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# Water Treatment and Water Infrastructure in Minnetrista 2011 - 2021

Presented July 19, 2021



# Timeline

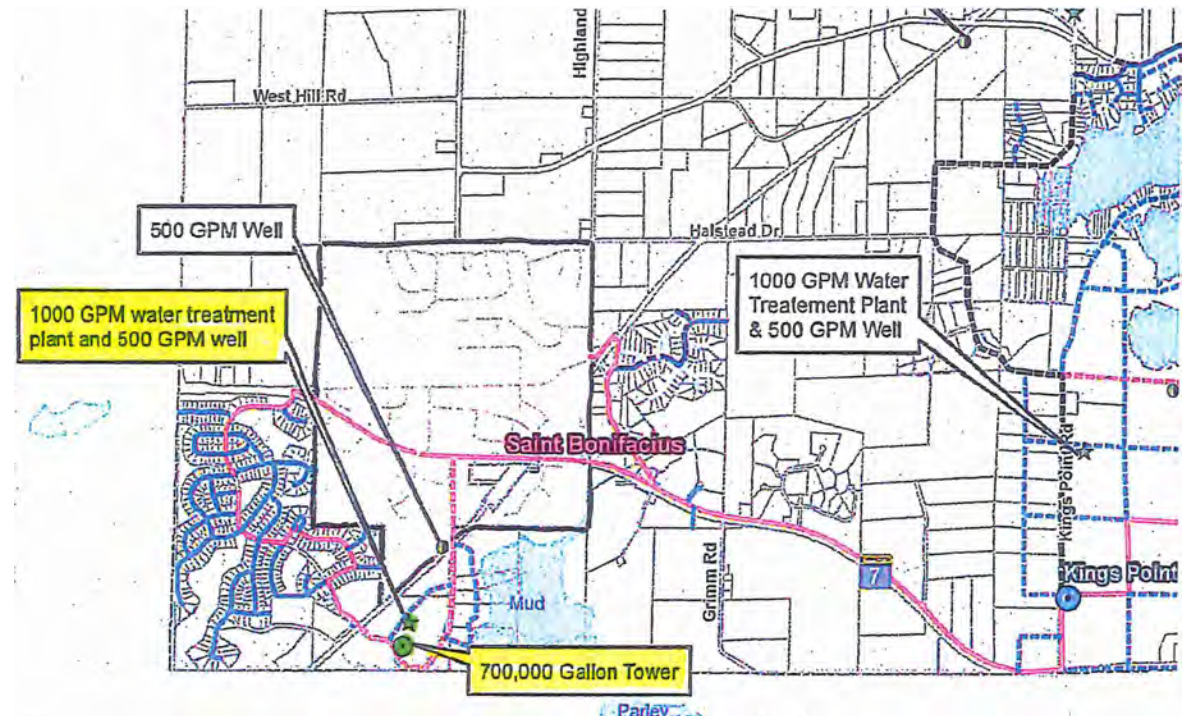
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- ▶ Timeline will include major mileposts from 2011 to 2021
- ▶ Many items omitted in the essence of time (i.e., negotiations to acquire easements for water main connection, costs to buy land/sites for water treatment plants and water tower, engineering costs for feasibility studies, etc.)

# Timeline

## ► July 2011

Comprehensive Water Plan Update presented to Minnetrista City Council on July 7, 2011, shows a water treatment plan, well, and water tower in southwest part of Minnetrista. Also shows Future WTP on Kings Point Rd.



# Timeline

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## ▶ June 2013

Minnetrista City Council hears WSB Engineer presentation on Water Treatment Facility Feasibility Study. Council directs staff to go forward with:

- ▶ Proposals for Pilot Study with related costs
- ▶ A rate structure study to determine future rates needed for financing water treatment facilities

# Timeline

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## ▶ July 2013

City Council authorizes Pilot Study discussed at June 2013 Council meeting, asking Engineer to:

- ▶ Develop several alternatives to meet projected 2030 water systems demands
- ▶ Determined that a 'stand-alone' North system and a 'connected' South and Central system is best course of action, phasing in implementation

# Timeline

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## ▶ July 2013

- ▶ **North system:** Sufficient existing capacity and storage - can support itself
- ▶ **South/Central system:**
  - Needs capacity and storage overall; additional capacity needed for firefighting
  - Of the two systems, the south system receives the most complaints about drinking water quality

# Timeline

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## ▶ December 2013

City Council accepts completed Pilot Study and authorizes WSB Engineering to design two (2) gravity filtration water plants:

- North Water Plant - 500 gpm
- South Water Plant - 1,000 gpm

# Timeline

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## ▶ February 2014

Unbeknownst to City Staff and some City Council members, a Councilmember works alone and brings forth a Value Engineering Study from another engineering firm (Bolton & Menk)

- WSB contract for final design is suspended
- Value Engineering (VE) timeline created with Bolton & Menk



# Timeline

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## ▶ February 2014

Value Engineering study takes place

## ▶ March 2014

- Bolton & Menk presents preliminary results of VE study to Council
- Based on VE study discussed in Council Work Session - Council wants to explore Reverse Osmosis for a centralized water treatment plant option
- WSB removes their firm from the process

# Timeline

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## ▶ November 2014

- Council receives updated Bolton & Menk design report for a \$19.5M - \$21.5M centralized water treatment facility to be located east of Minnetrista Public Safety facility

## ▶ December 2014

- Council stops project (5-0 vote) due to looking at escalating costs with having a centralized plant

# Timeline

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## ▶ January 2015

- New City Council seated and begins re-examining the issue

## ▶ February 2015

- Council approved a scope of services to authorize staff to prepare an RFP for city water system improvements
- Search for a suitable water tower site location begins

# Timeline

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## ▶ April 2015

- Eight (8) firms solicited and six (6) firms submit RFPs for the following projects and infrastructure:
- S.E.H. chosen. Design, bidding, and construction services begin for:
  - South-Central Water Main connection
  - North Water Treatment Plant
  - South Water Treatment Plant
  - Southwest area Water Tower

# Timeline

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## ▶ July 2016

- South-Central Water Main connection completed at a total cost of about \$3.0M, including all ROW purchases

## ▶ December 2016 & February 2017

- North Water Treatment Plant (December 2016) and South Water Treatment Plant (February 2017) come online at a total cost of about \$9.0M for the two plants

# Timeline

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## ▶ Delay in Finding Water Tower site location

- Difficulty in finding a location for the new Southwest Water Tower
- Multiple sites explored over the years:
  - Maas property, 9200 Towns Edge Rd., wanted to buy 1 acre of 10 acre site, went off the market, was listed at \$400k
  - Thurk property, 9300 Hwy 7, 80 acre site in Ag Preserve, unavailable until 2022-23
  - Hunter's Crest HOA outlot, 3615 Hunters Trail, 2.76 acre site

# Timeline

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## ▶ Delay in Finding Water Tower site location

### ➤ Multiple sites explored (continued):

- Hunters Pass property, 4655 Co Rd 92 N., previous Klinkner property, now an LLC., Owner would not discuss selling
- Lisle Park, 4600 Hunters Trail, park is 15.5 acres, looking at site in NE corner for water tower
- Hunters Crest Outlot D, owned by Commerce Bank, Purchase agreement for \$220k made between City and Bank; legal issues and resident objection mostly derailed this purchase by the City

# Timeline

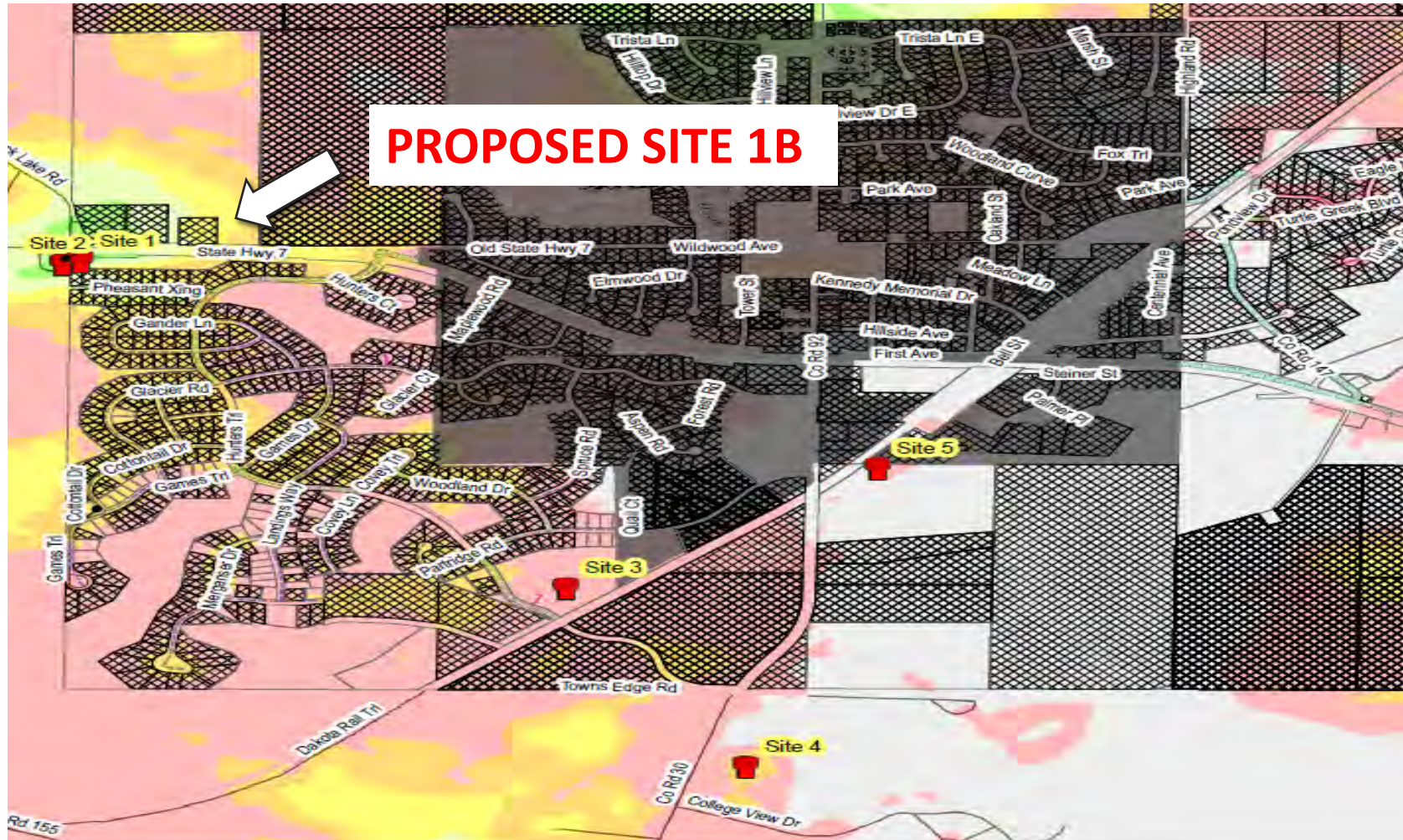
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## ▶ Delay in Finding Water Tower site location

- Purchase of site at 9400 Hwy 7 approved by City Council at April 1, 2019, City Council meeting. Two (2) acre site costing \$100k closed on in June 2019
- A 27-month total time water tower construction project begins (20 months construction and a 7-month winter break from November 1, 2020 to May 31, 2021)
- Water Tower will be online at the end of October 2021 at a total cost of about \$2.5M



# Water Tower Site Options



# Water Tower Site Options



# Water Tower Site Options

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**Table 1**  
**Option A - Water Tower Site Option Costs**

<b>Location</b>	<b>Req'd Tower Height (ft)</b>	<b>Water Main Connection Length (ft)</b>	<b>Water Tower Construction Cost</b>	<b>Water Main Construction Cost</b>	<b>Total</b>
Site 1	120	2250	\$2,127,500	\$517,500	<b>\$2,650,000</b>
Site 1B	156	1100	\$2,202,250	\$255,000	<b>\$2,460,000</b>
Site 2	110	2400	\$2,070,000	\$552,000	<b>\$2,620,000</b>
Site 3	192	500	\$2,415,000	\$115,000	<b>\$2,530,000</b>
Site 4	156	3000	\$2,202,250	\$690,000	<b>\$2,890,000</b>
Site 5	200	2500	\$2,458,125	\$575,000	<b>\$3,030,000</b>

*Source: Chicago Bridge & Iron, Local bid history, includes 15% for Engineering fees*

# Water Tower Site Options

Table 2  
Option A - Site Evaluation

	Height (ft)	Cost	Fire Flow	Functional Hydraulics	Service Area Proximity (Redundancy)	Land Availability	Altitude Valve Required at Kings Point	Close Proximity to 12" Trunk Main
<b>Site 1</b>	120	\$2,127,500	X	X	X		X	
	Advantages: Remote Visual Location, Short tower height							
	Disadvantages: Land may be challenging to acquire (owned by HOA)							
<b>Site 1B</b>	156	\$2,202,250	X	X	X	X	X	X
	Advantages: Remote Visual Location, Reasonable Tower Height							
	Disadvantages:							
<b>Site 2</b>	\$110	\$2,620,000	X	X	X		X	
	Advantages: Remote Visual Location, Short tower height							
	Disadvantages: Land lies in neighboring township and county.							
<b>Site 3</b>	192	\$2,530,000	X	X	X	X	X	X
	Advantages: Land already owned by City							
	Disadvantages: Visual impact to City Park							
<b>Site 4</b>	156	\$2,890,000	X	X	X		X	
	Advantages: High land elevation, potential mutual benefit with college.							
	Disadvantages: Land lies in neighboring township and county.							
<b>Site 5</b>	200	\$3,030,000	X	X			X	
	Advantages: Distant visual proximity							
	Disadvantages: Hydraulics will be limited until water main loop is installed							

# Water Tower Site Selected

9400 Hwy 7

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Approaching from West



Viewed Directly from Hwy 7



Approaching from East

# Water Tower Site



## SW Water Tower

\* Left picture on July 7, 2021

\* Right picture on July 12, 2021

Bowl being constructed in front of tower

# Overall Cost Comparisons

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## ▶ Original Plan - Pre 2015 [\$24.0 million and growing]

- Centralized Water Treatment Plant: \$19.5 - \$21.5 Million
- Right of Way acquisition - UNKNOWN - but expensive
- New Water Tower: \$2.5 Million

## ▶ Current Plan [\$14.5 million]

- Connection of South-Central Water Systems: \$3.0 Million
- Two de-centralized Water Treatment Plants: \$9.0 Million
- New Water Tower: \$2.5 Million