

Analysis of Economic Harbor Rates

Revised Draft

Prepared for the

City of Whittier

February 2010

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Please cite as: Northern Economics, Inc. Analysis of Economic Harbor Rates. Prepared for the City of Whittier. February 2010.

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Abbreviations

ADOT&PF	Alaska Department of Transportation and Public Facilities
AMBBA	Alaska Municipal Bond Bank Authority
CAGR	Compound Annual Growth Rate
CPI / CPI-U	Consumer Price Index-Urban
LOA	Length overall
O&M	Operations and maintenance
WMC	Whittier Municipal Code

1 Introduction

Whittier is an extremely popular point of entry to Prince William Sound for vessel owners from Anchorage and elsewhere in Southcentral Alaska. It is located much closer to Anchorage than the other ports on the Kenai Peninsula, resulting in a fully occupied small boat harbor and a waiting list with more than 450 vessels. While this popularity is beneficial to the community in terms of generating tourism and visitor numbers, the rates charged in the harbor are insufficient to cover costs. As a result, high utilization of the harbor actually has negative consequences on the harbor infrastructure and other public facilities. This situation is not unique to Whittier; many communities in Alaska have struggled with the low rates charged at their harbors and the resulting challenges of maintaining—much less replacing—their facilities.

1.1 Purpose of the Study

The purpose of this study is to provide an objective assessment of the rates necessary for the harbor to be self-supporting and sustainable. Beyond covering basic operating costs, this report looks at rates that will cover necessary maintenance and the eventual capital replacement of facilities that serve the vessel owner community. The information in this report will support the city in issuing a revenue bond and applying for the Municipal Harbor Facility Grant Program for planned harbor improvements. These financing and funding sources will require demonstration of financial sustainability and a plan to achieve sustainability through rate changes and other means. This report and model provide the information needed to make these decisions.

This report evaluates the true cost of providing marine access and recommends harbor rates that cover that cost. Rate setting, once economic considerations have been taken into account, is a policy decision. The rate recommendations provide a target, but ultimately the rates the city chooses will need to consider other policy and political issues. The benefit of activity at a harbor is not restricted to the harbor; the report provides some guidance on the other impacts the harbor might have on the community, including its infrastructure and finances, to help with the rate setting decision.

1.2 Background

The Alaska Department of Transportation and Public Facilities (ADOT&PF) constructed the Whittier Small Boat Harbor in 1972-73 using a statewide general obligation bond that funded several similar projects. The harbor sits on land owned by the Alaska Railroad Corporation, which was leased to the state and is managed by the City of Whittier through an agreement with the State of Alaska (City of Whittier, 2001). The construction of the harbor occurred during a period when there was substantial financial support available from the state government for infrastructure projects.

There is still financial support available from the state and other sources, but the conditions for receiving support have become more rigorous and the funds that are available will likely not be enough to pay for the entire cost of improving the harbor. Granting organizations expect the infrastructure they fund to be financially self-sustaining, putting the onus on municipalities to create business plans to demonstrate sustainability. For example, the Municipal Harbor Facility Grant Program places a “source of revenues for facility replacement” on the top of their scoring matrix and gives the category a weight of five out of thirty-six (ADOT&PF, 2009).

The city has operated the harbor with rates set to cover the cost of operations of the harbor but not the full maintenance and replacement costs. The result has been very low moorage rates because the capital cost was covered by previous grants. In order to obtain funding for harbor improvements, the

harbor will need to set rates that cover the cost of the proposed harbor improvements and allow for capital to be placed in a sinking fund to replace the improvements at the end of their life.

The cost of replacement and payments into a sinking fund could be financially infeasible, if it were not for the grants that are available. Grants could cover nearly half of the cost of the harbor improvements, allowing the harbor to repay the debt needed to finance the improvements and fund half of the replacement costs during the infrastructure's life cycle. This pattern would be financially sustainable since the harbor would then be poised to repeat the process of financing the next round of major repairs and replacements with a combination of savings and debt.

1.3 Overview of Harbor Operations

The Whittier Small Boat Harbor offers vessel launch, moorage, and marine-related services near to Prince William Sound. The harbor has 350 slips that can accommodate vessels up to 54 ft on an annual or transient basis. The harbor has a 30-ton travel lift designed for vessels between 22 and 45 ft in length. For vessels on trailers, there is a launch ramp and a private parking facility nearby. The harbor also offers limited dry storage, showers, and basic supplies and services such as photocopying and faxing.

Moorage is the most significant revenue source for the harbor, accounting for 75 percent of total revenue in 2008. Moorage is sold either on an annual basis or a transient basis for days or months. Annual moorage was \$58.50 per linear foot per year and accounted for 40 percent of revenue in 2008. Transient Moorage was \$1.00 per linear foot per day and accounted for 35 percent of revenue in 2008. There were 254 slips available for annual passes, with the remaining 100 slips available for transient moorage.

Boat launch fees contributed seven percent of total revenue in 2008. Fees for a round trip vessel launch were \$20 and \$120 for a seasonal launch pass in 2008. Lift fees were about two percent of revenue in 2008. The harbor charges \$269.50 per hour for a normal vessel lift.

Moorage and vessel lift fees are the only substantial revenue sources for the harbor. The remaining harbor revenue line items represent eight percent of the harbor's total revenue. These line items include wharfage, user fees for charter vessel guests, and the service contract with Alyeska.

2 Operations Analysis

The analysis of harbor operations is based primarily on recent financial statements. This analysis describes the harbor's operations, usage, and design, including the proposed improvements. The section also describes available funding sources for the proposed harbor improvements and discusses changes in the Anchorage Consumer Price Index (CPI). The result of this section is an understanding of the factors that form the basis of the rate recommendations provided in Section 3.

2.1 Data Sources

The main data sources for this analysis are usage, waiting list, financial statements, and other operations data provided by the City of Whittier. Engineering drawings for the proposed harbor improvements were developed by PND Engineers. Tunnel traffic counts are from the ADOT&PF. The Anchorage CPI is calculated by the U.S. Bureau of Labor Statistics.

2.2 Analysis of Present Operational Data

The harbor typically has full occupancy of its slips. At the time of this report, only 4 slips were open and 247 were rented. Table 1 shows the distribution of the vessels in the harbor. As the table indicates, there were no vessels under 24 ft and the longest vessel was 60 ft. Of the 247 vessels, 179 were listed as pleasure and 14 were listed as charter, though many had no description and a few had other descriptions such as fishing. This indicates that the majority use the harbor for mooring recreational vessels.

Table 1. Berth Occupancy in Whittier Harbor, 2009

Vessel Length	Number of Vessels
24 to 29ft	123
30 to 39ft	73
40 to 49ft	41
50 to 59ft	9
60 to 70ft	2

Source: Whittier Boat Harbor, 2009

The harbor maintains waiting lists for berths based on berth length. Applicants pay \$40 per year to maintain their position on the waiting list. Table 2 shows the number of vessels on the waiting list and the year of the oldest application still waiting for a berth. The turnover and demand is greatest for 28 ft berths. Many vessel owners have been waiting for berths since 1996 or 1997 for all other berth lengths and paying a fee each year to do so. The waiting list for berths over 60 ft exists only to gauge demand. The harbor does not have berths over 60 ft and does not charge to be on this wait list.

Table 2. Berth Waiting List, August 2009

Berth Length (feet)	Number Waiting	Year of Oldest Application
28	108	2004
34	102	1997
37	72	1996
45	91	1996
54	36	1997
60	10	1996
Over 60	44	1995
Total	463	1995

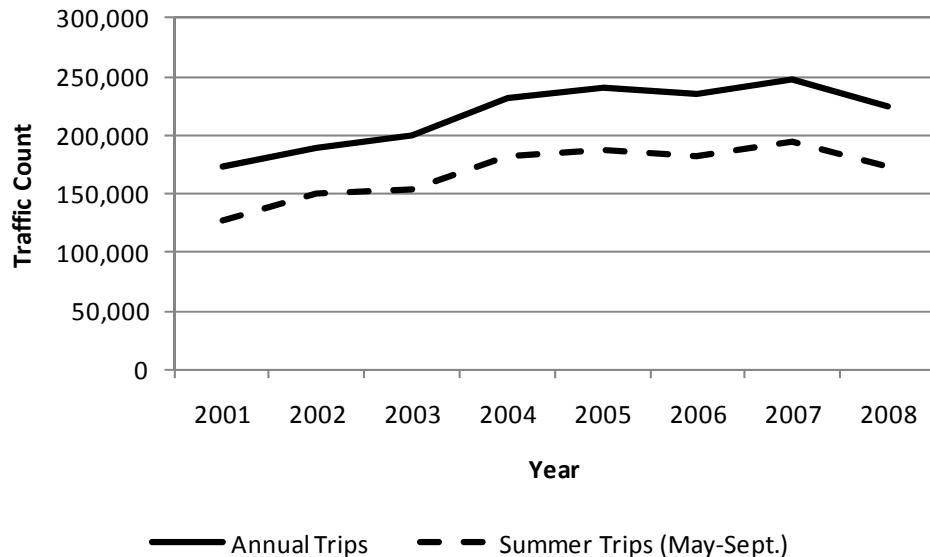
Source: Whittier Small Boat Harbor

Note: Those waiting for the over 60 ft berths do not pay fees because there are no berths that size available.

The waiting list shows strong demand for longer vessels and a lack of supply in the market for berths over 60 feet. There is demand for additional 28-foot berths as evidenced by the number of people on the wait list. The fact that the wait list for 28-foot berths only goes back to 2004 could mean that people waiting have been able to get berths or it could mean that those waiting have not been able to get berths and removed themselves from the list. In either case, the fact that the oldest application on the 28-foot waiting list is only five years old demonstrates a more competitive market for berths in this size class.

2.3 Anton Anderson Memorial Tunnel

The Anton Anderson Memorial Tunnel is a 2.5-mile tunnel connecting Whittier to the Seward Highway and the road system by road and rail. The military built the tunnel during World War II for a railroad line. The State of Alaska converted the tunnel in 2000 to accommodate road vehicles. The conversion of the tunnel has allowed vessel owners from Anchorage to trailer their boats to Prince William Sound. Starting in 2004, boaters were responsible for a significant increase in traffic (ADOT&PF, 2010). Figure 1 shows the number of annual and summer (May through September) trips through the tunnel.

Figure 1. Annual and Summer Tunnel Traffic Counts by year

Source: ADOT&PF, 2010

2.4 Analysis of City and Harbor Financial Information

The analysis of the harbor is based primarily on the City of Whittier's financial statements. The City of Whittier's fiscal year matches the calendar year and has done so since 2003. Prior to 2003, the fiscal year ran from July to June, with a six-month transition period during the months of July through December 2002.

The primary analysis of revenue and expenditure was the calculation of the Compound Annual Growth Rate (CAGR) for the line items. The CAGR is a calculation of the annualized percentage change in an item over a time period. The following is a discussion of the harbor's revenue and expenditures over the past five years.

As discussed above, preferential and transient moorage fees are the primary revenue sources for the harbor. Revenue from preferential moorage has been steadily increasing over the past five years, primarily due to rate increases, with a 15 percent CAGR. Table 3 shows selected annual revenue line items going back to 2003 and the CAGR over that time period. Table 4 lists rates for selected services going back to 1998. Transient moorage has undergone more dramatic changes, with revenues peaking in 2006 at \$470,239 and then settling to \$395,677 in 2008. Transient moorage is more volatile since it depends on vessels visiting the harbor. Some of the increase in revenue is due to rate increases, but the large swings in revenue can only be explained by changes in the number of visitors.

Launch fees are the next most significant source of revenue for the harbor. The CAGR for revenue from launch fees was 24 percent since 2003. During the period, the per-launch fee nearly doubled. Even without the fee increases, revenue would have doubled over the same timeframe. The increase in the number of vessel launches is another strong indicator of potential demand for moorage, since it demonstrates the strong interest in Whittier as a departure point for Prince William Sound.

Most other revenue items do not have a significant impact on the harbor's budget. Boats lift fees have seen a 5.3 percent CAGR for the previous years, which would have decreased without rate increases. Dry storage fees have accounted for less than one percent of revenue except for the 2006 season.

Investment income has been steady except for another irregular 2006 season. Utility fees are recovered costs from the electricity used by vessels in moorage.

Table 3. Harbor Revenue, FY 2003 to 2008

Revenues	Year						CAGR (%)
	2003	2004	2005	2006	2007	2008	
Preferential moorage	228,047	220,448	261,993	372,397	410,461	463,313	15.2
Transient moorage	306,274	271,215	271,215	470,239	369,552	395,677	5.3
Boat lift fees	20,575	20,631	28,277	36,984	36,053	26,580	5.3
Utility fees	59,705	59,621	57,916	49,906	61,379	58,696	-0.3
Dry storage fees	6,180	5,116	5,571	21,958	893	4,903	-4.5
Wharfage fees	556	1,198	1,735	1,205	1,553	8,012	70.5
Vessel tow fees	0	0	0	0	12,617	1,509	3.0
Waiting list fees	15,878	14,906	24,152	19,074	21,857	20,264	5.0
User fees	57,665	53,102	12,476	4,812	8,086	7,739	-33.1
Launch fees	25,413	50,903	54,203	55,186	63,816	74,594	24.0
Fuel float lease fees	0	10,458	0	6,755		0	3.0
Parking fees	936	24,905	615	5,879	0	0	-100.0
Administrative fees	0	-16,600	5,759	2,986	2,390	0	3.0
Alyeska contract	38,105	22,409	27,994	28,278	28,957	25,706	-7.6
State PERS relief	0	0	14,076	0	16,715	17,366	3.0
Investment income	3,447	7,540	10,991	8,074	7,027	12,835	
Miscellaneous income	16,339	16,715	16,857	50,898	13,844	16,521	0.2

Source: City of Whittier (2004-2009) and Northern Economics, Inc. Analysis

Table 4. Selected Whittier Harbor Historic Rates, 1998 to 2009

Service/Fee	Description	Rates (\$)					Unit
		1998-2003	2004	2005	2006-07	2008-09	
Preferential Moorage	Calendar year	30.00	33.00	36.30	53.17	58.50	feet
Annual Moorage	Calendar year	30.00	33.00	36.30	53.17	58.50	feet
Transient Moorage	Daily	0.50	0.55	0.60	0.90	1.00	feet
Transient Moorage	Monthly	9.75	10.73	11.80	17.70	19.50	feet
Boat lift	Short	150.00	165.00	181.50	272.25	299.50	hour
Boat lift	Normal	135.00	148.50	163.35	245.03	269.50	hour
Each additional	Half hour	55.00	60.50	66.55	100.00	100.00	
Launch ramp	Round Trip	12.00	13.00	15.00	20.00	20.00	use
Launch ramp (trailers)	Seasonal	72.00	79.20	90.00	120.00	120.00	year
Dry storage - daily	Vehicle & Trailer	5.00	5.50	6.00	N/A	N/A	day
Dry storage - monthly	Vehicle & Trailer	97.50	107.25	118.00	N/A	N/A	month
Dry storage - winter, per t/mo	Vessel	1.70	1.87	2.05	3.10	3.10	feet
Boat maintenance (day 1-7)	Vessel				15.00	15.00	day
Boat maintenance (day 8-)					30.00	30.00	day
Wharfage	Commercial	4.62	5.08	5.60	8.40	9.25	ton
Wharfage	Raw Fish	6.93	7.62	8.40	12.60	13.85	ton
Pump rental				36.31	36.31	36.31	
Pump out				60.50	60.50	60.50	
Tow		50.00	55.00	60.50	60.50	60.50	hour
User fee (set by WMC, 1.00 per person each round trip)		0.96	0.96	0.96	0.96	0.96	per person
Waiting list		30.00	34.00	40.00	40.00	40.00	year

Source: City of Whittier, 2009

Table 5. Whittier Harbor Expenses, FY 2003 to 2008

Harbor Expenditures	Year						CAGR (%)
	2003	2004	2005	2006	2007	2008	
Salaries/wages	245,882	283,172	338,531	349,231	327,895	319,513	5.4
Benefits	58,789	76,651	114,216	115,923	133,451	127,765	16.8
Postage	5,328	3,730	1,390	0	4,107	1,804	-19.5
Insurance	57,722	66,836	16,584	23,360	43,179	101,881	12.0
Hazardous waste disposal	2,961	3,831	4,723	4,478	1,250	2,273	-5.2
Legal fees	6,844	22,657	2,343	11,033	0	250	-48.4
Lobbying fees	0	0	32,712	59,632	57,996	66,422	3.7
Professional services	1,700	7,089	1,083	7,457	4,820	2,602	7.4
Travel and per diem	5,148	11,044	10,951	7,330	14,446	5,721	1.8
Repairs and maintenance	42,839	44,626	21,060	8,211	15,344	22,389	-10.3
Supplies and materials	19,098	16,218	23,627	18,257	18,502	31,798	8.9
Small tools	5,616	6,789	13,183	6,566	28,947	8,296	6.7
Utilities	108,006	114,655	109,031	137,140	144,558	140,928	4.5
Outside contractors	785	1,125	3,200	136,540	428	540	-6.0
Other	11,921	39,820	32,545	17,158	4,890	3,031	-20.4
Administrative expense	74,855	81,500	83,465	79,091	102,990	82,431	1.6

Source: City of Whittier, 2004-2009 with Northern Economics analysis

The largest expense for the harbor is currently the staff. The decrease in salaries and wages seen after 2006 is due to the consolidation of positions. No further change in staffing is foreseen by the harbormaster (Barrett, 2009). Despite the reduction in the number of positions, the CAGR for salaries and wages over the previous five years was still 5.4 percent. The harbormaster plans to limit future pay increases to the extent allowed by city policies to reduce the burden on users (Barrett, 2009).

Benefits paid to staff continued to increase up until 2008, when they decreased slightly. Over the previous five years, the CAGR for benefits was 16.8 percent. Benefits, such as health insurance, are not under direct control of the harbor and are likely to continue to rise. The rate of increase will not be as dramatic as in the past because new employees are not being added.

Utilities expenses increased abruptly in 2006 as the cost of energy did everywhere. A large portion of the cost of utilities is paid by harbor tenants based on the amount of electricity they use. Even accounting for changes in use by tenants, the cost of utilities has increased over the past 5 years. The CAGR for utilities was 4.5 percent over the previous five years.

The cost of insurance for the harbor has varied greatly over the past five years, from as low as \$16,584 to as much as \$101,881 in 2008. The result is a CAGR of 12 percent over the previous five years. Since there is no clear trend for insurance rates and 2008 was a high, the financial model assumes that insurance costs will grow with inflation. Administrative costs have varied over the previous five years. The CAGR over this time period was only 1.6 percent. There are no clear trends in administrative expenses.

2.5 Proposed Harbor Improvements

The proposed harbor improvements will increase the available moorage in addition to restoring the existing breakwater. Table 6 shows the number of berths and their lengths in the existing configuration of the harbor, not including rafting and miscellaneous locations. Table 7 shows the number of berths and their length after the planned improvements are done. The current harbor configuration has 10,170 feet of moorage and the improved harbor configuration will have 10,785 feet of moorage. The improved configuration of the harbor will increase the total linear feet of moorage space by slightly more than 6 percent, but more importantly it will optimize the use of space by providing berths to match the local fleet composition.

The City of Whittier and PND Engineering have planned to improve the harbor in three phases. Phases One and Two are expected to cost a total of \$13,775,000. Phase Three is expected to cost \$1,498,000. The total anticipated cost is \$15,273,000.

Table 6. Existing Harbor Configuration

Float	Berth Length (Feet)	Total Number of Berths	Total Moorage Space (Feet)
Headwalk W	24	26	624
Headwalk E	24	32	768
A	226	16	226
B	50	22	1,100
C	40	34	1,360
D	40	38	1,520
E	30	42	1,260
F	24	50	1,200
G	24	46	1,104
H	24	42	1,008
Total		348	10,170

Source: PND Engineering, 2009; City of Whittier; and Northern Economics, Inc. analysis

Table 7. Improved Harbor Configuration

Float	Berth Length (Feet)	Total Number of Berths	Total Moorage Space (Feet)
Headwalk NW	28	34	952
Headwalk NE	28	26	728
Headwalk SW	24	39	936
Headwalk SE	24	33	792
A	225	16	225
B West	54	12	648
B East	46	13	598
C West	46	15	690
C East	40	17	680
D West	40	17	680
D East	36	19	684
E West	36	17	612
E East	32	19	608
F West	32	17	544
F East	30	17	510
G West	30	15	450
G East	28	16	448
Total		342	10,785

Source: Adapted by Northern Economics Analysis from PND Engineering 2009.

2.6 Financing Sources

The city intends to pursue a combination of grants and bonds in order to fund the harbor improvements. This section discusses those funding sources.

2.6.1 Municipal Harbor Facility Grant Program

ADOT&PF grants money to municipalities in Alaska to improve and maintain infrastructure through the Municipal Harbor Facility Grant Program. The program was created by the Alaska Legislature in 2006 to provide financial assistance to municipally-owned harbor facilities via 50/50 matching grants. The program has two tiers, depending on the harbor's original ownership (state harbors are Tier 1 and other harbors are Tier 2) and whether the facility has received funding from the program (once a Tier 1 facility has been funded, it is only eligible for Tier 2 funding). The priority is to fund major maintenance and repair of harbors that were previously owned by the state. The proposed improvements to the Whittier Small Boat Harbor fit that description.

Northern Economics contacted Mr. Mike Lukshin at ADOT&PF for details of the grant program. Grant applications need to be submitted to the program by July 1 for funding the following July 1. The applications are scored by a committee based on the scoring criteria, which are available on the grant program website. The complete applications are sent with their scores to the legislature as a request for funding. The legislature then has the option to fund as much of the program as they desire. Table 8 shows the history of the funding requests and the amount funded. The short history of the grant program indicates that there is no certainty that qualified applications will be funded since the program was only fully funded in 2008 and did not receive funding in 2009. The legislature has not

determined to how much of the current 2010 request they will fund. This also suggests that close communication with local legislative representatives is important for anticipating if the harbor's request will be funded (Lukshin, 2010).

Table 8. Municipal Harbor Facility Grant Funding History

Year	Amount Request (\$ millions)	Amount Funded (\$ millions)
2007	9.2	5.0
2008	10.4	10.4
2009	12.9	0.0
2010	17.3	TBD

Source: Lukshin, 2010.

In years where the legislature has funded the program, the grant program has funded all of the requests that it can fully fund. An application that received a lower score could be funded ahead of a high scoring application, if that higher scoring application's request exceeds the funds available. This is because the grant program managers do not want to inadvertently alter the plans of local communities by partially funding their requests.

As the program relates to Whittier, the harbor can make one application for up to \$5 million as a Tier 1 applicant. This means that the harbor's application would have priority over all Tier 2 applicants irrespective of the application's score. The harbor can make additional requests for up to \$5 million per year from the program as a Tier 2 applicant in the future.

The biggest challenge that the harbor faces is that they must have their matching funds in place at the time of application. If the matching funds are going to come from revenue bonds, the city needs to have legislation in place to issue the bonds and a reasonable assurance that the bonds could be sold. It is Northern Economics' understanding that the bonds would not need to be sold at the time of application, but would need to be sold and the funds in the bank in order to receive the grant should the legislature fund the request. Mr. Lukshin recommends having a back-up funding or build-out plan should the bond issuance be successful but the grant request not receive funding.

The financial model presented in Section 3 assumes that the harbor will receive a \$5 million grant from ADOT&PF.

2.6.2 Other Grants

The city intends to pursue other grant programs as well. One such grant program is through the Denali Commission. The Denali Commission is an independent federal agency created by an act of congress to support infrastructure and economic development throughout Alaska. Through the Waterfront Development grant program, the Denali Commission makes grants to harbors for infrastructure improvements.

To apply for a Denali Commission grant, the harbor would nominate its project. The Commission accepts nominations from August 1 through October 1, though they are considering extending the deadline to November 1. When the nomination period closes, the appropriate committee, in this case the Transportation Advisory Committee, would review the nomination and Commission staff may request records and other information.

The harbor can apply for up to \$1 million for each phase of the project. Construction-phase projects must include plans, specifications, and estimates in addition to approved NEPA and permitting documentation (Denali Commission, 2009).

The harbor applied for a \$990,000 grant in November of 2009. As of January 26, 2010 the application scored well with the Project Selection Committee. The application is in the final phase of review and a decision will be made in the next few weeks (McKinnon, 2010).

The financial model assumes that the harbor will receive grants for \$2 million from grant programs other than the ADOT&PF grant, including a grant from the Denali Commission.

2.6.3 Bonds and Debt Financing

Bonds will likely be an important funding source for the harbor improvements. Municipalities can issue different types of bonds that can be sold on the market to investors. Bonds require a finance partner to oversee their issuance. Conversations with Mr. Deven Mitchell of the Alaska Municipal Bond Bank Authority (AMBBA), which works with municipalities in Alaska to issue bonds, revealed that as of fall 2009 there are numerous opportunities for issuing revenue bonds for infrastructure projects. These opportunities include programs under the American Recovery and Reinvestment Act of 2009. While Northern Economics did not determine the ideal manner in which to issue bonds, a marginal rate of four percent is possible in the current market (Mitchell, 2009). AMBBA recommends it be included in planning as early as possible in order to make the bond issuance process as efficient as possible.

2.7 Anchorage CPI

The Consumer Price Index is a measure of the change in prices for a typical basket of consumer goods. It is typically used as a measure of inflation. Only one CPI is calculated for Alaska, the Anchorage CPI. For this study, the Anchorage CPI is used as a benchmark to compare changes in harbor rates. The study uses inflation over the previous ten years. The index was 148.4 at the end of 1999 and was 191.744 at the end of 2009 (BLS, 2010), resulting in a CAGR of 2.6 percent.

3 Rate Recommendations

Northern Economics worked with harbor staff to interpret their financial statements and budgets as well as plans for harbor maintenance and improvements. With input from the staff, the study team sought input from the Alaska Municipal Bond Bank Authority on financing strategies. From there, the study team developed a financial model to project needed rates. The financial model is built with a series of assumptions detailed in the following sections. The intent of this exercise is to develop harbor rates that cover the full and true cost of the harbor infrastructure now and in the future.

3.1 Process for Developing Estimates of the True Cost

In general, the process of developing an estimate of the true cost consisted of the following steps:

1. Analyze harbor usage and financial information;
2. Investigate any large changes to try to identify causes;
3. Develop a forecast of the revenues and expenses under base conditions;
4. Introduce capital and major maintenance expenditures;
5. Develop additional rate increases and/or other changes to ensure the revenues cover anticipated expenses

The first two steps of the process were discussed in earlier sections. The remaining steps are described in this section.

3.2 Harbor Rates

This section discusses the model assumptions, base harbor rates, and proposed harbor rates.

3.2.1 Model Assumptions, Revenues

The financial model was developed to determine needed sustainable harbor rates. It is based on a series of assumptions about how revenue and expenditures will change in the future. Below is a description of these assumptions, summarized in Table 9.

Table 9. Revenue Historic and Project Growth Rates

Revenues	CAGR (%)	Projected Growth (%)
Preferential Moorage	15.2	See discussion
Transient Moorage	5.3	See discussion
Boat Lift Fess	5.3	5.3
Utility Fees	-0.3	See discussion
Dry Storage Fees	-4.5	See discussion
Wharfage Fees	70.5	2.6
Vessel Tow Fees	3.0	2.6
Waiting List Fees	5.0	2.6
User Fees	-33.1	2.6
Launch Fees	24.0	2.6
Alyeska Contract	-7.6	2.6
State PERS Relief	3.0	2.6
Investment Income	0.0	See discussion
Miscellaneous Income	0.2	0.2

Source: Northern Economics, Inc. analysis

Preferential Moorage

The main driver for this revenue item is the annual preferred moorage rates. Determining rates that are sustainable is the goal of this study. The base rates calculated from the financial model are discussed in Section 3.2.4.

The other driver is unit sales. The waiting list suggests that the harbor will continue to have full occupancy of preferred moorage slips. The harbor improvements are anticipated to be in place by the 2012 season. The harbor improvements will increase the available moorage space by about 6 percent; the model increases revenue by that amount in 2012.

Transient Moorage

Moorage rates are also the main driver for transient revenues. Again, the moorage rates are determined by the modeling process.

There are no clear drivers for the unit sales of transient moorage. Northern Economics compared transient moorage with tunnel traffic, but found no correlation. The financial model uses 2008 as the base year. The unit sales volume remains constant, except for a 6 percent increase with the harbor improvements in 2012. After the user increase, the only driver for this revenue item is rate increases, which are described in the model results section.

Boat Lift Fees

Without rate increases, the revenue from boat lift fees would have decreased. In order to be conservative, the financial model assumes that this revenue item will only grow at the rate of inflation, 2.6 percent.

Utility Fees

The CAGR for utility fees was slightly negative. The financial model assumes zero growth because the use of utilities is not likely to continue to change in the future. There is a one-time increase in this item in 2012 to coincide with the increase in the number of berths from the harbor improvements.

Dry Storage Fees

Dry storage fees have a negative CAGR for the past five years. There is no reason to expect changes in this line item. The financial model uses a base revenue of \$2,500 for all years as a conservative estimate.

Wharfage Fees

Wharfage fees do not have any discernable drivers. The financial model uses the average for wharfage fees over the past five years of \$2,377 and a growth rate of 2.6 percent to reflect inflation.

Vessel Tow Fees

There may be small increases in vessel tow fees as use of the Whittier harbor increases. In order to be conservative, the financial model uses the 2008 revenue as a base and grows the revenue equal to inflation.

Waiting List Fees

The financial model grows the waiting list fees with inflation, but also reduces them with moorage rate increases, because higher moorage rates may make the harbor less attractive to potential tenants.

User Fees

The user fee amount is set by the Whittier Municipal Code (WMC), so changes in this revenue category are driven solely by the number of people embarking on charter boats. Whittier continues to develop as a tourism destination and as such, the number of charter trips will likely increase. The financial model uses the conservative assumption that passenger counts, and therefore user fee revenues, will increase with inflation.

Launch Fees

The number of boat launches peaked in 2004 and 2008 nearly saw a return to that high point despite higher gas prices. Revenues have increased since 2004 because launch fees have increased. Since the number of users wanting to launch vessels is uncertain, the financial model makes the conservative assumption that revenue will increase with inflation.

Alyeska Contract

Revenue from the Alyeska contract is based on the extent to which Alyeska Pipeline Service Company uses the harbor for their operations. The average revenue since 2003 is \$28,575. Since the contract is set, there is no reason to increase the revenue with inflation. The financial model uses the average for all years.

State PERS Relief

State PERS relief has increased in recent years. The future of PERS relief is unknown and is complicated by the fact that several other factors influence the funding percentage of the city's PERS account. The model assumes that PERS relief will change with inflation.

Investment Income

The financial model calculates the investment income based on the amount of capital in the sinking fund. The sinking fund had \$1,008,452 in 2009. The expected investment income is two percent of the sinking fund.

Miscellaneous Income

The model assumes miscellaneous income will grow at the historic growth rate of 0.2 percent.

3.2.2 Model Assumptions, Expenditures

The following describes the financial model's assumptions for expenditures. Table 10 presents the historic and projected annualized growth rates for each category of expenditure, using Northern Economics' assessment of future growth rates.

Table 10. Expenditure Assumptions

Expenditures	CAGR (%)	Projected Growth (%)
Salaries/wages	5.4	2.6
Benefits	16.8	2.6
Postage	-19.5	2.6
Insurance	12.0	3.2
Hazardous waste disposal	-5.2	0
Legal fees	-48.4	0
Lobbying fees	3.7	3.7
Other professional services	7.4	2.6
Travel and per diem	1.8	2.6
Repairs and maintenance	-10.3	2.6
Supplies and materials	8.9	2.6
Small tools	6.7	2.6
Utilities	4.5	See discussion
Outside contractors	-6.0	2.6
Other	-20.4	See discussion
Administrative expense	1.6	See discussion

Source: Northern Economics, Inc. analysis

Salaries/Wages

The financial model assumes this expenditure will grow at 2.0 percent for the next five years. The harbormaster intends to limit pay increases to those required in the Whittier Municipal Code (Barrett, 2009). The financial model assumes salaries/wages will grow at the rate of the Anchorage CPI after the first five years in order to keep with increases in the cost of living.

Benefits (Staff)

The financial model assumes this expenditure will continue to grow at 10.0 percent for the next five years based on a rounded down CAGR, followed by the rate of inflation in later years.

Postage, Insurance, Other Professional Services, Small Tools and Travel & Per Diem

The financial model assumes that these expenditures will grow at the rate of inflation from the base year of 2008.

Waste Disposal

The financial model assumes that this expenditure will average \$2,500 and will not increase.

Legal Fees

The financial model assumes that this expenditure will average \$2,000 and will not increase.

Lobbying Fees

The financial model assumes that this expenditure will continue to grow at its three year CAGR, a rate of 3.7 percent.

Repairs and Maintenance

Initially, the financial model assumes that this expenditure will grow at the rate of inflation. In 2012, the base amount switches to three percent of the harbor improvement cost and increases thereafter with inflation.

Supplies and Materials

The financial model assumes that this expenditure will grow at the rate of inflation. The base value for 2009 appears to be an average of the 2003-2008 expenditures.

Utilities

The financial model assumes this expenditure will continue to grow at the historic CAGR, 4.5 percent. It also assumes that there will be an increase in cost from increased moorage in 2012. Approximately 45 percent of the utilities over the past five years were from tenants. The increase from users is 45 percent of the 15 percent increase in moorage.

Outside Contractors

The financial model assumes this expenditure will average \$1,000 and grow at the rate of the Anchorage CPI.

Administrative Expense

The financial model assumes this expenditure will be 9.33 percent of all other expenditures, not including depreciation.

Other

The financial model assumes other expenditures will average \$5,000 and stay constant.

3.2.3 Model Assumptions, Finance

Financing the harbor improvements comes from two sources, debt and grants. The finance model assumes the harbor will receive a \$5,000,000 grant from Municipal Harbor Facility Grant Program and two \$1,000,000 grants from the Denali Commission for two different phases of the project.

The model assumes the remainder of the project, \$8,273,000, will be financed through bonds. The model assumes that bonds will be issued at 4 percent for a 20-year term. The result is annual payments of \$608,742. Table 11 shows the bond calculations.

Table 11. Monthly and Annual Payments to Service Debt

Debt Amount (\$)	8,273,000
Loan Term (years)	20
Loan Rate (%)	4%
Monthly Payment (\$)	50,728
Annual Payment (\$)	608,742

3.2.4 Base Rates

This section presents the results of the financial model. The results show that the harbor must increase rates dramatically in the short run in order to cover the bond debt service. After the harbor repays the bonds, the extra cash flow will quickly replenish the sinking fund. After the initial rate increases, the rate will increase with inflation at approximately 2.7 percent each year.

Table 12 shows the percentage changes and annual rates for Annual and Transient Moorage for the years where the rate changes. The first rate increase is 35 percent in 2010 and the same 35 percent again in 2012. The result of the two increases is an 82 percent increase in rates from 2008-2009 and a rate of \$106.62 per foot for annual moorage. Starting in 2013, rates increase at approximately 2.7 percent, close to the historic Anchorage CPI.

Table 12. Moorage Rates and Changes by Year, 2010 to 2040

	Year								
	2010	2011	2012	2013	2014	2015	2025	2035	2040
Rate Change (%)	35.00	0.0	35.00	2.71	2.71	2.71	2.71	2.71	2.71
Annual Rate (\$/ft)	78.98	78.98	106.62	109.51	112.48	115.53	150.99	197.32	225.58
Transient Daily Rate (\$/ft)	1.35	1.35	1.82	1.87	1.92	1.97	2.58	3.37	3.86
Transient Monthly Rate (\$/ft)	26.33	26.33	35.54	36.50	37.49	38.51	50.33	65.77	75.19

Source: Northern Economics, Inc. analysis

The result of these rate changes is that moorage rates would have increased at a CAGR of 4.4 percent from 2009 to 2041, which is 1.8 percent above the rate of historic inflation.

The rates shown above are calculated based on the need to balance the projected revenues and expenditures shown in the following tables.

Table 13. Revenue Projections (\$ Thousands)

Category	Year									
	2010	2011	2012	2013	2014	2015	2025	2035	2040	
Preferential Moorage	625	625	895	920	945	970	1,268	1,657	1,895	
Transient Moorage	534	534	765	785	807	829	1,083	1,415	1,618	
Boat Lift Fess	28	29	29	30	31	32	41	53	60	
Utility Fees	59	59	62	62	62	62	62	62	62	
Dry Storage Fees	3	3	3	3	3	3	3	3	3	
Wharfage Fees	2	3	3	3	3	3	4	5	5	
Vessel Tow Fees	2	2	2	2	2	2	2	3	3	
Waiting List Fees	14	14	9	9	9	9	9	9	9	
User Fees	8	8	9	9	10	10	13	16	19	
Launch Fees	79	81	83	85	87	89	115	149	170	
Alyeska Contract	29	29	29	29	29	29	29	29	29	
State PERS Relief	18	19	19	20	20	21	27	35	39	
Investment Income	17	17	18	18	18	18	18	19	19	
Total Revenues Before Transfers	1,417	1,421	1,925	1,974	2,024	2,076	2,674	3,455	3,931	

Source: Northern Economics, Inc. analysis

Table 14. Expenditure Projections (\$ Thousands)

Category	Year									
	2010	2011	2012	2013	2014	2015	2025	2035	2040	
Salaries and wages	332	339	346	353	362	371	480	620	705	
Benefits	155	170	187	206	211	217	280	362	411	
Postage	2	2	2	2	2	2	3	4	4	
Insurance	107	110	113	116	119	122	158	204	232	
Hazardous waste disposal	3	3	3	3	3	3	3	3	3	
Legal fees	2	2	2	2	2	2	2	2	2	
Lobbying Fees	71	74	77	79	82	85	122	175	210	
Other Professional Services	3	3	3	3	3	3	5	7	9	
Travel and per diem	8	8	8	8	9	9	11	15	17	
Repairs and Maintenance	24	24	305	305	305	305	305	305	305	
Supplies and Materials	22	23	24	25	26	27	41	62	76	
Small Tools	9	9	10	10	11	11	17	25	31	
Utilities	147	154	165	173	180	189	293	455	567	
Outside Contractors	1	1	1	1	1	1	2	3	4	
Other	5	5	5	5	5	5	5	5	5	
Administrative Expense	83	86	117	120	123	126	161	210	241	
Debt Service	0	0	609	609	609	609	609	0	0	
Total Expenditures	973	1,013	1,976	2,020	2,053	2,087	2,496	2,456	2,821	

Source: Northern Economics, Inc. analysis

Table 15. Net Income and Sinking Fund Activity (\$ Thousands)

	Year									
	2010	2011	2012	2013	2014	2015	2025	2035	2040	
Net Income (Loss) Before Transfers	443	407	-51	-46	-29	-12	178	999	1,110	
Sinking Fund										
Starting Balance	1,212	1,680	2,121	2,113	2,109	2,122	3,336	8,233	14,512	
Addition	443	407	-51	-46	-29	-12	178	999	1,110	
Investment Income	24	34	42	42	42	42	67	165	290	
Ending Balance	1,680	2,121	2,113	2,109	2,122	2,153	3,580	9,396	15,912	

Source: Northern Economics, Inc. analysis

3.2.5 Rate Adjustments

In order to develop a rate structure that ensures long term financial sustainability, there must be an underlying rationale to the rates. Some constraints are imposed for external reasons. For example, as discussed previously, granting organizations want harbors to demonstrate their ability to pay for future maintenance and replacement without grants. Other constraints are imposed for internal benefit. For example, raising rates as quickly as possible to sustainable levels means future increases will be relatively small.

Several constraints were imposed on the rate setting as a guiding rationale. The first was that rate increases should happen as soon as possible to get to a point where increases would match inflation. By setting rate increases as near as possible to inflation, the moorage rates become effectively constant since the rates will grow with the costs of other goods and services. Making a single large rate increase is also politically easier since the large increase only needs to occur once.

The second constraint was that the sinking fund should never go negative because it would imply that the harbor needed to borrow more money. This was the limiting constraint in the project because expenditures are very high during the bond debt service period and then there is an extra \$608,000 annual cash flow after the bonds are repaid. The result is that rates need to continue to increase to cover inflation in other costs until the bond payments end.

The third constraint was that the sinking fund should equal half of the replacement cost of the harbor improvements at the time the improvements need to be replaced. Table 16 shows the Project Cost in 2009 and the inflated cost in 2041 (using a 2.6 percent inflation rate) and the resulting sinking fund target, which is half of the inflated project cost. The sinking fund target is only half of the anticipated replacement cost because it is assumed the other half would be paid for with a bond.

Table 16. Sinking Fund Target Calculations

Item	Cost
Project Cost (\$ 2009)	15,273,000
Project Cost (\$ 2041)	34,724,811
Sinking Fund Target (\$ 2041)	17,362,406

Source: Northern Economics, Inc. analysis

3.3 Other Recommendations

The rates presented above represent the best possible effort to determine the moorages for the harbor to be financially sustainable over the next 30 years. After the first five years, the potential for error increases dramatically for any particular revenue or expenditure item. Due to the inherent unpredictability of the future and future costs, these rates should not be viewed as definite. Instead, future rate setting should be guided by the harbor's actual revenue and cost experiences, as well as the sinking fund balance. The sinking fund targets should be near the ending balance of the sinking fund shown in Table 15 in order to have the financial strength necessary to replace the harbor infrastructure.

One of the challenges that the harbor faces is that it is relatively small compared to other Southcentral Alaska harbors. The economies of scale enjoyed by other, larger harbors in the state allow for lower moorage rates because the administrative and other overhead costs can be covered by more users. Over time, if Whittier's harbor facilities expand, the rates charged for moorage and other services may not increase as much as projected by this report. A comparison of the proposed rates and selected other Southcentral Alaska ports is shown in the next section.

3.4 Regional Rate Comparison

There are several harbors in Southcentral Alaska. The Valdez Harbor has 511 slips and 900 feet of transient dock space. The Homer Harbor has 893 slips and over 6,000 feet of transient dock space. The Seward Harbor has approximately 700 slips and over 500 feet of transient dock space. Table 17 lists the daily, monthly, and annual moorage rates for Valdez, Homer, and Seward, and compares

them with the proposed rates for Whittier, which will have 342 slips (not including rafting and miscellaneous moorage locations) once the expansion is complete.

Table 17. Regional Harbor Rates

Harbor	Daily Cost per Foot (\$)	Monthly Cost per Foot (\$)	Annual Cost per Foot (\$)	Distance from Anchorage (mi)
Proposed Whittier Rates, 2012	1.82	35.54	106.62	61
Valdez	0.70	8.75	20	300
Homer	1.03	5.81	34.19	222
Seward (incl. 7 pct. tax)	0.60	8.20	45.40	128

Source: Cities of Homer, Seward, and Valdez, 2009; Google Maps, 2010; and Northern Economics, Inc. analysis

The proposed rates for the Whittier small boat harbor are higher than the other harbors listed. There is reason to believe that these rates can still be realized. Whittier is one-half the driving distance from Anchorage as the next nearest harbor, Seward. All of the harbors maintain wait lists, so while Whittier harbor may lose some appeal with higher rates, there are not really other options in the short term. There is also a likelihood that other harbors will need to begin to raise rates as their harbors require improvements and maintenance.

3.5 Alternative Rate Scenario

The alternative to setting rates such that they generate enough revenue to pay for the harbor improvements and replenish the sinking fund is to set rates high enough to service the debt.

Table 18. Moorage Rates, Minimum Rate Scenario

	Year								
	2010	2011	2012	2013	2014	2015	2025	2035	2040
Rate Change (%)	27.7	0.0	27.7	2.7	2.7	2.7	2.7	0.0	0.0
Annual Rate (\$/ft)	74.69	74.69	95.36	97.95	100.61	103.34	135.05	162.88	162.88
Transient Daily Rate (\$/ft)	1.28	1.28	1.63	1.67	1.72	1.77	2.31	2.78	2.78
Transient Monthly Rate (\$/ft)	24.90	24.90	31.79	32.65	33.54	34.45	45.02	54.29	54.29

Source: Northern Economics, Inc. analysis

Table 19. Revenues, Minimum Rate Scenario

Category	Year									
	2010	2011	2012	2013	2014	2015	2025	2035	2040	
Preferential Moorage	592	592	801	823	845	868	1,134	1,368	1,368	
Transient Moorage	505	505	684	703	722	741	969	1,168	1,168	
Boat Lift Fess	28	29	29	30	31	32	41	53	60	
Utility Fees	59	59	62	62	62	62	62	62	62	
Dry Storage Fees	3	3	3	3	3	3	3	3	3	
Wharfage Fees	2	3	3	3	3	3	4	5	5	
Vessel Tow Fees	2	2	2	2	2	2	2	3	3	
Waiting List Fees	15	16	12	12	12	12	11	12	14	
User Fees	8	8	9	9	10	10	13	16	19	
Launch Fees	79	81	83	85	87	89	115	149	170	
Alyeska Contract	29	29	29	29	29	29	29	29	29	
State PERS Relief	18	19	19	20	20	21	27	35	39	
Investment Income	17	17	18	18	18	18	18	19	19	
Total Revenues Before Transfers	1,355	1,359	1,752	1,796	1,842	1,888	2,428	2,922	2,959	

Source: Northern Economics, Inc. analysis

Table 20. Expenditures, Minimum Rate Scenario

Category	Year									
	2010	2011	2012	2013	2014	2015	2025	2035	2040	
Salaries and wages	332	339	346	353	362	371	480	620	705	
Benefits	155	170	187	206	211	217	280	362	411	
Postage	2	2	2	2	2	2	3	4	4	
Insurance	107	110	113	116	119	122	158	204	232	
Hazardous waste disposal	3	3	3	3	3	3	3	3	3	
Legal fees	2	2	2	2	2	2	2	2	2	
Lobbying Fees	71	74	77	79	82	85	122	175	210	
Other Professional Services	3	3	3	3	3	3	5	7	9	
Travel and per diem	8	8	8	8	9	9	11	15	17	
Repairs and Maintenance	24	24	305	305	305	305	305	305	305	
Supplies and Materials	22	23	24	25	26	27	41	62	76	
Small Tools	9	9	10	10	11	11	17	25	31	
Utilities	147	154	165	173	180	189	293	455	567	
Outside Contractors	1	1	1	1	1	1	2	3	4	
Other	5	5	5	5	5	5	5	5	5	
Administrative Expense	83	86	117	120	123	126	161	210	241	
Debt Service			609	609	609	609	609	609	609	
Total Expenditures Before Transfers	973	1,013	1,976	2,020	2,053	2,087	2,496	2,456	2,821	

Source: Northern Economics, Inc. analysis

Table 21. Sinking Fund Activity, Minimum Rate Scenario

	Year								
	2010	2011	2012	2013	2014	2015	2025	2035	2040
Net Income (Loss) Before Transfers	382	346	-224	-224	-212	-199	-68	465	138
Sinking Fund									
Starting Balance	1,212	1,619	1,997	1,814	1,626	1,447	196	1,160	3,058
Addition	382	346	-224	-224	-212	-199	-68	465	138
Investment Income	24	32	40	36	33	29	4	23	61
Ending Balance	1,619	1,997	1,814	1,626	1,447	1,277	131	1,648	3,258

Source: Northern Economics, Inc. analysis

4 Policy Considerations in Rate Setting

Rate setting for a harbor facility must consider not only the effect of the change on users of the harbor but the economy-wide effects of the policy decision on the city and other stakeholders. This section briefly discusses some policy issues that should be considered in the rate setting decision.

The rate recommendations presented in this report include substantial increases in early years and regular increases in later years. The initial increases may be very difficult for users to accept. However, when viewed over the long term the rate increases would average close to the historic rate of inflation. The impetus for these initial, large rate increases is to achieve sustainability quickly and demonstrate that the harbor has a plan to achieve sustainability in order to obtain funding.

When considering forward funding infrastructure improvements, users may not be supportive of paying more to support future users. While this is a legitimate concern, current users will benefit from infrastructure improvements in many ways. Aging facilities increase the risk of personal and property damage and can enhance the user's experience at the harbor. Older facilities require greater maintenance spending, which increases the O&M costs covered by rates. When making major investments, the City will likely need to rely on funding sources that have sustainability requirements. Regardless of when this work is done, users will eventually have to pay for it. By acting now, the city may be able to take advantage of federal recovery funds and programs, including low-cost financing options. The savings generated from recovery funds could be considerable and result in a lower cost to users.

The city has the option of modifying the pace at which rate changes are made, rather than following the recommendations. Granting agencies may be satisfied with smaller increases in the near term and higher increases in the future. The city should consider policy implications, availability of funding, ability of reserves to cover interim losses, and other factors in deciding on its rate change plan.

When looking at inflation-based changes, which are recommended after the initial large increases, one approach that has been effective for other Alaskan ports is to adopt a standard practice of making annual adjustments based on changes in the Anchorage CPI. By establishing both the expectation of annual changes and an index from which to set the amount of the changes, the rate change process should be easier to complete each year and more transparent to users.

It is important to recognize that the further into the future a projection extends, the less confidence one should have in the projection. Using historic inflation over the past ten years may provide a good basis for projecting costs out five to ten years in the future, but there is no guarantee that future inflation will be the same as past inflation. The projection also assumes past decisions will continue into the future in terms of how the harbor operates. These controllable and uncontrollable factors may result in a much different outcome over time than the projection suggests. As a result, there is the very definite possibility that future rate changes will not need to be as high as suggested in this report, just as there is a definite possibility that the rate changes will need to be higher than what has been recommended. For this reason, the projections should be compared with actual results on a regular basis to determine if any changes need to be made.

The economic impact of a harbor facility extends beyond the harbor. The additional economic activity resulting from the presence of a harbor can be measured by considering the economic multiplier or impacts. This effect comes about as money moves through an economy and is spent multiple times. An example of the steps that lead to these additional impacts can be illustrated with the example of a vessel owner hiring a company to do mechanical work on the vessel. The company hired to do the work will spend money on labor, parts, and other materials. The materials spending may go to another local vendor while the major parts may be spent outside the community. The labor

money may go to a local worker, who will in turn spend that money on household expenses, including goods and services purchased locally. Models exist to trace each step, leading to an economic multiplier that can be used to estimate the number of times a dollar will change hands.

One challenge the City of Whittier faces is that the local economy is limited in terms of support industries. This limits the extent to which vessel owners can spend money in the community other than moorage, fuel, and some food costs. Without additional money coming into the economy for goods and services, the ability to generate additional economic impacts is limited. Though the city does not have full control over the local economy, it can adopt practices to encourage economic growth, including identifying and providing needed infrastructure and working with private enterprise to increase the goods and services available for transient and permanent vessel owners to purchase.

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