

## Chapter 8: Water Supply

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### A. PROPOSED ZONING ACTION (GENERIC ANALYSIS)

#### EXISTING CONDITIONS

The MOD Zoning Area is served by Northern Westchester Joint Waterworks (NWJWW), a partnership organization with Cortlandt, Montrose, Somers and Yorktown which provides filtered water from two conventional surface water treatment plants to the Cortlandt Consolidated Water District (CCWD). All of the parcels in the MOD are currently located within the Cortlandt Consolidated Water District (CCWD), which purchases its water from NWJWW. The Northern Westchester Joint Water Work has a maximum plant capacity of 14.5 MGD. In 2018, NWJWW produced an average daily demand of 6.9 million gallons per day (MGD) with a maximum daily demand of 8.3 MGD.

The two treatment plants providing water to NWJWW are: 1) the Amawalk Water Treatment Plant; and 2) the Catskill Water Treatment Facility. The Amawalk Water Treatment Plant is located in the Town of Somers and utilizes the Amawalk Reservoir as its water source. The Catskill Water Treatment Facility is located in the Town of Cortlandt and utilizes the New York City Catskill aqueduct as its water source. The two plants have a combined maximum capacity of 15 MGD.<sup>1</sup> The Catskill Water Treatment Facility pumps filtered water to a 3-million-gallon, on-site storage tank which is then pumped to the Cortlandt and Yorktown distribution system and gravity fed to the Cortlandt Consolidated Water District and the Montrose Improvement District. NWJWW recently completed a variety of improvements including a 4.0 million gallon tank, located on the Northern Westchester Joint Waterworks site off Route 6. This new tank replaced a tank that was built in 1969 and increased storage by 28%. Currently, average daily water consumption is less than 60% of plant capacity.

The current population served by the CCWD is approximately 24,000. Within the Town owned and operated distribution system are four (4) water storage tanks capable of providing 4,071,500 gallons of storage. **Table 8-1** below shows the water storage volumes.

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<sup>1</sup> <http://www.nwjww.com/fac.htm> Northern Westchester Joint Water Work facility description accessed on June 25, 2019.

**Table 8-1:  
Town of Cortlandt Water Storage**

<b>Tank Identification</b>	<b>Proposed Storage Capacity for High Service Areas</b>
Croton Park Colony Tank #1	1,621,500
Croton Park Colony Tank #2	1,000,000
Jacobs Hill Tank	1,000,000
Amberlands Tank	450,000
<b>Total</b>	<b>4,071,500</b>

**FUTURE WITHOUT THE PROPOSED ACTION (NO-BUILD CONDITION)**

In the Future Without the Proposed Action (No-Build Condition) water demand is expected to increase annually through a variety of development projects within the Town. It is anticipated that the increases will be somewhat offset by water saving fixtures required by applicable building code.

The Town lists annually on its Capital Improvement Project list water main replacement projects. Many of these are replacement projects, removing antiquated and aging infrastructure with new distribution main. These projects are ongoing and part of the overall operations and maintenance program of the Town.

**PROBABLE IMPACTS OF THE PROPOSED ZONING (BUILD CONDITION)**

While the Proposed Zoning Action would not directly result in any new construction, the proposed MOD Zoning would allow for an increase in the permitted density of the MOD Zoning Area. The Proposed Zoning Action at full build-out would add a total of approximately 798,000 gsf of development to the MOD, including 366 dwelling units, a 100 room hotel, and a 120-bed assisted living facility. Commercial development as part of the Proposed Action would include 11,000 sf of restaurant space, 49,000 sf of retail, 15,000 sf of medical/dental labs, and 185,000 sf of medical office space. Any new development proposed as part of the MOD would be required to connect to a municipal water supply. Therefore, it is anticipated that the MOD Zoning would result in an increase in future water demand compared to a future build condition under existing zoning.

Although water infrastructure already exists, the incremental increase in development could require additional investment in water infrastructure and equipment. Some of the additional costs could be offset by the additional \$48,518 in property tax revenue that the NWJWW/Cortlandt Consolidated Water district would receive from development associated with the Proposed Zoning Action. However, a site specific SEQR analysis would be required to determine the potential for adverse impacts to the NWJWW/Cortlandt Consolidated Water District.

The Town of Cortlandt must first approve and be willing to serve any new development within the proposed MOD. Since the MOD Zoning requires MOD designated parcels to connect to municipal water and MOD parcels are located adjacent to existing municipal water infrastructure, connection to the water distribution system would be mandatory. If ample capacity is present, a will serve letter will be provided and development within the MOD would include the extension of the Town’s water distribution system in accordance with the Rules And Regulations of the State

Of New York and County Health Department. Each MOD developer would be responsible for necessary on-site conveyance for potable and fire protection via local water district extension.

## **MITIGATION**

Any new development proposed as part of the MOD would be required to connect to the municipal water system and complete site-specific SEQR. If any significant adverse impacts to the water supply system are identified as part of the environmental review, mitigation will be required. Each developer would also be required to extend the system and would be responsible for the design, construction, inspection and certification of aforementioned extension. Capital construction costs, design and inspection fees would be borne by the developer(s). In addition infrastructure extension fees will be required by the Town.

## **B. MOD DEVELOPMENT PLAN**

### **EXISTING CONDITIONS**

#### *EVERGREEN*

The Town of Cortlandt is responsible for providing both domestic and fire protection water service to the Evergreen Manor Project Site. An existing 16-inch water main is located along the south side of Route 202/35/Crompond Road. An 8-inch water main also exists on the north side of the road from Lafayette Avenue to Conklin Avenue and the west side of Lafayette Avenue.

Pressure and flow information was obtained from a hydrant flow test conducted on November 19, 2018. Results of the test indicate a static pressure in the 16-inch water main of 115 psi with a residual pressure of 75 psi when flowing 1130 gallons per minute (gpm) at 45 psi.

#### *GYRODYNE*

The proposed Gyrodyne Project Site is currently comprised of a grouping of five medical office buildings and three single-family residences. The Town of Cortlandt Water District provides potable water to the site. The average daily flow for these uses, based upon NYSDEC Design Standards for Intermediate Sized Wastewater Treatment is estimated at 12,760 gpd. On November 1, 2018, correspondence was sent to the Town of Cortlandt Water Division requesting a letter of water availability.

### **PROBABLE IMPACTS OF MOD DEVELOPMENT PLAN**

#### *EVERGREEN*

The Evergreen Manor Project will require a conservatively estimated average daily water demand of approximately 81,411 gallons per day (see **Table 8-2**). As described above, the available water supply within the NWJWW water supply system currently exceeds the estimated average daily demand for the Evergreen Manor Project and the available water pressure and flow in the Town of Cortlandt water mains appear adequate to meet a maximum peak flow demand of 283 gpm and an average demand flow of 57 gpm.

The proposed buildings will require both fire suppression systems and fire hydrant flow within the Project Site. Fire flow demand for the individual buildings will be determined during the building

permit review. Preliminary firematic “hydrant” flow tests were completed on adjacent water infrastructure to determine if there is adequate capacity for potable and firematic response. Prior to final site plan approval, completed hydraulic analyses prepared by licensed professional engineers will be submitted to the Department of Technical and Environmental Services for review and acceptance. These analyses will determine requirements for onsite distribution, fire suppression systems and onsite water storage in accordance with State, County and Local rules and regulations.

At this time, the available hydrant flow in the system appears to have adequate capacity to accommodate the new buildings. The need for fire pumps and storage, if required, within the buildings would be determined once the buildings have been designed. At least one existing fire hydrant located along Route 202/35/Crompond Road will require relocation to accommodate construction of the main entry road to the Evergreen Manor Project Site.

**Table 8-2**

**Evergreen Estimated Water and Wastewater Demands (NYSDEC Flow Values)**

Use Type	Amount		Unit	Unit Flow (gpd <sup>1</sup> )	Water Demand	
	No.	Beds			Unit Flow <sup>2</sup> (10% additional)	Average Daily Flow (gpd)
Apartments <sup>3</sup>	166	180	Bed	110	121 gal/unit	21,780
Hotel, Rooms	100	100	Bed	110	121 gal/unit	12,100
Retail	15,000	-	Sf	0.10	0.11 gal/unit	1,650
Restaurant	190	-	Seat	35	38.50 gal/unit	7,315
Office/Lab	15,000	-	Sf	0.10	0.11 gal/unit	1,650
Assisted Living Residents	89	89	Bed	110	121 gal/unit	10,769
Independent Living Residents	31	62	Bed	110	121 gal/unit	7,502
Assisted Living Employees	30	-	Emp.	15	17 gal/unit	495
Reserve Capacity	1	-	Ea.	16,500	18,150 gal/unit	18,150
<b>Total Daily Flow (gpd)</b>						<b>81,411</b>
<b>Total Daily Flow (gpm)<sup>4</sup></b>						<b>57</b>
<b>Design Peak Rate of Flow (gpm)<sup>5</sup></b>						<b>285</b>
<sup>1</sup> Unit flow values based on NYSDEC Design Standards for Wastewater Treatment Works, § B.6.b, Design Flow, March 2014.						

- <sup>2</sup> 10 percent added to NYSDEC Design Standards for Wastewater Treatment Works, March 2014 unit flow rate to obtain water demand flow rate.
- <sup>3</sup> Evergreen proposes 152 one-bedroom/studios and 14-two bedroom units: total of 180 bedrooms.
- <sup>4</sup> Equivalent to 75 two-bedroom units per NYSDEC Design Standards for Wastewater Treatment Works, March 2014.
- <sup>5</sup> Flow based on 24 hour day
- <sup>6</sup> Peaking Factor, Instantaneous =5.0 for water and 3.5 for sanitary, Mixed Use Project

*GYRODYNE*

The proposed Gyrodyne Project consists of a four-story medical office building and a five-story, 200 unit multi-family residential apartment building. As shown in **Table 8-3** below, the average daily water usage for this project, based upon NYSDEC Design Standards for Intermediate Sized Wastewater Treatment, is estimated at 53,035 gpd. It should be noted that a seasonal irrigation system is proposed for the site, which will contribute an additional water load of approximately 3,037 gpd pro-rated over a year. Based on an average maximum to average day ratio of 5.0, the peak domestic demand for the proposed development is 280,445 gpd or 195 gpm.

**Table 8-3**  
**Gyrodyne Estimated Water Demand (NYSDEC Flow Values)**

Use Type	Amount		Unit	Unit Flow (gpd <sup>1</sup> )	Water Demand	
					Unit Flow <sup>2</sup> (10% additional)	Average Daily Flow (gpd)
Apartments <sup>3</sup>	200	220 beds	Bed	110	121 gal/unit	26,620
Laundry (per machine)	10		machines	580	638 gpd/machine	6,380
Retail	4,000	-	Sf	0.10	0.11 gal/sf	440
Retail Employment	9		Emp.	15.0 gpd/employee	16.5 gpd/employee	148.5
Medical Office (# of doctors)	90	-	doctors	250	250 gpd/doctor	22,500
<b>Total Daily Flow (gpd)</b>						<b>56,089</b>
<b>Total Daily Flow (gpm)<sup>4</sup></b>						<b>39</b>
<b>Design Peak Rate of Flow (gpm)<sup>5</sup></b>						<b>195<sup>6</sup></b>
<sup>1</sup> Unit flow values based on NYSDEC Design Standards for Wastewater Treatment Works, § B.6.b, Design Flow, March 2014.						

- <sup>2</sup> 10 percent added to NYSDEC Design Standards for Wastewater Treatment Works, March 2014 unit flow rate to obtain water demand flow rate.
- <sup>3</sup> Gyrodne proposes 180 one-bedroom/studios and 20-two bedroom units: total of 220 bedrooms.
- <sup>4</sup> Equivalent to 75 two-bedroom units per NYSDEC Design Standards for Wastewater Treatment Works, March 2014.
- <sup>5</sup> Flow based on 24 hour day
- <sup>6</sup> Peaking Factor, Instantaneous =5.0 for water and 3.5 for sanitary, Mixed Use Project

The multi-family residential building and the on-site fire hydrants will be serviced by 8-inch water mains and 4-inch domestic water service taps to the building. A cross-connection will be made between the existing water mains in Buttonwood Avenue and Lafayette Avenue to facilitate a potential future connection to the residential homes along Buttonwood Avenue. This 8-inch cross-connection will provide water service for the multi-family residential building. Water service for the medical office building will be provided by the existing water main in Lafayette Avenue, with water service for the retail portion of the building being provided by connecting to the existing water main at Route 202/35/Crompond Road. All connections to the building will be provided by 4-inch domestic water source connections. The water supply system will be owned and maintained by the Town of Cortlandt.

Preliminary firematic “hydrant” flow tests were completed on adjacent water infrastructure to determine if there is adequate capacity for potable and firematic response. Prior to final site plan approval, completed hydraulic analyses prepared by licensed professional engineers will be submitted to the Department of Technical and Environmental Services for review and acceptance. These analyses will determine requirements for onsite distribution, fire suppression systems and onsite water storage in accordance with State, County and Local rules and regulations.

#### *MOD DEVELOPMENT PLAN*

Any water mains required as part of the MOD Development Plan shall be constructed of cl-54 ductile iron pipe and with a pressure rating of 350 psi. All water infrastructure will be manufactured in the USA. Onsite water distribution will be looped to existing Town infrastructure on Route 202 / Lafayette Avenue / Buttonwood Road. A 20-ft wide utility easements shall be provided for routine maintenance and repair. Water infrastructure shall be offered and if accepted dedicated to the Town of Cortlandt.

All buildings shall be equipped with a water meter purchased and installed by the applicant/developer. Meter type shall be as provided by the Cortlandt Consolidated Water District. Each service (fire, potable and/or irrigation) shall be required to be metered and equipped with a backflow preventer. Maintenance of meters and backflows is the responsibility of the property owner. All metered accounts will be administered by the Town of Cortlandt and its water provider NWJWW.

#### **MITIGATION**

##### *MOD DEVELOPMENT PLAN*

Due to the anticipated water consumption of approximately 140,000 gallons per day (gpd) at the discretion of the approving agency, district fees will be assessed based on consumption. Included

within the final hydraulic report, each developer will be required to identify annual operating and maintenance expense.

### *EVERGREEN*

#### *Water Conservation*

The owners and operators of the buildings within the Evergreen Manor Project Site will be encouraged to utilize water fixtures and appliances that meet or exceed the minimum standards for water efficiency. In addition, most landscape plantings will be selected based on their ability to be drought tolerant and native to the area. Irrigation if needed will be limited to only those areas where needed such as building and site entrances and gardens. It is recommended that irrigation systems be used during non-peak water usage times to minimize impacts to the Town's water distribution system. Typical peak demands in the public water distribution systems occur during the early morning hours and early evening hours. Irrigation should be scheduled during late evening or before early morning hours.

#### *System Interconnections*

The Evergreen Manor Project will include a connection to the 8-inch CIP water main located on the north side of Route 202/35/Crompond Road and extended as a public water main within the main access road. From there individual building services will be made from the new water main. To minimize water main dead-end pipes, the water main in the main access road will be routed to the west through the development site and connected to the 8-inch Town owned and operated water main located in Lafayette Avenue. This interconnection will also help strengthen the Town water system by allowing water flow to travel through multiple pipes thereby increasing water flow. The water mains installed in the main access road and interconnection to Lafayette Avenue will be designed and constructed to meet the Town of Cortlandt standard specifications. Upon completion of the water mains, they will be offered for dedication to the Town of Cortlandt as a public water distribution main.

#### *Westchester County Health Department Approval of Plans*

Plans to extend the public water supply system onto the Evergreen Manor Project Site will require the "Approval of Plans for A Public Water Main Extension" from the Westchester County Health Department and shall be required to meet all Health Department standards for new public water mains.

### *GYRODYNE*

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## Chapter 8: Water Supply

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### *System Interconnections*

As discussed above, the Gyrodyne Project will include a cross-connection between the existing water mains in Buttonwood Avenue and Lafayette Avenue to provide redundancy and enhance distribution. This 8-inch cross-connection will also provide water service for the multi-family residential building. The water mains installed in the main access road and interconnection to Lafayette Avenue will be designed and constructed to meet the Town of Cortlandt standard specifications. Upon completion of the water mains, they will be offered for dedication to the Town of Cortlandt as a public water distribution main.

### *Westchester County Health Department Approval of Plans*

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