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TOWN BOARD SPECIAL MEETING/ WORK SESSION
Wednesday, April 24, 2019 6:00pm
CARMEL HIGH SCHOOL LIBRARY
30 FAIR STREET, CARMEL, NY

[Pledge of Allegiance - Moment of Silence](#)

6:00PM Town Board Special Meeting CWD#2 Infrastructure:

1. Richard Franzetti, PE, Town Engineer - John Folchetti, PE, Engineering Consultant-
Presentation of Proposed Upgrade – Carmel Water District #2

- **Public Comment**
- **Town Board Member Comments**
- **Adjournment**

Public Hearing: For the Proposed Increase and Improvement of the Facilities of Carmel Water District #2, in said Town of Carmel, Putnam County, NY

1A. Consider Public Interest Order In the Matter of the Increase and Improvement of Facilities of Carmel Water District #2 in the Town of Carmel, Putnam County, New York

1B. Consider Resolution Authorizing the Issuance of \$13,301,400 Bonds of the Town of Carmel, Putnam County, New York, to Pay the Cost of the Increase and Improvement of Carmel Water District #2, in the Town of Carmel, Putnam County, New York

Town Board Work Session:

1. James Gilchrist, Director of Recreation and Parks – Consider Proposal for Airport Park Water Supply

- **Public Comment (Three (3) Minutes on Agenda Items Only)**
- **Town Board Member Comments**

Open Forum:

- **Public Comments on New Town Related Business (Three (3) Minutes Maximum Speaker for Town Residents, Property Owners & Business Owners Only)**
- **Town Board Member Comments**
- **Adjournment**

From: [Franzetti, Richard](#)
To: [Pasquerello, Anne](#); [Gregory Folchetti](#); [John Lupinacci \(jdlup@icloud.com\)](#); [jon@sfgtaxes.com](#); [Michael Barile](#); [Michael Barile](#); [Schmitt, Kenneth](#); [Suzi McDonough Personal](#)
Cc: [Esteves, Donna](#); [Maxwell, Mary Ann](#); "John Folchetti"
Subject: 04-17-19- Response to questions
Date: Wednesday, April 17, 2019 4:20:34 PM
Attachments: [04-17-19 RESPONSE Town Board Questions for the April 24th meeting .docx](#)
[CWD #2 Water project questions for the 424 Meeting.msg](#)

Supervisor Schmitt and Town Board members,

Per your request, attached please find the response to questions provided by Mr. Frank Galvin in his April 15, 2019 email (attached). Please provide any comments to me prior to having me forward to Mr. Galvin. Also advise if you would like to have a Mary Ann's debt cost analysis attached to the response.

Please note that the power point presentation that will be presented at next week's meeting will cover five (5) topics:

1. Supply
2. Treatment
3. Distribution
4. Storage
5. Cost & funding – including debt cost analysis

We anticipate having \pm three (3) slides each topic. A copy of the presentation will be made available early next week.

Happy Holidays.

Richard J. Franzetti, P.E, BCEE
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Overview

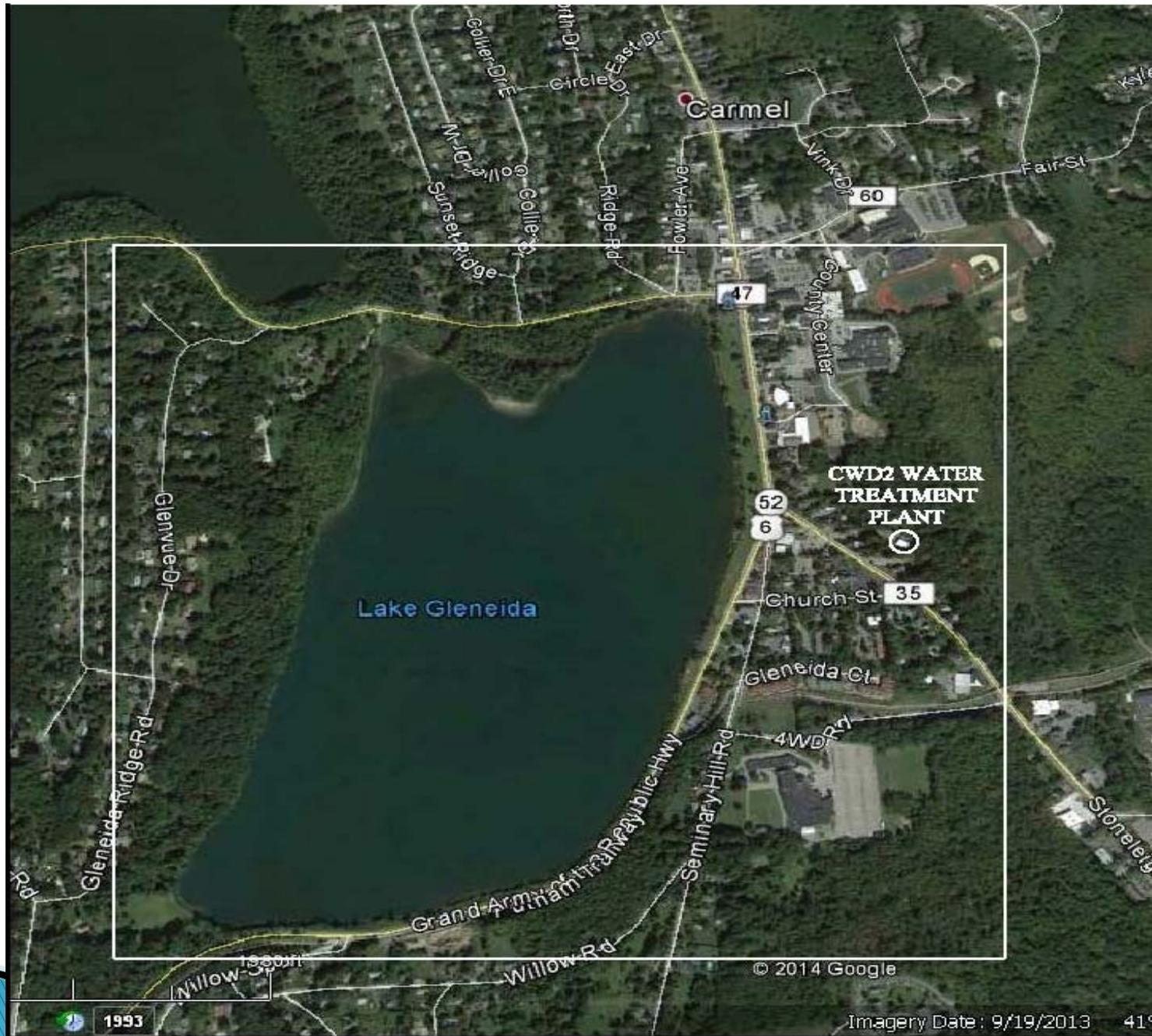
- ▶ System Description
- ▶ Source
- ▶ Treatment/Plant
- ▶ Distribution/Storage
- ▶ Costs/Funding



Carmel Water District 2

- ▶ Plant located 1744 Route 6
- ▶ Built in 1976
- ▶ Serves
 - ~ 5,300 people,
 - Town's main commercial area,
 - Government Facilities:
 - and regional hospital,
- ▶ ~2,000 service connections.





Source

- ▶ Sole raw water source – Lake Gleneida.
- ▶ Lake Gleneida owned by NYCDEP – raw water cost ~\$628,000 per year (average past 5 years)
- ▶ Seasonal changes affect the water quality in terms of turbidity increases, color, and algae growth.



Treatment

- ▶ Permit is for 1,000,000 gallons per day = 1 mgd
- ▶ Average daily plant flow ~800,000 gpd
maximum flow is 1.6 mgd
- ▶ Direct Filtration – three (3) diatomaceous earth (DE) filtration units (glorified swimming pool filter)
- ▶ Sodium hypochlorite – disinfection





Plant

- ▶ Due to age/inefficient operations (e.g. backwash), it is recommended to replace Plant
- ▶ Hazen and Sawyer contracted in September 2018
- ▶ Preliminary findings for Lake Gleneida Safe Yield and CWD 2 Future Demand have been provided
- ▶ Planning year is 2050
- ▶ Treatment plant size and cost based on demand and raw water quality



CWD 2 Facility Plan Draft Findings

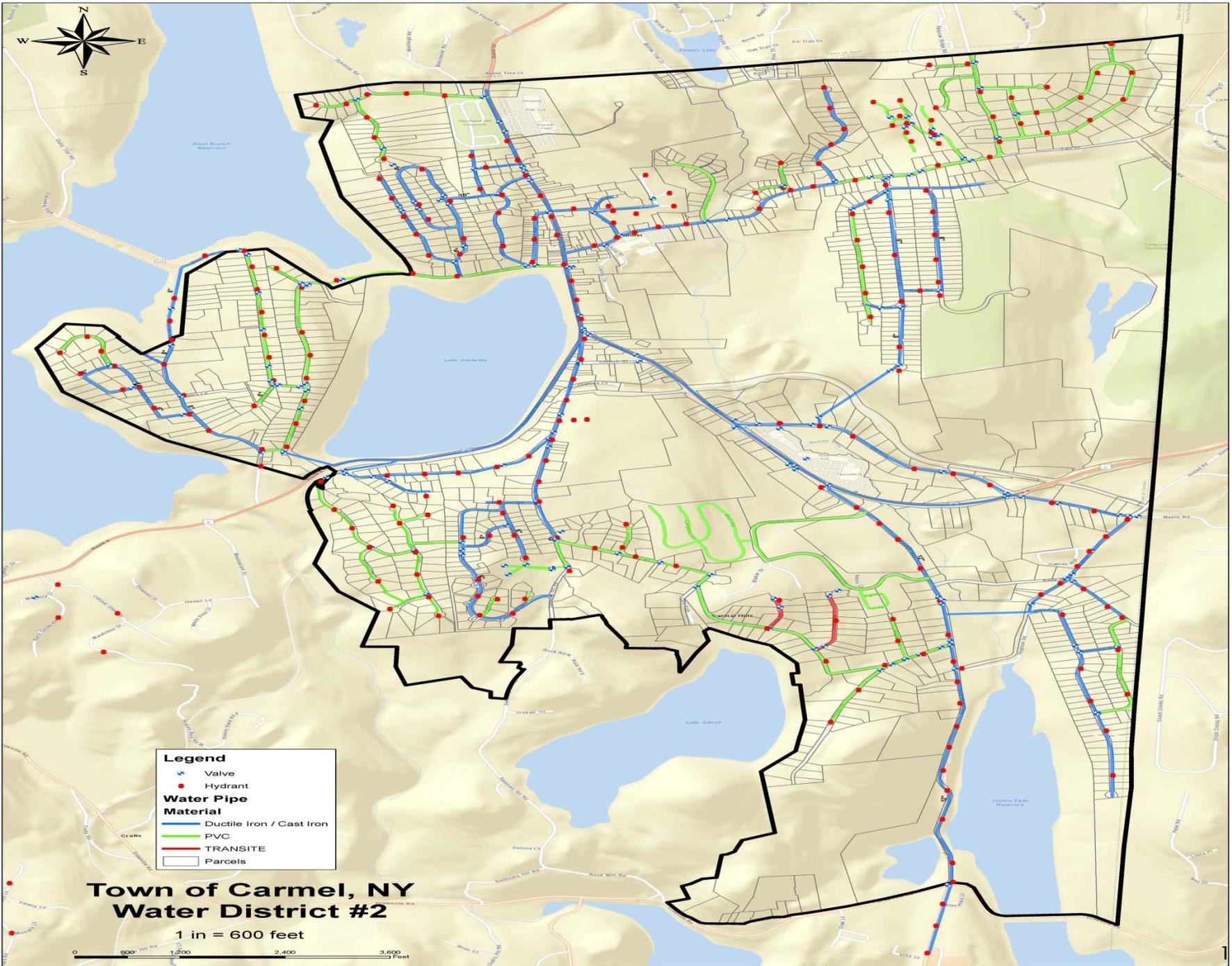
- ▶ Sustained safe yield of Lake Gleneida 0.8 to 1.0 million gallons per day (MGD).
- ▶ Demand
 - Average day demand in 2050 0.82 – 1.34 mgd.
 - Maximum day demand in 2050 of 1.31 – 2.15mgd.
- ▶ Preliminary results show that Lake Gleneida, able to meet current demand may not be able to do so in the future.
- ▶ Alternative water supplies for CWD 2 are being considered
- ▶ Options include using either the West Branch or Croton Falls reservoirs or Lake Mahopac.



Distribution System

- ▶ ~ 52 miles of pipe (total for system)
- ▶ Sizes range from 6, 8 10 and 12 inches
- ▶ Existing material – unlined cast and ductile iron, lined ductile iron, asbestos cement or PVC
- ▶ Age ranges from 1 year to 60 years old
- ▶ Dead end sections in the water system. Major is Stoneleigh Ave and others include Dykeman Road, Lakeview Road
- ▶ 350 hydrants





Distribution Facility Plan

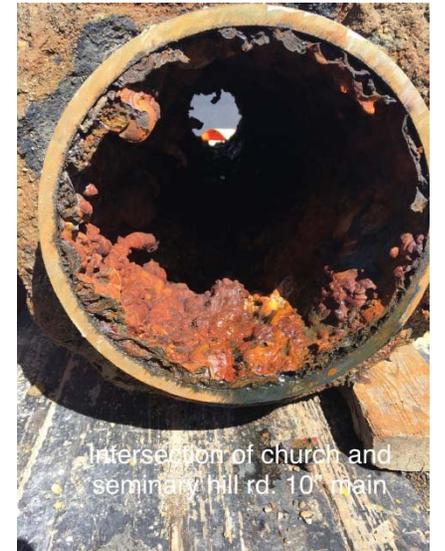
- ▶ Coupons have been collected at:
 - Gleneida Ridge Road, Tower Road and West Collier Drive; Everett Road, Seminary Hill, Hughson Road; Shoprite
 - Route 301 (photo documented from a repair)
- ▶ Coupons demonstrate significant consistency.
 - Unlined pipe demonstrates varying degrees of tuberculation or sedimentation
 - Lined pipe demonstrate no tuberculation or sedimentation.



Route 301



Collier Drive



Distribution Facility Plan– Findings

- ▶ No need for pipe rehabilitation where PVC, transite or lined cast/ductile pipe exists
- ▶ Unlined cast or ductile iron pipe of either type should be rehabilitated or replaced.
- ▶ Unlined cast or ductile iron pipe capable of withstanding the cleaning operation.



Southeast



LEGEND	
	RECOMMEND LINING
	RECOMMEND SUPPLEMENTAL MAIN

TOWN OF C...	
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Distribution Facility Plan– Findings

- ▶ A valve replacement/insertion program should be considered in District
- ▶ Alternate supply line to Putnam Hospital Center is recommended.
- ▶ Backlot main between Hughson Road and Stoneleigh Avenue should be abandoned in favor of a new main.



Storage Tanks

- ▶ Three (3) gravity atmospheric tanks
- ▶ Total capacity of 1.1 million gallons.
- ▶ Located on
 - Lindy Drive(300,000 gallons), Built pre-1974
 - Everett Road(300,000 gallons), Built 1976
 - Shoprite Tank located in Clapboard Ridge in Hillcrest Commons (500,000 gallons). Built 1963



Water Tank Inspections 2019 Findings

- ▶ All water tanks inspected throughout Town
- ▶ CWD 2 Conclusions:
 - Ultrasonic tests demonstrate the tanks are structurally sound
 - Reline/epoxy interior of tanks
 - Epoxy/paint exterior of tanks
 - Install mixers
 - Provide safety upgrades



Cost – Pipe replacement

Work Completed and system operational

- Gleneida Ridge
 - Glenvue Drive
 - Glenvue North Drive
 - NYS Route 301
-
- ▶ 13,000 ft replaced

 - ▶ Cost to date \$1,910,400



Cost

Water Tank Inspections 2019 Findings

Pittsburgh Tank Maintenance/Rehabilitation Proposal			
CWD #2 ~ Summary			
Everett	Shoprite/Clapboard Ridge	Lindy	
\$368,290 .00	\$509,178.00	\$372,624.00	
<u>Total for Rehabilitation</u>	<u>\$1,300,000.00</u>		

- ▶ Includes:
 - Sandblast/epoxy interior and exterior of tanks
 - Sediment removal
 - Install mixing system
 - Install miscellaneous signs and safety features



Costs

TOWN OF CARMEL CWD #2 CAPITAL PROJECT COST ANALYSIS						
	Water Line Replacement	Distribution Facility Plan	Water Tank Maintenance	Total Annual Estimated Debt	Water Meter Project	Total Annual Estimated Debt
	15 Years (based on average assessed value of \$407,263)				5 Years	
Cost of Capital Project	\$2,300,000	\$13,301,400	\$1,300,000	\$16,901,400	\$1,820,000	\$18,721,400
Estimated <u>Annual</u> Debt Service Per Taxpayer – 15 years	\$80.32	\$460.65	\$44.33	\$585.29	\$154.74	\$740.03
	20 Years (based on average assessed value of \$407,263)				5 Years	
Cost of Capital Project	\$2,300,000	\$13,301,400	\$1,300,000	\$16,901,400	\$1,820,000	\$18,721,400
Estimated <u>Annual</u> Debt Service Per Taxpayer 20 years	\$65.27	\$375.02	\$35.82	\$476.11	\$154.74	\$630.85
	30 Years (based on average assessed value of \$407,263)				5 Years	
Cost of Capital Project	\$2,300,000	\$13,301,400	\$1,300,000	\$16,901,400	\$1,820,000	\$18,721,400
Estimated <u>Annual</u> Debt Service Per Taxpayer 30 years	\$50.74	\$296.19	\$27.89	\$374.83	\$154.74	\$529.57

Water Treatment

Water Treatment Plant Estimate			
	15 Years (based on average assessed value of \$407,263)		
	Low	Mid	High
Estimated Cost of Capital Project	\$12,000,000	\$15,000,000	\$18,000,000
Estimated <u>Annual</u> Debt Service Per Taxpayer – 15 years	\$409.18	\$511.50	\$613.76
	20 Years (based on average assessed value of \$407,263)		
	Low	Mid	High
Estimated Cost of Capital Project	\$12,000,000	\$15,000,000	\$18,000,000
Estimated <u>Annual</u> Debt Service Per Taxpayer 20 years	\$331.01	\$413.79	496.55
	30 Years (based on average assessed value of \$407,263)		
	Low	Mid	High
Estimated Cost of Capital Project	\$12,000,000	\$15,000,000	\$18,000,000
Estimated <u>Annual</u> Debt Service Per Taxpayer 30 years	\$256.99	\$321.29	\$385.52

- ▶ Does not include MOPO, Legal and Land acquisition costs

Total Estimated Debt

	Total Annual Estimate Debt (Water Line Replacement, Dist Fac Plan, Water Tank Maint)	Water Meter Project	Water Plant Estimate High	Total Annual Estimated Debt
	15 Years (based on average assessed value of \$407,263)	5 Years	15 Years (based on average assessed value of \$407,263)	
Cost of Capital Project	\$16,901,400	\$1,820,000	\$18,000,000	\$36,721,400
Estimated <u>Annual</u> Debt Service Per Taxpayer – 15 years	\$585.29	\$154.74	\$613.76	\$1,353.79
	20 Years (based on average assessed value of \$407,263)	5 Years	20 Years (based on average assessed value of \$407,263)	
Cost of Capital Project	\$16,901,400	\$1,820,000	\$18,000,000	\$36,721,400
Estimated <u>Annual</u> Debt Service Per Taxpayer 20 years	\$476.11	\$154.74	\$496.55	\$1,127.40
	30 Years (based on average assessed value of \$407,263)	5 Years	30 Years (based on average assessed value of \$407,263)	
Cost of Capital Project	\$16,901,400	\$1,820,000	\$18,000,000	\$36,721,400
Estimated <u>Annual</u> Debt Service Per Taxpayer 30 years	\$374.83	\$154.74	\$385.52	\$915.09

Funding Sources

- ▶ NYS Environmental Facilities Corporation (EFC) Grants, subsidized/low interest loans or market rate interest loans
 - 2 pools: Clean Water vs Drinking Water
 - Engineering Report, Bond Resolution and SEQRA compliance Required

- ▶ Will apply upon acceptance of report, adoption of bond resolution and SEQRA determination

- ▶ WIIA/IMG Grants
- ▶ Administered via EFC
 - Same pools
 - Same submittal required
- ▶ Applications not accepted until July

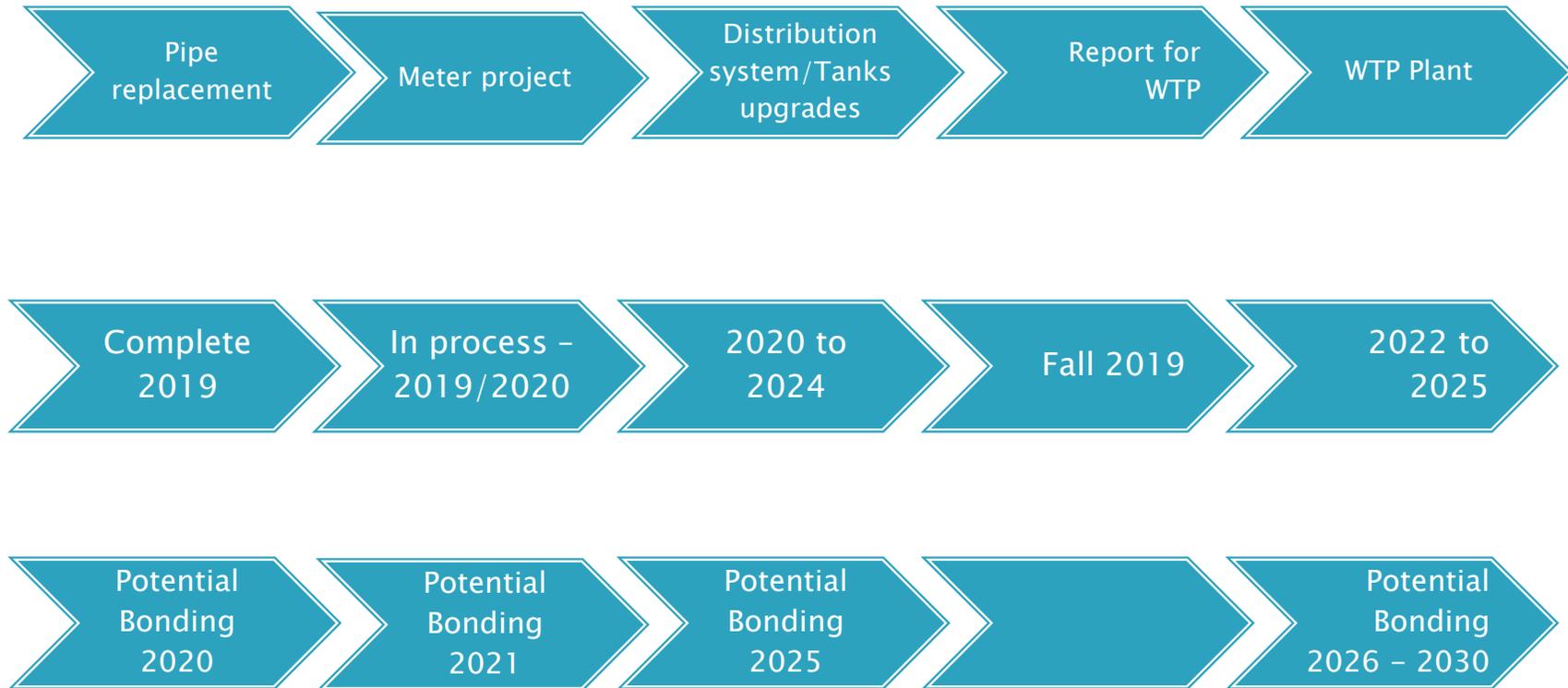


Water Quality Samples

- ▶ Water quality samples collected water treatment plant and at hydrants
 - Collier, Kelly/Avery, Lakeview, Tower/Lindy and Kelly Ridge
- ▶ Water quality samples analyzed for Putnam County DOH

	Limit	Average	Minimum	Maximum
Iron, mg/l	0.3	8.4	0.02	32.9
Lead, mg/l	0.015	0.007	0	0.0199
Manganese, mg/l	0.05	0.4	0.001	1.82
Escherichia Coli /100ml		Absent	Absent	Absent
Total Coliforms, /100 ml		Absent	Absent	Absent
Turbidity, NTU	5	20.3	0.24	68.2
Chlorine Residual, mg/l		1.3	0.21	2.7

Time Frames



QUESTIONS?



Response to Questions from the Residents of

Carmel Water District #2

Carmel Water district #2 Engineering report 12/2017 Link:

https://www.ci.carmel.ny.us/sites/carmelny/files/news/cwd_2_distribution_system_upgrades.pdf

The first part of the Water project was approved by the Carmel Town Board for an estimated cost of 2.2 million dollars.

For this water line project, the pipe cleaning and relining method was planned but later substituted with a line replacement project:

a) What was the reason for that change?

This change occurred due to the timing of the project. In order to reline a section of water line, temporary water must be provided to the residents. These temporary lines are run above ground and connected to each home. The timing for the first project would have required running of the water lines above ground during the winter months. This would have increased the cost as those lines would have needed additional insulation so as not to freeze.

b) What was the resultant increased cost, if any?

The cost for replacement was approximately \$137/LF

The estimated cost for relining identified in the report is \$125-150/lf

c) Could the same chain of events occur in the future planned projects?

The short answer is no. The reason why is that we are now in the preliminary discussions for the new relining project. This will be planned and bid out so as to avoid this situation from happening again.

Response to Questions from the Residents of

Carmel Water District #2

d) Has it been completed?

All of the new mains have been installed. Restoration and abandonment of the old system remain to be completed. The project is on schedule to meet it's substantial completion deadline of May 4, 2019 and final completion by June 1, 2019.

e) What was the actual cost vs budget?

Actual cost to date is \$1,910,400.00

f) What are the lessons learned from this first water project as we move into the next much larger and costlier project?

It is to be proactive and plan and not just react.

Response to Questions from the Residents of

Carmel Water District #2

CARMEL WATER DISTRICT NO. 2 DISTRIBUTION SYSTEM FACILITY PLAN 2/2019

Link: [https://www.ci.carmel.ny.us/sites/carmelny/files/news/02-13-19 -
_distribution_facility_plan.pdf](https://www.ci.carmel.ny.us/sites/carmelny/files/news/02-13-19_-_distribution_facility_plan.pdf)

This water pipe relining project is estimated at 11 - 13 million dollars.

- a) Will the complete project be put out to bid or will it be broken out into smaller projects to avoid a competitive bidding process? This concern was stated at town hall meeting on March 27th at 1:22:05 of this meeting video: <https://www.youtube.com/watch?v=WOFObC-G2sg>

We want this to be a highly competitive bidding process.

The report recommends a single design contract and multiple construction contracts. Both design and construction contracts require competitive bidding.

- b) Residents have the right to vote on large projects that effect the school budget. This water project is very costly and is a matter that should be approved by the residents through a vote or referendum unless the water is declared unhealthy or poses danger to the public. Will this project be subject to a public vote by the residents in the water district?

The decision for a water system project is based on the Safety, Health, and Welfare of the public. It is not subject to mandatory referendum. The Board, as commissioners of the District, has the authority and discretion put the matter (or virtually any Town matter) to a referendum if it sees fit. The borrowing itself, which is a prerequisite to awarding the bid contract for the work, is subject to a 20 day estoppel period under NY Local Finance Law. That means that within 20 days after publication of a resolution authorizing the borrowing and funding any party with standing may file an action, suit or proceeding to contest the borrowing. This will in effect forestall the project.

Response to Questions from the Residents of

Carmel Water District #2

- c) Will the vendors be asked to provide a cost analysis for full pipe replacement vs. relining? If the answer is no, why.

At the request of the Town Board the repair or replace has been vetted by JRFA. Unit cost estimates for both types of work are in the report. The project must be designed, then bid, then built. Design and development of bid documents are different for the two types of work, as are the contractors.

The recommendation for lining as opposed to replacement was outlined in the distribution facility plan. The Town Board can decide if they want to have these lines replaced or relined.

- d) Why is it necessary to add an alternate new water line to the hospital?
(1,900,000.00).

This is a recommendation. The reasoning is that there is no alternative means of delivering water to the only emergency facility we have and is intended to ensure uninterrupted delivery of water even in the event of a main break.

- e) Why isn't this new water line for the hospital not connect to the other water district which is closer?

The nearest water district to PCHC, other than CWD 2, is water district 6. The nearest point in CWD 6 to the hospital entrance is 9,900 LF away. The recommended connection for the supplemental main is 7,700 LF away.

- f) Why do we need to install new water shutoff valves at a cost of 10,000.00 a piece now vs replacing as needed? **(\$600,000.00 - \$750,000.00)**

Response to Questions from the Residents of

Carmel Water District #2

This is a recommendation. As we learned during our attempts to gather coupons, the valving system is inadequate to isolate small sections of the system for repair work.

- g) What is the life expectancy of the cement relining vs installing new pipes?

Typical design life for new pipe is 50 years. The AWWA standard for cement lining thickness on new pipe is 1/16" for pipe diameters between 3" and 12". The AWWA standard for in place cement lining thickness is 3/16" for pipe diameters between 4" and 10". It is expected that the newly lined pipe will achieve a design life equivalent to new iron pipe

- h) We already know that the existing pipes are still in good shape according to the limited sample coupons that have been inspected.

This is correct and this is the reason why the relining option, not replacement, is being presented.

- i) Will cleaning process reduce the integrity of the pipe?

No. The reamers are set to meet pipe inside diameter dimensions in order to ream out the softer (than pipe wall) tuberculation.

- j) Wouldn't it be more cost effective, in the long run, to install new pipes even though it would be more disruptive?

The design life for each is 50 years

- k) Is the Town Engineer recommending the traditional method of water main cleaning or the Cured-In-Place Pipe Lining (CIPP)?

See link: <https://ferpalinfrastructure.com/solutions/structural-pipe-lining-solution/>

Response to Questions from the Residents of

Carmel Water District #2

The recommendation is for cementitious lining, not Cured In Place pipe lining.

- l) Only a few pipe samples (coupons) were taken during water breaks as stated in the 2/13 town board meeting and said to be thick enough for a reaming and relining process. If the system is 50,000 linear feet in length, how could it be assumed that the rest of the system is suitable for relining or is even in need of relining? They have lasted for 85 years without relining.

The system contains multiple types of pipe, including unlined iron, lined iron, PVC and asbestos cement. The unlined iron in residential areas is the primary focus of water quality complaints throughout the district. These are the areas that were evaluated by coupon removal and then recommended for lining. The question is about quality, not longevity. Life expectancy beyond 85 years isn't the objective. Improving delivered water quality is the objective.

- m) Will the companies that bid on this relining project submit references for current successfully completed relining projects and will this information be made available to the public for review?

Submittal of references is always part of the Bidders Qualification Statement required to be submitted with a bid for capital work. References are contacted and those that choose to respond are interviewed. Interview results are always included in the Bid Evaluation and recommendation to award that is presented to the Board. This information, once presented to the Town Board, is a matter of public record and will be available at that time.

Response to Questions from the Residents of

Carmel Water District #2

- n) Would it be possible for the selected vendor to present at a special town board meeting so that the residents understand the process and know what to expect when the process begins?

This can be a requirement of the bid and subsequent contract.

- o) What would the course of action be if relining is not possible (similar to what happened in the first project) and at what cost?

The current planning process this is intended to address the district issues in order to prevent that happening again.

- p) Who would be accountable in the previous scenario (o) and assume the financial responsibility, if any? We don't want to see this project double or triple in cost due to the negligence of not doing the proper or necessary inspection work. A similar situation just happened on a project at one of the town parks recently and is costing the tax payers a lot more money.

The inspection and evaluation work has been conducted and the recommendation is in place. An emergency declaration such as was previously made should not occur, but is up to the discretion of the Board. Bid costs are subject to prevailing conditions at the time of bid.

Response to Questions from the Residents of

Carmel Water District #2

Project Management

- a) Who will be managing the CWD # 2 infrastructure projects and what will the oversight process be to ensure that they are on schedule and on budget?

This will be the Engineering Department and the engineering consultant selected for the design and construction administration of the project.

- b) Will there be a plan detailing all of the phase of the proposed project with estimated start and completion dates for each phase?

This will be a requirement of the bid specification package.

We are requesting that either one or two members of the town board be assigned to oversee these projects with the responsibility to provide status updates as required. We feel this dedicated oversight will ensure that the project(s) is progressing as planned and on budget. We will also designate several residents of the district to partner with whomever you have selected so they may function as one team.

This is a Town Board Decision

Response to Questions from the Residents of

Carmel Water District #2

Project Funding

- a) Since the project was approved, has the board requested funding for this initial project?

This project has not yet been approved by the Town Board. Funding for water projects in New York, whether via grant, low interest loan or market rate interest loan, is through the Environmental Facilities Corporation (EFC). All applications to EFC require an engineering report that complies with the 10 State Standards criteria. The report submitted in February meets these criteria. It will be submitted to EFC once accepted by the Board.

Grant applications also require the submittal of such a report. The grant application window is currently closed, but re-opens in July. When the grant application is made in July, the report will be submitted again

- b) If yes, from what State, Federal or County agency was the request made and when? Who made the requests?

Funding through EFC's Drinking Water program will be sought for this project.

- c) If a proposal is accepted, when would a request for funding be submitted and who is responsible for this process?

See response for a. above.

Response to Questions from the Residents of

Carmel Water District #2

Here is a recent example from Senator Harckham indicating the availability of clean water funds (The budget includes an investment of \$500 million for clean water infrastructure. This builds on our already historic \$2.5 billion investment.). <https://www.nysenate.gov/newsroom/press-releases/pete-harckham/senator-harckhamsenate-majority-pass-final-2019-nys-budget>

This is from the NYS website: <https://www.governor.ny.gov/news/governor-cuomo-awards-more-49-million-grants-water-infrastructure-improvements-mid-hudson>

The Mid-Hudson Region municipalities receiving grants are:

WIIA/IMG Grant	Awardee	County	Estimated Project Cost	Estimated Grant Award
Clean Water	Bethel, Town of	Sullivan	\$3,430,000	\$857,500
Clean Water	Bronxville, Village of	Westchester	\$1,777,726	\$444,432
Clean Water	Clarkstown, Town of	Rockland	\$2,935,895	\$733,974
Clean Water	Cornwall, Town of	Orange	\$6,475,000	\$1,618,750
Clean Water	Cortlandt, Town of	Westchester	\$3,179,000	\$794,750
Drinking Water	Delaware, Town of	Sullivan	\$4,202,672	\$543,060

Response to Questions from the Residents of

Carmel Water District #2

Drinking Water	Dutchess County Water and Wastewater Authority	Dutchess	\$3,389,509	\$2,033,705
Drinking Water	Esopus, Town of	Ulster	\$3,729,000	\$2,237,400
Clean Water	Goshen, Town of	Orange	\$120,000	\$30,000
+Drinking Water	Greenburgh, Town of	Westchester	\$12,119,500	\$4,847,800
Clean Water	Highland Falls, Village of	Orange	\$1,766,250	\$441,563
Clean Water	Kingston, City of	Ulster	\$7,900,000	\$1,975,000
Clean Water	Liberty, Village of	Sullivan	\$6,457,089	\$1,614,272
Drinking Water	Middletown, City of	Orange	\$4,942,400	\$2,965,440
Drinking Water	Millbrook, Village of	Dutchess	\$1,900,000	\$1,140,000
Clean	New Castle, Town	Westchester	\$1,839,206	\$459,802

Response to Questions from the Residents of

Carmel Water District #2

Water	of			
Clean Water	New Windsor, Town of	Orange	\$1,160,000	\$290,000
Clean Water	Newburgh, Town of	Orange	\$1,200,000	\$300,000
Clean Water	Orangetown, Town of	Rockland	\$775,000	\$193,750
Clean Water	Port Chester, Village of	Westchester	\$1,265,000	\$316,250
Clean Water	Poughkeepsie, Town of	Dutchess	\$458,573	\$114,643
Drinking Water	Rhinebeck, Village of	Dutchess	\$3,713,794	\$2,228,276
Clean Water	Rockland County	Rockland	\$13,500,000	\$3,375,000
Clean Water	Rockland, Town of	Sullivan	\$2,389,500	\$597,375
Clean Water	Rye, City of	Westchester	\$1,959,000	\$489,750
Clean	Suffern, Village of	Rockland	\$413,780	\$103,445

Response to Questions from the Residents of

Carmel Water District #2

Water				
Clean Water	Suffern, Village of	Rockland	\$1,413,250	\$353,313
Clean Water	Suffern, Village of	Rockland	\$433,350	\$108,338
Drinking Water	Tivoli, Village of	Dutchess	\$4,733,280	\$2,839,968
Clean Water	Tivoli, Village of	Dutchess	\$3,676,600	\$919,150
Clean Water	Tuxedo Park, Village of	Orange	\$531,750	\$132,938
Clean Water	Wallkill, Town of	Orange	\$11,930,000	\$2,982,500
Clean Water	Wallkill, Town of	Orange	\$8,070,000	\$2,017,500
+Clean Water	Wappinger, Town of	Dutchess	\$6,211,548	\$2,484,620
Clean Water	Warwick, Village of	Orange	\$12,250,000	\$3,062,500
Clean	Westchester	Westchester	\$9,324,868	\$1,228,349

Response to Questions from the Residents of

Carmel Water District #2

Water	County			
Drinking Water	Westchester Joint Water Works	Westchester	\$3,300,000	\$1,980,000
Clean Water	White Plains, City of	Westchester	\$903,965	\$225,991

Response to Questions from the Residents of

Carmel Water District #2

Carmel Water Plant / Increasing Capacity / Water towers

- a) Why is it necessary to increase/upgrade or replace the existing water filtration plant now? Based on information stated at town board meeting, the plant is currently running at 2/3 capacity.

The plant produces drinking water that meets NYSDOH and PCDOH drinking water standards. The CWD 2 plant is a diatomaceous earth plant (DE) that was built in 1976. The plant is designed to treat 1.0 Million Gallons per Day (MGD) and on occasion has been able to treat and distribute up to 1.4 MGD.

Due to this treatment process ~10 to 15 % of the treated water is used to backwash the filters. We are backwashing with water that has been paid for as raw water, paid for again to treat, and will be paid for again to treat as wastewater.

The DE also leaches out of the plant. While our suspended solids does not exceed DOH standards, the DE in the finished water contributes to the sediment found in the mains.

- b) Please identify the reason for the needed capacity?

As outlined in the draft Hazen and Sewer memorandum regarding future water demand assessment, the results of the analysis suggest average day demand in 2050 of 0.82 to 1.48 mgd and a future maximum day demand in 2050 of 1.31 to 2.37 mgd. However, the analysis is sensitive to the population growth and future development within the District. The analysis assumed the District geographic boundary does not change nor are outside users served, except for one (1) proposed development south of Putnam County Hospital Center.

Response to Questions from the Residents of

Carmel Water District #2

- c) What development projects are currently planned and approved that would increase the water demand in the Hamlet of Carmel beyond the capacity of the existing system?

Current list of proposed developments and estimated indoor water demands

Map #	Development Name	Zoning Type	Estimated Indoor Water Demand (gpd)⁶
1	Hillcrest Commons	Residential	33,400
2	Fairway Townhouses	Residential	33,400
3	Gateway Summit	Commerce/Business Park	80,230
4	Alexandria Group Distillery	Commercial	161,055
5	The Hamlet at Carmel ⁷	Residential	13,200
6	RPK Precision Homes	Residential	5,675
7	The Retreat at Carmel	Residential	3,850
8	Hillside Court	Residential	510
9	Tompkins Recycling	Commercial	375
Total:		331,695	

- d) If it's new development projects that have already been approved why wouldn't the developers pay for the water expansion as a precondition to building in Carmel instead of putting the financial burden on the residents?

These projects have been approved and the owners have been paying CWD 2 capital charges for the sites.

- e) Why would or should the Hamlet of Carmel look to source water from lake Mahopac? (As discussed on page 32 of this document at the 2/27 town board meeting?

https://www.ci.carmel.ny.us/sites/carmelny/files/agendas/tb-ws2-27-2019_1.pdf) The water in lake Mahopac is not desirable and in addition it might be costly to run miles of water line.

Response to Questions from the Residents of

Carmel Water District #2

The main reason for this suggestion is Lake Gleneida is a NYCDEP controlled water body. By virtue of the city's ownership, residents pay the NYCDEP for the right to use this water. For instance in 2018 the residents In CWD2 paid the NYCDEP water board \$482,400 and in 2017 paid \$688,700 for water from Lake Gleneida. Use of water from Lake Mahopac is not encumbered by these costs. Free water could help finance upgrades to both the distribution system and the plant. For example, the 2017 costs represent nearly 50% of the total capital debt costs for the various projects (water line replacement, distribution plan, water tanks maintenance, and water meters)

- f) Wouldn't it be more practical to source the water locally from the West Branch Reservoir, Middle Branch Reservoir or Lake Gilead?

West Branch may be more practical, but all these water bodies are owned/controlled by the NYCDEP and as such the residents would be subjected to continually paying the NYCDEP for water.

- g) Is there an analysis detailing the cost of using drinking water from local reservoirs vs Lake Mahopac? Lake Mahopac is a recreational lake used by all types of watercraft and not monitored and tested by the DEP on a regular basis for safety?

The cost of raw water from any surface source in Carmel (West Branch, Middle Branch, Croton Falls reservoirs or Lake Gleneida or Lake Gilead) will be the same as all those bodies are controlled by DEP

It should be noted that Lake Mahopac currently serves as a water supply for four (4) water districts with ~1,600 connections. The water treatment plant produces drinking water that meets NYSDOH and PCDOH drinking water standards.

Response to Questions from the Residents of

Carmel Water District #2

- h) Severn Trent used to manage the water treatment plant and service the waterlines (I don't know if they still do). What accountability do they (or any 3rd party contractor providing water treatment / line maintenance) have in allowing the system to get this bad?

Severn Trent, now called Inframark, is the contract operator for the CWD 2 Water treatment plant and as such did not install the water lines. The maintenance of the lines, outside of repairing breaks and leaks, has not historically been performed.

- i) What steps / maintenance processes will the Town of Carmel implement to ensure that the new / rehabilitated water lines don't get to this state again?

These lines, once relined, will not be subjected to tuberculation. The new plant will eliminate the DE contribution to the system.

- j) Is the height and capacity of the water tower at the end of Everett Road adequate for the area it needs to supply? This needs to be looked into because the water pressure at the top of Kelly Ridge road is very bad. In fact, some residents require additional pumps to even get to their homes. The cleaning of the pipes should help the pressure but we don't want to assume that be the answer. This is the only water tower that I am aware of that is on the ground.

CWD 2 has three (3) water towers that have a total capacity of 1.1 million gallons as follows:

- *Lindy Drive(300,000 gallons),*
- *Everett Road(300,000 gallons), and*
- *Clapboard Ridge (500,000 gallons).*

Response to Questions from the Residents of

Carmel Water District #2

All 3 tanks are located at grade in their respective locations. Once the pipes are relined and the tanks are upgrade residents will experience better flow/pressure

The recent tanks inspections as performed by Pittsburgh Tank and Tower Group indicated that the tanks can be relined and are not in need to be replaced. The cost for the repairs are as follows:

	Pittsburgh Tank Maintenance Proposal CWD #2 ~ Summary		
	Everrett	Shoprite	Lindy
Critical			
Non Critical	94,762	18,725	18,155
OSHA	46,555	65,680	64,235
Structural	56,197	101,330	98,670
Preventative	-	-	-
	170,776	323,443	191,564
	<u>368,290</u>	<u>509,178</u>	<u>372,624</u>

- a) What is the amount of pressure we can expect going into our homes / fire hydrants once the water lines have been relined?

10 State Standard required pressure is 20 PSI at grade at all points in the system and a minimum working pressure of 35 PSI. Normal working pressure is recommended to range from 60-80 psi.

Response to Questions from the Residents of

Carmel Water District #2

Water Quality and Safety

- a) Is the water in CWD #2 currently safe to consume with the level of tuberculation that is seen in the report and the condition of the water filtration plant?

Yes. The water has high iron content. The tuberculation is caused by the both the diatomaceous earth and the unlined water lines leaching in to the system.

- b) The Town Engineer has been asked to perform a water analysis prior to the April 24th meeting. Has this been completed and will it be presented?

Samples were collected at the water plant and hydrants located proximate to 10 Collier, 55 Lakeview, 8 Sunnycrest, 48 Kelly Ridge and on Kelly/Avery, Tower and Lindy. The samples were collected on March 18, March 24, April 1, April 5, and April 12, 2019.

Samples were analyzed for Iron, Lead, Manganese, Escherichia Coliform, Total Coliform, Turbidity and Chlorine Residuals.

	Limit	Average	Minimum	Maximum
Iron	0.3	8.4	0.02	32.9
Lead	0.015	0.007	0	0.0199
Manganese	0.05	0.4	0.001	1.82
Escherichia Coli		Absent	Absent	Absent
Total Coliforms		Absent	Absent	Absent
Turbidity	5	20.3	0.24	68.2
Chlorine Residual		1.3	0.21	2.7

- c) What is the impact of the tuberculation on the fire hydrants? How do we ensure that the pipe from the main line to the hydrant isn't as bad as the main line?

Response to Questions from the Residents of

Carmel Water District #2

The hydrants are replaced in most lining projects and are intended to be replaced on this one.

- d) We need to ensure that the Carmel Fire Department has enough water pressure (not the minimum required) out of the hydrants to put out fires (especially at the top of Everett and Kelly Ridge). We would be interested in knowing the Carmel Fire Chief's thoughts on the current water pressure and what they would want the pressure to be out of a fire hydrant?

The Town Engineer will coordinate with the Fire Chief and include this information in the RFP for design work.

From: [Maxwell, Mary Ann](#)
To: [Franzetti, Richard](#); [Pasquerello, Anne](#); [Gregory Folchetti](#); [John Lupinacci \(jdlup@icloud.com\)](#); [jon@sfgtaxes.com](#); [Michael Barile](#); [Michael Barile](#); [Schmitt, Kenneth](#); [Suzi McDonough Personal](#)
Cc: [Esteves, Donna](#); ["John Folchetti"](#)
Subject: RE: 04-17-19- Response to questions
Date: Wednesday, April 17, 2019 4:32:57 PM
Attachments: [CWD #2 2019 Total Debt Service Cost Analysis.pdf](#)

Attached is a Debt Service Cost Analysis for CWD #2 based on projects underway (water line replacement, meter project) and proposed capital projects (distribution facility plan, water tank maintenance). The proposed capital project costs were based off estimates received from the Engineering Dept. If any of these estimates change between now and next week I will update the debt service cost analysis.

Let me know if you have any questions or concerns.

Mary Ann Maxwell
Town Comptroller
Town of Carmel
(845) 628-1500 ext 175
Fax (845) 628-7085
mam@ci.carmel.ny.us

From: Franzetti, Richard
Sent: Wednesday, April 17, 2019 4:21 PM
To: Pasquerello, Anne; Gregory Folchetti ; John Lupinacci (jdlup@icloud.com); jon@sfgtaxes.com; Michael Barile; Michael Barile; Schmitt, Kenneth; Suzi McDonough Personal
Cc: Esteves, Donna; Maxwell, Mary Ann; 'John Folchetti'
Subject: 04-17-19- Response to questions

Supervisor Schmitt and Town Board members,

Per your request, attached please find the response to questions provided by Mr. Frank Galvin in his April 15, 2019 email (attached). Please provide any comments to me prior to having me forward to Mr. Galvin. Also advise if you would like to have a Mary Ann's debt cost analysis attached to the response.

Please note that the power point presentation that will be presented at next week's meeting will cover five (5) topics:

1. Supply
2. Treatment
3. Distribution
4. Storage
5. Cost & funding – including debt cost analysis

We anticipate having \pm three (3) slides each topic. A copy of the presentation will be made available early next week.

Happy Holidays.

Richard J. Franzetti. P.E, BCEE
Town Engineer
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Mahopac, New York 10541
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TOWN OF CARMEL CWD #2 CAPITAL PROJECT COST ANALYSIS

	Water Line Replacement	Distribution Facility Plan	Water Tank Maintenance	Total Annual Debt	Water Meter Project	Total Estimated Annual Debt	
	15 Years (based on average assessed value of \$407,263)				5 Years	Years 2020 - 2024	Years 2025 - 2034
Cost of Capital Project	2,300,000	13,301,400	1,300,000	16,901,400	1,820,000		
Estimated Annual Debt Service Per Taxpayer - 15 years	80.32	460.65	44.33	585.29	154.74	740.03	585.29
	20 Years (based on average assessed value of \$407,263)				5 Years	Years 2020 - 2024	Years 2025 - 2039
Cost of Capital Project	2,300,000	13,301,400	1,300,000	16,901,400	1,820,000		
Estimated Annual Debt Service Per Taxpayer 20 years	65.27	375.02	35.82	476.11	154.74	630.85	476.11
	30 Years (based on average assessed value of \$407,263)				5 Years	Years 2020 - 2024	Years 2025 - 2049
Cost of Capital Project	2,300,000	13,301,400	1,300,000	16,901,400	1,820,000		
Estimated Annual Debt Service Per Taxpayer 30 years	50.74	296.19	27.89	374.83	154.74	529.57	374.83

**TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK
WATER DISTRICT NUMBER 2**

**CARMEL WATER DISTRICT NO. 2 DISTRIBUTION SYSTEM
FACILITY PLAN**

FEBRUARY 2019

J. ROBERT FOLCHETTI & ASSOCIATES, L.L.C.
CIVIL / ENVIRONMENTAL ENGINEERS

**31 SODOM ROAD
BREWSTER, NEW YORK 10509**

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1.0 BACKGROUND

1.1 District Formation, Supply and Treatment

The Town of Carmel (Town) Water District Number 2 (“the District”) was formed by resolution of the Town Board on December 31, 1935, and was extended by resolution of the Town Board on December 29, 1998. Please refer to Appendices-A.1 and A.2 for copies of resolutions. See Figure-1 for District Limits. The District serves a population of approximately 5,300 people. Town records indicate that there are approximately 2,000 metered connections, including residential, commercial, institutional and government facilities within the District. The sole source of supply for the District is Lake Gleneida, located at the intersection of New York State (NYS) Routes 6 and 52 in the Hamlet of Carmel. As Lake Gleneida is a surface water supply, raw water must be treated prior to distribution for consumption in order to comply with the 1986 Amendments to the Safe Drinking Water Act. An eight (8) inch diameter raw water intake transfers water from the lake via a pump station in the area of the intersection, under NYS Route 52, thence to the treatment plant located approximately 1,000 feet to the east along NYS Route 6. See Figure-2, Location Map. Based on engineering department records the plant was constructed in 1976 and is permitted to treat and distribute up to 1.0 Million Gallons per Day (1.0 MGD). It is a direct filter facility consisting of three (3) Diatomaceous Earth (DE) filters that discharge to a 95,000 gallon clearwell. From the clearwell, disinfected water is pumped to three (3) storage tanks for final distribution to the consumer. Based on its age, the plant is beyond its design life. In the summer of 2018 the Town retained Hazen & Sawyer, an ENR Top 20 water engineering firm, to develop a Facility Plan to replace the plant. That project is currently underway and the plan is scheduled for delivery in September 2019.

1.2 Description of the Existing Distribution System

The District provides service to residential, commercial, institutional and government facilities within its limits. The distribution system consists of nearly 52 miles of water main and approximately 2000 service connections. Within that 52 miles of water main the system demonstrates a wide variety of pipe materials, including: asbestos-cement (ACP); unlined cast iron (CI); unlined and lined ductile iron (DI); and poly-vinyl chloride (PVC). Much of this variety is based on eight decades of development by multiple developers. Many of these installed what was the most economically viable material at the time then dedicated the system to the Town. Figure 3 depicts the location and type of distribution main that is found around the district.

Each type of pipe material exhibits similar hydraulic characteristics at the time of installation, yet each ages differently. ACP, lined DI and PVC all resist chemical reaction with minerals contained in the water being conveyed through the system. On the other hand, unlined CI & unlined DI both react with minerals in the water. This reaction

typically takes the form of metallic salt growth on the interior wall of the water main, commonly referred to as tuberculation. See Figure 4 for typical segment of tuberculated main. This figure also illustrates the deposition of suspended solids within the distribution mains. This deposition is most likely the result of loss of diatomaceous earth in the filter process. The DE may leave the plant suspended in the treated water and ultimately get trapped against the tuberculation in quiescent sections of the main during low demand periods. Because the tuberculation/sediment entrapment occurs in the main downstream of treatment, it can lead to delivery of discolored water to the consumer despite high quality finished water being provided by the treatment facility.

2.0 EXISTING CONDITIONS AND INVESTIGATION

2.1 Existing Conditions

The Town has received consistent complaints from District residents regarding discolored water. During late summer 2017, complaints originating in the area of Gleneida Ridge Road, Glenvue Drive, and Glenvue Drive North (The Gleneida Ridge area) led to the implementation of the Carmel Water District 2 Emergency Water Main Replacement Project. Awarded in February 2018, the project began delivering clean water to residents in the late spring of 2018. New mains on Gleneida Ridge Road and Glenvue Road were completed and in service by mid July; service connections to dwellings were completed by the end of August. The project is currently 85% complete; the final reach of water main along NYS Route 301 is currently underway and is scheduled for substantial completion in May of this year.

Historically water quality complaints have also been received from the following areas:

- Everett Road/Kelly Ridge
- Sunset Ridge, Collier Drive, Collier Drive East, and Collier Drive West (the Collier Drive area),
- Lakeview/ Avery Road
- Lindy Drive/Tower Road

2.2 Investigation

With Board approval in October 2017, the Town Consulting Engineer undertook a program of examination of the water mains to determine their fitness to undergo a reaming and lining rehabilitation program. Preliminary coupons were collected from Gleneida Ridge Road, Collier Drive West and Tower Road. Results from the Gleneida Ridge Road coupon, combined with resident complaints, led to the emergency water main replacement discussed above. Subsequent to the award of the emergency main replacement contract a meeting was held with the district residents. It was agreed that a continuation of the coupon collecting program would be undertaken. Additionally, the former district operator

offered to host a tour for the Consulting Engineer to help identify traditional trouble spots. The tour was made in May 2018. Based on the location of historic complaints, the results of the district tour, and the results of the prior coupon collection efforts, the following targeting criteria for coupon extraction were established:

- Known/suspected unlined CI/DI mains
- Areas of known complaints where no coupon/repair had been previously collected
- Areas with working valves that allow isolation of a small section of the District for water shutdown
- Roads that had not been repaved by Highway Superintendent within five (5) years

Based on those criteria, initial coupon collection locations were identified as follows:

- 1: Fair Street Between Glenna Dive and Everett Road
- 2: Willow Road between Route 6 and Leaside
- 3: Stoneleigh Avenue between the hospital entrance and Vista
- 4: Hughson Road at the intersection with Kelly Road
- 5: Old Route 6 between the WWTP and the feed to the Everett tank
- 6: Seminary Hill Road near the Willow intersection
- 7: Route 52 across from East Drive

See Figure 5 for the proposed coupon locations. During the summer of 2018 two separate efforts were initiated to collect coupons from these areas within the District. Identified target sites were coordinated with system operator Inframark. Unfortunately, neither effort bore fruit. In the first instance the valving arrangements surrounding the targeted locations were either inadequate or proved inoperable. This situation prevented the extraction of additional coupons without shutting down or draining excessively large sections of the system. The target locations were adjusted to remain representative of the original locations and were marked out again. Again, most of the valve locations proved inadequate to allow for isolation of a small portion of the system. The valve arrangement on the Willow Drive spur was successfully located and operated, yet the pipe was never located near the mark despite excavating to a depth of more than 6 feet. The alternative was to conduct exploratory excavation into a newly paved road without benefit of an accurate mark and the Consulting Engineer decided to abandon the effort. Throughout this period, Inframark made a concerted effort to coordinate all repairs within the district with the Consulting Engineer, and collected coupons during the repair process when possible. By the end of September 2018 repair coupons had been collected from the following locations:

- Everett Road near Fair Street
- Seminary Hill near Church Street
- Hughson Road north of the Kelly Road intersection
- Shoprite Plaza

Plotted against the target coupon collection sites, these locations correspond very closely with locations 1, 4, 6 and 7 as originally targeted. Refer to Figure 6 for comparison of proposed coupon collection sites vs repair coupons actually collected. Location 2 is the Willow Spur site described above where excavation failed to uncover the pipe. Location 3 is near Putnam Hospital Center. Multiple efforts were made to collect a coupon from Stoneleigh Avenue south of Kelly Road. Due to the scarcity of operable valving and the absence of a viable supply loop it was not possible to collect a coupon from Stoneleigh Avenue without cutting off the supply of water to the hospital for an extended period. The effort to cut a coupon at this location was abandoned. Location 5 presented the same issues as Stoneleigh Avenue with regard to valving arrangements and inability to isolate the pipe run. Further, this run is directly downgradient of the Everett Road tank. Failure to isolate the pipe run risked draining the tank; consequently the effort to cut a coupon at this location was also abandoned. Ultimately, the collected coupons, whether intentional or resulting from repairs, were judged to adequately represent the total coupons intended for collection. Photos of all pipe segments collected are shown in Figures 7-12.

3.0 FINDINGS AND CONCLUSIONS

3.1 Findings

- 3.1.1 The coupons taken from across the district demonstrate significant consistency regardless of the location from which they were taken. Figures 7, 8, 9 and 11 are of unlined pipe and demonstrate varying degrees of tuberculation or sedimentation. Figures 10 and 12 are of lined pipe and demonstrate no tuberculation or sedimentation.
- 3.1.2 All of the unlined pipe coupons demonstrate varying degrees of tuberculation and sedimentation. Significantly, the tuberculation is uniformly built up on the interior of the pipe wall of every sample taken. Nowhere in the inventory of samples do the pipe walls show any indication of deterioration resulting from chemical reactions. The tuberculated pipe segments show no visible sign of erosion or other reduction of the pipe wall thickness. The primary purpose of this investigation was to determine the fitness of the existing iron pipe to withstand the impact of reaming out the tuberculation and leaving an adequate pipe wall to withstand continued operational pressure in the distribution system. To confirm the visual observations, pipe wall thickness was measured using a digital micrometer and compared to the specified wall thickness. Table 1 provides the results of these measurements. Based on these measurements, all the 6" pipe appears to be Class 54-56, and the 10" pipe appears to be Class 56.

TABLE -1									
PIPE WALL DIMENSIONS									
Specified Pipe Wall Thickness*								Casting Tolerance*	
	CL 50	CL 51	CL52	CL 53	CL54	CL55	CL56	4"-8"	10"-12"
Six Inch (6")	0.25	0.28	0.31	0.34	0.37	0.4	0.43	0.05	0.06
Ten Inch (10")	0.29	0.32	0.35	0.38	0.41	0.44	0.47		
Measured Pipe Wall Thickness									
Gleneida Ridge Road 6"	1	2	3						
Pipe Section 1	0.403	0.416	0.443						
Pipe Section 2	0.390	0.413	0.401						
Pipe Section 3	0.417	0.457	0.410						
Pipe Section 4	0.405	0.430	0.441						
Collier Drive 6"									
Pipe Section 1	0.441	0.434	0.414						
Pipe Section 2	0.414	0.409	0.398						
Pipe Section 3	0.409	0.430	0.423						
Tower Drive 6"									
Pipe Section 1	0.400	0.397	0.411						
Pipe Section 2	0.455	0.408	0.423						
Seminary Hill Road 10"									
Pipe Section 1	0.485	0.528	0.538						
Pipe Section 2	0.532	0.518	0.502						
Everett Road 6"									
Pipe Section 1	0.435	0.432	0.452						
* American Cast Iron Pipe Company									

3.1.3 Valving arrangements and operability throughout the District proved insufficient for the purpose of isolating reasonable areas for collecting coupons from targeted locations. This inability to isolate specific areas of the system translates into larger areas of the district than necessary being shut down during routine maintenance or repair work.

3.1.4 Putnam Hospital Center is isolated at the end of a single main. There is no alternative loop to feed water to the hospital south of the intersection of Stoneleigh Avenue and Interlochen Road.

3.1.5 The backlot main between Hughson Road and Stoneleigh Avenue bypasses Kelly Road and is subject to frequent breakage.

3.2 Conclusions

3.2.1 Where lined cast or ductile pipe exists in the system there is no need for pipe rehabilitation.

3.2.2 Where unlined cast or ductile iron pipe exists in the system it is capable of withstanding the cleaning operation. Unlined iron pipe of either type should be rehabilitated or replaced.

3.2.3 A valve replacement/insertion program should be considered in parts of the District that otherwise don't need repairs.

3.2.4 An alternate supply line to Putnam Hospital Center should be installed to ensure uninterrupted supply.

3.2.5 The backlot main between Hughson Road and Stoneleigh Avenue should be abandoned in favor of a new main.

4.0 RECOMMENDATIONS

4.1 Rehabilitate unlined CI/DI mains using cementitious lining techniques. Table 2 identifies the roads and estimated footages of pipe recommended for lining.

TABLE-2	
ESTIMATED PIPE FOOTAGE	
ROAD NAME	LENGTH OF PIPE (LF)
Circle Drive North	588
Collier Drive	786
Collier Drive East/West	3,229
Cross Road/Lakeview Road	4,530
East Drive	531
Everett Road	4,165
Fair Street	4,177
Fowler Avenue	1,262
Garrett Place	400
Hillside Place	1,100
Hughson Road	403
Kelly Road	1,100
Kelly Ridge Road	3,111
Leeside Road	765
Lindy Drive	1,691
North Drive	955
Old Route 6	3,727
Old Route 6 to Everett Road Tank	1,700
Old Town Road	400
Peterson Road	500
Raymond Drive	528
Ridge Road	1,800
Seminary Hill Road	3,572
St. Michael's Terrace	610
Sunnycrest Road	875
Sunset Ridge	2,460
Tower Road	1,214
Vink Drive	1,681
Willow Road and Spur	3,374
Woodland Trail	731
Total	51,965

- 4.2 Install a supplemental main from Hughson Road to Stoneleigh Avenue and south along Stoneleigh Avenue to the entrance of Putnam Community Hospital.
- 4.3 Implement a valve replacement/installation program where water main rehabilitation is not otherwise recommended. Per the 10 State Standards, valve spacing in commercial districts should not exceed 500 feet; in residential or other areas valve spacing should not exceed 800 feet.

5.0 DESCRIPTION OF THE WORK AND COST ESTIMATES

5.1 Water Main Rehabilitation by Pipe Lining

The pipe lining process follows several steps. Temporary water supply, including temporary hydrants, is laid at grade, disinfected and connected to the home either at the outside hose bib or inside the home ahead of the meter. Connection at the hose bib is less expensive but typically bypasses the meter, foregoing billing for water consumption for the duration of construction as a result. Once the temporary supply is installed the water main is exposed and cut for purpose of entry. This is typically done either at existing valves or every 500 feet. Approximately 5 feet of pipe is removed and the run is reamed out from that entry point. Upon completion of the reaming the pipe is flushed and lined with a cementitious coating. After curing, a new valve or a replacement pipe section is installed and the process is repeated until the area under contract is completed. The newly rehabilitated mains are then pressure tested and disinfected much the same way new water mains are tested and disinfected. Upon completion of testing/disinfection the results are presented to the Health Department for approval. Once the mains are approved services are then reinstated and the system is returned to service.

Consultation with contractors indicates that production rates of 1000 LF of lining per week are achievable. Typical production season lasts from April-October in our area. Projects ranging from 8000-12000 LF of main are recommended in order to attract the maximum number of bidders possible. Larger projects tend to attract only the largest contractors, limiting competition. Typical bid costs range from \$125-\$150 per foot of pipe rehabilitated. Variables affecting bid costs include temporary water supply, number of temporary hydrants, number of service connections, amount of asphalt concrete restoration, and maintenance and protection of traffic requirements.

Figure 13 shows the areas recommended for rehabilitation. Table-3 presents the work in \pm 10,000 LF projects. The total footage recommended for lining is 51,965 LF. For estimating purposes, the quantity of 52,000 LF shall be used. At an estimated cost of \$125 - \$150 per linear foot, the estimated cost to the District to line the recommended mains ranges from \$6,500,000.00 - \$7,800,000.00.

TABLE-3						
RECOMMENDED LINING PROJECTS						
Road	No. of Feet	Project 1	Project 2	Project 3	Project 4	Project 5
Circle Drive North	588	X				
Collier Drive	786	X				
Collier Drive East/West	3,229	X				
Cross Road/Lakeview Road	4,530					X
East Drive	531	X				
Everett Road	4,165		X			
Fair Street	4,177			X		
Fowler Avenue	1,262	X				
Garrett Place	400			X		
Hillside Place	1,100		X			
Hughson Road	403					X
Kelly Road	1,100					X
Kelly Ridge Road	3,111		X			
Leeside Road	765				X	
Lindy Drive	1,691				X	
North Drive	955	X				
Old Route 6	3,727					X
Old Route 6 to Everett Road Tank	1,700		X			
Old Town Road	400				X	
Peterson Road	500					X
Raymond Drive	528			X		
Ridge Road	1,800			X		
Seminary Hill Road	3,572				X	
St. Michael's Terrace	610		X			
Sunnycrest Road	875				X	
Sunset Ridge	2,460	X				
Tower Road	1,214				X	
Vink Drive	1,681			X		
Willow Road and Spur	610				X	
Woodland Trail	875			X		
Total		9,811	10,686	9,465	9,127	10,260

5.2 New and Supplemental Water Mains

A new main connecting Hughson Road to Stoneleigh Avenue and extending south to the Hospital is recommended in order to ensure uninterrupted supply to the Hospital. This entails new construction in Town and County Roads. The distance is approximately 7700 LF.

Recent bids in the Town for new water main construction range from \$140.00 to \$360.00 per linear foot. Recent bids in other communities around Putnam County range from \$175.00 to \$315.00 per linear foot. All of these bids are conventional water main construction projects that include house services. This main is intended to supplement the existing main supplying the Hospital. As such, it does not include hydrants, significant valving, or service connections. While these conditions mitigate cost, nearly eighty percent (80%) of the construction is in a County highway. Putnam County requires backfill with Controlled Low Strength Material (K-Crete), a much more expensive material than standard aggregate backfill. Consequently, a cost of \$225.00 - \$250.00 per linear foot will be used. On this basis, the estimated cost to the District to construct the recommended main is between \$1,732,500.00 - \$1,925,000.00.

5.3 Valve Installation

As stated above, the 10 State Standards require valve spacing in commercial districts of 500 feet and spacing of 800 feet elsewhere. Since the rehabilitated areas will receive new valves as part of the lining process, the remaining watermain footage in the District should be considered for valve replacement or insertion as necessary. Inframark conducts annual valve operation tests on approximately 20 percent of the valves in the system. Historically, inoperable valves have been replaced through a system of planned operating expenses. This has proven less than optimal. One year of 100% testing of the valves in areas not planned for rehabilitation should be undertaken by Inframark and replacement of inoperable valves undertaken next year. A count of the mapped valves in areas not planned for lining rehabilitation yields a total of 100 valves. A reasonable planning factor for capital budget purposes is the replacement of approximately 50% of the existing valves and the insertion of 25% of the total to improve operational characteristics of the system. This yields an estimated total of approximately 75 valves requiring replacement or insertion into the system. Gate valves installed as part of new construction have recently been bid between \$1,800.00 - \$2,500.00 each. Replacement of existing valves requires a process similar to coupon removal plus the valve installation. The process of system isolation, maintenance & protection of traffic, excavation, installation, and restoration of the road can be expected to cost an between \$8,000.00 to \$10,000.00 per valve. The total estimated cost for the valve replacement/insertion program is therefore estimated to range from \$600,000.00 to \$750,000.00.

5.4 Program Cost Estimates

Table-4 presents estimated project costs for system-wide upgrades to the Carmel Water District No. 2 Distribution System. Clearly, the project types require different contractors. Professional services and construction contract considerations are as follows:

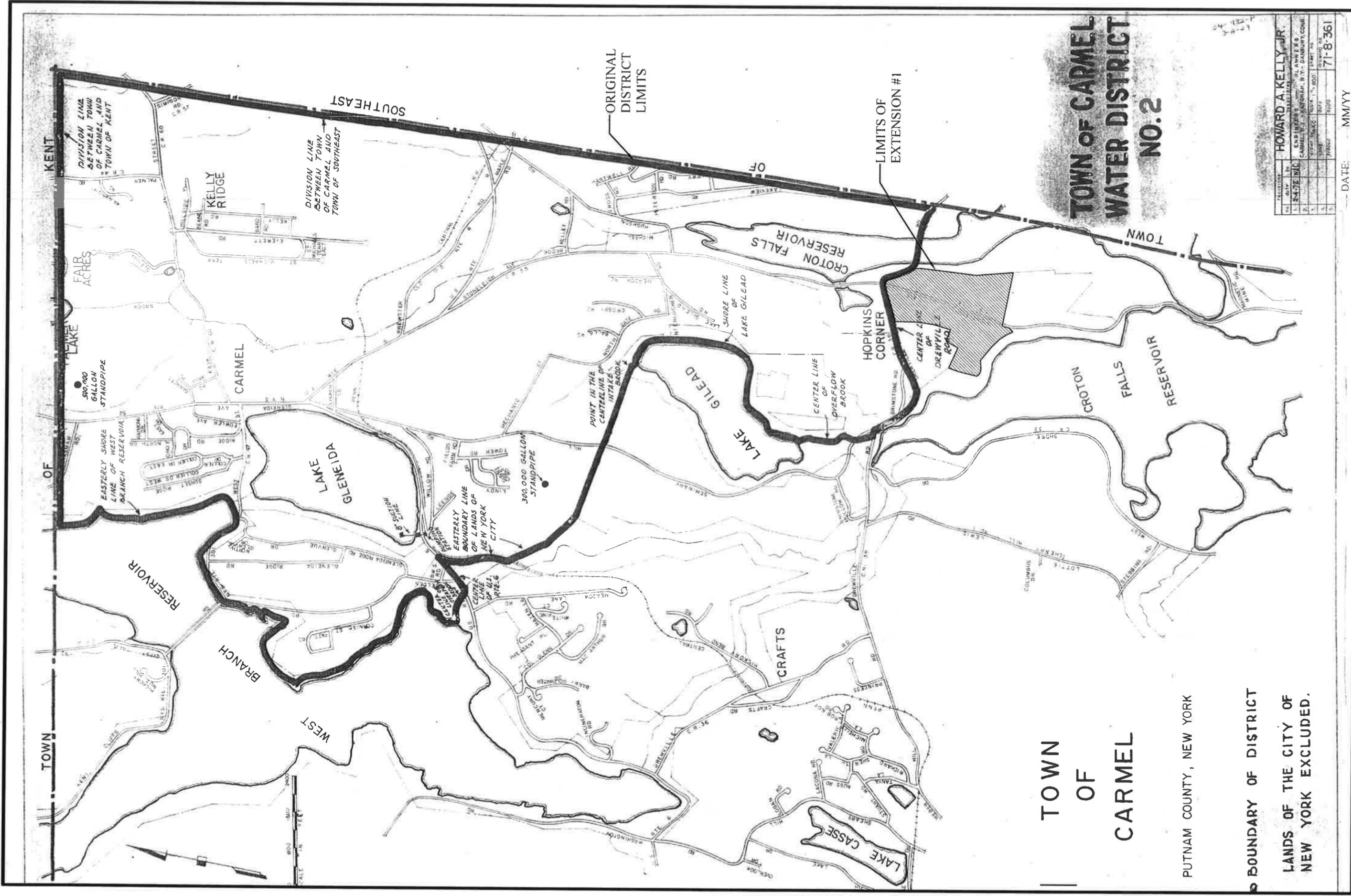
- 5.4.1 The rehabilitation by lining can be awarded as a single professional services contract for the preparation, bidding and execution of five (5) separate construction contracts to be bid separately.
- 5.4.2 The supplemental watermain in Hughson Road/Stoneleigh Avenue can be awarded as a single professional services contract for the preparation, bidding and execution of a single construction contract.
- 5.4.3 The valve installation program can be awarded as a single professional services contract for the preparation, bidding and execution of a single construction contract.

TABLE-4					
ESTIMATED PROJECT COSTS					
Project	Estimated Quantity	Estimated Unit Cost per Linear Foot		Estimated Project Cost Range	
Rehabilitation by Lining					
Lining Project 1	9811 LF	\$125.00	\$150.00	\$1,226,400.00	\$1,471,700.00
Lining Project 2	10686 LF	\$125.00	\$150.00	\$1,335,800.00	\$1,602,900.00
Lining Project 3	9461 LF	\$125.00	\$150.00	\$1,182,700.00	\$1,419,200.00
Lining Project 4	9127 LF	\$125.00	\$150.00	\$1,140,900.00	\$1,369,000.00
Lining Project 5	10260 LF	\$125.00	\$150.00	\$1,282,500.00	\$1,539,000.00
Supplemental Water Main					
Hughson Road/Stoneleigh Avenue to Putnam Hospital	7700 LF	\$225.00	\$250.00	\$1,732,500.00	\$1,925,000.00
Valve Installation Program	75 EA.	\$8,000	\$10,000.00	\$600,000.00	\$750,000.00
Sub-Total				\$8,500,500.00	\$10,076,800
Contingency @ 15%				\$1,275,120.00	1,511,500.00
Engineering/Bond/Legal @17%				\$1,445,140.00	\$1,713,100.00
Estimated Total				\$11,221,060.00	\$13,301,400.00

FIGURES

FIGURE-1

Carmel Water District No. 2 District Limits



**TOWN OF CARMEL
WATER DISTRICT
NO. 2**

DATE: MM/YY

DATE	BY	SCALE	PROJECT NO.
04-18-17	HOWARD A. KELLY, JR.	1"=2000'	71-8-361

NO.	BY	DATE	REMARKS

J. ROBERT FOLCHETTI
ASSOCIATES, P.E., L.S.

TOWN OF CARMEL
WATER DISTRICT No. 2
DISTRICT LIMITS

FIGURE: 1
SCALE: 1"=2000'
DWG. NO. 1

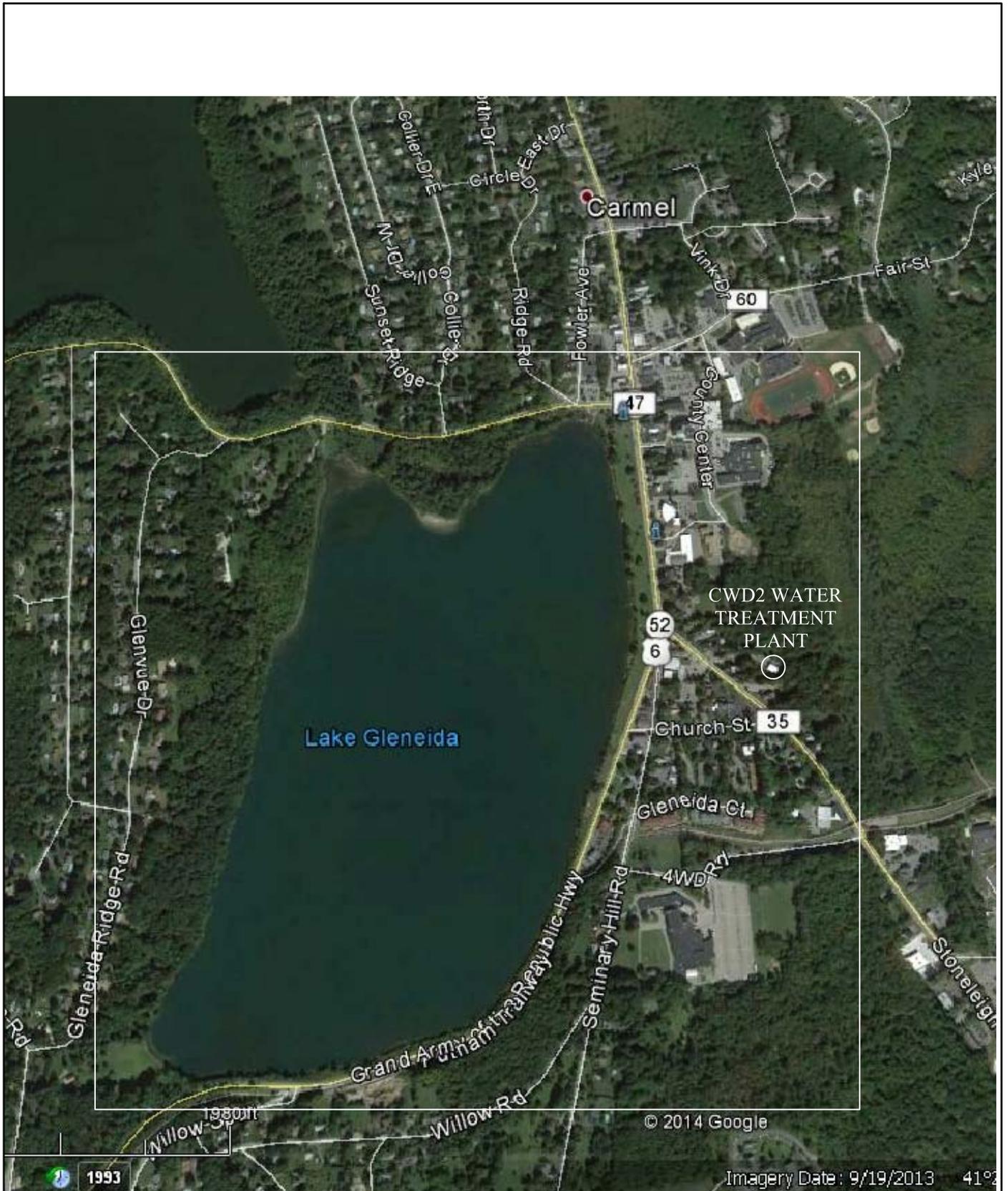
**TOWN
OF
CARMEL**

PUTNAM COUNTY, NEW YORK

BOUNDARY OF DISTRICT
LANDS OF THE CITY OF
NEW YORK EXCLUDED.

FIGURE-2

Water Treatment Plant Location Map



J
R
F
A

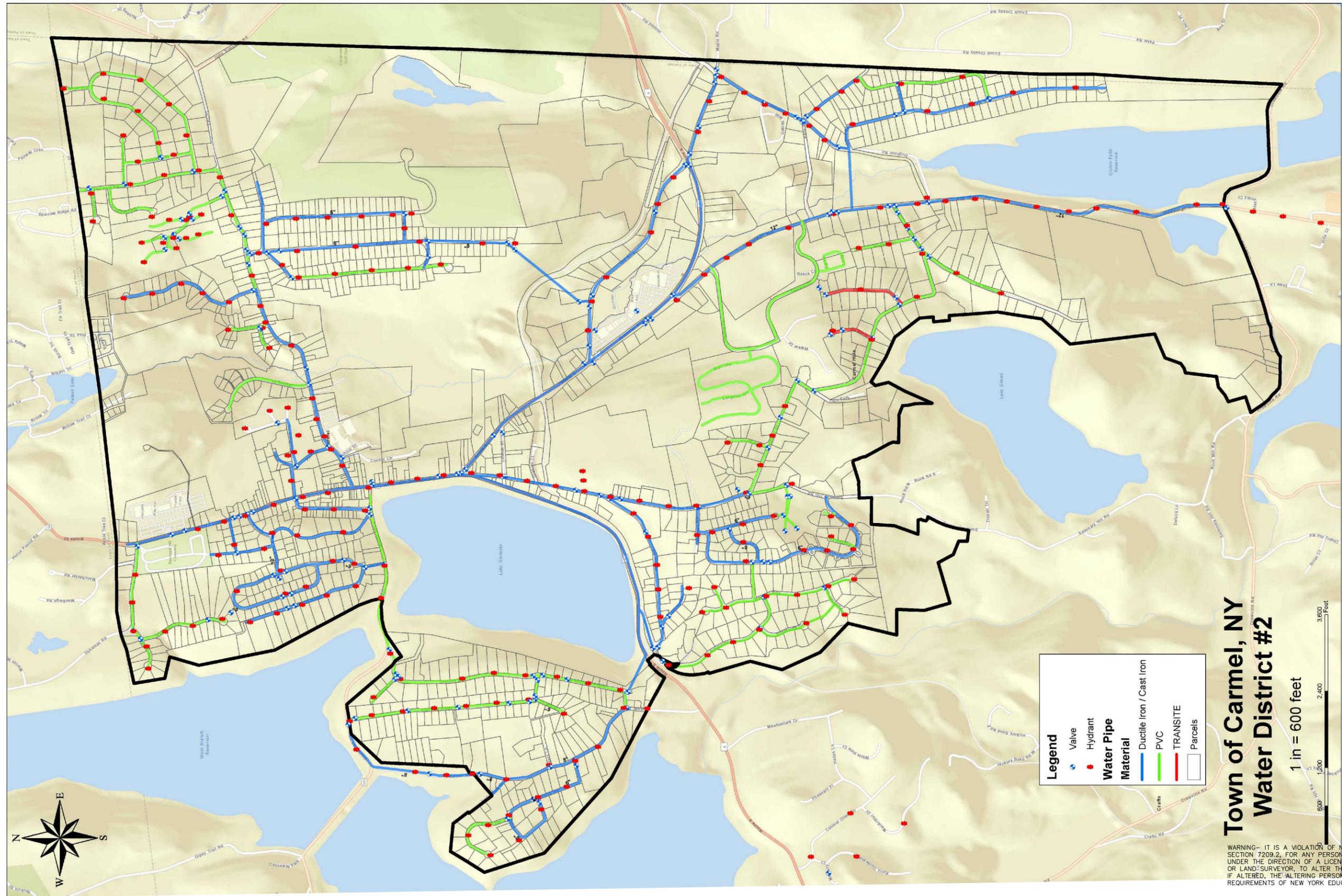
J. ROBERT FOLCHETTI &
ASSOCIATES L.L.C.
CIVIL / ENVIRONMENTAL ENGINEERS
31 SODOM ROAD
BREWSTER, NY 10509
845-363-1560

LAKE GLENEIDA AND
CWD2 TREATMENT PLANT

FIGURE: 2
SCALE: 1" = 800'
DWG. NO. _____

FIGURE-3

Watermain Type and Location



**Town of Carmel, NY
Water District #2**

1 in = 600 feet

Legend

- Valve
- Hydrant
- Water Pipe Material**
 - Ductile Iron / Cast Iron
 - PVC
 - TRANSITE
- Parcels

WARNING- IT IS A VIOLATION OF NEW YORK EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2

REVISIONS			
NO.	BY	DATE	REMARKS

DES. _____
 DWG. _____
 CHK. _____

J R F A
J. ROBERT FOLCHETTI & ASSOCIATES, L.L.C.
 CIVIL / ENVIRONMENTAL ENGINEERS
 www.jrfa.com
 31 SODOM ROAD
 BREWSTER, NY 10509
 845-363-1560

TOWN OF CARMEL
 PUTNAM COUNTY, NEW YORK
WATER DISTRICT No. 2

**FIGURE 3
 WATERMAINS, VALVES
 & HYDRANTS**
 N.T.S.

JRFA
 DATE MAY 2018
 G SHEET OF
 DWG. NO.

FIGURE-4

Tuberculated Main Segment



FIGURE 4
TUBERCULATED MAIN SEGMENT

FIGURE-5

Proposed Coupon Locations

FIGURE-6

Actual Coupon Locations

FIGURE-7

Collier Drive



FIGURE-7
COLLIER DRIVE

FIGURE-8

Tower Road



FIGURE-8
TOWER ROAD

FIGURE-9

Everett Road

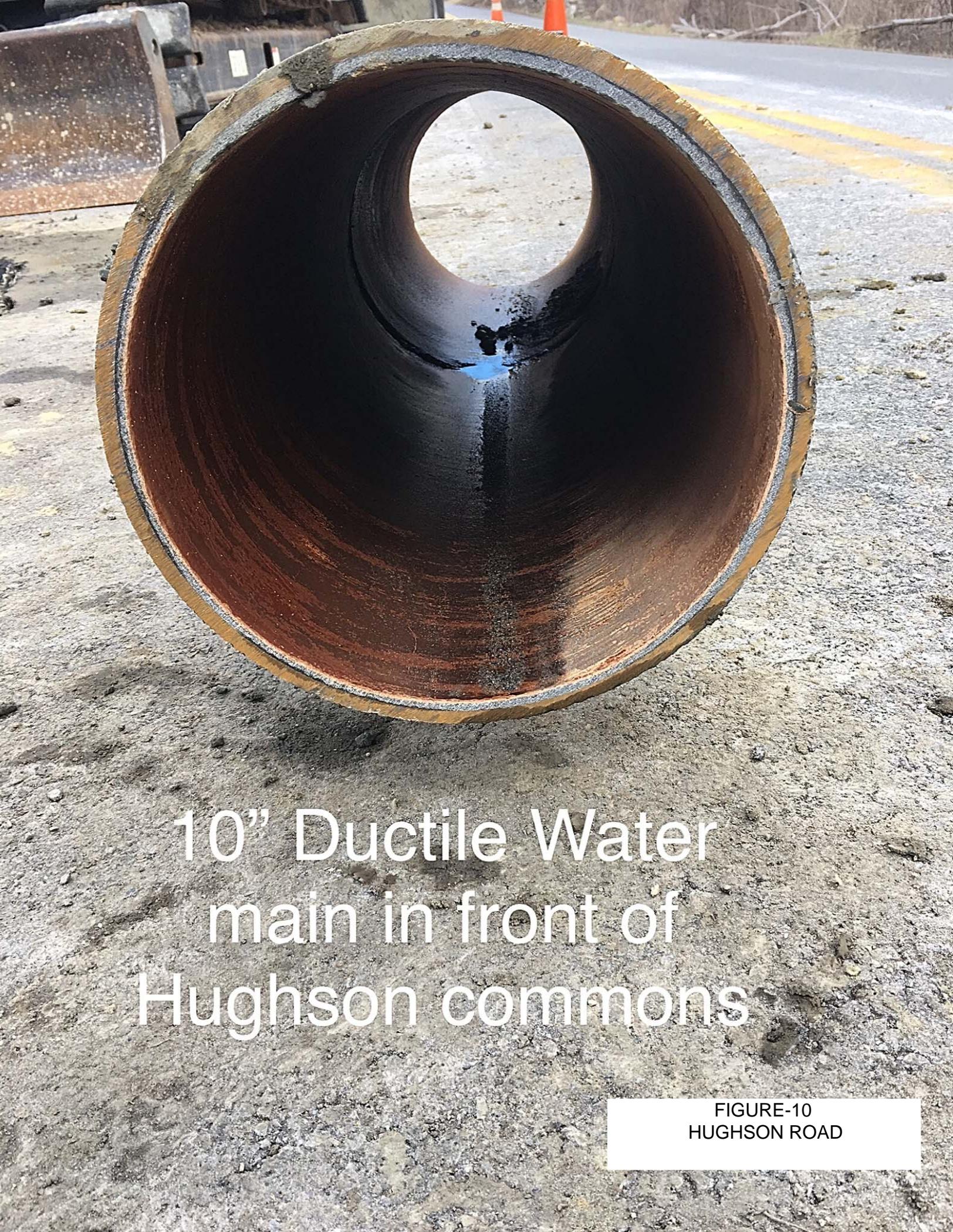
Intersection of
Everett Rd. And
Kelly Ridge



FIGURE-9
EVERETT ROAD

FIGURE-10

Hughson Road



10" Ductile Water
main in front of
Hughson commons

FIGURE-10
HUGHSON ROAD

FIGURE-11

Seminary Hill Road



FIGURE-11
SEMINARY HILL ROAD

FIGURE-12

ShopRite



FIGURE-12
SHOPRITE

FIGURE-13

Recommendations for Repair of Existing Watermains

APPENDICES

APPENDIX A

Town Board Resolutions Forming and Extending

Carmel Water District #2

APPENDIX A.1

Town of Carmel Town Board
Resolution Forming Carmel Water District No. 2

Dec 31 1935

Meeting of the Town Board held in the Town Hall, Mahopac, N.Y.

Meeting was called to order by the Supervisor.

The following members were present Fred H. Smith, James C. Kanong, William A. Mead, Clayton C. Mason, Orson H. Ryoff, Harry M. Barnett.

The reading of the minutes of the previous meeting were omitted.

Supervisor Smith explained that the purpose of the meeting was to give the people a chance to voice their sentiments either in favor or against the establishment of the Canal Water District.

The Supervisor asked Attorney Klobb to file the necessary petition, consent of Rose Oakman, affidavits of the Supervisor, proof of posting notice of hearing, proof of mailing notices to all Public Service Corporations, press publication of notice of hearing.

Upon motion which was carried all papers were accepted and filed with the Town Clerk.

Attorney Klobb explained in detail the legal end of the proposed district.

Engineer Smith explained in detail the engineering factors, also matters of finance, health and fire protection in regard to the proposed district.

Supervisor Smith asked those who wished to oppose the formation of the district to state their views first.

Supervisor Smith asked those who were in favor of the district to state their views.

Supervisor Smith called for a standing vote, those opposed to stand first and those in favor to stand last.

The result was a unanimous vote in favor of the district.

Letter received from the N.Y.C. Railroad Co. in protest against the proposed water district

over.

Certification of assessment within and outside of the proposed water district received from the Board of Assessors.

Mr. Kemp asked that the district be extended to cover his property, and also that of Mr. Herubach.

The Determination and order was received and upon resolution which was carried it was approved and ordered filed with the Town Clerk.

Upon resolution which was carried J. Wilbur Irish and Bradford Kloss were appointed to take care of the engineering and legal matters pertaining to the water district.

Upon motion which was carried the Town Board voted to establish the water district as soon as possible.

Resolution authorizing for bids was passed by the Town Board.

Resolution accepting Government offer of aid was also passed by the Board.

Upon motion, the meeting adjourned

Harry M. Bennett, Clerk.

EXTRACTS FROM THE MINUTES OF A (REGULAR) (SPECIAL) MEETING OF THE Town Board
of Town of Carmel, HELD ON THE 31st DAY OF December, 1935

A special meeting of the _____ of _____
held pursuant to the preceding call of the _____, was held on the _____ day
of _____, 19____.

A regular meeting of the Town Board of Town of Carmel
was held on the 31st day of December, 1935.

The meeting was called to order by Fred H. Smith, Supervisor of Town of Carmel and
Chairman of Town Board of Town of Carmel and on roll call the following

answered present: Orron H. Lyars, William A. Mead, Clayton C.
Wixson, Janett C. Ganong, Fred H. Smith

The following were absent: None

After discussion of the offer of the United States of America to aid by way of loan and grant in financing
the construction of a waterworks system and the purchase of land therefor
the following Resolution, numbered Two, and entitled "A RESOLUTION ACCEPTING THE OFFER OF THE
UNITED STATES TO AID BY WAY OF LOAN AND GRANT IN FINANCING THE CONSTRUCTION OF a waterworks system
and the purchase of land therefor" was proposed by Orron H. Lyars, and
read in full:

RESOLUTION NO. TWO

A RESOLUTION ACCEPTING THE OFFER OF THE UNITED STATES TO THE Town of
Carmel TO AID BY WAY OF LOAN AND GRANT IN FINANCING THE CON-
STRUCTION OF a waterworks system and the purchase of land therefor.

Be it resolved by the Town Board of Town of Carmel

SECTION 1. That the offer of the United States of America to the Town of Carmel
to aid by way of loan and grant in financing the construction of a waterworks system and
the purchase of land therefor,

a copy of which offer reads as follows:

APPENDIX A.2

Town of Carmel Town Board
Resolution for the Extension of Carmel Water District 2

Cont.

PART III—DETERMINATION OF SIGNIFICANCE (To be completed by Agency)

INSTRUCTIONS: For each adverse effect identified above, determine whether it is substantial, large, important or otherwise significant. Each effect should be assessed in connection with its (a) setting (i.e. urban or rural); (b) probability of occurring; (c) duration; (d) irreversibility; (e) geographic scope; and (f) magnitude. If necessary, add attachments or reference supporting materials. Ensure that explanations contain sufficient detail to show that all relevant adverse impacts have been identified and adequately addressed.

Check this box if you have identified one or more potentially large or significant adverse impacts which MAY occur. Then proceed directly to the FULL EAF and/or prepare a positive declaration.

Check this box if you have determined, based on the information and analysis above and any supporting documentation, that the proposed action WILL NOT result in any significant adverse environmental impacts AND provide on attachments as necessary, the reasons supporting this determination:

CARMEL TOWN BOARD
Name of Lead Agency

FRANK J. DEL CAMPO
Title of Type Name of Responsible Officer in Lead Agency

[Signature]
Signature of Responsible Officer in Lead Agency

[Signature]
Signature of Preparer (if different from responsible officer)

12/29/98
Date

C.W.D. #2 - APPROVE EXTENSION #1 (STONELEIGH AVE., HOSPITAL VISTA ON LAKE, ETC.)

In the Matter of Extension #1 to Carmel Water District #2
in the Town of Carmel, Putnam County, New York

WHEREAS, the Town Board of the Town of Carmel has previously expressed its intention to expand a water district in said town, known as Carmel Water District #2, pursuant to Article 12-A of the Town Law, and

WHEREAS, the Town Board of the Town of Carmel, Putnam County, New York duly caused a map, plan and report in relation to the expansion of said Water District to be prepared and did cause said map, plan and report to be filed in the Office of the Town Clerk, and

WHEREAS, an order was duly adopted by the Town Board on December 2, 1998, reciting the intention of the Board to expand the district, the improvements proposed, the boundaries of the proposed extension to the district, and the estimated expense thereof, and specifying December 23, 1998 at 7:30 p.m. as the time and the Town Hall, 60 Mc Alpin Avenue, Mahopac, NY in the said Town of Carmel as the place when the said Board would meet to consider the proposed extension to the water district and to hear all persons interested in the subject thereof concerning the same, and

WHEREAS, such order was duly posted and published as required by law, and

WHEREAS, the Water District is to be extended by the addition of fourteen properties; and

WHEREAS, the water main to service said properties currently exists and any properties not currently connected to the system will connect to the existing water distribution system of Carmel Water District #2 at their sole cost and expense; and

WHEREAS, a hearing in the matter was duly held by the Board on the 23rd day of December, 1998 commencing at 7:30 p.m. at the Town Hall, 60 Mc Alpin Avenue, Mahopac, NY in the said Town and discussion upon the matter having been had and all persons desiring to be heard having been duly heard:

NOW THEREFORE, BE IT RESOLVED AND DETERMINED that (a) the Notice of Hearing was published and posted as required by law and is otherwise sufficient; (b) all the property and property owners within the proposed extension to the district are benefitted thereby; (c) all the property and property owners benefitted are included within

Cont .

the limits of the proposed extension to the district; and (d) it is in the public interest to approve Extension #1 to Carmel Water District #2, with its boundaries as defined on the map duly filed in the Town Clerk's Office; and it is further

RESOLVED AND DETERMINED that the expansion of the water district as proposed be approved; that the improvements therein mentioned be acquired and the service therein mentioned be provided for upon the required funds being made available or provided for; and that such Extension #1 to Carmel Water District #2 shall be bounded and described as follows:

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam and State of New York, more particularly bounded and described as follows:

ALL that certain plot, piece or parcel of land with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam and State of New York shown on a certain map entitled "Survey Map of Vista on the Lake Condominium," dated December 30, 1974, made by Richard H. Gorr, Licensed Surveyor, of Mahopac, New York, and filed in Office of the Clerk of the County of Putnam on March 17, 1975 as map No. 1434 (TM#66-2-1)

TOGETHER WITH all roads which abut the premises herein above regardless of whether they were ever improved or dedicated to the Town of Carmel, County of Putnam or any other municipal corporation.

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at a the southwesterly corner of what is known as Hopkins Corners; thence southerly along Stoneleigh Avenue to lands formerly of John Peterson; thence westerly along lands formerly of said Peterson to lands of Burton White; thence northerly along lands of said White to the highway leading westerly from Stoneleigh Avenue; thence easterly along the last mentioned highway to the place of the BEGINNING. (TM#66-2-2)

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at a point on the Easterly side of the Improved county highway known as Stoneleigh Avenue leading from Carmel to Croton Falls, which point is in the intersection of two stone walls, one stone wall running North and South along the Easterly side of said Stoneleigh Avenue and the Northerly side of another stone wall running East and West separating the premises herein described from lands now or formerly of SHAW: Said point being further described as 145.05 feet on a course South-08-07-05W from the Southwesterly corner of Parcel "A" as shown on a map entitled "Subdivision Plat prepared for Merritt L. Ryder" dated December 9, 1961 and filed in the office of the Clerk of Putnam County on May 23, 1969 as Map No. 1144.

- THENCE,
Along the Easterly side of Stoneleigh Avenue S-09-58-25W, 415.19'
- THENCE,
S-10-14-25W 603.15' continuing along the Easterly side of Stoneleigh Avenue.
- THENCE,
S-10-20-15W, 360.56 continuing along the Easterly side of Stoneleigh Avenue.
- THENCE,
S-16-56-55W, 551.13 continuing along the Easterly side of Stoneleigh Avenue.
- THENCE,
S-17-38-00W 44.16' to a point on the Easterly side of Stoneleigh Avenue.
- THENCE, along lands now or formerly RUBIN. S-88-40-20E, 1109.56'
- THENCE, along the Westerly base of the stone wall and lands now or formerly City of New York, N8-13-00W, 800.00'

Cont.

THENCE, continuing along lands now or formerly City of New York. N00-18-15W, 1228.24'.

THENCE, along lands now or formerly YON and lands now or formerly SHAW S90-15-10W, 451.70' to a City monument.

THENCE, N86-03-00W, 125.42 to the point and place of BEGINNING.(TM#66-2-57)

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at the southeasterly corner of the premises herein conveyed, said corner being distant along the westerly side of Stoneleigh Avenue from the lands now or formerly of Casey North 9° 36' 40" East 127.05 feet and North 10° 28' 50" East 85.87 feet; thence northwesterly along the lands of American Fund for Israel Institution, Inc. North 76° 19' 40" West 225 feet; thence northeasterly parallel to Stoneleigh Avenue North 10° 28' 50" East 175 feet; thence southeasterly South 76° 19' 40" East 225 feet to the westerly side of Stoneleigh Avenue; thence along the westerly side of Stoneleigh Avenue, South 10° 28' 50" West 175 feet to the point and place of beginning.(TM#66.15-1-2)

ALL that certain plot, piece of parcel of land with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam and State of New York shown and designated as Lots #1, #2 and #3 on a certain map entitled "Subdivision Map Prepared for American Fund For Israel Institutions, Inc. and Dr. John Simmons," dated December 22, 1972 and amended December 29, 1972, made by D. Walcott, Licensed Surveyor, of Lake Carmel, New York, and filed in the Office of the Clerk of the County of Putnam on January 12, 1973 as Map. No. 1288, (TM#66.15-1-1, 66.15-1-3, 66.15-1-7)

TOGETHER WITH any and all rights of way as shown on said map;

TOGETHER WITH all roads which about the premises herein above regardless of whether they were ever improved or dedicated to the Town of Carmel, County of Putnam or any other municipal corporation.

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at a point on the northeasterly corner of the premises herein described said point being on the westerly side of Stoneleigh Avenue, south of the intersection of the southwesterly corner of Stoneleigh Avenue and Drewville Road, and being distant South 8° 53' 30" West 53.12 feet and South 9° 27' 20" West 415.04 feet from the lands now or formerly of Miller, as measured along the Westerly side of Stoneleigh Avenue; thence along the Westerly side of Stoneleigh Avenue South 9° 27' 20" West 5.51 feet and South 10° 28' 50" West 134.49 feet; thence along lands now or formerly of American Fund for Israel Institutions, Inc. North 79° 31' 10" West 155.60 feet, North 10° 28' 50" East 140.01 feet and South 79° 31' 10" East 155.49 feet to the point and place of beginning, containing one-half acre of land.(TM#66.15-1-6)

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at a point marked by an iron pin on the westerly side of Stoneleigh Avenue at the northeast corner of lands now or formerly of Holt;
RUNNING THENCE along said lands North 84° 49' 36" West 82.08 feet;
THENCE along said lands and a stone wall North 85° 40' 46" West 265.33 feet to a point in the stone wall marked by a drill hole;
RUNNING THENCE along a stone wall North 7° 05' 24" East 149.92 feet to an iron pin and Drewville Road;
RUNNING THENCE along Drewville Road and a stone wall North 68° 48' 22" East 20.70 feet to an iron pin at the southwest corner of lands now or formerly of Padovani;

Cont.

RUNNING THENCE along said lands of Padovani and a stone wall South 82° 59' 54" East 130.05 feet;

RUNNING THENCE along same South 82° 25' 22" East 197.25 feet to an Iron pin and Stoneleigh Avenue;

RUNNING THENCE along the westerly side of Stoneleigh Avenue South 6° 28' 21" West 142.70 feet to the point of BEGINNING. (TM#66.15-1-8)

ALL that certain plot, piece of parcel of land with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam and State of New York shown and designated as Lots #1, #2, and #3 on a certain map entitled "Subdivision Plat Prepared for Merritt L. Ryder," dated January 12, 1971, made by Richard H. Gorr, Licensed Surveyor, of Mahopac, New York, and filed in the Office of the Clerk of the County of Putnam on June 17, 1971 as Map No. 1232, (TM#66.15-1-16&17, TM#66-2-56)

TOGETHER WITH all roads which abut the premises herein above regardless of whether they were ever improved or dedicated to the Town of Carmel, County of Putnam or any other municipal corporation.

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at a point in the easterly side of the public highway known as Stoneleigh Avenue in the northwesterly corner of a parcel of land which was conveyed by Merritt L. Ryder to David Shaw and Esther Shaw by deed dated December 19, 1961, and recorded in the Putnam County Clerk's Office in Book 555 of deeds at page 181 on December 20, 1961, and running from said point of beginning along the northerly line of said Shaw lands South 87° 36' 45" East 311.05 feet and South 8° 45' 00" East 102.50 feet to a point in the wall in the northerly line of lands of Putnam Community Hospital, Inc. formerly Samuel Rubin, and running thence along the said wall and the line of said hospital lands North 80° 15' 00" East 227.70 feet to a point in the westerly edge of a wall and the line of lands of the City of New York, and thence along the westerly edge of said wall and said City of New York lands, North 18° 29' 00" West 207 feet, thence leaving said wall and along the line of other lands of Merritt L. Ryder South 79° 36' 12" West 153.858 feet; South 53° 16' 13" West 88.955 feet; North 86° 44' 42" West 194.500 feet and North 47° 29' 05" West 70.695 feet to a point in the road face of the wall and the easterly side line of said Stoneleigh Avenue; thence along the road face of the wall and the easterly side line of said Stoneleigh Avenue, South 10° 28' 10" West 51.43 feet and still running along the road face of the wall and said highway South 8° 07' 05" West 48.57 feet to the point of the beginning. Containing 60204 square feet of land, be the same more or less.

Said parcel also being further described as follows:

ALL that plot or parcel of land situate, lying and being in the Town of Carmel, County of Putnam and State of New York, shown and designated as Parcel "A" on "Subdivision Plat prepared for Merritt L. Ryder..." by Charles W. Carpenter dated December 9, 1961 and filed in the office of the Clerk of the County of Putnam on May 23, 1969 as Map No. 1144. (TM#66.15-1-18)

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Carmel, County of Putnam, State of New York bounded and described as follows:

BEGINNING at a point on the easterly side of the improved county highway known as Stoneleigh Avenue leading from Carmel to Croton Falls, which point is in the intersection of two stone walls, one stone wall running north and south along the easterly side of said Stoneleigh Avenue and the northerly side of another stone wall, and the other stone wall running east and west separating the premises herein described from lands now or formerly of Samuel Rubin, which point is in the most southwesterly corner of the parcel of land herein described; thence from said point of beginning along the approximate northerly edge of said last mentioned stone wall and along lands now or formerly of Samuel Rubin, South 86° 03' 00" East 125.40 feet to a point; and North 80° 15' 00" East 225.00 feet; thence leaving said stone wall and along other lands of Merritt L. Ryder, North 8° 45' 00" West 102.50 feet

Cont.

to a point; thence still along other lands of Merritt L. Ryder, North 87° 38' 45" West 311.05 feet to a point in the roadface of the stone wall on the easterly side of Stoneleigh Avenue; thence along the roadface of said stone wall along the easterly side of Stoneleigh Avenue; South 8° 07' 05" West 145.00 feet to the point or place of beginning. CONTAINING 1.000 acre of land.(TM#66.15-1-19)

The foregoing property description identifies the following parcels as shown on the Tax Maps of the Town of Carmel as they existed on June 1, 1998:
Tax Map 66., Block 2 Parcels 1 and 2 inclusive.
Tax Map 66., Block 2 Parcels 56 and 57 inclusive.
Tax Map 66.15, Block 1 Lots 1 through 3 inclusive.
Tax Map 66.15, Block 1 Lots 6 through 8 inclusive.
Tax Map 66.15, Block 1 Lots 16 through 19 inclusive.

BE IT FURTHER RESOLVED that the costs of expanding the water district including the required water system capital improvements are \$0 and will not be financed by the Water District either by bonds or tax; and

BE IT FURTHER RESOLVED that should any unforeseen costs to expand the Water District be incurred or if the Town Comptroller determines that a contribution towards past capital costs incurred by the District are required to be paid by law, they shall be assessed only to property owners in the extension area on an ad valorem basis; and

BE IT FURTHER RESOLVED, that this resolution shall be subject to a permissive referendum in the manner provided in Article 7 and 12-A of the Town Law.

Resolution

Offered by: Councilman Ravallo

Seconded by: Councilman Marino

<u>Roll Call Vote</u>	<u>YES</u>	<u>NO</u>
Timothy Wilson	<u>x</u>	—
James McDonough	<u>x</u>	—
Norman Marino	<u>x</u>	—
Robert Ravallo	<u>x</u>	—
Frank DelCampo	<u>x</u>	—

C.W.D.#2 IMPROVEMENTS TO DISTRIBUTION SYSTEM AND FACILITIES.
\$200,000 - SEQRA REVIEW AND DETERMINATION

Supervisor DelCampo reviewed the Short Environmental Assessment Form with the Town Board.

RESOLVED, that the Town Board of the Town of Carmel hereby determines after appropriate SEQRA review, environmental assessment form attached hereto and made a part hereof, that the proposed C.W.D.#2 facility improvements will not result in any significant adverse environmental impacts.

Resolution

Offered by: Councilman Marino

Seconded by: Councilmen Ravallo and McDonough

J. ROBERT FOLCHETTI & ASSOCIATES, L.L.C.
Civil/Environmental Engineering

31 SODOM ROAD
BREWSTER, NEW YORK 10509
www.jrfa.com

NOTICE OF PUBLIC HEARING
TOWN OF CARMEL
CARMEL WATER DISTRICT NO. 2
REVISED

NOTICE IS HEREBY GIVEN that the Town Board of the Town of Carmel, Putnam County, New York, will meet at the **Carmel High School Library, 30 Fair Street,** in Carmel, New York, on April 24, 2019, at 7:00 o'clock P.M., Prevailing Time, for the purpose of conducting a public hearing upon a certain map, plan and report, including an estimate of cost, in relation to the proposed increase and improvement of the facilities of Carmel Water District No. 2, in said Town, consisting of the reconstruction of and construction of new water mains at various locations within said Carmel Water District No. 2, including original furnishings, equipment, machinery, apparatus, appurtenances, and incidental improvements and expenses in connection therewith, at a maximum estimated cost of \$13,301,400.

Said capital project has been determined to be a Type II Action pursuant to the regulations of the New York State Department of Environmental Conservation promulgated pursuant to the State Environmental Quality Review Act ("SEQRA"), the implementation of which as proposed, said regulations provide will not result in any significant adverse environmental impacts.

At said public hearing said Town Board will hear all persons interested in the subject matter thereof. The Town Board will make every effort to assure that the Public Hearing is accessible to persons with disabilities. Anyone requiring special assistance and/or reasonable accommodations should contact the Town Clerk.

Dated: Mahopac, New York,
April 18, 2019

BY ORDER OF THE TOWN BOARD OF THE TOWN OF
CARMEL, PUTNAM COUNTY, NEW YORK

Ann Spofford
Town Clerk

<p style="text-align: center;">In the Matter of The Increase and Improvement of Facilities of Carmel Water District No. 2 in the Town of Carmel, Putnam County, New York</p>	<p style="text-align: center;">PUBLIC INTEREST ORDER</p>
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WHEREAS, the Town Board of the Town of Carmel, Putnam County, New York, has duly caused to be prepared a map, plan and report including an estimate of cost, pursuant to Section 202-b of the Town Law, relating to the proposed increase and improvement of the facilities of Carmel Water District No. 2, in the Town of Carmel, Putnam County, New York, consisting of the reconstruction of and construction of new water mains at various locations within said Carmel Water District No. 2, including original furnishings, equipment, machinery, apparatus, appurtenances, and incidental improvements and expenses in connection therewith, at a maximum estimated cost of \$13,301,400 and

WHEREAS, at a meeting of said Town Board duly called and held on March 6, 2019, an Order was duly adopted by it and entered in the minutes specifying the said Town Board would meet to consider the increase and improvement of facilities of Carmel Water District No. 2 in said Town at a maximum estimated cost of \$13,301,400, and to hear all persons interested in the subject thereof concerning the same at the Carmel High School, in Carmel New York, in said Town, on April 24, 2019, at 7:00 o'clock P.M., Prevailing Time; and

WHEREAS, said Order duly certified by the Town Clerk was duly published and posted as required by law; and

WHEREAS, a public hearing was duly as set forth in said notice, at which all persons desiring to be heard were duly heard; NOW, THEREFORE, BE IT

ORDERED, by the Town Board of the Town of Carmel, Putnam County, New York,

as follows:

Section 1. Upon the evidence given at the aforesaid public hearing, it is hereby found and determined that it is in the public interest to make the increase and improvement of the facilities of Carmel Water District No. 2, in the Town of Carmel, Putnam County, New York, consisting of the reconstruction of and construction of new water mains at various locations within said Carmel Water District No. 2, including original furnishings, equipment, machinery, apparatus, appurtenances, and incidental improvements and expenses in connection therewith, at a maximum estimated cost of \$13,301,400.

Section 2. This Order shall take effect immediately.

Resolution

Offered by: _____

Seconded by: _____

<u>Roll Call Vote</u>	<u>YES</u>	<u>NO</u>
Michael Barile	___	___
Jonathan Schneider	___	___
John Lupinacci	___	___
Suzanne McDonough	___	___
Kenneth Schmitt	___	___

**A RESOLUTION AUTHORIZING THE ISSUANCE OF \$13,301,400
BONDS OF THE TOWN OF CARMEL, PUTNAM COUNTY, NEW YORK,
TO PAY THE COST OF THE INCREASE AND IMPROVEMENT OF
CARMEL WATER DISTRICT NO. 2, IN THE TOWN OF CARMEL,
PUTNAM COUNTY, NEW YORK**

WHEREAS, pursuant to the provisions heretofore duly had and taken in accordance with the provisions of Section 202-b of the Town Law, and more particularly an Order dated the date hereof, said Town Board has determined it to be in the public interest to improve the facilities of Carmel Water District No. 2, in the Town of Carmel, Putnam County, New York, at a maximum estimated cost of \$13,301,400; and

WHEREAS, the capital project hereinafter described, as proposed, has been determined to be a Type II Action of the regulations of the New York State Department of Environmental Conservation promulgated pursuant to the State Environmental Quality Review Act, pursuant to the provisions of 6 CRR NY 617.5, including but not limited to 6 CRR NY 617.5(c)(2) which as such will not have any significant adverse impacts on the environment; and

WHEREAS, it is now desired to authorize such capital project and its financing;
NOW, THEREFORE, BE IT

RESOLVED, by the Town Board of the Town of Carmel, Putnam County, New York, as follows:

Section 1. For the specific object or purpose of paying the cost of the increase and improvement of Carmel Water District No. 2, in the Town of Carmel, Putnam County, New York, consisting of the reconstruction of and construction of new water mains at various locations within said Carmel Water District No. 2, including original furnishings, equipment, machinery, apparatus, appurtenances, and incidental improvements and expenses in connection therewith, there are hereby authorized to be issued \$13,301,400 bonds of said Town pursuant to the provisions of the Local Finance Law.

Section 2. It is hereby determined that the maximum estimated cost of the aforesaid specific object or purpose is \$13,301,400, which specific object or purpose is hereby authorized at said maximum estimated cost, and that the plan for the financing thereof is by the issuance of the \$13,301,400 bonds of said Town authorized to be issued pursuant to this bond resolution.

Section 3. It is hereby determined that the period of probable usefulness of the aforesaid specific object or purpose is forty years pursuant to subdivision 1 of paragraph a of Section 11.00 of the Local Finance Law. It is hereby further determined that the maximum maturity of the serial bonds herein authorized will exceed five years.

Section 4. The faith and credit of said Town of Carmel, Putnam County, New York, are hereby irrevocably pledged for the payment of the principal of and interest on such bonds as the same respectively become due and payable. An annual appropriation shall be made in each year sufficient to pay the principal of and interest on such bonds becoming due and payable in such year. To the extent not paid from monies raised from said Carmel Water District No. 2 in the manner provided by law, there shall annually be levied on all the taxable real property of said Town, a tax sufficient to pay the principal of and interest on such bonds as the same become due and payable.

Section 5. Subject to the provisions of the Local Finance Law, the power to authorize the issuance of and to sell bond anticipation notes in anticipation of the issuance and sale of the serial bonds herein authorized, including renewals of such notes, is hereby delegated to the Supervisor, the chief fiscal officer. Such notes shall

be of such terms, form and contents, and shall be sold in such manner, as may be prescribed by said Supervisor, consistent with the provisions of the Local Finance Law.

Section 6. The powers and duties of advertising such bonds for sale, conducting the sale and awarding the bonds, are hereby delegated to the Supervisor, who shall advertise such bonds for sale, conduct the sale, and award the bonds in such manner as he shall deem best for the interests of said Town, including, but not limited to, the power to sell said bonds to the New York State Environmental Facilities Corporation; provided, however, that in the exercise of these delegated powers, the Supervisor shall comply fully with the provisions of the Local Finance Law and any order or rule of the State Comptroller applicable to the sale of municipal bonds. The receipt of the Supervisor shall be a full acquittance to the purchaser of such bonds, who shall not be obliged to see to the application of the purchase money.

Section 7. All other matters except as provided herein relating to the serial bonds herein authorized including the date, denominations, maturities and interest payment dates, within the limitations prescribed herein and the manner of execution of the same, including the consolidation with other issues, and also the ability to issue serial bonds with substantially level or declining annual debt service, shall be determined by the Supervisor, the chief fiscal officer of such Town. Such bonds shall contain substantially the recital of validity clause provided for in Section 52.00 of the Local Finance Law, and shall otherwise be in such form and contain such recitals, in addition to those required by Section 51.00 of the Local Finance Law, as the Supervisor shall determine consistent with the provisions of the Local Finance Law.

Section 8. The Supervisor is hereby further authorized, at his sole discretion, to execute a project finance and/or loan agreement, and any other agreements with the New York State Department of Health and/or the New York State Environmental Facilities Corporation, including amendments thereto, and including any instruments (or amendments thereto) in the effectuation thereof, in order to effect the financing or refinancing of the specific object or purpose described in Section 1 hereof, or a portion thereof, by a bond, and/or note issue of said Town in the event of the sale of same to the New York State Environmental Facilities Corporation.

Section 9. The power to issue and sell notes to the New York State Environmental Facilities Corporation pursuant to Section 169.00 of the Local Finance Law is hereby delegated to the Supervisor. Such notes shall be of such terms, form and contents as may be prescribed by said Supervisor consistent with the provisions of the Local Finance Law.

Section 10. The validity of such bonds and bond anticipation notes may be contested only if:

- 1) Such obligations are authorized for an object or purpose for which said Town is not authorized to expend money, or
- 2) The provisions of law which should be complied with at the date of publication of this resolution are not substantially complied with, and an action, suit or proceeding contesting such validity is commenced within twenty days after the date of such publication, or
- 3) Such obligations are authorized in violation of the provisions of the Constitution.

Section 11. This resolution shall constitute a statement of official intent for purposes of Treasury Regulations Section 1.150-2. Other than as specified in this resolution, no monies are, or are reasonably expected to be, reserved, allocated on a long-term basis, or otherwise set aside with respect to the permanent funding of the object or purpose described herein.

Section 12. This resolution, which takes effect immediately, shall be published in summary form in the official newspaper, together with a notice of the Town Clerk in substantially the form provided in Section 81.00 of the Local Finance Law.

Resolution

Offered by: _____

Seconded by: _____

<u>Roll Call Vote</u>	<u>YES</u>	<u>NO</u>
Michael Barile	___	___
Jonathan Schneider	___	___
John Lupinacci	___	___
Suzanne McDonough	___	___
Kenneth Schmitt	___	___

Work Session Agenda Item #1



TOWN OF CARMEL RECREATION & PARKS DEPARTMENT
SYCAMORE PARK, 790 LONG POND ROAD
MAHOPAC, NEW YORK 10541

JAMES R. GILCHRIST, CPRP, DIRECTOR

TELEPHONE: (845) 628-7888 FAX: (845) 628-2820

EMAIL: carmelrecreation@ci.carmel.ny.us

WEB: <http://www.carmelny.org>

DATE: April 11, 2019

TO: Carmel Town Board
 Carmel Town Hall

FROM: James R. Gilchrist, CPRP 
 Director, Recreation and Parks

SUBJECT: Proposal for Airport Park Field Improvements – Water Supply

The attached proposal is from Insite Engineering, Surveying & Landscape Architecture, P.C. to provide services associated with the development of a groundwater source at Airport Park.

Please add this to the Town Board Work Session agenda on April 24, 2019, and contact me with any questions.

/ns
Attachment



April 11, 2019
Revised April 19, 2019

Mr. Jim Gilchrist
Town of Carmel
Sycamore Park
790 Long Pond Rd
Mahopac, NY 10541

Via Email: jrg@ci.carmel.ny.us

RE: Proposal for Airport Park Athletic Fields
Irrigation Water Supply

Dear Mr. Gilchrist:

Our firm, Insite Engineering, Surveying & Landscape Architecture, P.C. (Insite) is pleased to submit this proposal for continued engineering services for the Airport Park Athletic Fields project in Mahopac. It is our understanding that you wish to develop a water source and water supply system for the athletic field irrigation system.

1.0 QUALIFICATIONS

Insite is a firm with fresh ideas and a commitment to quality and service. Our experienced staff has been involved in numerous projects such as yours, so we are confident that we can service your project well. Insite is staffed with Professional Engineers, Landscape Architects and Land Surveyors, all registered in the State of New York, a full design team, and state-of-the-art computer-aided design and drafting systems. We believe our experienced and multidisciplinary firm provides you with the expertise necessary to bring this project to successful completion.

Insite's mission as a leader in the fields of civil engineering, land surveying, and landscape architecture has remained consistent since our inception in 1989; we deliver prompt, professional services driven by value and client's needs. *At Insite, we make commitments you can count on, and deliver solutions you can build on.*

2.0 SCOPE OF SERVICES

Insite proposes to provide engineering services associated with the planning of the irrigation supply for the project. The development of a water source will require input on the hydrogeologic conditions of the area. Insite will work with HydroEnvironmental Solutions (HES) on the hydrogeologic aspects of the project. Our work will be based on the best available mapping and information available. We propose the following tasks in support of an initial study of the water source and irrigation system:

- 2.1 Insite will review available information and walk the property in order to identify conditions surrounding adjacent surface waters and existing wells on the County property. Insite will also review past studies, and obtain information from the Putnam County Department of Health on surrounding wells and water systems.

3 Garrett Place, Carmel, New York 10512 (845) 225-9690 Fax (845) 225-9717
www.insite-eng.com

- 2.2 Insite will develop a water budget for the irrigation system to accommodate five soccer fields. The water budget will establish a recommended weekly schedule for field irrigation in order to efficiently size the system and minimize daily water withdrawal.
- 2.3 Insite will develop three schematic plans for the envisioned system as follows:
- Siting of new well on Town lease parcel.
 - Utilization of unused existing well on the County's property.
 - Utilization of surface water from Lake MacGregor.
- The plans will include location of the applicable components including: well / water withdrawal, storage pond, and irrigation pumping system.
- 2.4 Insite will work with HES to provide input on the hydrogeologic conditions in the area, and identify project considerations relating to same.
- 2.5 Insite will prepare a summary letter report of our findings. The letter report will include a listing of required permits and recommended steps for implementation of the system.
- 2.6 Following the completion of the work program, Insite will meet with you to discuss our findings regarding the study.

3.0 FEES FOR SERVICES

Insite's budget for professional services for the scope listed above is Eight Thousand Nine Hundred Dollars (\$8,900.00).

Insite's services will be billed monthly on a time and materials basis for all hours expended in accordance with the fee schedule in effect at the time the services are performed. Attached is Insite's current Fee Schedule, and General Terms and Conditions.

The scope of professional services as described in this proposal is inclusive of activities normally required by the Town of Carmel. The fees stated in this proposal do not include the following:

- Engineering services beyond those stated.
- Surveying services.
- Procurement of regulatory permits.
- Well testing.
- Services resulting from significant changes in the general scope, extent, or character of the project or its design, beyond the control of Insite.
- Reimbursable expenses per attached fee schedule.

4.0 AUTHORIZATION TO PROCEED

Should you find this proposal acceptable and wish to retain Insite to provide professional services, please sign this proposal in the Authorization to Proceed section, and return it to our office for acceptance. A fully executed copy of this proposal will be returned to you for your files.

This proposal is valid for 30 days from the date shown herein.

Thank you for this opportunity to submit this proposal. Should you have any questions or require any additional information, please feel free to contact our office.

Very truly yours,

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

By: JJC
Jeffrey J. Contelmo, P.E.
Senior Principal Engineer

JJC/amk

Insite File 00006.4065R

AUTHORIZATION TO PROCEED

This will authorize Insite Engineering, Surveying & Landscape Architecture, P.C. to proceed with professional services in accordance with this Proposal, and confirms the Client's acceptance of the attached Fee Schedule, and General Terms and Conditions (Agreement). Upon Insite's acceptance of this Proposal or commencement of the services, the Proposal, Fee Schedule and General Terms and Conditions shall constitute the Agreement between the Client and Insite.

In order to help us respond to your concerns promptly, please provide the following information pertinent to this project: address if other than on proposal, contact person if other than yourself, and phone numbers where you and/or contact may be reached during the day.

Signature: _____	Contact: _____
Client Name: _____	Office #: _____
Date: _____	Fax #: _____
Address: _____	Cell #: _____
_____	Email: _____

INSITE ACCEPTANCE:

Accepted By: _____ Date: _____

Insite File No. 00006.4065R



2019 PROFESSIONAL SERVICES SCHEDULE

FEE SCHEDULE

Senior Principal	\$196./hr.
Principal	\$174./hr
Senior Project Personnel (Engineer, Landscape Architect, Surveyor)	\$150./hr.
Project Personnel (Engineer, Landscape Architect, Surveyor, Designer)	\$138./hr.
Senior Survey Technician/Senior Field Technician	\$118./hr.
Design Engineer/Landscape Designer/CADD Specialist	\$112./hr.
Designer/Survey Technician	\$100./hr.
CADD Operator/Field Technician	\$84./hr.
Junior Technician	\$74./hr.
Administration	\$54./hr.
Survey Field Crew (2-person)	\$220./hr.
Survey Field Crew (1-person)	\$166./hr.

Survey field crew rates stated are not based on prevailing wage rates. Assignments requiring prevailing wage rate surveying will require rate adjustments based on applicable prevailing wage rates specific to the assignment.

All hours are billed portal to portal. In addition, reimbursement is required for all actual expenses incurred including mileage (rate of \$0.60 per mile), special equipment, plotting, printing, postage, express deliveries, and related items.

GENERAL TERMS AND CONDITIONS

Insite shall mean only INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C., and Client shall mean the party that executed the attached Agreement.

Payment Unless otherwise provided in this Agreement, Insite shall invoice Client monthly as provided in the attached agreement. Insite submits invoices on a monthly basis or upon completion of each task, whichever comes first.

Invoices are payable within 15 days of the invoice date. Accounts remaining unpaid more than 15 days after the invoice date are subject to 1 percent interest per month (12 percent annually), starting from the date of the invoice. In addition, Insite may, after 30 days from the date of the invoice, suspend services until Insite is paid in full for amounts due for services rendered.

Changes in Scope Client shall have the right within the general purpose and intent of the project to change, add or delete items from services in writing and subject only to the agreement of Insite with respect to the effect on cost and schedule.

Non-Responsibility Insite shall not be responsible for construction means and methods, site safety, or pollution control.

Insite Engineering, Surveying & Landscape Architecture, P.C.

2019 PROFESSIONAL SERVICES SCHEDULE

GENERAL TERMS AND CONDITIONS (Continued)

Client Responsibilities Client shall on a continuing basis throughout the term of this Agreement; maintain a designated representative, who shall be reasonably available to meet with Insite on Client's behalf; provide Insite with all relevant project related data available to Client; and unless otherwise provided arrange for access, entry and use of property of Client (including utilities thereon) and others, as and when reasonably required by Insite for performance of services.

Change in Law Client shall bear the cost of any material change in, or addition to, services resulting from a change in law or interpretation effective after the date of this Agreement.

Force Majeure Neither party shall be liable for loss or damage suffered by the other as a result of any failure or delay in the performance of its obligations under the Agreement caused by a Force Majeure event or circumstance beyond its reasonable control.

Other Use of Results Client acknowledges that deliverable documents, drawings and data in whatever form ("Documents") produced directly or indirectly through the efforts of Insite in performing services and any analyses, recommendations, or conclusions ("Results") they contain are based upon the specific circumstances and conditions of the project and are intended solely for use by Client in connection with the project. Any change or other than agreed upon use of Documents or Results shall be at the sole risk of Client. Regardless of when delivered, Documents and Results shall become the property of Client upon Insite's receipt of payment in full. Client agrees to defend, indemnify and hold harmless Insite from and against any and all losses arising from Client's direct or indirect use of Documents or Results, other than for their intended use in connection with project.

Indemnification Subject to the provision of these General Terms & Conditions, Insite agrees to indemnify and hold harmless Client, its directors, officers, employees, agents, successors and assigns from losses to the extent and in the proportion caused by the willful misconduct or negligent acts, errors or omissions of Insite, its directors, officers, employees, successors and assigns. To the extent and in the proportion not caused by the willful misconduct or negligent acts, errors or omissions of Insite, its directors, officers, employees or its agents, subcontractors, successors and assigns, Client agrees to defend, indemnify and hold Insite harmless from losses arising in connection with project.

Insurance Throughout the term of this Agreement, Insite shall maintain insurance including Worker's Compensation; Automobile; General Liability; and Professional Liability insurance.

Liability The maximum liability of Insite, its directors, officers, employees and its agents, subcontractors, successors and assigns to Client pursuant to these General Terms & Conditions shall be limited to the cost of the services, or \$1,000,000, whichever is less.

Limitation of Damages The parties waive any right they may have at law or in equity to demand or receive consequential or punitive damages.

Suspension of Services Client shall have the right to suspend all or part of the services, provided Client gives Insite at least seven (7) days' notice of the dates each suspension is to begin and end.

Termination Either party shall have the right to terminate this Agreement without cause upon thirty (30) days' notice. In the event this Agreement is terminated by either party, Client shall pay in full for services performed and costs reasonably incurred by Insite, its agents and subcontractors up to the effective date of termination.

Assignment Except as otherwise provided herein, this Agreement shall not be assignable by either party, in whole or in part, without the prior written consent of the other party.

Notice All notices shall be given to the other party in writing by electronic delivery, hand delivery, express mail, or U.S. mail service providing proof of delivery.

Integration This Agreement shall constitute the entire agreement between the parties.

Modification This Agreement shall not be modified or replaced, in whole or in part, except by written amendment.

Interpretation This Agreement shall be interpreted and enforced in accordance with the Laws of the State of New York.

Severability If any provision of this Agreement is determined or declared by a court of competent jurisdiction to be invalid or otherwise unenforceable, all remaining provisions of this Agreement shall be unaffected and shall be interpreted so as to give the fullest practicable effect to the original intent of the parties.

Waiver Unless otherwise agreed in writing, neither party's waiver of the other's breach of any term or condition contained in this Agreement shall be deemed a waiver of any subsequent breach of the same or any other term or condition of this Agreement.