

# Petersburg Borough Waterfront Master Plan: Financial Considerations

*Prepared for*

**Petersburg Borough**

**November 2015**

*Prepared by*



**Northern  
Economics**

*In partnership with*

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## The Headlines

Petersburg Borough is undergoing an update of its Comprehensive Plan and creation of a Waterfront Master Plan. This report, a component of the Waterfront Master Plan, discusses financial considerations for managing existing port and harbor facilities as well as any new facilities that are brought online as part of the master plan. It analyzes Petersburg's port and harbor facilities using a life cycle cost analysis approach and provides recommendations for ensuring financial sustainability.

**Petersburg is doing a good job of covering its costs with a combination of port and harbor revenues as well as a share of the fish taxes received from the borough.**

The analysis finds that the existing port and harbor facilities in Petersburg are funded at approximately 90 percent of their full costs, from construction to operations and maintenance to replacement, based on a 50-year replacement cycle for major assets.

**An across-the-board increase of 12 percent would “balance” the port and harbors budget.**

An overall rate increase of 12 percent is needed to bring revenues in line with total life-cycle costs, though annual inflation adjustments will be needed to maintain this financial position. It is recommended that the Port and Harbor Department establish a policy of automatic, annual, inflation-based rate increases to ensure that revenues keep up with changes in the cost of operating and maintaining its facilities.

**The borough needs to save for the repair and replacement the vital facilities – existing and new. A gradual annual rate increase of an additional two percent over the next 10 years would provide additional revenues to fund a repair/replacement fund.**

Port and harbor facilities for the most part generate sufficient revenues to replace major facilities every 50 years. However, it would be prudent to implement an additional rate increase to ensure financial stability and strength and to grow a replacement fund for port and harbor facilities. Spreading this increase over time would reduce the burden placed on users, such as by implementing an annual rate increase of the inflation rate plus two percent for the next ten years, for example. This would provide additional revenues to allow the Port and Harbor Department to grow a replacement fund balance to a recommended balance of \$4 million (in 2015 dollars) over the long term. This replacement fund would cover a substantial portion of the cost of large capital projects, with the assumption that the remainder of the cost would be covered from other sources.

**Facilities and acquisitions to support the Waterfront Master Plan will require more than \$10 million, funds that could come from a mix of public investment and partnerships with the private sector.**

In addition to the existing port and harbor facilities, the Waterfront Master Plan recommends a number of new facilities and acquisitions that are expected to require more than \$10 million. These facilities could be developed with a mixture of public investment and public-private partnerships. As new facilities are constructed, the Port and Harbor Department should conduct a life cycle cost analysis for each facility to ensure that appropriate rates are put in place for revenues to cover the life cycle costs.



# 1 Introduction and Overview of the Petersburg Borough Port and Harbor System

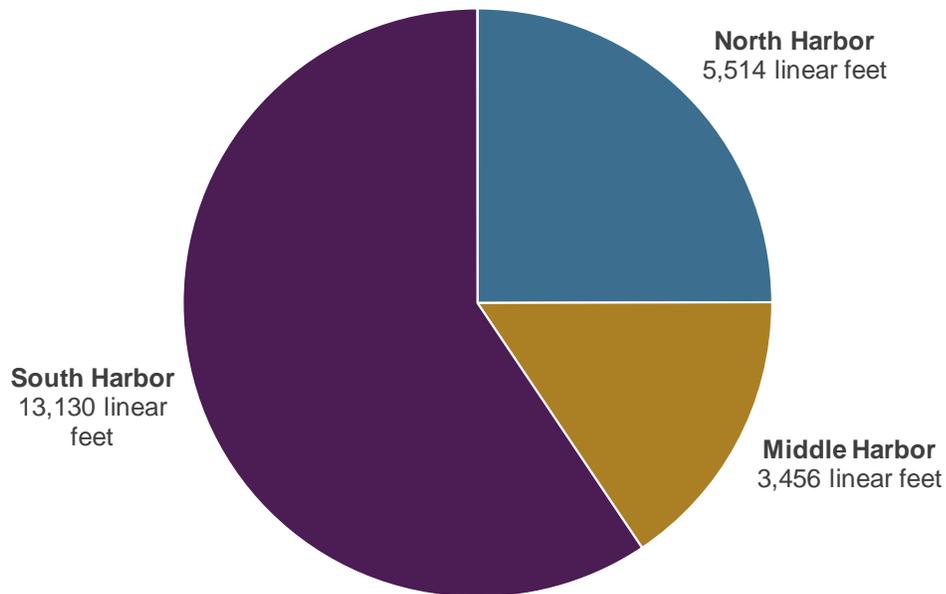
Petersburg Borough is undergoing an update of its Comprehensive Plan and creation of a Waterfront Master Plan. This report represents a component of the Waterfront Master Plan and provides guidance on the revenues required to fund the full life cycle costs of the port and harbor facilities' operations, maintenance, and replacement needs. The cost analysis and recommendations are based on the life cycle cost approach described in Section 2.2.

This section provides an overview of the port and harbor facilities and their financial situation, along with proposed capital improvements and land acquisitions discussed in the Waterfront Master Plan. More information about facilities may be found in that plan. Section 2 presents Northern Economics' rate recommendations, as well as supporting information about the approach and other assumptions.

## 1.1 Overview of Petersburg Borough Port and Harbor

Petersburg Borough's port and harbor facilities include three harbors, multiple docks, launch facilities, a tidal grid, a harbor office, and uplands areas. The three harbors, named North Harbor, Middle Harbor, and South Harbor, provide a combined 22,100 linear feet of moorage space. Figure 1 summarizes available moorage space in the three harbors.

**Figure 1. Distribution of Moorage Space, by Harbor**



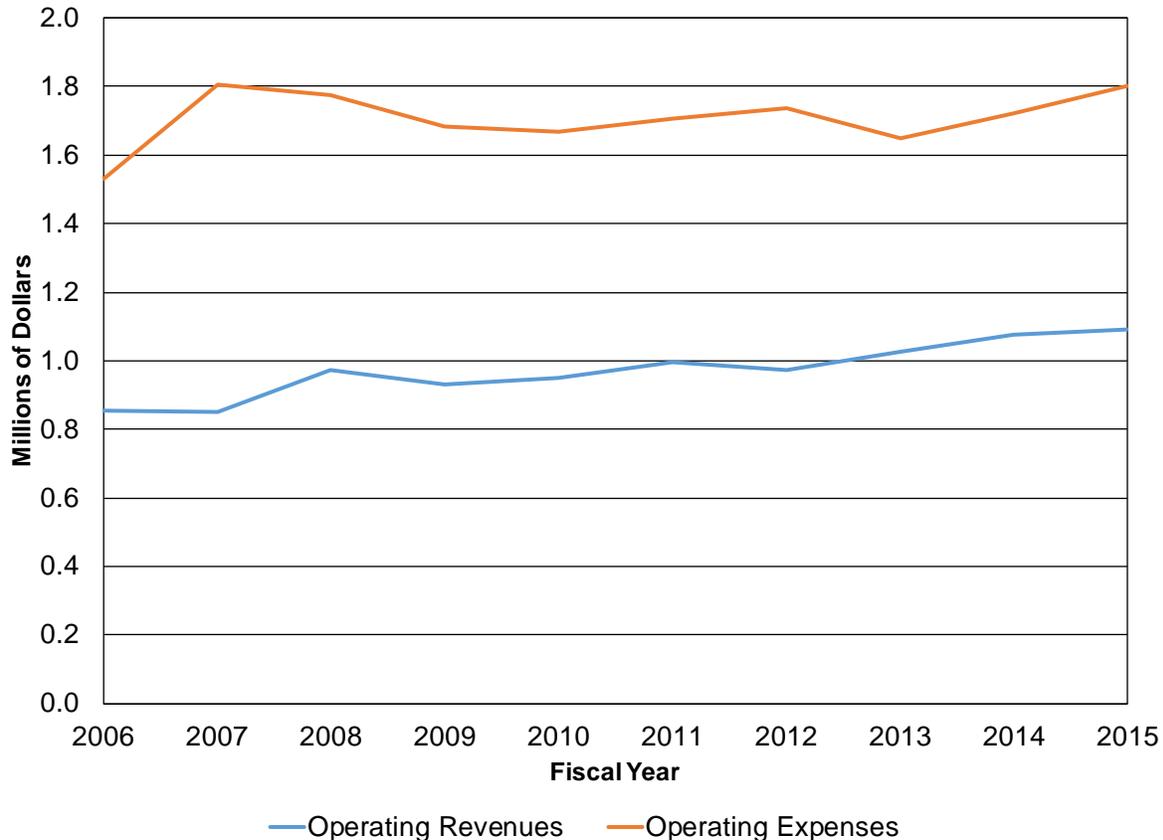
Source: Petersburg Borough Port and Harbor Department (2015) and Northern Economics, Inc. analysis

More information about the harbor and other facilities may be found in the Waterfront Master Plan.

Figure 2 summarizes the operating revenues and expenses incurred by the Petersburg Harbor/Port Facilities Fund. Operating revenues have consistently been below operating expenses, with an average

deficit of \$740,000. However, operating expenses include depreciation. Omitting depreciation expense, port and harbor facilities have maintained a small operating profit that has averaged \$60,000 over this period.

**Figure 2. Petersburg Harbor/Port Facilities Fund Operating Revenues and Expenses, Fiscal Years 2006–2015**



Source: Petersburg Borough Finance Department (2015)

Note: Information for 2015 is the approved, revised budget and includes depreciation.

More detailed information about the port and harbor facilities’ financial situation is shown in Table 1. From Fiscal Year (FY) 2006 to 2014, revenues from harbor activities averaged about \$800,000 annually and port-related revenues averaged almost \$144,000. In the two most recent fiscal years, the port and harbor have generated almost \$1.1 million annually. Non-operating revenues have fluctuated over time, due to changes in grant funding that makes up most of this category. Fish tax transfers from the borough to the harbor fund have also varied over time, but have averaged over \$500,000 in the last two fiscal years. Budgeted revenues from all sources for FY 2015 are \$1.89 million.

Operating revenues have grown 2.9 percent annually and total revenues (including grants, fish taxes, and other transfers) have grown 5.9 percent annually due to outside revenue sources. From FY 2006 to 2014, harbor-related revenues have grown 2.8 percent annually. Permanent moorage constitutes almost 73 percent of harbor revenues and has grown almost 3.5 percent annually. Port activities generate much less revenue than do the harbors, though with a much higher annual growth rate of 4.4 percent.

On the expense side, operating expenses have consistently exceeded revenues and the fund has operated at a loss in all years used in this analysis. For FY 2006 through 2014, operating expenses averaged almost \$1.7 million, with \$1.8 million budgeted for FY 2015. Operating expenses include depreciation, however, which has averaged over \$800,000 annually for FY 2006 through 2014. Omitting the non-cash depreciation expense, the fund's operating revenues have covered operating expenses every year since FY 2008. Non-operating expenses include debt service and capital costs. Current debt service will be paid off in 2021.

**Table 1. Summary of Petersburg Harbor/Port Facilities Fund Revenues and Expenses, in Thousands of Dollars, Fiscal Year 2006–2015**

Description	Fiscal Year									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	(\$1,000s)									
<b>Revenues &amp; Other Sources</b>										
Harbor Charges	734	757	807	778	771	797	802	852	915	935
Port Charges	114	83	155	142	166	144	158	172	160	151
Misc. Revenue	8	9	10	10	12	56	12	4	2	5
<b>Subtotal, Operating Revenues</b>	<b>855</b>	<b>849</b>	<b>972</b>	<b>930</b>	<b>949</b>	<b>997</b>	<b>972</b>	<b>1,028</b>	<b>1,077</b>	<b>1,091</b>
Non-operating Revenues	18	157	37	15	32	51	119	125	95	300
Transfer: Fish Tax	131	180	158	250	366	266	375	636	411	500
Transfer: Oper Trans-Har/Trust		456								
<b>Total Revenues &amp; Other Sources</b>	<b>1,004</b>	<b>1,642</b>	<b>1,168</b>	<b>1,195</b>	<b>1,346</b>	<b>1,313</b>	<b>1,466</b>	<b>1,789</b>	<b>1,582</b>	<b>1,892</b>
<b>Expenditures &amp; Other Uses</b>										
Payroll Expense	600	649	599	526	523	539	551	558	567	613
Supplies	19	31	24	26	27	44	38	34	37	38
Services & Charges	912	1,125	1,151	1,130	1,119	1,123	1,150	1,056	1,119	1,152
<b>Subtotal, Operating Expenses</b>	<b>1,531</b>	<b>1,805</b>	<b>1,774</b>	<b>1,682</b>	<b>1,669</b>	<b>1,705</b>	<b>1,738</b>	<b>1,648</b>	<b>1,723</b>	<b>1,803</b>
State PERS Relief					19	38	25	49	45	49
Capital Outlays			8	5	22	175	241	1,529	153	583
Debt Service	126	121	121	120	121	121	118	120	123	118
<b>Total Expenditures &amp; Other Uses</b>	<b>1,657</b>	<b>1,925</b>	<b>1,903</b>	<b>1,807</b>	<b>1,812</b>	<b>2,002</b>	<b>2,098</b>	<b>3,297</b>	<b>1,999</b>	<b>2,553</b>
<b>Net Change in Position</b>	<b>-653</b>	<b>-284</b>	<b>-735</b>	<b>-612</b>	<b>-465</b>	<b>-689</b>	<b>-632</b>	<b>-1,508</b>	<b>-416</b>	<b>-661</b>

Source: Petersburg Borough Finance Department (2015)

Note: Information for 2015 is the approved, revised budget.

## 1.2 Planned Capital Improvements and Property Acquisitions

The Waterfront Master Plan outlines proposed facilities and property acquisitions. Those facilities and acquisitions, including major new developments such as Scow Bay, could cost in excess of \$10 million. Please see the Waterfront Master Plan for more detail about these proposed developments.

## 2 Rate Recommendations for the Petersburg Port and Harbor Facilities

This section presents Northern Economics' findings and rate recommendations for Petersburg's port and harbor facilities, followed by more detailed results, a discussion about the life cycle cost approach, planned capital projects that have been factored in to the analysis, and other assumptions.

### 2.1 Findings and Recommendations

This analysis finds that existing port and harbor facilities in Petersburg are funded at approximately 90 percent of their full life cycle costs, based on a 50-year replacement schedule for major assets. An across-the-board rate increase of 12 percent would bring revenues in line with costs. Annual inflation-based rate increases will be needed to maintain this financial position.

The Waterfront Master Plan recommends a number of new facilities and acquisitions. In order to fund these additional facilities, the Port and Harbor Department should review the cost of each facility after construction to ensure that appropriate rates are put in place for revenues to cover the life cycle costs.

Northern Economics provides the following recommendations based on this rate analysis:

**Implement automatic rate increases to account for inflation in facility operations and construction costs.** The rate increase could be tied to the Consumer Price Index-Urban (CPI-U) for Anchorage, Alaska or based on a weighted average inflation rate based on capital and operations costs. Over the past ten years, the Anchorage CPI-U has averaged an increase of 2.6 percent annually (ADOL&WD 2015). The Producer Price Index (PPI) for Port and Harbor Operations has shown 3.8 percent annual inflation over a comparable period (BLS 2015). Long-term inflation of 2.0 percent is implied by the U.S. Office of Management and Budget (OMB 2014). Given the available information for making annual rate increases, it is recommended that the Anchorage CPI be used as a basic for rate changes.

**Increase rates charged at port and harbor facilities, in addition to inflation adjustments, to strengthen financial position.** Port and harbor rates need to be increased by 12 percent to cover life-cycle costs. It would be prudent to expand this increase to strengthen the Port and Harbor Department's financial position in the event that facilities last less than the 50 years assumed in this analysis. For example, if annual rate increases of the inflation rate plus two percent were to be instituted over the course of ten years, it would provide for much greater financial stability and strength.

**Target a replacement fund balance of \$4 million (in 2015 dollars).** This amount represents the average of the capital cost requirements of any given five-year period. It would not necessarily be sufficient to construct any of the facilities over that period, but it would ensure substantial funds are available to leverage other sources of funding including matching grants or debt.

### 2.2 Analytical Approach

This rate study uses a life cycle cost analysis (LCCA) approach to evaluate the cost of operating, maintaining, and replacing Petersburg's port and harbor facilities. Conceptually, the approach finds the total cost of the facilities, expressed in today's dollars, and then estimates the annualized cost to provide a revenue target for full funding of the facilities. This revenue target represents the costs that must be covered by moorage and other revenues (recommended), subsidies from savings or other government funds (acceptable), or deferred maintenance (undesirable).

The LCCA considers full funding to consist of acquisition or construction, operations, maintenance, and replacement cost of all facilities over their useful lives. The analysis also includes the residual value of facilities so that at the end of the analysis period, any remaining value in the facilities is recognized. It is important to note that depreciation is not considered in the analysis; instead, the LCCA approach, by definition, assumes facility replacements occur over time and includes an annualized cost for these replacements. Since facility replacement costs are included and the annualized replacement cost actually exceeds the straight-line depreciable amount, depreciation does not affect the results of the model. However, Government Accounting Standards Board Statement 34 (GASB 1999) still requires public entities to recognize it in their financial statements, regardless of funding sources, presumably from the perspective of encouraging municipalities to think about asset value and replacement over time.

The LCCA's forward-looking approach uses the time value of money concept to "discount" future life cycle costs over a set period of time (2015–2064 in this analysis) to a single, net present value in 2015 dollars. That cost is then annualized to arrive at an annual portion of the harbor facilities' life cycle costs that needs to be covered by moorage and other revenues.

## 2.3 Analytical Assumptions

Due to the high-level nature of the initial planning and rate analysis efforts, a number of assumptions were used in place of detailed engineering work. Other assumptions were used as standard practice, based on available information about construction cost inflation, discount rates, and the extent to which various revenue sources are available to cover costs.

The analysis used the following assumptions:

- **Discount Rate.** The analysis uses a 1.4 percent real discount rate, based on guidance from the U.S. Office of Management and Budget (OMB 2014).
- **Capital Cost Inflation Rate.** The analysis assumes a 3.8 percent annual inflation rate for capital costs, based on the PPI for Port and Harbor Operations (BLS 2015).
- **Percent of Costs Supported by Rates.** The analysis assumes that revenues will need to cover 100 percent of operations and maintenance and 100 percent of capital costs.
- **Offsetting Revenues.** The analysis assumes that the port and harbor will continue to receive the present level of non-operating (investment income and State PERS Relief) and miscellaneous tax revenues in the future, and \$400,000 fish tax revenues annually.
- **Useful Life of Facilities.** Facilities are assumed to have a 50-year useful life and replacement schedule.
- **Major Maintenance Costs.** Major maintenance activities are assumed to take place on a regular schedule, with costs of 1.5 percent of the original capital cost every 5 years and 2.22 percent of the original capital cost every 15 years. These amounts and periods are based on a rule of thumb developed for an earlier study of a Southcentral Alaska port facility.
- **Operations Costs.** Operations costs are based on budgeted amounts for 2015 and are assumed to stay constant in real terms.

## 2.4 Analytical Results

The life cycle cost combines the purchase, construction, operations, routine and major maintenance, and replacement costs of facilities over their useful lives. This forward-looking approach uses the time value of money concept to “discount” future life cycle costs over a set period of time (2015–2064 in this analysis) to a single net present value in 2015 dollars.<sup>1</sup> That cost is then annualized over a 50-year period to arrive at an annual revenue requirement.

Based on ten years of financial information, the analysis assumes future operations and routine maintenance costs for the existing facilities will be approximately \$1.1 million annually (in 2015 dollars), exclusive of current debt obligations.

The analysis finds that the net present value of Petersburg’s existing port and harbor facilities, including major maintenance<sup>2</sup> and replacements over time, is \$20.4 million in 2015 dollars. The facilities included in the analysis are shown in Table 2.

**Table 2. Facilities Included in Life Cycle Cost Analysis**

Project Description	Total Cost (2015\$)	Construction Year	Estimated Outside Grant Funding (\$)	Estimated Cost to Borough (2015\$)
<b>Current Facilities</b>				
Drive Down Float & Ramp	9,500,000	2015	0	9,500,000
North Harbor	8,507,896	2014	4,760,000	3,747,896
Crane Dock Addition	834,189	2014	0	834,189
Fish Cleaning Float	214,590	2014	206,824	7,766
Middle Harbor	6,966,982	2006	5,000,000	1,966,982
South Harbor	14,700,000	2004	8,150,000	6,550,000
South Harbor	9,405,425	1984	8,150,000	1,255,425
Harbor Office	1,687,500	1982	0	1,687,500
Port Dock	1,937,711	2013	0	1,937,711
<b>Facility Replacement</b>				
North Harbor	8,507,896	2064	0	8,507,896
Crane Dock Addition	834,189	2064	0	834,189
Fish Cleaning Float	214,590	2064	0	214,590
Middle Harbor	6,966,982	2056	5,000,000	1,966,982
South Harbor	14,700,000	2054	8,150,000	6,550,000
South Harbor	9,405,425	2034	8,150,000	1,255,425
Harbor Office	1,687,500	2032	0	1,687,499
Port Dock	1,937,711	2063	0	1,937,711

Source: Wollen (2015) and Northern Economics, Inc. analysis

<sup>1</sup> The life cycle cost model uses a real discount rate of 1.4 percent, based on guidance from the U.S. Office of Management and Budget (OMB 2014).

<sup>2</sup> Major maintenance expenditures are assumed to be 1.5 percent of the total cost (in 2015 dollars) every five years, plus an additional 2.22 percent of the total cost every fifteen years.

Spread over a 50-year period, existing facilities have an annualized life cycle cost of \$570,000. All of these costs are expressed in real terms and 2015 dollars. Regular rate increases will be needed on an annual basis to account for inflation in these amounts.

Port and harbor facilities were budgeted to generate operating revenues of \$1.09 million in the FY 2015 budget. Fish taxes expected to be transferred from the borough, plus miscellaneous and non-operating revenues, bring estimated total revenues to over \$1.54 million, as shown in Table 3.

**Table 3. Petersburg Port and Harbor Revenues**

Revenue Item	Source of Estimate	Amount (\$)
<b>Operating Revenues</b>		
Harbor charges	FY2015 Budget	935,274
Port charges	FY2015 Budget	151,000
Miscellaneous revenue	FY2015 Budget	5,100
<b>Subtotal, Operating Revenues</b>		<b>1,091,374</b>
<b>Non-operating Expenses</b>		
Non-operating revenue (not including grants)	FY2015 Budget	49,500
Fish Tax	Estimate	400,000
<b>Subtotal, Non-operating Revenues</b>		<b>449,500</b>
<b>Total</b>		<b>1,540,874</b>

Note: Grants are not included with non-operating revenue since they are handled separately by the model.  
Source: Petersburg Borough Finance Department (2015), Wollen (2015), and Northern Economics, Inc. estimates and analysis

Life cycle costs associated with port and harbor facilities, based on nearly \$60 million of replacement, operations, and maintenance costs annualized over a 50-year period, total almost \$1.67 million, as shown in Table 4. However, if costs were annualized over a 40-year period, revenue requirements would increase to \$1.97 million.

**Table 4. Annualized Life Cycle Costs**

Cost Category	Present Value (\$)	Annualized Amount (\$)	
		50 years	40 years
Capital and Major Maintenance	20,374,253	569,343	668,685
Operations and Routine Maintenance	39,550,659	1,105,212	1,298,056
<b>Total, Existing Facilities</b>	<b>59,924,912</b>	<b>1,674,555</b>	<b>1,966,740</b>

In order to fully fund port and harbor operations, an increase of 11.7 percent to all operating revenues would be required under a 50-year period. Operating revenues would need to increase by 31.2 percent to cover costs annualized over a 40-year period. These results are shown in Table 5.

**Table 5. Required Rate Increase Calculations**

	Period Over Which to Spread Costs	
	50 Years	40 Years
Revenue requirement (\$)	1,674,555	1,966,740
Less non-operating revenues (\$)	-455,793	-535,322
Operating revenue required (\$)	1,218,762	1,431,418
Current operating revenues (\$)	1,091,374	1,091,374
Required increase in operating revenues (\$)	127,388	340,044
Required increase in operating revenues (%)	11.7	31.2

Note: Revenue requirements are calculated on an annualized basis, which results in a small increase in the non-operating revenues from the amount shown in Table 3.

### 2.4.1 Recommended Rate Increases

While revenues currently cover most of the costs based on a 50-year capital replacement cycle, it is prudent to assume a replacement cycle closer to the 40-year depreciation schedule in the event that facilities last less than 50 years or costs in the future increase faster than anticipated. Targeting an increase of 20 percent over current revenues, rather than the required 11.7 percent for a 50-year replacement cycle, plus regular increases for inflation would provide a financial buffer and allow the Port and Harbor Department to begin contributing to a replacement fund that could be used to fund major capital projects in the near term and cut back on required rate increases in the long term. This increase could be implemented over a period of several years to mitigate the effect of a single major increase.

This analysis assumes that all rates will increase on a regular basis to account for inflation. If rates are not increased to account for inflation, revenue growth will lag behind increasing costs and could lead to financial challenges when major expenditures are required to maintain and replace facilities.

There are several options for deciding on the adjustment required to account for inflation. One Alaska-specific source for measuring inflation is the Anchorage CPI-U, which measures the cost of a market basket of goods purchased by consumers. Over the last 10 years, the inflation has averaged 2.6 percent annually as measured by the Anchorage CPI-U (ADOL&WD 2015). A national estimate of inflation for ports and harbors is available through the PPI for Port and Harbor Operations, which shows average annual inflation of 3.8 percent over the 2004–2015 period (BLS 2015). Another estimate of inflation is implied by the U.S. Office of Management and Budget's guidance on discount rates; the difference between real and nominal rates of 2.0 percent for a 30-year investing horizon (OMB 2014). Given all of the options, the Anchorage CPI-U may make the most sense since it is in the middle of these values and is the only index specific to Alaska.

### 2.4.2 Target Replacement Fund Balance

The life cycle cost analysis is based on the premise that revenues received each year in excess of expenses will be deposited into an interest-bearing fund to be used when required in later years. However, given that expenses can vary substantially from year to year as a result of major maintenance or replacement projects, this replacement fund could become very large leading up to those projects.

As an alternative to maintaining a large replacement fund, the Port and Harbor Department could instead set a replacement fund target balance that would cover a substantial portion of the cost of large capital projects, with the assumption that the remainder of the cost would be covered by private

investment and public-private partnerships, state and federal grants, deferral of expenses by scheduling larger projects over multiple years, or issuance of debt.

Using estimated capital and major maintenance costs from the life cycle cost model, two methods were used to set a replacement fund target. The first method was to find the total capital cost over a rolling five-year period (e.g., 2015–2019, 2016–2020, etc.) and then take the average of these amounts. This method resulted in a target of \$4.2 million. Over the analysis period, this amount would cover at least 41 percent of projected costs in any given year.

The second method was to take the average of each year’s capital and major maintenance costs and set a fund balance of five times this amount. This method resulted in a target balance of \$3.9 million and coverage of at least 39 percent of any given year’s projected capital and major maintenance costs.

Based on these values, the Port and Harbor Department might choose to set a target replacement fund balance of \$4 million in 2015 dollars. Since this amount is based on 2015 dollars, the target balance should be updated periodically to account for inflation in construction costs. Annual increases in this amount, using an assumed inflation rate between 2.6 percent and 3.8 percent, should be sufficient for planning purposes, though it is recommended that a qualified engineer or cost estimator provide updated capital cost estimates on a periodic basis to ensure the target balance is appropriate.

### **2.4.3 Revenue Requirements for New Facilities**

This analysis has focused on the life cycle cost of existing facilities. However, similar analyses should be conducted for new facilities proposed in the Waterfront Master Plan as they are developed. Those facilities and land acquisitions are estimated to have a total cost in excess of \$10 million.

For planning purposes, each \$1 million of capital spending on an asset with a 50-year life will contribute about \$32,000 of total life-cycle cost. This includes about \$28,000 for replacement (88 percent of the annualized amount) and \$4,000 for major maintenance (about 12 percent of the annualized amount).

## **2.5 Comparison of Rates with Other Southeast Alaska Harbors**

Table 6 presents a comparison of the current and proposed rates in Petersburg with other communities in Southeast Alaska. The table shows the annual rate per linear foot for vessels of 20 to 70-feet in length, in 10-foot increments. In addition to showing the current rates in nearby harbors, the table includes the rates that Sitka would be charging if the 2012 Harbor Master Plan rate recommendation had been implemented fully, not adjusting for inflation.

Petersburg’s rates are generally lower than Juneau’s but higher than other communities. A rate increase of 11.7 percent would place Petersburg higher than other communities for all size classes and a larger increase of 20 percent would place Petersburg’s rates higher than those currently charged in other harbors with the exception of Statter Harbor in Juneau. However, if the 20 percent rate increase were to occur over time, it is likely that other harbors would have raised their rates as well.

**Table 6. Rate Comparison of Permanent Moorage in Southeast Alaska Harbors**

Community	Notes	Vessel Length (Feet)					
		20	30	40	50	60	70
		Permanent Annual Moorage Rate per Foot (\$)					
Haines		20.00	20.00	26.00	26.00	26.00	26.00
Juneau	Statter Harbor	81.51	81.51	81.51	81.51	81.51	81.51
	Juneau Douglas, Harris, and Aurora Harbors	48.45	48.45	48.45	48.45	48.45	48.45
Ketchikan	Inside City Limits	26.30	26.30	26.30	26.30	26.30	26.30
	Outside City Limits	31.58	31.58	31.58	31.58	31.58	31.58
Wrangell		25.00	25.00	25.00	25.00	25.00	25.00
Petersburg	Current Rates	34.00	34.00	38.00	44.00	50.00	50.00
	With 11.7 Percent Increase	37.98	37.98	42.45	49.15	55.85	55.85
	With 20 Percent Increase	40.80	40.80	45.60	52.80	60.00	60.00
Sitka	Current Rates	26.88	35.88	35.88	35.88	35.88	35.88
	2012 Harbor Master Plan Recommendation	56.76	56.76	56.76	56.76	56.76	56.76

Source: Haines Borough (2013), City and Borough of Juneau (2015), City of Ketchikan (2014), City and Borough of Wrangell (2014), City and Borough of Sitka (2015), and Northern Economics, Inc. analysis

## 2.6 Sensitivity of Results to Changes in Assumptions

The results of this analysis are based on the assumptions presented above. This section discusses the effect of changing selected assumptions on the required revenue increase.

Table 7 shows the sensitivity of the required revenue increase to changes in the portion of capital and major maintenance costs covered by the Port and Harbor Department each year. Two sets of results are provided, based on costs annualized over a 50-year period and a 40-year period. Annualized over a 50-year period, revenues are sufficient to cover operations and routine maintenance costs, plus about 78 percent of capital and major maintenance costs. However, when annualized over a 40-year period, revenues can only cover about 49 percent of capital and major maintenance costs. The recommended rate increase of 20 percent (in addition to annual inflation adjustments) would allow revenues to cover all capital and major maintenance costs when annualized over 50 years, and about 82 percent of those costs annualized over a 40-year period.

**Table 7. Sensitivity of Required Revenue Increase to Changes in the Portion of Capital and Major Maintenance Costs Supported by Rates**

Portion of Capital and Major Maintenance Costs Support by Rates (Percent of Total)	Required Revenue Increase (Percent of Operating Revenues)	
	Annualized Over 50 Years	Annualized Over 40 Years
0	-40.5	-30.1
20	-30.1	-17.9
40	-19.6	-5.6
60	-9.2	6.6
80	1.2	18.9
100	11.7	31.2

Table 8 shows the sensitivity of the required revenue increase to changes in the amount of fish taxes received from the borough each year. The analysis assumes \$400,000 of fish taxes will be available to offset port and harbor expenses each year. This amount is sufficient to cover 90 percent of costs when annualized over 50 years and about 76 percent of costs when annualized over 40 years. However, without fish tax revenues available to offset costs, other revenues could only cover two-thirds of total costs when annualized over 50 years and 57 percent of costs if annualized over 40 years. Likewise, an increase in fish tax transfer from the borough would help the Port and Harbor Department’s financial situation, though doing so would reduce the borough’s funding for its own purposes.

**Table 8. Sensitivity of Required Revenue Increase to Changes in Annual Fish Tax Transfers**

Annual Fish Tax Transfers to Port and Harbor Department	Required Revenue Increase (Percent of Operating Revenues)	
	Annualized Over 50 Years	Annualized Over 40 Years
0	48.8	74.8
100,000	39.5	63.9
200,000	30.3	53.0
300,000	21.0	42.1
400,000	11.7	31.2

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