2030, the City's population is expected to increase by 30 persons (1.85% increase). Households are expected to increase by 40 (6.25% increase) between 2010 and 2030. Employment is expected to increase by 80 employees (26.7% increase) between 2010 and 2030 (see table 9). Projected estimates of population, households and employment are based on this Plan and the expectation of normal market conditions.

Table 9					
Forecast of Population, Households, Employment					
	1990 (U.S. Census)	2000 (U.S. Census)	2010	2020	2030
Population	1,472	1,547	1,620	1,650	1,650
Households	577	614	640	660	680
Employment	75	150	300	340	380

Source: Metropolitan Council

AGGREGATE RESOURCES

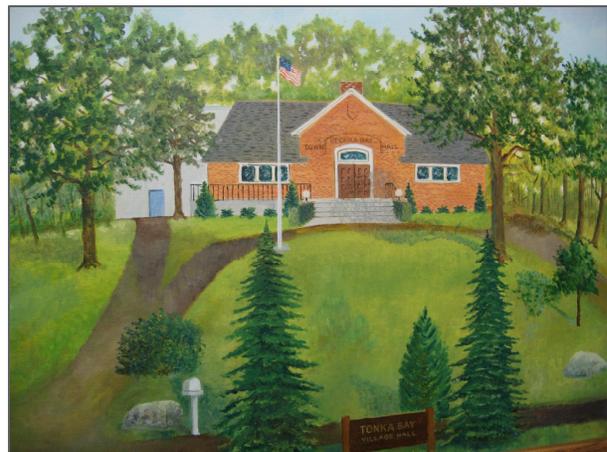
There are no identified aggregate resource areas within the City of Tonka Bay.

HISTORIC PRESERVATION

Unlike most communities which focus historic preservation primarily on man-made structures and locations of significant events, the City of Tonka Bay has always treated its relationship with Lake Minnetonka as its most significant asset to protect and preserve. Stringent development standards and thorough reviews of proposed development have and will continue to protect the City's defining centerpiece. Evidence of this approach is apparent when comparing the existing landscape to the City's treasured history documented in the first chapter of this plan. Little remains of the historic structures that once stood in the city. The original Tonka Bay elementary school—now used as City Hall—is the only significant man-made link to the community's past.

Tonka Bay will continue to focus its historic preservation efforts on protecting the lake as a goal of this comprehensive plan. Ordinances will be revised as necessary to address any identified problems. Collaboration with the Minnehaha Creek Watershed District and the Department of Natural Resources will persist as new development comes forward. Such efforts will ensure the preservation and protection of the community's most valuable and historic resource.

This depiction of the 1904 Tonka Bay elementary school—which currently serves as City Hall—resides on a mural within the Council Chambers



SOLAR PRESERVATION

Minnesota Statutes 473.859 requires that local comprehensive plans include an element for the protection and development of access to direct sunlight for solar energy systems. The City of Tonka Bay protects such access by requiring minimum standards for lot sizes, amounts of open space, yard setbacks, and maximum building heights. Solar energy systems on buildings are not prohibited so long as they adhere to all Building Code requirements. When considering a variance application, one of the factors reviewed by the city is whether the proposal will impair solar access for surrounding properties. The City will comply with municipal planning legislation, 462.357 Subd. 6(2), which states that variances shall be granted for earth sheltered construction when in harmony with city ordinances. And finally, future land uses should preserve and maximize the amount of sunlight on paved surfaces in winter, reducing the costs of snow and ice removal and improving safety.

IMPLEMENTATION

Comprehensive planning is a continuous process. Real achievement happens when the Comprehensive Plan is implemented. Successful implementation is realized through active commitment to the Plan by City officials and a continuing awareness of the Plan's benefits by the community.

This Plan contains provisions (guidelines) for implementation which will ensure that the vision and goals are achieved. Each major component to this Plan contains a program of actions directed at fulfilling the vision, goals, policies, and the Plan. Portions of the land use, public facilities and transportation plan exist or could become a reality in the near future, while other parts may not occur for many years. Implementing some components is predicated on certain other components or conditions happening. Some of the Plan's components may not be completely implemented by 2030.

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Chapter 3: Residential

Chapter 3 Sections

Inventory
Supply
Tenancy
Conditions
Demographics
Costs
Sales
Rental Units
Affordable Housing
Issues & Needs
Policies
Strategies
Plan and Program

Figures

Figure 8: Residential Tenancy
Figure 9: Lakeshore Property
Figure 10: Estimated Market Value

Tables

Table 10: Dwellings Constructed 2000 to 2008
Table 11: 2008 Dwelling Units by Type
Table 12: Housing Tenancy
Table 13: 2008 Housing Conditions

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INVENTORY

From 2000 to 2008, an average of 12 new housing units were built each year (six new homes and six replacement homes). The figures in Table 10 represent annual construction of both new and replacement dwellings.

Table 10			
Dwellings Constructed 2000 – 2008			
Year	New Single Family	Demolitions & Replacements	Total
2000	2	5	7
2001	8	3	11
2002	9	7	16
2003	3	3	6
2004	9	8	17
2005	5	6	11
2006	7	6	13
2007	7	6	13
2008	5	7	12
Total	55	51	106

Source: City of Tonka Bay.

SUPPLY

Tonka Bay's housing supply consists of 654 units. A total of 572 (87.5%) of these are single family, located on one or more parcels. The remaining units are either duplexes, townhouses or, in one instance, two separate single family dwellings occupying the same lot. Table 11 provides a complete summary.

Table 11		
2008 Dwelling Units by Type		
	Number	Percent
Single Family	572	87.5
Duplex – Townhouses	82	12.5
Total	654	100.0%

Source: 2008 Hennepin County Property Tax Data.

Tonka Bay's housing is diverse with respect to age, size, type, and cost. Lot sizes range from small (40 foot wide lots) to large (over one acre). The lake

and natural amenities have a profound affect on the housing market and supply.

TENANCY

The tenancy in 2008 indicates 87% of the dwellings in Tonka Bay are owner-occupied, while approximately 13% is rental (consisting mostly of small units on small lots). For consistency, this breakdown was calculated in the same manner as past comprehensive plans; however, it is acknowledged that the rental tenancy rate is probably skewed high as a result of seasonal residents who may not rent their property during the winter months.

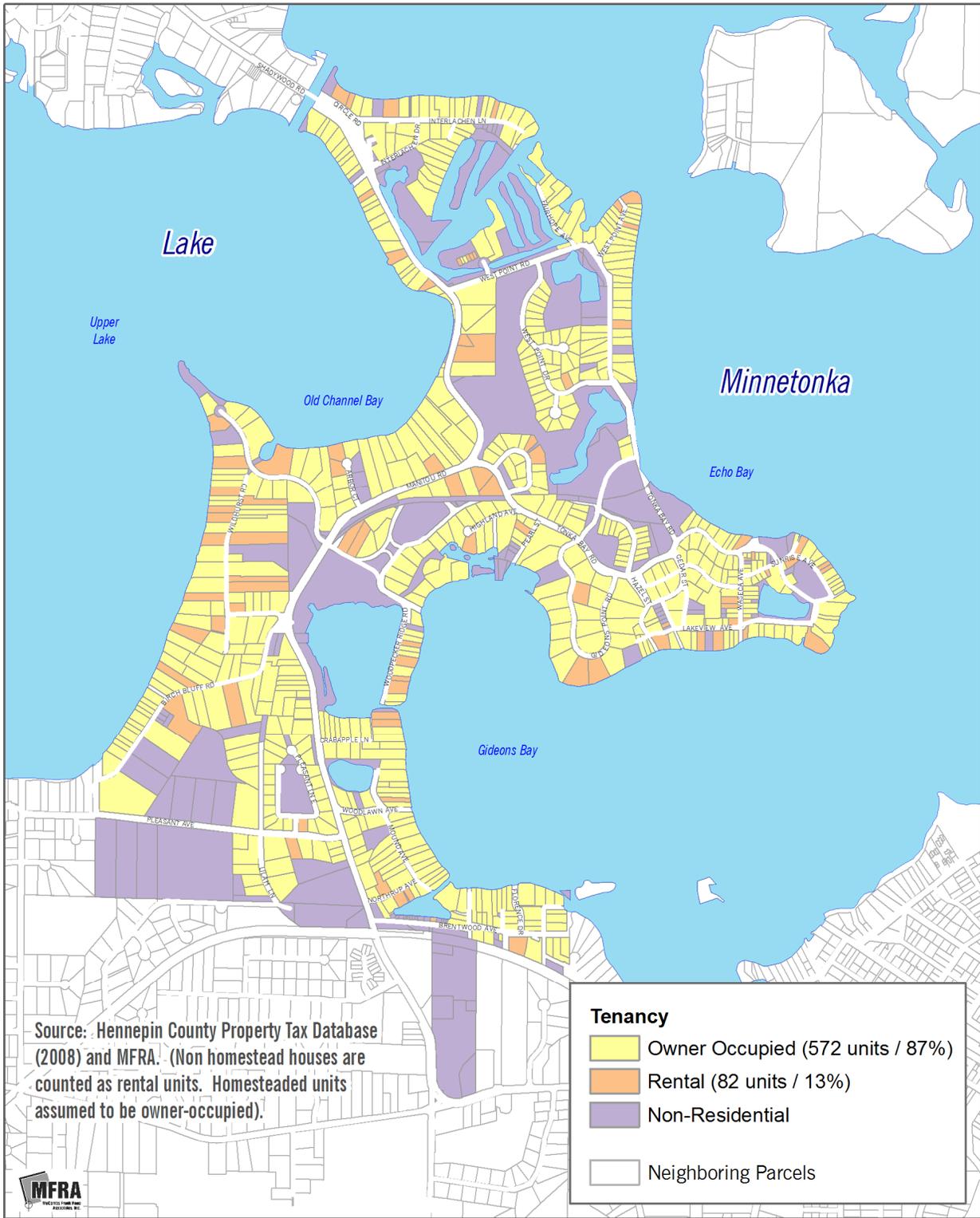
See Figure 8 (on the following page) and Table 12 below for a full breakdown of housing tenancy.

Table 12			
Housing Tenancy			
Tenancy		Number of Units	Percent
Owner	<i>Single Family</i>	548	83.79%
	<i>Townhouse and Condominium</i>	24	3.67%
	Total	572	87.46%
Rental	<i>Single Family</i>	71	10.86%
	<i>Townhouse and Condominium</i>	11	1.68%
	Total	82	12.54%
Owner and Rental Total		654	100%

Source: Hennepin County Assessing Records.

Methodology: Non-homestead houses are counted as rental units; Homesteaded units were assumed to be owner occupied. Townhome and condominium numbers reflect ownership of properties identified as Multi-family on the Land Use Map (figure 2).

Figure 8: Residential Tenancy



CONDITIONS

Housing conditions were last analyzed via a windshield survey in July 2000, the findings of which are summarized in Table 13. Housing conditions have improved and are likely to continue to improve during the next 20 years as deteriorating and obsolete units are replaced with new units. Dwelling units on small lots located away from the lake are less likely to be redeveloped.

Table 13		
2008 Housing Conditions		
Condition	Number of Units	Percent
Sound	635	97.09%
Deteriorating	10	1.53%
Deteriorating – Major	2	0.31%
Dilapidated	2	0.31%
Sound but Obsolete	2	0.31%
Deteriorating and Obsolete	1	0.15%
Deteriorating – Major and Obsolete	1	0.15%
Dilapidated and Obsolete	1	0.15%
Total	654	100.00%

Source: City of Tonka Bay, July 2008.

DEMOGRAPHICS

Demographic information may be found in Chapter 1, in the section titled Demographics.

COSTS

The economic value of the lake is significant in its effect on housing, land use, and market values (see Figure 9). In 2008, a lot/unit with frontage on the lake averaged just over \$1M in added value when compared to non-lakeshore lots within Tonka Bay.

The City has 329 dwelling units (about 50.3%) with lakeshore frontage or deeded lake rights. Another 37 property owners (about 5.7%) rent a boat slip from the City without counting owners who have a slip at one of the private marinas in the City. Thus, 366 residential properties (about 60%) are “on the water.”

SALES

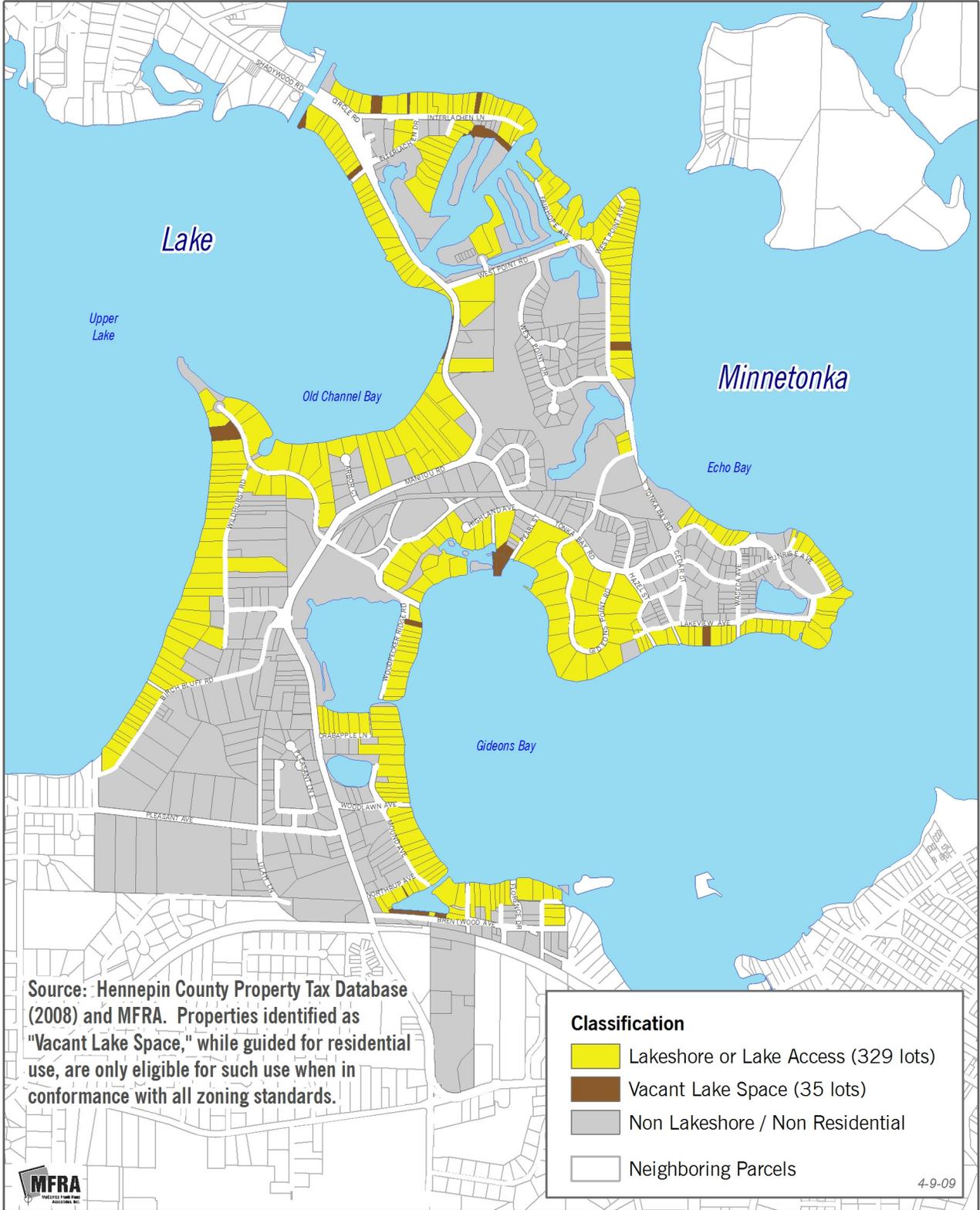
A review of sales in 2006, 2007, and 2008 indicates that only 1 of 78 dwellings (0.01%) over that three year period sold for less than \$134,200. The average sale price during this same timeframe was \$1,005,235 and the median sale price was \$887,450. Lakeshore frontage and lake access add considerable value to the property.

The county assessor has estimated the market value for all property in the City. Figure 10 shows the year 2008 estimated market value of all residential property in the City. Five categories are indicated including the affordable home price of \$214,900 (based on 80% of the area median income) and \$158,000 (based on 60% of the area median income).

RENTAL UNITS

It is estimated that 82 dwelling units in Tonka Bay are rented. A total of 8 rental units (10.25%) have an estimated market value less than \$214,000.

Figure 9: Lakeshore Property



AFFORDABLE HOUSING

Of the 654 units within the City, it is estimated that forty-seven currently meet the threshold of affordable according to the Met Council. To ensure that each community is doing its share to provide affordable housing into the future, the Metropolitan Council has forecasted affordable housing needs for all cities and townships within the Twin cities Metropolitan Area for the period from 2011 to 2020. The housing plan element of local comprehensive plans is required to reflect the allocated portion of the forecasted demand for affordable housing. The City's share of this allocation is nine (9) affordable units. The City is committed to doing its part as opportunities arise to meet this regional requirement for affordable housing.

Preferably such units would be located near existing and planned transit and employment opportunity centers; however, it is recognized that such opportunities are limited in the community. Planned redevelopment of existing commercial areas within the city to multi-family and mixed use designations provides the best avenue for achieving the mandated goal. Other tools the City may use to encourage affordable housing include:

- *Zoning and land use planning incentives. The City will consider planned unit developments to achieve the flexibility needed (including increased densities to 6 units per acre in mixed use revitalization areas) to meet its regional goals;*
- *Rent assistance through the Federal Section 8 program;*
- *Housing rehabilitation loans funded through the Minnesota Housing Finance Agency (MHFA), and Community Development Block Grants;*
- *First-time homebuyers assistance through MHFA;*
- *Rental housing development through MHFA;*
- *Other non-profit development organizations, including Habitat for Humanity, that create affordable housing.*

ISSUES AND NEEDS

Throughout the 20 years between 2010 and 2030, Tonka Bay needs and wants to preserve and enhance its residential neighborhood. While all neighborhoods have high amenities, the following issues and needs warrant consideration.

1. **Housing Redevelopment** – Continue to provide a smooth transition from cottage/obsolete housing on some lots (usually small lots) to new housing.
2. **Infrastructure Problems** – Problems associated with narrow streets, poor street pavement, small lots, on-street parking (sometimes including trailers), and infrastructure deficiencies. Sewer services and older city utilities should be a priority.
3. **Townhouses/Multi-Family** – Need/benefit in increasing the supply of townhouses/multi-family dwellings.
4. **Lakeshore Access** – Provide some form of convenient access to the lake for residential properties which lack lakeshore frontage and which do not have a membership in a marina or association nor have a municipal boat slip.

POLICIES

THE HOUSING GOAL IS “Housing Quality and Preservation: Retain highly valued neighborhood qualities and preserve the City’s housing.”

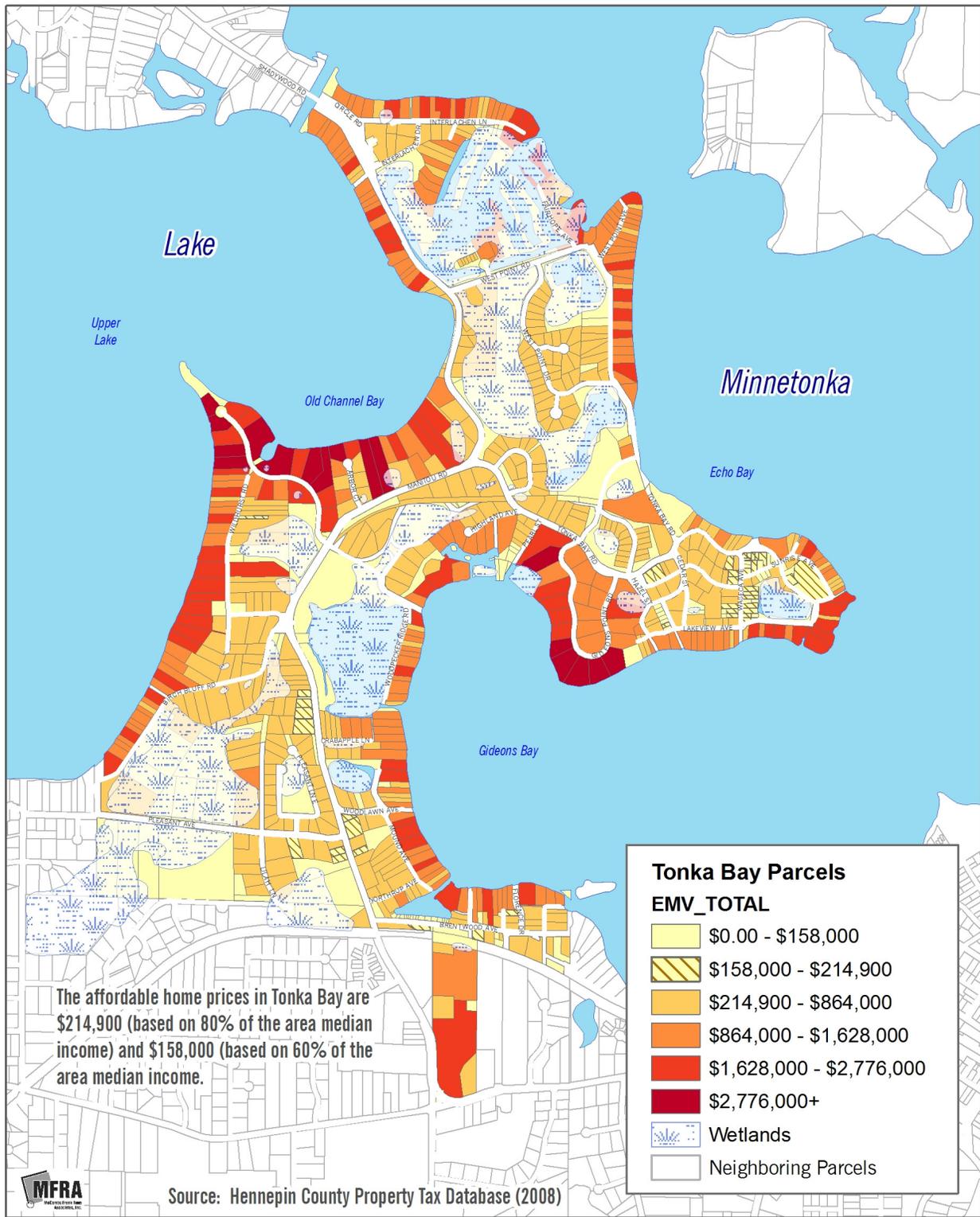
The policies which follow are based on this goal, and the inventory, analysis, and identified issues and needs.

Policy 1 – Multi-Family Housing. Encourage new condominiums/apartments at one or two pre-selected locations.

Policy 2 – Housing. Support housing rehabilitation, remodeling, and some new construction through redevelopment.

Policy 3 – Lake. Achieve or retain lake access for the City residents through ownership on the lakeshore or a lagoon, membership in an association with lake access or participation (membership) in the City’s marinas.

Figure 10: Estimated Residential Market Values



STRATEGIES

1. During the next 5 years (2010 – 2015) initiate a program to improve deteriorated or unimproved residential streets.
2. Diminish on-street parking by using residential parking only restrictions as allowed by state statute.
3. Preserve residential quality.
4. Consider housing/mixed use in the Tonka Village Shopping Center area including the property adjacent to the regional trail.

PLAN AND PROGRAM

The Plan and Program which follows is based on the community goals and the inventory, issues and needs, policies, and strategies contained in this chapter.

1. Residential Streets

By 2010 – 2015 initiate a program to improve deteriorated residential streets.

2. Parking Restriction

By 2010 – 2015 initiate residential-only parking restrictions where necessary to alleviate a significant parking problem if so determined.

3. Residential Quality

Preserve residential quality throughout the City.

4. Mixed Uses

Consider housing and mixed uses in the Tonka Village Shopping Center area and at selected locations adjacent to the regional trail.

Chapter 4: Parks, Open Spaces & Trails

Chapter 4 Sections

Introduction
City Marina
System Standards
Issues and Needs
Policies
Plan and Program

Figures

Figure 11: Existing and Proposed Parks, Open Spaces and Trails

Tables

Table 14: Public Parks, Open Spaces and Trails

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INTRODUCTION

Parks, open spaces, and trails are crucial to the fulfillment of the City’s vision “Tonka Bay: Where Community and the Lake Meet.” Old Orchard Park, Wekota Park, Crescent Park, and the natural environment north and south of Pleasant Avenue offer unusual opportunity. The City’s park and open space system:

- Provides space for organized recreation (Manitou Park).
- Provides enjoyment of the lake and facilities for walking, jogging, picnics, fishing and boating.
- Provides scenic views.
- Allows the City to have a natural drainage system.
- Provides space for passive recreation.

Table 14 provides an inventory of the parks and open spaces in the City for the year 2000. Of the 46.1 acres of parks and open spaces, Tonka Bay owns/controls about 94% (22.3 acres) and Hennepin County controls the rest.

Table 14			
Year 2000 - Public Parks, Open Spaces and Trails			
Name	Type	Major Activity	Acres
City			22.3
Manitou Park	Community Park	Organized recreation (sports), picnic and tot lot	8.8
Pleasant Park	Neighborhood Park	Swinging, unorganized activities	2.8
Old Orchard Park	Community - Marina	Boating, picnic, play area, fishing	2.2
Crescent Beach Park	Special Purpose	Swimming, Sunbathing	0.4
Wekota Park	Community Park	Play area, beach, tennis, picnic	8.1
Hennepin County			1.5
Park at the Narrows	Special Purpose	Fishing	0.5
Regional Trail*	Special Purpose	Trail, running, walking, biking	1.0
Total			23.8

Source: Thibault Associates, August 2000.

* Hennepin County Railroad Authority owns the Regional Trail. Three Rivers Park District administers the use/trail function of the right-of-way.

CITY MARINA

Tonka Bay has a city marina located in Old Orchard Park. The marina provides access to Lake Minnetonka and therefore has special significance to the community. In the year 2008, the marina had 37 boat slips (rental rate of \$1,200/slip), 6 boat slides (rental rate of \$120/boat), and 6 canoe racks (rental rate of \$60/rack). Boats are restricted to a length of 21 feet and a width of 9 feet. In the year 2008, 37 of the 37 were leased out. There was a waiting list of 65 people for slips. The waiting period for a slip was estimated to be at least five years.

SYSTEM STANDARDS

Because of Tonka Bay's size, unique setting, and qualities, conventional park standards have little meaning. The City needs and has one park for organized sports – Manitou Park. Other active and passive park space needs are based on accommodating the neighborhoods, the desire to preserve nature and to enhance parks and open spaces for general park use and to provide more access to Lake Minnetonka through the lagoons. For reference purposes, many cities have or seek to have about 10% of the land in public parks and open spaces. Ten gross acres of active park space per 1,000 residents is another standard sometimes used.

ISSUES AND NEEDS

Although the City has adequate parks and open spaces, it is lacking in trails. The demand and interest is in establishing a trail system, more boat slips, additional access to the lake and protecting and enjoying the environment.

1. **Trail System** – A more complete trail system is needed. In the year 2000, the City had only 931 feet of public trails. The greatest trail need is along Manitou Road and along corridors to provide better access to the parks and to the regional trail.
2. **City Marina Space** – Based on demand, the boat slips provided at the City's marina for Tonka Bay residents is inadequate. In 2008, the waiting time was estimated to be five years.
3. **Environmental** – Remnants of the "Big Woods" coupled with wetlands along Pleasant Avenue provide the stage for a need to preserve and establish a natural environment park. If necessary, parts of the upland area

could be used as replacement for wetlands lost in the expansion of the lagoons.

POLICIES

Goal 2 of the Comprehensive Plan is: “Parks, Open Spaces, Trails, and the Lake: Establish a system that blends park land, trails, the lake, and natural open spaces into a unified system.”

The policies which follow are based on this goal, and the inventory, analysis, and identified issues and needs in this chapter.

Policy 1 – Trails. Establish new trails:

- a. adjacent to Manitou Road from the narrows to the Lake Minnetonka LRT Regional Trail;
- b. an east – west trail extending from Crescent Beach to Echo Bay and Gideons Bay.

Policy 2 – Environmental. Preserve environmental features in parks, especially Pleasant Environmental Park.

Policy 3 – Crescent Beach. Enhance this park as Tonka Bay and Shorewood’s swimming beach.

PLAN AND PROGRAM

The plan for parks is shown in Figure 10, Parks, Open Spaces, and Trails. The Plan and Program for existing and proposed parks and trails are listed below.

1. Manitou Park

- a. 2010 to 2020 – Lighting (possible upgrade and addition)
- b. After 2020 – Possible park upgrades

2. Pleasant Park

- a. 2010 to 2020 – Update and add more play equipment.

3. Old Orchard Park – City Marina

- a. 2010 to 2020 – Expand the trail and enhance public use.
 - Explore expansion of the marina.
- b. After 2020 – Begin second phase of expansion.

4. Crescent Beach Park

- a. 2010 to 2020 – Add small beach equipment, preferably interactive equipment with a water theme.
- b. After 2020 – Enhancement and maintenance of facilities.

5. Wekota Park

- a. 2010 to 2020 – Enhance and upgrade the northwest side of the park.
- b. After 2020 – Link the park to the trail system.
 - Expand the park to the northwest.

6. Park at the Narrows

- a. Cooperate with Hennepin County to maintain and, if appropriate, enhance the use/function of this special purpose park.

Figure 11: Parks, Open Spaces and Trails



7. Pleasant Environmental Park

- a. 2010 to 2020 – Prepare a more detailed plan for preservation and use.

Implement the plan – “construct” the trail. Establish an environmental-nature educational program. (This could be done with an educational agency e.g. school district, Three Rivers Park District or the Arboretum).

- b. After 2020 – Evaluate the park use and functions and initiate management practices which foster native species and wetland and woodland habitats and remove invader species as may be appropriate.

8. Trails

(Note: This project is predicated on obtaining funding from outside sources e.g. Manitou Road.)

- a. 2010 to 2020 – Extend Manitou Trail at Old Orchard Park:
 1. South to the Lake Minnetonka LRT Regional Trail;
 2. North to the Narrows.

Extend a trail from Manitou Road to Wekota Park.

Extend a trail from Crescent Beach through proposed Pleasant Environmental Park to Manitou Park and Lake Minnetonka LRT Regional Trail.

- b. After 2020 – Add trails in the expanded Old Orchard Park.

Add a trail on Birch Bluff Road.

Add other trails where the system can be expanded in a cost-effective manner.

Chapter 5: Business & Community Facilities

Chapter 5 Sections

Introduction
Inventory and Analysis
Public Works Facility
Public Schools
Library
Post Office
Joint Powers Agreement
Police Facilities
Fire Facilities
Issues and Needs
Policies
Plan and Program

Figures

none

Tables

Table 15: Businesses and Employees

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INTRODUCTION

The City has two active business areas. One is located on Manitou Road at the intersection of Brentwood Avenue, the other at Manitou Road and Smithtown Crossing. Some of the community's retail sales and service needs are provided at these locations.

City Hall and the public works facility are the only community facilities that are actually located in the City. (Parks and marinas, which could be considered public facilities, are covered in Chapter 4).

INVENTORY AND ANALYSIS

Retail and Services

Retail sales and services are provided at Tonka Village Shopping Center. Other commercial buildings adjacent to the center are located at Brentwood Avenue and Manitou Road and at the marinas. Table 15 provides an inventory of the business and employment.

City Hall

Tonka Bay's elementary school was built in 1904. It became City Hall in 1953. The city hall has about 1,500 square feet including a lower level. About 85 off-street parking spaces are available including the lot also used for Old Orchard Park.

City Hall provides administrative services and contains the City Council chambers. The multi-purpose Council Chamber has about 750 square feet.

PUBLIC WORKS FACILITY

The Public Works Facility is located on the same site as City Hall. The total facility has about 11,425 square feet of usable floor area on a site of 1.1 acres.

The Public Works Facility serves as an area for repair and storage of vehicles and equipment used by the City to maintain roads, parks, and public utilities. It also serves as a location to store supplies and bulk materials (sand, gravel, salt, and road materials).

Table 15
Businesses and Employees

Name of Employer	Product or Service	Full Time Employees	Part Time Employees	Total Employees*
Tonka Village (Shopping Center)				
MGM Wine & Spirits	Liquor Store	1	4	3
Uru-Khu	Hair salon/spa	1	10	6
Lady Jane Boutique	Boutique	0	2	1
Bungalow Bangles & Beachwear	Boutique	0	3	1.5
The Fish Guy & Pet Supply	Fish/supplies	1	0	1
Planet Beach	Tanning	0	2	1
Hazellewood Grill & Tap Room	Restaurant	12	43	33.5
Joey Nova's	Pizza/deli	8	18	17
Heartbreaker	Novelty Clothing Store	1	2	2
Caribou Coffee	Coffee shop	1	8	5
RE: Desktop	Computer sales/service	1	0	1
Tonka Village (Other)				
Country Club Lanes	Bowling Alley	2	8	6
Brentwood Office Building				
Lan De Con	Landscaping	15	0	15
Fisher Construction	Construction	5	0	5
Other				
All-American Recreation	Home Recreational Equip.	4	1	4.5
First Student Transportation	Bus Service	2	60	32
The Caribbean	Restaurant/On-Sale Marina	1	6	4
Truffle Hill Chocolate Shop	Candy Store	0	5	2.5
Tonka Bay Marina	Marine (Storage, Service, Sales)	10	10	15
City of Tonka Bay		6	1	6.5
Totals				164.5

Source: City of Tonka Bay, Telephone Survey, December 2007

* Each part time employee is equal to 0.5 full time employee in this total count.

PUBLIC SCHOOLS

Tonka Bay is served by School District Number 276. There are no educational facilities located in Tonka Bay itself. Tonka Bay students in kindergarten through fifth grade attend Minnewashta Elementary School in Excelsior. Students in sixth through eighth grade attend Minnetonka Middle School West in Minnetonka. Students in ninth through twelfth grade attend Minnetonka High School in Minnetonka.

LIBRARY

The nearest library to Tonka Bay is Excelsior Library located about three miles away.

POST OFFICE

The nearest post office to Tonka Bay is the Excelsior Post Office located on First Street in Excelsior.

JOINT POWERS AGREEMENT

Tonka Bay uses the Joint Powers Act and other broad statute authorities to cooperate with other cities in providing certain services, especially in the area of public safety.

POLICE FACILITIES

Tonka Bay is served by the South Lake Minnetonka Police Department (SLMPD) located in Shorewood.

FIRE FACILITIES

Tonka Bay is served by the Excelsior Fire District. The Excelsior Fire District Board established in accordance to a joint powers agreement that took effect on September 1, 2000. The communities served are Deephaven, Excelsior, Greenwood, Shorewood, and Tonka Bay.

ISSUES AND NEEDS

The City's business and community facilities issues and needs are listed and described below:

Marina Space – The City's marina space is in demand. Expansion of the facility would be useful and should be cost effective based on rental rates for boat slips on the lake. There is potential for including some service uses that could also fund the marina.

Brentwood Avenue – Some vacant and under utilized parcels are located along the south side of Brentwood Avenue.

Mixed Use Housing – Portions of Tonka Village and Brentwood Avenue area warrant consideration for some mixed use. Both areas provide an opportunity for some multi-family housing at a location compatible with the community's development pattern.

POLICIES

The Commercial Goal is: “Commercial Viability: Allow for change and some redevelopment to achieve more viable commercial development which is economically sound and which serves the community.”

The policies which follow are based on this goal, and the inventory, analysis, and identified issues and needs in this chapter.

Policy 1 – Prime Uses. Encourage prime commercial shops to locate in the commercial district.

Policy 2 – Image. Establish a positive image and a more prominent identity for the commercial area.

Policy 3 – Mixed Use. Allow mixed use in Tonka Village and in the area south of Brentwood Avenue if done as a quality planned development in a manner acceptable to the City.

Policy 4 –Marina(s). Possibly include an upscale lakeshore restaurant and some selective commercial uses if the uses and plan promote the vision and other goals and policies of the Comprehensive Plan.

PLAN AND PROGRAM

The plan and program which follows is based on the community goals, the inventory, and issues and needs.

- **Brentwood Avenue Area** – By 2030 consider the feasibility of major improvements or redevelopment of the commercial and vacant properties on the south side of Brentwood Avenue.

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Chapter 6: Transportation Plan

Chapter 6 Sections

- Introduction
- Definitions
- Inventory & Analysis
- Functional Classification
 - Roads
 - Trails
- Mass Transit
- Rideshare
- Park and Ride
- Aviation
- Projected Development
- Issues and Needs
- Policies
- Plan and Program

Figures

Figure 12: Transportation Plan for Roads

Tables

none

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INTRODUCTION

It could be said that transportation planning in Tonka Bay goes back some 125 years when Stephen Hull saw the need for boat navigation between Upper and Lower Lake Minnetonka and constructed the Narrows. The next major event was the construction of the railroad that defined the City's southern boundary. The Minneapolis and St. Louis Railroad (which later reorganized as the St. Paul, Minneapolis, and Manitoba Railroad) brought guests to the Lake Park Hotel located in what is now known as Wekota Park.

DEFINITIONS

Definitions of words and terms with which the reader may not be familiar are provided below:

Average Annual Daily Traffic (AADT) -- The average number of vehicles per day crossing a given point on the road.

Commuter Rail -- Passenger train service that operates on existing freight railroad tracks. Commuter rail service primarily operates during "peak" travel times, usually the hours of 6 a.m. to 9 a.m. and again from 3 p.m. to 6 p.m.

Level of Service -- A rating assigned to roadway segments which indicates ability to carry traffic. The ratings include: Level of Service A, which describes primarily free flow operations at average speeds; Level of Service B, which represents reasonably unimpeded operations at average travel speeds; Level of Service C, which represents stable operations, however, ability to maneuver and change lanes may be restricted; Level of Service D, which borders on a range where small increases in flow may cause substantial delay; Level of Service E, characterized by significant approach delays and substantially lower average travel speeds; and Level of Service F, characterized by slow speeds, stoppages, and intersection congestion.

Light Rail Transit (LRT) -- A form of transit using electrically propelled vehicles operating singularly or in trains on its exclusive right-of-way or within a designated portion of an existing right-of-way.

Mass Transit -- A scheduled fixed service provided by Metro Transit using vehicles capable of carrying ten or more persons.

Metro Transit -- The major public transit operator in the Twin Cities previously known as Metropolitan Council Transit Operations (MCTO).

Metropolitan Highway System -- The system of highways identified to serve the region. Only principal arterials, which include interstate freeways, are on the metropolitan highway system.

"A" Minor Arterials -- Roadways within the metropolitan area that are more regionally significant than others. These roadways are classified into the following groups: Augmenters, Connectors, Expanders, and Relievers.

Expanders -- Routes which provide a way to make connections between developing areas outside the interstate ring or beltway. These routes are located circumferentially beyond the area reasonably served by the beltway. These roadways are proposed to serve medium to long suburb-to-suburb trips. Approximately 430 miles of expanders have been identified in the metropolitan area. Improvements focus on preserving or obtaining right-of-way. (Manitou Road/County Road 19 is one such road)

Park and Ride -- An arrangement whereby people can drive an automobile to and park in a designated lot, and use a transit vehicle for their ultimate destinations.

Principal Arterials -- High capacity highways that make up the metropolitan highway system.

Transit -- All forms of riding together. (It includes fixed-route and para-transit services and employer ride share programs.)

Trip or Person Trip -- A one-way journey between two destination points in a vehicle by one person.

Vehicle Trip -- A one-way journey made by auto, truck, or bus to convey people or goods.

INVENTORY AND ANALYSIS

FUNCTIONAL CLASSIFICATION

The functional classification system used in this Plan is based on the Metropolitan Council's system. For reference or more information see the

Metropolitan Council's Report titled Transportation Policy Plan Appendix, December 1996, Tables F1 through F6.

ROADS

Principal Arterials: The City does not have any principal arterials. The closest principal arterial is State Highway 7 that is located about 1.3 miles southeast of the City. Highway 7 and other principal highways make up the metropolitan highway system.

Minor Arterial: Manitou Road (County Road 19) is the City's one minor arterial road. This road is classified as an A Minor Arterial-Expander Road.

- **Description:** A Minor Arterial-Expander Road
- **Number of Lanes:** Two - one in each direction
- **1999 Traffic Volume:** 15,100 north end / 17,800 south end

Collectors: No regional collectors are located in the City. The City has three collector routes - Tonka Bay Road, West Point Drive–West Point Road, and Pleasant Avenue.

- **Description:** Local collector routes
- **Number of Lanes:** Each of these roads provides one lane in each direction
- **1999 Traffic Volume:** None available

TRAILS

In the year 2000, the City had 194 feet of local trails and about 0.5 miles of regional trails. See Chapter 4, Figure 11 -Parks, Trails, and Open Spaces. The Lake Minnetonka Region LRT Trail is located along and at one point within the City's southern boundary. Several informal trails (paths) also exist, especially along the edge and west of Manitou Park and connecting links to the regional trail.

MASS TRANSIT

Metro Transit Express Bus Route 670 serves Tonka Bay. The route extends from the City of Orono to Downtown Minneapolis. The service operates Monday through Friday. In 2000, there were no bus stop signs in Tonka Bay.

Metro Transit ran a bus ridership sample test in the winter of 1999. The on/off total for the sample day was one rider on at Tonka Bay Road.

RIDESHARE

Minnesota Rideshare provides pool matching services to employers, communities and individuals in the metropolitan area. Nine Tonka Bay residents were registered with Minnesota Rideshare in August 2000.

PARK AND RIDE

There is no official Metro Transit park & ride in the City of Tonka Bay. Route 670 Express serves Tonka Bay residents within easy walking distance. Any resident that chooses to may park & ride on Route 670 at the official site in Excelsior.

AVIATION

Facilities – No airports or heliports are located or planned in Tonka Bay. No aviation support facilities such as radio beacons or navigational aids are located or planned in Tonka Bay. Flying Cloud Airport is the closest airport and is located about 16.5 miles southeast of the City. The Minneapolis – St. Paul International Airport is located approximately 22.8 miles southeast of the City.

Airspace – Tonka Bay is located in general airspace. The City is outside the airport influence area and the City is not along the glide path of any airport in service.

Structures – No structure in the City is 200 feet high or higher. If any new structures over 200 feet high were to be considered in the City, protection of airspace under Minnesota Statute 360 requiring notification of the Minnesota Department of Transportation would be followed. No planned development is expected to impact airport communication or air traffic operations through visual or electronic interference.

Seaplanes – Seaplanes are allowed on Lake Minnetonka.

PROJECTED DEVELOPMENT

Land use and intensity, community facilities and transportation are all shown on Figures 6 and 7. The most intense uses are along the east side of Manitou Road at the south end of the City.

Approximately 40 new dwellings are projected in Tonka Bay by the year 2030. A rate of 10 trips per day per dwelling unit would generate 400 additional vehicle trips.

It is projected that there will be about 80 more employees in Tonka Bay by 2030. A rate of 4 trips per day per employee would generate 320 more vehicle trips.

The distribution of these trips is split equally to the north and south on Manitou Road. TAZ 624 includes all of Tonka Bay and a portion of Shorewood.

Forecasts of average annual daily traffic (AADT) for roads on the system are provided on Figure 12. Figure 12 also provides historical and recent traffic counts, identifies the number of through lanes and describes the level of service. The forecast of level of service for 2020 is based on adherence to this Plan including construction of improvements proposed in the Plan and Program section.

ISSUES AND NEEDS

The City's transportation issues and needs are listed and described below:

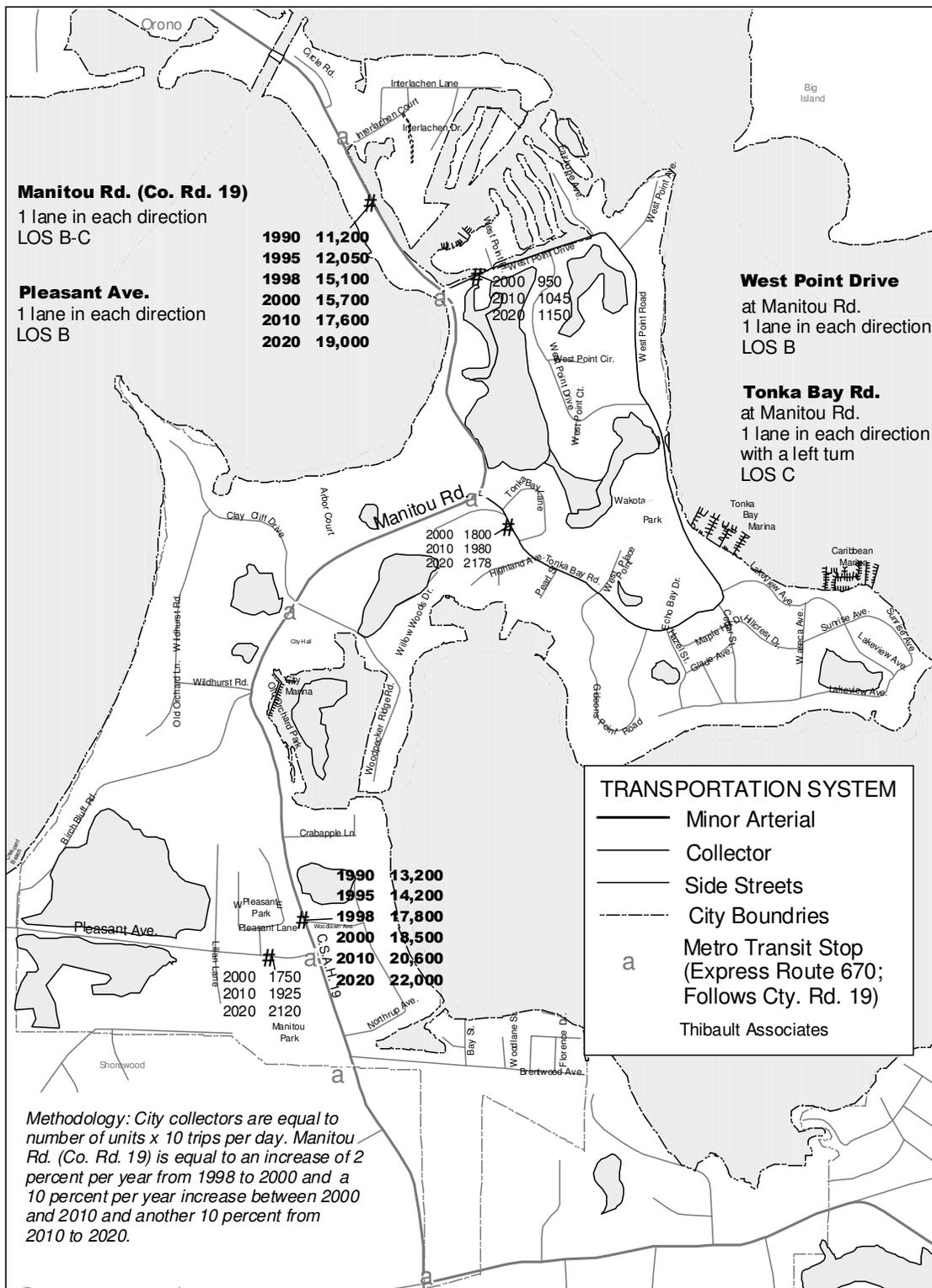
1. Manitou Road

- The road lacks an adequate pedestrian – bicycle way. The road has insufficient landscaping.
- The intersection of Manitou Road and Tonka Bay Road is confusing.
- Continuous flow of traffic during peak hours makes it difficult to enter the flow of traffic.
- *Comment: County Road 19 is not interrupted by a traffic sign nor a stop sign from County Road 15 (North Shore Drive to the intersection of Oak Street which is a distance of about 3.1 miles). Without such interruption, the flow can be continuous during peak hours with few*

gaps to allow entering vehicles into the flow. A signal or stop sign in the central portion of Tonka Bay would not only help vehicles enter the traffic, but would also make it easier for pedestrians to cross the street. .

- The image along Manitou Road needs improvement at some locations.
2. **Transit** – The City lies entirely in Transit Market Area 3. Six transit stops should be identified on Manitou Road. Locations to consider include (from north to south - Interlachen Court, West Point Drive, Tonka Bay Road, City Hall, Pleasant Avenue and Brentwood Avenue).
 3. **Speed and Safety** – Speed and safety is a concern on Manitou Road and to some extent on the roads leading to the marinas. Providing a safe location for trails is important.
 4. **Pedestrian Ways/Trail Facilities** – A more complete system separated from the traveled part of the road needs to be provided.
 5. **Commuter Rail/LRT** – Hennepin County Railroad Authority is the owner of the 100-foot wide right-of-way used as a regional trail. This route is not a priority LRT route. However, planning and development near the trail should not be contrary to this possibility.
 6. **Road Widths and Functions** – The width of the roads in some neighborhoods is minimal. Some congestion or at least the appearance of congestion results, in areas where lot widths are narrow, lots areas are small, and where there is inadequate off-street parking.

Figure 12: Transportation Plan for Roads



POLICIES

The Transportation Goal is: Transportation Harmony and Compatibility: Create and maintain a harmonious system which achieves compatibility between residential use and use of transportation facilities by automobiles, bicycles, pedestrians, transit, or boats.

The policies that follow are based on the transportation goal. The policies are also based on the inventory and analysis of the system, and identified issues and needs. Adherence to the following policies should provide Tonka Bay a balanced, harmonious, and compatible system.

Policy 1 – Manitou Road. Make it functionally and aesthetically more user friendly by broadening its use to include bicycles and pedestrians separated from the road by a landscaped boulevard and decorative lighting.

Policy 2 – Speed and Safety. Be responsive to community needs for proper control of speed and improve roadway safety.

Policy 3 – Image. Improve the aesthetics on and along the City's streets.

Policy 4 - Access Management. Balance the need for access to Manitou Road (an A minor arterial) by applying access management principles.

Policy 5 – Transit. Encourage exploration of Light Rail Transit to serve Tonka Bay by 2030 or thereafter.

PLAN AND PROGRAM

PLAN

The Transportation Plan for Tonka Bay, consisting of roads, trails and transit facilities, is included in the full-color Comprehensive Plan Map inserted in the front pocket of this document. Figure 12 includes the Transportation Plan as well as historical traffic volume, projected traffic volume, and roadway information including level of service.

PROGRAM

The transportation program consists of the following projects and activities:

1. **Manitou Road** – Upgrade this road providing one through lane in each direction, a boulevard with decorative street lighting, and a trail.
2. **Tonka Bay Road** – Redesign the intersection with Manitou Road when Manitou Road is upgraded. Provide a boulevard and extend a trail along the road to Wekota Park and to Tonka Bay Marina.
3. **Pedestrian Ways/Trail Facilities** – Construct these facilities as roads are rebuilt and as other opportunities allow for implementation.
4. **Access Management** – Continue to limit and control access to Manitou Road to provide safe access and to minimize functional problems.
5. **Maintenance** – Continue the City’s aggressive program of street sweeping, maintenance and seal coating.
6. **Paving Program** – By 2020 consider a street paving program to upgrade the most deteriorated neighborhood streets.
7. **Other Streets** – Initiate residential parking only in areas where needed including areas where marina parking is taking place on narrow residential streets.

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Chapter 7: Sewer Plan

Chapter 7 Sections

- Introduction
- Inventory & Analysis
- Inflow/Infiltration
- Wastewater
- Projections
- Issues and Needs
- Policies
- Plan and Program

Figures

Figure 13: Sewer System Plan

Tables

- Table 16: Wastewater Flows
- Table 17: Marinas Connected to City Sewer System
- Table 18: Projected Daily Wastewater Flow
- Table 19: Projected Annual Wastewater Flow
- Table 20: Met Council Projected Annual Wastewater Flow

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INTRODUCTION

The City has a complete sewer system. All business and dwelling units are connected to the system. The City is equipped to maintain the system. Ongoing maintenance is performed to reduce inflow and infiltration.

INVENTORY AND ANALYSIS

Tonka Bay's sewer system consists of gravity pipes (11.1 miles), force lines (1.26 miles), and lift stations (9 in actual use) which are linked to a metered interception and a treatment facility owned by the Metropolitan Council. See Figure 13, Sewer System.

INFLOW / INFILTRATION

The Metropolitan Council adopted an I/I Surcharge Program in 2006 to reduce the impact of I/I on wastewater capacity and fees and to insure that the wastewater capacity of the system is available for future development.

The purpose of the surcharge program is to provide the Metropolitan Council with contingency funding to build additional capacity if necessary. Or alternatively, provide an incentive and a mechanism for communities to fund the cost of mitigating their excess peak I/I. Communities can avoid surcharges and/or receive a rebate of the surcharges by eliminating their excess peak I/I through a combination of programs and system improvements. It is the intent of the program to encourage communities to eliminate their excess peak I/I over the next five-year period from 2007 through 2011.

Beginning in 2007, each community that experienced an excess maximum peak I/I flow event measured during the period June 1, 2004 through June 30, 2006 in any of the meter sheds will receive a surcharge under this Program. Excess maximum I/I peak flow is defined as the amount of flow rate in mgd greater than the peak flow rate allowed by the MCES.

The City of Tonka Bay did experience a maximum peak I/I flow event in 2004, based on the current surcharge formula set by Metropolitan Council. The annual surcharge rate for Tonka Bay is \$9,100/year beginning in the year 2007 through 2011. Tonka Bay has been able to offset this surcharge each year by allocating at a minimum matching funds for I/I repair that qualify from the Met Council.

In the Met Council system statement, the I/I goals established for the City of Tonka Bay is the allowable peak hourly flow rate of 0.89 in 2010 to 0.87 in 2030. The Met Council's metering program shows that the city's 2004 flow was 0.23 mgd. The current I/I goal for Tonka Bay is an allowable peak hourly flow of 0.87 mgd.

Significant portions of the system and individual connections are in low areas near or below the water table. As far back as 1986, the City began to address I/I when a contractor was hired to seal manholes.

The City's program to reduce I/I includes:

- Televising lines
- Manhole sealing
- Manhole cover replacement
- Joint sealing
- Crack sealing
- Manhole relining
- Installation of pipe lines
- Pipe cleaning
- Broken pump replacement
- Sump pump inspection
- Service lateral inspection
- Sealing off of services

Analysis of the wastewater flow compared to the number of households sewered and with adjustments for climatic conditions indicates that the City's I/I program is reducing wastewater flow.

Figure 13: Sewer System



Intercommunity Agreements – Tonka Bay accepts wastewater flow from 16 units located outside the southwest corner of Tonka Bay in Shorewood. Wastewater from the Tonka Village Shopping Center at the south end of Tonka Bay flows into Shorewood through 6-TB-661. The wastewater flow from Shorewood into Tonka Bay’s system is about equal to the wastewater flow out of Tonka Bay and into Shorewood’s system. Therefore, the wastewater flow and Meter 420 reflects the full flow from Tonka Bay.

WASTEWATER

Table 16 provides a summary of wastewater flow for the years 1997-2004.

Table 16		
Wastewater Flows		
Year	Calculated Flow in Gallons	Percent Change
1997	94,400,000	
1998	89,000,000	- 5.7 %
1999	86,100,000	- 3.4 %
2000	71,800,000	-19.9%
2001	85,700,000	+19.4%
2002	102,600,000	+19.7%
2003	86,600,000	-15.6%
2004	89,800,000	+3.7%

Source: City of Tonka Bay and Metropolitan Council Environmental Services

Marinas in the City were reviewed during the I/I evaluation. Table 17 summarizes the findings.

Table 17			
Marinas Connected to City Sewer System			
Marina name	Connected yes/no	Metered yes/no	If Connected, Wastewater Flow 2006 (gallons/year)
City Marina	No	No	N/A
Lindbo Landing	No	No	N/A
Tonka Bay Marina	Yes	No	252,000
Caribbean Marina	Yes	No	87,000

Source: City of Tonka Bay

Methodology: Water usage is used as the basis to calculate wastewater flow.

PROJECTIONS

Projections of wastewater flow are based on the number of dwelling units and business uses. The flow from businesses is converted into the equivalent number of dwellings. After 2006, the projection is based on 337 gallons per dwelling unit per day. This reduction is based on some continued reduction of I/I coupled with more conservation of water use. Table 18 provides the projections and an explanation of the methodology used.

Table 18									
Projected Daily Wastewater Flow									
Based on 337 gallons per day per unit for the years 2006-2030									
Yr.	Intercptr	Sewered Units			Gallons per day				Annual Gallons
		Res. Units	Ex Com/ Ind/Etc Units**	Total Equiv. Units	Per Unit*	Res. Flow	Eq Com/ Ind/Other Flow	Projected Total	Projected Annual Flow
2006	7017	674	0	674	337	227,138	0	221,138	82,905,370
	6-TB-661	0	26	26	337	0	8,762	8,762	3,198,030
2007	7017	675	0	675	337	227,475	0	227,475	83,028,375
	6-TB-661	0	27	27	337	0	9,099	9,099	3,321,135
2008	7017	676	0	676	337	227,812	0	227,812	83,151,380
	6-TB-661	0	28	28	337	0	9,436	9,436	3,444,140
2009	7017	677	0	677	337	228,149	0	228,149	83,274,585
	6-TB-661	0	29	29	337	0	9,773	9,773	3,567,145
2010	7017	678	0	678	337	228,486	0	228,486	83,397,390
	6-TB-661	0	30	30	337	0	10,110	10,110	3,690,160
2015	7017	680	0	680	337	229,160	0	229,160	83,643,400
	6-TB-661	0	32	32	337	0	10,784	10,784	3,936,160
2020	7017	682	0	682	337	229,834	0	229,834	83,889,410
	6-TB-661	0	38	38	337	0	11,458	11,458	4,182,170
2030	7017	686	0	686	337	231,182	0	231,182	84,381,430
	6-TB-661	0	38	38	337	0	12,806	12,806	4,674,190

Source: City of Tonka bay, January 2008

Note 1: 16 units in Shorewood (west of the intersection of Birch Bluff Road and Pleasant) are served by Tonka Bay. The Tonka Bay Shopping Center is served by Shorewood (6TB611). The wastewater flow from this commercial area is said to equal the 16 units in Shorewood. Therefore, no adjustment is required in the calculations of units served.

* Based on 86,000,000 the wastewater flow is 337 gallons per day

** Non-residential connected units have been expressed in “residential equivalent units (EQ)” based on the following conversion obtained from the Metropolitan Council Environmental Services:

Employment: 30 gallons per employee per day (8.33 employees equal one residential unit).

Methodology: Annual wastewater flow equals the sum of residential unit times 337 gallons per day, times 365 days. The projected wastewater flows include only the flow generated from the City of Tonka Bay. No distinction is made between dwellings and households.

Table 19	
Projected Annual Wastewater Flow Totals	
Year	Gallons
2006	86,103,400
2010	87,087,540
2015	87,579,560
2020	88,071,520
2025	88,563,600
2030	89,055,620

Source: City of Tonka Bay.

The City's annual wastewater flow projections (given in Table 19) are almost exactly midway between the Metropolitan Council's low and high projections. Table 20 contains the Metropolitan Council's projections for Tonka Bay's wastewater flow.

Table 20			
Metropolitan Council			
Projected Annual Wastewater Flow			
Year	2010	2020	2030
Sewered Population	1,620	1,650	1,650
Sewered Households	640	660	680
Sewered Employment	300	340	380
Average annual Wastewater flow (MGD)	0.24	0.23	0.23
Allowable Peak Hourly Flow (MGD)	0.89	0.87	0.87

Source: Metropolitan Council Water Resources Management Plan.

ISSUES AND NEEDS

The City's sewer issues and needs are listed and described below:

- 1. Inflow and Infiltration** – The City's unique setting may likely require on-going I/I program activities throughout the next 20 years.
- 2. Sewer Conditions** – Continue monitoring sewer conditions along with replacement or correction of damaged sewer lines when redevelopment or major remodeling takes place and when streets may have to be reconstructed.

POLICIES

The policies that follow are based on the Comprehensive Plan goals and the analysis, issues and needs contained in this chapter.

Policy 1 – Standards. The City’s system must meet the Upper Midwest Ten States’ Standards.

Policy 2 – Inflow and Infiltration. Continue to conduct the City’s I/I program on an annual on-going basis and make changes as necessary to effectively reduce inflow and infiltration by the year 2012.

Policy 3 – Upgrade. Upgrade or repair the system as housing sites are redeveloped and as new streets are installed.

PLAN AND PROGRAM

The sewer system plan is shown on Figure 13. No new trunk lines, force lines, lift stations or interception modification are needed. No extensions of the system are planned. The program consists of:

- 1. Inflow/Infiltration** – Conduct inflow and infiltration reduction measures on an annual basis and eliminate causes of inflow and infiltration where it is cost-effective (program activities are identified on pages 57 and 58).
- 2. Maintenance** – Continue annual maintenance work e.g. jet roding and lift station maintenance.
- 3. Sewer Rate Change** – Monitor the sewer rate to insure adequate funding to operate the system and to make quality repairs.

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Chapter 8: Water Supply Plan

Chapter 8 Sections

- Introduction
- Part 1: Water Supply System Description & Evaluation
- Part 2: Emergency Response Procedures
- Part 3: Water Conservation Plan
- Part 4: Items for Metropolitan Area Public Suppliers

Tables

- Table 21: Historic Water Demand
- Table 22: Large Volume Users
- Table 23: Water Treatment
- Table 24: Storage Capacity
- Table 25: Total Water Service Capacity for System
- Table 26: Groundwater Sources
- Table 27: Surface Water Sources
- Table 28: Wholesale or Retail Interconnections
- Table 29: Emergency Interconnections
- Table 30: Ten Year Demand Projections
- Table 31: Monitoring Wells
- Table 32: Public Water Supply Systems
- Table 33: Private Water Sources
- Table 34: Water Use Priorities
- Table 35: Demand Reduction Procedures
- Table 36: Customer meters
- Table 37: Water Source Meters

Attachments in Appendix

- A-1 – Well No. 1 Drilling and Pump Maintenance Log
- A-2 – Well No. 2 Drilling and Pump Maintenance Log
- B – Wells No. 1 and 2 Monitoring Data
- C – Capital Improvement Plan
- D – Emergency Telephone List
- E – Water and Sewer Agreement – Tonka Bay and Shorewood
- F – Water Regulations and Long Term Improvements
- G – City of Tonka Bay Water Conservation Efforts

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INTRODUCTION

This chapter on water supply satisfies the Comprehensive Plan requirements including the requirements of the Metropolitan Council and the requirements of the Minnesota Department of Natural Resources.

Tonka Bay's first efforts to provide municipal water service began in 1972. The system became operational in 1973. The City has a complete system, including 5.4 miles of main water lines and 124 fire hydrants that serve all properties in the City. The system also includes an emergency service connection with Shorewood.

PART 1: WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

The first step in any water supply analysis is to assess the current status of demand and supplies. Information in Part I can be used in the development of Emergency Response Procedures and Conservation Plans.

A. ANALYSIS OF WATER DEMAND.

Fill in Table 21 for the past 10 years water demand. If your customer categories are different than the ones listed in Table 21, please note the changes below.

TABLE 21
HISTORIC WATER DEMAND

Year	Total Pop.	Pop. Served	Total Connect.	Res. Water Sold (MG)	C/I/I Water Sold (MG)	Wholesale Deliveries (MG)	Total Water Sold (MG)	Total Water Pumped (MG)	% Unmeter/Unaccount	Avg Demand (MGD)	Max Demand (MGD)	Res gals/capita/day	Tot gals/capita/day
2008	1547	1547	688	53.981	4.015	N/A	57.996	74.914	22.6	.205	1.321	96	133
2007	1547	1547	684	56.700	3.871	N/A	60.571	77.836	22.2	.213	.639	100	138
2006	1547	1547	690	56.575	3.575	N/A	60.150	77.861	22.7	.213	.727	100	137
2005	1547	1547	686	50.096	2.627	N/A	52.723	69.748	24.4	.191	.612	89	191
2004	1547	1547	691	54.537	2.396	N/A	56.933	66.594	14.5	.182	.473	96	118
2003	1547	1547	688	57.728	1.860	N/A	59.588	76.272	21.9	.209	.775	102	135
2002	1547	1547	689	48.079	1.834	N/A	49.913	65.420	23.7	.179	.435	85	116
2001	1547	1547	685	56.669	2.779	N/A	59.448	73.571	19.2	.201	.709	100	130
2000	1547	1547	677	55.917	2.562	N/A	58.479	77.897	24.9	.213	.689	99	138
1999	1547	1547	677	47.671	2.904	N/A	50.575	71.494	20.9	.189	.496	84	123

MG – Million Gallons MGD – Million Gallons per Day C/I/I- Commercial, Industrial, Institutional

Residential. Water used for normal household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens.

Institutional. Hospitals, nursing homes, day care centers, and other facilities that use water for essential domestic requirements. This includes public facilities and public metered uses. You may want to maintain separate institutional water use records for emergency planning and allocation purposes.

Commercial. Water used by motels, hotels, restaurants, office buildings, commercial facilities, both civilian and military.

Industrial. Water used for thermoelectric power (electric utility generation) and other industrial uses such as steel, chemical and allied products, food processing, paper and allied products, mining, and petroleum refining.

Wholesale Deliveries. Bulk water sales to other public water suppliers.

Unaccounted. Unaccounted for water is the volume of water withdrawn from all sources minus the volume sold.

Residential Gallons per Capita per Day = total residential sales in gallons/population served/365 days **Total Gallons per Capita per Day** = total water withdrawals/population served/365 days

NOTE: Non-essential water uses defined by Minnesota Statutes 103G.291 include lawn sprinkling, vehicle washing, golf course and park irrigation and other non-essential uses. Some of the above categories also include non-essential uses of water

Water Use Trends. Discuss factors that influence trends in water demand (i.e. growth, weather, industry, conservation). If appropriate, include a discussion of other factors that affect daily water use, such as use by non-resident commuter employees or large water consuming industry.

- Typical factors that can influence the increase or decrease for water demand in Tonka Bay are usually related to weather conditions. The City does not have any large volume customers which consume 5% or more of the total production. In general, water usage has increased during the last decade. The increase is attributable to below average rainfall during the last decade and a slight increase in population.

<p style="text-align: center;">TABLE 22 Large Volume Users List the top 10 largest users</p>		
Customer	Gallons per year	% of total annual use
75 Echo Bay Drive	1,046,000	1.8
5635 Manitou Road	626,000	1.08
4780 Manitou	457,000	.79
65 Clay Cliffe Dr.	439,000	.76
25 Clay Cliffe Dr.	434,000	.75
40 Gideons Point Rd.	400,000	.69
50 Florence Dr.	366,000	.65
5663 Manitou Road	354,000	.61
140 Wildhurst Road.	326,000	.56
165 Gideons Point Rd.	319,000	.55

B. TREATMENT AND STORAGE CAPACITY.

<p style="text-align: center;">TABLE 23 Water Treatment</p>	
Water Treatment Plant Capacity	1,400,000 gallons per day
Describe the treatment process used (i.e., softening, chlorination, fluoridation, Fe/Mn removal, reverse osmosis, coagulation, sedimentation, filtration, others). Also, describe the annual amount and method of disposal of treatment residuals, if any.	
TREATMENT PROCESS: Lime Softening, chlorination, fluoridation, coagulation, sedimentation, filtration. The lime by-product produced each year is approximately 275–300 yards. The City contracts annually for disposal of the by-product, successful contractors must be licensed by the Dept. of Agriculture and follow all disposal regulations set by the state as well as the City. Disposal is normally done by land application.	

TABLE 24			
Storage Capacity			
List all storage structures and capacities.			
Total Storage Capacity		Average Day Demand (average of last 5 years)	
565,000 gallons		201,000 gallons per day	
Type of Structure	Number of Structures	Gallons	
Elevated Storage	1	250,000	
Ground Storage	1	300,000	
Other: Hydro pneumatic Tank	1	15,000	

C. WATER SOURCES. List all groundwater, surface water and interconnections that supply water to the system. Add or delete lines to the tables as needed.

TABLE 25	
Total Water Source Capacity for System	
(excluding emergency connections)	
Total Capacity of Sources	1,550 gallons per minute
Firm Capacity (largest pump out of service)	750 gallons per minute

TABLE 26							
Groundwater Sources							
See Appendix A-1 and A-2							
Well # or name	Unique Well Number	Year Installed	Well & Casing Depth (ft)	Well Diameter (in)	Capacity (GPM)	Geologic Unit	Status
1	223349	1972	423	24x16x6	750	OSTPCJDN	Active
2	205657	1973	434	24x16x6f	800	OSTPCJDN	Active

Status: Active use, Emergency, Standby, Seasonal, Peak use, etc.

GPM – Gallons per Minute

Geologic Unit: Name of formation(s), which supplies water to the well

TABLE 27		
Surface Water Sources		
Intake ID	Resource name	Capacity (GPM/MGD)
N/A		

GPM – Gallons per Minute

MGD – Million Gallons per Day

TABLE 28**Wholesale or Retail Interconnections**

List interconnections with neighboring suppliers that are used to supply water on a regular basis either wholesale or retail.

Water Supply System	Capacity (GPM/MGD)	Wholesale or retail
N/A		

GPM – Gallons per Minute MGD – Million Gallons per Day

TABLE 29**Emergency Interconnections**

List interconnections with neighboring suppliers or private sources that can be used to supply water on an emergency or occasional basis. Suppliers that serve less than 3,300 people can leave this section blank, but must provide this information in Section II C.

Water Supply System	Capacity (GPM/MGD)	Note any limitations on use
City of Shorewood	525 GPM / .756 MGD	

GPM – Gallons per Minute MGD – Million Gallons per Day

D. DEMAND PROJECTIONS.**TABLE 30****Ten Year Demand Projections**

Year	Population Served	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Projected Demand (MGY)
2009	1601	.209	.661	76.25
2010	1608	.209	.672	76.59
2011	1615	.211	.675	76.93
2012	1618	.211	.676	77.06
2013	1622	.212	.678	77.26
2014	1625	.212	.679	77.40
2015	1629	.212	.681	77.59
2016	1632	.213	.682	77.74
2017	1636	.213	.684	77.93
2018	1639	.214	.685	78.07

MGD – Million Gallons per Day MGY – Million Gallons per Year

Projection Method. Describe how projections were made, (assumptions for per capita, per household, per acre or other methods used).

The Ten Year Projection is based on a per capita basis. The averages of the years 2005 and 2006 plus increases due to population and employment increase at an average rate of 130.5 gallons per person, per day. Maximum Day Demand was calculated using the same method at a rate of 418 gallons per person, per day.

E. RESOURCE SUSTAINABILITY

Sustainable water use: use of water to provide for the needs of society, now and in the future, without unacceptable social, economic, or environmental consequences.

Monitoring. Records of water levels should be maintained for all production wells and source water reservoirs/basins. Water level readings should be taken monthly for a production well or observation well that is representative of the wells completed in each water source formation. **If water levels are not currently measured each year, a monitoring plan that includes a schedule for water level readings must be submitted as (Appendix B.)**

TABLE 31			
Monitoring Wells			
List all wells being measured.			
Unique well number	Type of well (production, observation)	Freq. of Measurement (daily, monthly etc.)	Method of Measurement (steel tape, SCADA etc.)
223349	production	Monthly	Water level indicator
205657	production	Monthly	Water level indicator

Water Level Data. Summarize water level data including seasonal and long-term trends for each ground and/or surface water source. If water levels are not measured and recorded on a routine basis then provide the static water level (SWL) when the well was constructed and a current water level measurement for each production well. Also include all water level data taken during well and pump maintenance.

- Static water level and draw down are recorded monthly, monitoring data will be sent to the DNR electronically each quarter. No long term impacts are anticipated.

Appendix B: Provide monitoring data (graph or table) for as many years as possible.

Ground Water Level Monitoring – DNR Waters in conjunction with federal and local units of government maintain and measure approximately 750 observation wells around the state. Ground water level data are available online www.dnr.state.mn.us/waters. Information is also available by contacting the Ground Water Level Monitoring Manager, DNR Waters, 500 Lafayette Road, St. Paul, MN 55155-4032 or call (651) 296-4800.

Natural Resource Impacts. Indicate any natural resource features such as calcareous fens, wetlands, trout streams, rivers or surface water basins that are or could be influenced by water withdrawals from municipal production wells. Also indicate if resource protection thresholds have been established and if mitigation measures or management plans have been developed.

There is no indication that any natural resource in Tonka Bay will be influenced by water withdraw from municipal production wells. Resource thresholds have not been established.

Sustainability. Evaluate the adequacy of the resource to sustain current and projected demands. Describe any modeling conducted to determine impacts of projected demands on the resource.

Based on the City’s limited potential for growth and expansion, and the favorable condition of the existing infrastructure, the City feels the resource is adequate to sustain current and projected demands.

Source Water Protection Plans. The emergency procedures in this plan are intended to comply with the contingency plan provisions required in the Minnesota Department of Health’s (MDH) Wellhead Protection (WHP) Plan and Surface Water Protection (SWP) Plan.

Date WHP Plan Adopted:	Has not been adopted
Date for Next WHP Update:	
SWP Plan:	<input type="checkbox"/> In Process <input type="checkbox"/> Completed <input type="checkbox"/> Not Applicable

- The City of Tonka Bay has not been brought into the Well Head Protection Plan as of the year 2008. Each public water system was given a federal drinking water rank in 1992 based on three major factors.
 1. The construction of the well and its ability to meet state codes.
 2. The geological setting and protection such as the richness of the clay and the bedrock.
 3. The previous history of the well.

F. CAPITAL IMPROVEMENT PLAN (CIP)

<p>Adequacy of Water Supply System. Are water supply installations, treatment facilities and distribution systems adequate to sustain current and projected demands? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, describe any potential capital improvements over the next ten years and state the reasons for the proposed changes (CIP Appendix C).</p> <ul style="list-style-type: none"> • Water Meter Replacement- Majority of meters are over 20 years old • Structural Inspection of Treatment Plant Basins- Last inspection done 15 years ago • Replace flat roof on treatment plant- 12 years since last replacement – small leaks are beginning to appear. • Replace existing fluorescent light fixtures in plant- 37 years old, failing and not energy efficient. • Replace lime slaker- reached design life.

<p>Proposed Water Sources. Does your current CIP include the addition of new wells or intakes? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, lists the number of new installations and projected water demands from each for the next ten years. Plans for new production wells must include the geologic source formation, well location, and proposed pumping capacity.</p> <p>N/A</p>

<p>Water Source Alternatives. If new water sources are being proposed, describe alternative sources that were considered and any possibilities of joint efforts with neighboring communities for development of supplies.</p> <p>N/A</p>

<p>Preventative Maintenance. Long-term preventative programs and measures will help reduce the risk of emergency situations. Identify sections of the system that are prone to failure due to age, materials or other problems. This information should be used to prioritize capital improvements, preventative maintenance, and to determine the types of materials (pipes, valves, couplings, etc.) to have in stock to reduce repair time.</p> <ul style="list-style-type: none"> • Long term replacement program for the Water Treatment Plant and distribution system are identified in the City's' CIP. Please refer to Appendix C for a description.
--

PART II. EMERGENCY RESPONSE PROCECURES

Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failures, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. If your community already has written procedures dealing with water emergencies we recommend that you use these guidelines to review and update existing procedures and water supply protection measures.

Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act as amended by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188, Title IV – Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan. **Community water suppliers that have completed the Federal Emergency Response Plan and submitted the required certification to the U.S. Environmental Protection Agency have satisfied Part II, Sections A, B, and C of these guidelines and need only provide the information below regarding the emergency response plan and source water protection plan and complete Sections D (Allocation and Demand Reduction Procedures), and E (Enforcement).**

Provide the following information regarding your completed Federal Emergency Response Plan:

Emergency Response Plan	Contact Person	Contact Number
Emergency Response Lead		
Alternate Emergency Response Lead		
Emergency Response Plan Certification Date		

Operational Contingency Plan. An operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance is recommended for all utilities. Check here if the utility has an operational contingency plan. At a minimum a contact list for contractors and supplies should be included in a water emergency telephone list.

EMERGENCY RESPONSE PROCEDURES

A. Emergency Telephone List. A telephone list of emergency contacts must be included as (Appendix D) to the plan (complete template or use your own list). The list should include key utility and community personnel, contacts in adjacent communities, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list on a regular basis (once each year recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Responsibilities and services for each contact should be defined.

B. Current Water Sources and Service Area. Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation, water well and maintenance records should be maintained in a central secured location so that the records are accessible for emergency purposes and preventative maintenance. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. Check here if these records and maps exist and staff can access the documents in the event of an emergency.

C. Procedure for Augmenting Water Supplies. List all available sources of water that can be used to augment or replace existing sources in an emergency. In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Copies of cooperative agreements should be maintained with your copy of the plan and include in (Appendix E.) Be sure to include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MN Department of Health are required for interconnections and reuse of water.

TABLE 32		
Public Water Supply Systems		
List interconnections with other public water supply systems that can supply water in an emergency.		
Water Supply System	Capacity (GPM/MGD)	Note any limitations on use
City of Shorewood	525 GPM/.760 MGD	

GPM – Gallons per Minute MGD – Million Gallons per Day

TABLE 33		
Private Water Sources		
List other sources of water available in an emergency.		
Name	Capacity (GPM/MGD)	Note any limitations on use
N/A		

GPM – Gallons per Minute MGD – Million Gallons per Day

D. Allocation and Demand Reduction Procedures. The plan must include procedures to address gradual decreases in water supply as well as emergencies and the sudden loss of water due to line breaks, power failures, sabotage, etc. During periods of limited water supplies public water suppliers are required to allocate water based on the priorities established in Minnesota Statutes 103G.261.

Water Use Priorities (Minnesota Statutes 103G.261)

First Priority. Domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets contingency requirements.

NOTE: Domestic use is defined (MN Rules 6115.0630, Subd. 9), as use for general household purposes for human needs such as cooking, cleaning, drinking, washing, and waste disposal, and uses for on-farm livestock watering excluding commercial livestock operations which use more than 10,000 gallons per day or one million gallons per year.

Second Priority. Water uses involving consumption of less than 10,000 gallons per day.

Third Priority. Agricultural irrigation and processing of agricultural products.

Fourth Priority. Power production in excess of the use provided for in the contingency plan under first priority.

Fifth Priority. Uses, other than agricultural irrigation, processing of agricultural products, and power production.

Sixth Priority. Non-essential uses. These uses are defined by Minnesota Statutes 103G.291 as lawn sprinkling, vehicle washing, golf course and park irrigation, and other non-essential uses.

List the statutory water use priorities along with any local priorities (hospitals, nursing homes, etc.) in Table 34. Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Local allocation priorities will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. In Table 34, list the priority ranking, average day demand and demand reduction potential for each customer category (modify customer categories if necessary).

Table 34			
Water Use Priorities			
Customer Category	Allocation Priority	Average Day Demand (GPD)	Demand Reduction Potential (GPD)
Residential	First Priority	205,000	82,000
Institutional	Second Priority	109	0
Commercial	Third Priority	106,000	42,000
Industrial			
Irrigation			
Wholesale			
Non-essential			
	TOTALS	311,109	124,000

GPD – Gallons per Day

Demand Reduction Potential. The demand reduction potential for residential use will typically be the base demand during the winter months when water use for non-essential uses such as lawn watering does not occur. The difference between summer and winter demands

typically defines the demand reduction that can be achieved by eliminating non-essential uses. In extreme emergency situations lower priority water uses must be restricted or eliminated to protect first priority domestic water requirements. Short-term demand reduction potential should be based on average day demands for customer categories within each priority class.

Triggers for Allocation and Demand Reduction Actions. Triggering levels must be defined for implementing emergency responses, including supply augmentation, demand reduction, and water allocation. Examples of triggers include: water demand >100% of storage, water level in well(s) below a certain elevation; treatment capacity reduced 10% etc. Each trigger should have a quantifiable indicator and actions can have multiple stages such as mild, moderate and severe responses. Check each trigger below that is used for implementing emergency responses and for each trigger indicate the actions to be taken at various levels or stages of severity in Table 35.

- | | | | |
|-------------------------------------|--|-------------------------------------|-------------------------|
| <input checked="" type="checkbox"/> | Water Demand | <input checked="" type="checkbox"/> | Water Main Break |
| <input checked="" type="checkbox"/> | Treatment Capacity | <input checked="" type="checkbox"/> | Loss of Production |
| <input type="checkbox"/> | Storage Capacity | <input type="checkbox"/> | Security Breach |
| <input checked="" type="checkbox"/> | Groundwater Levels | <input checked="" type="checkbox"/> | Contamination |
| <input type="checkbox"/> | Surface Water Flows or Levels | <input type="checkbox"/> | Other (list in Table 9) |
| <input checked="" type="checkbox"/> | Pump, Booster Station or Well Out of Service | | |
| <input checked="" type="checkbox"/> | Governor’s Executive Order – Critical Water Deficiency (required by statute) | | |

Table 35		
Demand Reduction Procedures		
Condition	Trigger(s)	Actions
Stage 1 (Mild)	Water Main Break Pump or well out of service, etc.	Monitor storage levels, isolate break and repair, Start additional pump to maintain supply. If well fails, use back up well and notify City of Shorewood that inter connection may be necessary.
Stage 2 (Moderate)	Water Demand- Exceeds 80% of daily firm capacity of supply. Lack of precipitation and Dry forecast.	Request voluntary reduction in use, notify residents by mail and post on City Website. Reduction would include odd / even hours of lawn watering and other nonessential uses.
Stage 3 (Severe)	Water Daily Demand exceeds the daily firm capacity of supply	City Council should enact total sprinkling ban, vehicle washing and other nonessential uses.
Critical Water Deficiency (M.S. 103G.291)	Executive Order by Governor & as provided in above triggers	Stage 1: Restrict lawn watering, vehicle washing, golf course and park irrigation and other nonessential uses Stage 2: Suspend lawn watering, vehicle washing, golf course and park irrigation and other nonessential uses

Note: The potential for water availability problems during the onset of a drought are almost impossible to predict. Significant increases in demand should be balanced with preventative measures to conserve supplies in the event of prolonged drought conditions.

Notification Procedures. List methods that will be used to inform customers regarding conservation requests, water use restrictions, and suspensions. Customers should be aware of emergency procedures and responses that they may need to implement.

- Certified Mail
- City Website

E. Enforcement. Minnesota Statutes require public water supply authorities to adopt and enforce water conservation restrictions during periods of critical water shortages.

**Public Water Supply Appropriation During Deficiency.
Minnesota Statutes 103G.291, Subdivision 1.**

Declaration and conservation.

(a) If the governor determines and declares by executive order that there is a critical water deficiency, public water supply authorities appropriating water must adopt and enforce water conservation restrictions within their jurisdiction that are consistent with rules adopted by the commissioner.

(b) The restrictions must limit lawn sprinkling, vehicle washing, golf course and park irrigation, and other nonessential uses, and have appropriate penalties for failure to comply with the restrictions.

An ordinance that has been adopted or a draft ordinance that can be quickly adopted to comply with the critical water deficiency declaration must be included in the plan (include with other ordinances in Attachment 7 for Part III, Item 4). Enforcement responsibilities and penalties for non-compliance should be addressed in the critical water deficiency ordinance.

Sample regulations are available at www.dnr.state.mn.us/waters

Authority to Implement Water Emergency Responses. Emergency responses could be delayed if city council or utility board actions are required. Standing authority for utility or city managers to implement water restrictions can improve response times for dealing with emergencies. Who has authority to implement water use restrictions in an emergency?

- Utility Manager City Manager City Council or Utility Board
 Other (describe):

Emergency Preparedness. If city or utility managers do not have standing authority to implement water emergency responses, please indicate any intentions to delegate that authority. Also indicate any other measures that are being considered to reduce delays for implementing emergency responses.

There are no current plans to change the authority.

PART III. WATER CONSERVATION PLAN

Water conservation programs are intended to reduce demand for water, improve the efficiency in use and reduce losses and waste of water. Long-term conservation measures that improve overall water use efficiencies can help reduce the need for short-term conservation measures. Water conservation is an important part of water resource management and can also help utility managers satisfy the ever-increasing demands being placed on water resources.

Minnesota Statutes 103G.291 requires public water suppliers to implement demand reduction measures before seeking approvals to construct new wells or increases in authorized volumes of water. Minnesota Rules 6115.0770 requires water users to employ the best available means and practices to promote the efficient use of water. Conservation programs can be cost effective when compared to the generally higher costs of developing new sources of supply or expanding water and/or wastewater treatment plant capacities.

A. Conservation Goals. The following section establishes goals for various measures of water demand. The programs necessary to achieve the goals will be described in the following section.

Unaccounted Water (calculate five year averages with data from Table 1)	
Average annual volume unaccounted water for the last 5 years	11,983,339 gallons
Average percent unaccounted water for the last 5 years	16.14 percent
AWWA recommends that unaccounted water not exceed 10%. Describe goals to reduce unaccounted water if the average of the last 5 years exceeds 10%.	
<ul style="list-style-type: none"> • Complete water meter change-out program in the next 3 years. • Continue to conduct annual City-wide leak audit on distribution system • Continue to perform calibration test on Well flow meters and booster pump meters every other year. 	

Residential Gallons Per Capita Demand (GPCD)	
Average residential GPCD use for the last 5 years (use data from Table 1)	97.4 GPCD
In 2002, average residential GPCD use in the Twin Cities Metropolitan Area was 75 GPCD. Describe goals to reduce residential demand if the average for the last 5 years exceeds 75 GPCD.	
<ul style="list-style-type: none"> • Continue to enforce a retrofitting program of water saving plumbing fixtures through the City Building Inspector. The City has adopted the Uniform State Building Code that references the Plumbing Code. These codes regulate the flush volumes on all new floor mounted water closets. In addition, the City is under the provisions of the Model Energy Code that limits the flow rate on all showerheads installed or remodeled to three gallons per minute. • Continue to promote Water Conservation through Public Awareness of conservation tips listed on the City Web Site and quarterly newsletter. 	

Total Per Capita Demand: From Table 1, is the trend in overall per capita demand over the past

10 years increasing or decreasing? If total GPCD is increasing, describe the goals to lower overall per capita demand or explain the reasons for the increase.

N/A

Peak Demands (calculate average ratio for last five years using data from Table 1)	
Average maximum day to average day ratio	.201 M.G.D to .754 M.G.D.
If peak demands exceed a ratio of 2.6, describe the goals for lowering peak demands.	
<ul style="list-style-type: none"> • Continue to promote water conservation through public awareness. • Implement sprinkling bans during dry periods. 	

B. Water Conservation Programs. Describe all short-term conservation measures that are available for use in emergency and long-term measures to improve water use efficiencies for each of the six conservation program elements listed below. Short-term demand reduction measures must be included in the emergency response procedures and must be in support of, and part of, a community all-hazard emergency operation plan.

- 1. Metering.** The American Water Works Association (AWWA) recommends that every water utility meter all water taken into its system and all water distributed from its system at its customer’s point of service. An effective metering program relies upon periodic performance testing, repair, repair and maintenance of all meters. AWWA also recommends that utilities conduct regular water audits to ensure accountability.

Complete Table 36 regarding the number and maintenance of customer meters.

TABLE 36				
Customer Meters				
	Number of Connections	Number of Metered Connections	Meter testing schedule (years)	Average age/meter replacement schedule (years)
Residential	660	660	As needed	25/40
Institutional	1	1	As needed	20/40
Commercial	29	29	As needed	7/30
Industrial				/
Public Facilities	3	3	As needed	10/30
Other				/
TOTALS	690	690		

Unmetered Systems. Provide an estimate of the cost to install meters and the projected water savings from metering water use. Also indicate any plans to install meters.

N/A

TABLE 37
Water Source Meters

	Number of Meters	Meter testing schedule (years)	Average age/meter replacement schedule (years)
Water Source (wells/intakes)	2	2	3/20
Treatment Plant	1	2	5/20

2. Unaccounted Water. Water audits are intended to identify, quantify, and verify water and revenue losses. The volume of unaccounted-for water should be evaluated each billing cycle. The AWWA recommends a goal of ten percent or less for unaccounted-for water. Water audit procedures are available from the AWWA and MN Rural Water Association.

Frequency of water audits: each billing cycle yearly other:

Leak detection and survey every year every year periodic as needed

Year last leak detection survey completed: 2008 –Please note that this schedule began in 2008.

Reducing Unaccounted Water. List potential sources and efforts being taken to reduce unaccounted water. If unaccounted water exceeds 10% of total withdrawals, include the timeframe for completing work to reduce unaccounted water to 10% or less.

Potential sources of water loss: Worn out water meters, under ground leaks such as fittings, valves, hydrants, etc. The time frame for starting to investigate potential sources of water loss in the City has already started and are identified in the attached CIP, other programs are as follows:

- Annual leak detection of distribution system.
- Water Meter calibration of Treatment Plant Flow meters.
- Annual water audit.

3. Conservation Water Rates. Plans must include the current rate structure for all customers and provide information on any proposed rate changes. Discuss the basis for current price levels and rates, including cost of service data, and the impact current rates have on conservation.

Billing Frequency: Monthly Bimonthly Quarterly
 Other (describe):

Volume included in base rate or service charge: 0 gallons or cubic feet

Conservation Rate Structures

Increasing block rate: rate per unit increases as water use increases

- Seasonal rate: higher rates in summer to reduce peak demands
- Service charge or base fee that does not include a water volume

Conservation Neutral Rate Structure

- Uniform rate: rate per unit is the same regardless of volume

Non-conserving Rate Structures

- Service charge or base fee that includes a large volume of water
- Declining block rate: rate per unit decreases as water use increases
- Flat rate: one fee regardless of how much water is used (unmetered)

Other (describe):

Water Rates Evaluated: every year every years no schedule
 Date of last rate change: January 1, 2009

Declining block (the more water used, the cheaper the rate) and flat (one fee for an unlimited volume of water) rates should be phased out and replaced with conservation rates. Incorporating a seasonal rate structure and the benefits of a monthly billing cycle should also be considered along with the development of an emergency rate structure that could be quickly implemented to encourage conservation in an emergency.

Current Water Rates. Include a copy of the actual rate structure in Attachment or list current water rates including base/service fees and volume charges below.	
Residential:	\$11.00 flat rate AND \$ 3.90 for every 1,000 gallons.
Commercial:	\$11.00 flat rate AND \$ 3.90 for every 1,000 gallons.

Non-conserving Rate Structures. Provide justification for the rate structure and its impact on reducing demands or indicate intentions including the timeframe for adopting a conservation rate structure.
N/A

4. **Regulation.** Plans should include regulations for short-term reductions in demand and long-term improvements in water efficiencies. Sample regulations are available from DNR Waters. Copies of adopted regulations or proposed restrictions should be included in (Appendix F) of the plan. Indicate any of the items below that are required by local regulations and also indicate if the requirement is applied each year or just in emergencies. (See appendix F for description of City regulations).

- Time of Day: no watering between am/pm and am/pm
 (Reduces evaporation) year around seasonal emergency only
- Odd/Even: (helps reduce peak demand) year around seasonal emergency only

- Water waste prohibited (no runoff from irrigation systems)
Describe ordinance:
- Limitations on turf areas for landscaping (reduces high water use turf areas)
Describe ordinance:
- Soil preparation (such as 4"-6" of organic soil on new turf areas with sandy soil)
Describe ordinance:
- Tree ratios (plant one tree for every square feet to reduce turf evapotranspiration)
Describe ordinance:
- Prohibit irrigation of medians or areas less than 8 feet wide
Describe ordinance:
- Permit required to fill swimming pool every year emergency only
- Other (describe):

State and Federal Regulations (mandated)

- Rainfall sensors on landscape irrigation systems. Minnesota Statute 103G.298 requires "All automatically operated landscape irrigation systems shall have furnished and installed technology that inhibits or interrupts operation of the landscape irrigation system during periods of sufficient moisture. The technology must be adjustable either by the end user or the professional practitioner of landscape irrigation services."
- Water Efficient Plumbing Fixtures. The 1992 Federal Energy Policy Act established manufacturing standards for water efficient plumbing fixtures, including toilets, urinals, faucets, and aerators.

Enforcement. Are ordinances enforced? Yes No If yes, indicate how ordinances are enforced along with any penalties for non-compliance.
 City Water Ordinance No. 825.12 states that any person, firm or corporation violating any provision of this ordinance shall be guilty of a misdemeanor. If a resident or staff feels a violation has occurred, it will be reported to the City Administrator for review.

5. **Education and Information Programs.** Customers should be provided information on how to improve water use efficiencies a minimum of two times per year. Information should be provided at appropriate times to address peak demands. Emergency notices and educational materials on how to reduce water use should be available for quick distribution during an emergency. If any of the methods listed in the table below are used to provide water conservation tips, indicate the number of times that information is provided each year and attach a list of education efforts used for the last three years.

Current Education Programs	Times/Year
Billing inserts or tips printed on the actual bill	
Consumer Confidence Reports	1
Local newspapers	
Community newsletters	2

Direct mailings (water audit/retrofit kits, showerheads, brochures)	
Information at utility and public buildings	
Public Service Announcements	
Cable TV Programs	
Demonstration projects (landscaping or plumbing)	
K-12 Education programs (Project Wet, Drinking Water Institute)	
School presentations	
Events (children’s water festivals, environmental fairs)	
Community education	
Water Week promotions	
Information provided to groups that tour the water treatment plant	
Website (include address: www.cityoftonkabay.net)	Year round
Targeted efforts (large volume users, users with large increases)	
Notices of ordinances (include tips with notices)	
Emergency conservation notices (recommended)	
Other:	

List education efforts for the last three years in (Appendix G) of the plan. Be sure to indicate whether educational efforts are on-going and which efforts were initiated as an emergency or drought management effort.

Proposed Education Programs. Describe any additional efforts planned to provide conservation information to customers a minimum of twice per year (required if there are no current efforts).
N/A

A packet of conservation tips and information can be obtained by contacting DNR Waters or the Minnesota Rural Water Association (MRWA). The American Water Works Association (AWWA) www.awwa.org or www.waterwiser.org also has excellent materials on water conservation that are available in a number of formats. You can contact the MRWA 800/367-6792, the AWWA bookstore 800/926-7337 or DNR Waters 651/296-0512 for information regarding educational materials and formats that are available.
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- 6. Retrofitting Programs.** Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use as well as energy costs. It is recommended that communities develop a long-term plan to retrofit public buildings with water efficient plumbing fixtures and that the benefits of retrofitting be included in public education programs. You may also want to contact local electric or gas suppliers to see if they are interested in developing a showerhead distribution program for customers in your service area.

A study by the AWWA Research Foundation (Residential End Uses of Water, 1999) found that the average indoor water use for a non-conserving home is 69.3 gallons per capita per day (gpcd). The average indoor water use in a conserving home is 45.2 gpcd and most of the decrease in water use is related to water efficient plumbing fixtures and appliances that can reduce water, sewer and energy costs. In Minnesota, certain electric and gas providers are
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required (Minnesota Statute 216B.241) to fund programs that will conserve energy resources and some utilities have distributed water efficient showerheads to customers to help reduce energy demands required to supply hot water.

Retrofitting Programs. Describe any education or incentive programs to encourage the retrofitting of inefficient plumbing fixtures (toilets, showerheads, faucets, and aerators) or appliances (washing machines).

All new connections in the City are under the provisions of the building code that requires that water saving plumbing fixtures be used. The City enforces the building code for new and remodeled fixtures through the building. The City website has water conservation materials available year round.

METROPOLITAN COUNCIL PART IV. ITEMS FOR METROPOLITAN AREA PUBLIC SUPPLIERS

Minnesota Statute 473.859 requires water supply plans to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process. Much of the required information is contained in Parts I-III of these guidelines. However, the following additional information is necessary to make the water supply plans consistent with the Metropolitan Land Use Planning Act upon which local comprehensive plans are based. Communities should use the information collected in the development of their plans to evaluate whether or not their water supplies are being developed consistent with the Council's Water Resources Management Policy Plan.

Policies. Provide a statement(s) on the principles that will dictate operation of the water supply utility: for example, "It is the policy of the city to provide good quality water at an affordable rate, while assuring this use does not have a long-term negative resource impact."

- It is the policy of the City to provide the community with high quality potable water with reduced hardness under normal as well as during emergency conditions without adverse impacts to the resource.

Impact on the Local Comprehensive Plan. Identify the impact that the adoption of this water supply plan has on the rest of the local comprehensive plan, including implications for future growth of the community, economic impact on the community and changes to the comprehensive plan that might result.

- Adoption of this water system plan will have a favorable impact.

Demand Projections

Year	Total Community Population	Population Served	Average Day Demand (MGD)	Maximum Day Demand (MGD)	Projected Demand (MGY)
2010	1601	1601	.209	.661	76.25
2020	1639	1639	.214	.685	78.07
2030	1639	1639	.214	.685	78.07
Ultimate	1639	1639	.214	.685	78.07

Population projections should be consistent with those in the Metropolitan Council's *2030 Regional Development Framework* or the Communities 2008 Comprehensive Plan update. If population served differs from total population, explain in detail why the difference (i.e., service to other communities, not complete service within community etc.).

- Population projections differ from Metropolitan Council projections; they are consistent with the City's projection for growth.

Chapter 9: Water Resource Management

Chapter 9 Sections

Introduction
Land and Water Resource Inventory
Wetlands
Stormwater
Flood Information
Land Use
Water Pollution Sources
Issues and Needs
Policies
Implementation Program

Figures

Figure 14: Existing Stormwater Ponds and Stormwater Outfalls

Tables

none

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INTRODUCTION

This chapter and Plan fulfills the state statute requirements and the rules of the Board of Water and Soil Resources and the Minnehaha Creek Watershed District (MCWD). All of Tonka Bay is located within the Minnehaha Creek Watershed District. Minnesota State Law and the MCWD Water Resources Management Plan allow the City of Tonka Bay to incorporate the MCWD's Plan by reference.

The Water Resources Management Plan of the Minnehaha Creek Watershed District is included in this chapter of Tonka Bay's Comprehensive Plan by reference.

LAND AND WATER RESOURCE INVENTORY

WETLAND

The City has several large and small wetlands and lagoons. Virtually every part of the City is within 800 feet of Lake Minnetonka, a lagoon, or "wetland."

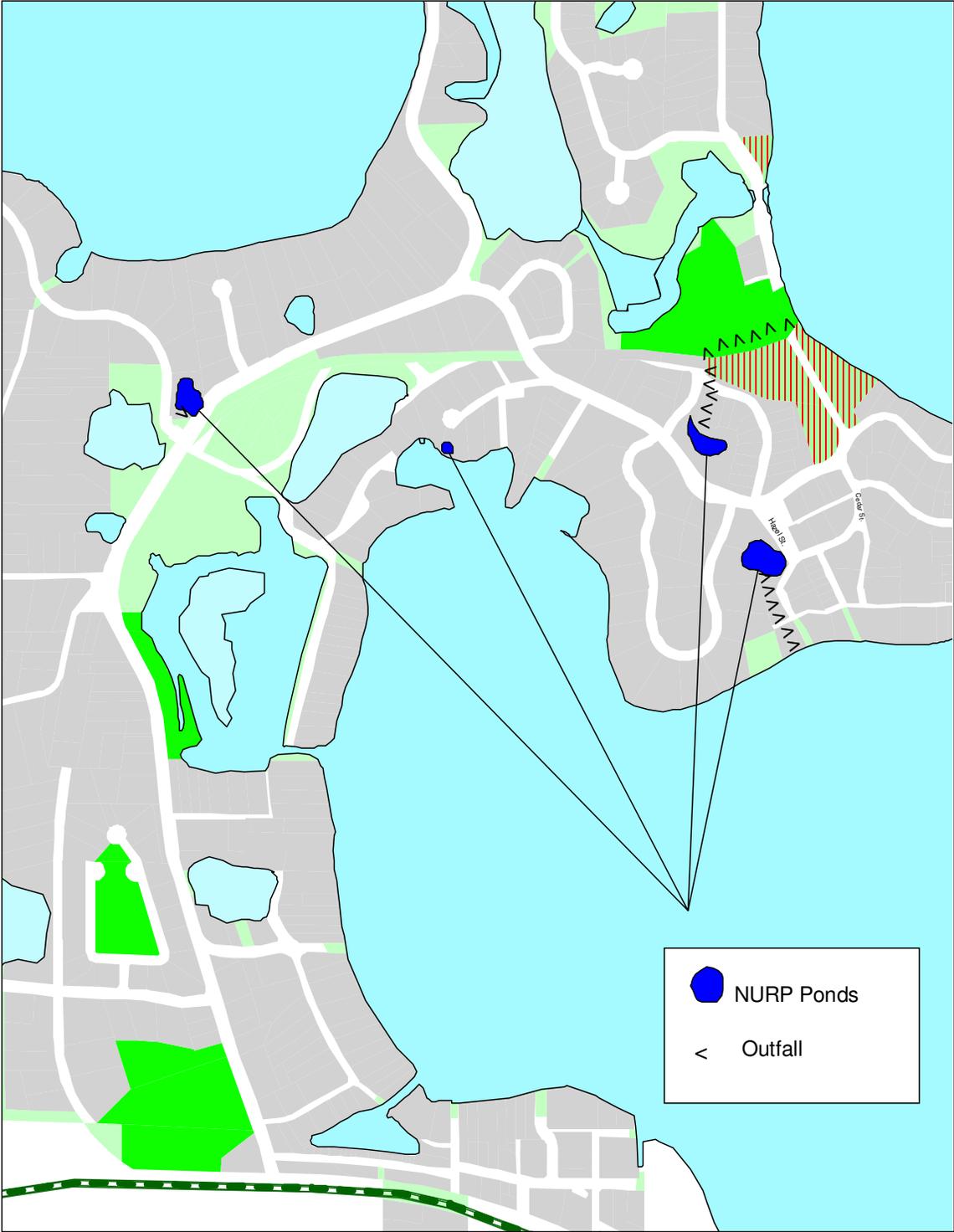
Wetlands in Minnesota are classified into eight types ranging from seasonally flooded basin or flat to bog. (Lagoons, as used in this chapter, refer to a water body that has or had an opening to Lake Minnetonka).

The wetlands function to slow down run-off, enhance water quality before entering the lake, lagoons, and water table and they provide scenic wetland habitats contributing significantly to diversity of the City's flora and fauna. The lagoons are highly valuable for all the reasons stated above and because they can or do provide access to Lake Minnetonka.

STORM WATER

The City has a natural storm water drainage system. A few locations have culverts under the street. Four storm water ponds are provided. Figure 14 shows the ponds and the known outfalls.

Figure 14: Existing Stormwater Ponds and Stormwater Outfalls



FLOOD INFORMATION

Information on the 100-year flood elevations has been provided by the Federal Emergency Management Act.

Since about 1980, the Federal Emergency Management Act and related information has been used to set minimum floor elevation for new construction, therefore, flooding of buildings has not been a problem. Some minor flooding (standing water on Woodpecker Ridge Road) has occurred twice: once during the 1990s and once in 2004. This issue was addressed by the Woodpecker Ridge Road improvement project completed in 2008.

LAND USE

A map of existing land use and other land use information is provided in Chapter 1, The Community.

WATER POLLUTION SOURCES

A total of 55.9% of land (345.67 acres) in the City is used for housing, parks, open spaces, other public spaces, or is vacant. Only 3.63% (22.46 acres) is used for commercial purposes and 12.32% (76.26 acres) is in right-of-way. No septic systems are in use in the City. Business uses are primarily office, retail, and service. The City's maintenance facility stores salt only during the winter months. Two of the three private marinas are connected to the City's sewer system.

ISSUES AND NEEDS

The City's water resource management issues and needs are listed and described below:

1. **Natural System** – Maintaining and protecting the City's natural drainage system is cost-effective and supports the City's vision and goals.
2. **City's Marina and Lagoons** – Water is attractive, it provides scenic beauty and an opportunity for unique active and pervasive recreation. The

City's marina could be expanded to provide lake access for residents not having lakeshore property. The lagoons can be aesthetically and functionally improved.

3. **Surface Water Quality** – The quality of the surface water and conditions in wetlands will be greatly affected by the amount of sediment and use of chemicals. Reducing phosphorus and erosion are important.

POLICIES

The last part of Goal 5 (in Chapter 2 – The Plan) states “...provide a natural drainage system that is harmonious with nature and the lake.”

The policies which follow are based on this goal, and the inventory, analysis, and identified issues and needs.

Policy 1 – Natural Drainage. Foster continuous preservation and enhancement of the City's natural drainage system.

Policy 2 – Phosphorus Reduction. Promote the reduction of phosphorus in the environment through education and administration of the City's ordinance.

Comment: The City adopted Ordinance 2000-3 that prohibits the use of lawn fertilizers that contain phosphates. (Exceptions are granted for newly established turf, areas that show low levels of phosphorous in soil tests, and natural or organic fertilizers that contain phosphorous, such as yard waste compost).

Policy 3 – Best Management Practices. In concert with the watershed district, promote and assist in the use and enforcement of best management practices including erosion and sediment control.

Comment: The City sweeps the streets during the spring, mid-summer, and fall. The City also has a recycling program.

Policy 4 – Floodplain Protection. Minimize potential losses of property and environmental degradation through coordinated enforcement of the spirit, intent, and regulations of the floodplain, shoreland, and wetland zoning districts.

Comment: The City has adopted Floodplain, Shoreland, and Wetland Ordinances.

Policy 5 – Dredging. Allow dredging to improve recreational, wildlife and fishery resources of surface water and to implement or maintain an existing legal right of navigational access. Sub-policies are:

- Allow maintenance dredging to remove harmful sediment.
- Encourage the use of mitigative measures to minimize the impacts of dredging on water quality.
- Utilize the joint Department of Natural Resources (DNR) and Lake Minnetonka Conservation District (LMCD) agreement regarding dredging on Lake Minnetonka.

Comment: The City may decide it is appropriate to remove some man-made barriers in the City’s wetland/lagoon system.

IMPLEMENTATION PROGRAM

In general, the City will continue to use MCWD’s regulatory, permitting and enforcement authority within Tonka Bay. The City will do the following:

1. **Phosphorus Fertilizer** – Inform the residents of the ordinance and promote its enforcement.
2. **Sweeping** – Sweep streets and parking lots at least twice a year.
3. **Best Management Practices** – Adopt a Best Management Practices Guide.
4. **Education** – The City will promote understanding of the phosphorus ordinance and the relationship between clean water and activities of the public.
5. **Ordinances** – Continue to use and apply the adopted floodplain, shoreland, and wetland ordinances.

Note: The City does not have any animal containment areas, feedlots, or hobby/recreational farms.

As part of the implementation program, the city will continue to update its Surface Water Management Plan (SWMP) in response to the recent revisions to the MCWD's latest plan and the required elements of the Metropolitan Council's 2030 Water Resources Management Policy Plan (WRMPP). Revisions to the City's SWMP are complete as of October of 2009; and are part of this comprehensive plan by reference as Appendix H.

Chapter 10: Implementation

Chapter 10 Sections

Introduction
Official Controls
Housing Implementation Program
Capital Improvements Programming

Figures

Figure 15: Zoning

Tables

None

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INTRODUCTION

The City of Tonka Bay 2030 Comprehensive Plan outlines a vision for future growth and development. The City recognizes that goals in this plan will only be realized through active commitment to the Plan by City officials and a continuing awareness of the Plan’s benefits to the community. To that end, each major component of this Plan contains a program of actions directed at fulfilling the vision, goals, policies, and the Plan. Portions of the land use, public facilities and transportation plan exist or could become a reality in the near future, while other parts may not occur for many years. Implementing some components is predicated on certain other components or conditions happening. Some of the Plan’s components may not be completely implemented by 2030.

OFFICIAL CONTROLS

The city currently has zoning controls in place over all properties within the community. Throughout the lifecycle of this plan, the City will be vigilant to identify existing roadblocks to desired development that may need to be addressed. Identified changes to official controls within this plan include:

<u>Official Control Change:</u>	<u>Completion Date:</u>
➤ Review of all existing ordinances to ensure compatibility with the 2030 Comprehensive Plan	2009
➤ Revise and update the City’s Surface Water Management Plan (SWMP) in response to the recent revisions to the MCWD’s latest plan, and the required elements of the Metropolitan Council’s 2030 Water Resources Management Policy Plan (WRMPP).	2009

In addition to the official control changes identified above, the City will continually review its local ordinances to ensure proper controls are in place to achieve the goals outlined in this plan. Furthermore, the City will continue to review and update this plan on a regular basis. Periodic amendments to the Plan may be initiated by citizens, land owners, and/or the City Council. All proposed Comprehensive Plan amendments require a Public Hearing.

Existing zoning designations in use within the community include the following:

R-1A: Single Family – The R-1A, Single Family Residential District is intended to provide for low density single family detached residential dwelling units and directly related, complementary uses.

R-1B: Single Family – The R-1B, Single Family Residential District is also intended to provide for low density single family detached residential dwelling units and directly related, complementary uses at a slightly higher density than the R-1A district.

R-2A: Two Family/Townhouse – The R-2A, Two Family/Townhouse District is intended to provide for a greater variety in housing styles including duplexes, double bungalows, townhouses and directly related complementary uses, while retaining an overall low density character.

R-3: Medium Density – The R-3, Medium Density Residential District is intended to provide for a greater variety in housing type by allowing medium density residential development at an overall density ranging up to seven (7) units per acre.

C-1: Limited Commercial – The C-1 Recreational and Limited Commercial District is intended to provide for lake-oriented commercial uses and low intensity, limited commercial activities.

C-2: General Commercial – The purpose of the C-2, General Commercial District is to provide for the establishment of commercial and service activities which draw from and serve customers from the entire community or region.

Figure 15 on the following page identifies the zoning district for all properties within the City.

HOUSING IMPLEMENTATION PROGRAM

An analysis of the City's existing housing stock and future needs (Chapters 2 & 3) indicated the City is on track to accommodate 680 households and a population of 1,650 by the year 2030. Additionally, the city will use all of its available tools to ensure the nine (9) additional affordable units required by the Metropolitan Council are also realized over that timeframe. Some strategies the City will seek to employ in the future include initiating a program to improve deteriorated or unimproved residential streets, making decisions which preserve residential quality throughout the community, restricting on-street parking as needed to protect neighborhood quality-of-life and traffic flows, and to consider incorporating new housing units into a redeveloped mixed-use Tonka Village Shopping Center.

CAPITAL IMPROVEMENTS PROGRAMMING

On a yearly basis, the City will review and revise a capital improvement plan outlining future expenditures needed to achieve the vision and goals outlined in this comprehensive plan. Appendix C details the City's current 5-year plan along with projected expenditures between now and 2028.

Chapter 11: Appendices

- A-1 – Well No. 1 Drilling and Pump Maintenance Log
- A-2 – Well No. 2 Drilling and Pump Maintenance Log
- B – Wells No. 1 and 2 Monitoring Data
- C – Capital Improvement Plan
- D – Emergency Telephone List
- E – Water and Sewer Agreement – Tonka Bay and Shorewood
- F – Water Regulations and Long Term Improvements
- G – City of Tonka Bay Water Conservation Efforts
- H – Surface Water Management Plan

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Appendix A

Well No. 1 Drilling and Pump Maintenance Log

Well No. 2 Drilling and Pump Maintenance Log

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Appendix B

Wells No. 1 and 2 Monitoring Data

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Appendix C
Capital Improvement Plan

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Appendix D
Emergency Telephone List

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Appendix E

Water and Sewer Agreement – Tonka Bay and Shorewood

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Appendix F

Water Regulations and Long Term Improvements

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Appendix G

City of Tonka Bay Water Conservation Efforts

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Appendix H

Surface Water Management Plan

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