## THE CLASS OF 1964 POLICY RESEARCH SHOP VALUATION OF LAKE SUNAPEE



# PRESENTED TO NH LAKES AND LAKE SUNAPEE PROTECTIVE ASSOCIATION

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## EXECUTIVE SUMMARY

Lake Sunapee is the fifth largest lake located entirely in New Hampshire. It provides significant value to the state economy in the form of property, property taxes, business revenue, and water supply. The lake draws visitors and both full-time and part-time residents to the area. This valuation study attempts to determine an economic value of Lake Sunapee. This could be used to inform preservation and policy regarding the lake. We find that Lake Sunapee contributes \$4.1 billion in property values, \$52,862,000 in property town tax value, \$10,863,888 in ski area infrastructure, \$120,918,168 in revenue from tourism, boating and fishing, as well as \$885,473 in water infrastructure and supply. These components add to place a value on Lake Sunapee of approximately \$4,311,529,529.

## 1 INTRODUCTION

Lake Sunapee is the fifth largest lake located entirely in New Hampshire and an important source of value for the state.<sup>1</sup> Visitors and second-home owners flock to the lake in the summer to enjoy time on the water and in the surrounding communities. In the winter, skiers come to Mount Sunapee Resort. The lake is a critical component of regional and state economies. Defining the scope of the Sunapee area is difficult as there is no definitive line at which towns draw their value from the lake as opposed to other sources. This valuation includes the towns that share a direct border with the lake: Newbury, New London, and Sunapee.

The goal of this report is to evaluate how much value Lake Sunapee brings to New Hampshire by quantifying values attributable to the lake in the three surrounding towns. The primary areas of focus are property value, business revenue, and water infrastructure. Property values are assessed costs and annual tax revenue. Business values focus primarily on general tourism and lake-specific activities because those revenues may be linked to the lake itself. Water infrastructure includes a dam, lighthouses, and drinking water supply. To attain a value of Lake Sunapee, this report adopts and revises quantitative methodologies used in *PRS Policy Brief 1516-01*, "The Value of Lake Champlain" and *PRS Policy Brief 2021-13*, "Valuation of Lake Winnipesaukee."<sup>2</sup> These methodologies, like ours, quantifies the value of property around the lake, the value of tourism and recreation around the lake, and the value derived from direct water usage. Additionally, a value-added analysis was conducted to regress values based on distance from the lake. The valuation given in this report may be used to give policy makers and nonprofit organizations an understanding of how Lake Sunapee benefits the Granite State economy.

## 2 PROPERTY VALUES

Tri-Town Assessing is an assessing department created by an intergovernmental agreement to consolidate the assessing departments for the towns of Newbury, New London, and Sunapee.<sup>3</sup> The data for property values from each town were obtained from the Tri-Town Assessing. All properties were included. Millage rates (tax revenue per \$1,000 assessed value) were used to calculate annual property tax revenue. Kristen McAllister, the Chief Assessor for the tri-town area, provided the research team with comprehensive property assessment data for the three towns bordering Lake Sunapee. Properties are identified by street address and data include assessment value, acreage, zoning, ownership, and bedroom/bathroom count at the individual property level. Descriptive statistics are provided in Table 1.

Town	# Of Parcels	Mean Value (\$)	Residential Only		
			% LR-1	Mean Value	Mean Acreage
Newbury	2,530	467,460	86.6	483,202	4.80
New London	2,418	500,707	86.5	496,098	3.30
Sunapee	3,191	483,660	89.4	495,295	2.78
Total/Mean	8,139	483,942	88.0	491,532	4.0

#### Table 1 – Property statistics for the tri-town area. Note: Means are unweighted.

The total assessed property value for all three towns was \$4,126,000,000 and the total annual tax revenue on these properties was calculated to be \$52,862,000 (the three towns report collecting \$52,232,000 in 2021).<sup>4</sup> Mount Sunapee ski resort provides at least an additional \$10,863,888 in value and lease revenue. Together, this yields a category total of \$4,189,725,888.

#### 2.1 Town of Newbury

Newbury is a small town located in Merrimack County at the southern terminus of Lake Sunapee. The town limits include 35.8 square miles of land and 2.3 square miles of water. The 2019 census estimate for Newbury was 2,228 people. Median age is 53.7 years. Virtually all residents (97.4 percent) have a high school diploma and 59.6 percent have a bachelor's degree or higher. Of employed residents, 20 percent work in Newbury while the rest commute.<sup>5</sup> Students are zoned for Kearsarge Regional Schools (SAU 65) which also service Bradford, New London, Springfield, Sutton, Warner, and Wilmot.<sup>6</sup>

The total assessed value of property in Newbury is \$1,183,000,000. When tax-exempt properties are excluded, this value is \$1,109,000,000. To capture the revenue this property generates for the town, total assessed value was used to calculate annual property tax revenue. The millage rate in Newbury is 11.38 mils, which yields a calculated value of \$12,620,000 in town property tax revenue for Newbury.<sup>7</sup> Newbury reports collecting \$12,390,248 in 2021.<sup>8</sup>

#### 2.1.1 Mount Sunapee Resort

Newbury is also home to the Mount Sunapee Resort ski area. Mount Sunapee Resort is located on state park land owned by the State of New Hampshire that is leased by Vail Resorts Inc.<sup>9</sup> The ski resort has 67 trails and 233 skiable acres with a vertical drop of 1,510 feet (the highest in southern New Hampshire).<sup>10</sup> The leased land covers 968 acres in Newbury and Goshen.<sup>11</sup> The land is specially

zoned as the Mt. Sunapee Recreation District.<sup>12</sup> The land value in Newbury has already been encompassed in the property values for Newbury. Recreational revenue is included in the tourism data (Section 4.1).

The resort has a sizable amount of infrastructure that contributes to its value. Capturing the value of trails is extremely difficult, but other manufactured infrastructure including buildings and lifts were accounted for in the analysis. Lift infrastructure includes three quad chairs (two of which are high-speed detachable), two triple chairs, and three surface lifts (magic carpets).<sup>13</sup> There are two base lodges, a summit lodge, and other buildings that house ski patrol and the alpine racing program.<sup>14</sup> We opted to include lifts and buildings in our analysis because that seemed to match most accurately what assessors incorporate in other property value assessments. Vehicles were not included in other assessed values, so portable entities such as grooming vehicles and snow making guns were not included (this inherently excludes some snowmaking infrastructure like pipes). Summer amenities like the zip-line and climbing wall were also not included but are likely negligible in respect to the value. An estimated value for the lifts and buildings of the resort is \$10,149,210. Chairlift values were calculated from cost at installation plus CPI inflation minus depreciation.<sup>15</sup> Surface lifts used a per foot pricing estimate based on a recently installed lift elsewhere.<sup>16</sup> Building values used square footage priced at the Newbury base level assessment of \$100 per square foot.<sup>17</sup>

The lease for the state land includes two components. The first is a flat payment that is the equivalent of \$150,000 in 1998 adjusted for inflation using the Consumer Price Index (CPI). The second part is three percent of annual revenue. As of December 2017 (the last audit prior to Vail Resorts Inc. acquiring the business), these payments were \$223,861 (based on CPI as of December 31, 2016) and \$395,024, respectively.<sup>18</sup> Using these values adjusted to CPI for December 31, 2021, we arrive at \$258,511 for the lease payment and \$456,167 as a three percent revenue estimate.<sup>19</sup> Revenue is not consistent year to year, but this is more likely a low estimate as crowds have increased at Mount Sunapee since Vail acquired the resort and because the company has invested significantly in the property.<sup>20</sup>

Combined, infrastructure and lease payments give Mount Sunapee an estimated value of \$10,863,888 in this report. For comparison, in 2018, Vail bought Sunapee, Okemo (Vermont), and Crested Butte (Colorado) for a price of \$82,000,000 plus an additional sum for settling lease payments.<sup>21</sup> It is not clear how the resorts were independently valued, and more factors were considered in that deal than just infrastructure, such as the workforce and existing customer base.

#### 2.2 Town of New London

New London is located in Merrimack County, New Hampshire and borders the northeast corner of Lake Sunapee. The town limits include 22.4 square miles of land and 3.1 square miles of inland water area. The population is 4,308 people, according to the most recent available census data from 2019. The median age of New London residents is 42.0 years. Virtually of the New London residents (98

percent) have completed high school and 62.3 percent have a bachelor's degree. Of employed residents, 45 percent work in New London while 45 percent work in another town in New Hampshire; 10 percent commute out of state.<sup>22</sup> Students in the district are also zoned to Kearsarge Regional Schools, and there is one elementary school in New London.<sup>23</sup> In addition, New London is home to Colby Sawyer College, a four-year college located on 200 acres of land.<sup>24</sup>

The total assessed value of property in New London is \$1,400,000,000. When tax-exempt properties are excluded, this value is \$1,297,000,000. To capture the revenue this property generates for the town, total assessed value was used to calculate annual property tax revenue. The millage rate in New London is 15.39 mils, which yields \$19,961,000 in town property tax revenue for the town.<sup>25</sup> New London reports collecting \$19,896,474 in 2021.<sup>26</sup>

#### 2.3 Town of Sunapee

The town of Sunapee is located in Sullivan County, New Hampshire and encompasses most of the Western shore of Lake Sunapee. The town contains 21.1 square miles and also includes 4.1 square miles of water. According to 2019 census estimates, the population of Sunapee is 3,487 with the median age being 44.6 years. For residents over the age of 25, similar to the other two towns, 97.6 percent completed high school while only 41.8 percent have a bachelor's degree or higher. Of the working residents of Sunapee, 22.7 percent work in the town, while the rest commute either to another community in New Hampshire or to another state.<sup>27</sup> The town of Sunapee operates its own school district (SAU 85), which includes an elementary school and a middle/high school.<sup>28</sup>

The total assessed value of property in Sunapee is \$1,543,000,000. When tax-exempt properties are excluded, this value is \$1,488,000,000. To capture the revenue this property generates for the town, total assessed value was used to calculate annual property tax revenue. The millage rate in Sunapee is 13.63 mils, which yields \$20,281,000 in town property tax revenue for the town.<sup>29</sup> Sunapee reports collecting \$19,945,804 in 2021.<sup>30</sup>

## **3 VALUE-ADDED ANALYSIS**

Not all of the property value in the towns surrounding Lake Sunapee may be attributed to the lake itself. After all, even properties in towns that do not border a lake have value. Therefore, the research team conducted an analysis of the proximity value driven by proximity to the lake. By controlling for potentially confounding variables and employing a polynomial regression design, the research group found that property values fall by up to \$168,000 per kilometer of distance from the lake. The following section presents the construction of data and methodology used for this analysis and discusses the result in more depth.

To use property values in determining the value of Lake Sunapee itself, one must calculate the "lake premium," or the share of a property's value driven by proximity to the lake (i.e., the "value added" by the lake). In other words, one must determine what the value of homes near the lake would be *but for* the existence of the lake and compare property values under this counterfactual to the actual, observed (i.e., assessed) property value. This is a difficult task, since parcel values are determined by numerous factors including but not limited to the quality and grade of the land; the size and quality of developments on the land; the proximity of the parcel to natural resources; and the quality and quantity of town services available to residents including schools, parks, police, and fire protection. These variables change by town, by neighborhood, and even by parcel. Therefore, it is difficult to know what the value of each property would be if all variables remained constant, but the lake was removed.

Econometric tools can help to reduce problems of endogeneity and causality in settings where only observational data are available, like this one. Specifically, controlled regressions can help to remove "omitted variable bias" by correcting for obvious confounders. In this case, it would be inappropriate to simply establish a correlation between proximity to the lake and property value. Though proximity drives value, it is also likely the case that many large, new homes are built on its edge. In that case, part of the inflated property of waterfront homes would be coming from house size and quality. Since those attributes exist in all large, new homes, their effect on property value cannot be attributed to the lake.

To address this issue, the assessment data on individual properties were used in conjunction with novel techniques to geolocate individual properties and measure precise distances to a polygon representation of Lake Sunapee in geodetic space. First, the surveying data described earlier were augmented using geocoding, whereby researchers used an online tool (the OpenCage Geocoding API) to associate each address in the three towns with the appropriate latitude and longitude.<sup>31</sup> Then, using a polygon approximation of the perimeter of the lake, the distance from each property to the nearest waterfront of Lake Sunapee was calculated (straight-line or "as the crow flies" distances were used).

With this dataset constructed, a regression of the following specification was run:

taxable value = 
$$\beta_0$$
 +  $\beta_1$ (distance) +  $\beta_2$ (distance<sup>2</sup>) +  $\beta_3 X_c$  +  $\epsilon$ 

In this equation, distance is included in both first- and second-order forms. This specification allows for distance-variant effects; put simply, the value of proximity to the lake likely depends on *how* far a property is from the lake, so including the squared term allows the magnitude of the value effect to vary over space. The final component in the equation is a vector of discrete (or "dummy") and continuous control variables; in this case, the controls used were as follows: waterfront (dummy), land use type (dummies), area (acres), bedroom count, and bathroom count.

The intuitive causal logic behind this approach is as follows. By comparing parcels within-town, many determinants of property value were already accounted for in the model. That is, parcels within the same town may be thought of as uniform in terms of school access, police/fire protection, state and

local taxation rates, proximity to major cities, etc. Remaining determinants of parcel value were controlled-for: the effect of plot size and house size were captured by acreage and bedroom/bathroom count, respectively, and waterfront access was isolated as its own variable since access is likely to have a dramatic effect on value. The land use dummies allow for segmentation by property type, as explained later in this paper. Results for all three towns are shown below. The results of interest are reported in the first two rows. The negative coefficient on distance means that, as one would expect, distance from the lake diminishes property values. However, also as one would expect, the positive coefficient on the polynomial term indicates that this effect diminishes with distance. Therefore, the "per kilometer out is a loss of \$162,939 - 37,998x. So, at one kilometer out, an additional kilometer would "cost" ~\$125,000 "per kilometer." At the two-kilometer radius, moving further from the lake diminishes property values by around \$90,000. Also of note is the high value of waterfront property: \$797,917.

	(1)	(2)
Parcel Taxable Value		
Distance	-163,819***	-162,939***
	(9,880)	(9,982)
Distance^2	18,908***	18,999***
	(1,329)	(1,342)
Waterfront (=1)	762,616***	797,917***
	(16,685)	(16,763)
Acreage	2,181***	2,147***
1999 (199 <del>7)</del> (1994) 1999 - National States, and an ann	(242.0)	(244.4)
Bedrooms if Residential	9,133	
	(7,515)	
Bathrooms if Residential	293,675***	
	(8,388)	
Newbury (=1)	134,708***	25,149
	(16,889)	(16,466)
New London (=1)	76,020***	55,217***
	(20,521)	(20,642)
Utility (=1)	193,972***	-174,310***
	(53,776)	(52,854)
Exempt (=1)	1.006e+06***	606,035***
	(44,001)	(42,328)
Commercial/Ind. (=1)	803,080***	207,519***
	(41,313)	(38,906)
Bathrooms Beyond 2nd		152,202***
		(4,347)
Beds Beyond 4th		26,314***
		(4,515)
Constant	-145,441***	307,801***
	(22,189)	(15,080)
Observations	7,641	7,641
R-squared	0.479	0.469

Table 2 - Regression analysis demonstrates that an additional kilometer of distance from the lake is associated with a loss of up to \$163,000.

The effect of diminution over distance is useful in contextualizing the property value statistics quoted in the Property Values section. By the equation in the previous paragraph, the lake would cease to add value at a radius of about 4 kilometers. Further polynomial terms could be added to show that the effect is more of a smooth decrease, and that the lake continues to add marginal amounts of value even far away. Even without this level of analysis, however, it is reasonable to attribute a large share of property values to the lake. Specifically, this analysis suggests that waterfront access is worth \$797,917.

An additional analysis provides an overall estimate of the share of property value driven by the lake. From the regression, we find that taxable value can be estimated as:

taxable value = 
$$\beta_0$$
 + - 162,939(distance) + 18,999(distance<sup>2</sup>) +  $\beta_3 X_c$  +  $\epsilon$ 

The first derivative of this equation with respect to distance is roughly:

#### $\partial(taxable value)/\partial(distance) = -162,939 + 38,000(distance)$

From this equation, it is apparent that the effect of additional distance on value reaches zero at some point after four kilometers of distance from the lake. Therefore, a simple simulation can provide an estimate of the share of overall parcel value driven by proximity. Assuming that all parcels within four kilometers of the lake derive some value from the lake, one can simulate "relocating" these lake-proximal parcels to the four-kilometer boundary and generate estimates for how much value would be lost in the move. The following simulation examines the *cumulative value loss* that properties would undergo in such a relocation.

The simulated cumulative value loss is estimated for four "bands" of properties: parcels  $\sim 0$  km away from the lake,  $\sim 1$  km away,  $\sim 2$  km away, and  $\sim 3$  km away. It is generated by evaluating the following integral, where x can have values 0, 1, 2 or 3:

$$\int_{x}^{4} [-162,939 + 38,000(distance)] \,\partial(distance)$$

Naturally, the cumulative value loss imposed by moving these parcels to the 4 km boundary decreases as one moves further from the lake. Below, the result of these regressions is reported as cumulative value loss, and taken as a share of the mean parcel value at the corresponding distance from the lake (which is taken as the mean of all parcels within 0.5 km of the boundary, e.g., the average parcel value at 3 km is the average from 2.5km – 3.5 km).

km From Lake	Mean value	Lake Share (Cumulative Loss)	% Value from Lake Proximity
0	810,660	347,756	43
1	358,661	203,817	57
2	311,781	97,878	31
3	312,664	29,939	10
Average %			35

Table 3 – On average, proximity to the lake drives 35% of parcel value.

As shown in the resulting table above, by estimating the cumulative loss of value from moving a property beyond the immediate circumference of the lake, this simulation reveals that 35 percent of the value of parcels in the vicinity of the lake derives from that proximity.

#### 3.1 Limitations

Data quality was mixed. Not all observations had values for all variables, so many observations were 'dropped' in regression. Additionally, the generation of distances from the lake was limited by an unfortunate coincidence. To calculate distances between geodetic distances (i.e., distances between places on Earth's spherical surface), latitude/longitude pairs must be projected into an alternative coordinate system. The research team followed standard practice and used the UTM coordinate system, which essentially treats small portions of the surface of Earth as flat, 2D surfaces, allowing for distance calculations. However, there happens to be a boundary between UTM zones at the meridian 72°W, which runs directly through New London. UTM zones are not compatible with one another, so measuring across them is challenging. Therefore, points in eastern New London were ignored for the purposes of this analysis. This should not substantially affect the result, as thousands of points across other towns were used to elucidate the effect of proximity. This exclusion would only tend to impact the estimated effect if distance modulates value uniquely in eastern New London as opposed to the west side and in other towns.

### **4 BUSINESS REVENUES**

In addition to property value and the tax revenue generated from that property value, the other major component in the total value of Lake Sunapee is the money generated from business revenue connected to the lake. The primary source of lake-related business revenue for Lake Sunapee comes from tourism. In addition to the tourism revenue, we have as added in additional revenue from boating

and fishing that are not included in the tourism revenue but should be counted as it is money generated as a result of the lake. Due to time constraints, the research team was unable to collect data from every individual business. Instead, we have compiled totals based on available data on business revenues in the region. The total category value for tourism, boating, and fishing revenue is \$120,918,168.

#### 4.1 Tourism Revenue

A major part of the value of Lake Sunapee is the revenue generated by businesses in Sunapee, Newbury, and New London. As in the property value analysis, the primary goal was to capture the value added by the lake, which is why we chose to use tourism revenue data. The piece that is missing from this analysis is the business revenue that comes from year-round residents that chose to live in Sunapee, Newbury, or New London to be near Lake Sunapee that is missed in the tourism data. Without having the time to survey the year-round population on their primary motivations for moving to Sunapee, Newbury, or New London is it nearly impossible to understand the revenue that population causes businesses to generate that is not being included in the tourism data. However, given the small size of the three towns bordering Lake Sunapee and the large number of residents that commute out of those towns to work, it is likely that most of the spending that would not be included in tourism revenue is occurring in nearby larger towns. The tourism data is also fairly comprehensive and captures major spending that occurs in the three towns on the lake.

The tourism data we used in our analysis comes from Dean Runyan, an economic analysis firm contracted by New Hampshire Tourism. The tourism data includes revenues from four sources: food service; retail, accommodations; local transportation and gas; arts, entertainment, and recreation; food stores; and visitor air transportation. Dean Runyan provides regional calculations of tourism revenue in New Hampshire. Lake Sunapee is located within the Dartmouth-Lake Sunapee Region of New Hampshire but does not account for the entirety of the regional tourism revenue. To determine the percentage of hotels in the region that are located in Sunapee, Newbury, and New London. We chose this method because accommodations are the third largest category of spending on tourism in the Dartmouth-Lake Sunapee region. Retail sales and food service are the first two biggest sources of revenue in the region, but the geographic data is not as readily available.<sup>32</sup> We found there to be 50 total currently operating hotels, inns, and bed and breakfasts in the Dartmouth-Lake Sunapee region, 16 of which (or 32 percent) are located within our three towns of interest. We then extrapolated and took 32 percent of the total tourism revenue from the region. In total the revenue brought in from tourism at Lake Sunapee totals to approximately \$120,640,000 annually.



#### Dartmouth-Lake Sunapee Region All Visitor Spending

All Seasons

Figure 1 – Trend in tourism spending for the entire region. The notable drop in 2020 can be attributed to the COVID-19 pandemic.

#### 4.2 Boating and Fishing Revenue

Boating and fishing are popular activities on Lake Sunapee. Because the tourism data for this area encompasses recreational revenue, we are not separately counting rentals. However, the value of privately owned boats should be considered. Boats are also stored at harbors, docks, and moorings. Lake Sunapee has five boat ramps that are open to the public (one of which is privately operated) at the following locations: Sunapee Harbor, Georges Mills, Mount Sunapee State Park, Burkehaven, and Blodgett Landing.<sup>33</sup> Data on boat registration and fishing licenses is available for the state as a whole, but not for individual waterways. There are approximately 130,000 lake acres in New Hampshire.<sup>34</sup> Lake Sunapee has an area of 4,155 acres.<sup>35</sup> This means Sunapee makes up 3.2 percent of lake surface area in New Hampshire. We use this figure to calculate a percentage of total boat registrations and license sales. Boat registration fees depend on vessel length and range from 24 to 92 dollars, plus a minimum additional \$15.50 in fees.<sup>36</sup> There are 101,312 boats registered in New Hampshire.<sup>37</sup> Even if we assume minimum length, this generates a value of \$128,058 annually. The revenue from these fees is one way that Lake Sunapee benefits state income.

Fishing license prices in New Hampshire vary based on duration of license and in-state versus out-ofstate residency. In 2018, 156,481 fishing licenses were sold in New Hampshire—32 percent of them by tourists and 68 percent by residents.<sup>38</sup> Using the same 3.2 percent figure from above, we estimate that 5,007 licenses can be attributed to Lake Sunapee. The Lake Winnipesaukee valuation study developed a methodology for estimating license cost without data on type of license sold. We follow this methodology that establishes an average of \$35.25 (mean price across all types) for non-residents and \$27.50 for residents.<sup>39</sup> Altogether, this attributes \$150,110 in fishing license revenue from Lake Sunapee.

This approach is imperfect and has significant limitations, but is the best option given the available data. It fails to address boating and fishing in rivers and the ocean which would point to it being high. However, some waterways are more desirable for fishing and boating than others. Lake Sunapee is one such waterway which may actually make this an underestimate. Approaches are further complicated by the fact that fishing licenses and boat registrations can be used on many different waterways over the course of a single year.

## **5 WATER RESOURCES AND INFRASTRUCTURE**

Lake Sunapee has a dam and three lighthouses. It is also part of the public water supply. The dam and lighthouses are worth \$355,151, though, as explained below, this is certainly a low estimate. The public water supply is worth \$530,322. This brings the category total to \$885,473.

#### 5.1 Lake Sunapee Dam

The Sunapee Lake Dam is only 14 feet high but vital to the area.<sup>40</sup> It is located on the west end of Sunapee Harbor and the Sugar River flows out the bottom of the dam. Its current primary purposes are flood control and maintaining lake levels for recreation. The dam is operated by the New Hampshire Dam Bureau.<sup>41</sup> It has been classified as a "significant" hazard dam.<sup>42</sup> This does not mean the dam is at a high risk of failure, it is instead a function of how consequential failure could be to downstream communities. The risk of failure has been deemed as low/medium with an estimated cost of \$317,027 in resulting property damages.<sup>43</sup> However, it is difficult to truly quantify the value of the dam. One could argue, it is the value of the entire lake because the lake would cease to exist without it. This is probably extreme but highlights the importance of the structure. We opt to use the amount associated with cleanup of dam failure.

#### 5.2 Lighthouses

There are three lighthouses on Lake Sunapee: Burkehaven, Loon Island, and Herrick Cove.<sup>44</sup> This makes up 60 percent of lighthouses in New Hampshire. Though still operational, they were constructed when steamship travel was popular on the lake and carry immense historic value. Some

have been reconstructed in the intervening years. Research showed a construction cost of the Loon Island Lighthouse.<sup>45</sup> We assume this to be comparable across all three for a total monetary value of \$38,124; this number has been adjusted for inflation. Because the lighthouses were built in the late 19th century, inflation may not be fully representative of current build costs.

#### 5.3 Water Supply

Lake Sunapee is a vital drinking water source and part of a community water supply system that services nearly 2,100 residents.<sup>46</sup> Assuming each resident consumes the water of an average American, 62,853,000 gallons are used annually.<sup>47</sup> The town of Sunapee Charges \$135 per 16,000 gallons of water.<sup>48</sup> This makes the annual water supply worth \$530,322.

## **6** CONCLUSION

Lake Sunapee is critical to regional and state economies. It is a popular year-round destination for recreationalists from overnight vacationers to day-trippers to second homeowners. It is also an important clean water source for the local community. This report attempts to quantify the value of Lake Sunapee in the towns of Newbury, New London, and Sunapee to the state of New Hampshire. This number is an aggregate of property values and tax revenues, business revenue, and water-related infrastructure. In total, we found Lake Sunapee to be valued at \$4,311,529,529.

## **7 REFERENCES**

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