



Village of Maple Park

302 Willow Street ♦ P.O. Box 220 ♦ Maple Park, Illinois 60151

Village Hall: 815-827-3309
Fax: 815-827-4040
Website: <http://www.villageofmaplepark.org>

INFRASTRUCTURE COMMITTEE MEETING AGENDA
TUESDAY, JANUARY 14, 2020
Maple Park Civic Center
302 Willow Street, Maple Park, IL
7:00 p.m.

- 1. CALL TO ORDER / ESTABLISHMENT OF QUORUM**
- 2. PUBLIC COMMENTS** – *Any resident wishing to address the Board may do so according to the Rules of Public Comment and should register with the Village Clerk prior to the meeting.*
- 3. APPROVAL OF MEETING MINUTES**
 - December 10, 2019
- 4. REVIEW OF CURRENT OPERATIONS**
- 5. VILLAGE WORK AREAS**
 - Revised Map and Area Definition
 - Discussion of Work to be Completed in FY21
- 6. WATER TOWER(S)**
 - Tank Inspection
 - Tank Type and Tank Location
- 7. PROJECT LIST STATUS**
 - Review List
- 8. FIVE-YEAR CAPITAL IMPROVEMENT PLAN AND FY21 BUDGET**
 - Review CIP
 - Discuss FY21 Budget and Work Orders for Washington/Pearl/Charles
- 9. OTHER ITEMS FOR DISCUSSION**
 - Vendor Response Issues
 - Follow-Up on Village Hall Concerns
- 10. ADJOURNMENT**

Committee Members:

Trustee Dries, Chair
Trustee Harris
Trustee Higgins
Trustee Rebore



Village of Maple Park

302 Willow Street ♦ P.O. Box 220 ♦ Maple Park, Illinois 60151

Village Hall: 815-827-3309
Fax: 815-827-4040
Website: <http://www.villageofmaplepark.org>

INFRASTRUCTURE COMMITTEE MEETING MINUTES TUESDAY, DECEMBER 10, 2019 Maple Park Civic Center 302 Willow Street, Maple Park, IL 7:00 p.m.

1. CALL TO ORDER / ESTABLISHMENT OF QUORUM

Chairman Dries called the meeting to order at 7:00pm.

Acting Village Clerk Terri D'Amato called roll and the following committee members were present: Trustee Harris, Trustee Higgins, Trustee Rebone, Chairman Dries.

Also present were Village Administrator Dawn Wucki-Rossbach, and Public Works Director Lou Larson.

2. PUBLIC COMMENTS – *Any resident wishing to address the Board may do so according to the Rules of Public Comment and should register with the Village Clerk prior to the meeting.*

None heard.

3. APPROVAL OF MEETING MINUTES

- October 8, 2019
- November 12, 2019

Motion by Trustee Higgins with 2nd by Trustee Rebone to approve the minutes from October 8, 2019 and the minutes from November 12, 2019. Motion carried by voice vote.

4. AREA MAP – REVIEW AND DISCUSS PROPOSED AREA DEFINITION MAP

Village Administrator Wucki-Rossbach presented proposed map that breaks down the Village into five (5) infrastructure work areas that aids and assists in scheduling annual maintenance and capital improvement projects. Committee consensus was to move forward with the proposed map when scheduling capital improvements.

5. PROJECT LIST

Administrator Wucki-Rossbach distributed an updated Infrastructure Project List to all committee members. Discussion regarding the specific items listed below:

- Status of Valve, Fire Hydrant and Water Heater Replacements
New fire hydrant to be installed at Maple and Broadway hopefully by Monday, December 16th.
- Status of Well House Demolition
PW Director Larson still hopeful that demolition will still be completed this year. All permits have been issued and ComEd and Nicor have also cleared demolition.
- Status of Village Hall HVAC
PW Director Larson has yet to hear back from J and R Herra. Hopes to have a response by Friday, December 13th. Discussion about also possibly updating windows, bathrooms, and possibly electrical service.
- Review Dixon Engineering, Incorporated Inspection Report on Elevated Water Storage Tank
Administrator Wucki-Rossbach listed all the recommendations, prioritized accordingly, and included them to the Capital Improvement Plan. Trustee Rebene also requested safety recommendations be included in project plan.

6. FIVE-YEAR CAPITAL IMPROVEMENT PLAN AND FY2021 BUDGET

- Review List
- Discuss Five-Year Capital Items for FY2021
- Public Works Budget Needs for FY2021

Administrator Wucki-Rossbach reviewed the Capital Improvement Project list with the committee, and classified identified projects as annual and long-term projects.

Priority projects were identified as Water Tower repairs, Pearl Street repairs, and scoping the system in Zone 1.

Trustee Higgins expressed concern about additional road projects that also need to be included in the next budget talks. Administrator Wucki-Rossbach will obtain the list of streets to be scheduled for repair from Village Engineer Jeremy Lin. Pearl Street is next on the project list, but no deadline has been received. Trustee Dries requested deadline to be prior to next Infrastructure meeting, as well as ensuring that MFT funds are principally utilized for road projects.

7. REVIEW MUNICIPAL CODE:

- 12-3-21 – Maintenance of Stormwater Management Systems – Homeowners Associations and Detention Pond Maintenance

Administrator Wucki-Rossbach reviewed memo prepared for committee regarding stormwater management systems, and reviewing the Stormwater Management Review Checklist.

8. OTHER ITEMS FOR DISCUSSION

9. ADJOURNMENT

Having no further business before the committee, Chairman Dries asked for a motion to adjourn. Motion by Trustee Higgins with 2nd by Trustee Rebone. Motion carried with a voice vote.

Meeting adjourned at 8:38 pm.

Terri D'Amato
Acting Village Clerk

Committee Members:
Trustee Dries, Chair
Trustee Harris
Trustee Higgins
Trustee Rebone

**VILLAGE OF MAPLE PARK
2019 WATER PUMPAGE**

<u>Month</u>	<u>Well 4</u>	<u>Well 5</u>	<u>Total</u>
Jan-19	400,100	2,600,700	3,000,800
Feb-19	674,300	2,104,600	2,778,900
Mar-19	1,358,300	1,222,000	2,580,300
Apr-19	776,700	1,769,200	2,545,900
May-19	1,251,100	1,366,800	2,617,900
Jun-19	1,182,900	1,982,900	3,165,800
Jul-19	960,000	2,443,000	3,403,000
Aug-19	1,418,500	1,673,600	3,092,100
Sep-19	701,200	1,838,800	2,540,000
Oct-19	1,434,800	1,096,400	2,531,200
Nov-19	1,175,100	1,376,500	2,551,600
Dec-19	1,098,800	1,488,900	2,587,700
Average	1,035,983	1,746,950	2,782,933

VILLAGE OF MAPLE PARK
WASTEWATER TREATMENT PLANT CAPACITY SUMMARY
2019 CURRENT

WWTP FLOW SUMMARY			
	<u>Month</u>	<u>Avg Daily Flow (mgd)</u>	<u>Peak Daily Flow (mgd)</u>
	Jan-19	0.125	0.240
	Feb-19	0.135	0.250
	Mar-19	0.149	0.161
	Apr-19	0.150	0.210
	May-19	0.167	0.280
	Jun-19	0.164	0.246
	Jul-19	0.171	0.290
	Aug-19	0.116	0.132
	Sep-19	0.195	0.225
	Oct-19	0.200	0.250
	Nov-19	0.182	0.238
	<u>Dec-20</u>	<u>0.154</u>	<u>0.180</u>
	Average	0.159	0.225
3 Low Flow Month Avg		0.125	

CAPACITY SUMMARY	
Treatment Plant Capacity (P.E.)	2,500 P.E.
Treatment Plant Capacity (gpd)	250,000 gpd
3 Lowest Flow Month Average	125,333 gpd
Reserve Capacity until 100% Capacity	91,000 gpd
Percent Capacity Remaining	63.60%
Approximate No. of Homes	260
<u>IEPA Triggers</u>	
IEPA Critical Review - 80%	200,000 gpd
Reserve Capacity until Critical Review	74,667 gpd
Approximate No. of Homes	213 gpd
IEPA Restricted Status - 90%	225,000 gpd
Reserve Capacity until Restricted Status	99,667 gpd
Approximate No. of Homes	285
Current Reserve Capacity (until Restricted Status)	997 P.E.
Capacity Reserved *	827 P.E.
Available Capacity	170 P.E.

VILLAGE OF MAPLE PARK
WORK AREA BOUNDARY DEFINITIONS

Area 1

North: Washington Street
South: Railroad Tracks
East: North Broadway Street
West: West County Line Road

Area 2

North: Railroad Tracks
South: Maple Street
East: Eastern Village of Maple Park Municipal Border
West: West County Line Road

Area 3

North: Elan Court
South: West Ashton Street
East: Elizabeth Street
West: South Huntley Street

Area 4

North: Willow Street
South: West Ashton Street
East: Eastern Village of Maple Park Municipal Border
West: Elizabeth Street

Area 5

North: Northern Village of Maple Park Municipal Border
South: West Ashton Street
East: South Huntley Street
West: Western Village of Maple Park Municipal Border

Area 6

North: Northern Village of Maple Park Municipal Border
South: Maple Park Road
East: County Line road
West: Pritchard Road



Village of Maple Park

302 Willow Street ♦ P.O. Box 220 ♦ Maple Park, Illinois 60151


Village Hall: 815-827-3309

Fax: 815-827-4040

Website: <http://www.villageofmaplepark.com>

MEMORANDUM

TO: Infrastructure Committee

FROM: Village Administrator Dawn Wucki-Rossbach 

DATE: January 9, 2020

SUBJECT: WATER STORAGE TANK SIZING AND LOCATION

BACKGROUND

The Village Engineer has finalized the replacement water storage tank analysis. The analysis addresses fire flows by using 2,500 gpm at a two (2) hour duration or 300,000 gallons. The use of 2,500 gpm in the calculations is standard for a community the size of Maple Park. Further, the analysis provides a comparison of an elevated storage tank versus a ground storage tank, the cost estimate for each tank type and a recommendation on the type of tank and the location of the tank.

When the Village moves forward on the construction of the new tank, the Village Board should discuss whether or not the existing elevated water storage tank should be demolished or left in service.

RECOMMENDATION

The Village Engineer is recommending an elevated water storage tank at an estimated cost of \$1,825,000. There is no cost for land because the Village owns the land where the proposed tank is to be located.

Prior to having our Risk and Resilience Assessment completed on our water and wastewater facilities, Staff is recommending, in order to address potential hazards and ensure a safe water supply, that the following items also be included in construction cost estimates as we move closer to bidding the project:

1. Warning signage to trespassers
2. Perimeter fencing to discourage unauthorized access
3. Installation of a security system that monitors the the site internally and externally

Staff will work with the Village Engineer to obtain cost estimates for the security system and perimeter fencing.

Attachment

Attachment A – Water Storage Tank Sizing Requirements

Water Storage Tank Sizing Requirements

Water storage is necessary for any type of water system to ensure supplemental supply when wells are operating during peak conditions, fire flow events, and emergency loss of supply. The Village has one (1) existing elevated storage tank with a nominal volume of 150,000 gallons. The Village has realized that the existing volume is not sufficient for the existing population, and the purpose of this memo is to outline the sizing and options for future storage needs and expansion.

Water System Calculations

The water system calculations are based on the current/future population and the average, maximum and peak hourly demand of the water system. Considering just the existing population, the water system calculations for the Village are as follows.

Existing Population = 1,325

Average Day Demand (ADD) @ 100 gpd/cap = 132,500 gal/day

Max Day Demand (MDD) @ $1.5 \times \text{ADD}$ = 198,750 gal/day

Peak Hour Demand (PHD) = $2.0 \times \text{MDD}$ = 397,500 gal/day

Average Day Demand (ADD) @ 85 gpd/cap = 112,625 gal/day

Max Day Demand (MDD) @ $1.5 \times \text{ADD}$ = 168,938 gal/day

Peak Hour Demand (PHD) = $2.0 \times \text{MDD}$ = 337,875 gal/day

Water Storage Tank Calculations

Sizing a water storage tank can follow various engineering methods and practices. In our experience for communities of this size, the water storage tank should be sized to provide adequate fire protection, equalizing storage, and an amount of emergency storage.

A. Fire Protection Storage

In addition to providing water for normal domestic or commercial use for the community, a water system must also provide water for fire protection. Fire protection storage is typically provided at a high flow rate for short periods of time. Some commercial developments may require higher fire flow demands depending on the size and type of construction. The table below shows typical fire flow requirements for specific categories.

<u>Building Type</u>	<u>Fire Flow</u>
Residential	1,500 gpm
Commercial/Industrial	2,500 gpm
School/Institutional	3,500 gpm

For the purpose of this study, we have used a fire flow of 2,500 gpm at 2 hours duration, or 300,000 gallons. Note that this would also cover a residential fire flow of 1,500 gpm at 3 hours duration (270,000 gallons).

B. Equalizing Storage

Equalizing storage or operational storage, is the volume required between peak demand periods and the well supply capacity. Equalizing storage balances the supply and demand during daily operations and we typically estimate this volume at 25% of MDD.

C. Reserve Storage

Reserve storage provides water during an emergency when the water supply wells are out of service or there is an interruption to the supply. Examples are power outages, equipment failures, or water main breaks. Reserve storage is estimated at 50% of the equalizing storage volume.

The following table shows a summary of the water storage calculations for the Village's existing population and projected population in future years.

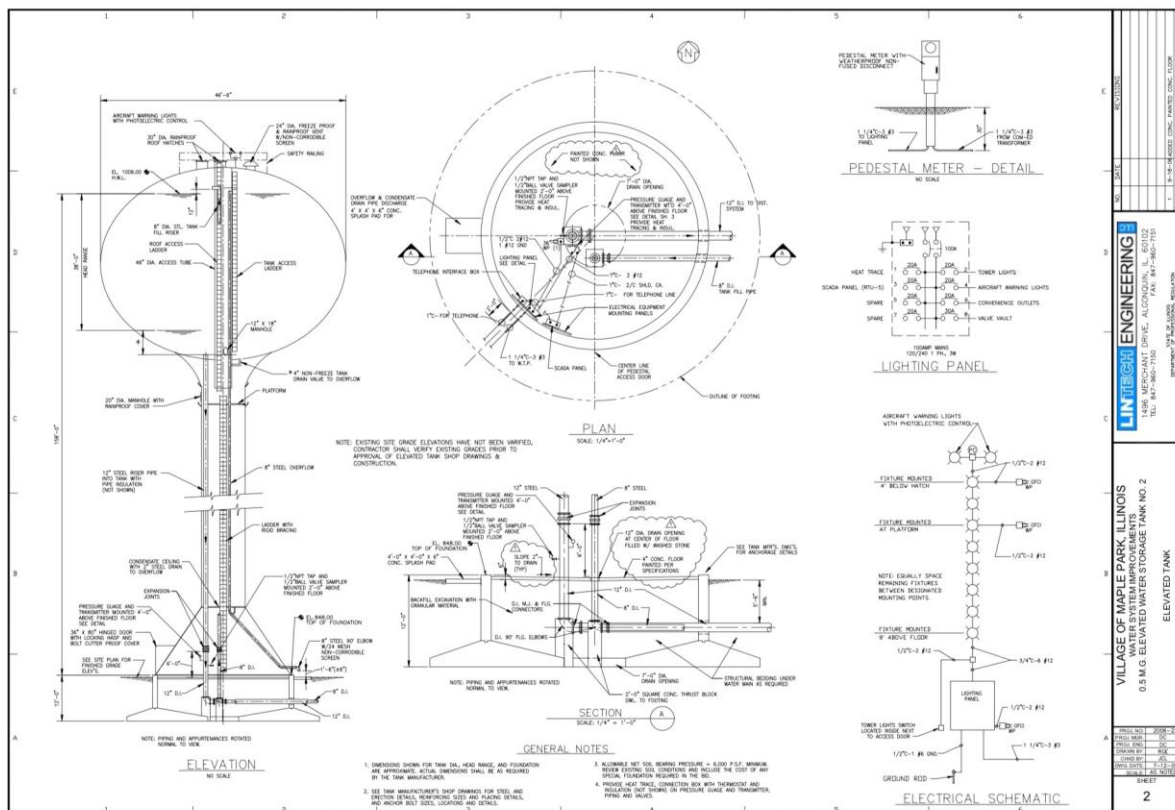
	Existing	Year A	Year B	Year C	Year D
Population (P.E.)	1,025	2,500	4,000	5,000	6,000
Max Day Demand (gal)	153,750	375,000	600,000	750,000	900,000
Equalizing Storage (gal)	38,438	93,750	150,000	187,500	225,000
Emergency Storage (gal)	19,219	46,875	75,000	93,750	112,500
<u>Fire Storage (gal)</u>	<u>300,000</u>	<u>300,000</u>	<u>300,000</u>	<u>300,000</u>	<u>300,000</u>
Total Storage Req. (gal)	357,656	440,625	525,000	581,250	637,500
Existing Storage (gal)	150,000	150,000	150,000	150,000	150,000
Additional Storage Req. (gal)	207,656	290,625	375,000	431,250	487,500
A. New Storage Tank (with existing)	400,000	400,000	400,000	400,000	500,000
B. New Storage Tank (replace existing)	400,000	450,000	550,000	600,000	650,000

D. Types of Storage Tanks

Elevated Storage

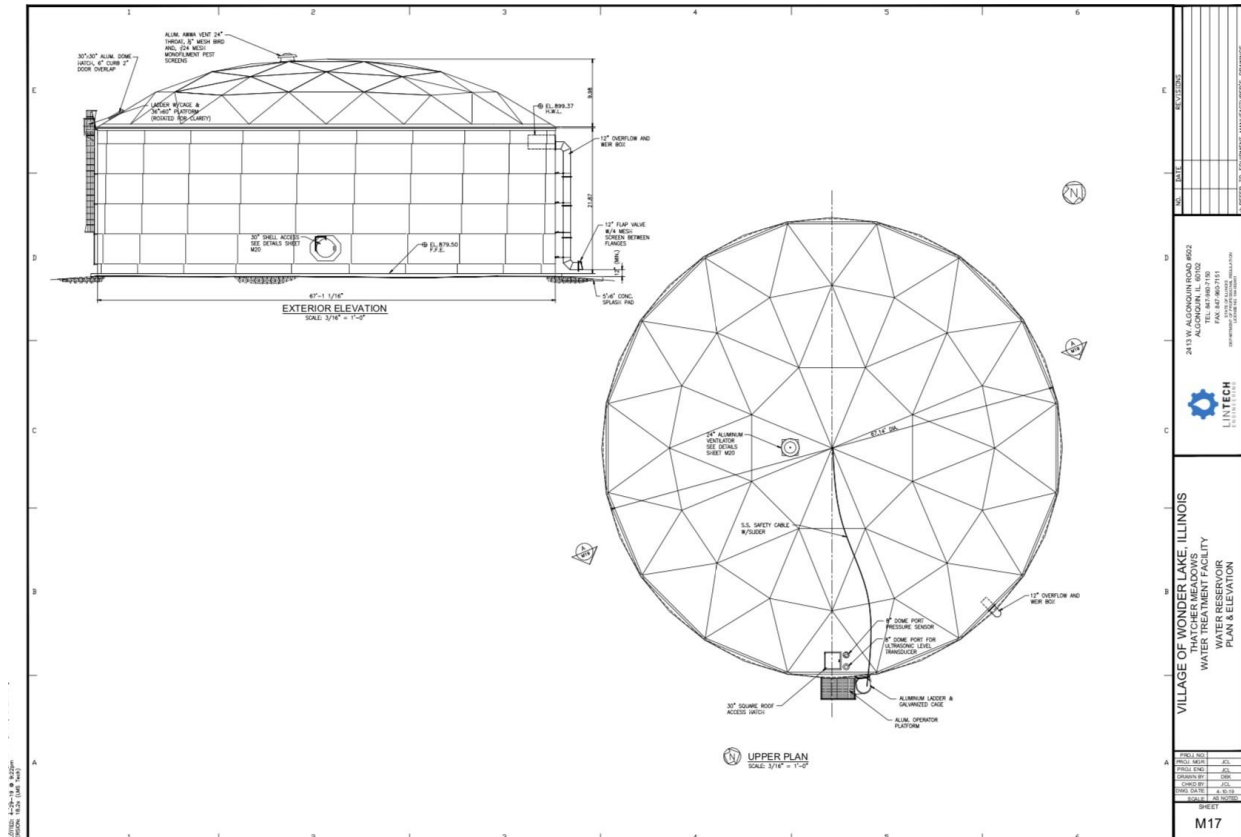
The Village's existing storage tank is an aboveground steel elevated storage tank. Water from the water supply wells is pumped through the treatment system and into the elevated tank to a fill level, at which point the wells will stop pumping. As water is used in the system, the level in the tank decreases and eventually a low-level set point will signal the wells to turn on to fill the tank. The height of the elevated tank provides system pressure to push water throughout the distribution system.

Elevated tanks do not require daily maintenance but should be inspected from time to time as the coating and paint can deteriorate. The re-painting or steel blasting of the tank is a major maintenance item throughout the life of the structure.



Ground Storage

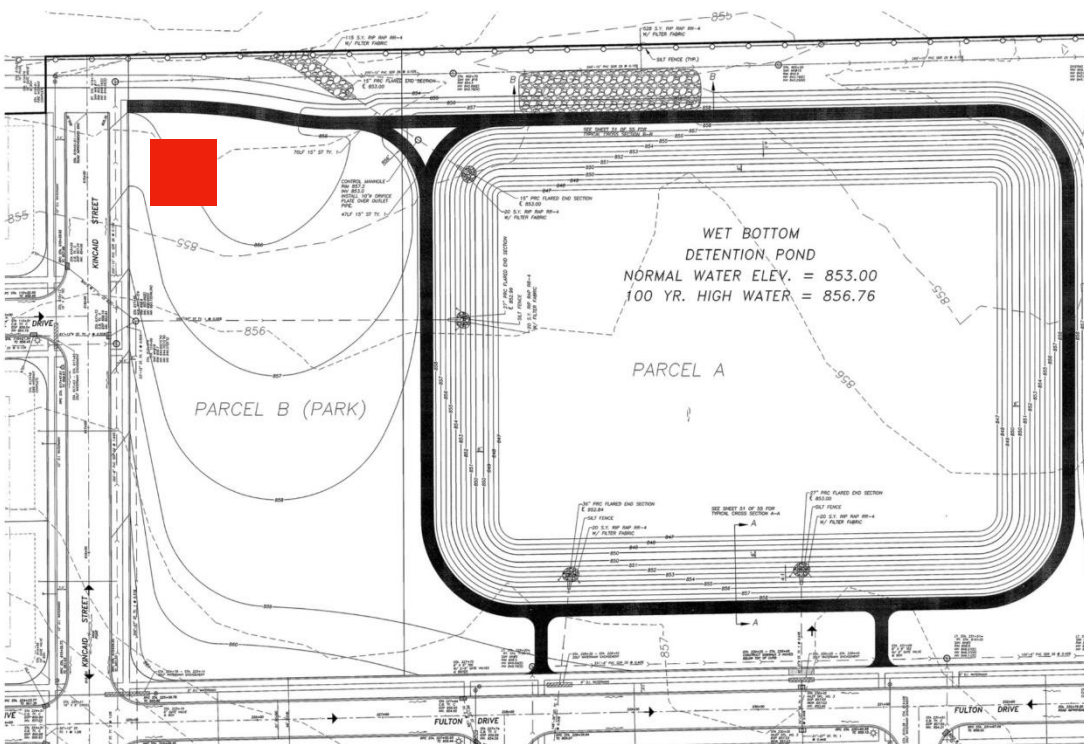
Water storage can also be provided with an underground or at-grade storage tank constructed of steel or concrete. High service pumps deliver water out of the ground storage tank to supply water to the system based on system pressure. Ground storage tanks and the pumping system need to be maintained, but can offer lower capital cost.



E. Tank Siting and Water Distribution System

A new elevated storage tank and water treatment plant was once planned on developer property near Pritchard Rd and Maple Park Rd. The location was ideal since it provided water storage near new development and was going to be connected with new water main as part of the future growth. Similarly, once planned future growth to the south of IL-Rt 38 would have reserved a site for water storage.

We have evaluated potential sites for a new elevated tank or storage reservoir within the Village without consideration of future development as that would required land acquisition. In our opinion, the most logical site for a new water storage tank is in the Heritage Hills Phase 3 park. The park is Village owned and has clear open space to accommodate any type of water storage facility. In addition, the Village has a 12" water main near the park site on Kincaid St which would serve as the main transmission line connecting to the 10" water main on DeKalb Dr. This site would require the least amount of water main connection improvements and would be located on Village property furthest away from the existing elevated tank, as not to overlap the influent of the existing tank. The only disadvantage of this parcel is it sits approximately 10 feet lower in elevation than property along IL-Rt 38.



F. Cost Estimate

We have prepared a preliminary budget cost estimate for both an elevated storage tank and ground storage reservoir and pumps for comparison purposes.

<u>ITEM</u>	<u>COST</u>
A. Elevated Storage Tank	
400,000-gallon steel waterspheroid tank	\$1,675,000
Excavation and site restoration	\$15,000
Altitude valve	\$25,000
Telemetry	\$25,000
Electrical service	\$5,000
Watermain connection to 12" on Kincaid	\$25,000
Engineering and construction services	<u>\$55,000</u>
Total	\$1,825,000
B. Ground Storage Reservoir	
400,000-gallon steel ground storage reservoir	\$950,000
Two (2) high service pumps	\$60,000
Piping and valves	\$150,000
Pump building	\$175,000
Electrical controls & instrumentation	\$85,000
Excavation and site restoration	\$50,000
Watermain connection to 12" on Kincaid	\$25,000
Emergency generator	\$75,000
Electrical service	\$35,000
Engineering and construction services	<u>\$115,000</u>
Total	\$1,720,000

G. Recommendations

The cost comparison of an elevated tank and ground storage tank are very similar. The ground storage tank has more components such as high service pumps and a pump building. Both options have their own operation and maintenance costs over the years.

Due to the existing nature of the Village's water storage and treatment control system, we are recommending a new elevated storage tank to be constructed to provide the necessary storage as previously discussed. A new elevated tank can be easily added to the existing water system without major control and operational changes. We do recommend the addition of an altitude valve at the new elevated tank and the existing elevated tank. An altitude valve opens and closes to allow water in and out based on operational setpoints. This will also prevent the existing elevated tank from overflowing while the new tank is being filled to capacity.

The recent inspection of the existing elevated tank did not reveal any major defects or maintenance concerns. The inspection did recommend sand blasting and new coating of the exterior in the next 5 years as needed.

In the future as the Village expands whether it be residential or commercial growth, we would look to recommend additional storage in the form of a ground storage tank on developer property. Demolition of the existing 150,000-gallon elevated tank could be considered at that time.

Village of Maple Park - Infrastructure Project List			
Current Operations			
Date	Item	Status	Comments
12/19	Waste Water Capacity	36.40%	~70% level

Waste Water - Open			
Annual	Sludge Check	Maintenance	Last completed - 06/19
5/19	In Flow Meter	Installed	Wire arrived, electrician out 10/09 to install
8/19	Grounds / Property Maintenance	Discussion	Landscaping needs / Lou will review, some clean up done

Lift Stations - Open			
----------------------	--	--	--

Stormwater - Open			
-------------------	--	--	--

Water Mains - Open			
4/20	Road Patch - Water main break	Redo Pavement Patch	Road needs additional repair - Road to be included with Center

Lintech Projects - Open			
4/20	Center Street - Rebuild (budgeted)	Pavement/Grading	Gravel completed 12/06/19; Pavement in Spring 2020

Public Works Projects - Open			
5/19	Old well house on Main	Approved - 08/19	JULIE locates 01/09/20, contractor contacted to schedule demolition
5/19	Street Repairs	As needed	Pothole repair, gravel replacement
5/20	Curb repair	Done for season	Needs to be reviewed/identify
5/20	Sidewalk repair	Done for season	Needs to be reviewed/identify
5/20	Trees	Budget Discussion	Blvd trees, dead and missing, replacement plan? 212 High 12/16/19
5/20	Memorial Park	Done for season	Gravel replacement for path

Public Works - Property Maintenance Issues - Open			
5/19	County Line	Demo/Repair	Pending walk through of house, demo permits soon for barns, exterior of property needs cleaned, fence falling down and tree
5/19	Main Street	Old Village Hall	Roof has been shingled; Staff waiting for a call for an inspection.
1/20	Heritage Hills	Property Maintenance	Village received response. Waiting on decision on how to respond.

Village Hall - Open			
5/19	Heating	In Progress	Need a proper zone plan for future needs / replace/remove boiler. Lou will reach out to vendor and walk building with JP and Lou
5/19	Maintenance	Pending	Identify needs
6/19	Lintel repairs	Timeline - Budget item	West side of the building needs to be completed.

Committee Items - Open			
9/19	GIS Project	Ongoing	Intergovernmental Agreement with Kane County

Water Tower - Closed			
5/19	New heaters	Completed	4 new heaters installed in the well house
5/19	New Control Panel	Completed	Working normal, alarm notification repaired also. Wiring damaged by birds and squirrels. Alarms received by 4 people
7/19	Control Valves	Completed	Replaced and tested
5/19	Painting of the tower	Timeline - Budget Item	Included in the Capital project list. - 10/19
10/19	Tank Inspection	Completed	Report issued 10/31/19

Waste Water - Closed			
6/19	Preventive Maintenance	Completed	Oil change in blowers / pipe replacement
7/19	Sludge Check	Completed	Sludge check was completed - 06/19. About 2 feet, dredging would be needed at 4 feet, 12 feet total depth. Annual inspection
5/19	Anticipated Maintenance	Added to Capital Plan - 10/19	Out flow meter - added to Capital Plan - 10/19
			DOE probe and blower replacement (Energy reduction/end of life)

Lift Stations - Closed			
8/19	Annual Maintenance	Completed	Chains replaced / pits good
12/19	Generator - Test generator at all lift stations.	Completed	Portable generator taken to lift stations. The tests were successful and the generator and lift stations performed as required.

Storm Water - Closed			
5/19	Open Item	Added to Capital Plan - 10/19	Storm drains in Kennebec before black top.
12/19	Union Ditch #2	Completed	Two (2) additional dams removed from west of County Line Road.

Water Mains - Closed			
11/19	Valve replacement	Anticipated 09/19	Countyline and Washington
12/19	Hydrant replacement	12/16/2019	Completed

Lintech Projects - Closed			
5/19	Pearl Street	Included in the Capital Plan, 10/19	Engineering to be done next with storm water needs (for budget)
5/19	Water Tower - Site Selection and needs (budgeted)	Included in the Capital Plan, 10/19	Size of tower discussed 07/19
			Infrastructure needs and timeline to replace
11/19	Center Street - Rebuild (budgeted)	Completed	Stormwater Work - Basin issue Charles and Center

Public Works Projects - Closed			
--------------------------------	--	--	--

7/19	USIC Locating Services	Completed	Approved August 2019 Board Meeting / Service agreement
5/19	Street Lighting Mapping	Completed	Project Complete / GIS Documents - 08/19
5/19	Gym Roof	Completed	Roof repaired / gym opened 08/19
5/19	Parking space stripping	Completed	Kennebec - 08/19
5/19	New 1 ton plow/dump	Approved	Purchased and received 10/19
6/19	Park - Settlements	Completed	Shodeen repaired - 08/19
6/19	Pheasant Street	Completd	Garage roof hole and garage door hanging, tall grass - 12/19

Public Works - Property Maintenance Issues - Closed			
5/19	Squires Crossing	Grass	Property is currently being maintained now
5/19	Green Street	House fire	Demo complete 06/01
6/19	Village	Garbage cans	Weekly schedule
5/19	Maiden	Code violations	Complete - 08/19
11/19	Shodeen	Completed	Jeremy will follow-up drainage around dirt hill

Storm Water - Closed			
11/19	Union Ditch #2	Pending	Pending contractor to remove 3 dams. Area has been JULIE

Village Hall - Closed			
9/19	Heating	Completed	New Furance in the gym - install 10/10/19

Committee Items - Closed			
9/19	Engineering Contract	Exp. 11/20	Contract and Operation review



WORK ORDER

Client: Village of Maple Park
Date: January 8, 2020
Project Name: 2020 Stormwater Improvements (Washington-Pearl-Charles)

Services	Description	Fee
Engineering	Prepare a design for storm sewer/stormwater improvements in the area of Washington Street, Pearl Street and Charles Street to improve drainage from this area. Analyze the topography and existing storm sewer infrastructure along with any televising reports. Prepare plans and specifications for recommended stormwater improvements.	Standard hourly rates not to exceed \$15,000.

Accepted by:

Village of Maple Park



WORK ORDER

Client: Village of Maple Park
Date: January 8, 2020
Project Name: Pearl Street and Center Street Paving Improvements

Services	Description	Fee
Engineering	Prepare a design for a pavement overlay along with any associated drainage improvements related to the pavement improvements. Work includes coordination of topographic survey, analysis of site conditions, preparation of plans and specifications. Scope includes Pearl St from County Line Rd to Broadway St, and Center St east of Broadway St.	Standard hourly rates not to exceed \$25,000.

Accepted by:

Village of Maple Park