

STATE OF NEW JERSEY  
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE  
REVISION OF RATES FILED BY  
MIDDLESEX WATER COMPANY  
BPU DOCKET NO. WR2105\_\_\_\_\_

PREFILED TESTIMONY

OF

G. CHRISTIAN ANDREASEN, JR.  
VICE PRESIDENT – ENTERPRISE ENGINEERING

MAY 2021

MIDDLESEX WATER COMPANY

STATEMENT OF THE VICE PRESIDENT – ENTERPRISE ENGINEERING

TESTIMONY OF G. CHRISTIAN ANDREASEN, JR.

Q. PLEASE STATE FOR THE RECORD YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is G. Christian Andreasen, Jr. I am the Vice President-Enterprise Engineering for Middlesex Water Company (Middlesex or the Company). In addition, I am the President of Pinelands Water Company and Pinelands Wastewater Company, (Pinelands), subsidiaries of the Company in New Jersey. My business address is 485C Route 1 South, Suite 400, Iselin, New Jersey.

Q. PLEASE STATE YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. My professional qualifications and experience are set forth on Appendix A

Q. ARE YOU FAMILIAR WITH THE SERVICE AREA, SYSTEM FACILITIES, AND OPERATION OF MIDDLESEX?

A. Yes. I have been employed by Middlesex Water Company since 1982 and with the various positions I have held within the Company, I have broad understanding of the facilities and operation of the Company. My responsibilities during my tenure have been for the engineering and planning of the improvements in facilities necessary for the provision of safe, adequate and proper water service for our customers. In addition, the Capital Program and Capital Budget are developed and prepared under my direction. This has involved program and project development and management of improvements to the Company's operational plant including distribution system, production and treatment facilities, sources of supply, and general plant.

Q. HAVE YOU SPONSORED A STATEMENT OF ORIGINAL COSTS OF THE UTILITY PLANT OF THE COMPANY?

A. Yes. An exhibit entitled "Middlesex Water Company – Utility Plant in Service", designated herein as Exhibit P-1 is being sponsored by me.

Q. WILL YOU BRIEFLY EXPLAIN THE BASIS FOR THE PREPARATION OF THIS EXHIBIT?

A. The basis for Exhibit P-1 is the original cost of the Utility Plant in service as set forth in the books and records of the Company, in accordance with the Uniform System of Accounts for Water Utilities. Exhibit P-1 was prepared under the supervision of Mr. Robert J. Capko, the Company's Corporate Controller, based on information I provided to Mr. Capko. I have adopted this exhibit as part of my testimony. I can answer any questions regarding the Company's Plant in Service and am responsible for the basis of what I provided Mr. Capko.

Q. CAN YOU DESCRIBE THE CURRENT PROCEDURE USED FOR CAPITAL ADDITIONS AND RETIREMENTS TO THE UTILITY PLANT?

A. For all capital additions to the Utility Plant, a 5-year Capital Program, and a 1-year Capital Budget are utilized as a basis for developing individual projects. The 5-year Capital Program and the 1-year Capital Budget are developed annually by the Middlesex Engineering Department, in collaboration with the various other Middlesex functional areas and related departments. Once developed, the Capital Program and Budget are subject to review, challenge, modification and approval by Executive Management and the Company's Board of Directors.

For non-specific project-related expenditures such as for water mains, services, meters, meter enclosures, hydrants, pumping equipment, treatment equipment and general equipment, the Company uses "Blanket" projects created within the Capital Program and Budget for each Major Account category of Utility Plant, as defined in the New Jersey Board of Public Utilities (NJBPU) Uniform System of Accounts. Cost estimates for additions to these categories are prepared on the basis of the identified needs to maintain or improve the quality and reliability of service to our customers. Expenditures under the Blanket projects involving construction of mains require a Work Order that is subject to management approval. Costs, including materials and supplies, stores expense, payroll and transportation charges are charged to the appropriate Project Account. Contractor and other vendor costs are charged to the Work Order through purchase orders and invoices. The Blankets are summarized monthly and are transferred to Utility Plant in Service when the projects are completed. There has been no substantive change in the work order process since the Company's last base rate case decision.

Q. COULD YOU PLEASE HIGHLIGHT SOME OF THE MAJOR UTILITY PLANT IMPROVEMENTS COMPLETED AND IN PROGRESS SINCE THE LAST BASE RATE CASE?

A. During the period January 2018 to December 2020, the Company's capital program has been completed in accordance with the procedures described above, with several major projects completed and placed into service during this time period. The most significant projects undertaken, which is near completion, is comprised of major upgrades to the Company's Carl J. Olson Water Treatment Plant in Edison Township. These improvements are described in detail later in this testimony. Another significant project, the Western Transmission Main, is also further described later in this testimony. The Company's annual distribution system upgrade program, referred to internally as RENEW, a program first established in 1995, has continued during this period with the replacement of ~91,000 feet of distribution mains and associated services, hydrants, valves and meters.. In addition to the RENEW program, over 40 individual distribution system projects of varying size were completed, replacing ~26,000 feet of distribution mains and the related services, valves and meters. Miscellaneous treatment plant and pumping projects were also completed and are included in Utility Plant. The remaining expenditures were for "Blanket" items as described earlier in my testimony. As noted above, I am responsible for testifying about both the utility plant that is in service as well as plant at various stages of service but not yet actually in service.

Q. HAVE YOU PREPARED A SCHEDULE OF PROPOSED ADDITIONS TO UTILITY PLANT FOR THE TEST YEAR SEPTEMBER 30, 2021?

A. Yes. I have provided the information for an Exhibit entitled "Middlesex Water Company – Projected Utility Plant in Service" designated herein as Exhibit P-2.

Q. WILL YOU EXPLAIN THE BASIS FOR THIS EXHIBIT?

A. Exhibit P-2 sets forth the actual and estimated additions to Utility Plant in Service for the Test Year through September 30, 2021, and for estimated additions through December 31, 2021.

Q. CAN YOU PLEASE PROVIDE AN OVERVIEW OF THE MAJOR CATEGORIES AND ITEMS IDENTIFIED IN EXHIBIT P-2?

A. The major categories identified on P-2 are Completed Projects, Current Projects, Routine Capital Budget and Retirements. The entry for Completed Projects relates to projects that were in service at December 31, 2020, but which had additional charges to the line item which delayed the transfer of final project costs into Utility Plant for accounting purposes.

The Current Projects are specific budgeted projects currently under construction and will be complete and placed into service by September 30, 2021. They include projects that were already in construction as well as projects that were budgeted for 2021 and will start, and be complete and placed into service, by September 30, 2021.

The Routine Capital Budget category includes the Blanket projects.

The Retirement category is a listing of the retirements that are projected during the Test Year, including completed replacement and retirement of plant through Blankets and other projects.

Q. CAN YOU GENERALLY DISCUSS THE BLANKET ITEMS AS LISTED IN EXHIBIT P-2?

A. The Blanket items listed in P-2 include the items for distribution system mains, valves, service lines, meters, meter installations, and hydrants; for the production and treatment plant, pumping equipment, treatment equipment and plant structures; and for general plant, transportation equipment, computer-related equipment and general equipment. The Transportation Blanket is based on a scheduled replacement program for vehicles and equipment, together with additional equipment requirements. We know these items will be installed, but the timing and sizing of any particular item during the year is difficult to specifically project. For example, we plan to put into service a certain number of new hydrants throughout our system, but how many might go into Carteret or Edison on a particular date during the year is dependent on many factors. Similar to the above other blankets, the line item for General Equipment Blanket is based on functional requirements for items such as office equipment, miscellaneous operations equipment and tools. These items have been included as estimates in the test year period outlined on the exhibit, based on the approved Capital Budget.

Q. CAN YOU DESCRIBE THE COMPANY'S RENEW PROGRAM SET FORTH IN EXHIBIT P-2?

A. Middlesex's RENEW program is a continuation of a successful program that has been described in previous rate case proceedings beginning in 1995. Middlesex has approximately 746 miles of transmission and distribution mains in its service area. RENEW has resulted over time in successfully upgrading distribution system infrastructure including renewal and replacement of distribution mains, service lines, fire hydrants and other distribution system assets. The program also includes installation of meter pits for services up to 2" and readying

the installation for removal of water meters from customer's homes/businesses into outside meter installations.

The goal of any individual RENEW project is to leave an area with a more reliable water distribution system that is less likely to experience a costly failure in the foreseeable future.

Q. DOES THE COMPANY UTILIZE PIPELINE ASSESSMENTS AND CRITICALITY OF PIPELINES IN PRIORITIZING WORK FOR PIPELINE RENEWAL AND REPLACEMENT?

A. Yes, Middlesex conducted an evaluation of the entire water main inventory with the purpose of prioritizing this asset class for use in developing programs and projects for distribution system upgrades including the RENEW and pipeline replacement projects. The evaluation analyzed and ranked the pipeline segments in the distribution system with regard to overall risk using a comprehensive and structured process for prioritization of the Company's pipeline assets. A risk score, also referred to as "criticality", was used which is determined based on Probability of Failure (POF) and Consequence of Failure (COF) scoring according to a comprehensive collection of specific criteria for probability and consequence factors. This evaluation resulted in a Pipeline Prioritization Ranking Tool (PPT) that contains these scores and can be used for quickly identifying the "criticality" of pipeline segments, and the supporting factors, for planning and overall asset management purposes.

The PPT utilizes multiple factors, including asset age and lining status, to determine a pipe's criticality. Overall, over 40 factors for POF and COF are used to score and then determine the ranking for each segment.

The Company's Geographic Information System (GIS) is used to store the data for operational use. Adopted in 2017, PPT is regularly used as one of the initial tools in assessing and prioritizing pipelines to be considered and further evaluated for project development. While the PPT is used for the initial assessments, other factors are also used in validating the initial selections and determining that that project should proceed in development.

Q. CAN YOU PLEASE PROVIDE HIGHLIGHTS OF THE MAJOR PIPELINE PROJECTS SET FORTH IN EXHIBIT P-2?

A. Yes, the major pipeline projects other than the Western Transmission Main, which is detailed later in my testimony, include:

- Crows Mill Road Water Main Replacement: This project was undertaken to upgrade a main in an area with an identified improved fire flow need. Flow tests indicated

minimally acceptable flow from some of the hydrants on the approximately 2,500 foot long dead end main through an industrial area in the Keasbey section of Woodbridge Township. The existing mains were a combination of 6” and 8” mains of varying conditions. Analysis indicated a 12” main would provide significantly better fire flows than the existing main based on the test results. The project included a trenchless crossing of a small stream and an open cut of a railroad.

- Inman Avenue Water Main Replacement: This project was undertaken to address a main of high criticality on a busy mixed use County Road in Woodbridge Township. The nearly 1-mile long 12” main installation included 89 services and 14 fire hydrants.
- Rahway Avenue Water Main Replacement (Paddock to Randolph): This is the first leg of a full replacement of the main on Rahway Avenue. The project includes 3,000 feet of 12” and 1,000 feet of 8” main in addition to 24 services of up to 12” in diameter and 5 fire hydrants. The project includes two trenchless crossings, a stream and a railroad.
- Prospect Avenue Water Main Replacement: This is a 2,500 foot long 8” main replacement planned to be performed ahead of Woodbridge Township’s planned resurfacing of this roadway. Upon review of the planned resurfacing, Middlesex assessed the pipeline’s prioritization rank, and concluded that based upon the Company’s PPT, the project is a feasible candidate to be accelerated in order to coordinate with the Township’s project. Coordination with projects undertaken by local municipalities, where feasible, results in reduced costs, as well as avoids the need to comply with local Ordinances for a 5–year moratorium on road openings other than for emergencies. This project will consist of the installation of pipe prior to the Township’s final paving of Prospect Avenue, resulting in restoration cost savings. The project includes 78 services and meter pits, 2 hydrants, and 9 eight-inch valves.

Q CAN YOU PLEASE PROVIDE A GENERAL DESCRIPTION OF THE METER AND METER INSTALLATION BLANKETS

A. The Company has an ongoing initiative to move the customer meters out of all commercial and residential structures, to installations in pits, or above ground meter enclosures at the property line. This Blanket is for the work being done as part of this overall conversion initiative outside of a specifically identifiable project. The work consists of several programs to construct the installations. This includes meter pits associated with services installed as part of the Service Lines Blanket, pits to be installed at locations where curb stops or curb boxes need to be replaced, customer requests for meter changes, meter pits to be installed as

part of the overall targeted meter replacement program and locations where the service line is being inspected as part of our lead service line and connecting pipe assessment program. This assessment program is complementary to new requirements recently promulgated by the U.S. Environmental Protection Agency as part of the revised Lead & Copper Rule under the Federal Safe Drinking Water Act.

Q. PLEASE DESCRIBE THE WESTERN TRANSMISSION MAIN PROJECT.

A. This project is for the installation of a second supply main (Western Transmission Main or WTM) from the Company's primary production facility, the Carl J. Olsen Water Treatment Plant (CJO Plant) located in Edison, to the distribution system network. Prior to this project the water produced at the CJO Plant was transmitted to the distribution system via a single 4.3 mile long 48" Pre-stressed Concrete Cylinder Pipe (PCCP) water main originally constructed in 1969 (1969 Supply Main).

The 1969 Supply Main was identified as a highly critical risk to the assurance of an uninterrupted supply to the distribution system. A second supply main connecting into the western portion of the distribution system was identified as a long-term solution to mitigating this critical risk. The risks associated with the 1969 Supply Main related to the probability and consequences of failure without adequate redundancy. Such risks were further highlighted with several failures of sections of the pipeline and its appurtenances. The WTM now provides reinforcement and redundancy for the half-century original supply main pipeline, and will now allow the 1969 Supply Main to be removed from service in an orderly manner for needed maintenance activities without impacting system delivery performance...

To proceed with the WTM project, an exhaustive route evaluation study was conducted resulting in the design and construction of a 42" main approximately 5.3 miles long, directly connecting the CJO Plant to a second, more westerly, point in the distribution system. The main was located and sized so it could provide service to the distribution system independent of the existing the 1969 Supply Main in all but the most extreme demand conditions. The addition of WTM allows for reinforcement of supplies to the western portion of the distribution system, complete redundancy and backup to the 1969 Supply Main, as well as capability for shutdown and much needed inspection of the 1969 Supply Main. The WTM proved its value very early in its service where leaks occurred on several occasions on the 1969 Supply Main. Absent service provided through the WTM, a large

number of customers would have been severely impacted for a prolonged period in order to accommodate the required repairs.

Q. PLEASE DESCRIBE THE CJO TREATMENT PLANT UPGRADE PROJECT.

A. The CJO Plant is the major and primary source of water supply for the Company's service area, regularly supplying approximately two thirds of the system demand. The plant was originally placed in service in 1969 and has undergone several improvements over the years. The most substantial of these improvements were made in 1999. Within the 1999 upgrade and expansion, a change in the treatment process was implemented to expand capacity and convert certain aspects of the treatment process including: 1) the original flocculation/sedimentation basin process, and 2) migrating from the use of aluminum sulfite as the chemical coagulant in the SuperPulsator clarifiers to ferric chloride as the chemical coagulant.

The current plant upgrade project was undertaken to address several priorities at the CJO Plant including changes to better assure improved treatment capabilities, compliance with current and future regulations, more reliable electric power to the plant, more comprehensive and reliable backup power generation and to provide for necessary upgrades to aging infrastructure within the original plant.

With regard to water treatment, the overall plan included improved capability to ensure compliance with the Surface Water Treatment Rule and the Long-term 2 Surface Water Treatment Rule, to reduce disinfection byproducts including trihalomethanes (THM's) and haloacetic acids (HAA5's) within the retail and wholesale distribution system, to improve taste and odor of finished water, to allow the reduction of residual products by reducing the need for powdered activated carbon (PAC), and to provide a robust treatment system that can address emerging contaminants.

The primary treatment improvement is the construction of a new ozone treatment facility including new ozone generation facilities, ozone contactor basins and, supporting chemical feed and control equipment in a new building structure adjacent to the original CJO Plant. The new building and ozone contact basins were constructed in the location of the original coagulation/sedimentation basins, and connected with reconfiguration of the yard piping into the existing processes of the active plant.

The upgrade also included a complete upgrade and improvements to the incoming electric utility feed and emergency standby generators allowing for increased resiliency in plant operations supporting ongoing operations during storms and power interruptions. This work

consisted of a complete replacement of the incoming electric power services to the main plant, including utility substation, high voltage switchgear, and dual connector feeders to the main station. For backup power, three (3) new diesel generators capable of powering the new ozone facilities and existing facilities for the full plant capacity were installed.

Previously, only one half of the plant could be powered from a backup power supply.

Additional miscellaneous improvements included installation of a filter to waste capability on filter building #1, installation of surge relief improvements for the finish water piping to mitigate the occurrence of main breaks due to surges, installation of new security systems, and improvements to associated Supervisory Control and Data Acquisition (SCADA) capabilities.

Ultimately, the CJO Plant upgrade project will allow Middlesex to continue to produce high quality drinking water from a plant that is more resilient to the impacts of climate and weather-related events with a more adaptable treatment system to address a variety of contaminants than before the upgrade.

Q. CAN YOU PROVIDE A DESCRIPTION OF THE J. RICHARD TOMPKINS CENTER (“JRT CENTER”) RENOVATION PROJECT?

A. Yes. The JRT Center is located at 1500 Ronson Road in Iselin and had served as the Company’s administrative headquarters since 1984. Several rehabilitations to the JRT Center were completed over the years to address maintenance, upgrades and expansion. Due to the facility’s age-based increasing maintenance requirements, limited expansion ability to accommodate workforce growth and an expanding need for distribution system operations, the administrative headquarters was relocated to leased commercial office space at 485C Route One South in Iselin directly across the street from the JRT Center. The vacated JRT Center was gutted, rehabilitated and repurposed as the Distribution Operations center. The renovated JRT Center includes new HVAC, windows, roofing, training rooms and locker rooms for field personnel, all of which had become significantly more challenging and costly to manage and maintain over time. The Company’s Enterprise Resource Planning information technology infrastructure and business network server center and communications facilities were also upgraded and relocated within the facility as part of this project to mitigate risk.

DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

PROFESSIONAL QUALIFICATIONS OF  
**G. CHRISTIAN ANDREASEN, JR., P.E.**

**SUMMARY:** Over thirty eight years of experience and responsibility in water utility planning, engineering, construction, and management. Responsibilities have included the overall program and project development, design, and project management of a range of distribution, production, and other utility related projects for capital improvements and operations.

**EXPERIENCE:**

**01/1982- Present** Vice President – Enterprise Engineering (Director of Engineering), Middlesex Water Company, Iselin, NJ: Directly responsible for the management for the Company's Engineering Department, Capital Program and Special Projects. This includes planning, design, and supervision of construction in order to continually optimize system expansion, operations and provide proper utility service.

- Management and approval of all functions of the Engineering Department. This included direct supervision of engineers, inspectors, drafters, and support personnel.
- Engineering and Project management responsibilities of major capital projects associated with the utility system. Projects include water and wastewater distribution and collection systems, treatment plants and pump stations, major transmission pipelines, wellfield improvements, office buildings, and storage reservoir/tanks.
- Management and oversight of the Company's use of consultant engineers.
- Responsibility for preparation and administration of the Capital Program.
- Company representation and delivery of presentations at various regulatory, governmental, civic, industrial, and professional organizations.
- Preparation of applications support for regulatory (environmental and administrative) approvals.
- Review, analyses, and support on varied Company operations initiatives and projects.

**01/2005- Present** Vice President - Operations, Pinelands Water Company and Pinelands Wastewater Company, Iselin, NJ: Overall responsibility for utility operations of Water and Sewer Utilities serving approximately 2,400 customers in Southampton Township, NJ.

<b>Specific Major Projects</b>	<u>Description</u>	<u>Roles</u>
	<ul style="list-style-type: none"> <li>▪ CJO Plant Upgrade (\$30+ million), 60" Raw Water Pipeline (\$9 million), RENEW Water distribution system improvements{NJEIT funds} (~\$2-12 million/year), Wellfield Rehabilitation and Air Stripping Facility (\$6.2 million), South River Basin Sections B &amp; C Transmission Mains (\$13 million)</li> <li>▪ Water and Sewer main extensions, replacements and improvements for varied additions and needs including the entire distribution system replacement, and major pipeline relocations for road reconstruction projects.</li> </ul>	<p>Program Mgr,                      Project Manager,                      Project Engineer</p>

**EDUCATION:** B.S. Civil & Environmental Engineering;Clarkson University, Potsdam, NY

**PROFESSIONAL LICENSES:** New Jersey Professional Engineer  
 New Jersey DEP W-3 Water Operators Distribution License

**AFFILIATIONS:** State of New Jersey Water Supply Advisory Council (Vice Chair & member)  
 AWWA (Association: Director; NJ: Past Chair, Trustee, Secretary Treasurer; Member-Asset Management Committee),  
 NJWEA, NJUA, NAWC (member).

MIDDLESEX WATER COMPANY  
UTILITY PLANT IN SERVICE - CLASSIFIED (101)

UTILITY PLANT ACCOUNT	MWC BALANCE AS OF 12/31/19	ADDITIONS	RETIREMENTS	PRIOR PERIOD ADJUSTMENTS	BALANCE AS OF 12/31/20
310 LAND & LAND RIGHTS	299,719	0	0	0	299,719
311 STRUCTURES & IMPROVEMENTS	1,307,308	0	0	0	1,307,308
313 LAKE, RIVERS & OTHER INTAKES	381,429	0	0	0	381,429
314 WELLS & SPRINGS	647,494	0	0	0	647,494
316 SUPPLY MAINS	9,909,085	0	0	0	9,909,085
317 OTHER WATER SOURCE PLANT	0	0	0	0	0
<b>TOTAL SOURCE OF SUPPLY</b>	<b>12,545,035</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,545,035</b>
320 LAND & LAND RIGHTS	92,189	0	0	0	92,189
321 STRUCTURES & IMPROVEMENTS	10,286,760	365,613	0	0	10,652,373
323 OTHER POWER PRODUCTION EQUIP	4,186,127	0	0	0	4,186,127
325 ELECTRIC PUMPING EQUIPMENT	13,923,315	210,838	0	0	14,134,153
328 OTHER PUMPING EQUIPMENT	760,594	0	0	0	760,594
<b>TOTAL PUMPING</b>	<b>29,248,984</b>	<b>576,452</b>	<b>0</b>	<b>0</b>	<b>29,825,436</b>
330 LAND & LAND RIGHTS	143,861	0	0	0	143,861
331 STRUCTURES & IMPROVEMENTS	14,393,798	1,620,631	0	0	16,014,429
332 WATER TREATMENT EQUIPMENT	35,131,784	122,614	0	0	35,254,399
<b>TOTAL WATER TREATMENT</b>	<b>49,669,444</b>	<b>1,743,245</b>	<b>0</b>	<b>0</b>	<b>51,412,689</b>
340 LAND & LAND RIGHTS	865,884	0	0	0	865,884
342 DISTRIB. RES. & STANDPIPES	4,049,912	0	0	0	4,049,912
343 TRANS. & DISTRIB. MAINS	215,259,213	63,257,594	99,945	0	278,416,862
345 SERVICES	61,327,832	5,997,223	194,688	0	67,130,367
346 METERS	16,953,829	664,846	99,164	0	17,519,511
347 METER INSTALLATIONS	32,995,810	6,278,583	30,349	0	39,244,043
348 HYDRANTS	22,032,356	1,691,779	113,392	0	23,610,743
349 OTHER T. & D. PLANT	864,266	24,608	0	0	888,874
<b>TOTAL TRANS. &amp; DISTRIB.</b>	<b>354,349,101</b>	<b>77,914,633</b>	<b>537,538</b>	<b>0</b>	<b>431,726,196</b>
389 LAND & LAND RIGHTS	1,121,028	0	0	0	1,121,028
390 STRUCTURES & IMPROVEMENTS	12,198,596	0	0	0	12,198,596
391 OFFICE FURNITURE & EQUIP	39,621,290	247,969	78,205	0	39,791,055
392 TRANSPORTATION EQUIP.	6,944,593	774,814	22,734	0	7,696,672
393 STORES EQUIPMENT	63,850	0	0	0	63,850
394 TOOLS, SHOP & GARAGE EQUIP.	2,323,364	183,513	1,739	0	2,505,138
395 LABORATORY EQUIPMENT	1,303,646	97,631	40,991	0	1,360,286
396 POWER OPERATED EQUIP.	427,938	0	3,568	0	424,370
397 COMMUNICATION EQUIPMENT	1,439,463	673,876	40	0	2,113,299
398 MISCELLANEOUS EQUIP.	306,565	0	0	0	306,565
<b>TOTAL GENERAL PLANT</b>	<b>65,750,334</b>	<b>1,977,803</b>	<b>147,278</b>	<b>0</b>	<b>67,580,859</b>
<b>TOTAL PLANT IN SERVICE (CLASSIFIED)</b>	<b>511,562,898</b>	<b>82,212,133</b>	<b>684,816</b>	<b>0</b>	<b>593,090,215</b>
102 UTILITY PLANT PURCHASED	0	0	0	0	0
106 PLANT NOT CLASSIFIED	0	0	0	0	0
<b>TOTAL UTILITY PLANT IN SERVICE</b>	<b>511,562,898</b>	<b>82,212,133</b>	<b>684,816</b>	<b>0</b>	<b>593,090,215</b>

MIDDLESEX WATER COMPANY  
Utility Plant in Service

Exhibit P-2  
ver 05/14/2021

Witness: Andreassen

	UPIS at 12/31/20	CWIP Balance 12/31/20	Expenditures Jan-Feb	Actual/Proj Expenditures Mar-Sept	UPIS at 09/30/21	Post Test Year Projected Expenditures Oct - Dec	UPIS at 12/31/21
<b>UTILITY PLANT IN SERVICE: 12/31/20</b>	\$ 593,090,215				\$ 593,090,215		\$ 593,090,215
<b>COMPLETED PROJECTS</b>							
Dino Drive		262,980	1,005	8,808	272,793	-	272,793
Berkley Court		228,362	(5,650)	343	223,055	-	223,055
Crows Mill Road		3,196,173	24,905	-	3,221,078	-	3,221,078
CJO Filters 1-8 Reconstruction		4,232,517	225,994	(1,234)	4,457,277	-	4,457,277
Western Transmission Main		1,109,791	46,197	69,428	1,225,415	-	1,225,415
<b>Subtotal Completed Projects</b>		<b>9,029,823</b>	<b>292,450</b>	<b>77,345</b>	<b>9,399,618</b>	<b>-</b>	<b>9,399,618</b>
<b>CURRENT PROJECTS</b>							
54-in Raw Water Main Inspection & Rehabilitation		88,750	523,475	80,079	692,304	-	692,304
EBS Upgrade Project 2019		567,076	35,472	180,101	782,649	-	782,649
Inman Ave		2,656,594	39,691	300,023	2,996,308	-	2,996,308
Woodbridge Avenue 12" Stream Crossing		435,667	2,443	40,349	478,459	-	478,459
Jenessee Court Main Replacement		2,905	1,931	77,452	82,288	-	82,288
CJO Plant Upgrade *		49,191,460	6,865,905	14,434,734	70,492,099	-	70,492,099
JRT Center Renovations		3,883,845	1,661,817	1,604,495	7,150,157	-	7,150,157
Distribution Sampling Stations 2020 COVID-19		301,231	4,663	10,260	316,154	-	316,154
RENEW 2020*		1,057,269	951,229	494,418	2,502,916	-	2,502,916
RENEW 2021		406,790	69,091	5,259,866	5,735,747	-	5,735,747
CONRAIL - Track Connection (Port Reading)		2,698	32,993	196,598	232,288	-	232,288
Seventh St Main Replacement		12,579	1,274	309,238	323,091	-	323,091
Prospect Ave Main Replacement		16,525	1,642	1,281,897	1,300,064	-	1,300,064
St. Georges Ave. 16" Main Relocation Phase II		(16,849)	257	750,063	733,472	-	733,472
West Hill Road Main Replacement		12,795	1,761	836,212	850,768	-	850,768
Benjamin Ave Main Replacement		1,668	6,901	699,293	707,863	-	707,863
Raw Water Pumping Station Generator (New Brunswick)		859,434	118,835	3,058,925	4,037,193	60,000	4,097,193
Rahway Avenue Water Main Replacement (Paddock to Randolph)		131,358	2,881	1,940,551	2,074,791	-	2,074,791
<b>Subtotal Current Projects</b>		<b>59,611,796</b>	<b>10,322,262</b>	<b>31,554,553</b>	<b>101,488,611</b>	<b>60,000</b>	<b>101,548,611</b>
<b>ROUTINE CAPITAL BUDGET</b>							
T&D Main & Valves Blanket			196,070	352,942	549,012	-	549,012
Service Line Blanket			206,121	1,613,375	1,819,496	-	1,819,496
Hydrants Blanket			39,210	278,706	317,916	-	317,916
Meters & Meter Installation Blanket			797,350	1,760,696	2,558,046	-	2,558,046
Pumping Equip. Water Trtmt Structures & Equip Blanket			37,904	181,124	219,027	-	219,027
Transportation Blanket			45,149	441,027	486,176	-	486,176
IT/GIS/ERP Blanket			7,414	55,146	62,559	-	62,559
General Equipment/Lab Equipment Blanket			28,333	141,180	169,513	-	169,513
<b>Subtotal Routine Capital Budget</b>		<b>-</b>	<b>1,357,551</b>	<b>4,824,195</b>	<b>6,181,745</b>	<b>-</b>	<b>6,181,745</b>
<b>Subtotal Additions</b>		<b>68,641,618</b>	<b>11,972,263</b>	<b>36,456,093</b>	<b>117,069,974</b>	<b>60,000</b>	<b>117,129,974</b>
<b>Subtotal</b>	<b>\$593,090,215</b>	<b>\$68,641,618</b>	<b>\$11,972,263</b>	<b>\$36,456,093</b>	<b>\$710,160,189</b>	<b>\$60,000</b>	<b>\$710,220,189</b>
<b>RETIREMENTS</b>							
General Retirements (Blankets)		-	(114,000)	(282,000)	(\$396,000)	-	(396,000)
Project Retirements		-	(890,122)	(2,823,500)	(3,713,622)	-	(3,713,622)
<b>Subtotal Retirements</b>		<b>-</b>	<b>(1,004,122)</b>	<b>(3,105,500)</b>	<b>(4,109,622)</b>	<b>-</b>	<b>(4,109,622)</b>
<b>TOTAL</b>	<b>\$593,090,215</b>	<b>\$68,641,618</b>	<b>\$10,968,141</b>	<b>\$33,350,593</b>	<b>\$706,050,567</b>	<b>\$60,000</b>	<b>\$706,110,567</b>