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January 25, 2019

Mark Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, Massachusetts 02110

Re: Milford Water Company Valuation, D.P.U. 18-60

Dear Mr. Marini:

Enclosed please find an original and two copies of the pre-filed testimony submitted on behalf of Milford Water Company in docket D.P.U. 18-60. Specifically, the direct pre-filed testimony and supporting exhibits of the following witnesses are included with this filing:

David Condrey, Manager, Milford Water Company – Exh. MW-DC-1

Mark Rodriguez, Managing Partner of MR Valuation Consulting, LLC. – Exh. MW-MR-1

Karen Gracey, Co-President of Tata & Howard, Inc. – Exh. MW-KG-1

Larry Earl Richards, Ph.D., owner of M3P Consulting – Exh. MW-LER-1

Mark Pomykacz, a Director of MR Valuation Consulting, LLC. – Exh. MW-MP-1

Please do not hesitate to contact me if you have any questions or if I can provide you with additional information.

Thank you very much for your attention to this matter.

Sincerely,

Jon N. Bonsall

Jon N. Bonsall
On behalf of Milford Water Company

Encl.

Cc: Kevin Crane, Hearing Officer
Service List, D.P.U. 18-60

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Town of Milford's Petition regarding Purchase of Milford Water Company	)	**D.P.U. 18-60**

AFFIDAVIT OF DAVID CONDREY

1. I, David Condrey, serve as the Manager of Milford Water Company.

2. I certify that the testimony, entitled DIRECT PREFILED TESTIMONY OF DAVID CONDREY, and filed on behalf of Milford Water Company with the Massachusetts Department of Public Utilities on January 25, 2019, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury this 16th day of January, 2019.

David L Condrey

David Condrey

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Town of Milford's Petition regarding Purchase of Milford Water Company	)	**D.P.U. 18-60**

AFFIDAVIT OF MARK RODRIGUEZ

1. I, Mark Rodriguez, serve as the Founding & Managing Partner of MR Valuation Consulting, LLC.

2. I certify that the testimony, entitled DIRECT PREFILED TESTIMONY OF MARK RODRIGUEZ, and filed on behalf of Milford Water Company with the Massachusetts Department of Public Utilities on January 25, 2019, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury this 16 day of January, 2019.

Mark Rodriguez

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Town of Milford's Petition regarding Purchase of Milford Water Company	)	**D.P.U. 18-60**

AFFIDAVIT OF KAREN GRACEY

1. I, Karen Gracey, serve as the Co-President of Tata & Howard, Inc.

2. I certify that the testimony, entitled DIRECT PREFILED TESTIMONY OF KAREN GRACEY, and filed on behalf of Milford Water Company with the Massachusetts Department of Public Utilities on January 25, 2019, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury this 16 day of January, 2019.

Karen Gracey

Karen Gracey

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Town of Milford's Petition regarding Purchase of Milford Water Company	)	**D.P.U. 18-60**

AFFIDAVIT OF DR. LARRY RICHARDS

1. I, Dr. Larry Richards, serve as the Owner of M3P Consulting.

2. I certify that the testimony, entitled DIRECT PREFILED TESTIMONY OF DR. LARRY RICHARDS, and filed on behalf of Milford Water Company with the Massachusetts Department of Public Utilities on January 25, 2019, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury this 25 day of January, 2019.

Dr. Larry Richards

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Town of Milford's Petition regarding Purchase of Milford Water Company	)	**D.P.U. 18-60**

AFFIDAVIT OF MARK POMYKACZ

1. I, Mark Pomykacz, serve as the Director of MR Valuation Consulting, LLC.

2. I certify that the testimony, entitled DIRECT PREFILED TESTIMONY OF MARK POMYKACZ, and filed on behalf of Milford Water Company with the Massachusetts Department of Public Utilities on January 25, 2019, was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the pains and penalties of perjury this 25th day of January, 2019.

Mark Pomykacz

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 18-60

MILFORD WATER COMPANY

DIRECT PREFILED TESTIMONY
OF
DAVID CONDREY

ON BEHALF OF

MILFORD WATER COMPANY

EXHIBIT MW-DC-1

January 25, 2019

Q. Please state your name and business address.

A. My name is David L. Condrey and my business address is 66 Dilla Street, Milford, Massachusetts.

Q. Would you please state your present occupation?

A. I am the Manager of Milford Water Company (the "Company"). In that capacity, I am responsible for all aspects of the day-to-day operations of the Company. I have held this position since March 2010 and previously held various positions in the water utility industry.

Q. Please describe your industry background and professional expertise.

A. After serving four years in the U.S. Army (1983–87), I began my career in the water utility industry working for Harwich Water Department. In a span of ten years, I worked my way up through the ranks, eventually becoming the Secondary Systems Operator. During my time in Harwich, I attended the Water Supply Course at Quincy College and successfully attained both my D-4 and T-1 Certification from the Commonwealth of Massachusetts in Drinking Water and Supply Facility Operations. In August of 2000, I became the Water Superintendent of Barnstable Water Company, then a private water utility owned by Connecticut Water Company. In 2006, I became Operations Manager for WhiteWater Inc. ("WhiteWater"), overseeing all operations at the Hyannis Water System pursuant to an operations contract between the Town and WhiteWater. In August 2009, I was assigned by WhiteWater to the Company as temporary Operations/General Manager before transferring to the Company as its full time General Manager. During

my time as Manager, I have obtained my T-2 and T-3 licenses from the Commonwealth of Massachusetts. I currently belong to the Massachusetts Water Works Association, New England Water Works Association, Plymouth County Water Works Association, American Water Works Association, and the National Association of Water Companies.

Q. Have you previously testified before regulatory agencies?

A. Yes. I have testified before the Massachusetts Department of Public Utilities (the "Department") on behalf of the Company in D.P.U. 10-78, D.P.U. 11-13, D.P.U. 11-99, D.P.U. 12-21, D.P.U. 17-07, and D.P.U. 18-75.

Q. At the outset, please describe briefly the Company and its operations.

A. The Company provides water in the Town of Milford through approximately 9,000 service connections and a transmission and distribution system comprised of approximately 125 miles of mains, varying in size from two to twenty-four inches in diameter, and three distribution storage tanks with a combined capacity of approximately four million gallons. We also provide fire protection service through approximately 950 public and private fire hydrants as well as private fire protection services. The Company maintains interconnections with the neighboring towns of Hopedale, Bellingham, Medway and Holliston, primarily for emergency use. Our source of water supply is obtained from three well fields (Dilla Street, Clarks Island and Godfrey Brook) and two surface water sources (Echo Lake Reservoir and the Charles River). Each of these supply sources undergoes extensive treatment at our Dilla Street Treatment Plant or our Godfrey

Brook Treatment Plant. The latter treatment plant is located at the southern end of town and is a standalone plant that treats water from the Godfrey Brook well field, only, and has a maximum design capacity of 550 gallons per minute. The two plants have a combined capacity of 6.3 million gallons per day ("mgd"). Our system's annual average daily demand is 2.8 to 3.5 mgd, with a peak day demand of approximately 3.8 mgd.

Q. What is the purpose of your testimony?

A. The Town of Milford is seeking to purchase the assets of the Company, pursuant to the Milford Water Charter, St. 1881, c. 77, §9. As part of the statutory process, the Department is tasked with determining the just compensation to which the Company is due. The purpose of my testimony is to describe the Company's water system (the "System"), its maintenance and operations, the Company's capital improvement practices and plans, and other facts that may be helpful to the Department in carrying out its responsibilities.

Q. Please give a basic description of how the System operates to supply drinking water to customers in Milford.

A. The basic operational structure of the System is as follows. Water is sourced primarily from two surface water supplies, the Charles River and Echo Lake, and three groundwater supplies. The groundwater supplies include the Clark's Island Wellfield, Godfrey Brook Wellfield and Dilla Street Wellfield. Water from Echo Lake, Charles River, Clark's Island and Dilla Street are treated at the Dilla Street Water Treatment Facility (the "WTF"). The WTF utilizes chemical addition to create floc which is then

removed in the first filter by means of Dissolved Air Flotation or DAF. There are three DAF filters which the operators manage and the plant is designed to operate at full capacity, utilizing two of the three DAF units with one always in standby mode. Once the DAF units have floated the floc to the top of the filter, the material is periodically "skimmed off" and pumped to a detention lagoon. The lagoons are located adjacent to the WTF and are used to store the organics which have been removed until such time as they are dewatered and sent to a landfill. As the material is pumped to the lagoon, the organics settle to the bottom and the water sitting on top is then recycled to the head of the plant and combined with the raw water before treatment.

Once the water has been treated in the DAF filter, it is then passed through the second and final filter consisting of Granulated Activated Carbon ("GAC"). There are three GAC filters and, like the DAF filters, only two are needed to meet maximum capacity. The GAC filters out any organics that may be left in the water following the DAF treatment. From the GAC filters, it is then treated with chlorine as a disinfectant and passes through two contact chambers providing the water time to react with the chlorine. After the contact chambers, the last of the treatment process takes place when chemicals are added to raise the pH and provide corrosion resistance.

Godfrey Brook is a standalone wellfield which is treated at the Godfrey Brook pump station. The water from the wellfield is currently being treated by Packed Tower Aeration for CO2 removal, chlorine as a disinfectant, pH adjustment and corrosion inhibitor.

After treatment, the water is pumped to the distribution system which consists of approximately 116 miles of water main ranging in size from two to twenty-four inches in diameter. The distribution system encompasses two service areas, the Low Service Area and High Service Area, separated by a series of isolation valves. The Low Service Area constitutes approximately 70 percent of the overall system demand, and the High Service Area, 30 percent. The System also includes three water storage facilities: the Bear Hill tank which has a storage capacity of 2.65 million gallons, the Congress Street tank which has a storage capacity of 1.1 million gallons and the Highland Street tank which has a storage capacity of 270,000 gallons. The Congress Street and Bear Hill tanks are both located in the Low Service Area, and the Highland Street tank in the High Service Area.

The System services approximately 8,970 service connections. Fire protection service is provided through approximately 900 public and private fire hydrants as well as private fire protection services.

Q. What is your opinion as to the overall condition of the system?

A. Based on my 28+ years of working in the industry and having had the opportunity to visit a number of water systems in the New England area, it is my strong opinion that the Milford System is in very good condition. The Company has strived to operate and maintain the system in an efficient, professional manner, employing a staff of professionals who have a combined 110 years of industry experience. The Company also has a number of regular maintenance programs in place. By way of examples, the entire

water main system is flushed annually. The hydrant and valve maintenance programs entail one third of the system's valves and hydrants being operated, cleaned and checked on an annual basis. The tank maintenance program includes all tanks being checked on a daily basis by the Company staff and are subject to an annual Sanitary Inspection by qualified contractors. Additionally, the Company has implemented a three-year engineered inspection and cleaning program in which each tank is done, one every three years. We also have a well cleaning and rehab program where two to three wells are cleaned and rehabbed annually, thereby helping to extend the life of the wells and to provide valuable data as to when a replacement well is needed. We also conduct annual leak detection surveys which help ensure that the water system is sound and water loss is minimized. The Company is currently conducting a lead service line replacement program which, when completed, will have eliminated all known lead services in the system, helping to improve water quality to those customers. All of these programs, combined with the hard work of the Company's employees, keep the System in top operating condition.

Q. Please describe the Company's capital investment practices and any significant planned capital improvements.

A. The Company has traditionally invested in capital projects at a level equal to or greater than its annual depreciation value. On average the Company has invested $1.2 to $1.3 million annually in capital projects in recent years and is expecting to continue to do so going forward. In addition, the Company has some larger capital investments planned in

the next several years which will be funded by the $7,000,000 non-revolving line of credit recently approved by the Department in D.P.U. 18-75. As noted in that docket, the purpose of that financing is to provide the financial resources which the Company requires to undertake certain infrastructure, maintenance and improvement initiatives necessary to ensure that it continues to maintain high quality service to its customers throughout its system. These projects include Godfrey Brook wellfield rehabilitation and improvements which will improve the water capacity of the existing wellfield by rehabbing the existing wells and installing new wells to bring the capacity back to its permit-approved pumping capacity. It will also include the installation of a new treatment process to remove iron and manganese, thereby greatly improving its water quality. Another project we are considering is improvements to the Dilla Street wellfield where we would replace the existing wells to increase capacity. Unlike Godfrey Brook, this water would not need additional treatment because it feeds to our existing Dilla Street WTP. We also have several water main projects planned as well, ranging in cost from $300,000 to $900,000 in order to extend the respective lives of various facilities and improve water quality and fire protection in various areas. As this investigation proceeds, the Company is prepared to supplement the record to document the progress being made on the various projects undertaken.

Q. Have the operational or capital investment practices of the Company changed since this case commenced?

A. No. The Company has not changed its operational or capital improvement practices in any way since the Town of Milford first expressed interest in acquiring the System, or after this case began. The Company continues to perform all maintenance necessary to provide its customers with clean, reliable drinking water service. Likewise, the Company has not altered its projections and plans for reasonable and prudent capital investment in the slightest and continues to make capital planning and projections in its usual manner.

Q. Please describe the results of the Company's most recent rate case.

A. On June 15, 2017, the Company filed a petition with the Department for a $1,895,773 general rate increase (i.e., D.P.U. 17-107), which represented an overall increase of 29.6 percent over the Company's rates at the time of the filing. The Company based its proposed increase on a test year of January 1, 2016 through December 31, 2016. During the proceedings, the Company revised its revenue deficiency to $1,748,841 as a result of recent tax adjustments, which reduced the initial request and represented an overall increase of 27.3 percent over the Company's rates. On August 31, 2018, the Company received the Final Order from the Department which approved an overall rate increase of $1,141,716 or 17.9 percent, with a return on equity of 10 percent.

During the proceedings in D.P.U. 17-107, the Attorney General filed a petition with the Department seeking adjustments to rates for the recent changes in Tax Cuts and Job Acts of 2017 which reduced federal corporate income taxes from 35 percent to 21 percent.

That petition was docketed as D.P.U. 18-15. A Final Order was issued in that docket on December 21, 2018 which resulted in a reduction in the Company's rates by approximately 0.60 percent, thereby reducing the overall rate increase to 17.3 percent. No other changes to the Order in D.P.U. 17-107 were made.

Q. Does this conclude your testimony?

A. Yes, it does.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 18-60

MILFORD WATER COMPANY

DIRECT PREFILED TESTIMONY
OF
MARK RODRIGUEZ

ON BEHALF OF

MILFORD WATER COMPANY

MW-MR-1

January 25, 2019

Q. Please state your name and business address.

A. My name is Mark Rodriguez and my business address is 5 Professional Circle, Suite 208, Colts Neck, NJ 07722.

Q. Would you please state your present occupation?

A. I am the Founder and Managing Partner of MR Valuation Consulting, LLC.

Q. What is the business of MR Valuation Consulting, LLC?

A. MR Valuation Consulting, LLC provides clients with related valuation advisory services including: appraisals, business valuations, purchase price allocations, cost segregation studies, and related litigation support services.

Q. What is the basis of your qualifications for your testimony.

A. My CV is attached as Exhibit MW-MR-2 to my testimony. I am a Mechanical Engineer with a master's degree in Managerial Accounting. I am an Accredited Senior Appraiser with the American Society of Appraisers with a designation in Machinery and Technical Specialties and a Member of the Royal Institution of Surveyors, based in London, with a designation in Business Valuation. I am a former President of the Northern New Jersey Chapter #73 of the American Society of Appraisers from 2004 to 2005. I have over 27 years of experience as an international valuation specialist, including five years as a senior manager in the valuation group of Deloitte & Touche located in New York City, plus five years as a construction project manager with an "ENR top 50" construction management company constructing several gas-fired cogeneration and waste-to-energy facilities. To date, I have performed valuations of over 750 power plants around the world of various technologies. In 1993 and 1994, I served as a project engineer on the Onondaga Resource Recovery Facility. I have supervised and performed numerous

valuation and consulting engagements, including the valuation of tangible assets such as water and wastewater utility systems, telecommunication equipment and facilities, electric generating/transmission/distribution facilities (including renewables and nuclear) and systems, healthcare facilities and operations, commercial buildings, real estate and complex manufacturing, and process and industrial facilities. My valuation and consulting engagements have also included valuation of intangible assets such as IPR&D, trademarks, trade names, developed software, engineering drawings, customer relationships, and goodwill. My experience includes both domestic and international transactions.

Q. Have you previously testified before regulatory agencies?

A. Yes. I have testified as an expert witness before the Virginia State Corporation Commission. I have also presented my appraisals and valuations in numerous court cases, arbitrations, and before property tax appeals boards, including in the states of New Jersey, Michigan, New Hampshire, Maine, Montana, Minnesota, Michigan, Georgia, Connecticut, Illinois, Massachusetts, and New York.

Q. What was the scope of your work and what is the purpose of your testimony?

A. In this proceeding, I have been engaged by Baker Donelson on behalf of the Milford Water Company (the “Company”) to perform an appraisal of the assets owned and operated by the Company (the "System"). This appraisal includes real property (including fee owned and private easements), personal property, and intangible assets. The personal property includes the distribution and transmission piping, service piping, meters, valves, fire hydrants, water storage tanks, water treatment facilities, wells, vehicles and moveable equipment, and inventory. The intangible assets include such

assets as: water rights, documents and drawings, system records and reports, and licenses and permits. The purpose of my testimony is to describe the appraisal activities that I performed and my conclusions. I hereby incorporate my appraisal report, attached hereto as Exhibit MW-MR-3.

Q. Are you generally familiar with the business, operational, and financial activities of the Company?

A. Yes.

Q. At the outset, please describe briefly the Company and its operations.

A. The Company provides water in the Town of Milford through approximately 9,000 service connections and a transmission and distribution system comprised of approximately 125 miles of mains, varying in size from two to twenty-four inches in diameter, and three distribution storage tanks with a combined capacity of approximately four million gallons. The Company also provides fire protection service through approximately 950 public and private fire hydrants as well as private fire protection services. The Company maintains interconnections with the neighboring towns of Hopedale, Bellingham, Medway and Holliston, primarily for emergency use. The Company's source of water supply is obtained from three well fields (Dilla Street, Clarks Island and Godfrey Brook) and two surface water sources (Echo Lake Reservoir and the Charles River). Each of these supply sources undergoes extensive treatment at the Company's Dilla Street Treatment Plant or Godfrey Brook Treatment Plant. The latter treatment plant is located at the southern end of town and is a standalone plant that treats water from the Godfrey Brook well field only and has a maximum design capacity of 550 gallons per minute. The two plants have a combined capacity of 6.3 million gallons per

day ("mgd"). The system's annual average daily demand is 2.8 to 3.5 mgd, with a peak day demand of approximately 3.8 mgd. The location of the System assets and a more detailed description of those assets are included in Sections G and H of Exhibit MW-MR-3.

Q. What standard of value did your appraisal apply?

A. The premise of value is *full and fair cash value*, commonly referred to as fair market value. According to the Massachusetts Supreme Judicial Court, full and fair cash value is defined as: ". . . the price an owner willing but not under compulsion to sell ought to receive from one willing but not under compulsion to buy. It means the highest price that a normal purchaser not under peculiar compulsion will pay at the time and cannot exceed the sum that the owner after reasonable effort could obtain for his property. A valuation limited to what the property is worth to the purchaser is not market value." *Boston Gas Co. v. Assessors of Boston*, 334 Mass. 549, 566 (1956).

Q. What is the date of valuation that was utilized in your report?

A. December 31, 2018. This date was because it is the most recent date for which full-year financial data is available.

Q. What is the final conclusion of the fair market value of the System?

A. My final conclusion of the *full and fair cash value* of the System as of December 31, 2018 is $158 million.

Q. What sources of information did you rely upon in producing your appraisal?

A. Information on the financial, legal, and physical condition of the System was provided by the Company, or its representatives, directly to us or to the public through various public disclosure methods. Site tours and inspections were also conducted on March 15, 2016 and December 5, 2018. Other materials and information were obtained from various professional and industry standard sources.

Q. Who was responsible for your appraisal of the System?

A. I am responsible for the appraisal of the System. I also utilized employees of MRV Consulting to assist with portions of the appraisal, under my supervision. In particular, Scott McMahon performed the income approach to value and Mark Pomykacz was responsible for the appraisal of certain real property including the Commercial Office Building, fee simple land, and private easements. The appraisal report for the land, easements, and the office building is included as Appendix 8 of Exhibit MW-MR-3. Mark Pomykacz is providing direct testimony to describe his work activities and conclusions of value. Overall, I have reviewed the work completed by both Scott McMahon and Mark Pomykacz and accepted their work within my overall appraisal of the System. In addition, Tata & Howard, Inc. ("Tata & Howard") performed certain

replacement cost analysis that is incorporated in the cost approach section of my report, which will be identified below. Tata & Howard's report is included as Appendix 16 of Exhibit MW-MR-3.

Q. Please provide a general description of the appraisal process.

A. The appraisal process is applied to develop a well-supported opinion of a defined value based on an analysis of pertinent general and specific data. Our report considers the three traditional approaches to value: the cost approach, income approach, and sales comparison (market) approach. The utility and applicability of each approach is dependent upon the characteristics of the subject property or assets, market conditions, and the purpose of the appraisal analysis. I will next provide a brief overview of the theoretical basis of the three traditional approaches to value.

The cost approach is based on the principle of substitution. This principle affirms that a prudent buyer would pay no more for an asset than the cost to acquire a similar asset of equivalent desirability and utility without undue delay. The cost approach is based on the understanding that market participants relate value to cost. In this approach, the value of the assets is derived by subtracting the amount of depreciation from the reproduction or replacement cost of the assets. The cost of an asset as of a certain date may be developed as the estimated reproduction cost or replacement cost of the asset. The theoretical base (and classic starting point) for the cost approach is reproduction cost, but replacement cost is commonly utilized because it may be easier to obtain and can reduce the complexity of the depreciation analysis. In this case, I determined the depreciated replacement cost of the Company’s assets - a method known as Replacement Cost New

Less Depreciation ("RCNLD") - with consideration of observed physical depreciation, and functional and economic obsolescence.

The income approach is based on the premise that the value of a security or asset is the present value of the future earning capacity that is available for distribution to the subject investors in the security or asset. The most commonly used income approach for the valuation of water utility systems is the discounted cash flow method ("DCF"). A DCF method involves forecasting the appropriate cash flow stream over an appropriate period of time and then discounting it back to a present value at an appropriate discount rate. This discount rate should consider the time value of money, inflation, and the risk inherent in the ownership of the asset or security being valued.

The market or sales comparison approach to value is a procedure by which value can be estimated from prices paid in actual market transactions as well as asking prices for similar assets which are available for sale. In essence, the procedure is a comparison and correlation between the asset being appraised and other similar assets. Certain factors such as location, date of sale, physical characteristics, and technical and economic conditions relating to the transaction are analyzed for their comparable uniqueness. These transactions, with appropriate adjustments, will assist in determining the fair market value of the assets being appraised. The market approach is not commonly relied upon when valuing special purpose property. Special purpose property is defined as property or assets appropriate for only one use or for a limited number of uses. A special purpose property or assets as improved is probably the continuation of its current use if that use remains viable and there is sufficient market demand for that use. These assets usually have limited conversion potential and are typically not financially feasible. The

cost approach to value is a generally accepted or predominately relied upon method to use when performing appraisals of special purpose assets including water utility systems. In performing the appraisal of the assets of the Company, I considered the three traditional approaches to value, namely the cost approach, income approach, and market approach.

Q. Please describe the steps you followed in preparing the appraisal.

A. In order to estimate the full and fair cash value of system of assets, the appraiser must identify the highest and best use of the assets and must assume such highest and best use as the premise of value. The highest and best use of a system or property is one that results in the highest value. The four criteria that the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity. The highest and best use of the assets that comprise the Milford Water System is, as currently improved, for its continued use as a water utility system. The water system is already in place, and this continued use is physically possible and legally permissible. Our analysis demonstrates that the Milford Water System is financially feasible. The value of the improvements and the assets that comprise the Milford Water System contribute to this highest and best use as it is maximally productive.

Additionally, the appraiser needs to consider the most likely population of hypothetical willing buyers. Based on the characteristics of the System and the population of market participants who are likely to invest in a water utility system, the most likely pool of hypothetical willing buyers in this case would include both government owned utilities and investor owned utilities with presence in the surrounding marketplace. The presence

of one or more government owned utilities in the marketplace will have a positive impact on the full and fair cash value of the System.

Existing or newly formed government owned utilities would be interested in the acquisition of the Milford Water System. To acquire such a System, an entity such as a district commission or authority could be formed by the Town of Milford, Massachusetts, or by one or more municipalities. Municipalities have extraterritorial condemnation authority for water utility and supply projects. The hypothetical government owned utilities buyers in the area may include:

a) Town of Milford, MA
b) Town of Bellingham, MA
c) Town of Holliston, MA
d) Town of Hopedale, MA
e) Town of Hopkinton, MA
f) Town of Upton, MA
g) City of Framingham, MA
h) City of Worcester, MA
i) Massachusetts Water Resources Authority
j) A combination of the above municipalities could form a regional water district commission or authority to purchase this System

The hypothetical investor owned utility buyers could include:

a) Eversource Energy – An investor owned utility headquartered in Hartford, Connecticut and Boston, Massachusetts that provides retail electricity, natural gas, and water services to approximately four million customers in

Connecticut, Massachusetts, and New Hampshire. Eversource acquired the Aquarion Water Company of Massachusetts ("Aquarion") in 2017. Aquarion is the largest investor owned water utility in New England and is among the ten largest in the US. Aquarion provides water to 51,000 people during the winter and 63,000 in the summer throughout the towns of Hingham, Oxford, Millbury, Hull, and North Cohasset, Massachusetts.

b) Connecticut Water Service, Inc. – An investor owned utility, Connecticut Water Service, Inc., is the parent company of the Connecticut Water Company, Maine Water Company, Avon Water Company, and Heritage Village Water Company. Together, its subsidiaries provide water service to more than 450,000 people in Connecticut and Maine, and wastewater service to more than 10,000 people in Connecticut.

These considerations suggest that the likely population of hypothetical willing buyers of the Milford Water System includes both governmental and investor owned utilities with the capital and infrastructure to purchase and maintain a water system of comparable size. In the acquisition of a going concern business, the population of buyers with the greatest expected synergies will set the range of market prices. The expected acquisition synergies of a population of willing buyers can be strategic, operational, and/or financial. By considering the acquisition synergies of various willing buyers, MRV Consulting has identified the most likely population of buyers for the Milford Water System.

In the case of the Milford Water System, a not-for-profit public entity buyer (i.e., a government-owned utility ("GOU")) will: 1) not have to pay income taxes; 2) have access to low cost municipal financing; and 3) not be subject to the same regulatory

environment as an investor owned utility buyer. Further, of the approximately 52,000 community water systems and 17,000 not-for-profit noncommunity water systems in the U.S., approximately 15 percent are owned by private entities. The majority (85 percent) of water systems that are members of the American Water Works Association ("AWWA") in the U.S. are owned by public entities. Therefore, public (governmental) entity buyers will set the market price range in which all potential buyers (both GOU and IOU) will have to compete with to bid. Since both GOU and IOU entities are within the pool of potential hypothetical buyers, my income approach takes them equally into account.

Once the highest and best use and hypothetical willing buyers have been determined, the appraiser performs the cost, income, and market approaches. The three approaches to value are then considered to determine the full and fair cash value of the System. A specific weight is applied to each approach to value as deemed appropriate through a reconciliation process in order to reach the final conclusion of value.

Q. Please explain the cost approach you employed.

A. The basis of the cost approach, as applied for these purposes, is replacement. How much would it cost to build a replacement asset or group of assets? The cost to develop/build or redevelop/rebuild a property is estimated and reconciled to value. The cost approach is based on the "principle of substitution." This principle supports the position that a prudent seller would not sell for less, nor would a prudent buyer pay more for a specific property than the cost of building an asset offering the same utility. The same utility means the same potential capacity, condition, life, and operational usefulness as the

subject property over a similar remaining useful life. As I explained earlier, I utilized the RCNLD method under the cost approach in this case.

The cost approach is often relied upon for complex appraisal situations such as when an asset has a large quantity of tangible assets associated with it, when a distinction needs to be made between real and personal property, when a grouping of assets is not frequently traded in the market, and when an asset is considered unique, such as a "special purpose" or "specialty" asset. As I have testified earlier, a water utility system is considered special purpose property which leads to the cost approach being given strong consideration.

Q. What steps did you follow in performing the cost approach in this case?

A. After gathering relevant information about the assets of the Company and analyzing data for the market area, site, and improvements, I proceeded as follows:

a) Determined the highest and best use of the System to be its current use and considered the hypothetical willing buyers to be a blend of GOUs and IOUs.

b) Relied on replacement cost as the cost basis.

c) Estimated the amount of direct (hard) and indirect (soft) costs of the improvements as of the effective appraisal date.

d) Added the direct costs and indirect costs to arrive at the replacement cost new of the improvements.

e) Estimated the amount of depreciation from the replacement cost new of the improvements and allocated it among the three major categories:

- Physical deterioration
- Functional obsolescence

- Economic obsolescence

f) Deducted estimated depreciation from the replacement cost new of the improvements to derive an estimate of their depreciated cost.

g) Added land value to the total depreciated cost of the improvements.

h) Added the replacement cost of intangible assets.

Q. Please explain who performed the components of your RCNLD analysis under the cost approach.

A. MRV Consulting worked in conjunction with the engineering firm of Tata & Howard to perform the cost approach analysis of the assets that comprise the Milford Water System. Tata & Howard is familiar with the Milford Water System and prepared the 2010 Master Plan and Capital Improvements Plan for the Company and has performed other engineering services for the Company. Table K-1 in Exhibit MW-MR-3 identifies which valuation activities within the cost approach analysis were performed by MRV Consulting versus the valuation activities completed by Tata & Howard. In short, Tata & Howard calculated the Replacement Cost New of the majority of the tangible System assets and determined the observed depreciation of those assets. MRV Consulting valued the real property (land and easements), the commercial office building, vehicles, SCADA software, moveable equipment, inventory, construction work-in-progress ("CWIP"), and intangible assets. MRV Consulting also estimated the indirect costs, such as construction management fees, engineering fees, permits, performance bond, and insurance. MRV Consulting also calculated the Allowance for Funds Used During Construction ("AFUDC").

Q. What were the results of the Tata & Howard analysis?

A. Tata & Howard, Inc. provided replacement costs new and observed depreciation for a majority of the main water system assets that comprise the Milford Water System. The following Table No. 7-1 (also shown as Table K-6 in Exhibit MW-MR-3) is an excerpt from the Tata & Howard report. The Tata & Howard report is included within Appendix 16 of Exhibit MW-MR-3.

Table No. 7-1
Schedule of Replacement Costs

Group	Item Description	Replacement Cost New	Observed Depreciation (%)
Raw Water Assets			
1.1	Godfrey Brook Wellfield	$ 331,750	55.47%
1.2	Clark's Island Wellfield Pump Station	$ 289,120	44.48%
1.3	Clark's Island Wellfield	$ 131,500	8.91%
1.4	Dilla Street Wells	$ 180,400	90.00%
1.5	River Intake Building	$ 128,230	48.34%
1.6	Echo Lake Dam/Intake	$ 3,950,000	38.30%
Treatment Facility Assets			
2.1	Dilla Street WTF	$ 21,172,050	11.07%
2.2	High Lift Pump Building	$ 2,546,230	86.15%
2.3	Diatomaceous Earth Building	$ 233,000	82.25%
2.4	Slow Sand Building	$ 808,000	91.29%
2.5	Circular Clearwell Structure	$ 77,270	99.70%
2.6	Godfrey Brook WTF	$ 1,196,860	58.78%
Water Storage Facility Assets			
3.1	Bear Hill Tank	$ 1,283,400	41.82%
3.2	Congress Street Water Storage Tank	$ 1,044,000	39.32%
3.3	Highland Street Tank	$ 765,300	74.48%
3.4	Congress Street Booster Pump Station	$ 129,380	45.28%
3.5	Congress Street Water Storage Tank Vault	$ 18,720	9.13%
Transmission & Distribution Assets			
4.1	Water Mains-Distribution	$ 98,243,658	33.98%
4.2	Water Mains-Raw Water	$ 6,316,125	19.92%
4.3	Hydrants	$ 4,019,400	33.19%
4.4	Valves	$ 3,053,560	30.49%
4.5	Customer Meters	$ 2,639,880	52.96%
4.6	Customer Services	$ 20,952,460	34.00%

Q. Please explain in more detail your analysis under the cost approach of the components that MRV Consulting directly valued.

A. MRV Consulting directly valued the following:

Land – The Company owns 39 nonadjacent land parcels in fee simple estate, which total ±550.08 acres. The market value of the land is $30,679,200, as of December 31, 2018. Appendix 8 of Exhibit MW-MR-3 includes the supporting real estate appraisal of the land parcels owned in fee simple estate.

Easements – The Company owns 34 nonadjacent private easements; however, we have only been able to identify, locate, and confirm 22 of these easements, which total ±7.77 acres. The market value of the 22 easements is $400,000, as of December 31, 2018. Appendix 8 of Exhibit MW-MR-3 includes the supporting real estate appraisal of the private easements.

Commercial Office Building – The Company owns a 1.5 story commercial office building, which serves as its headquarters and training facilities. They occupy two thirds of the building and lease the other third. The address of the administration building is 64 – 66 Dilla Street, Milford, MA 01757. The value of the Commercial Office Building is $450,000, as of December 31, 2018. Appendix 8 of Exhibit MW-MR-3 includes the supporting real estate appraisal of the Commercial Office Building.

Vehicles – The Company owns and operates 12 vehicles including cars, trucks, vans, and dump trucks. MRV Consulting utilized the following recognized internet and vehicle auction data websites including Kelly Blue Book, Ritchie Bros., and Commercial Truck Trader to estimate the value of the vehicles. The value of the vehicles is $190,000, as of

December 31, 2018. Appendix 10 of Exhibit MW-MR-3 includes the supporting analysis and data for the appraisal of the vehicles.

SCADA Equipment – MRV Consulting received a fee quote via email from R.E. Erickson Co. Inc. from Walpole, MA dated October 15, 2018. The fee quote to replace the existing SCADA system for the Milford Water System is $94,100. We applied physical depreciation of 25 percent (age/life = 5 years / 20 years) to the replacement cost new. The cost approach value of the SCADA system is $75,575, as of December 31, 2018. Appendix 9 of Exhibit MW-MR-3 includes the supporting email from R.E. Erickson Co. Inc. from Walpole, MA dated October 15, 2018.

Moveable Equipment – The Company owns and operates seven pieces of moveable equipment including track loader, backhoe, trailers, air compressor, generator, vacuum pump, and commercial lawn mower. MRV Consulting utilized the following recognized Internet and vehicle auction data websites including Ritchie Bros., Machine Trader, Fastline Equipment, etc. to estimate the value of the moveable equipment. The value of the moveable equipment is $230,000, as of December 31, 2018. Appendix 11 of Exhibit MW-MR-3 includes the supporting analysis and data for the appraisal of the moveable equipment.

Intangible Asset: Distribution Maps & Engineering Drawings – During our due diligence process (including interviews with management from the Company), we identified a number of discrete intangible assets owned by the Company. Based on the quantity, number of hours to reproduce, and hourly rates, we identified and valued the intangible assets utilizing the following formula:

$$\text{Quantity} \times \text{Hours to Reproduce New} \times \text{Hourly Rate} = \text{Replacement Cost New}$$

The primary function of the distribution maps and engineering drawings is to provide main, valve, and hydrant locations for the daily maintenance and expansion of the water distribution system. Based on information provided by the Company, we estimated the number of labor hours required to complete the tasks involved in reproducing the distribution map and engineering drawings. The Company also provided the hourly rates of employees who would be responsible for reproducing said documents.

We calculated the replacement cost new of the distribution maps and engineering drawings based on the total number of hours required to reproduce the drawings multiplied by the hourly rate of employees involved in the process. The replacement cost new does not include the costs necessary to reproduce historical maps that are no longer used for reference. Therefore, we did not adjust the replacement cost new estimate for any additional amount of obsolescence. Our replacement cost new calculation for the distribution maps and engineering drawings is included within Table K-2 of Exhibit MW-MR-3, shown below.

Cost Approach Value
Distribution / Engineering Drawings

Personnel Responsible	No. of Hours to Reproduce		Hourly Rate		Subtotal
Field Worker / Engineering Tech	10	$	94.00	$	940
CAD Engineer	24	$	94.00	$	2,256
Project Manager Engineer	3	$	176.00	$	528
			Unit Cost New To Reproduce a Map / Drawing:	$	3,724
			Number of Maps / Drawings:		722
Cost Approach Value for Distribution Maps / Engineering Drawings:				**$**	**2,690,000**

Intangible Asset: Work Order Database – The work order database is a compendium of historical work orders. Typical work orders provide a physical description, quantitative information about an asset that was constructed or acquired, its cost, serial number, and certain associated support materials. These support materials can include cost estimates, field notes, and correspondence. The work orders are used to assist in the operation and maintenance of the assets over their service lives.

We calculated the replacement cost new of the work orders based on the total number of hours required to reproduce each work order multiplied by the quantity and hourly rate of employees involved in the process. The replacement cost new does not include the costs necessary to reproduce work orders that are no longer used for reference. Therefore, we did not adjust the replacement cost new estimate for any additional amount of obsolescence. Our replacement cost new calculation for the work orders is included within Table K-3 of Exhibit MW-MR-3, shown below.

Table K-3
Cost Approach Value
Work Order Database

Personnel Responsible	No. of Work Orders	Hours to Reproduce	Total Reproduction Hours	Hourly Rate	Subtotal
Operations Manager	930	3	2,790	$ 43.87	$ 122,397
Clerk	930	5	4,650	$ 33.54	$ 155,961
Office Manager	930	3	2,790	$ 50.12	$ 139,835
			Cost Approach Value for Work Order Database:		**$ 420,000**

Intangible Asset: System Records and Reports – The Company records and reports include: corporate records; easement reports; and property records. We calculated the replacement cost new of the System records and reports based on the total number of hours required to reproduce each system record and report multiplied by the quantity and hourly rate of employees involved in the process. The replacement cost new does not include the costs necessary to reproduce the system records and reports that are no longer used for reference. Therefore, we did not adjust the replacement cost new estimate for any additional amount of obsolescence. Our replacement cost new calculation for the system records and reports is included within Table K-4 of Exhibit MW-MR-3, shown below.

Table K-4
Cost Approach Value
System Records and Reports

Description	Personnel Responsible	Quantity	Hours to Reproduce	Hourly Rate	Subtotal
Service Cards	Distribution Op. - 3, Clerk	9,032	1	$ 29.68	$ 268,070
Production/Quality Reports	Operations Mgr, Treatment Op. - 1	700	2	$ 43.87	$ 61,418
Right-To-Know Data	Manager	2	24	$ 62.37	$ 2,994
				Cost Approach Value for System Records & Reports:	**$ 330,000**

Intangible Asset: Licenses and Permits – Throughout its operating history, the Company has procured certain licenses and permits that allow it to conduct business on a day-to-day basis. We calculated the replacement cost new of the licenses and permits for the System based on the total number of hours required to reproduce each license and permit multiplied by the quantity and hourly rate of employees involved in the process, then added the total permit fee to the subtotal cost. The replacement cost new does not include the costs necessary to reproduce the licenses and permits that are no longer needed. Therefore, we did not adjust the replacement cost new estimate for any additional amount of obsolescence. Our replacement cost new calculation for the licenses and permits is included within Table K-5 of Exhibit MW-MR-3, shown below.

Table K-5
Cost Approach Value
Licenses and Permits

Description	Quantity	Personnel Responsible	Hours per Permit	Permit Fee	Subtotal Permit Cost	Hourly Rate	Labor Cost of Permits	Subtotal
Road Opening Permits	55	Operations Manager	0.5	$ 150	$ 8,250	$ 43.87	$ 1,206	$ 9,456
FCC Radio License	2	Operations Manager	1.0	$ 600	$ 1,200	$ 43.87	$ 88	$ 1,288
Water Withdrawal Registration	1	Manager	1.0	$ -	$ -	$ 62.37	$ 62	$ 62
Software Licenses	13	Office Manager, Manager	1.0	$ 801	$ 10,407	$ 50.12	$ 652	$ 11,058
Fuel Oil Storage Permit	1	Operations Manager, Manager	2.0	$ -	$ -	$ 43.87	$ 88	$ 88
Water Mgmt Act Withdrawal Permit	10	Manager	8.0	$ 4,100	$ 41,000	$ 62.37	$ 4,990	$ 45,990
CSX Rail Road Crossing Permit	1	Office Manager, Manager	2.0	$ 2,500	$ 2,500	$ 50.12	$ 100	$ 2,600
Public Water Supply Registration	1	Manager, Operations Manager	4.0	$ -	$ -	$ 62.37	$ 249	$ 249
New Source Approval	10	Manager	40.0	$ 16,935	$ 169,350	$ 62.37	$ 24,948	$ 194,298
						Cost Approach Value for Licenses & Permits:	**$**	**270,000**

Inventory – The Company stores spare parts predominantly at the Dilla Water Treatment Facility in the Warehouse and Main Pump House #68. These parts include, but are not limited to, meters; adaptors; extensions; piping sleeves; and piping inserts. MRV Consulting received a spare parts inventory list with a net book value of $93,170, as of December 31, 2018. Appendix 12 of Exhibit MW-MR-3 includes the complete spare parts inventory list commonly known as the MWC Inventory Valuation Report.

Construction Work in Progress – The Company has construction work in progress identified as ongoing or unfinished construction activities and paid to date expenditures. These construction works include, but are not limited to: lead service replacement, the Louisa Lake Project, meter replacement program, system improvements, and procurement of new equipment and vehicles. The 27-construction work in progress projects as identified by the Company total $3,040,000, as of December 31, 2018. Appendix 13 of Exhibit MW-MR-3 includes a complete list of the various construction work in progress projects and amounts spent to date.

Q. How do you define indirect costs?

A. Within the third edition of the book "*Valuing Machinery & Equipment: The Fundamentals of Appraising Machinery and Technical Assets*," published by the American Society of Appraisers, they define indirect costs as:

> "those expenditures that are normally required to purchase and install a property but may be necessary for the purchase and installation of an asset but typically are not directly attributable to the purchase and installation of a property and are not usually included in the vendor invoice…When developing cost new, only those direct and indirect costs that are typical or normal may be included; unusual, atypical, or extraordinary costs should be excluded."

The Replacement Cost New costs provided by Tata & Howard did not include indirect costs. MRV Consulting added the following indirect costs to the Replacement Cost New costs. All of the following were sourced from 2018 R.S. Means:

- Construction management fees - 2.5 percent
- Engineering fees - 2.5 percent
- Construction Permits - 0.5 percent
- Performance Bond - 1.0 percent
- Insurance - 9.34 percent

The Replacement Cost New is an "overnight" capital cost. As such, it does not fully identify the Allowance for Funds Used During Construction ("AFUDC"). Water utility systems cannot be constructed overnight; they take years to design and build. Tata & Howard estimated it would take at least three years or more to build the Milford Water System, assuming ideal conditions. MRV Consulting utilized a conservative period of three years to replace the System. We also estimated the time-related interest to be weighted 50 percent for a Government Owned Utility at 4.00 percent and 50 percent for an Investor Owned Utility at 6.78 percent, which is the 2018 "allowance for funds used during construction" rate for the Company.

$$i = \textit{interest rate} = (50\% \times \textit{GOU interest rate}) + (50\% \times \textit{IOU interest rate})$$

$$i = \textit{interest rate} = (50\% \times 4.00\%) + (50\% \times 6.78\%) = 5.39\%$$

Using a 5.39 percent weighted interest rate, we estimated allowance for funds using during construction over the 36-month period to replace the Milford Water System to be $16,607.451. This interest was spread proportionally over the sum of the direct and indirect costs.

Q. You indicated earlier in your testimony that you took functional obsolescence into account in your analysis under the cost approach. What is this concept and how did you apply it?

A. Functional obsolescence is the loss of value due to functional deficiencies, overcapacity, excess capital costs, lack of functional utility, excess operating costs, or inadequacies within the property itself. An improvement is functionally obsolete when the improvement requires an operation, use, or activity to be completed in a way that current replacement improvements would not. Some types of functional obsolescence are curable if the costs to repair, modify, or add are offset by the increased value of the asset. Typical examples of functional obsolescence issues involve the current costs to construct new replacement assets, efficiencies, and the cost to maintain the assets or improve operations based on changes in available technology.

Functional obsolescence can be characterized by:

- Deficiencies requiring an addition – Not currently included in the estimate of cost new and is currently desired or required in the market.
- Deficiencies requiring a modification – Included in the estimate of cost new but is not adequate or outmoded.
- Super-adequacies – Included in the reproduction cost (likely not in replacement cost) and are cost components that surpass current market standards.
- Deficiencies requiring additional operating cost.

In most water distribution systems, a percentage of water is lost in transit from the treatment plants to the consumers through the distribution system. Leakage can occur in different components of the distribution system such as distribution pipes, service connection pipes, joints, valves, and fire hydrants. Ultimately, these leaks lead to an economic loss due to the cost of raw water, its treatment, and its transportation.

To determine functional obsolescence, we utilized three annual reports prepared by Water & Waste Pipe Testing, Inc., of Rowley MA. They conducted and completed water leakage survey reports dated for 2015, 2016, and 2017 on the Milford Water System. Appendix 14 of Exhibit MW-MR-3 includes the leakage survey reports, rate/price for metered water, along with the detailed analysis of the functional obsolescence calculation. In summary, the functional obsolescence for the Company is:

Functional Obsolescence Due to Water Loss (as of December 31, 2018): ($4,962,396)

Q. You also indicated earlier in your testimony that you took economic obsolescence into account in your analysis under the cost approach. What is this concept and how did you apply it?

A. Economic obsolescence is the loss of earnings and value stemming from negative changes in the market, or due to other factors external to the property. Changes in market demand, federal or state law, the economy, and/or any operational constraints external to the asset that are detrimental to the asset's earnings can be measured by capitalizing the expected losses in the earnings over the period that the condition is expected to exist.

To calculate the expected losses in earnings each year, a required return is subtracted from the period's expected cash flow. The required return is derived by multiplying a rate of return on the tangible assets by the reproduction cost new less physical depreciation and functional obsolescence (excluding land, easement, commercial office building, and vehicles). We determined the rate of return on the tangible assets to be equal to the cost of debt rate at 4.0 percent. The cost of debt is the expected rate of return that a financial institution would require as a return on the value of the tangible assets.

To measure the economic obsolescence, we utilized the excess earnings shortfall method. In this analysis, the loss resulting from the reproduction cost new less physical depreciation and functional obsolescence (excluding land, easement, commercial office building, and vehicles) multiplied by rate of return on the tangible assets, is compared to the projected free cash flow of the operations. The present value of the difference is the additional economic obsolescence. Within the Milford Water System, the economic obsolescence adjustment is ($21,660,504). The supporting spreadsheet calculations for the economic obsolescence are included in Appendix 15 to Exhibit MW-MR-3.

Q. What is your indicator of value under the cost approach?

A. We have concluded the cost approach to value of the Assets owned and operated by the Company to be $156,000,000 as of December 31, 2018. The following table, from Appendix 3 of Exhibit MW-MR-3, summarizes the value conclusion under the cost approach.

Appraisal Team	Asset Group	Item Description	RCN / Tata & Howard Data	Indirect Costs	Allowance for Funds Used During Construction	Total Replacement Cost New	Physical Depreciation	Replacement Cost New Less Physical Depreciation	Functional Obsolescence	Economic Obsolescence	Cost Approach Value
MRV	Real Property	Land	N/A	N/A	N/A	$ 30,679,200	N/A	$ 30,679,200	$ -	N/A	$ 30,679,200
MRV	Real Property	Easements	N/A	N/A	N/A	$ 400,000	N/A	$ 400,000	$ -	N/A	$ 400,000
MRV	Real Property	Commercial Office Building	N/A	N/A	N/A	N/A	N/A	$ 450,000	$ -	N/A	$ 450,000
MRV	Personal Property	Vehicles	N/A	N/A	N/A	N/A	N/A	$ 190,000	$ -	N/A	$ 190,000
MRV	Personal Property	SCADA Computer Software	$ 94,100	$ 14,905	$ 9,021	$ 118,027	25%	$ 88,520	$ -	$ (13,108)	$ 75,412
MRV	Personal Property	Moveable Equipment	N/A	N/A	N/A	N/A	N/A	$ 230,000	$ -	$ (34,059)	$ 195,941
MRV	Intangible Assets	Distribution Maps/Engineering Drawings	$ 2,690,000	$ 358,846	$ 252,317	$ 3,301,163	0%	$ 3,301,163	$ -	$ (488,841)	$ 2,812,322
MRV	Intangible Assets	Work Order Database	$ 420,000	$ 56,028	$ 39,395	$ 515,423	0%	$ 515,423	$ -	$ (76,325)	$ 439,099
MRV	Intangible Assets	System Records & Reports	$ 330,000	$ 44,022	$ 30,953	$ 404,975	0%	$ 404,975	$ -	$ (59,969)	$ 345,006
MRV	Intangible Assets	Licenses and Permits	$ 270,000	$ 36,018	$ 25,325	$ 331,343	0%	$ 331,343	$ -	$ (49,066)	$ 282,278
MRV	Personal Property	Inventory	N/A	N/A	N/A	$ 93,170	0%	$ 93,170	$ -	$ (13,797)	$ 79,373
MRV	Construction Work In Progress	CWIP	N/A	N/A	N/A	$ 3,040,000	0%	$ 3,040,000	$ -	$ (450,168)	$ 2,589,832
Tata & Howard	Raw Water Assets	Godfrey Brook Wellfield	$ 331,750	$ 52,549	$ 31,804	$ 416,103	55.47%	$ 185,291	$ -	$ (27,438)	$ 157,853
Tata & Howard	Raw Water Assets	Clark's Island Wellfield Pump Station	$ 289,120	$ 45,797	$ 27,717	$ 362,634	44.48%	$ 201,334	$ -	$ (29,814)	$ 171,520
Tata & Howard	Raw Water Assets	Clark's Island Wellfield	$ 131,500	$ 20,830	$ 12,607	$ 164,936	8.91%	$ 150,240	$ -	$ (22,248)	$ 127,992
Tata & Howard	Raw Water Assets	Dilla Street Wells	$ 180,400	$ 28,575	$ 17,294	$ 226,270	90.00%	$ 22,627	$ -	$ (3,351)	$ 19,276
Tata & Howard	Raw Water Assets	River Intake Building	$ 128,230	$ 20,312	$ 12,293	$ 160,835	48.34%	$ 83,087	$ -	$ (12,304)	$ 70,784
Tata & Howard	Raw Water Assets	Echo Lake Dam / Intake	$ 3,950,000	$ 625,680	$ 378,675	$ 4,954,355	38.30%	$ 3,056,837	$ -	$ (452,661)	$ 2,604,176
Tata & Howard	Treatment Plant Assets	Dilla Street WTP	$ 21,172,050	$ 3,353,653	$ 2,029,703	$ 26,555,406	11.07%	$ 23,615,722	$ -	$ (3,497,052)	$ 20,118,670
Tata & Howard	Treatment Plant Assets	High Lift Pump Building	$ 2,546,230	$ 403,323	$ 244,100	$ 3,193,653	86.15%	$ 442,321	$ -	$ (65,500)	$ 376,821
Tata & Howard	Treatment Plant Assets	Diatomaceous Earth Building	$ 233,000	$ 36,907	$ 22,337	$ 292,244	82.25%	$ 51,873	$ -	$ (7,681)	$ 44,192
Tata & Howard	Treatment Plant Assets	Slow Sand Building	$ 77,270	$ 12,240	$ 7,408	$ 96,917	99.70%	$ 291	$ -	$ (43)	$ 248
Tata & Howard	Treatment Plant Assets	Circular Clearwell Structure	$ 808,000	$ 127,987	$ 77,461	$ 1,013,448	91.29%	$ 88,271	$ -	$ (13,071)	$ 75,200
Tata & Howard	Treatment Plant Assets	Godfrey Brook WTP	$ 1,196,860	$ 189,583	$ 114,739	$ 1,501,182	58.78%	$ 618,787	$ -	$ (91,631)	$ 527,156
Tata & Howard	Water Storage Facility Assets	Bear Hill Tank	$ 1,283,400	$ 203,291	$ 123,036	$ 1,609,726	41.82%	$ 936,539	$ -	$ (138,684)	$ 797,855
Tata & Howard	Water Storage Facility Assets	Congress Street Water Storage Tank	$ 1,044,000	$ 165,370	$ 100,085	$ 1,309,455	39.32%	$ 794,577	$ -	$ (117,662)	$ 676,915
Tata & Howard	Water Storage Facility Assets	Highland Street Tank	$ 765,300	$ 121,224	$ 73,367	$ 959,891	74.48%	$ 244,964	$ -	$ (36,275)	$ 208,689
Tata & Howard	Water Storage Facility Assets	Congress Street Booster Pump	$ 129,380	$ 20,494	$ 12,403	$ 162,277	45.28%	$ 88,798	$ -	$ (13,149)	$ 75,649
Tata & Howard	Water Storage Facility Assets	Congress St. Water Storage Tank Vault	$ 18,720	$ 2,965	$ 1,795	$ 23,480	9.13%	$ 21,336	$ -	$ (3,159)	$ 18,177
Tata & Howard	Transmission & Distribution Assets	Water Mains - Distribution	$ 98,243,658	$ 15,561,795	$ 9,418,334	$ 123,223,787	33.98%	$ 81,352,344	$ (1,007,748)	$ (11,897,551)	$ 68,447,045
Tata & Howard	Transmission & Distribution Assets	Water Mains - Raw Water	$ 6,316,125	$ 1,000,474	$ 605,509	$ 7,922,108	19.92%	$ 6,344,024	$ -	$ (939,433)	$ 5,404,591
Tata & Howard	Transmission & Distribution Assets	Hydrants	$ 4,019,400	$ 636,673	$ 385,328	$ 5,041,401	33.19%	$ 3,368,160	$ (1,046,769)	$ (343,755)	$ 1,977,636
Tata & Howard	Transmission & Distribution Assets	Valves	$ 3,053,560	$ 483,684	$ 292,736	$ 3,829,980	30.49%	$ 2,662,219	$ -	$ (394,225)	$ 2,267,994
Tata & Howard	Transmission & Distribution Assets	Customer Meters	$ 2,639,880	$ 418,157	$ 253,078	$ 3,311,115	52.96%	$ 1,557,548	$ -	$ (230,644)	$ 1,326,904
Tata & Howard	Transmission & Distribution Assets	Customer Services	$ 20,952,460	$ 3,318,870	$ 2,008,651	$ 26,279,981	34.00%	$ 17,344,788	$ (2,907,879)	$ (2,137,839)	$ 12,299,069
										Cost Approach Value:	$ 156,000,000

Q. Now turning to the income approach, please explain the basic principle underlying this approach and the methods through which it is typically employed.

A. The basic principle underlying the income capitalization approach is that value is directly related to the benefits of ownership, specifically the benefit of receiving income from the operation of the System. The income capitalization approach is a set of procedures through which an appraiser derives a value indication for an income producing property by converting its anticipated benefits (income, cash flow, and reversion) into value. This conversion can be accomplished in two ways. Income expectancy of one year can be capitalized at a rate that reflects a specified income pattern, return on investment, and change in the value of the investment. Alternatively, the annual cash flows for the holding period and the reversion can be discounted at a specified yield rate. The former is commonly known as direct capitalization, while the latter is known as yield capitalization or discounted cash flow analysis. Our primary income approach analysis employs a DCF analysis to estimate the income approach value of the System.

Q. Please explain the DCF analysis you employed to estimate the income approach value of the system.

A. To complete the DCF analysis, an appraiser must work down from revenue to total cash flow. To do this, the appraiser must:

a) Research the income and expense data for the System and the comparable systems.
b) Estimate the total revenue by adding all sources of revenue (unmetered, metered, service, etc.).
c) Estimate the total operating expenses (labor, benefits, purchases, supplies, transportation, etc.) and non-operating expenses, and then subtract these estimates from total revenue to calculate EBITDA.
d) Estimate non-cash expenses (depreciation, amortization, and depletion) and subtract these from EBITDA to arrive at EBIT, estimate financing costs (interest expense and debt/equity issuance expenses) and subtract these from EBIT to calculate pretax

income, and then subtract taxes (effective federal and state taxes) to arrive at net income.

e) Net income must be positively adjusted by adding non-cash expenses and tax affected financing costs and negatively adjusted by subtracting changes in working capital and capital expenditures to arrive at an estimate of cash flow.

f) Apply yield capitalization techniques to the cash flow calculation to generate an estimate of the income approach value.

Holding Period

Our DCF approach began with research and analysis to determine an appropriate holding (or analysis) period. The holding period is the time period for which investors (or analysts) expect to hold the investment. This is sometimes driven by physical considerations, legal/contractual obligations, and often is limited by whatever is common practice among market participants.

The most common multistage variation of the DCF model projects cash flows over a finite number of periods, usually one business cycle between three and ten years, and then assumes a terminal value at the end of the discrete projection period. Therefore, we utilized a holding period of five years, which concludes in 2023 and captures a complete set of economic events impacting the cash flow of these assets. Additionally, we included a terminal period to capture income generated after the holding period. This was accomplished by utilizing a direct capitalization method and then discounting that value back to the Appraisal Date.

Revenues and Expenses

The Company provided adjusted historical income statements for years 2013 through 2017. It additionally provided an interim income statement through November 2018 and a set of forecasted revenues, expenses, depreciation, and capital expenditures for years 2018 through 2023. These projections account for a 17.8 percent approved rate increase in 2019. We determined these forecasts to be reasonable as they are consistent with past

performance. Therefore, we accepted these forecasted estimates and utilized them within our discounted cash flow analysis. We did not subtract income tax expense as our analysis was performed on a pre-tax basis, in conjunction with a pre-tax weighted average cost of capital.

General Annual Inflation Rate

We forecasted a stabilized long-term inflation rate of three percent for the holding period, which accounts for the likelihood of future rate increases.

Non-Business Operation Add Backs and Normalization Adjustments

To facilitate proper analysis and interpretation of these financials, the projections should first be adjusted to reflect the economic realities of "normal" operating conditions. We added back non-cash expenses such as depreciation and amortization and made additional cash flow adjustments for capital expenditures, taxes (other than income), and change in working capital. The Company provided capital expenditure estimates, while working capital was calculated using 10 percent of the change in revenue.

Depreciation and Amortization

Depreciation and amortization are important in the calculation of cash flows as they impact income tax forecasts. However, we prepared the valuation on a pretax basis, therefore depreciation and amortization does not affect the cash flow being discounted. In this appraisal depreciation and amortization were added back to be included in the cash flow.

Capital Expenditures

Capital expenditures are expenditures creating future benefits. A capital expenditure is incurred when a business spends money either to buy fixed assets or to add to the value of an existing fixed asset with a service life that extends beyond the taxable year. Capital

expenditures are used by a company to expand the system, acquire or upgrade physical assets such as equipment and property, and preventive maintenance. Due to the size and the arduous operation it is typical for a water utility to experience significant annual capital expenditures. We analyzed historical data and based upon discussions with management, we utilized a normalized annual capital expenditure amount of $1.4 million. In 2019, the capital expenditures were $2.4 million because it included the Louisa Lake Project. For the terminal period, we set capital expenditures equal to depreciation.

Weighted Average Cost of Capital

We completed an analysis of the discount rate for the Assets known as the weighted average cost of capital. This formula computes a discount rate by forecasting and summing the elements that comprise it. The analysis was performed entirely on a pre-tax basis. The basic elements of yield (or capitalization) rates are debt investment and equity investment. When combined, they produce an indication of the overall investment yield. This process is called a WACC analysis because it incorporates the percentage of the total investment that debt contributes and the percentage that equity contributes, which is a weighted average concept.

Capital Structure

The capital structure represents how an acquirer plans to finance the purchase of the System. Our analysis considers the entire pool of potential hypothetical willing buyers. Therefore, we have performed two scenarios in the weighted average cost of capital ("WACC") analysis, one that assumes a government owned utility acquirer and a second analysis that assumes an investor owned utility acquirer. We then reconciled the WACC analysis by applying 50 percent weight on the government owned utility acquirer scenario and 50 percent weight on the investor owned utility acquirer scenario.

In the government-owned utility scenario, we have considered that public entities typically have a capital structure that is made up of nearly 100 percent debt capital. Public entities issue debt securities and it is not possible to own an equity interest in a public entity. However, while most transactions are financed with primarily debt capital, public entities can and do use small amounts of cash to pay for water utility transactions. Therefore, for the GOU scenario, we have used a 95 percent debt and 5 percent equity capital structure.

In the investor-owned utility scenario, we have reviewed and analyzed several water system rate cases, the Company's capital structure,[1] as well as public water company debt to equity ratios and their current capital structures. The average of the capital structures in the water utility industry, as of the Appraisal Date, is 55 percent debt and 45 percent equity. The median is 51 percent debt and 49 percent equity. We have therefore arrived at a capital structure of 55 percent debt and 45 percent equity. Our public company capital structure analysis is described in the following table:

[1] The current line of credit financial request for the Company is in the amount of $7,000,000 with People's United Bank. After the financing is in place, the Company will have a combined capital structure of $36,917,506, of which $23,622,083 or 64 percent will be long-term debt, and $13,295,423 or 36 percent will be common equity.

Public Company Capital Structure Analysis
(As of December 31, 2019)

Ticker	Company	Book Value of Long Term Debt	Book Value of Equity	Book Value of Capital	Debt / Capital	Equity / Capital
AWK	American Water Works Company, Inc.	$ 7,577,000,000	$ 5,860,000,000	$ 13,437,000,000	56.39%	43.6%
CWT	California Water Service Group	$ 714,310,000	$ 712,034,000	$ 1,426,344,000	50.08%	49.9%
SJW	SJW Group	$ 431,341,000	$ 474,957,000	$ 906,298,000	47.59%	52.4%
WTR	Aqua America, Inc.	$ 2,266,460,000	$ 2,045,738,000	$ 4,312,198,000	52.56%	47.4%
CTWS	Connecticut Water Service, Inc.	$ 250,877,000	$ 298,200,000	$ 549,077,000	45.69%	54.3%
ARTNA	Artesian Resources Corporation	$ 111,826,000	$ 150,085,000	$ 261,911,000	42.70%	57.3%
ECL	Ecolab Inc.	$ 6,334,800,000	$ 7,983,000,000	$ 14,317,800,000	44.24%	55.8%
GWRS	Global Water Resources, Inc.	$ 114,403,000	$ 29,442,000	$ 143,845,000	79.53%	20.5%
				Average	52.3%	47.7%
				Median	48.8%	51.2%
				Selected	**55.0%**	**45.0%**

Based on our review of these capital structure ratios, it is our opinion that a 55 percent debt and 45 percent equity capital structure ratio is appropriate for a hypothetical water utility acquirer in this current environment.

After averaging the government owned and investor owned scenarios, we concluded the capital structure for the Assets is 75 percent debt and 25 percent equity.

Equity Yield Analysis for WACC

We utilized the Duff and Phelps Build-Up Model to calculate the discount rate for the discounted cash flow method. The build-up model is an additive model in which the return on an asset is estimated as the sum of a risk-free rate and one or more risk premia. Each premium represents the reward an investor receives for taking on a specific risk. The building blocks are summed arithmetically to form an estimate of the cost of capital.

1. The **risk-free rate** was determined based on the 20-year treasury bond yield, as of the Appraisal Date.
2. The **equity risk premium** computed as the difference between the expected market return and the risk-free rate. The equity risk premium was estimated by *Duff and Phelps Cost of Capital Navigator.*

3. The **size premium** is applied to adjust for the size of the System. The premium was based on the *Duff & Phelps Cost of Capital Navigator* estimation for Decile 9.
4. An **industry risk premium** is the measure to which a given industry fluctuates in relation to the overall stock market. The industry risk premium was determined using the *Duff & Phelps Cost of Capital Navigator* for the water supply industry (Standard Industrial Classification Code 494).

The following table summarizes the cost of equity analysis.

Duff & Phelps Build-Up Model
As of December 31, 2018

Risk Free Rate	2.87%
Equity Risk Premium	5.00%
Size Premium	2.50%
Industry Risk Premium	-4.00%
Cost of Equity Capital	6.37%
Tax Rate	27.32%
Pre-Tax Cost of Equity Capital	**8.76%**

Debt Yield Analysis for WACC

In determining the debt rate to be incorporated in the WACC analysis, we analyzed the United States 20-Year Treasury Rate, Baa corporate bond rates, utility corporate bond rates, and 20-year municipal bond rates for Milford, Massachusetts, as of the Appraisal Date. The following table summarizes the cost of debt analysis.

Debt Rate Analysis
As of December 31, 2018

United States 20-Year Treasury Rate	2.87%
Baa Corporate Bond Yield	5.14%
20-Year Utility Corporate Bond Yield (AA)	4.60%
Milford, Massachusetts 20-Year Municipal Bond Yield	4.25%
Concluded Pre-Tax Debt Rate	**4.00%**

Conclusion – Weighted Average Cost of Capital

The WACC incorporates the risk profile in its calculation of both the debt and equity rates. We calculated a 5.19 percent discount rate is an appropriate discount rate to use in the discounted cash flow analysis. The following table summarizes the Weighted Average Cost of Capital analysis.

Weighted Average Cost of Capital
As of December 31, 2018

Description	Government Owned	Investor Owned	
Debt	95.00%	55.00%	
Equity	5.00%	45.00%	
Weighting	50.00%	50.00%	
Weighted Debt	47.50%	27.50%	
Weighted Equity	2.50%	22.50%	
	Weight	**Concluded Rate**	**Percent**
Debt-to-Capital	75.00%	4.00%	3.00%
Equity-to-Capital	25.00%	8.76%	2.19%
Pre-Tax Weighted Average Cost of Capital (Rounded)			**5.19%**

Terminal Value Calculation

The terminal value for the Assets was calculated based on the capitalization theory using the Gordon Growth model. The Gordon Growth model estimates the value of cash flow received, assuming stable annual growth in perpetuity. To calculate the terminal value, the last year of cash flow is generally grown by a long-term sustainable growth rate such as the expected long-term rate of inflation. In this case, we have selected a three percent normalized long term growth rate to be appropriate for the Assets owned and operated by the Company.

Q. What is your indicator of value under the income approach?

A. We have concluded the income approach value of the Assets owned and operated by Milford Water Company to be $121,000,000, as of December 31, 2018. The supporting spreadsheets for the income approach analysis are presented in Appendix 4 of Exhibit MW-MR-3.

Q. What did you do in applying the sales comparison (market) approach?

A. Historically, the sales comparison approach has not been employed to appraise water utility systems, primarily due to the lack of sales data. Publicly available sales information often excludes the details necessary to perform a thorough analysis. Nevertheless, market participants are attempting to track and incorporate sales information into their acquisition and disposition due diligence.

Confidentiality provisions and non-full disclosure of sale terms preclude an appraiser from adjusting comparable sales to make adequate comparisons. In the sales comparison approach, we analyzed transactions involving water utility systems in the marketplace. The number of transactions indicates the existence of a competitive, open market for water utility systems. However, the data regarding the sales also suggests that these sales involve considerations beyond the physical assets.

As previously stated, transactions involving the sale of utility assets are extremely confidential and the most important details are simply not made available to the public. Based on uncertainty and the lack of specificity of information available, as well as the resulting inability to make reasonable adjustments in the absence of this information, the sales comparison approach cannot be relied upon to determine the value of the Assets that comprise the Milford Water System.

Our sales comparison approach analyzed six transactions over a 24-month period prior to the Appraisal Date. We derived two primary conclusions from our sales comparison approach. First, an active market exists for the transfer of water utility assets. Second, a comparison analysis to precisely derive a value estimate could not be meaningfully completed because certain necessary adjustments could not be made to the comparable sales.

Although recognizing the unreliable nature of the market approach in this instance, we performed market approach analysis based on the information that was publicly available.

Utilizing only the statistical data presented in the press releases, we estimated an average sale price per customer to be $7,600. The Milford Water System has ±9,020 customers, therefore:

$$Unit\ Cost\ Per\ Customer\ x\ No.of\ Customers = Market\ Approach\ Value$$
$$\$7{,}600\ x\ 9{,}020 = \$69{,}000{,}000\ (Rounded)$$

We have concluded the market approach value of the Assets to be $69,000,000, as of December 31, 2018. The comparable sales grid along with supporting press releases regarding sales of water utility systems are presented in Appendix 5 of Exhibit MW-MR-3.

Q. Did you reconcile your approaches and reach a conclusion of value?

A. Reconciliation is the final integral quality control assessment of the appraisal process prior to the final opinion of value. In this stage, the appraiser reexamines the strengths and weaknesses of each approach to value, the accuracy of calculations, the credibility and sufficiency of data, and other key factors relative to the appraisal assignment to support a credible opinion of value. There are two considerations one must weigh when applying various approaches to value. First, appraisers should use those approaches commonly utilized by market participants. Second, the supply of data within a submarket, or within a particular time frame, may require the exclusion of approaches commonly employed in the larger market or at different points in time. The appraisal process was applied to develop a well-supported appraisal opinion of the full and fair cash value of the Assets owned by the Company. MRV Consulting has considered the traditional three appraisal approaches: cost, income, and market.

MRV Consulting relied on two of the three approaches to value, the cost approach and income approach. We assigned the greatest weight to the cost approach because: 1) the cost approach discretely identifies and individually values all of the tangible property and intangible property; 2) unlike the other approaches to value, which indirectly estimate the value of the subject operating assets, the cost approach directly values the operating assets of the Milford Water System; and 3) since the Milford Water System was originally built for the unique purpose of introducing water and fire protection to the residents of Milford, the operating assets of Milford Water System represent "special-purpose" property. In the appraisal of special-purpose property, the cost approach is relied upon as a primary indicator of value.

We also assigned a significant weight to the income approach value indication. This approach to value is heavily relied on by market participants since it enables the acquirer to evaluate: 1) whether or not the acquirer can finance the potential acquisition; and 2) whether or not the acquirer can earn a fair rate of return on the acquisition price. For these reasons, we weighted the three approaches to value as follows: 1) 60 percent to the cost approach method; 2) 40 percent to the income approach method; and 3) zero percent to the sales comparison (market) approach. The following table summarizes the various approaches to value, weightings, and the concluded full and fair cash value of the Milford Water System Assets.

Full and Fair Cash Value
Milford Water System Assets
As of December 31, 2018

Approach to Value	100 Percent Value	Weighting	Weighted Value
Cost Approach	$ 156,000,000	60%	$ 93,600,000
Income Approach	$ 121,000,000	40%	$ 48,400,000
Market Approach	$ 69,000,000	0%	$ -
Full and Fair Cash Value of the Milford Water System Assets			**$ 142,000,000**

Q. Is $142,000,000 your final conclusion of the fair market value of the System assets?

A. No. In order to capture the full and fair cash value of the Assets owned by the Company, we need to add the value of the water rights to the current full and fair cash value of the System.

Q. Why did you value the Company's water rights separately?

A. The value of the water rights is not considered within the income approach to value so we did not arbitrarily add it to the cost approach to value. To accurately account for the value of the water rights, we added them to the overall reconciled value of the System.

Q. Please explain how you valued the Company's water rights.

A. To determine the full and fair cash value of the water rights, MRV Consulting employed the services of WestWater Research, LLC to provide specific market data for water rights owned by the Milford Water Company. Appendix 6 to Exhibit MW-MR-3 includes the Market Analysis of the Company Withdrawal Permits by WestWater Research, LLC.

WestWater Research, LLC is an economic consulting firm that specializes in pricing, valuation, and transaction advisory services for water rights and water resource

development with more than 50 years in combined experience. They assist clients that are buying and selling water entitlements and other water assets through comprehensive financial and economic analysis of water markets on a regional and local value. Their proprietary database, Waterlitix, is the largest and most comprehensive pricing source for water transactions. The database provides access to over 15,000 sales records for water assets and market regions throughout the US. The data reports individual transaction information including price, water volume, and deal terms that are verified through interviews with buyer and seller and also cross-referenced with regulatory filings.

It is my understanding that regulations and limitations on the transfers of Massachusetts Water Management Act water withdrawal permits influence the range of potential market opportunities for the Company's permit. In Massachusetts, transfers of Massachusetts Water Management Act permits typically take the form of an interconnection agreement, in which one entity will agree to buy treated water on a wholesale basis, permanent and temporary transfers of raw water associated with the permit do not occur. The prices associated with interconnection agreements are for treated water, and do not reflect the value of the permit alone. For this reason, the interconnection agreement prices are not relevant for estimating the full and fair cash value of the permit. Based on the rules and regulations regarding the transferability of Massachusetts Water Management Act permits, alternative supply costs are needed to determine the full and fair cash value of the Company's permit.

Determining the cost of procuring alternative water supplies provides an indication of the value on of the Company's permit. Municipalities in need of new water supplies, including some in the Charles River Basin, have elected to become members of the

Massachusetts Water Resources Authority. Municipalities can become a member by buying in and building infrastructure to be integrated into Massachusetts Water Resources Authority system. The costs for joining the system vary based on the infrastructure required, however the buy in fee reflects the cost of reserving the water supply and is most analogous to a water permit value.

The Company permit allows for the withdrawal of 3,708 acre-feet per year. Based on the cost of acquiring a similar supply for the Massachusetts Water Resources Authority, the permanent acquisition value of the Company's permit is $4,285 per acre-feet. Table N–2 from Exhibit MW-MR-3 summarizes the breakdown of the Company's permit water sources and their respective full and fair cash value.

Table N-2
Valuation of Water Rights

Water Source Name	Water Source Type	Acre-Feet Per Year	Market Unit Value per Acre-Feet	Market Value
Echo Lake	Surface Water	1,759	$ 4,285	$ 7,540,000
Charles River	Surface Water			
Dilla Street Wells	Ground Water	1,949	$ 4,285	$ 8,350,000
Clarks Island Wells	Ground Water			
Godfrey Brook Wells	Ground Water			
Subtotal Full and Fair Cash Value of Water Rights				**$ 15,890,000**

Q. What is your final conclusion of value?

A. My final conclusion is that the full and fair cash value for the Assets of Milford Water Company's System is $158,000,000.

Q. Does this conclude your testimony?

A. Yes, it does.

MR VALUATION CONSULTING, LLC

MARK RODRIGUEZ, ASA, MRICS
Managing Partner, Founder

Mark Rodriguez is the founder and managing partner of MR Valuation Consulting, LLC. Mr. Rodriguez is an Accredited Senior Appraiser with the American Society of Appraisers and a Member of the Royal Institution of Chartered Surveyors. He earned a master's degree in management and a bachelor's degree in mechanical engineering.

Mr. Rodriguez has over 26 years of experience as a consultant specializing in both domestic and international valuation projects, appraisal and construction project management and engineering. Prior to founding MR Valuation Consulting, LLC, Mr. Rodriguez worked in the valuation group of Deloitte & Touche. There he served as the developer and head of the independent power and public utilities valuation practice performing consulting projects throughout North America, Latin America, and Europe. His previous experience also includes engineering and construction experience at Dick Corporation with specific involvement in the design and construction of power generation facilities, industrial, and commercial properties.

He has been honored by the American Society of Appraisers with a special recognition of his services and contribution to the appraisal profession and organization as he served as president in 2004-2005 and vice president in 2003-2004 at the Northern New Jersey Chapter No. 073.

As a great representation of his valuation expertise, in the matter of Illinois American Water v. the City of Peoria, Illinois, Mr. Rodriguez was appointed an "industry expert" and served as the third and impartial Commissioner. The Commission was charged by the court to determine the fair market value of the tangible and intangible assets, both real and personal, of the Peoria District Waterworks as the purchase price option for the possible purchase of the waterworks by the City of Peoria. To be elected to this panel, there was an interview process of 10 highly qualified appraisers from around the country, including the Big Four accounting firms. Mr. Rodriguez excelled in the interview process and was elected to be the third Commissioner.

Mr. Rodriguez specializes in serving electricity, gas, and water utility related clients as well as domestic and international independent power producers. Mr. Rodriguez has analyzed a variety of electric generating facilities and public utility related assets including: base load power plants, capacity and peaking facilities, and transmission and distribution assets. In addition, he has analyzed both electric and gas transmission lines and distribution systems including gas regulating stations and electrical substations.

Over the course of his career, Mr. Rodriguez has performed over 750 power plant related valuation advisory and consulting assignments including biogas/biomass, CCGT, coal, geothermal, hydroelectric, natural gas, nuclear, oil, pet coke, solar, solid waste, steam, and wind assets, excessing 285,000 MW of total capacity valued.

He has supervised and performed a diversity of valuation, appraisal and consulting engagements, including the valuation of public utilities, independent power producers, complex manufacturing and industrial facilities, commercial buildings and residential apartments. His experience includes both domestic and international transactions. These valuation advisory assignments were performed for appraisals, market valuations, purchase price allocations, cost segregation studies, inventory appraisals, litigation support, project financing, transactional pricing for taxation and management reporting purposes, property tax, transfer tax, acquisitions, divestitures, insurance, due diligence, non-cash charitable contributions, and useful life analyses.

Specifically, these transactions included the valuation of tangible assets, intangible assets, and goodwill; purchase price allocations for tax and financial reporting including compliance with the FASB Accounting Standards Codification; ASC 805, 350, 410 and 360. Additionally, he has completed both domestic and international valuation and assignments to comply with International Financial Reporting Standards (IFRS) and International Valuation Standards (IVS). These transactions have commonly involved financial, economic, and statistical analysis to establish market values, cost segregation, and overall transactional structuring.

Mr. Rodriguez has supervised and performed numerous engagements involving the valuation of intangible assets including contracts, power purchase agreements, transitional agreements, mineral and fossil fuel rights, transmission constraint contracts, pollution credits, computer technology, trade names, trained and assembled workforce, leases, goodwill, and going concern.

Mr. Rodriguez has testified as an expert witness for the appraisal of complex industrial facilities to support property tax related matters. His experience is multi-dimensional, as he has successfully represented both taxpayers and municipalities. Mr. Rodriguez has expert witness experience before the Supreme Court of the State of New York, County Superior Court in New Jersey, Minnesota Tax Court, Michigan Tax Tribunal, Massachusetts Tax Appellate Court, Superior Court of Connecticut and Georgia, and various county boards in Illinois and Montana.

Previous Experience:

Deloitte & Touche, New York, NY – 1995 to 1999
Senior Manager – Director of Energy & Utility Valuations

Mr. Rodriguez served as the developer and head of the Independent Power and Public Utilities Valuation Practice in the Deloitte & Touche Valuation Group located in New York City. This

Practice included business development, marketing, and project management of numerous industrial, commercial, public utility and independent power related valuation-consulting projects throughout North America, Latin America, and Europe.

Mr. Rodriguez performed valuation studies of facilities and equipment in the electric utility industry for a variety of purposes including management information, mergers and acquisitions, privatization, deregulation and corporate restructuring. These valuation studies have generally involved financial, economic and statistical analysis to establish fair market values, residual values and remaining useful lives. He has analyzed a variety of electric generating facilities ranging from large utility base load power plants to smaller independent power plants including coal, gas, hydroelectric, resource recovery, biomass, fossil fuel, sludge/hazardous and biomass projects. Additional facility valuation assignments prepared by Mr. Rodriguez include electric transmission and distribution systems and natural gas networks.

Dick Corporation - 1990 to 1995
Mechanical / Electrical Project Engineer

Mr. Rodriguez obtained over five years of progressively responsible engineering and construction management experience with specific involvement in the design and construction of several gas-fired cogeneration, waste-to-energy facilities, industrial, and commercial facilities. Some of the construction projects that Mr. Rodriguez has served as a project engineer includes:

- Sayreville Cogeneration Facility, 311 MW natural gas-fired combined cycle cogeneration facility in Sayreville, NJ
- Bellingham Cogeneration Facility, 311 MW gas/oil-fired combined cycle cogeneration facility in Bellingham, MA
- Northumberland County Prison, 1,000-bed correctional facility built on a design/sale/leaseback program for PA Department of Corrections in Shamokin, PA
- Erie County Prison, 1,000-bed correctional facility built on a design/sale/leaseback program for PA Department of Corrections in Albion, PA
- Lakewood Cogeneration Facility, 237 MW natural gas-fired combined cycle cogeneration facility in Lakewood, NJ
- Mercer County Resource Recovery Facility, design and permitting for 52 MW facility in Trenton, NJ
- Onondaga Resource Recovery Facility, 40 MW facility in Syracuse, NY

Professional Affiliations:

- ASA, American Society of Appraisers – Accredited Senior Appraiser
  - Designation in Machinery & Technical Specialties

  - President – ASA Northern New Jersey Chapter, 2004-2005
  - Vice President – ASA Northern New Jersey Chapter, 2003-2004
  - Chapter Secretary – ASA Northern New Jersey Chapter, 2002-2003
- RICS, The Royal Institution of Chartered Surveyors – Member
  - Chartered Valuation Surveyor
- AITF, Appraisal Issues Task Force – Member
- ASME, The American Society of Mechanical Engineers – Member

Education:

- Master of Science in Management – New Jersey Institute of Technology (NJIT) 1998
- Bachelor of Science in Mechanical Engineering – NJIT 1990
- American Society of Appraisers – Completed courses and examinations required to obtain and maintain the ASA designation
- Royal Institution of Chartered Surveyors – Completed courses and examinations or equivalents, required to obtain and maintain the MRICS designation
- Appraisal Institute: I410 – Uniform Standards of Professional Appraisal Practice (USPAP)
- Real Estate Program Special Topics – Kislak Real Estate Institute, Monmouth University
  - BR 498/BR 598: Strategic Case Studies in Real Estate & Principles of Land Planning, 2015
  - BR 498/BR 598: Construction and Design, 2014
  - BR 498/BR 598: Real Estate Accounting, 2012
  - BR 498/BR 598: Commercial & Residential Property Management, 2012
- Real Estate Certificate Program – Kislak Real Estate Institute, Monmouth University 2007
  - REC 405: Regulation and Real Estate Development Process
  - REC 404: Lease Negotiations and Analysis
  - REC 403: Real Estate Finance, Investment and Taxation
  - REC 402: Real Estate Appraisal, Valuation and Income Analysis
  - REC 401: Real Estate Law
- Conferences, Workshops (Recent Years)
  - NACVA/CTI Annual Consultants' Conference – Las Vegas, Nevada, 2018
  - National Hydropower Association Annual Conference, Waterpower Week – Washington, DC, 2018
  - 13th Annual Spring Business Valuation Seminar, American Society of Appraisers – Philadelphia, PA, 2018
  - AICPA: Forensic & Valuation Services Conference – Las Vegas, Nevada, 2017
  - KBKG: Tangible Property Repair Regulations – RC102 Webinar, 2017

- 12th Annual Spring Business Valuation Seminar, American Society of Appraisers –Philadelphia, PA, 2017
- National Hydropower Association Annual Conference, Waterpower Week – Washington, DC, 2017
- AICPA: Forensic & Valuation Services Conference – Nashville, Tennessee, 2016
- 46th Annual Workshop on Appraisal for Ad Valorem Taxation of Communications, Energy and Transportation Properties – Wichita, Kansas, 2016
- American Society of Appraisers' International Appraisers Conference – Las Vegas, Nevada, 2015
- 45th Annual Workshop on Appraisal for Ad Valorem Taxation of Communications, Energy and Transportation Properties – Wichita, Kansas, 2015
- Northeastern Regional Association of Assessing Officers Annual Conference – Portsmouth, New Hampshire, 2015
- NACVA/CTI Annual Consultants' Conference – Las Vegas, Nevada, 2014
- 44th Annual Workshop on Appraisal for Ad Valorem Taxation of Communications, Energy and Transportation Properties – Wichita, Kansas, 2014

Speaking Engagements:

- The New York State Society of CPAs (NYSSCPA), Nassau Chapter CPE Event – 2018 Presentation – "Cost Segregation Studies and Business Valuation," Woodbury, NY
- New Jersey State Bar Association (NJSBA) 2017 Annual Meeting and Convention – Seminar "Advanced Topics in Property Taxation," Atlantic City, NJ
- International Association of Assessing Officers, Florida Chapter (FCIAOO) Annual Conference 2015 – TPP Seminar Presentation "Independent Power Valuing One Power-Utility Site vs. the Unit Approach," Lake Mary, Florida
- Northeastern Regional Association of Assessing Officers (NRAOO) Annual Conference 2015 – Presentation "Special Use Property Valuation in Recent Decisions," Portsmouth, New Hampshire
- Institute for Professionals in Taxation (IPT) Property Tax Symposium 2010 – Presentation "Valuation of Electric Generation Stations Owned by Independent Power Producers," Austin, Texas
- Power & Electricity World Latin America 2009 – Pre-Conference Workshop "Creating and Measuring Value - Power Plant Development," Miami, Florida
- Power & Electricity World Latin America 2009 – Panel "Latin Power Generators' Point of View," Miami, Florida
- Corpbanca IFRS Seminar 2008 – Presentation "IFRS Implementation and the Effect on Fair Value," Santiago, Chile
- Financial Consulting Group (FCG) Annual Fall Conference 2007 – Presentation "Cost Segregation: A Service that Pays for Itself," Chicago, Illinois

- International Association of Assessing Officers 72nd Annual International Conference 2006 – Presentation "Recognizing & Separating Real Property, Personal Property, and Intangible Values in Common Indications of Value," Milwaukee, Wisconsin
- Workshop Leader for the 5th Annual Electric Asset Valuation Conference 2003 – Presentation "Getting the Most for Your Appraisal Dollar – Valuation Techniques, Theories and Practices," Houston, Texas

Testimonial Experience (Expert Witness) & Litigation Support:

In addition to the following trials and hearings, Mr. Rodriguez has presented his appraisals and valuations in several arbitrations and at several property tax appeal boards.

- Commonwealth of Virginia – Testified as an expert witness in August 2018 to the Commonwealth of Virginia State Corporation Commission on behalf of the taxpayer regarding the opinion of value of the taxable real and personal property located at the Wheelabrator Portsmouth Facility.
- State of New Jersey – Testified as an expert witness in August 2018 on behalf of the taxpayer regarding the appraisal of the real property assets located at the Chamber Works Site in Pennsville Township, Salem County, NJ. The in-court negotiations resulted in a settlement agreement.
- State of Michigan – Provided litigation support on behalf of the taxpayer regarding the appraisal of the taxable real and personal property assets located at the Lake Huron Medical Center. The negotiations resulted in an agreement for multiple tax years.
- State of New Hampshire – Testified as an expert witness in February 2018, on behalf of the taxpayer regarding the appraisal of the taxable property owned and operated by Pennichuck East Utility, Inc. within Litchfield, NH. The mediation resulted in a settlement agreement.
- State of Maine – Testified as an expert witness in October 2016 and August 2016, on behalf of the Town of Old Town, Maine regarding the appraisal of the Old Town Pulp Mill.
- State of Montana – Testified as a rebuttal witness in 2015 on behalf of the taxpayer regarding City of Missoula v. Mountain Water Co.; Case No. DV-14-352. This case is under appeal.
- State of Minnesota – Testified as a rebuttal witness in 2014 on behalf of the taxpayer regarding Minnesota Energy Resources Corporation (MERC) v. Commissioner of Revenue; Docket No. 8041-R, 8135-R, 8271-R, 8375-R, and 8482-R. The resolution was favorable from the taxpayer perspective.
- Montana Department of Revenue – MRV Consulting completed an appraisal analysis of the Southern Montana Electric Generation & Transmission Cooperative, Inc. and the Highwood Generating Station in connection with property tax negotiations and assessment appeal with the Montana Department of Revenue (MDOR). Mr. Rodriguez was given power of attorney and the designated person for negotiation with MDOR,

the resolution was a consensual valuation for 2013 tax purposes and a decrease by nearly half of the estimated taxes.

- State of Michigan, City of Luna Pier – MRV Consulting performed an appraisal of J.R. Whiting Generating Station owned by Consumers Energy to support the City of Luna Pier with property tax assessment negotiations for tax years 2010 and 2011. Mr. Rodriguez actively participated in the negotiations in 2013 on behalf of the municipality on Consumers Energy Company v. City of Luna Pier; MTT Docket No. 391680 and 436396 which resulted in a mutual agreement for the two tax years in question, as well as the subsequent five tax years (2012, 2013, 2014, 2015, and 2016) utilizing the values determined by MRV Consulting.
- Superior Court of the State of Georgia, Macon-Bibb County – Testified as an expert witness on behalf of the municipality in an arbitration hearing in 2012 and provided mediation support regarding a property tax dispute of four years (2008 through 2011) between the local taxing jurisdiction and Armstrong World Industries, Inc. The County Board accepted the values for the four tax years in question, as well as the subsequent tax year (2012) utilizing the values determined by MRV Consulting.
- Michigan Tax Tribunal, Michigan – Testified as an expert witness in 2012 regarding the appraisal of the tangible personal property at the Diversified Machine Montague Plant located in Montague, MI in the matter of Diversified Machine Inc. v. City of Montague for property tax assessment negotiations for tax years 2009, 2010, and 2011. The final opinion and judgment was ruled in favor of the City and stipulated to the values determined by MRV Consulting.
- Superior Court of the State of Connecticut, Bridgeport – Provided deposition as an expert witness in 2012 regarding the appraisal of the tangible personal property of the Wheelabrator Bridgeport Waste-to-Management Facility located in Bridgeport, CT in the matter of City of Bridgeport v. Wheelabrator Bridgeport L.P.
- Michigan Tax Tribunal, Michigan – Testified as an expert witness in 2010 regarding the appraisal of the tangible personal property of the Ford Motor Company/Visteon/ACH Rawsonville Automotive Component Facility located in Ypsilanti Township, MI
- State of Michigan, Township of Plymouth – Performed an appraisal review in 2010 on behalf of the municipality for litigation support with regards to 2005 and 2006 personal property appraisals performed by others of the Sheldon Road Plant (Settled)
- State of Michigan, Redford Township – Appraisal report for litigation support regarding certain personal property assets located at the Purem/Detroit Diesel Manufacturing Facility. Mr. Mark Rodriguez also participated in the settlement negotiations and testified in 2010 in the matter Detroit Diesel Corporation v. Redford Township; MTT Docket No. 351676 before the Michigan Tax Tribunal. The petitioner stipulated to the values determined by MR Valuation Consulting for tax years 2007, 2008, and 2009 (Settled)
- State of Michigan, Township of Ypsilanti – Testified as a rebuttal witness on behalf of the municipality during depositions in 2010 with regards to an appraisal review of personal property appraisals performed by others concerning the assets located at the

Ford Rawsonville Plant to support property tax assessment negotiations related to Automotive Components Holdings LLC v. Township of Ypsilanti; MTT Docket No. 327618 (Settled)

- Ogle County Board of Review, Illinois – Testified as expert witnesses in 2007 on behalf of the taxing body regarding property tax litigation concerning the Exelon Byron Nuclear Power Station. The resolution was favorable from the taxing body perspective.
- Will County Board of Review, Illinois – Testified as expert witnesses in 2006 on behalf of the taxing body regarding property tax litigation concerning the Exelon Braidwood Nuclear Power Station. The resolution was favorable from the taxing body perspective.
- Massachusetts Tax Appellate Court, Boston – Testified as an expert witness in 2006 regarding the valuation and appraisal of utility property owned by MCI World Com, Inc.
- Supreme Court of the State of New York, County of Westchester – Testified in the 2006 divorce case, Scharfman v. Scharfman, as an expert witness regarding the value of tax benefits derived from cost segregation of residential property assets.
- State of Illinois, City of Peoria – In 2005 Mr. Rodriguez served as the "Third Commissioner" in the matter of Illinois American Water Company v. the City of Peoria, Illinois. The Commission was charged by the court to determine the fair market value of the tangible and intangible assets, both real and personal, of the Peoria District Waterworks as the purchase price option for the possible purchase of the waterworks by the City of Peoria.
- Supreme Court of the State of New York, County of Saratoga – Testified as an expert witness in 2003 on behalf of the taxpayer concerning substations & transmission lines owned by Niagara Mohawk and located in Moreau, NY. The case of Reliant Energy and Niagara Mohawk v. Moreau and the South Glens Falls School District settled.
- Supreme Court of the State of New York, County of Saratoga – Testified as an expert witness in 2003 on behalf of the taxpayer regarding a valuation of the Spier Falls, Feeder Dam, and Sherman Island Hydroelectric Facilities (Settled).
- Supreme Court of the State of New York, County of Warren – Testified as an expert witness in 2003 on behalf of the taxpayer regarding property tax litigation concerning the Spier Falls, Sherman Island & Feeder Dam Hydroelectric Facilities. The resolution was favorable from the taxpayer perspective.
- Supreme Court of the State of New York, County of Onondaga, Fifth Judicial District – Testified as an expert witness regarding the valuation and appraisal of utility property owned by Niagara Mohawk (Settled)
- Commonwealth of Massachusetts, Franklin County – Performed an appraisal analysis in 2002 for litigation support regarding the Northfield Mountain Hydroelectric Facility for the Town of Erving and Town of Northfield, MA (Settled)
- Supreme Court of the State of New York, County of Fulton – Testified as an expert witness in 2002 on behalf of the taxpayer regarding the valuation and appraisal of the Ephratah Hydroelectric Facility, owned by Reliant Energy (Settled)

- State of California, Inyo County – Valuation and appraisal of Navy I, Navy II, and BLM geothermal facilities (Settled)
- State of Connecticut, Town of Waterford – Valuation and appraisal of Millstone Nuclear Power Station (Settled)
- State of Illinois, Brookfield Township – Valuation and appraisal of the La Salle Generating Station (Settled)
- State of New Hampshire, Town of Littletown – Valuation and appraisal of Moore Hydroelectric Facility (Settled)
- State of New York Supreme Court, County of Westchester – Valuation and appraisal of utility property owned by Consolidated Edison (Settled Prior to Court)
- State of New York – Property tax litigation support regarding substation & transmission lines owned by Niagara Mohawk and located in Marcy, NY (Settled)
- State of New York – Property tax litigation support in regarding Curtis & Palmer Hydroelectric Facilities owned by TransCanada Pipelines, Corinth, NY (Settled)
- Commonwealth of Pennsylvania, Beaver County – Valuation and appraisal of the Bruce Mansfield Coal and the Beaver Valley Nuclear Plants for the Southside School District (Settled Prior to Court)
- State of Vermont, Town of Rockingham/Bellows Falls – Valuation and appraisal of Bellows Falls Hydroelectric Facility (Settled)

Municipal / Privatization Projects

- PSEG Americas Inc. – Acquisition of hydroelectric and transmission assets in Peru. Assets included:
  - Yaupi – 108 MW Hydroelectric Facility
  - Malpaso – 54 MW Hydroelectric Facility
  - Pachachaca – 12 MW Hydroelectric Facility
  - La Oroya – 9 MW Hydroelectric Facility
  - Transmission Lines – 460 Miles of Single and Double Circuit Transmission Lines
  - Substations – 21 Medium-Voltage Level Substations
- Duke Energy, Acquisition of Oil-Fired Generating Assets in El Salvador. – Acquisition includes the Acajutla (220 MW); Soyapango (92 MW); and San Miguel (82 MW)
- Duke Energy – Acquisition of 2,237 MW, constituted of eight hydroelectric facilities along the Paranapema River in Brazil
- Sempra Energy and PSEG Americas Inc. – Acquisition of Energias S.A., a natural gas distribution company in central Chile, a controlling interest in Luz Del Sur, S.A., the second largest electricity distributor in Peru; and 32 percent of Central Puerto, S.A., the largest thermal electricity generator in Argentina, 2,100 MW
- The AES Corporation – Fair market valuation of tangible assets, purchase price allocation and estimation of "suggested" remaining useful lives for U.S. GAAP reporting

purposes for AES's acquisition of Empresa de Generacion Bayano, S.A. (Bayano) and Empresa de Generacion Chiriqui, S.A. (Chiriqui). Bayano is comprised of a 150 MW hydro power generation facility and a 42 MW thermal plant, both located near Panama City, Panama. Chiriqui is comprised of two run-of-the-river power generation facilities, with a combined capacity of 90 MW, located in the western part of Panama.

- Reliant Energy (Formerly Houston Industries) – Fair market valuation of tangible assets and estimation of "suggested" remaining useful lives for U.S. GAAP reporting purposes for HIE's acquisition of Compania de Alumbrado Electrico de San Salvador, S.A. (CAESS), Empresa Electrica de Oriente, S.A. (EEO) and Distribuidora Electrica de Usulutan, Sociedad de Economia Mixta (DEUSEM). CAESS, EEO and DEUSEM own and operate electricity distribution networks that provide electricity to approximately 530,000 customers throughout El Salvador.
- Confidential Investor – Fair market valuation, Rail Marshalling Yard, Antwerp, Belgium
- Convergence Communications, Inc. – Fair market valuation of tangible and intangible assets, purchase price allocation and estimation of "suggested" remaining useful lives for U.S. GAAP reporting purposes for CCI's acquisition of Interamerican Net de Venezuela, S.A. (Interanet). Interanet is an Internet service provider located in Maracaibo, Ciudad Ojeda and Puerto La Cruz, Venezuela.
- Convergence Communications, Inc. – Fair market valuation of tangible and intangible assets, purchase price allocation, and estimation of "suggested" remaining useful lives for U.S. GAAP reporting purposes for CCI's acquisition of Cablevisa, S.A. (Cablevisa) and Multicable, S.A. (Multicable). Cablevisa and Multicable provide multi-channel subscription television services in and around San Salvador, El Salvador.
- Confidential Investor – Fair market valuation, Rail Marshalling Yard, Klagenfurt, Austria
- Confidential Investor – Fair market valuation, OBB Rail Marshalling Yard, Vienna, Austria
- Confidential Investor – Fair market valuation, Dallas DART Bus Facilities, Dallas, TX
- Confidential Investor – Fair market valuation, Chicago Transit Authority, Various Rail and Bus Facilities, Chicago, IL
- Confidential Investor – Fair market valuation, Miami Metro Dade Bus Facilities, Miami, FL
- Confidential Investor – Fair market valuation, Bi-State Development Bus Facilities, St. Louis, MO
- Confidential Investor – Fair market valuation, Tri-Metro, Various Rail and Bus Facilities, Portland, OR
- Confidential Investor – Fair market valuation, New Jersey Transit, Various Rail and Bus Facilities, Newark, NJ
- Confidential Investor – Fair market valuation, RTD Denver, Various Bus Facilities, Denver, CO

American Society of Appraisers

ASA

This is to certify that

Mark R. Rodriguez

Has duly qualified for membership in the American Society of Appraisers and has been duly elected and admitted thereto by its Board of Governors and is hereby declared to be an

Accredited Senior Appraiser

Machinery and Technical Specialties/Machinery and Equipment

entitled, under the conditions prescribed in its bylaws, to exercise all the rights and privileges granted thereunder to members.

Signed, Sealed and Attested

This 18th day of May, 2000

Catherine C. Lowry
International Secretary

James T. Job
International President

This certificate is the property of the American Society of Appraisers and must be returned to the International Office when membership is terminated

This Diploma

certifies that

Mark Rodriguez

on the *31st* day of *October 2007*

was elected a Professional Member of

THE ROYAL INSTITUTION OF CHARTERED SURVEYORS

President

Register No. *1261634*

This Diploma is held from year to year subject to the provisions of the Bye-Laws of the Institution.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 18-60

MILFORD WATER COMPANY

DIRECT PREFILED TESTIMONY
OF
KAREN GRACEY

ON BEHALF OF

MILFORD WATER COMPANY

MW-KG-1

January 25, 2019

Q. Please state your name and business address.

A. My name is Karen Gracey and my address is 67 Forest Street, Marlborough, MA 01752.

Q. Would you please state your present occupation?

A. I am the Co-President of Tata & Howard, Inc. ("Tata & Howard") and on the Board of Directors. In that capacity, I am responsible for managing and directing the organization toward its primary objectives, including growth, profitability, and engineering quality. I have held this position since November 2016. Prior to that, I was a Vice President at Tata & Howard for approximately 3 years and part of the management team for 13 years. I have been employed by Tata & Howard for 20 years.

Q. What is the business of Tata & Howard?

A. Tata & Howard is an environmental engineering firm specializing in water, wastewater, and stormwater. We provide engineering consulting services to municipalities and private utilities in New England and Arizona.

Q. Please describe your educational and industry background and professional expertise.

A. I graduated from the University of Vermont in 1998 with a Bachelor of Science in Civil Engineering. I am a member of American Water Works Association, New England Water Works Association, and Massachusetts Water Works Association. For the New England Water Works Association, I have been a member of the Program Committee for three years which develops educational content for various conferences throughout the year. I co-authored papers entitled "Which Pipe Could Break Next?" and "Town of Paxton, Massachusetts Distribution System Evaluation and Improvements," which were both published in the New England Water Works Journal in 2017.

Q. What is the purpose of your testimony?

A. In this proceeding, Tata & Howard was engaged to determine the replacement cost new and observed depreciation of certain tangible assets of Milford Water Company (the "System"). These assets include all wells, storage tanks, treatment facilities, pumping station, transmission and distribution mains, valves, services, meters, hydrants, and dam, as more fully described in our report, attached hereto as Exhibit MW-KG-2. I am responsible for the report and for supervising those who assisted in its preparation. I am sponsoring this testimony on behalf of Tata & Howard to describe the work I have performed and the conclusions reached.

Q. Did you assist MRV Consulting?

A. Yes. It is our understanding that MRV Consulting incorporated our analysis as part of the cost approach component of its overall valuation of the System.

Q. Please explain Tata & Howard's prior experience in working with the Milford Water Company.

A. Tata & Howard has worked with the Milford Water Company on several projects over the years, and we are very familiar with the System assets, operations, and management. Tata & Howard authored the 2010 Capital Improvement Plan ("CIP") study, provided design and bid services for replacement wells at Dilla Street and Clarks Island, authored the Emergency Response Plan for the System, provided emergency response training for six years, provided design, bid, construction administration, and resident observation services for approximately 5,600 linear feet of water main, developed a Unidirectional Flushing Plan, provided design and bid services for a lead service replacement project, provided construction administration and resident observation services for the

construction of the Dilla Street Water Treatment facility, prepared a pilot test report for the Godfrey Brook Wells, provided design services for upgrades to the Congress Street Booster Pump Station, provided design and bid services for the rehabilitation of the Highland Street Tank, and provided inspection services for the Echo Lake Dam.

Q. Please describe the replacement cost method utilized in your analysis.

A. The methodology selected for use in the analysis of the System's Assets is the Replacement Cost New method. This method was used because the System's Assets were built up and compiled over the past 140 years. The average service lives of the assets are dependent on external factors including environmental conditions, quality of installation, preventative maintenance, as well as operational conditions. The replacement costs in Exhibit MW-KG-2 were developed using traditional replacement cost techniques, where the costs are determined based on the actual cost it would take to replace an existing asset in kind with a new asset.

The Replacement Cost New methodology estimates the cost of the asset at the current estimated cost to replace an asset with the same characteristics, if possible. If a material is no longer in use a substitute material is used to make the estimate. The replacement cost is estimated based on current material and labor costs and reflects the current cost to replace an item. Comparable pipe materials were used for those pipe types no longer used in the industry or available. Ductile iron was used to replace cast iron and asbestos cement pipes. PVC was used to replace plastic pipes.

Replacement costs for above ground assets are based on materials, labor, and building techniques, as of December 31, 2018. Labor, materials, permitting, and overhead costs are factored into the replacement costs for foundations, above ground structures, process

and treatment equipment, heating ventilating and air conditioning (HVAC) equipment, and electrical equipment. Replacement costs for above ground assets are based on actual costs that would be incurred to provide the same or equal equipment or structure. Replacement costs for structures include construction costs such as excavation, erosion control, temporary facilities, and testing.

Q. Please explain an observed depreciation analysis.

A. An analysis of observed depreciation or deterioration seeks to determine the existing condition of the asset. Observed depreciation is the percent reduction applied to the replacement cost of an asset due to physical wear and tear resulting from continued use, exposure to the elements, and the physical stresses that reduce the average service life of an asset.

Depreciation is generally expressed as a percentage of the replacement cost with consideration of the effective age of the asset along with its average service life. New assets start with a depreciation of zero percent and a retired asset, with no salvage value or consideration of removal costs, has a depreciation of 100 percent.

Q. Please describe the System assets that were the subject of your analysis.

A. The System asset inventory has been segregated into five major asset groups: raw water supply sources, water treatment facilities, water storage facilities, booster pump stations, and transmission and distribution. Information for the assets was obtained from GIS shapefiles, Annual Statistical Reports, the 2010 Master Plan and Capital Improvements Plan, Record Drawings, Shop Drawings, Well Installation Logs, Tank Inspection Reports, and site visits. A map of the water distribution system is included within Appendix A of Exhibit MW-KG-2.

- **Water Supply Sources**

The water system is supplied by two surface water supplies, the Charles River and Echo Lake, and three groundwater supply locations. The groundwater supplies include two Dilla Street Wells, two Clark's Island Wells, and five Godfrey Brook Wells. The water from these sources, except the Godfrey Brook Wells, is treated at the Dilla Street Water Treatment Facility (WTF).

Dilla Street Wells No. 1 and 2

Dilla Street Well No. 1 is a 12-inch diameter gravel packed well located off Dilla Street. The well was constructed to a depth of 39 feet with an 8-foot screen. Dilla Street Well No. 2 is an 8-inch diameter gravel packed well, constructed to a depth of 36 feet with a 6-foot screen. The wells have a combined maximum daily approved pumping volume of 0.675 million gallons per day (mgd). Submersible well pumps discharge raw water from the wells to the Dilla Street WTF oxidation tank through the raw water vault. The Dilla Street Wells are currently offline due to a decrease in their pumping capacity and a leak in the raw water piping.

Clark's Island Wells

The Clark's Island Wells consists of two horizontal directionally drilled wells. Horizontal Well No. 1 is constructed of 590 feet of polyethylene pipe with a 380-foot screen. Horizontal Well No. 2 is constructed of 555 feet of high-density polyethylene (HDPE) pipe with a 300-foot screen. The combined maximum daily approved pumping volume for the site is 0.8 mgd. A single 0.86 mgd vertical turbine pump and vacuum priming system at the Clark's Island Pump Station pumps raw water from the wells to the Dilla Street WTF oxidation tank through the raw water vault.

Godfrey Brook Wells

Godfrey Brook Well No. 1 was originally constructed as a 24-inch by 16-inch gravel packed well with a five-foot-long 16-inch diameter screen to a depth of 34 feet. A 10-inch diameter liner with an eight-foot-long 10-inch diameter screen was later installed to a depth of 34 feet after the original 16-inch gravel packed well screen broke. The pump and motor originally installed in the 10-inch Godfrey Brook Well No. 1 was removed and reinstalled in Well No. 2A, and Well No. 1 currently does not have any pumping equipment. The Godfrey Brook Well No. 1A is a 12-inch diameter gravel packed well driven to a depth of 37.8 feet with an eight-foot-long 12-inch diameter screen. Well No. 1A was installed as a replacement well to Well No. 1.

Godfrey Brook Well No. 2 is a 24-inch by 16-inch gravel packed well. The well was constructed to a depth of 52 feet and has a 10-foot long 16-inch diameter screen. Godfrey Brook Well No. 2A is an 18-inch by 12-inch gravel packed well. The well was constructed as replacement well to Well No. 2 to a depth of 37.5 feet with a 5-foot long 12-inch diameter screen.

Godfrey Brook Well No. 4 is a 24-inch by 16-inch diameter gravel packed well, constructed to a depth of 43.9 feet with a 10-foot long 16-inch diameter screen.

The approved combined maximum daily pumping volume for the wells is 0.79 mgd. The Godfrey Brook Wells are currently offline due to high levels of iron and manganese.

Charles River

The company has a screened intake from the Charles River abutting the Dilla Street WTF. Water is pumped to the WTF oxidation tank through the raw water vault via a

single 75 horsepower low lift vertical turbine pump. The Charles River intake structure also houses a compressed air tank with an airburst system to clean the intake screen.

Echo Lake Reservoir

The Echo Lake Reservoir is an impounded reservoir with a semicircular dam 23 feet in depth and 18 feet wide at the base. The dam has a withdrawal point at a depth of approximately 17 feet. Water flows by gravity from the reservoir via a 24-inch diameter main to the Dilla Street WTF. The intake is equipped with an air actuated valve and air burst system. Both are designed to operate using a portable air compressor.

- **Water Treatment Facilities**

The company has two water treatment facilities, which are commonly known as the Dilla Street WTF and the Godfrey Brook WTF.

Dilla Street Water Treatment Facility

The Dilla Street WTF treats water from the Dilla Street Wells, Clark's Island Wells, the Charles River, and the Echo Lake Reservoir. Dissolved Air Floatation (DAF) and granular active carbon (GAC) is used to treat water at the WTF. Raw water is manifolded in the raw water vault outside the WTF and is discharged into the oxidation tank. From the oxidation tank, water flows by gravity through the DAF units and the GAC filters. Polyaluminum chloride (PACL) is injected as a coagulant into the oxidation tank. Water then flows to the rapid mix tanks, then the slow mix tanks where flocculation occurs, prior to entering the DAF units. The flocculated particles are floated to the top of the filters where they are periodically "skimmed" off and the residuals are pumped to the lagoons. The lagoons act as settling basins where the solids are settled out and the water on the top is recycled back to the raw water vault.

In addition, potassium hydroxide (KOH) is used for pH control, potassium permanganate (KMnO4) is used for oxidation of iron and manganese, zinc orthophosphate is used for corrosion control, and sodium hypochlorite (NaOCl) is added for disinfection.

The WTF includes two concrete contact tanks on the filtered water line to provide contact time adequate for 4-log inactivation of viruses.

The GAC filters remove any remaining organics not removed by the DAF filters and therefore need to be backwashed periodically with filtered water. Two vertical turbine pumps provide backwash water supply and are housed in the Backwash Pump Station, a metal building and clear well located onsite that is separate from the WTF. Filtered water is drawn from the clearwell during the backwash process and combined with air to scrub the filters. The residuals from the backwash are then collected in the spent backwash tank where the solids are settled out and the clear water is recycled to the raw water vault. Finished water from the Dilla Street WTF enters the distribution system via three 2.8 mgd high lift pumps at the high lift pump station. The only process equipment in use at the high lift pump station is the high lift pumps; otherwise, the building is used by company staff and for spare parts and miscellaneous equipment storage.

The pipe gallery at the Dilla Street WTF includes floated sludge pumps for residual handling and DAF recycle pumps which feed the saturators. The recycle pumps cycle DAF effluent into the saturator tanks which is then piped back into the DAF units causing the floc to float. The floated sludge pumps send residuals skimmed from the surface of the DAF unit, or drained from the bottom, to the lagoons.

The Dilla Street site also includes several ancillary facilities that are retired in place or used primarily for storage. These facilities include two buried slow sand filters, two

surface slow sand filters, a below grade circular clearwell structure and pump house, and a slow sand pumping building. These assets were installed in the early 1900s and are retired in place; however, the valve between the river and the surface slow sand filters remains open, acting as an additional detention area for water from the Charles River.

Godfrey Brook Water Treatment Facility

The Godfrey Brook Water Treatment Facility treats water from the Godfrey Brook Wells. Water from the wells is manifolded and flows through one of two aeration towers to reduce carbon dioxide and make the water less corrosive. Aerated water is collected in the below grade clearwell and is pumped into the distribution system via two high lift pumps.

Sodium hypochlorite (NaOCl) is added to the finished water for disinfection and potassium hydroxide (KOH) added for pH adjustment. Zinc orthophosphate is added for corrosion control before the water enters the distribution system. The Godfrey Brook Wells and WTF are currently inactive due to excessive levels of iron and manganese, as well as decreased capacity available from the Godfrey Brook Wells.

- **Water Storage Facilities**

The System includes three water storage facilities: Bear Hill Tank, Congress Street Tank, and Highland Street Tank.

Bear Hill Tank

The Bear Hill Tank is located off Bear Hill Road. The welded steel tank was constructed in 1987 and has a capacity of approximately 2.65 million gallons (mg). The tank has a diameter of approximately 95 feet and a height of 50 feet. The tank was constructed to an overflow elevation of 525 feet and serves the Low Service Area. The interior and exterior of the storage tank was last sand blasted and painted in 2006.

Congress Street Tank

The Congress Street Tank is located off Congress Street and was constructed in 1925 and expanded in 1941 to its current capacity. A fiberglass roof was added in 1972 as added protection against outside contamination. In 2010 the tank was rehabilitated including cleaning, painting, repairing failing sidewall rivets, and the installation of a new aluminum dome roof. The tank has a capacity of approximately 1.1 mg, a diameter of 48 feet and a height of 84 feet. The tank was constructed to an overflow elevation of 525 feet and serves the Low Service Area.

Highland Street Tank

The Highland Street Tank, constructed in 1964, is located off Highland Street and serves the High Service Area. The tank has a capacity of approximately 0.27 mg with a diameter of 24 feet and a height of 80 feet. The overflow elevation is 640 feet.

- **Booster Pump Station**

The High Service Area is served by the Congress Street Booster Pump Station located adjacent to the Congress Street Tank. There are two 800 gallon per minute (gpm) pumps in the pump station. The station has provisions for chlorine injection.

- **Transmission and Distribution**

Water Mains

The distribution system consists of approximately 125 miles of water mains ranging in size from two to 24-inches in diameter. The water mains were constructed between 1881 and 2018.

The System primarily consists of five pipe types: asbestos cement, cast iron, cement lined cast iron, ductile iron, and plastic/PVC.

The water industry in the United States followed certain trends over the last century. For example, up until about the year 1958 unlined cast iron water mains were the predominant pipe material installed in water systems. Factory cement lined cast iron mains were manufactured from the 1950s to about 1970, when pipe manufacturers switched primarily to factory cement lined ductile iron pipe.

Cast iron water mains consist of two types; pit cast and sand spun. Pit cast mains were manufactured up to the year 1930 while sand spun mains were manufactured between 1930 and 1970. Pit cast mains may not have a uniform wall thickness and may have "air inclusions" as a result of the manufacturing process. This reduces the overall strength of the main, which makes it more prone to leaks and breaks. Although sand spun mains have a uniform wall thickness, the overall wall thickness was thinner than the pit cast mains. The uniformity provided added strength; however, the thinner wall thickness made it more susceptible to breaks than pit cast pipes. Pit cast mains 16-inch diameter and larger have thicker pipe walls and are generally stronger than the thinner walled sand spun cast mains. While the transition to factory cement lined cast iron mains had begun in the late 1940s, prior to the year 1958, most cast iron water mains that were manufactured were still unlined. Also, by 1958, rubber gasket joints were introduced. Prior to this date, joint material was jute (rope-type material) packed in place with lead or a lead-sulfur compound, also known as "leadite" or "hydrotite." Leadite type joint materials expand at a different rate than iron due to temperature changes. This can result in longitudinal split main breaks at the pipe bell. Sulfur in the leadite can promote bacteriological corrosion that can lead to circumferential breaks of the spigot end of the pipe. Unlined cast iron mains increased the potential for internal corrosion. In the

company's water system, unlined cast iron water mains were installed until approximately 1958, and factory cement lined cast iron water mains were installed between 1958 and 1968.

Factory lined cast iron (CLCI) was manufactured and installed up until about 1975. Overlapping this period, factory cement lined ductile iron main was manufactured from the 1950s and continues to be manufactured today. Most water utilities in the New England area did not begin to install ductile iron pipe until the late 1960s. Based on System records, the Milford Water Company began installing cement lined ductile iron pipe in 1970.

According to the Ductile Iron Pipe Research Association (DIPRA), ductile iron pipe retains most of its cast iron qualities such as machinability and corrosion resistance, but also provides additional strength, toughness, and ductility.

Between the 1930s and 1970s, the water industry utilized asbestos cement (AC) pipe for their expanding water systems. An advantage of AC pipe is that it resists tuberculation build up, resulting in less system head loss. The company has identified a specific manufacturer for much of the AC pipe in the system. The Ring Tite AC water mains are short pipe segments that have a coupling surrounding the joints. The company has not experienced any particular issues with any of the AC pipe.

PVC was first used in the United States in the early 1960s. Due to its resistance to both chemical and electrochemical corrosion, PVC pipe is not damaged by aggressive water or corrosive soils. In addition, the smooth interior of PVC is resistant to tuberculation. The 1994 "Evaluation of Polyvinyl Chloride (PVC) Pipe Performance" by the AWWA Research Foundation, found that utilities have experienced minimal long-term problems

with PVC pipe. Generally, problems with PVC occurred when the area surrounding the pipe was disturbed after installation of the pipe. Petroleum products with low molecular weight and organic solvents can permeate PVC pipe if the contaminants are found in high concentrations in the soil surrounding the pipe. MWC has not experienced any particular issues with PVC pipe.

A summary of the water main inventory of MWC's System is provided in Table No. 3-1 of Exhibit MW-KG-2. Where a pipe material is not commonly used in the current market or is no longer available, the closest replacement pipe material was utilized and incorporated into the replacement cost analysis.

Most residential service lines installed by the company are 1-inch diameter copper pipe. The Company owns the portion of the service line from the main to the curb stop; the balance of the service line is owned by the customer. For the purposes of the inventory for the System, it is assumed that the average service line is 25 feet to the curb stop. Based on this assumption, the total length of water services in the System is approximately 234,550 feet.

Water Main Inventory

Material	Diameter (Inches)	Replacement Material	Quantity (Linear Feet)
Cast Iron	4-inch or less	Ductile Iron	24,356
Cast Iron	6	Ductile Iron	45,136
Cast Iron	8	Ductile Iron	51,198
Cast Iron	10	Ductile Iron	13,118
Cast Iron	12	Ductile Iron	9,600
Cast Iron	14	Ductile Iron	19,310
Cast Iron	16	Ductile Iron	2,477
Cement Lined Cast Iron	4-inch or less	Ductile Iron	1,498
Cement Lined Cast Iron	6	Ductile Iron	1,505
Cement Lined Cast Iron	8	Ductile Iron	3,814

Cement Lined Cast Iron	10	Ductile Iron	4,252
Cement Lined Cast Iron	12	Ductile Iron	4,258
Ductile Iron	4		849
Ductile Iron	6		5,853
Ductile Iron	8		153,765
Ductile Iron	10		6,229
Ductile Iron	12		64,244
Ductile Iron	16		9,424
Asbestos Cement	4	Ductile Iron	178
Asbestos Cement	6	Ductile Iron	28,427
Asbestos Cement	8	Ductile Iron	55,590
Asbestos Cement	10	Ductile Iron	3,427
Asbestos Cement	12	Ductile Iron	7,659

Water Main Inventory (Cont.)

Material	Diameter (Inches)	Replacement Material	Quantity (Linear Feet)
PVC/Plastic	4-inch or less		2,689
PVC/Plastic	6		17,273
PVC/Plastic	8		102,808
PVC/Plastic	10		8,858
PVC/Plastic	12		16,924
Other	4-inch or less		3,218
Total			667,937

Valves

The water main valves in the distribution system are shown on the company's geographic information system (GIS). These valves can be used to isolate portions of the water system for repair. A summary of the valve inventory in the MWC distribution network can be found in Table No. 3-2 of Exhibit MW-KG-2. Valves on the laterals to hydrants are also included in this list. The GIS information does not identify valves by type, therefore it was assumed that the valves between 4 and 12-inches are gate valves, valves larger than 12-inches are butterfly valves, and valves smaller than 4-inches are corporation valves. Valves on services lines to homes are not included.

Valve Inventory

Material	Quantity
Gate Valve	1,298
Corporation Valves	11
Butterfly Valves	36
Blow Off Valve	5
Hydrant Gate Valve	957

Meter and Services

A list of water meters and services was provided by the Company. This information is updated when new services are added to the system or new meters are installed at current customer locations. Meter sizes ranged from 5/8-inch to 12-inch. The standard residential meter size is 5/8-inch. A summary of the customer meters by meter size, including compound meters as various sizes, is provided in Table No. 3-3 of Exhibit MW-KG-2. The majority of the customer meters are manufactured by Badger Meter. The average age of the customer meters is approximately 12 years.

Customer Meter Inventory

Meter Size	Quantity
5/8-inch	8,861
3/4-inch	96
1-inch	123
1 1/2-inch	142
2-inch	46
3-inch	12
4-inch	27
6-inch	11
8-inch	8
12-inch	2
Compound Meters	54
Total	9,382

Fire Hydrants and Fire Hydrant Laterals

The Company has 957 hydrants in the distribution system. These hydrants are included in MWC's GIS. Each hydrant is a standard 5-1/4-inch dry barrel type with a 4-inch pumper nozzle and two 2-1/2-inch hose nozzles. A listing of each hydrant by manufacturer was not available.

Fire hydrant laterals typically include a 6-inch diameter water main with a 6-inch diameter gate valve. The hydrant valves are included in the distribution valve inventory. The length of the hydrant lateral varies depending on the distance of the hydrant from the water main. No details are available on the hydrant laterals. It is estimated that each lateral is 10 feet long. There are approximately 9,570 linear feet of 6-inch diameter main hydrant laterals in the system.

- **Raw Water Mains**

There are approximately 3.2 miles of 24-inch diameter raw water mains connecting Echo Lake and the Clark's Island Wells to the Dilla Street WTF. The raw water mains are made of cast iron, cement lined cast iron, ductile iron, and asbestos cement.

Q. How did you determine the Replacement Cost New of these assets?

A. The replacement cost new analysis incorporates, to the extent possible, the same pipe materials and diameters as currently in existence in the System. A summary table of the replacement costs for the assets in the system is included within Appendix B of Exhibit MW-KG-2.

Costs are based on the December 2018 Boston area Engineering News Record (ENR). These include costs associated with other appurtenances and temporary and permanent trench pavement. Unit costs for water mains are based on bid prices for recent water

main installation projects in New England. The following table summarizes the Replacement Cost New for each type of water main material and diameter. Asbestos cement and cast iron, both lined and unlined, would be replaced with ductile iron pipe; small diameter pipe materials such as galvanized steel and iron would be replaced with copper piping; and plastic pipe would be replaced with PVC piping.

Water Main Replacement Cost New

Material	Diameter	Unit Cost per Linear Foot
Ductile Iron	4	$103
Ductile Iron	6	$120
Ductile Iron	8	$145
Ductile Iron	10	$160
Ductile Iron	12	$173
Ductile Iron	14	$195
Ductile Iron	16	$195
Ductile Iron	24	$375
Copper	2	$88
PVC/Plastic	2	$96
PVC/Plastic	4	$110
PVC/Plastic	6	$140
PVC/Plastic	8	$150
PVC/Plastic	10	$150
PVC/Plastic	12	$150

A detailed list of the pipe segments with the diameter, material, installation year, Replacement Cost New, and depreciation percentage can be found in Table B-4.1 in Appendix B of Exhibit MW-KG-2. Table B-4.2 in Appendix B of Exhibit MW-KG-2 has a detailed listing of the raw water pipe segments with diameter, material, installation year, Replacement Cost New, and depreciation percentage.

The replacement cost of customer services assumes 25 linear feet of service line, a corporation valve, and a curb stop. Detailed information on length of each service and the year of installation was not provided. It was assumed that the service lines are the

same diameter as the meter size. Any services larger than 2-inches will not have a corporation valve. Depreciation for the customer services was estimated to be the same as for the water mains.

The Replacement Cost New of a hydrant is $4,200. It was assumed that each hydrant was installed the same year as the water main it is connected to, and that both the water main and hydrant have depreciated at the same rate. A detailed list of the hydrants with the installation year, Replacement Cost New, and depreciation percentage can be found in Table B-4.3 in Appendix B of Exhibit MW-KG-2.

The following table summarizes the Replacement Cost New for each valve size. Similar to the hydrants, it was assumed that each valve was installed the same year as the water main and that both the water main and valve have depreciated at the same rate. A detailed list of the valves with the installation year, Replacement Cost New, and observed depreciation percentage can be found in Table B-4.4 in Appendix B of Exhibit MW-KG-2.

Valve Replacement Cost New

Type	Diameter	Unit Cost
Corporation Valve	1	$617
Corporation Valve	2	$617
Gate Valve	4	$1,200
Gate Valve	6	$1,280
Gate Valve	8	$1,950
Gate Valve	10	$2,766
Gate Valve	12	$3,583
Butterfly Valve	14	$8,000
Butterfly Valve	16	$10,000

The Replacement Cost New of customer meters is summarized in the following table. The cost includes a $110 radio frequency endpoint that would be attached to each customer meter. Customer meter companies were contacted to determine the Replacement Cost New of a meter. It was assumed that customer meters would be replaced in kind. A detailed list of the customer meters with the meter size, manufacturer, purchase year, Replacement Cost New, and observed depreciation percentage can be found in Table B-4.5 in Appendix B of Exhibit MW-KG-2.

Customer Meter Replacement Cost New

Meter Size	Cost
5/8-inch	$ 230
3/4-inch	$ 250
1-inch	$ 460
1 1/2-inch	$ 560
2-inch	$ 710
3-inch	$ 1,600
4-inch	$ 2,440
6-inch	$ 4,020
8-inch	$ 7,970
12-inch	$ 9,750
2-inch Compound	$ 1,650
3-inch Compound	$ 2,110
4-inch Compound	$ 3,110
6-inch Compound	$ 5,300
8-inch Compound	$ 8,230

Replacement Cost New

Table No. 4-4 of Exhibit MW-KG-2 summarizes the estimated Replacement Cost New of the below ground assets, as well as hydrants, valves, and meters, for the MWC system, as of December 31, 2018.

Replacement Cost New – Below Ground Assets

Asset Class	Replacement Cost New
Transmission and Distribution Mains	$ 98,243,660
Customer Services	$ 20,952,460
Raw Water Mains	$ 6,316,130
Hydrants	$ 4,019,400
Valves	$ 3,053,560
Customer Meters	$ 2,639,880

The following table summarizes the estimated Replacement Cost New of the above ground assets for the System, including wells and intake structures. Replacement costs new for above ground assets were determined based on quotes supplied by vendors, recent construction costs adjusted to present day dollars, and our professional opinion. A detailed analysis of the Replacement Cost New of the above ground assets as of December 31, 2018 is included in Appendix B of Exhibit MW-KG-2.

Replacement Cost New – Above Ground Assets

Asset Class	Replacement Cost New
Dilla Street WTF	$21,172,050
Echo Lake Dam/Intake	$3,950,000
High Lift Pump Building	$2,546,230
Bear Hill Tank	$1,283,400
Godfrey Brook WTF	$1,196,860
Congress Street Water Storage Tank	$1,044,000
Slow Sand Building	$808,000
Highland Street Tank	$765,300
Godfrey Brook Wellfield	$331,750
Clark's Island Wellfield Pump Station	$289,120
Diatomaceous Earth Building	$233,000
Dilla Street Wells	$180,400
Clark's Island Wellfield	$131,500
Congress Street Booster Pump Station	$129,380
River Intake Building	$128,230
Dilla Street Circular Clearwell Structure	$77,270
Congress Street Water Storage Tank Vault	$18,720

The Replacement Cost New for the Dilla Street WTF is based on the actual construction cost when the facility was constructed in 2012 through 2014. Construction costs were adjusted to present value based on the Boston area ENR Construction Cost Index of 6,458.21 in January 2013, halfway through the WTF construction, and 7,589.81 in December 2018. Raw and finished water mains are not included in the cost of the Dilla Street WTF since they are included with the below ground assets.

Some of the costs associated with the High Lift Pump Building are also included in the cost of the Dilla Street WTF. Interior piping, valves, instrumentation, and one high lift pump, motor, and VFD were installed as a part of the treatment facility contract in 2014, the remaining assets still in use were included separately in the cost of the High Lift Pump Building. This cost also includes the building envelope.

Replacement Costs New for the water storage tanks were based on present day quotes for new tank installations. The value includes the labor and material cost of the steel tanks, covers, foundations, and site work.

Replacement Costs New for the wells, wellfields, pump stations, Godfrey Brook WTF, and the ancillary facilities at the Dilla Street WTF, were based on individual asset equipment costs and labor costs for installation. These costs are based on vendor supplied quotes and invoices, as well as our professional opinion based on recent publicly bid projects of similar nature.

Q. Please describe your investigation of the condition of the assets.

A. Site visits were conducted during the development of this analysis. The purpose of the visits was to assess the conditions of the various above ground assets and, to the extent

possible, the below ground assets. The asset conditions were used to estimate the observed depreciation of these assets.

On seven dates in 2018 (October 31, November 7, November 8, November 9, November 12, November 15, and November 29), Tata & Howard conducted buried asset investigations. The sampling locations were randomly selected based on a statistical analysis by a statistician engaged by counsel for the company. Pipes were uncovered by excavation and samples were obtained from a variety of pipe types. In addition, soil samples were taken from each of the pipe sample locations.

On November 29, November 30, and December 3, 2018, Tata & Howard performed site visits of the above ground assets. Tata & Howard conducted interviews with Jeffrey Papuga and Vincent Farese of the Milford Water Company on December 17, 2018 and conducted an interview with David Condrey of the Milford Water Company on December 27, 2018. Information discussed during the interview impacts the condition, observed depreciation, and Replacement Cost New of the company's above ground assets. The inventory of above ground information including condition is provided in Appendix B of Exhibit MW-KG-2.

- **Soils Evaluation**

A Tata & Howard representative licensed as an approved soils evaluator through the Commonwealth of Massachusetts witnessed the pipe excavation sites, or test pit sites. The probable seasonal high groundwater estimation was completed using soil morphology. The distinct presence of redoximorphic features (or lack thereof) was recorded at each test pit location. Following the determination of probable seasonal high

groundwater levels, soil samples were collected from around each pipeline for laboratory analysis. The Soil Analysis Report is included in Appendix C of Exhibit MW-KG-2.

A total of 10 soil samples were collected from the 10 test pits and were analyzed for corrosion properties. The analysis was completed by Corrpro Companies, Inc. located in Malvern, PA. The soil samples were tested for the following properties: Moisture, pH, Chlorides, Sulfates, Conductivity, and Resistivity.

The American Water Works Association (AWWA) Standard C105/A21.5-18 (C105) Polyethylene Encasement for Ductile-Iron Pipe System includes procedures for the investigation of soil and its corrosivity. Appendix A in AWWA C105 details the soil characteristics and various ranges effecting the corrosivity of soils. The soil characteristics include Resistivity, pH, Oxidation-reduction potential, Sulfides, Moisture Content, Soil Description, Potential Stray Direct Current, and Experience with existing installations in the area.

According to Table A.1 of Appendix A in AWWA C105, Resistivity and pH ranges were tested and found to be within normal ranges. Most locations were found to be fair to good drainage and generally dry or moist, except for Sample No. 1. Sample No. 1 had the highest moisture content and the pipeline was fully submerged when excavated. The area was defined by Milford Water Company personnel as being previous swamp and wetland areas that is normally saturated at the depth of the existing water main. Sample No. 1 was obtained from an existing PVC water main. As previously stated, PVC pipe is not damaged by aggressive water or poor soils due to its resistance to both chemical and electrochemical corrosion. The soil characteristics discussed above and the laboratory test results indicated that the soils are non-corrosive.

- **Pipe Condition**

Corrosion can occur on the interior or exterior surfaces of cast iron or ductile iron pipe. The corrosion can form pits. As the pits enlarge, they weaken the pipe wall. Pipe corrosion can be caused by water quality, soil characteristics, groundwater characteristics, and stray current. Cement lining of the pipe interior can prevent internal corrosion of the pipe. Cast iron pipes installed after 1957 and ductile iron pipes have a cement lining. Corrosion can also occur in the form of graphitization. This can be caused by the pipe being exposed to water that is acidic or water that has a low hydrogen sulfide content. Graphitization occurs when the iron is leached out of the pipe, leaving the graphite behind.

External influences such as soil type and high groundwater can corrode asbestos cement mains. Depending on the water quality, the structural integrity of AC mains can deteriorate over time, reducing the strength of the pipe and causing it to become sensitive to pressure fluctuations and/or nearby construction activities.

As previously stated, PVC pipe is not damaged by aggressive water or poor soils due to its resistance to both chemical and electrochemical corrosion. The 1994 "Evaluation of Polyvinyl Chloride (PVC) Pipe Performance" by the AWWA Research Foundation, found that utilities have experienced minimal long-term problems with PVC pipe. Generally, problems with PVC occurred when the area surrounding the pipe was disturbed after installation of the pipe.

- **Field Investigation of Water Mains**

Ten random sample locations were selected by a statistician to be visually inspected. The pipe coupons and segments of pipe were taken from the mains in those locations for

evaluation. The following table summarizes the pipe locations, material, diameter, and installation year. Copies of the Pipe Inspection Reports can be found in Appendix D of Exhibit MW-KG-2. The pipe inspection reports, including photographs, detail the location of the sample, the proximity of other utilities, the surface and backfill materials, backfill used for pipe bedding, moisture content of the backfill, and the depth of cover, in addition to the pipe characteristics and condition of the pipe.

Pipe Sample Locations

Sample No.	Location	Diameter (in.)	Material	Installation Year
1	8 Bethel Road	8	Plastic, PFC	1985
2	56 Asylum Street	12	Ductile Iron	1990
3	Freedom Street @ John Street	8	Cast Iron	1924
4	4 Sample Road	6	Asbestos Cement	1970
5	Regal Road @ Redwood Drive	8	Asbestos Cement	1965
6	17 Oriole Drive	8	Asbestos Cement	1965
7	7 Naples Court	8	Ductile Iron	1995
8	20 Woodland Avenue	6	Cast Iron	1931
9	Medway Road @ Rail Trail	8	Cast Iron	1946
10	Fells Avenue	4	Cast Iron	1910

The exterior of each sampled pipe was visually inspected for corrosion and pitting. The pipe interiors were inspected by cutting out and removing a 5-inch diameter pipe coupon. The samples at Bethel Road and Fells Avenue did not have pipe coupons taken. At those locations, one-foot long sections of pipe were cut and removed for inspection. The following table summarizes the condition of the exterior of the pipes sampled. Minimal corrosion or pitting was observed in the sampled pipes.

Sampled Pipe Exterior Conditions

Sample No.	Exterior Coating	Extent of Corrosion	Extent of Pitting	Pit Depth	Exterior Condition
1	N/A	None	None		Excellent
2	Bituminous	None	None		Excellent
3	Bituminous	None	None		Excellent
4	N/A	None	None		Very Good
5	N/A	Slight	Slight	1/4-inch	Good
6	N/A	None	Slight	1/8-inch	Excellent
7	Bituminous	None	None		Excellent
8	None	None	None		Very Good
9	Bituminous	None	None		Excellent
10	Bituminous	None	None		Very Good

The following table summarizes the interior condition of the sampled pipes. The interior condition of Pipe Sample No. 10 could not be determined because of the buildup of an approximately 1-inch thick layer of tuberculation on the interior of the pipe. No pitting was observed in the interior of any of the pipe samples.

Sampled Pipe Interior Conditions

Sample No.	Interior Coating	Film	Tuberculation	Interior Condition
1	None	Manganese	None	Excellent
2	Cement	None	None	Excellent
3	None	None	Uniform Light	Very Good
4	None	Manganese	Uniform Light	Very Good
5	None	None	None	Excellent
6	None	Manganese	None	Excellent
7	Cement	None	Uniform Light	Excellent
8	None	None	Uniform Light	Good
9	None	Manganese	Uniform Light	Very Good
10	None	None	Heavy ~ 1-inch	Unknown

The overall condition of the pipe samples was good to excellent with minimal pitting on the interior and exterior. Some pipe samples had manganese film or a slight buildup of tuberculation coating the interior of the pipe. Pipe Sample No. 10 was the only sample

with a heavy buildup of tuberculation. The following table summarizes the overall pipe conditions. The overall pipe condition for Pipe Sample No. 10 could not be determined because the interior of the pipe could not be evaluated due to the buildup of tuberculation.

Overall Pipe Conditions

Sample No.	Exterior Pipe Condition	Interior Pipe Condition	Overall Pipe Condition
1	Excellent	Excellent	Excellent
2	Excellent	Excellent	Excellent
3	Excellent	Very Good	Very Good
4	Very Good	Very Good	Very Good
5	Good	Excellent	Very Good
6	Excellent	Excellent	Excellent
7	Excellent	Excellent	Excellent
8	Very Good	Good	Good
9	Excellent	Very Good	Very Good
10	Very Good	Poor	Poor

- **Field Investigation of Above Ground Assets**

The above ground water system assets included in our analysis were visited and visually inspected by Tata & Howard with the assistance of Jeffrey Papuga of the company. The current condition based on visual inspection, supplemented with records of installation year, and maintenance history, is the basis of the observed depreciation determined in this analysis.

Q. Please describe the results of your observed depreciation analysis of the System Assets.

A. Depreciation is expressed as a percentage of the asset's replacement cost. A Master Plan and Capital Improvements Plan (CIP) was completed by Tata & Howard for the System in 2010. As part of the CIP, each pipe in the system was evaluated and assigned a grade. The grading system used the water main characteristics such as age, material, break

history, soil conditions, pressure, and water quality to assign point values to each pipe. Each pipe was assigned a rating between zero and 100. The pipes with the highest grade were considered to be in the poorest condition.

The asset rating score from the CIP was used as the baseline in determining observed depreciation percentage for this analysis. We also reviewed crushing and metallurgical pipe testing we performed for the company in 2016, which was consistent with the CIP and our analysis of the pipe samples taken in this case. The weighted average of the observed depreciation percentage for the distribution mains is 34 percent (rounded). The ten pipe samples indicated the mains are in good condition, which along with the other information we reviewed, supports our opinion that the overall observed depreciation of the distribution mains is 34 percent.

Above ground assets were valued using the observed depreciation based on visual inspection of the facilities, records provided by the Milford Water Company, and interviews with company personnel. For instance, if an asset has a history of failures or requires more maintenance than anticipated, the depreciation is adjusted accordingly. Rehabilitation is also factored into depreciation, for example if a water storage tank was recently cleaned, riveted, or repainted, depreciation is adjusted accordingly. The observed depreciation percentages are set forth in the following schedule:

Schedule of Replacement Costs less Observed Depreciation

Group	Item Description	Replacement Cost New	Observed Depreciation (%)
Raw Water Assets			
1.1	Godfrey Brook Wellfield	$ 331,750	55.47%
1.2	Clark's Island Wellfield Pump Station	$ 289,120	44.48%
1.3	Clark's Island Wellfield	$ 131,500	8.91%
1.4	Dilla Street Wells	$ 180,400	90.00%
1.5	River Intake Building	$ 128,230	48.34%
1.6	Echo Lake Dam/Intake	$ 3,950,000	38.30%
Treatment Facility Assets			
2.1	Dilla Street WTF	$ 21,172,050	11.07%
2.2	High Lift Pump Building	$ 2,546,230	86.15%
2.3	Diatomaceous Earth Building	$ 233,000	82.25%
2.4	Slow Sand Building	$ 808,000	91.29%
2.5	Circular Clearwell Structure	$ 77,270	99.70%
2.6	Godfrey Brook WTF	$ 1,196,860	58.78%
Water Storage Facility Assets			
3.1	Bear Hill Tank	$ 1,283,400	41.82%
3.2	Congress Street Water Storage Tank	$ 1,044,000	39.32%
3.3	Highland Street Tank	$ 765,300	74.48%
3.4	Congress Street Booster Pump Station	$ 129,380	45.28%
3.5	Congress Street Water Storage Tank Vault	$ 18,720	9.13%
Transmission & Distribution Assets			
4.1	Water Mains-Distribution	$ 98,243,658	33.98%
4.2	Water Mains-Raw Water	$ 6,316,125	19.92%
4.3	Hydrants	$ 4,019,400	33.19%
4.4	Valves	$ 3,053,560	30.49%
4.5	Customer Meters	$ 2,639,880	52.96%
4.6	Customer Services	$ 20,952,460	34.00%

Q. Does this conclude your testimony?

A. Yes, it does.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 18-60

MILFORD WATER COMPANY

DIRECT PREFILED TESTIMONY
OF
LARRY E. RICHARDS, Ph.D

ON BEHALF OF

MILFORD WATER COMPANY

EXHIBIT MW-LER-1

JANUARY 25, 2019

Q. Please state your name and business address.

A. My name is Larry Earl Richards and my business address is 670 Sand Avenue, Eugene, Oregon, 97401.

Q. Would you please state your present occupation?

A. I am the owner of M3P Consulting. In that capacity, I am responsible for the management and performance of the consulting work done by M3P. I have worked in this position since 1965. From 1967 through 2007 I was also a professor of applied statistics at the University of Oregon.

Q. Please describe your educational background, industry background and professional expertise.

A. I obtained my Bachelor of Arts from the University of Washington, where I also obtained a Masters of Business Administration with a specialized focus in the area of statistics. Afterwards, I received my Ph.D. in Applied Statistics with a minor in Mathematical Statistics from the University of California at Los Angeles. In my professional work as a statistician, I have provided consulting expertise for 55 entities ranging from the Federal Trade Commission, the Oregon Public Utility Commission, and various utility companies like Tennessee-American Water Company, California Ojai Water Company, and Mountain Water Company, all of which are listed in the Curriculum Vitae attached to my report. As an example of my consulting work, I designed the entire sampling and audit procedure for the Oregon Public Utility Commission Audit Division. In each of my consulting engagements, I have undertaken statistical analyses specifically dealing with

sample design, sample selection, and estimations based on samples. As a professor at the University of Oregon from 1967 through 2007, every single class I taught was in the area of applied statistics. These classes ranged from undergraduate level introduction to statistics to graduate level regression, multivariate analyses, sampling, nonparametrics, conjoint and multidimensional scaling, sequential analysis, experimental design, and analysis of frequencies.

Q. Have you previously testified before state regulatory agencies?

A. Yes. I have testified in eighteen states: Alabama, Arkansas, California, Florida, Georgia, Iowa, Kansas, Louisiana, Mississippi, New York, North Carolina, Oregon, Tennessee, Utah, Virginia, Washington, West Virginia and Wyoming.

Q. What is the purpose of your testimony?

A. In this proceeding, I have been engaged to provide a sample design and sample selections that would lead to an unbiased estimate of the level of observed depreciation of the entire system of pipe for Milford Water Company (the "System") through the provision of random locations from which samples could be taken to determine depreciation through physical inspection. The System is comprised of primarily six different material types and a variety of pipe sizes from one to twenty inches. I have performed the analysis for which I was engaged, and the purpose of my testimony is to describe the findings from my analysis, which were provided to Karen Gracey at Tata & Howard, Inc. to use in her pipe sampling.

Q. Are you presenting any exhibits with your testimony?

A. Yes. In addition to this testimony, I am presenting one exhibit, attached hereto as Exhibit MW-LER-2, which is a copy of my final report and analysis.

Q. Were these exhibits prepared by you or under your supervision and direction?

A. Yes.

Q. Please describe the analysis you performed.

A. In order to provide an unbiased estimate of the level of depreciation for the entire System, which is comprised of six different types of pipes with varying ages, I performed a method of sampling called stratified random sampling. This method involves the division of a population into smaller groups known as strata, which are formed based on members' shared attributes or characteristics. Four different characteristics were available for analysis: pipe location, date of installation, size (diameter), and material type. Of these four different characteristics, I chose material type to use for stratification because, given the related nature of pipe age and material type, stratification on material type would essentially accomplish stratification of both type and age.

Stratification offers two benefits toward the estimation of system depreciation. First, it guarantees samples from each of the six material types. Second, to the extent that pipes of a specific material type and age are grouped into individual strata, and are expected to exhibit similar depreciation, the resulting estimate will become efficient.

The percentage breakdown of pipes by material type and pipe size are available in Exhibits A and B, respectively, of my report. The System is predominantly comprised of Ductile Iron (35%), Asbestos Cement (28%), and Cast Iron (25%).

As a result of my analysis, my report lists a random selection of ten pipe locations from which samples could be taken and physical inspection performed and extrapolated for an analysis of the physical deprecation of the System's pipes. Because Ductile Iron, Asbestos Cement, and Cast Iron together make up 88% of the System, multiple sample locations were randomly selected for each of these stratum. In addition to the locations provided, the Appendix of my report listed alternative sample sites that could be utilized if the primary location was deemed impractical.

Q. Do you believe that the locations you provided to Karen Gracey were sufficient to determine the overall physical depreciation of the pipe in the System?

A. Yes. For the reasons discussed in my testimony, the method employed to determine these locations provided Ms. Gracey with the appropriate data from which to extrapolate depreciation percentages to each established stratum.

Q. Does this conclude your testimony?

A. Yes, it does.

M3P Consulting
670 Sand Avenue
Eugene, Oregon
97401

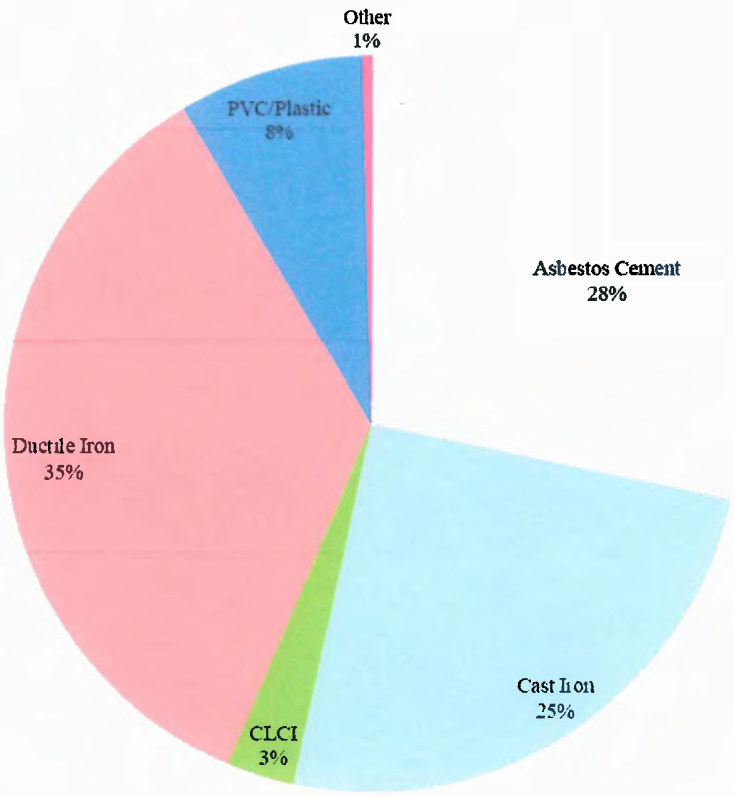
Sample Design and Selection for Milford Water Company

The objective of the sampling project was to obtain an unbiased estimate of the level of depreciation of the entire system of pipe for Milford Water Company. The system is comprised of primarily six different material types and a variety of sizes from one to 20 inches. System data are available on pipe location, date of instillation, size (diameter) and material type. The sample design is "STRATIFIED RANDOM". One might expect that both age and type of material to be related to depreciation. Of the four characteristics, material type was chosen for stratification, as age and type appear to be related. With reference to Table No. 6-1 of the Tata & Howard December 2010 document, Cast Iron was essentially the only type installed prior to late 1960's and Asbestos Cement, Plastic/PVC and Ductile Iron were the primary types installed starting in the late 1960's. Therefore, stratification on material type would essentially accomplish stratification of both type and age.

Stratification offers two benefits toward the estimation of system depreciation. First it guarantees samples from each of the six material types and second to the extent the locations with similar depreciations are grouped into individual strata, the resulting estimate will become efficient.

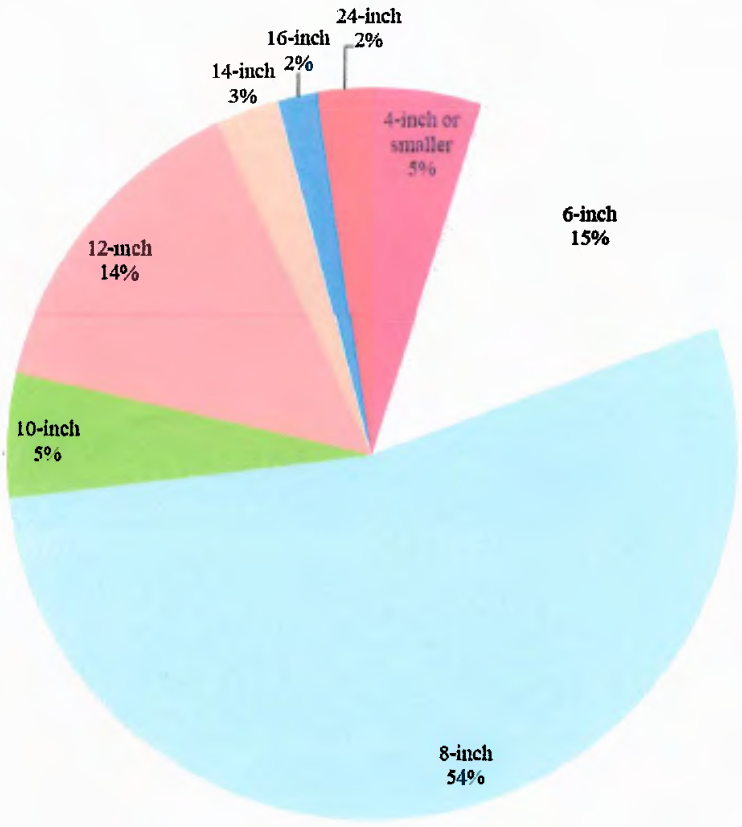
Exhibit A indicates the percentage of pipe in six major categories of pipe material and Exhibit B shows the percentage breakdown by pipe size.

Exhibit A



Source: Tata & Howard
2010

Exhibit B



Source: Tata & Howard
December 2010

Table 1 gives the summary statistics for the six established strata.

Table 1

Stratum	Material Type		Locations	Feet
1	Asbestos Cement		119	193,278
2	Cast Iron		101	171,698
3	Ductile Iron		124	240,159
4	Plastic/PVC		36	55,616
5	Other		69	3,218
6	CLCI			19,998
total			449	683,967

The following are the results of the random selection within strata.

Sample Selection

Table 2

Stratum	Material Type	Address	Type	Size	Date
1	Asbestos Cement	Regal Rd.	ACP	8"	1960
1	Asbestos Cement	Sample Rd.	ACP	6"	1970
2	Cast Iron	Charles St.	CIP	8"	1892
2	Cast Iron	Jackson St.	CIP	4"	1916
2	Cast Iron	Medway Rd.	CIP	8"	1946-1949
3	Ductile Iron	Asylum	DIP	12"	1990's
3	Ductile Iron	Naples Ct.	DIP	8"	1990's
4	Plastic/PVC	Bethel Rd.	PVC	8"	1980's
5	Other	Oriole	?	8"	
6	CLCI	Woodland Ave.	CIP	6"	1967

The strata and associated locations are given in the Appendix. If selected sites are deemed impractical, substitutes are available and were selected. Four randomly selected locations were drawn for each stratum. The alternative sites are show in the Appendix as 1st alt, 2nd alt, 3rd alt, and 4th alt. The location identified as the 1st alt is to be the first alternative chosen for substitution followed by the 2nd alt, etc.

For example, in Stratum 1, should either of the two selected locations (Regal Rd. or Sample Rd.) be deemed as impractical, then the first substitution location would be Victor Dr. followed by Caroline Dr. etc.

The Cast Iron Stratum spans such a large time interval (1882-1969) it was subdivided into two sub-stratus (1882-1939) and (1940-1969). Therefore the estimated depreciation for Charles St. and Jackson St. is to be applied to the 148,511 feet of Cast Iron with instillation dates prior to 1940 and the estimated depreciation for Medway Rd. applied to the remaining 23,187 feet.

If the sample of ten observations were deemed onerous (time constraint or economically) then it would be possible to reduce the number of observations by drawing only one location per stratum. However, it is necessary that at least one observation be drawn from each of the six strata.

The results of the proposed sampling are unbiased estimates of the level of depreciation for each established stratum. These unbiased estimates are to be applied to the locations (pipe) listed in the Appendix. For example, the average level of depreciation for the sampled locations of Regal Rd. and Sample Rd. is to be applied to the 193,278 feet of asbestos cement pipe listed in Stratum 1.

September 24, 2018

Dr. Larry E. Richards

Appendix

Stratum 1 Asbestos Cement

	Agnes Rd.	6"	ACP	1970's
	Alfred St.	8"	ACP	1970's
	Allen Rd.	6"	ACP	1970's
	Blanchard Rd.	6"	ACP	1970's
	Bowdin Rd.	8"	ACP	1970's
	Bradford Rd.	8"	ACP	1970's
	Capital	8"	ACP	1970
	Carven	6"	ACP	1970's
	Clearview Dr.	8"	ACP	
	Colonial Rd.	8",6"	ACP	1970's
	Cornell Dr.	8"	ACP	1960's
	Country Side Dr.	8"	ACP	1975
	Cricket Ln.	6"	ACP	1970's
	Diantonio Dr	8"	ACP	1976
	Divittorio	8"	ACP	1970's
	Eames	6"	ACP	1966
	East Main St	12"	ACP	1973
	Edgewood Rd	8"	ACP	1970's
	Elizabeth Rd	6"	ACP	1070's
	Evans Rd	8"	ACP	1970's
	Glennon Dr	6"	ACP	1960's
	Grant St Ext	6"	ACP	
	Hancock St	8"	ACP	1968
	Harding St	8"	ACP	1986
	Harvard Dr	6"	ACP	1972
	Iadarola Ave	8"	ACP	1973
	Ivy Ln	8"	ACP	1970
	Kellett Rd	8"	ACP	1964
	Lantern Ln	8"	ACP	1972
	Larson Rd	8"	ACP	1978
	Larioe Ave	6"	ACP	1970's
	Lyndon Rd	8"	ACP	1970's
	Manella Ave	6"	ACP	1963
	Manguso Rd	6"	ACP	1964
	Muriel Ln	8"	ACP	1965
	Prinston Dr	8"	ACP	1972
	Purdue Dr	8"	ACP	1964
	Richard St	6"	ACP	
	Robert Rd	10"	ACP	
	Rosenfeld Ave	6"	ACP	
	Silvia Dr	8"	ACP	1998
sample	Sample Rd	6"	ACP	1970
	Taft St	8"	ACP	1967
	Tomaso Rd	6"	ACP	1970
	University St	8"	ACP	1960's

	Vassar Dr	6"	ACP	1960's
	Vincenzo Ct	8"	ACP	1971
	Washington St	6"	ACP	1960's
	West Fountain St	10"	ACP	1970
	Western	8"	ACP	1960's
	Windsor Rd	8"	ACP	1965
	Y St	8"	ACP	1965
	Senate Rd	8"	ACP & PVC	1965, 1984
	Annie Cir.	8"	Blue Brute	1983
3rd alt	Bandy Ln.	6"	RTP	1970's
	Berkley Rd.	8"	RTP	1970's
	Brookfield	8"	RTP	1970's
2nd alt	Caroline Dr.	8"	RTP	1981
	Clarridge Cir.	10"	RTP	1977
	Claudette	10"	RTP	1970's
	Congress Terrace	8"	RTP	1972
	Dartmouth Dr.	10"	RTP	1971
	Eastview Dr	8"	RTP	1970
	Ester Dr	8"	RTP	1970's
	Fairbanks Dr	8"	RTP	1970's
	Fenway Dr	6"	RTP	1970's
	Fern St	6"	RTP	1954
	Fox Ln	8"	RTP	1960's
	Harris Ave	6"	RTP	1968
	Highland St	12"	RTP	1965 thru 1972
	Hillcrest Dr	8"	RTP	1960's
	James St	6"	RTP	1968
	Jionzo Rd	8"	RTP	1972
	Joan Cir	8"	RTP	1977 thru 1992
	Lucia Dr	8"	RTP	1970's
	Lynn Ln	8"	RTP	1965
	Madden Ave	8"	RTP	1964
	Marshall Rd	8"	RTP	1965
	Mystic Ln	8"	RTP	1965
	Nancy Rd	8"	RTP	1965
	Nelson Heights	8"	RTP	1964
	Nicholas Rd	8"	RTP	1960's
	North Brook Cir	8"	RTP	1961
	North Vine St	12"	RTP	1976
	Oak Terrace	8"	RTP	1974
	Paula Rd	8"	RTP	1965
	Penny Ln	8"	RTP	1971
	Princess Pine Ln	8"	RTP	1972
	Ragged Hill Rd	8"	RTP	1960's
	Ramble Rd	8"	RTP	1960's
	Redwood Dr	10"	RTP	1966
sample	Regal Rd	8"	RTP	1960's

	Reservoir Rd	12"	RTP	)70's thru 1990's
	Ridge Rd	8"	RTP	
	Robin Rd	8"	RTP	1972
	Rose Ln	8"	RTP	1968
	Shadowbrook Ln	8"	RTP	1963
	Sidney Rd	8"	RTP	1960's
	Simon Dr	8"	RTP	1974
	South Richard St	6"	RTP	1965
	Sunnyside Ln	8"	RTP	1968
	Sumner St	8"	RTP	1975 thru 1989
	Sunset Dr	8"	RTP	1968
	Sunwood Dr	10"	RTP	1974
	Tanglewood Dr	8"	RTP	1973
	Temple St	8"	RTP	1971
	Till Rock Ln	6"	RTP	1971
	Treeland Dr	8"	RTP	1960's
	Tufts DR	8"	RTP	1960's
1st. Alt	Victor Dr	8"	RTP	1990's
	Violet Cir	8"	RTP	1971
	Wales St	8"	RTP	1964
	Walker Ave	8"	RTP	1964
	Walker Ave Ext	8"	RTP	1970
	Whip Owill	8"	RTP	1970
	Whittier RD	8"	RTP	1970
	Woodhill RD	8"	RTP	1960's
	Wyeth Cir	6"	RTP	1967
	Mt. Pleasant St	6"	RTP & DIP	1888 thru1992

STRATUM 2 CAST IRON

	Alden St.	6"	CIP	1911
	Altiero Ct.	2"	Cement lined iron	1914
	Bacon Slip	4"	CIP	1887
	Bancroft Ave.	4"	CIP	1906
	Bay Rd.	8"	CIP	
	Beach St.	12"	CIP	1882
	Beach St. Ext	6"	CIP	1907
	Bragg St.	2"	CIP	1887
	Cape Rd.	6"	CIP	1930
	Carroll	6"	CIP	1901
	Cedar St.	8",10",14"	CIP,DIP.CIP	1888, 1904, 2006
	Central St	12",8",6",	CIP	882, 1980's, 1990's
	Chapin St.	4"	CIP	1885
sample	**Charles St.**	**8"**	**CIP**	**1892**
	Cherry St	4"	CIP	1884
	Claflin	8"	CIP	2006
	Clark	4"	CIP	1887
3rd. Alt	Cook St.	4"	CIP	1899
	Court St.	8"	CIP	2006
	Daniels	8"	CIP	1892
	Depot St	12"	CIP	1968
	Dilla St	14"	CIP	1901-1902
	Dominic	4"	CIP	1904
	East St	6"	CIP	1910"
	East Walnut St	6"	CIP	1911
	Elm St	6"	CIP	1930
	Exchange St	4"	CIP	1882
	Fairview Rd.	6"	CIP	1902
	Fayette	6"	CIP	1929
1st. Alt	Fells Ave	4"	CIP	1910
	Fountain St	12"	CIP	1911
	Free St	6"	CIP	1948
4th. Alt	Freedom St	8"	CIP	1924
	Front	6"	CIP	1882
	Fruit St	4"	CIP	1888
	Genoa	4"	CIP	1900
	Gibbon Ave	4"	CIP	1910's
	Gillon St	6"	CIP	1930
	Goodrich Ct	4"	CIP	1887
	Granite St	8"	CIP	1960's
	Grant St	4"	CIP	1910's
	Green St	6"	CIP	1894
	Hamilton St	14"	CIP	1915
	Hayward St	6"	CIP	1887
	High St	8"	CIP	1884
	Hillside Ave	4"	CIP	1911
	Hollis Ct	2"	CIP	1897
	Hollis St	4"	CIP	1883
	Howard St	8"	CIP	1962
sample	**Jackson St**	**4"**	**CIP**	**1916**
	Lee	8"	CIP	1907
	Leonard St	6"	CIP	1887
	Main St	12"	CIP	1904
	Meade St	6"	CIP	1905
	Mechanic St	4"	CIP	1882

sample	**Medway Rd**	8"	CIP	1946 thru 1994
	Middleton St	6"	CIP	1906
	Myrtle St	4"	CIP	1905
	North Bow	6"	CIP	1882
	North St	8"	CIP	1898
	North Terrace St	4"	CIP	1902
	Oliver St	6"	CIP	1903
	Parker Hill Rd	6"	CIP	1910
	Parkhurst St	4"	CIP	1905
	Pearl St	14"	CIP	
	Pine St	4"	CIP	1900's
	Plain St	4"	CIP	1905
	Pleasant St	4"	CIP	1892
	Pond St	4"	Cip	1884
	Poplar	4"	CIP	1893
	Prairie St	6"	CIP	1990's
	Prentice Ave	4"	CIP	1900
	Prospect Heights	6"	CIP	1907
	Prospect St	8"	CIP	1895
	Purchase St	8" ,10", 14"	CIP	1970 thru 2005
	Quinlan St	4"	CIP	1882
	Reade St	4"	CIP	1892
	Richmond Ave	6"	CIP	1930
	School St	8"	CIP	1882
	Short St	4"	CIP	1896
	South Bow St	6"	CIP	1882
	South Free St	6"	CIP	1901
	South Main St	6"	CIP	1882
	South Union St	6"	CIP	1890
	Spring St	4"	CIP	1886
	Spruce St	6"	CIP	1887
	State St	?	CIP	1899
	Thayer St	6"	CIP	1887
	Venice St	8"	CIP	
	Vine St	6"	CIP	1897
	Walnut St	8"	CIP	1882
2nd. Alt	Water St	12"	CIP	1887
	West Brook St	6"	CIP	1910
	West Maple St	8"	CIP	1913
	West Pine St	6"	CIP	1893
	West Spruce St	4"	CIP	1938
	West Walnut St	6"	CIP	1887
	Whitney St	6", 8"	CIP, DIP	1914, 1988
	Williams St	12"	CIP	1930's
	Winter St	4"	CIP	1882
	Woodland Ave	6"	CIP	1967

Stratum 3 Ductile Iron Pipe

	Acorn Cir.	8"	DIP	1990's
	Archer Ave.	8"	DIP	1995
	Aris Way	8"	DIP	1990's
	Ariel Cir	8"	DIP	1990's
sample	**Asylum**	**12"**	**DIP**	**1990's**
	Atilio Cir.	8"	DIP	1990's
	Bearhill Rd.	16"	DIP	1990's
	Beaver St.	12"	DIP	967 ac-2010 dip
	Birch St.	12"	DIP	1987
	Bodio Cir.	8"	DIP	1998
	Briar Dr.	8"	DIP	1993
	Brook hollow Rd.	8"	DIP	1990's
3rd. Alt	Camp St.	8"	DIP	1990's
	Carp	8"	DIP	1980's
	Casey	12"	DIP	1990's
	Cedarview condos	8"	DIP	1990's
	Celestial Cir.	8"	DIP	1990's
	Chester Ln.	16"	DIP	1989
	Chestnut St.	8"	DIP	1989
	Christina Rd.	8"	DIP	1990's
	Coolidge RD.	8"	DIP	1975
	Cormier St.	8"	DIP	1990's
	Correira Cir	8"	DIP	1990's
4t. Alt	Courtland St.	8"	DIP	2002
	Cypress	8"	DIP	1990
	Dana Cir.	8"	DIP	1988
	Del Ann Cir	8"	DIP	1989
	Dewey Cir.	8"	DIP	1990's
	Diana Cir.	8"	DIP	1989
	Dogwood	8"	DIP	2001
	Dynasty Dr	8"	DIP	2000's
	Eben St	8"	DIP	1988
	Emmons St	8"	DIP	2008
	Eugene Cir	8"	DIP	1996
	Fairview Ave	8"	DIP	1991
	Farmers Cir	8"	DIP	1999
	Ferguson St	8"	DIP	1980
	Field Pond Rd	8"	DIP	1995
	Florence St	8"	DIP	1990
	Forest St	8"	DIP	2006
	Fortune BLVD	12"	DIP	1983
	Frank Dr	8"	DIP	1996
	Fruit St Ext	8"	DIP	2005
	Genesio Cir	8"	DIP	1992
	Governors Wy	8"	DIP	2000's
	Grove St	8"	DIP	1999
	Hamel Cir	8"	DIP	1990's
	Huckleberry Circle	8"	DIP	1990's
	Huff Rd	12"	DIP	1990's
	Hunter Cir	8"	DIP	1990's
	Huntoon Slip	6"	DIP	1993
	Isiah Cir	8"	DIP	1990's
	Janock Rd	8"	DIP	1991
	Jefferson St	8"	DIP	2009
	Jencks	12"	DIP	1990's

	Jen Paul Wy	8"	DIP	1990's
	Joe's Wy	8"	DIP	1998
	Joseph Rd	8"	DIP	1988
	Julian Rd	16"	DIP	1988
	Julie Cir	8"	DIP	2000's
	Karen Ln	8"	DIP	1990's
	Kraft Rd	8"	DIP	1981
	Lawrence St	6"	DIP	1990's
	Leah Ln	8"	DIP	1990's
	Lena Ln	8"	DIP	1989
	Littlefield Rd	8"	DIP	1995
	Lombardi Cir	4"	DIP	1990's
	Longview Dr	8"	DIP	1992
	Maher Ct	4"	DIP	1990's
	Maple St	12"	DIP	1987
	Maria Ct	8"	DIP	2003
	Mary Rd	8"	DIP	1990's
	Mason Dr	8"	DIP	2000's
	Mike Cir	8"	DIP	1990's
	Mill Pond Circle	8"	DIP	1988
	Mohegan Cir	8"	DIP	1990's
	Moschilli	8"	DIP	1990's
	Morey Wy	8"	DIP	1998
sample	**Naples Ct**	**8"**	**DIP**	**1990's**
	North Pond Terrace	8"	DIP	1990's
	Overlook Dr	8"	DIP	2000's
	Pheasant Cir	12"	DIP	
	Pine Island Rd	12"	DIP	1998
	Pine Needle Dr	8"	DIP	2000's
	Pouliot St	8"	DIP	1990's
	Quinshipaug Rd	8"	DIP	1984
	Quirk Cir	8"	DIP	1999
	Rebecca Wy	8"	DIP	
	Rich Rd	8"	DIP	
	Rockland St	12"	DIP	
	Roland Wy	8"	DIP	2004
	Rogers St	8"	DIP	
	Rosebud Ln	8"	DIP	1998
	Rupert Rd	8"	DIP	1999
	San Clemente	8"	DIP	1990's
	Selma Rd	8"	DIP	2005
	Sherwood Dr	8"	DIP	1989
	Silve St	8"	DIP	1998
	South Central St	12"	DIP	2001
	Sousa Cir	8"	DIP	1998
	St Johns Wy	8"	DIP	1988
	Stallbrook Rd	4", 8"	DIP	1990's
	Stub Toe Ln	8"	DIP	2000's
	Suzette Rd	8"	DIP	2000's
1st. Alt	Tall Pine Rd	8"	DIP	2000's
	Tara Cir	8"	DIP	1993
	Taylor St	6"	DIP	1990's
	Tina Rd	8"	DIP	1993
	Turin St	8"	DIP	1990's
	Vicki Ln	8"	DIP	1990
	Village Cir	8"	DIP	1990's
	Virginia Dr	8"	DIP	1993

	Walden Wy	8"	DIP	2000's
	Water Fall Ln	8"	DIP	1990's
	West Chester Dr	8"	DIP	1990's
	Whispering Pine Dr	8"	DIP	1990's
	Whitewood Rd	12"	DIP	1987
	Wildwood DR	8"	DIP	1988
	Winterberry Ln	8"	DIP	1990's
	Wood St	4"	DIP	2002
	Zain Cir	8"	DIP	2004
2nd. Alt	Church St	8" reduced to 4	DIP,CIP	2009, 1882
	Cemetary St.	2"	Galv.	
	Como Ct.	2"	iron	

Stratum 4 Plastic/PVC

	Baker Slip	1 1/2	Plastic	1980's
	Churchill	2"	plastic	1989
	East Charles St	2"	Plastic	1994
	Johnson Ct	1"	plastic	
	Mayhew Slip	2"	plastic	2004
	Packard Rd	2"	Plastic	1980's
	Park Ave	1 1/2"	Plastic	1974
	Willow RD	1 1/2"	Plastic	1989
sample	**Bethel Rd.**	**8"**	**PVC**	**1980's**
	Broad St.	8"	PVC	1987
	Brookside	8"	PVC	1984
	Country Club Ln.	8"	PVC	1985
	Debbie Ln.	8"	PVC	1985
	East Wood St	6"	PVC	1981
	Godfrey Ln	8"	PVC	1987
	Haven St	8"	PVC	1986
	Jennie D. Lane	8"	PVC	1983
2nd. Alt	Jillson Cir	8"	PVC	1983
	Manoogian	8"	PVC	1985
	Mark Dr	8"	PVC	1971
1st. Alt	National St	8"	PVC	1988
	Nolan Ave	8"	PVC	1984
	Oak Tree Dr	8"	PVC	1980's
3rd. Alt	Orange St	8"	PVC	1984
	Otis St	10"	PVC	1980's
	Regan Rd	8"	PVC	1986
	Rogers Ave	8"	PVC	
	Silver Hill Rd	8"	PVC	1980's
4th. Alt	South Terrace St	8"	PVC	1982
	Union St	8"	PVC	1985
	Wayne Rd	8"	PVC	1985
	Westerly Ct	8"	PVC	1989
	Woodridge Rd	8"	PVC	1986
	Calvin Rd.	8" & 6"	PVC ACP	980's, 1970's
	Madison Ave	8"	PVC & ACP	1985 & 1965
	Congress St.	8", 10"	PVC, CIP	,1914, 1938,

Stratum 5 Other

	Amherst Dr.	?	?	
	Branch St.	6"	?	
	Bruno Rd.	?	?	
	Canali Dr.	?	?	
	Charles River St.	?	?	
3d. Alt	Colby Dr.	6"	?	
	Columbia	?	?	
	Columbus Ave	?	?	
	Court Sq.	?	?	
	Covino Rd	?	?	
	Della St	?	?	
	Draper Park	?	?	
	Emerson Ln	?	?	
	Essex Ln	6"	?	
	Fisk Mill Rd	?	?	
	Fordham Dr	?	?	
	Franklin St	?	?	
	Genest Rd	8"	?	
	Glines Ave	4"	?	
	Grace St	2"	?	
1st. Alt	Grittle Ln	?	?	
	Hale Ave	?	?	
	Hemlock Ln	8"	?	
	Jason Cir	?	?	
	John St	?	?	
2nd. Alt	Kalen Cir	?	?	
	Legion St	?	?	
	Mcgill Ln	?	?	
	Meadowview Ln	?	?	
	Memory Ln	?	?	
	Messina St	?	?	
	Metcalf Ave	8"	?	
	Milana St	?	?	
	Mitchell Rd	?	?	
	Oliver Ct	?	?	1909
sample	**Oriole**	**8"**	**?**	
	Orrin Slip	?	?	1889
	Overlea Ave	?	?	
	Parklane Ave	?	?	
	Park St	?	?	
	Park Terrace	?	?	1906
	Pinewood Rd	?	?	
4th. Alt	Radcliffe	?	?	
	Ravenna St	?	?	1915
	Raymond	?	?	
	Roberts Ct	?	?	
	Roberts RD	8"	?	
	Rose Rd	?	?	
	Simmons Dr	6"	?	
	South High St	6"	?	1887
	South Pleasant St	?	?	
	Stanford Cir	6"	?	
	Stoneybrook	8"	?	

Technology Dr	?	?	
Teresa Dr	?	?	
Trettle Dr	?	?	
Trinity Dr	?	?	
Tyler St	?	?	
Vernon St	?	?	
West View Acres	?	?	
Yale Dr	8"	?	
West St	4", 6", 8"	?, CIP, DIP 1882 thru 1990's	
Cunniff Ave.	8", 6",8"	a/c, CIP, PVC0's, 1910's, 2002	
Adams St	1"	Copper	
Farese Rd	1.25"	Copper	2000
Lincoln St	1 1/2"	Copper	
Orchard St	2"	Copper	1976
Sabatinelli Rd	1 1/4"	Copper	
South Cedar St	1 1/4"	Copper	1989

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Ph.D. (1969) University of California at Los Angeles, Los Angeles, California

II. Professional Experience:

Consultant to:

1. Los Angeles County Regional Planning Commission, 1965
2. State Department of Public Health of California, 1965
3. Bank of America, 1968
4. Farwest Steel Service Center, 1970
5. Lane Plywood Inc., 1972
6. Monroe, Litton Industries, 1972
7. Simpson Timber Co., 1976
8. Pacific Power and Light, 1977, 1980
9. Federal Trade Commission, 1978
10. Portland General Electric, 1980
11. Georgia Pacific Corp., 1980
12. Stretch & Sew Inc., 1981
13. Willamette Timber Systems, 1981
14. Association of Reforestation Contractors, 1981
15. Columbia Basin Reforestation Inc., 1984
16. Oregon Department of Human Services, 1986
17. Oregon Public Utility Commission, Motor Transport Audit Division 1986-
18. Oregon Public Utility Commission, Motor Transport Safety Division 1987-1989
19. Union Pacific Railroad, 1987-1992, 2000-
20. Burlington Northern Railroad, 1988-1992
21. CSX Corporation, 1992-
22. Bell South Corporation, 1991-
23. Alaska Airlines Inc., 1994

24. United Airlines Inc., 1994
25. Oglethorpe Power Company, 1994-1995
26. Griggs & Anderson Research Inc., 1994-1996
27. Delta Air Lines Inc., 1994
28. Consolidated Rail Inc., 1994-1996
29. TTX Company, 1995
30. Basin Electric Power Cooperative, 1995
31. Genuine Parts Co. (NAPA), 1997
32. Tegarden & Associates, 1997
33. Airlines (Alaska, American, Continental, Delta, and United) 1996-1998
34. AT&T., 1997
35. Houston Light & Power Corp. 1997
36. Shoney's Inc. 1998-1999
37. American Electrical Power Corp. 1998-1999
38. Tennessee-American Water Company 1999-2000
39. Coastal Corporation 1999-2000
40. PacifiCorp 1999
40. Burlington Northern Santa Fe, 2000
41. Oglethorpe Power Company, 2002
42. AT&T., 2002
43. TTX Company,2002
44. Sprint, 2002
45. Delta Air Lines Inc. 2002
46. Georgia Power, 2002
47. Norfolk Southern, 200
48. MCI WorldCom, 2002
49. General American Transportation, 2002
50. Union Tank Car Co., 2002
51. Tennessee-American Water, 2008
52. Ojai Water, 2012
53. Montana Water, 2013
54. Oregon Department of Transportation, 2014
55. AT&T/Bell South, 2015

III. Testimony

1. Alabama
2. Arkansas
3. California
4. Florida
5. Georgia
6. Iowa
7. Kansas
8. Louisiana
9. Mississippi
10. New York
11. North Carolina
12. Oregon
13. Tennessee
14. Utah
15. Virginia
16. Washington
17. West Virginia
18. Wyoming

IV. Professional Service:

1. Co-Program Chairman, Western Region of the American Institute for Decision Sciences, 1974-1975.
2. Co-Program Chairman, National, the American Institute for Decision Sciences, 1977-1978.
3. Secretary-Treasurer, Oregon Chapter of the American Statistical Association, 1977-1979.
4. Vice-President, Oregon Chapter of the American Statistical Association, 1979-1981.

5. Participant as session chairman and /or discussant at the following meetings:

a. National Decision Sciences Institute Conferences
Atlanta 1974
Cincinnati 1975
Chicago 1977
St. Louis 1978
Las Vegas 1980
Boston 1981
San Francisco 1982
San Antonio 1983

b. Western Region Decision Sciences Institute Conferences
San Francisco 1974
Las Vegas 1975
San Diego 1976
Phoenix 1977
San Diego 1978
Reno 1979

V. Relevant Paper Presentations:

1. "Use and Abuse of Statistics Techniques in Taxation and Regulation" National Association of Railroad and Public Utility Tax Representatives, 1988 Annual Conference, Lake Tahoe.

2. "A Forecast of Forecasting Income---+ 3%" Appraisal of Utilities & Railroad Property for Ad Valorem Taxation, 1989 National Conference, Wichita.

3. "Development of Real and Personal Equalization Ratios" National Association of Railroad Property and Public Utility Tax Representatives, 1991 Annual Conference, Victoria, British Columbia.

4. "Am I Being Treated Fairly with Other Taxpayers?" Public Utilities Reports Inc, Conference, Dallas Texas 1998.

VI. Publications:

1. "Refinement and Extension of Distribution-Free Discriminant Analysis," Journal of the Royal Statistical Society-Series C. Applied Statistics, 1972, 21.

2. "A Note on Model Specification," Journal of Finance and Quantitative Analysis, VII, No. 3, 1972.

3. "Detection of Unexplained Joint Effects Through an Analysis of Residuals," Decision Sciences, IV, No. 1, 1973.

4. "Distribution-Free Significance Tests for Choosing Among Prediction Equations," Decision Sciences, VI, No. 2, 1975.

5. "Detection and Incorporation of Interactive Effects in Discriminant Analysis," Decision Sciences, VI, No. 3., 1975.

6. "An Efficient Algorithm for Fisher's Randomization Test," Western Region DSI Proceedings, 1976.

7. "Interim Inventory Valuation Strategies," Western Region DSI Proceedings, 1977.

8. Business Statistics: Why and When, with Jerry LaCava, McGraw-Hill Book Co. 1978.

9. Study Guide/Workbook for Business Statistics: Why and When, with Arno Rethans, McGraw-Hill Book Co. 1978.

10. "What Can Be Done About Interviewer Bias?" Research in Marketing, III, 1979, with Donald S. Tull.

11. "Randomization Test For Two Independent Samples Made Practical," Western Region DSI Proceedings, 1980.

12. Business Statistics: Why and When, 2nd. Edition 1983.

13. "Random Response Modeling with Responder Set Probability," Western Region DSI Proceedings. 1985.

14. "Multivariate Analysis of Variance," Bray & Maxwell, Book Review, Journal of Marketing Research, May 1987.

15. "Principal Component Analysis," I.T. Jolliffe, Book Review, Journal of Marketing Research, November 1988.

16. "Statistical Analysis with Missing Data," Little & Rubin, Book Review, Journal of Marketing Review, August 1989.

17. "Fisher's Randomization Test for Two Small Independent Samples," Journal of the Royal Statistical Society-Series C Applied Statistics, V. 45, No. 3, 1996

18. "An Illustration of the Consequence of Dropping Collinear Regressors," The American Statistician, Submitted.

VII. Ratio Studies:

1. Sales Ratio Study, Broward County Florida, Tax Year 1989.
2. Sales Ratio Study, Broward County Florida, Tax Year 1990.
3. Sales Ratio Study, Volutia Couty Florida, Tax Year 1992.
4. Sales Ratio Study, West Virginia, Tax Year 1994.
5. Sales Ratio Study, Consolidated Rail, 1994.
6. Sales Ratio Study, West Virgina, Tax Year 1996.
7. Sales Ratio Study, West Virginia, Tax Year 1997.
8. Sales Ratio Study, West Virginia, Tax Year 1998.
9. Sales Ratio Study, West Virginia, Tax Year 1999.
10. Sales Ratio Study, West Virginia, Tax Year 2000.
11. Sales Ratio Study, West Virginia, Tax Year 2001.
12. A RatioStudy for Nine Selected Counties in Georgia, 2002.
13. Sales Ratio Study, West Virginia, Tax Year 2002.
14. A Sales Ratio Study for the CSXT Counties in Florida, Tax Year 2003.
15. A Ratio Study for Monroe County Georgia, Tax Year 2003.
16. A Sales Ratio Study for Rabun County Georgia, 2007
17. A Sales Ratio Study for Mecklenburg County North Carolina, 2015

Other Consulting Studies:

1. Evaluation of Ratio Study Methodology Adopted by The State of Washington for Real and Personal Property, 1988 and 1989.
2. A Study of the Differences in the Franchise Tax Liability for Foreign vs. Domestic Corporations, Alabama.
3. Vehicle Emissions Test Data Review, Portland Oregon, 2005.

VIII. Administrative Positions:

1. Chairman of the Department of Accounting and Quantitative Methods. 1974-1977.
2. Director, of the Undergraduate Program, College of Business Admin. 1979-1981.
3. Director of Graduate Programs, College of Business Administration. 1981-1983.
4. Chairman of the Department of Decision Sciences. 1983-1999
5. Administrative Director of the Oregon Executive MBA. 1989-1991
6. Director of the Doctoral Programs 1992-1997

VIII. University Service (Committees):

A. College of Business Administration

1. Personnel Committee, 1978-1979, 1981-1984.
2. Teaching Effectiveness, 1978-1980.
3. Futures Committee, 1980-1981.
4. MBA Committee, 1977-1978, 1981-1983, 1999-
5. Ph.D. Committee, 1981-1983.
6. Search Committees (eleven in total).

B. University

1. University Evaluation Forms, 1976-1977.
2. Evaluation of Administrators, 1977-1978.
3. Committee on Statistics, 1976-1977.
4. Chairman, Dean Search, 1976-1977.
5. Chairman, Patent Policy Committee, 1981-1982.
6. Intercollegiate Athletics Committee, 1981-1982.
7. Chairman, Intercollegiate Athletics Committee, 1982-1983.
8. Academic Support for Athletes, 1983-1984.
9. Chairman, Committee on Statistics, 1984-.
10. Committee on Committees, 1985-1987.
11. Personnel Committee, 1987-1988.
12. Chairman, Personnel Committee, 1988-1989.
13. Education Policy Committee, 1991
14. Undergraduate Education Action Team, 1991-1992
15. UO Strategic Plan Implementation Coordinating Committee, 1992

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 18-60

MILFORD WATER COMPANY

DIRECT PREFILED TESTIMONY
OF
MARK POMYKACZ

ON BEHALF OF

MILFORD WATER COMPANY

MW-MP-1

January 25, 2019

Q. Please state your name and business address.

A. My name is Mark Pomykacz and my business address is 5 Professional Circle, Suite 208, Colts Neck, NJ 07722.

Q. Would you please state your present occupation?

A. I am a Director of MR Valuation Consulting, LLC.

Q. What is the basis of your qualifications for your testimony.

A. My CV is attached as Exhibit MW-MP-2 to my testimony. I have over 30 years of experience in real estate and business appraisal and consultation services. I am a State Certified General Real Estate Appraiser in multiple states, including Massachusetts, and an Accredited Senior Appraiser ("ASA") with the American Society of Appraisers, designated in the discipline of Real Property. I am a Member of the Appraisal Institute ("MAI") with a secondary designation as a General Review Appraiser ("AI-GRS"). I am an active leader with the Appraisal Institute, having served as Member of the National Board of Directors and as President of the Metropolitan New York Chapter. I regularly appraise complex land and land rights around the country. I have worked on numerous assets and property types, including closely held and public companies, infrastructure, power plants, water and other utilities, corporate and investment real estate, health related facilities, office buildings, vacant land, and special purpose properties. I have written numerous special purpose and consulting reports, appraisals, and market and feasibility studies, which are used by many Fortune 1,000 companies, REITs, Wall Street banking firms, accounting firms, and law firms. I am a regular speaker at accounting, assessor, and other professional seminars and conferences. Prior to working at MRV, I was a Senior Manager/Chief Appraiser at Deloitte & Touche in New York. Before that I was

Vice President, Consultant & Appraiser at a realty firm, and before that I was Senior Real Estate Manager & Chief Appraiser for the NYC Economic Development Corp. and NYC Department of Real Property.

Q. Have you previously testified before any regulatory agencies, boards, or courts?

A. I have not testified specifically before a regulatory agency, but I have testified numerous times before other boards and in court. I have taken the stand and been accepted as an expert witness in trials or hearings in states including Michigan, Montana, California, Illinois, Oregon, Connecticut, New York, Illinois, New Jersey, Nevada, and Massachusetts.

Q. Are you generally familiar with the real property interests and buildings owned by the Company?

A. Yes. I performed a site tour of the Milford Water System and the real property assets on December 5, 2018. Additionally, I performed a site tour of the comparable properties in the area. I also conducted a management interview with David Condrey and Jeffrey Papuga. Management provided numerous documents about the assets, which I have examined. Lastly, I researched public records into the assets.

Q. At the outset, please describe briefly the Company's real property assets, including buildings.

A. The Company owns 39 nonadjacent land parcels in fee simple estate, which total ±550.08 acres. Additionally, the Company owns 34 nonadjacent private easements; however, we have only been able to identify, locate, and confirm 22 of these easements, which total ±7.77 acres. The Company also owns one commercial office building located at 64-66 Dilla Street in Milford.

Q. What was the scope of your work and what is the purpose of your testimony?

A. In this proceeding, MRV has been engaged by Baker Donelson, on behalf of the Company, to perform an appraisal of the assets owned and operated by the Company (the "System"). My scope of work in this project was to appraise certain real property interests owned by the Company, including fee interests and private easements in land and the leased fee interest in the commercial office building. My appraisal of these assets was incorporated into MRV Consulting's overall business valuation report. The purpose of this testimony is to testify to the appraisal activities that I performed and my conclusions. I incorporate by reference my report, which is included as Appendix 8 to MRV's appraisal report, which was attached as Exhibit MW-MR-3 to the testimony of Mark Rodriguez, filed contemporaneously herewith.

Q. Please explain the appraisal theories employed to value the fee simple real property interests owned by the Company.

A. We utilized mass appraisal techniques to appraise these land interests by grouping the interests in categories and appraising the rate of value as per each category. After we inspected the properties, and researched the various parcels and interests, their maps, parcel records, and county reports, we were able to categorize each of the land parcels and interests into one of two main categories: residential and industrial land.

We employed an "across-the-fence" appraisal theory and approach to these interests. This is a commonly employed approach for appraising utility company land and easements. While these parcels are currently being used for the Company's operation, the full and fair cash value associated with each underlying land parcel or interest would be considered on an "across-the-fence" value. If this utility company needed to acquire land interests, it would need to pay the going rates of value within the market, for example, the full and fair cash values currently at similar parcels adjacent to the subject parcels, also known as across the property border, "across-the-fence" of subject parcels. In other words, this means that if these parcels and interests were ever to be put into market use, they would take on the zoning, development and use, and highest and best use that is found adjacent to these parcels and interests; they would have the use and value found "across-the-fence" on the adjacent properties. As per across-the-fence appraisal theory and practice, we have appraised the subject parcels and interests under the highest and best uses and rates of value found amongst the adjacent properties for each parcel.

Q. Please explain how you determined the total acres and usable acres of the System's real property.

A. The highest and best use is partially determined by the development potential at the site. With the across-the-fence theory, we have assumed that the water system would not be in place if the real property were to return to full and fair cash value. Echo Lake represents the biggest portion of the fee simple acreage. We assumed that the land will not be drained to its original natural state. Given the Lake's current size - approximately 75 percent of the parcel - only 25 percent of the parcel is normal uplands. Thus, the subject parcels owned in fee simple are each adjusted for the amount of wetlands at each parcel, and as would likely exist after the water company use is terminated and normal uses begin. The total fee simple parcel size is ±550.08 acres. After adjusting for wetlands, there is a remainder of ±238.01 usable acres. This usable acreage is used to assess the development potential at each parcel under its zoning or the assumed zoning.

Q. Please explain how you considered zoning and minimum lot size.

A. The subject fee simple parcels fall under several similar zoning categories. Zoning that is currently under Conservation and Open Land would likely be of residential use. There is also one parcel that is currently BP, Business Park zoning. After conversations with the local tax assessor, the parcel does not have business park development potential and would likely be residential.

The zoning categories for the remaining parcels include RA General Residential, RB Single Family Residential, RC Rural Residential C, RD Rural Residential D, IB Highway Industrial, and IA Central Industrial A. Under City of Milford Zoning Regulations, the zoning at each category has different lot factors assigned that would determine the

development potential at a site. The lot factors are calculated as the perimeter squared divided by the total area. The formula is shown below:

$$Lot\ Factors = \frac{Perimeter^2}{Total\ Area}$$

For each zoning category, we have done a minimum lot factor conversion to minimum square footage by calculating the amount of square footage necessary to obtain different lot factors. This square footage would be the minimum lot size in square feet required to develop improvements. The conclusions for square footage are shown in Table L-1:

Table L-1

Zoning Minimum Square Footage

Zoning Code	Zoning	Lot Factor	Square Footage
RA	General Residential	8	5,000
RB	Single Family Residential	15	14,000
RC	Rural Residential C	45	30,000
RD	Rural Residential D	87	52,500
IB	Highway Industrial	80	50,000

Each minimum square footage is then assigned to each subject parcel per zoning requirements. This is because the parcels that are zoned residential are valued by the number of developable single-family home lots. This is further explained later in this section. Industrial parcels are valued on a per acre basis.

The number of single-family home developable lots per parcel is calculated by dividing the total number of usable square feet by the minimum developable square feet. Table L-2 summarizes the zoning and land use assumptions for each fee simple parcel, the zoning, the minimum lot size per zoning, and the number of single-family home lots developable at each parcel.

After calculating the number of lots per residential parcel, a value per single family residential lot is calculated using the sales comparison approach. Comparable sales were found for residential subdivisions and single family developable lots. A sales comparison approach was also utilized to find the value per acre for the industrial parcels.

Q. Please describe your sales comparison approach as it applied to single family residential lots.

A. We have researched the surrounding area and adjacent neighborhoods for sales of real property with characteristics similar to the subject residential fee simple parcels. The search included records from the Costar Property database, Loopnet, and other local MLS databases.

The sales must be arm's length, recent, and similar to the subject in terms of physical and locational characteristics. Adjustments are made for differences, which include the change in market conditions, location, size, zoning, and use.

The comparable sales summarized on the following pages are compared to the subject site, and adjustments are applied for dissimilarities. A "pairing process" is applied when practical to estimate the adjustments. The pairing process isolates the characteristic (dissimilarity) for which an adjustment is to be derived by comparing two sales, which are similar in all respects except for the one for which an adjustment is to be derived. The pairing process is employed in order to extract objectively the appropriate adjustments directly from the marketplace. However, this method is not always reliable due to the difficulty in isolating a specific dissimilarity and because the other physical differences may offset or compound the apparent adjustment indicated. Consequently, we have augmented the paired sales analysis with our experience and judgment.

We have calculated an average rate of value for single family home subdivisions. The unit of comparison is by single-family subdivisions and single-family lots as opposed to a dollar per acre comparison.

Comparable Properties

We selected three closed comparable real estate sales transactions and three listings, which are identified in the following Table L-3.

Table L-3

Map of the Comparable Sales – Residential

Adjustments to Comparable Properties

1. Property Rights Conveyed

A transaction price is always predicated on the property interest conveyed. There is an access easement on the property for the neighboring parcel to access the main road, so a negative adjustment was made to all the comparables. The sales are believed to require no other adjustment in regard to their property rights, because they are believed entail basic fee simple rights.

2. Financing Terms

This adjustment, commonly known as the cash equivalency adjustment, is a procedure whereby the sale price of comparable properties that were sold with atypical financing terms is adjusted to reflect cash settlements on typical market terms. No atypical financing terms were observed and thus, no adjustments were necessary.

3. Conditions of Sale

This adjustment usually reflects the motivations of the buyer and the seller and is required when a sale is considered to not be at arm's length. For example, a developer may pay a premium for lots needed in a site assemblage. A sale may be transacted at a below market price if the seller needs cash in a hurry. A foreclosure could also be interpreted as a not at arm's length sale. When non-market conditions of sale are detected in a transaction, the sale can be used as a comparable only with great care. The comparable sales were considered arm's length transactions and no unusual motivations were observed.

4. Market Conditions (Date of Sale or Time Adjustment)

Market condition adjustments reflect changes in value over time due to fluctuations in the balance of supply and demand. We have looked at Zillow, a popular real estate website, for the median home index values from 2012 to our Appraisal Date. We calculated the percent change between each year of the transaction and the Appraisal Date. The adjustments for market conditions are then linked respectively to each sale transaction. The data and adjustments are presented below in Table L-4 and Table L-5.

Table L-4
Zillow Median Home Values Index
Milford, MA

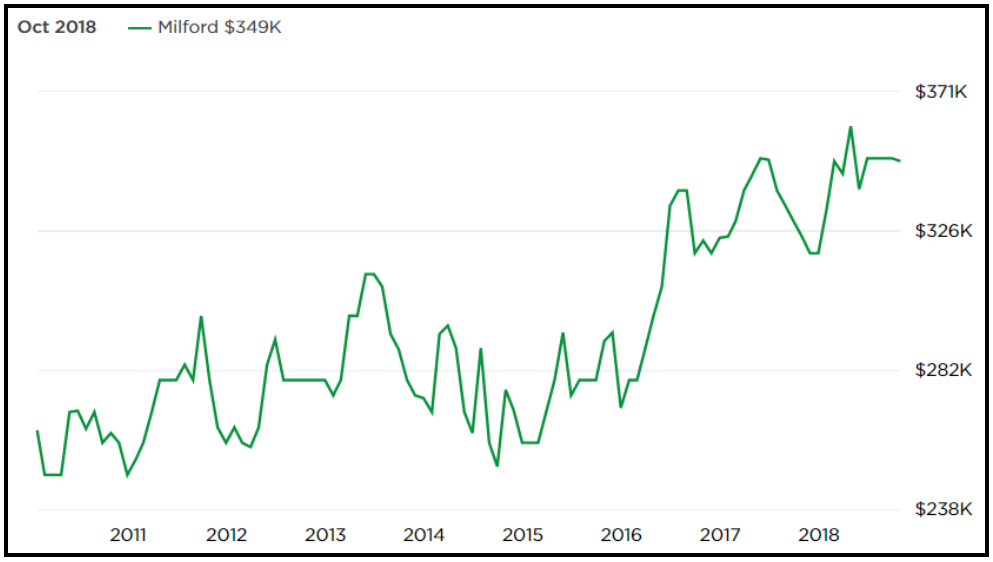

Oct 2018
Milford $349K
$371K
$326K
$282K
$238K
2011
2012
2013
2014
2015
2016
2017
2018

Table L-5

Percent due to Market Conditions

Year	Median Home Value	Percent Change
2012	$ 265,000	17%
2013	$ 278,000	12%
2014	$ 280,000	11%
2015	$ 285,000	9%
2016	$ 287,000	8%
2017	$ 300,000	3%
2018	$ 310,000	0%

5. Size

The total improvement square feet of net rentable space were evaluated for the size adjustment. Typically, buyers pay premiums for smaller properties relative to larger ones partly because the total investment is lower, and there are more buyers competing for the smaller properties. Since our unit of measurement of comparison is by sub-dividable residential land and single-family lots, we have not made any adjustments to size between the subject and the comparables. However, the lot sizes shown for each comparable sale and listing needed to be adjusted for wetlands for the loss in developable acreage. Each wetlands adjustment was made accordingly.

6. Zoning, Permits, and Approvals

The zoning of a property is an important aspect in the appraisal as it defines the utility of the property and limits of the land use. The subject and the comparables were similar in zoning, and no adjustment was made. The comparable data showed approvals for each sale and listing for the number of developable lots that property could have. Thus, the

unit of values for each comparable sale and listing were calculated by the sale price divided by the number of developable lots. Sale 1 was also adjusted downward for having high-value single-family home potential.

7. Subdivision Adjustment

We are assuming that the some of the subject parcels will be residential parcels available for subdivision in our analysis. Some of our comparables are sales of sub dividable residential land into single-family developable lots or are already single-family developable lots. Lots that are already subdivided would sell at a higher premium. Thus, Listings 1, 2, and, 3 had positive adjustments made accordingly.

8. Utility, Corner, and Frontage

The utility, corner, and frontage of a property are important aspects in appraisal as they define the accessibility of a lot. We are assuming average in this category for our subject, as adjustments will be made to individual parcels as necessary. Sale Two and Three have easements running through the parcel, which have been adjusted slightly upward. The small adjustment is due to the fact that the easement will not affect much of the development potential since the number of single-family lots have already been approved.

9. Location

Adjustments for location are necessary when the locational characteristics of a comparable property are different from those of the subject. Demand for otherwise similar properties in some locations is higher because of the higher desire for that location. Location is often one of the most influential characteristics in value. The subject is in an average location. The sales comparables and the listings varied in location and adjustments were made accordingly.

10. Condition

The condition of the subject and comparables were considered. Some of the comparables were purchased for the land but included some improvements that would need to be demolished. The comparables were vacant land and ready for development. Therefore, no adjustments were made.

Sales Adjustment Grid

An adjustment grid was necessary to account for the percent changes between the comparable sales. The following Table L-6 summarizes the sales comparison adjustment grid utilized in this analysis.

Table L-6

Sales Comparison Approach – Residential Land

COMPARABLE LAND SALES GRID							
	Subject	***Sale One***	***Sale Two***	***Sale Three***	***Listing One***	***Listing Two***	***Listing Three***
Address:	Residential Land	16 Proctor Street	Mohawk Path & Old Cart Path	Indian Circle & Mohawk Path	Lot 1 & 2, Patsy's Ln	16 Beach Street	194 Congress Street
Town:	Milford, MA	Hopkinton, MA	Holliston, MA	Holliston, MA	Milford, MA	Milford, MA	Milford, MA
Property Data							
Sale Date:	N/A	Feb-2017	Jul-2014	Sep-2013	Jun-2018	Jun-2018	Jun-2018
Sale Price:		$ 3,200,000	$ 1,876,500	$ 1,876,500	$ 219,000	$ 150,000	$ 155,000
Property Type	Land	Land	Land	Land	Land	Land	Land
Estate:	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple
Per Per Lot		***$ 290,909***	***$ 208,500***	***$ 208,500***	***$ 109,500***	***$ 75,000***	***$ 77,500***
Sequential Adjustments							
Property Rights Conveyed:	-	0%	0%	0%	0%	0%	0%
Terms of Sale/Financing:	-	0%	0%	0%	0%	0%	0%
Conditions of Sale:	-	0%	0%	0%	-10%	-10%	-10%
Market Conditions:	-	3%	11%	12%	0%	0%	0%
Adjusted Price Per Acre		***$ 108,951***	***$ 364,580***	***$ 338,946***	***$ 252,692***	***$ 329,268***	***$ 536,538***
Adjsted Price Per Lot		***$ 300,606***	***$ 230,839***	***$ 232,500***	***$ 98,550***	***$ 67,500***	***$ 69,750***
Other Adjustments							
Lot Size (acres)	-	60.70	9.50	6.17	0.78	0.41	0.26
Wetlands (%)	0%	50%	40%	0%	0%	0%	0%
Total Useable Acres	-	30.35	5.70	6.17	0.78	0.41	0.26
Size Adjustment	-	0%	0%	0%	0%	0%	0%
Permits Received:		SFH High Value	SFH	SFH	SFH	SFH	SFH
Approvals:	No	11	9	9	2	1	1
Square Feet per Lot:		240,372	45,968	29,880	16,988	17,860	11,326
Zoning:	Res Land	A1	RA	Res Land	Res Land	Res Land	Res Land
Zoning/Permits/Approvals Adjustment	-	-15%	0%	0%	0%	0%	0%
Subdivision:	Yes	Yes	Yes	Yes	Yes	No	No
Subdivision Adjustment:		0%	0%	0%	10%	25%	25%
Utility/Corner/Frontage:	Average	Average	Average-	Average-	Average	Average	Average
Utility/Corner/Frontage Adjustment:		0%	5%	5%	0%	0%	0%
Site Location:	Average	Average	Average+	Average+	Average--	Average-	Average
Location Adjustment	-	0%	-10%	-10%	15%	10%	0%
Water/Sewer:	No	No	No	No	No	No	No
Water/Sewer Adjustment:		0%	0%	0%	0%	0%	0%
Site Condition:	Average	Average	Average	Average	Average	Average	Average
Condition Adjustment:	-	0%	0%	0%	0%	0%	0%
Total Adjustment by Addition:	-	-15%	-5%	-5%	25%	35%	25%
Total Adjustment by Multiplication:	-	-15%	-5%	-5%	27%	38%	25%
Final Adjusted Price Per Lot		***$ 255,515***	***$ 218,720***	***$ 220,294***	***$ 123,927***	***$ 91,969***	***$ 87,188***

	Range		***Difference***	***Average***	***Median***
Unadjusted Price Per Lot	***$ 75,000***	***$ 290,909***	***$ 215,909***	***$ 161,652***	***$ 159,000***
Adjusted Price Per Lot	***$ 87,188***	***$ 255,515***	***$ 168,328***	***$ 166,269***	***$ 171,323***

Q. What conclusions did you reach regarding the per lot values of the residential land?

A. Based on the research, analysis and explanation above, we conclude that the values of the residential land via the Sales Approach per developable lot is $160,000. Our subject fee simple parcels are mostly zoned with 52,500 square feet in minimum developable size. Dividing the $160,00 by 52,500, we conclude $3.05 per square foot, or $132,754 per acre for residential land.

Q. Please describe your sales comparison approach as it applied to industrial land.

A. We have researched the surrounding area and adjacent neighborhoods for sales of real property with characteristics similar to the subject industrial fee simple parcels. The search included records from the Costar Property database, Loopnet, and other local MLS databases.

The sales must be at arm's length, recent, and similar to the subject in terms of physical and locational characteristics. Adjustments are made for differences, which include the change in market conditions, location, size, zoning, and use, among other items.

The comparable sales, which are summarized on the following pages, are compared to the subject site, and adjustments are applied for dissimilarities. A "pairing process" is applied when practical to estimate the adjustments. The "pairing process" isolates the characteristic (dissimilarity) for which an adjustment is to be derived by comparing two sales, which are similar in respect except for which an adjustment is to be derived. The "pairing process" is employed in order to extract objectively the appropriate adjustments directly from the marketplace. However, this method is not always reliable due to the difficulty in isolating a specific dissimilarity and because the other physical differences may offset or compound the apparent adjustment indicated. Consequently, we have

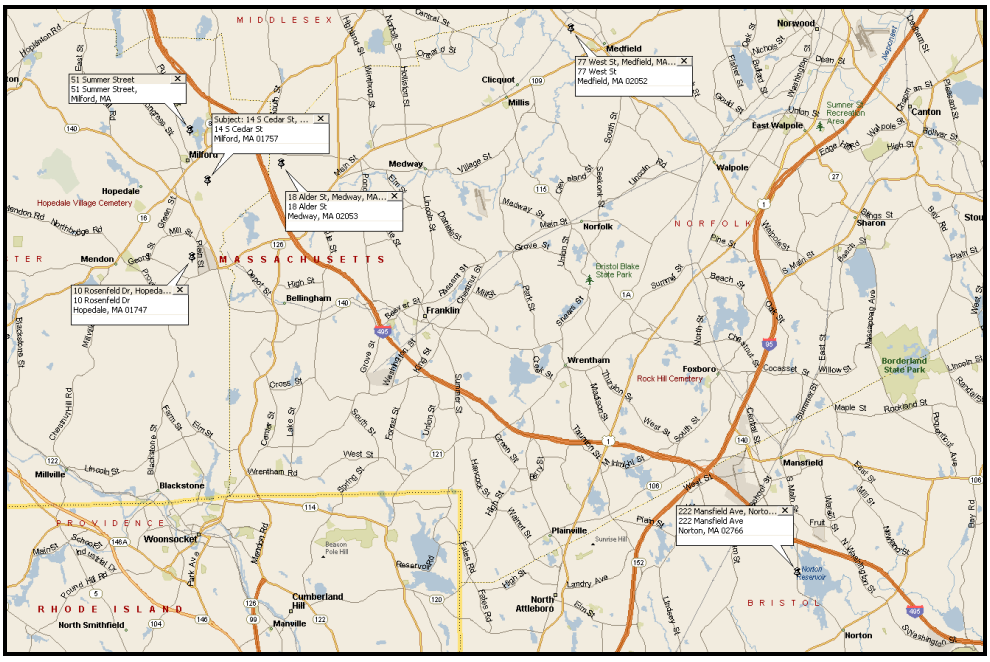
augmented the paired sales analysis with our experience and judgment. We have calculated a dollar per acre rate for the industrial zoned parcels.

Comparable Properties

We selected five closed comparable real estate sales transactions, which are identified in Table L-7.

Table L-7

Map of the Comparable Sales – Industrial



Adjustments to Comparable Properties

1. Property Rights Conveyed

A transaction price is always predicated on the property interest conveyed. There is an access easement on the property for the neighboring parcel to access the main road, so a

negative adjustment was made to the comparables. The sales are believed to require no other adjustment in regard to their property rights, because they are believed to entail basic fee simple rights.

2. Financing Terms

This adjustment, commonly known as the cash equivalency adjustment, is a procedure whereby the sale price of comparable properties that were sold with atypical financing terms is adjusted to reflect cash settlements on typical market terms. No atypical financing terms were observed and thus, no adjustments were necessary.

3. Conditions of Sale

This adjustment usually reflects the motivations of the buyer and the seller and is required when a sale is considered to be non-arm's length. For example, a developer may pay a premium for lots needed in a site assemblage. A sale may be transacted at a below market price, if the seller needs cash in a hurry. A foreclosure could also be interpreted as a non-arm's length sale. When non-market conditions of sale are detected in a transaction, the sale can be used as a comparable only with great care. The comparable sales were considered to be at arm's length transactions and no unusual motivations were observed.

4. Market Conditions (Date of Sale or Time Adjustment)

Market condition adjustments reflect changes in value over time due to fluctuations in the balance of supply and demand. We have used the same market condition adjustments as we used in our residential land sales comparison approach. The percent changes of median home values between each sales transaction and the 2018 appraisal date were made accordingly.

5. Size

Typically, buyers pay premiums for smaller properties relative to larger ones partly because the total investment is lower, and there are more buyers competing for the smaller properties. The subject has two parcels of land that are zoned Industrial – Parcel 28-0-10, 68 Dilla Street and Parcel 53-0-21, 14 South Cedar Street. Parcel 28-0-10 falls under two zoning codes on the zoning map where 25 percent of it is industrial and the balance is residential.

The size that we used was then averaged between 25 percent of Parcel 28-0-10 and the total size of Parcel 53-0-21 for a total of 3.73 acres. The comparables ranged in lot size and wetlands were deducted from the total lot size to calculate the usable acres at each comparable. The usable acres varied in comparison to our subject, and adjustments were made accordingly.

6. Zoning

The zoning of a property is an important aspect in the appraisal as it defines the desirability of the current zoning classification and limits of the land use. The subject and the comparables were similar in zoning, and no adjustment was made.

7. Utility, Corner, and Frontage

The utility, corner, and frontage of a property are important aspects in the appraisal as they define the accessibility of a lot. Our subject has average utility. The subject and comparables were similar in their utility, and thus no adjustments were required besides Sale Two, where the unusual shape of the lot reduced its usable acreage by 50 percent. Only this adjustment was made for this category.

8. Location

Adjustments for location are necessary when the locational characteristics of a comparable property are different from those of the subject. Demand for otherwise similar properties in some locations is higher because of the higher desire for that location. Location is often one of the most influential characteristics in value. The subject is in an average location. The sales comparables varied in location and adjustments were made accordingly.

9. Condition

The condition of the subject and comparables were considered. Some of the comparables were purchased for the land but included some improvements that would need to be demolished. The comparables were vacant land and ready for development. Therefore, no adjustments were necessary.

Sales Adjustment Grid

An adjustment grid was necessary to account for the percent changes between the comparable sales. The following Table L-8 summarizes the sales comparison adjustment grid utilized in this analysis.

Table L-8

Sales Comparison Approach – Industrial Land

COMPARABLE LAND SALES GRID						
	Subject	***Sale One***	***Sale Two***	***Sale Three***	***Sale Four***	***Sale Five***
Address:	Industrial Land	18 Alder Street	49-51 Sumner St	77 West St	10 Rosenfield Drive	222 Mansfield Avenue
Town:	Milford, MA	Medway, MA	Milford, MA	Medfield, MA	Hopedale, MA	Norton, MA
Property Data						
Sale Date:	N/A	Nov-2017	Jul-2015	Oct-2014	Aug-2015	Mar-2016
Sale Price:		$ 199,900	$ 350,000	$ 1,650,000	$ 225,000	$ 1,375,000
Property Type	Land	Land	Land	Land	Land	Land
Estate:	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple	Fee Simple
Price Per Acre		***$ 227,915***	***$ 81,206***	***$ 317,186***	***$ 180,723***	***$ 117,521***
Sequential Adjustments						
Property Rights Conveyed:	-	0%	0%	0%	0%	0%
Terms of Sale/Financing:	-	0%	0%	0%	0%	0%
Conditions of Sale:	-	0%	0%	0%	0%	0%
Market Conditions:	-	3%	9%	11%	9%	8%
Adjusted Price Per Acre		***$ 235,513***	***$ 88,330***	***$ 351,170***	***$ 196,576***	***$ 126,939***
Other Adjustments						
Lot Size (acres)	3.73	1.10	4.31	5.78	2.49	11.70
Wetlands (%)	0%	20%	0%	10%	50%	0%
Total Useable Acres	3.73	0.88	4.31	5.20	1.25	11.70
Size Adjustment	-	-15%	0%	0%	-15%	15%
Approvals:	No	No	No	No	No	No
Zoning:	IA & IB Industrial	Ind 3	IA - Industrial	Industrial	LI	C/I
Zoning/Permits/Approvals Adjustment	-	0%	0%	0%	0%	0%
Utility/Corner/Frontage:	Average	Average	Average-	Average	Average	Average
Utility/Corner/Frontage Adjustment:		0%	50%	0%	0%	0%
Site Location:	Average	Good	Average	Good	Average	Average+
Location Adjustment	-	-20%	0%	-30%	0%	-10%
Site Condition:	Average	Average	Average	Average	Average	Average
Condition Adjustment:	-	0%	0%	0%	0%	0%
Total Adjustment by Addition:	-	-35%	50%	-30%	-15%	5%
Total Adjustment by Multiplication:	-	-32%	50%	-30%	-15%	3%
Final Adjusted Price Per Acre		***$ 156,616***	***$ 132,495***	***$ 245,819***	***$ 167,089***	***$ 132,334***

	Range		***Difference***	***Average***	***Median***
Unadjusted Price Per Acre	***$ 81,206***	***$ 317,186***	***$ 235,979***	***$ 184,910***	***$ 196,576***
Adjusted Price Per Acre	***$ 132,334***	***$ 245,819***	***$ 113,485***	***$ 166,871***	***$ 156,616***

Q. What conclusions did you reach regarding the per acre values of the industrial land?

A. Based on the research, analysis and explanation above, we conclude that the values of the industrial land via the Sales Approach per acre is $165,000. This rate value was applied to the two parcels of subject industrial land as shown later in this section.

Q. Taking the residential and industrial land together, what conclusions did you reach?

A. We reached the following conclusions:

Base Rate Conclusions

Using the conclusions from the sales comparison approaches for residential and industrial land, the appropriate rate of value was applied to the subject fee simple parcels. Subject parcels that were residentially zoned had the $160,000 per developable lot base rate of value applied. Some of the subject parcels are too small for any development and thus, the dollar per square foot rate of value of $3.67 was applied.

Parcel 53-0-21, 14 South Cedar Street, is industrially zoned and thus a $165,000 per acre base rate was applied.

Parcel 28-0-10, 68 Dilla Street, is 75 percent residentially zoned and 25 percent industrially zoned, and thus a weighted rate of $161,250 was used.

Application of Base Rates

These base rates were then adjusted accordingly per the individual subject fee simple parcels by the following categories.

1. Zoning and Minimum Lot Size Adjustment – Residential

For residential land, we have used the 52,500 square foot minimum lot size for the base rate. From the different zoning codes mentioned earlier in this section, each subject parcel has a different minimum lot size: 5,000 square feet, 14,000 square feet, and 30,000 square feet. Parcels with different minimum lot size requirements would have different rates of value as smaller lots of single-family homes would sell at a lower rate. Negative adjustments were made accordingly.

2. Subdivision Adjustment to Single Lot – Residential

In our sales comparison approach for residential land, we have assumed that the subject lot would be a vacant parcel of subdividable land. Subdividable land has a different rate of value compared to already subdivided single-family developable lots. Thus, adjustments were made accordingly to the subject parcels for the number of lots that are capable of development.

3. Utility and Frontage Adjustment

The shape of a parcel and the amount of frontage it has to the main road would affect the desirability of a parcel. While most of the parcels varied in shape, no adjustment was made for shape and utility as the across the fence theory would state that these parcels were taken from a bigger parcel which would not be unusual in shape or size. However, some of these parcels did not have frontage to a main road, and negative adjustments were made accordingly.

Base Rate to Subject Individual Parcel Adjustment Grid

Base rates of value are multiplied accordingly for the final value. Residential parcels utilizing a dollar per developable lot are multiplied by the number of lots. Residential parcels that are undevelopable are valued on a per square foot basis and the dollar per square foot number is multiplied by the number of square feet. Industrial parcels are valued on a dollar per acre basis and are multiplied by the number of acres. These result in calculation of the final value per subject fee simple parcel.

The following Table L-9 shows our calculations and concluded values for each subject parcel with the adjustments mentioned accordingly.

Table L-9
Fee Simple Land Values – Subject Individual Parcels

Parcel No.	Property Description	Total Area (Acres)	Wetland Percent	Usable Acres	Usable SF	Zoning	Minimum Lot Size per Zoning (SF)	Number of Lots	Land Unadjusted $/Lot	Land Unadjusted $/SF	Zoning / Minimum Lot Size Adjustment	Subdivision Adjustment to Single Lot	Utility/ Frontage Adjustment	Total Adjustments	Land Adjusted $/Lot	Land Adjusted $/SF	Fair Market Value
R34-014-000	Granite Street	12	0%	12.00	522,720	Conservation & Open Land – Assume Residential	52,000	8	$160,000		0%	0%	-10%	-10%	$ 144,000		$ 1,728,000
R34-015-000	Echo Lake	288.2	75%	72.05	3,138,498	Conservation & Open Land – Assume Residential	52,000	91	$160,000		0%	-10%	-10%	-20%	$ 128,000		$ 9,222,400
R34-015-00B	Hayden Rowe Street	1.43	90%	0.14	6,229	Conservation & Open Land – Assume Residential	52,000	0	$160,000	$3.67	0%	0%	-10%	-10%		$ 3.31	$ 20,592
U25-008-000	Granite Street	17.001	30%	11.90	518,394	Conservation & Open Land and Low Density Residential	52,000	7	$160,000		0%	0%	0%	0%	$ 160,000		$ 1,904,112
U25-009-000	Granite Street	22.87	30%	16.01	697,352	Conservation & Open Land and Low Density Residential	52,000	10	$160,000		0%	0%	0%	0%	$ 160,000		$ 2,561,440
R30-013-000	5 Granite Street	2.363	30%	1.65	72,053	Conservation & Open Land and Low Density Residential	52,000	1	$160,000		0%	15%	0%	15%	$ 184,000		$ 304,354
R30-011-000	49 Granite Street	0.681	0%	0.68	29,664	Conservation & Open Land – Assume Residential	52,000	0	$160,000	$3.67	0%	0%	0%	0%		$ 3.67	$ 108,900
R30-012-000	Granite Street	26.003	80%	5.20	226,538	Conservation & Open Land – Assume Residential	52,000	3	$160,000		0%	10%	0%	10%	$ 176,000		$ 915,306
106	Purchase Street	2.10	0%	2.10	91,476	Rural Residential C	52,000	2	$160,000	$3.67	0%	15%	0%	15%		$ 4.22	$ 386,400
15011	Cedar St Rear	0.31	50%	0.16	6,752	Rural Residential D	52,000	0	$160,000	$3.67	0%	0%	0%	0%		$ 3.67	$ 24,800
15016	Cedar St Rear	1.39	50%	0.70	30,274	Rural Residential D	52,000	0	$160,000	$3.67	0%	0%	0%	0%		$ 3.67	$ 111,200
1507	Cedar St	1.96	75%	0.49	21,344	Rural Residential D	52,000	0	$160,000		0%	0%	0%	0%	$ 160,000		$ 78,400
1509	Cedar St	1.40	75%	0.35	15,246	Rural Residential D	52,000	0	$160,000		0%	0%	0%	0%	$ 160,000		$ 56,000
19012	I-495	2.20	0%	2.20	95,832	RB - Single Family Residential	14,000	5	$160,000		-10%	0%	0%	-10%	$ 144,000		$ 316,800
19017	Cedar St Rear	1.40	40%	0.84	36,590	BP - Business Park – Assume Residential	52,000	1	$160,000		0%	15%	0%	15%	$ 184,000		$ 154,560
28010	68 Dilla Street	27.79	50%	13.90	605,266	RB - Single Fam Res & IB - Highway Industrial B			$161,250		0%	0%	0%	0%	$ 161,250		$ 2,240,569
405	Cedar St Rear	2.50	90%	0.25	10,890	Rural Residential D	52,000	0	$160,000	$3.67	0%	0%	0%	0%		$ 3.67	$ 40,000
2701	Dilla St Rear	3.96	10%	3.56	155,248	RB - Single Family Residential	14,000	8	$160,000		-10%	0%	0%	-10%	$ 144,000		$ 513,216
609	Cedar St	5.00	60%	2.00	87,120	Rural Residential D	52,000	1	$160,000		0%	15%	0%	15%	$ 184,000		$ 368,000
605C	Cedar St	0.14	30%	0.10	4,269	Rural Residential D	52,000	0	$160,000	$3.67	0%	0%	0%	0%		$ 3.67	$ 15,680
604	Cedar St Rear	4.80	10%	4.32	188,179	Rural Residential D	52,000	3	$160,000		0%	10%	0%	10%	$ 176,000		$ 760,320
33021	14 South Cedar St	39.80	90%	3.98	173,369	IA - Central Industrial A & IB - Highway Industrial B			$165,000		0%	0%	0%	0%	$ 165,000		$ 656,700
480650	16 West Pine St	0.78	30%	0.55	23,784	RA - General Residential	5,000	4	$160,000		-15%	5%	-10%	-20%	$ 128,000		$ 69,888
408	Cedar St Rear	3.00	0%	3.00	130,680	Rural Residential D	52,000	2	$160,000		0%	15%	-10%	5%	$ 168,000		$ 504,000
406	Cedar St Rear	11.20	50%	5.60	243,936	Rural Residential D	52,000	4	$160,000		0%	5%	0%	5%	$ 168,000		$ 940,800
4011	Cedar St Rear	5.70	0%	5.70	248,292	Rural Residential D	52,000	4	$160,000		0%	5%	-10%	-5%	$ 152,000		$ 866,400
4010	Cedar St Rear	14.73	70%	4.42	192,482	Rural Residential D	52,000	3	$160,000		0%	10%	-10%	0%	$ 160,000		$ 707,040
36024	Highland St	0.67	0%	0.67	29,185	RB - Single Family Residential	14,000	2	$160,000		-10%	15%	0%	5%	$ 168,000		$ 112,560
35016	Congress St	5.01	0%	5.01	218,236	RB - Single Family Residential	14,000	12	$160,000		-10%	0%	0%	-10%	$ 144,000		$ 721,440
3010	Haven St Rear	0.02	0%	0.02	871	Rural Residential D	52,000	0	$160,000	$3.67	0%	0%	-10%	-10%		$ 3.31	$ 2,880
2808	Dilla St	6.90	60%	2.76	120,226	RB - Single Family Residential	14,000	6	$160,000		-10%	0%	0%	-10%	$ 144,000		$ 397,440
28010A	64-66 Dilla St	1.38	0%	1.38	60,113	RB - Single Family Residential	14,000	3	$160,000		-10%	10%	0%	0%	$ 160,000		$ 220,800
27074	Dilla St	0.92	0%	0.92	40,075	RB - Single Family Residential	14,000	2	$160,000		-10%	15%	0%	5%	$ 168,000		$ 154,560
407	Cedar St Rear	6.60	0%	6.60	287,496	Rural Residential D	52,000	4	$160,000		0%	5%	-10%	-5%	$ 152,000		$ 1,003,200
480649	16 West Pine St	0.18	0%	0.18	7,841	RA - General Residential	5,000	1	$160,000		-15%	15%	0%	0%	$ 160,000		$ 28,800
305	Haven St Rear	4.00	0%	4.00	174,240	Rural Residential D	52,000	3	$160,000		0%	10%	-10%	0%	$ 160,000		$ 640,000
33016	Central St Rear	11.16	0%	11.16	486,130	RB - Single Family Residential	14,000	26	$160,000		-10%	-5%	-10%	-25%	$ 120,000		$ 1,339,200
10044	Pine Island Rd	1.33	20%	1.06	46,348	Rural Residential C	30,000	1	$160,000		-5%	15%	0%	10%	$ 176,000		$ 187,264
1503	Cedar St Rear	11.20	70%	3.36	146,362	Rural Residential D	52,000	2	$160,000		0%	15%	-10%	5%	$ 168,000		$ 564,480

Q. What is the total value of the fee simple land that you appraised?

A. The total value of the fee simple land at the subject is rounded and concluded below:

$30,900,000

Full and Fair Cash Value of the Fee Simple Land

Q. Please explain the appraisal theories employed to value the private easement interests owned by the company.

A. Milford Water Company owns 34 nonadjacent private easements; however, we have only been able to identify, locate, and confirm 22 of these easements, which total ±7.77 acres. The list of permanent easements is summarized in Table L-10.

Table L-10

Subject Permanent Easements

Easement Number	Length (ft)	Width (ft)	Size (SF)	Address	Town	Deed Book/Page
1	172	15	2,580	226 Main Street	Hopedale	4240 / 535
2			-			2355/332
3		125	-			
4		15	-	226 Main Street	Milford	4042/430
5	404	15	6,060	226 Main Street	Milford	4446/29,3918/242,4323/436
6	69	20	1,380	9/10 Chester Rd	Milford	609/108
7	788	20	15,760	295 Central St	Milford	5194/309
8			21,780			
9	64	20	1,280	Rear 68 Dilla St	Milford	1459/205,13539/384
10	189	10	1,890	Otis/Chapin St	Milford	726/441-443,776/15
11			45,146	Former rail bed	Milford	
12			-			4575/141,4679/152,1459/205,1503/314
13	401	20	8,020	Sunmer Street	Milford	21699/371
14	354	40	14,160	Cedar and Deer St	Milford	4575/141,4679/152,1192/341,35953/398
15	622	40	24,880	Cedar and Deer St	Milford	4575/141,1192/341,2358/600,23093/344,23697/196
16	50	20	3,216	Beaver St	Milford	22992/380
17	149	20	2,980	Quarry Drive	Milford	43243/202
18	800	2	1,600	66 Dilla Street	Milford	1099/2,1131/228,1131/229,1459/205,1503/314,4575/141
19			-	66 Dilla Street	Milford	4575/141-148,
20		20	-			13206/210
21	180	15	2,700	2 Palerma Street		49059/72
22	1200	2	2,400	Deer Street		1192/341,2358/600
23			-			1561/239
24			-			
25	92.5	5	463	Parker Hill Ave		1986/34&35
26	1500	95	142,500			
27	510	2	1,020			
28		60	-			
30			-			
31	584	20	11,680			2906/62,2085/581,2219/241,2300/595,2300/594
32	642	40	25,680			3826/78
Deer Street				66 Dilla Street	Milford	1192/341,2358/600
Easement deed 03.19.2003		20		66 Dilla Street	Milford	4575/141,4679/152,1192/341,28039/172,35953/572
Easement deed DF	58	20	1,160	66 Dilla Street	Milford	7791/265,39994/24,13206/210

The subject private easements total to 338,335 square feet. These private easements are located in residentially zoned land and neighborhoods. Therefore, we have used the same rate of value for the fee simple land under residential land as concluded earlier in this section of $3.05 per square foot. Adjustments were made to this base rate as follows.

1. Easement Utility, Shape, and Frontage Adjustment

These easements are oddly shaped, long and narrow, because they are primarily for water pipelines. They are typically not like ordinarily-shaped lots and land. Most are rectangular in shape with a shorter width by a longer length to accommodate the shape and configuration of a pipeline crossing. Due to this odd shape, we have applied a utility and shape adjustment to the private easements of 20 percent to the fee simple value.

2. Private Easement Adjustments for Property Rights

Fee simple estate means that the property owner owns the whole bundle of rights to a property. This could include rights such as development, leasing ability, ingress and egress through the property, using the lot area to meet minimum size requirements, etc. When only an easement is owned, the interest owner would only have some of these rights. The Company owns the rights to these private easements, but not the complete bundle of rights. These rights include ingress and egress through the property, possible construction rights to the property as necessary, and more. Those rights not held by the utility will remain with fee title holder, the property owner. These property owners of the land will not be allowed construction over these utility easements. This greatly limits the value of the land that is subject to the easements. Thus, we have made a 50 percent adjustment where the Company owns 50 percent of the bundle of rights and value, and the property owner retains 50 percent of the rights and value. This adjustment was applied to the rate of the fee simple value of the land, as categorized.

Q. What conclusion of value did you reach for the private easements?

A. To determine the value for the private easements, we multiped the adjusted rate of value for each parcel by the area of each private easement. We have concluded a rate of value of $1.22 per square foot for the private easements. After rounding, we have concluded a full and fair cash value of $400,000 for the private easements owned by the Company.

Q. Please explain the appraisal theories employed to value assets such as the commercial office building owned by the Company.

A. Three appraisal theories are commonly employed to value assets such as the Commercial Office Building owned by the Company: the sales comparison approach, the income approach, and the cost approach. The following describes the sales comparison approach, and the other two approaches are discussed later in my testimony. The sales comparison approach is a traditional appraisal technique that is most useful when a number of similar assets have been sold in the market, and when details on those assets and sale transactions are publicly available for analysis. This approach arrives at an estimate of value for a subject property by comparing the sale price of similar (comparable) assets. This is a classic example of the principle of substitution. When a purchaser has the opportunity to acquire a number of competing properties with similar utility and desirability, the purchaser will not choose to pay more to acquire the subject than the reasonable market value, in this case full and fair cash value, of a substitute property. Likewise, the seller of a property will understandably not accept an offer below the sale price obtained for similar properties.

Research for comparable assets that have sold rarely yields transactions that are identical to the subject property in all major value-impacting categories. As a practical matter,

search results rarely yield perfect comparables. For those sales not perfectly similar to the subject property, common and standard appraisal practice requires a reconciliation of the differences between the major value-impacting characteristics of the subject property and those of the comparables. This reconciliation is known as the adjustment process.

To apply the sales comparison approach, an appraiser follows a systematic procedure.

a. Research the competitive market for information on sales transactions, listings, and offers to purchase or sell involving properties in terms of characteristics such as property type, date of sale, size, physical condition, location, and land use constraints. The goal is to find a set of comparable sales as similar as possible to the subject property.

b. Verify the information by confirming that the data obtained is factually accurate and that the transactions reflect arm's length market considerations. Verification may elicit additional information about the market.

c. Select relevant units of comparison (e.g. price per acre, price per square foot, price per linear foot, seat or table, price per kW) and develop a comparative analysis for each unit. The goal here is to define and identify a unit of comparison that explains market behavior.

d. Look for differences between the comparable sale properties and the subject property using elements of comparison. Then adjust the price of each sale property to reflect how it differs from the subject property or eliminate that property as a comparable. This step typically involves using the most comparable sale properties and then adjusting for any remaining differences.

e. Reconcile the various value indications produced from the analysis of comparables into a single value indication or a range of values."

Q. Please describe how you applied the sales approach to derive an indicator of value of the Commercial Office Building at 64-66 Dilla Street, owned by the Company.

A. Our analysis focused on sales of comparable properties that were announced and closed. The sales must be arms-length, recent, and similar to the subject in terms of physical and locational characteristics. An important qualification of each comparable sale was the level of supporting data that is publicly available. It is common for a significant number of transactions to be excluded from the sales comparison approach. Common disqualifiers include a lack of supporting data and partial interest differences, or sales that date back to different market periods.

Our subject is a commercial office building of ±7,500 square feet of gross building area. We searched for sales of similar office space properties in close proximity to the Subject that sold between January 2015 and June 20, 2018. The search included a search of the sales database compiled by various public databases, including Costar. GSMLS, and other public databases, and other market participants.

Comparable Sales

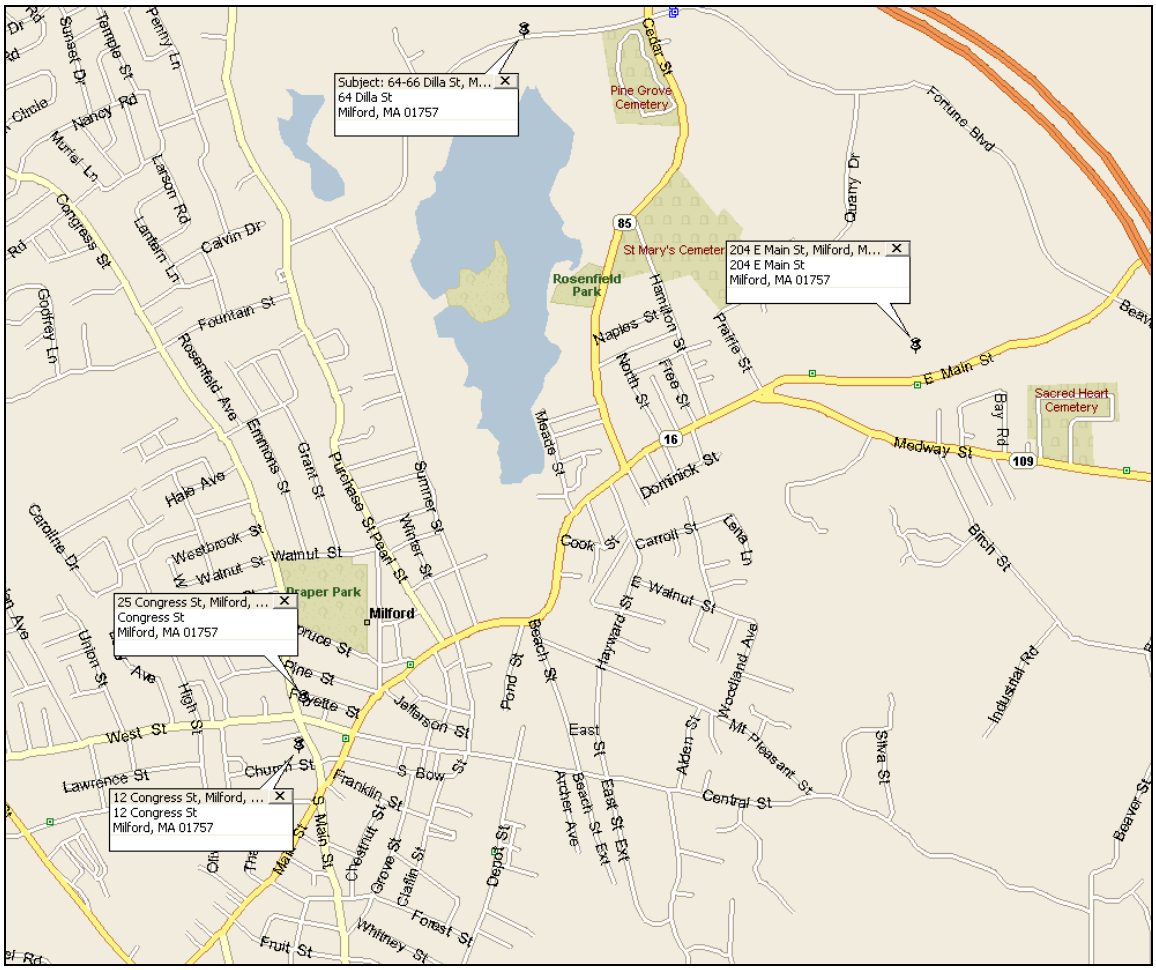
We present our sales adjustment grids at the end of this section. The individual comparable sale fact sheets and other sales comparison approach support materials can be found in the Appendix 3 of our appraisal report. Transactions chosen for inclusion and comparison in our analysis provided the best opportunity to make adjustments that would be critical to the sales comparison technique. Although it is difficult to make adjustments for factors unique to each transaction, a discussion of the various types of adjustments considered for comparable sales analyses is included in our report.

We chose three comparable sales to use in our analyses. All can be seen in the following map:

Figure M-1

Map of the Comparable Sales

Subject Office Building 64-66 Dilla Street



Adjustments to comparable properties.

A comparable property must be a bona fide recent sale, or a current listing, and similar to the Subject in terms of legal, economic, and physical characteristics. Physical characteristics include the type and possible uses of the property, condition and age, potential superadequacy and functional utility. Adjustments fall into the following general categories: Property rights conveyed; Financing terms; Conditions of sale; Market conditions; Size; Location; Age/Condition; Land to Building Ratio; Percent Of Office; Quality of Construction.

A "pairing process" is applied when practical to estimate the adjustments. The "pairing process" isolates the characteristic (dissimilarity) for which an adjustment is to be derived by comparing two sales, which are similar in all respects except for which an adjustment is to be derived. The "pairing process" is employed in order to extract objectively the appropriate adjustments directly from the marketplace.

Another method to estimate adjustments is to appeal to demographics and economic trends. For example, appraisers sometimes base time adjustments for office building sales on the trends in office space rental rates, and sometimes base location adjustments for commercial property on differences in rental rates.

However, these methods are not always reliable due to the difficulty in isolating a specific dissimilarity and because the other physical differences may offset or compound the apparent adjustment indicated. Consequently, we have augmented these methods with our experience and judgment.

1. Properties Rights Conveyed

A transaction price is always predicated on the property interest conveyed. The comparable sales are believed to require no adjustment with regards to their property rights, because they are believed to entail basic fee simple rights.

2. Financing Terms

This adjustment, commonly known as the cash equivalency adjustment, is a procedure whereby the sale price of comparable properties that were sold with atypical financing terms is adjusted to reflect cash settlements on typical market terms. No atypical financing terms were observed and thus, no adjustments were necessary.

3. Conditions of Sale

This adjustment usually reflects the motivations of the buyer and the seller, and is required when a sale is considered to be non-arm's length. For example, a developer may pay a premium for lots needed in a site assemblage. A sale may be transacted at a below market price, if the seller needs cash in a hurry. A foreclosure could also be interpreted as a non-arm's length sale. When non-market conditions of sale are detected in a transaction, the sale can be used as a comparable only with great care. The comparable sales were considered arm's length transactions and no unusual motivations were observed.

4. Market Conditions (Date of Sale or Time Adjustment)

Market condition adjustments reflect changes in value over time due to fluctuations in the balance of supply and demand. We have applied the same adjustment for market conditions that were calculated using the median home value index calculated previously in the report.

5. Size

Typically, buyers pay premiums for smaller properties relative to larger ones partly because the total investment is lower, and there are more buyers competing for the smaller properties. Sales One and Three were smaller in square footage size and thus needed a negative adjustment.

6. Location

Adjustments for location are necessary when the locational characteristics of a comparable property are different from those of the subject. Demand for otherwise similar properties in some locations is higher because of the higher desire for that location. Location is often one of the most influential characteristics in value. The Subject is in an average location while all of the sales comparables were better in location. As such, adjustments have been made to each comparable.

7. Quality

The quality of a building accounts for the building material and the construction material. Our Subject is of Good quality and is better in quality than the comparables. Positive adjustments were made to the sales comparables for this difference.

8. Age/Condition

The age and condition of the Subject and comparables were considered. The Subject is built in 1987. The comparables varied in age and adjustments were made accordingly.

9. Building to Land Ratio

The Building to Land Ratio of a property is important in valuation as it can help identify excess and surplus land at a property or if there is more square footage allocated to the land. Sale One had a higher building to land ratio and was thus considered more valuable. A downward adjustment was made accordingly.

Sales Adjustment Grids

We present our sales adjustment grids for each valuation date on the following page. The individual comparable sale fact sheets and other sales comparison approach support materials can be found in Appendix 3.

Table M-2

Sales Comparison Approach

Office Building, 64-66 Dilla Street

	Subject	*Sale One*	*Sale Two*	*Sale Three*
Address:	64-66 Dilla Street	25 Congress Street	204 E Main Street	12 Congress Street
Town:	Milford, MA	Milford, MA	Milford, MA	Milford, MA
Improvements:	Retail/Office	Office	Office	Office
Sale Price:	-	$170,000	$625,000	$125,000
Sale Price Per Square Foot:		*$70*	*$67*	*$45*
Transaction Adjustments				
Estate:	Fee Simple	Fee Simple	Fee Simple	Fee Simple
Property Rights Conveyed:	-	0%	0%	0%
Terms of Sale/Financing:	Cash	Cash	Cash	Cash
Terms of Sale/Financing Adjustment:	-	0%	0%	0%
Conditions of Sale:	Arm's Length	Arm's Length	Arm's Length	Arm's Length
Conditions of Sale Adjustments:	-	0%	0%	0%
Sale Date:	Jun-2018	Jul-2016	Jun-2018	Feb-2015
Market Conditions:	-	8%	0%	9%
Adjusted Price Per Square Foot:		*$76*	*$67*	*$49*
Property Adjustments				
Location:	Average	Average+	Average+	Average+
Location Adjustment:	-	-15%	-15%	-15%
Building Square Footage (GBA):	7,500	2,422	9,385	2,802
Size Adjustment:	-	-10%	0%	-10%
Quality/Condition:	Good	Average	Average	Average
Quality/Condition Adjustment:	-	15%	15%	10%
Stories:	1 and 2	3	2	3
Zoning/Use:	Office/Retail	Office	Office	Office
Zoning/Use/Stories Adjustment:	-	10%	5%	10%
Lot Size (acres)	1.38	0.09	1.87	0.20
Building to Land Ratio:	0.125	0.618	0.115	0.322
Site Size & Utility:	Average	Average+	Average	Average
Site Size & Utility Adjustment:		-15%	0%	0%
Age:	1987	1880	1975	1890
Condition:	Average	Average-	Average	Average-
Age/Condition Adjustment:	-	10%	0%	10%
Total Adjustment by Addition:	-	-5%	5%	5%
Total Adjustment by Multiplication:	-	-10%	3%	2%
Final Adjusted Price Per Square Foot:		*$70*	*$69*	*$50*

	Low	*High*	*Range*	*Median*	*Average*
Unadjusted Price:	**$45**	**$70**	**$26**	**$67**	**$60**
Adjusted Price:	**$50**	**$70**	**$20**	**$69**	**$63**

Q. What indicator of value did you determine for the Commercial Office Building under the sales approach?

A. We have concluded a rate of $65 per square foot for the office building under the sales approach. Our final rounded conclusion of full and fair cash value of the Subject Office Building, 64-66 Dilla Street under the sales approach is shown below:

$490,000

Full and Fair Cash Value of the Subject Office Building, 64-66 Dilla Street

Q. Please describe the income approach to valuing assets such as the Commercial Office Building.

A. MRV Consulting has also applied the income approach in our appraisal of the commercial office building at 64-66 Dilla Street, Milford, MA 01757. The basic principle underlying the income capitalization approach is that value is directly related to the benefits of ownership, specifically the benefit of receiving income from the property. The income capitalization approach is a set of procedures through which an appraiser derives a value indication for an income producing property by converting its anticipated benefits (income, cash flow and reversion) into value. This conversion can be accomplished in two ways. Income expectancy of one year can be capitalized at a rate that reflects a specified income pattern, the expected return on investment, and anticipated change in the value of the investment. Alternatively, the annual cash flows for the holding period (multiple years) and the reversion can be discounted at a specified yield rate. The former is commonly known as direct capitalization, while the latter is known as yield capitalization or discounted cash flow analysis.

Direct Capitalization vs. Yield Capitalization

Direct capitalization makes use of income from a single year and a capitalization rate. Initially, the process appears rather simple; the appraiser need only estimate the income for the next year along with a cap rate. However, difficulties may arise when attempting to forecast a stabilized (representative long-term average) income level. Furthermore, appraisers must recognize that a cap rate is only applied to one characteristic of the property (i.e., net operating income from a single year), and must realize that the overall cap rate is valid only if it accounts for all characteristics of the property, including all associated risks of the investment, changes in income and expenses, and property appreciation or depreciation.

In contrast, the application of yield capitalization requires the practitioner to set forth explicit forecasts of income, expenses, and changes in income and expenditure levels over the holding period. In yield capitalization, the practitioner must draw specific conclusions about changes in net income, cash flow, and property value over the holding period. The net sale price of the property at the end of the holding period must also be estimated. These conclusions are set forth in forecasts of future income and property reversion. The yield rate is then applied to convert anticipated economic benefits, or cash flow, into a present value. Yield rates can be derived with the aid of formulas and factors obtained from financial tables or calculated and applied with financial calculators or personal computers.

Both direct capitalization and yield capitalization are market-derived and widely used by financial analysis professionals in many industries. With adequate information, and when applied correctly, both should result in similar value indications for a subject property. If differences arise, the appraiser should verify that the various techniques are

being applied correctly and consistently. Remaining differences are explained in the reconciliation process.

Q. Please describe how you applied the income approach to determine an indicator of value for the Commercial Office Building at 64-66 Dilla Street, owned by the Company.

A. We utilized the direct capitalization method of the income approach to appraise the Subject. Our appraisal methodology, including an income analysis, expense analysis, and capitalization rate analysis, is presented in the following sections.

The subject office building is a total of 7,500 square feet of gross building area with a total rentable area of 6,300 square feet. There is a current lease in place where a three-year lease was renewed on September 2018. The tenant pays monthly at a total of $19,492 annually for 1,772 square feet of rentable area and has a triple-net lease where the tenant is responsible of the pro rata share of the utilities, maintenance, and property tax expenses associated with the property. This is thirty-six percent of the total rentable area. The remaining space is either owner-occupied or vacant. MRV Consulting was provided copies of the lease agreement and the expenses for 2015. The property owner reports that expenses for the whole building average $50,000 per year.

The lease in place calculates to $11.00 per square foot. Upon researching the area for comparable leases, shown in Appendix 3, we were unable to find reliable closed leases, but were able to find asking rents of similar rates to this lease.

Potential Gross Revenues

The office building consists of a total of 6,300 square feet of net rentable area. We have used the $11.00 per square foot rate of value to calculate the potential gross rent annually to be $69,300.

Vacancy & Collection Loss

An investor is primarily interested in the annual revenue a property is likely to produce over a specified period. A prudent practice is to expect that, on average, there will be some vacant space at all times, as well as some income loss as tenants vacate or fail to pay their rent. After considering the market data and our observations of the market and the subject office building, we have concluded that the current vacancy rate accurately represents a long-term stabilized vacancy and collection loss rate, which is approximately 10.00 percent, or $6,930 per year.

Effective Rental Income

Since the lease in place is a triple net lease, the landlord recovers some of its expenses by passing through each tenant's pro rata share of utilities, maintenance, and property taxes. The current tenant pays $9,420 a year in reimbursed expenses. We have grossed that up to the 100 percent space as this space is only 36 percent of the total and subtracted the 10.00 percent vacancy for a calculation of $23,750 per year. The effective rental income is calculated by subtracting the vacancy and collection loss expenses from the potential gross rent. This number is then added to the lease reimbursed expense.

Operating Expenses

The property owner reported an average of $50,000 of expenses per year. The subject office building operates in a market where typical leases have the tenant engaging in a triple net lease. Expenses at the property will include utilities, maintenance charges,

insurance, and property taxes. We have based our estimates of expenses on historical data provided by the property owners. The following Table N-1 shows our income and expense grids for the income approach analysis:

Table N -1

Income Grid for Subject Office Building

	2015			2016-2018			Forecast 2019		
	Annual	**$/SF**	**% EGI**	**Annual**	**$/SF**	**% EGI**	**Annual**	**$/SF**	**% EGI**
Potential Gross Rents	$ 59,067	$ 9	86.2%	$ 59,067	$ 9	100.0%	$ 69,300	$ 11	80.5%
Vacancy & Collection Loss							$ (6,930)		-10.0%
Effective Gross Rents	**$ 59,067**	**$ 9**	**86.2%**	**$ 59,067**	**$ 9**	**100.0%**	**$ 62,370**	**$ 10**	**72.4%**
Lease Reimbursed Expenses	$ 9,420	$ 1	13.8%				$ 23,750	$ 4	27.6%
Effective Gross Income	**$ 68,487**	**$ 11**	**100.0%**	**$ 59,067**	**$ 9**	**86.2%**	**$ 86,120**	**$ 14**	**100.0%**
Expenses									
National Grid Electric	$ 10,349	$ 2	15.1%		$ -	0.0%	$ 10,600	$ 2	12.3%
Grounds Maintenance	$ 7,189	$ 1	10.5%		$ -	0.0%	$ 7,400	$ 1	8.6%
B-P Trucking Trash & Recycle	$ 4,576	$ 1	6.7%		$ -	0.0%	$ 4,700	$ 1	5.5%
Sewer Bills	$ 336	$ 0	0.5%		$ -	0.0%	$ 350	$ 0	0.4%
Parking Lot Light	$ 422	$ 0	0.6%		$ -	0.0%	$ 450	$ 0	0.5%
Property Taxes	$ 18,845	$ 3	27.5%		$ -	0.0%	$ 19,300	$ 3	22.4%
Building Insurance Policy	$ 4,164	$ 1	6.1%		$ -	0.0%	$ 4,300	$ 1	5.0%
Cleaning Service - Common Areas	$ 3,300	$ 1	4.8%		$ -	0.0%	$ 3,400	$ 1	3.9%
Reserves for Replacements							$ 861		1.0%
Total Expenses	**$ 49,181**	**$ 8**	**71.8%**	**$ 50,000**	**$ -**	**84.7%**	**$ 51,361**	**$ 8**	**59.6%**
Net Operating Income	**$ 19,305**	**$ 3**	**28.2%**	**$ 9,067**	**$ 1**	**15.3%**	**$ 34,759**	**$ 6**	**40.4%**

Capitalization Rate

To determine an appropriate capitalization rate for the subject office building, we have utilized two methods. The first method is known as a market survey method, and the second is a "Band of Investment Analysis."

1. Market Survey Method

To arrive at the appropriate capitalization rate, we relied on the Korpacz Real Estate Investor Survey for indications of capitalization rates. The following figure shows the cap rates of apartment buildings nationwide, and is reflective of stable, investment grade properties. The Korpacz Real Estate Investor Survey, published by Price Waterhouse Coopers, surveys pension fund managers, pension fund advisors, investment advisors, direct investors, and investment bankers.

Our subject is a commercial office building, but the current tenant is considered a retail tenant. Thus, we have used a blended cap rate by looking at both office and retail capitalization rates. The average cap rate for National Suburban Office Markets from the Korpacz survey in the second quarter of 2018 was 6.58 percent. The average cap rate for strip shopping centers and national Net lease markets from the Korpacz survey in the second quarter of 2018 is 6.48 percent. We have added a 2.06 percent risk adjustment to the selected cap rate based on the Korpacz Survey averages. The Korpacz Survey data and our conclusion can be seen in the capitalization rate analysis table shown later in this section.

2. Band of Investment Analysis

The band of investment computes a cap rate by adding up the elements that make up the overall asset rate. The band of investment analysis is often referred to as a mortgage equity formula. The basic elements of capitalization rates are the debt investment and the equity investment. Specifically, the elements are the debt cap rate and the equity cap rate (or equity dividend rate). When combined, they indicate the overall investment capitalization rate. The band of investment calculates the percentage of the total investment that the debt contributes and the percentage that the equity contributes. Algebraically, the band of investment analysis is express as:

$$\mathbf{R = (M \times Rm) + ((1-M) \times Re)}$$

Where,

R	=	Overall Capitalization Rate
M	=	Debt Ratio
Rm	=	Mortgage Constant
Re	=	Equity Capitalization Rate

3. Debt to Equity Ratio

The average debt to equity ratio of the competing investors tends towards approximately 70 percent debt to 30 percent equity. Based on this analysis, we will assume a 70/30 debt to equity ratio for our analysis.

4. Debt Rate Analysis

The debt rate is the amortization rate for the typical loan interest rate that this type of property could obtain. The debt rate used for our band of investment analysis was a 4.50 percent nominal interest rate for both retail and office capitalization rates. The loan will be for 30 years with monthly payments. This yields a 6.08 percent annual constant.

5. Equity Capitalization Rate Analysis

The equity cap rate is the rate of return that the investor expects on the equity investment made in the subject office building. To determine the equity capitalization rate, we started with the investment grade Baa rate. To this rate, we added an appropriate risk adjustment to account for the higher risks of owning real property compared to bonds. As a result, we concluded on an equity capitalization rate of 7.30 percent for retail and 7.75 percent for office equity.

6. Band of Investment Calculation of the Capitalization Rate

Using steps highlighted in the previous sections of this testimony, we calculated the overall capitalization rate using the Band of Investment method.

7. Selection of the Capitalization Rate

Based on our analysis, we compared the two capitalization rates from the market survey and band of investment methods and concluded on a capitalization rate that is a reasonably representative of the subject office building. The following Tables N-2 and N-3 illustrate our analysis.

Table N-2

Calculation of Retail Capitalization Rate

Band of Investment	
Debt Cap Rate	
Baa (June 2018)	4.81%
Conventional Mortgages (Jun 2018)	4.75%
Concluded Rate (Yearly)	4.50%
Concluded Rate (Monthly)	0.38%
Term (Yearly)	30
Term (Monthly)	360
Mortgage Constant	0.51%
Debt Cap Rate	**6.08%**
Equity Cap Rate	
Baa (June 2018)	4.81%
Risk Adjustment	2.50%
Equity Cap Rate	7.31%
Concluded Equity Cap Rate	**7.30%**
Band of Investment Calculation	
Source	
Debt Ratio	**70.00%**
Debt Rate	6.08%
Debt Weight	4.26%
Equity Ratio	30.00%
Equity Rate	7.30%
Equity Weight	2.19%
Indicated Cap Rate	**6.45%**
Korpacz Retail (2Q18)	
Korpacz Strip Shopping Center Low	4.00%
Korpacz Strip Shopping Center High	9.50%
Korpacz Strip Shopping Center Average	6.36%
Korpacz National Net Lease Market Low	5.00%
Korpacz National Net Lease Market High	8.50%
Korpacz National Net Lease Market Average	6.60%
Average of Both	6.48%
Site Specific Adjustment	2.00%
Indicated Cap Rate	**8.48%**
Reconciliation of Cap Rate	
Band of Investment	6.45%
Korpacz Survey	8.48%
Selected Capitalization Rate	**8.50%**

Table N-3

Calculation of Office Capitalization Rate

Band of Investment	
Debt Cap Rate	
Baa (June 2018)	4.81%
Conventional Mortgages (Jun 2018)	4.75%
Concluded Rate (Yearly)	4.50%
Concluded Rate (Monthly)	0.38%
Term (Yearly)	30
Term (Monthly)	360
Mortgage Constant	0.51%
Debt Cap Rate	**6.08%**
Equity Cap Rate	
Baa (June 2018)	4.81%
Risk Adjustment	3.00%
Equity Cap Rate	7.81%
Concluded Equity Cap Rate	**7.75%**
Band of Investment Calculation	
Source	
Debt Ratio	70.00%
Debt Rate	6.08%
Debt Weight	4.26%
Equity Ratio	30.00%
Equity Rate	7.75%
Equity Weight	2.33%
Indicated Cap Rate	**6.58%**
Korpacz Office (2Q18)	
Korpacz National Suburban Office Low	4.35%
Korpacz National Suburban Office High	10.00%
Korpacz National Suburban Office Average	6.58%
Site Specific Adjustment	2.00%
Indicated Cap Rate	**8.58%**
Reconciliation of Cap Rate	
Band of Investment	6.58%
Korpacz Survey	8.58%
Selected Capitalization Rate	**8.50%**

Both retail and office capitalization rates resulted in an 8.50 percent capitalization rate, which we have used in our direct capitalization analysis.

8. Income Capitalization

After we estimate the income and expenses and reach the appropriate capitalization rate, we apply the direct income capitalization formula to determine the value of the subject office building. The direct income capitalization formula is algebraically expressed as:

V = I / R

Where,

V	=	Value
I	=	NOI
R	=	Capitalization Rate

Net Operating Income = $34,759
Cap Rate = 8.50%
Indicated Value = $408,927

Q. What indicator of value did you determine for the Commercial Office Building under the income approach?

A. Based on the research, analysis, and explanation above, we have concluded on the full and fair cash value of subject office building, 64-66 Dilla Street, via the income approach, to be:

$410,000
Full and Fair Cash Value of the Subject Office Building, 64-66 Dilla Street

Q. Please describe any indicator of value you determined for the Commercial Office Building under the cost approach.

A. We have made an extraordinary assumption that the value of the office building improvements provided by another appraiser, Mark Rodriguez, also of MRV Consulting, are correct. Mr. Rodriguez concluded that the improvements have a value of $190,505. We have concluded a land value of the parcel of land at 64-66 Dilla Street to be $220,800. Together these indicate a cost approach value for the office building of $410,000, rounded ($190,505 improvements value plus $220,800 land value).

Q. Did you reach a conclusion of value of the real property interests owned by the Company?

A. Yes.

Q. Please summarize your overall conclusion of value?

A. There are two considerations one must weigh when applying various approaches to value. First, appraisers should use those approaches commonly utilized by market participants.

In its Reconciliation section, The Appraisal of Real Estate, 14th Edition, published by the Appraisal Institute, Chicago, 2013, writes: "Appropriateness, accuracy, and quantity of evidence are the criteria with which an appraiser forms a meaningful, defensible final value estimate. These criteria are used to analyze multiple value indications within each approach and to reconcile the indications produced by the different approaches into a final estimate of defined value."

Second, the supply of data within a sub-market, or within a particular time frame, may necessitate the exclusion of approaches commonly employed in the larger market or at

different points in time. Following appropriate appraisal methodology, we have considered the three basic approaches to value: sales comparison, cost, and income. In accordance with USPAP, we have considered the three approaches to value the Subject. We have concluded that the sales approach provides the most reliable indication of value for the fee simple land and private easements. We have concluded on all three approaches; sales comparison approach, income approach, and cost approach, for the full and fair cash value of the office building located at 64-66 Dilla Street.

Based on the analysis and subject to the assumptions and limiting conditions listed in this report, the following tables summarizes the concluded value of the Subject as of December 31, 2018.

Table P-1

Full and Fair Cash Value

Commercial Office Building

Approach to Value		Value Conclusion
Cost Approach	$	410,000
Income Approach	$	410,000
Market Approach	$	490,000
Full and Fair Cash Value of Office Building Located at 64-66 Dilla Street:	**$**	**450,000**

Table P-2

Full and Fair Cash Value

Fee Simple Land and Private Easements

Subject		Value Conclusion
Fee Simple Land	$	30,900,000
Private Easements	$	400,000

Q. Did you apply a "corridor factor" adjustment to your valuation of the fee simple interests, private easement interests, and Commercial Office Building?

A. We have not made a corridor factor adjustment within our analyses. We have not completed adequate research to determine whether a corridor factor is appropriate or quantifiable. This research may entail both legal and market/economic research. A corridor factor adjustment may be warranted. Our land and private easement appraisal make the extraordinary assumption that a corridor factor is not necessary. If adequate research determines that a corridor factor is appropriate, then our value conclusions may be revised.

A corridor factor is defined as "the ratio of the market value (or market price) of a corridor to the corridor's across-the-fence value. Corridor factors are applied to reflect the benefit or advantage, if any, of the corridor having already been assembled. Typically used in the appraisal of existing corridors and not the assembly of a new corridor. Sometimes called an enhancement factor or continuity factor."

Essentially, a corridor factor adjustment is made to account for the value enhancement of having already completed the corridor assemblage of the various land interests and avoiding the cost and time of needing to assemble the land interests over what may take years and great effort to assemble from scratch.

The applicability of a corridor factor adjustment also depends on whether the use of the corridor, in this case water utility transmission and distribution piping, represents one of the highest and best uses with respect to financial feasibility and maximum productivity. Potable water is an essential service, for which there is no substitute, but alternatively the

land uses of subject water utility must compete with other uses such as residential and general commercial uses, which are in this area are high value uses.

Q. Taking the fee simple interests, private easement interests, and the Commercial Office Building together, what is your total conclusion of their full and fair cash value?

A. $31,750,000.

Q. Does this conclude your testimony?

A. Yes, it does.

MARK POMYKACZ, MAI, ASA, AI-GRS
Director

Mark Pomykacz is a director heading the real estate group at MR Valuation Consulting, LLC. Mr. Pomykacz is a State Certified General Real Estate Appraiser in multiple states and an Accredited Senior Appraiser with the American Society of Appraisers designated in the discipline of Real Property. Mr. Pomykacz is a Member of the Appraisal Institute with a secondary designation as a General Review Appraiser. He is an active leader with the Appraisal Institute having served in various positions, including as Member of the National Board of Directors and as the President of the Metropolitan New York Chapter.

General Appraisal and Advisory Qualifications

Carrying over 30 years of experience in real estate and business appraisal and consultation services, Mr. Pomykacz has developed specialization in complex and non–traditional valuation consulting services. He has consulted nationally and internationally for accountants, attorneys, the capital markets, corporations and governments concerning development, acquisitions & dispositions, financing, investor reporting, litigation, tax & audit issues, and asset management. These services were provided for a variety of purposes including reporting and tax, underwriting, due diligence, capital markets, rent/buy/sell/donate and pricing decisions, feasibility/market analysis, litigation support and expert testimony.

Mr. Pomykacz has worked on numerous assets and property types including closely held and public companies, infrastructure, power plants, utilities, corporate and investment real estate, health related facilities, office buildings, vacant land, and special purpose properties. Mr. Pomykacz has participated in arbitrations, judicial, and condemnation proceedings. Furthermore, Mr. Pomykacz has written special purpose and consulting reports, appraisals, market and feasibility studies, which are used by many Fortune 1,000 companies, REITs, Wall Street banking firms, accounting and law firms. Mr. Pomykacz also regularly speaks at various accounting, assessor and other professional seminars and conferences.

Power & Infrastructure Analysis and Valuation Qualifications

Over the last 15 years, Mr. Pomykacz has developed an expertise in the appraisal of electricity generation assets and other infrastructure assets. His power appraisals include nuclear, fossil fuel-fired, hydro, wind, geothermal, solar and biomass and biogas, other types

of power generation facilities in locations around the US and the world. His other infrastructure appraisals include telecommunications assets, water and sewer assets, railroads, racetracks and petroleum, biodiesel and ethanol refineries, and transmission assets around the US. His infrastructure appraisal and advisory services have been used by governments, corporations, and lenders and investors for development, acquisition and disposition planning, financing, and tax and investor reporting. Mark has appraised and advised on more than 300 infrastructure assets. He regularly testifies to his power and infrastructure appraisals.

Deloitte & Touche, New York
Senior Manager / Chief Appraiser – Eastern US **1996 to 2000**

Led multi-discipline professional consulting group, managing national portfolios of investment-grade properties, and real estate-secured assets. Provided real estate and business valuation consulting services including banking support, mergers & acquisitions due diligence, capital markets services, valuation services for tax and audit issues, litigation support, appraisals, and other consulting services. Clients included many Fortune 1,000 companies, REITs, Wall Street banking firms, and law firms. Also provided real estate asset and investment management consulting, and property tax appeals and management. Developed new business and business lines for the group.

Jerome Haims Realty, Inc.
Vice President, Consultant & Appraiser **1990 to 1995**

Consulted and appraised on various property types including: office buildings; shopping malls; industrial, factory, warehouse, loft, and manufacturing buildings; rental, cooperative, and condominium apartment buildings; mixed use buildings; special purpose properties; and vacant land for subdivision and for major urban redevelopment; partial interests, easements, right-of-ways and air rights. Wrote appraisal reports, market and feasibility studies, and reviewed appraisals written by others. Participated in arbitration, judicial, and condemnation proceedings and provided various consultation services including mortgage underwriting, litigation support, rent-buy and pricing decisions, construction feasibility, and asset management.

NYC Economic Development Corp. & NYC Department of Real Property
Senior Real Estate Manager & Chief Appraiser **1987 to 1990**

Consulted and appraised on various property types for various city redevelopment projects, condemnation, public trusts, and tax incentive programs. Wrote appraisal reports, conducted market and feasibility studies, managed appraisal contractors, and reviewed appraisals. Provided asset management to projects with an aggregate value in excess of $2 billion.

United Evaluators, Florham Park, NJ
Appraiser **1986 to 1987**

Managed a branch office with staff of six professionals. Appraised land development projects, condominium conversion projects and one to four family homes.

Licensed Real Estate Salesperson **1985 to 1986**

Managed a branch office with staff of six professional appraisers. Brokered commercial and residential sales and rentals.

Professional Affiliations & Activities:

- MAI, Member of the Appraisal Institute
- AI-GRS, General Review Appraiser
  - Leader in the Appraisal Institute Community
  - Member of the Board of Directors, National, 2002, 2004 – 2006
  - President, Metropolitan New York Chapter, 2005
  - Chair, Regional Committee, Region VI, 2006
  - Officer, Metropolitan New York Chapter, 2001 – 2005
  - Regional Director, Region VI, 2002, 2004 – 2006
  - Member of Board of Directors, Metropolitan New York Chapter, 1998 – 2006
  - International Relations Committee Member, National, 1997 – 2005
  - Strategic Planning Committee, National, 2005 – 2006
  - Education Chair, Metropolitan New York Chapter, 1999
- ASA, American Society of Appraisers – Accredited Senior Appraiser
  - Designation in Real Property, All Types

Licenses, State Certified Real Estate General Appraiser

California State-Certified General Real Estate Appraiser	AG043987
Connecticut State-Certified General Real Estate Appraiser	RCG.00010448
Delaware State-Certified General Real Estate Appraiser	X1-0000639
Florida State-Certified General Real Estate Appraiser	RZ3225
Georgia State-Certified General Real Estate Appraiser	358368
Illinois State-Certified General Real Estate Appraiser	553.001871
Maryland State-Certified General Real Estate Appraiser	10807
Massachusetts State-Certified General Real Estate Appraiser	103483
Michigan State-Certified General Real Estate Appraiser	1201069583
Montana State-Certified General Real Estate Appraiser	REA-RAG-LIC-7541

New Hampshire-Certified General Real Estate Appraiser	NHCG-853
New Jersey State-Certified General Real Estate Appraiser	42RG00144500
New York State-Certified General Real Estate Appraiser	46000000871
Pennsylvania State-Certified General Real Estate Appraiser	GA001700R
Texas State-Certified General Real Estate Appraiser	TX 1380478 G
Utah State- Certified General Real Estate Appraiser	9137815-CG00
Virginia State-Certified General Real Estate Appraiser	4001017013
Washington State- Certified General Real Estate Appraiser	1101976

Education:

- Bachelor of Arts, Political Science – Rutgers University, New Jersey 1986
- Appraisal Institute – Completed all courses and examinations required to obtain and maintain the MAI designation
- Royal Institution of Chartered Surveyors – Completed all courses and examinations or equivalents, required to obtain the MRICS designation. Mr. Pomykacz was granted the MRICS designation. Due to a lack of need, Mr. Pomykacz no longer remains a dues paying member of RICS
- Institute for Professionals in Taxation – Completed all courses and examinations required to obtain the CMI designation. Mr. Pomykacz was granted the CMI designation. Due to a lack of need, Mr. Pomykacz no longer remains a dues paying member of IPT

Instructorships:

Mr. Pomykacz taught "Income Capitalization Theory and Techniques" (Course #310), and "Uniform Standards of Professional Appraisal Practice (USPAP), Part A." These courses are required for designation from the Appraisal Institute and for state licensing and certification, and were offered at the following institutions:

- Adjunct Assistant Professor, New York University
- Qualified Appraisal Institute Instructor, Appraisal Institute
- Instructor, Baruch College, CUNY, The Newman Real Estate Institute

Mr. Pomykacz has also lectured at Appraisal Institute seminars.

Speaking Engagements & Presentations:

- American Bar Association/Institute for Professionals in Taxation
    - Advanced Property Tax Seminar – Impact of Millennials on Industrial Real Estate & The Go Dark Hypothesis, New Orleans, LA, 2017

- NRAAO, Annual Conference
  - Impact of Millennials on Real Estate, Mystic, CT, 2017
- New Jersey State Bar Association Annual Conference
  - Borgata Decision! Appraisal Implications, Atlantic City, NJ, 2014
- PEI Infrastructure Investor: New York
  - Managing Infrastructure Assets: In a Post-Cheap Deb World, New York, NY, 2009
- Power & Electricity World: Latin America Conference
  - Creating and Measuring Value: A Power Plant Development, Coral Gables Florida, 2009
- Corpbanca Seminar Invitation
  - Fair Value Appraisal for the Real Estate Industry in Chile, Santiago, Chile, 2008
- The Pan Pacific Valuation Conference
  - 23rd Pan Pacific Valuation Conference – The Effects of Deregulation/Privatization on the Selection of Valuation Methodology, San Francisco, 2006
- Baruch College (CUNY)
  - "Exuberant Bubble" or "Fundamentally Sound": Where are Real Estate Prices Going?, New York, September, 2005
- The Center for Business Intelligence, now Platts, a division of McGraw-Hill
  - Power Asset Mergers and Acquisitions Conference – Valuing Generation Assets – Employing Effective Due Diligence, 2004
  - 6th Annual Electric Asset Valuation Conference – Methodologies for Portfolio Valuation of Power Plant Assets, 2004
  - 5th Annual Electric Asset Valuation Conference – Sophisticated Valuation Techniques – Theory and Practice, 2003
- The International Association of Assessing Officers (IAAO)
  - IAAO Public Utility Section – Reconciling the Reconciliation, Power Plants and Utilities, Charleston, 2006
  - IAAO Public Utility Section – Recognizing & Separating Real Property, Personal Property, and Intangible Values in Common Indications of Value, Milwaukie, 2006
  - IAAO Legal Update – Cell Towers and Telecommunications Property, San Francisco, 2006
  - IAAO Public Utility Section – Valuing Complex Properties, Power Plants, Boston, 2004
  - IAAO – Preparation and Trial Seminar (Mock Trial), Las Vegas, May, 2007

  - CAAO 14th Fall Symposium – Preparing for the Big One – The Trial of a $1 Billion Case; How a Complex Case Illustrates Basic Principles of Valuation and Trial Practice, 2008
- The Wichita State University Annual Conference on the Appraisal for Ad Valorem Taxation of Communications, Energy and Transportation Properties
  - 37th Annual Conference – Preparing for the Big One – The Trial of a $1 Billion Case; How a Complex Case Illustrates Basic Principles of Valuation and Trial Practice, 2007
  - 40th Annual Conference – Rate Basics – Back to the Basics for Experts, Finding a Common Language, 2010
  - 46th Annual Conference – When Obsolescence is Accelerating, 2016
- Rutgers University, Office of Continuing Education
  - Brownfields: Emerging Issues, The Economics of Green, Rutgers University, New Brunswick, New Jersey, 2008
- The Long Island Society of Certified Public Accountants
  - Understanding Key Appraisal Concepts: Methodologies and Procedures, and Capitalization Rates, Real Estate Committee, October, 2005
- The Society of Professional Assessors
  - Dark Store v the Force of Market Value Big Box, Little Box and the Dark Store Hypothesis, Hasbrouck Heights, NJ, April, 2016
  - Borgata Decision - Separating Real, Personal and Intangible Property, Hasbrouck Heights, NJ, April, 2014
  - A Case Study in Complex Litigation: Wheelabrator v City of Bridgeport, Haddam, CT, November, 2013
  - Appraising Complex Properties for Property Taxes: A Power Plant Case Study
  - Mystic, CT, October, 2005
  - How low can you go? Capitalization and Yield Rates Methodologies, Procedures, Market Cycle, and Current Issues, Rutherford, NJ, April, 2006
- The Institute for Professionals in Taxation, IPT, Annual Property Tax Symposium
  - Valuation of Electric Generating Stations Owned by Independent Power Producers, Austin, Texas, November 2, 2010
- Connecticut Association of Assessing Officers
  - Dark Store v the Force of Market Value Big Box, Little Box and the Dark Store Hypothesis, University of Connecticut, CT, June, 2016
  - The Appraisal and Assessment of Big Box and Large Owner-Occupied Properties, September, 2011
- New Jersey County Tax Board Association
  - Appraising Solar Power Assets for Property Taxation, September, 2011

- South Jersey Chapter of the Appraisal Institute
    - Appraising Solar Power Assets, September, 2011

Articles and Publications:

- *"Benford's Law in Appraisal"* – The Appraisal Journal, Fall 2018
- *"The Appraisal of Power Plants"* – The Appraisal Journal, Summer 2014
  This article won the 2014 Swango Award. The *Appraisal Journal*'s Editorial Board presents the Swango Award to the best article published during the previous year on residential, general, or technology-related topics, or for original research of benefit to real estate analysts and valuers.
- *"Options in Real Estate Valuation" – The Appraisal Journal, Summer 2013*
- *Reviewer for the "Real Estate Valuation in Global Markets," Second Edition – The Appraisal Institute, 2010*
- *"Defining and Supporting Entrepreneurial Profit and Incentive, and External Obsolescence" – The Appraisal Journal, Winter 2010*
- *"Relationships between the Overall Property and Its Parts, and the Three Approaches to Value"– The Appraisal Journal, Winter 2009*
- *"The Energy for Change: Building Our Alternative Energy Future"– Property World, Royal Institution of Chartered Surveyors, Winter 2009*
- *"The Economics of Green" – Unpublished, November 2008*
- *"Corridor Valuation, the ATF Method, and Maximally Productive Uses Recent Observations from the Rail Line"* – Right of Way Journal, International Right of Way Association, September 2008
- *"Correcting Property Taxes on High-Value Properties"* – Unpublished, July 2004
- *"A Generalized Analysis to Determine Three Unknowns; Value, Real Estate Taxes and Real Estate Tax Recoveries"* – Assessment Journal, Summer 2003
- *"Property Taxes, A Silver Lining"* – Energy Pulse, July 2003
- *"Considerations for Valuation and Litigation"* – Deloitte & Touche Real Estate Newsletter, New York, April 2000
- *"Reducing Property Taxes in a Rising Market"* – Real Estate New York, February 1998

CERTIFICATE OF SERVICE

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILTIES

Milford Water Company Valuation	)	**D.P.U. 18-60**

CERTIFICATE OF SERVICE

I, Jon N. Bonsall, on behalf of Milford Water Company, hereby certify that on this date I served a copy of the foregoing upon the following:

Amy Tierney, Esq.
Jed M. Nosal, Esq.
Paul G. Afonso, Esq.
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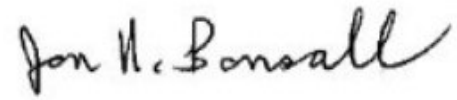
Boston, MA 02111



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Dated: January 25, 2019