

**THE NORTHWEST SEAPORT ALLIANCE**  
**MEMORANDUM**

**MANAGING MEMBERS**  
**ACTION ITEM**

**Item No.** 5D  
**Date of Meeting** January 14, 2020

**DATE:** January 14, 2020

**TO:** Managing Members

**FROM:** John Wolfe, CEO

**Sponsor:** Dustin Stoker, Chief Operations Officer

**Project Manager:** Bob Meyer, Director Port Operations

**SUBJECT:** Purchase Two (2) Reach Stackers for Breakbulk Operations

Request authorization for the Chief Executive Officer or their delegate to purchase two (2) Kone Reach Stackers in amount not to exceed \$943,000 plus Washington State Sales Tax (approximately \$96,186 at 10.2%).

**A. SYNOPSIS**

The Northwest Seaport Alliance (NWSA) manages and operates the East Blair One (EB1) Breakbulk Terminal in the South Harbor. The activity includes receipt and delivery of cargo from the Ocean Carrier and truck or rail carriers. The types of cargo handled at EB1 vary from personal automobiles and agricultural equipment to large transformers. Whereas much of the cargo is rolling stock, many pieces are static (non-drivable) and require Cargo Handling Equipment (CHE) to transport in the terminal yard as well as to load or receive from the carriers.

The loading and unloading of trucks/rail cars require the operation of CHE, ranging from small forklifts to large top picks and/or mobile cranes. Today the NWSA's main CHE used to handle static cargo are two (2) leased top picks that are 34 years old and are at the end of their useful/serviceable life. To deliver high levels of service to customers, minimize equipment downtime and reduce the costs of maintenance, staff is recommending purchasing two (2) new reach stackers. The primary benefit of the equipment replacement and enhancement are:

- Reduce the risk of equipment failure while enhancing service delivery to the customer
- Improve the NWSA's competitive position to attract incremental new business
- Expand operational flexibility and capability by increasing the NWSA's lift capacity from 55 to 81 metric tons

- Align Port-managed operations with the NWSA's Cargo Handling Equipment performance targets in the Northwest Ports Clean Air Strategy (NWPCAS)

## **B. BACKGROUND**

The NWSA has a long-standing agreement with Jones Stevedoring to lease 1980 vintage environmentally unrated equipment: two (2) used Top Picks, and one (1) used Hustler yard tractor for the handling of static cargo at EB1. The current lease agreement was entered in June of 2012 and originally intended to be a short-term, month-to-month deal. This existing agreement does not support the NWSA's environmental equipment modernization goal under the Northwest Ports Clean Air Strategy (NWPCAS).

Under the agreement with Jones Stevedoring, it is the responsibility of the NWSA to keep the leased equipment in good working order and pay all expenses including repairs, maintenance, moving and storage fees. The NWSA leases the equipment at a cost of \$66,120 per year. Over the past six (6) years, the Port of Tacoma and NWSA has spent approximately \$396,000 in lease fees, with an additional \$269,000 in preventative maintenance and repairs. At the beginning of 2019, one (1) of the top picks was out of service for over a month for unforeseen corrective maintenance work, requiring over \$60,000 in repairs. Downtime had significant service impacts on the NWSA's customers at EB1. It is anticipated that the second top pick will require comparable maintenance in 2020 as both top picks are similar in age and use. These outages contribute to additional time and money associated with outside equipment rental which is necessary to continue moving customers' cargo.

In 2018, the NWSA signed a ten (10) year agreement with WWL to move breakbulk cargo through EB1. This agreement has led to significant growth in the breakbulk business (i.e., 6% year-over-year as of November 2019) and is increasing the need to manage terminal capacity to ensure operations run smoothly. As cargo size and business continues to grow, the terminal capacity remains the same. Space and configuration are crucial to optimizing operations. With the current leased equipment, the NWSA is at risk of falling below its performance requirements. Top picks, unlike reach stackers, are restricted in their ability to handle over-width cargo, making it more difficult for NWSA labor to effectively utilize the limited space available on terminal.

In addition, the current lifting capacity of the two (2) leased top picks is 55 metric tons (MT). In 2018, the NWSA received 178 customer requests for cargo that required special handling. Eighty-five (85) of those requests exceeded the lifting 55 MT capacity of the leased Top Picks. Any piece of cargo that exceeds the 55 MT limit of the top picks requires the use of an outside crane vendor, which adds to the customers' expense. Due to the high handling costs, only 11 of the 85 requests were handled through the NWSA gateway. Of the 85 quote requests that were over 55 MT, 54 could have been handled with the increased lifting capacity (81 MT) of new reach stackers. Thus, new reach stackers with improved lifting capacity and capability will allow the NWSA to reduce the overall costs to its customers, improve

the NWSA's operating margin and potentially increase the volume of static cargo handled.

The NWSA issued an Invitation to Bid on October 9, 2019 for two (2) reach stackers (both Tier 4 and hybrid engine types), requesting pricing for both purchasing and leasing. The bid period closed on October 23, 2019 with three (3) firms submitting bids representing three different manufacturers (Kone, Hyster, and Kalmar). Please see Attachment A for the recap of the bid responses.

### **C. FINANCIAL IMPLICATIONS**

The financial analysis assumes no incremental revenue. However, it is anticipated that with the increase handling capability of new reach stackers the Alliance will capture a portion of the static cargo that has previously not moved through the gateway due to high handling costs. The alternatives analysis and financial implications review three separate considerations. First, should the current equipment be replaced? Second, if replacement is necessary, what type of equipment engine should be acquired; Tier 4, hybrid or all-electric? Third, should the equipment selected be purchased or leased? The analysis in Section D (Alternatives) of the memo leads staff to recommend the purchase of two (2) reach stackers with Tier 4 engines.

The annual depreciation of purchasing reach stackers with Tier 4 final engines will be \$69,279. This is only \$3,159 more than the annual payment for the current leased equipment from Jones (\$66,120 per year). Purchasing new equipment will eliminate the lease payment but increase depreciation by \$69,279 thus increasing operating expenses by \$3,159.

<b>Consideration</b>	<b>Tier 4</b>
Purchase Price	\$1,039,186
Estimated Economic Life	15 years
Annual Depreciation	\$69,279

#### ***Source of Funds***

The current Capital Improvement Plan does not include funds to purchase equipment. During the 2020 budgeting process staff anticipated leasing new reach stackers and included \$200,000 for annual lease expense. If authorized by the Managing Members, the CIP will be adjusted to apply unallocated capital to this purchase.

#### ***Financial Impact***

A purchase will result in the use of approximately \$1.1 million in cash to buy the equipment, an increase in annual depreciation of \$69,279 and an estimated

reduction in expense of \$200,000. The net impact on the Profit and Loss Statement will be a \$131,000 improvement over the current budgeted expenses.

As mentioned above, the new equipment with its increased capabilities has the potential to increase revenue, in addition to helping protect current revenues with better reliability and reduced maintenance costs. There is not a guarantee of the increase in revenue and therefore it was not included in the financial analysis.

#### **D. ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS**

**Alternative 1 - No Action:** Continue to lease two (2) used top picks

- Additional costs to maintain the aging equipment
- Risk of losing business with extended equipment downtime
- When equipment fails it will result in increased cost to bring in an outside equipment to meet current customer obligations
- Marginalizes the NWSA's competitive position to attract incremental new business
- The objectives of the NWPCAS are not fully realized
- The environmental standards established by the NWSA for new leases (as provided below) are not achieved:

Other Marine Terminal Tenant's Lease Language:

*"Cargo Equipment: Lessee shall reasonably meet the Cargo Handling Equipment sector goals and targets of the Northwest Ports Clean Air Strategy. Cargo handling equipment purchased after the effective date of this lease shall meet EPA Tier 4 emission standards or the current Tier standard in effect on the date of equipment purchase or employ zero emissions technology."*

- Meeting new environmental standards established by the State of Washington for publicly-owned or leased equipment are delayed:

State Legislation:

*As of June 1, 2018, RCW 194-29 requires all local governments, including ports, to the extent practicable, to satisfy 100% of their fuel usage for operating publicly owned vehicles, vessels, and construction equipment from electricity or 100% biofuel. The rule requires government entities to justify noncompliance with the rule and have a plan for resolving non-compliance where electric or biofueled options are not practicable.*

**Alternative 2:** Lease or purchase two (2) reach stackers with hybrid or all-electric engines

Hybrid or all-electric engines on large top picks and reach stackers are still in the prototype phase of technology development. Most manufacturers currently have equipment being tested and evaluated to prove reliability and operational feasibility in a major port environment. Further, the purchase price of a hybrid is over 1.5 times that of Tier 4 machine with all-electric units costing more than double the cost of a Tier 4 unit.

Consideration	Tier 4	Hybrid
Purchase Price	\$1,039,186	\$1,607,818
Estimated Economic Life	15 years	15 years
Annual Depreciation	\$69,279	\$107,188

Hybrid reach stackers would cost about \$568,632 more than the Tier 4 units and will increase expense by approximately \$38,000 per year when compared to the Tier 4 units. The purchase or lease of hybrid/all-electric machines is not recommended at this time. It is anticipated that this technology will be proven and more suitable for widespread deployment within the next five (5) years.

**Alternative 3:** Lease two (2) reach stackers with Tier 4 final engines

Staff reviewed the option of leasing versus purchasing two (2) reach stackers. The lease provides more flexibility than purchasing, however at a much higher price. It is anticipated that the equipment will be used for a minimum of five (5) years. Kalmar has offered the lowest lease rates. Assuming a five-year lease, the annual lease payment of Kalmar reach stackers with Tier 4 final engines will be roughly \$78,000 more than the current lease payment for the Jones top picks (i.e., current lease payment of \$66,120 per year as compared to prospective new lease payments of \$144,000 per year) and approximately \$74,000 more than the depreciation from purchasing new Tier 4 equipment. Therefore, this alternative is not recommended.

Description	36 months	48 months	60 months	72 months
Kalmar Annual Lease Payment	\$175,646	\$155,016	\$144,001	\$136,436
Current Leased Top Picks	\$66,120	\$66,120	\$66,120	\$66,120
Difference	<b>\$109,526</b>	<b>\$88,896</b>	<b>\$77,881</b>	<b>\$70,316</b>
Depreciation of Kone reach stackers*	\$69,279	\$69,279	\$69,279	\$69,279
Difference	<b>\$106,367</b>	<b>\$85,737</b>	<b>\$74,722</b>	<b>\$67,157</b>

\*Depreciation based on 15 years

**Alternative 4 (Recommended Action):** Purchase two (2) reach stackers with Tier 4 final engines.

## E. ENVIRONMENTAL IMPACTS / REVIEW

### Environmental Tiers

- Tier 1:** Engine built between 1996-2000  
**Tier 2:** Engine built between 2001-2005  
**Tier 3:** Engine built between 2006-2010  
**Tier 4 Interim:** Engine built between 2011-2013 (while phasing in emission standards)  
**Tier 4 Final:** Engine built 2014 onwards  
**Hybrid:** Diesel-Electric engine

### Air Quality Impacts

Expected emissions from the existing top picks, and hypothetical Tier 3, Tier 4f, and Tier 4f hybrid reach stackers were modeled using the EPA's Diesel Emission Quantifier (DEQ) Tool<sup>1</sup>. This analysis demonstrates the environmental benefits of Tier 4 equipment over existing (Tier 0) and Tier 3 options, as emissions for the Tier 4 equipment would be greater than 99% lower than the existing equipment and 97% lower than Tier 3 equipment.

Expected emissions from the existing top picks and prospective reach stacker options are shown in the table below. The emission numbers show for each option are for 1 unit. Emissions may be doubled to determine the impacts of two units. Each unit was assumed to operate for 250 hours annually.

	Existing Top Pick	Reach Stacker		
	Tier 0 (1985)	Tier 3 (2010)	Tier 4f (2018)	Tier 4 Hybrid (2018)
<b>Engine Hp</b>	210	350	355	281
<b>Emissions (pounds per year)</b>				
<b>PM<sub>2.5</sub></b>	45.17	12.45	0.38	0.30
<b>NO<sub>x</sub></b>	557.66	122.61	11.34	8.98

The DEQ uses the engine model year and "emissions Tier" to reference emission rates for air pollutants (PM<sub>2.5</sub>, NO<sub>x</sub>, and VOCs) from a database. These emission rates are multiplied by the activity level, as determined from user input hours of operation and maximum engine horsepower.

## F. ATTACHMENTS TO THIS REQUEST

- Computer slide presentation.
- Attachment A – bid response overview

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<sup>1</sup> <https://cfpub.epa.gov/quantifier/index.cfm?action=main.home>

**G. PREVIOUS ACTIONS OR BRIEFINGS**

- September 3<sup>rd</sup>, 2019 Managing Member meeting – Reach Stacker presentation: authorization to bid



**Item No.:** 5D-supp  
**Date of Meeting:** January 14, 2020

# Purchase two (2) Reach Stackers for Breakbulk

Presenter: Dustin Stoker  
Title: Chief Operations Officer

# Action Requested

**Request authorization for the Chief Executive Officer or their delegate to purchase two (2) Reach Stackers in an amount not to exceed \$943,000 plus sales tax (approximately \$96,186 at 10.2%).**





Blair

EB-1

Terminal 7

54th Ave

Taylor Way

Lincoln Ave

Alexander Ave

PORT OF TACOMA ROAD

HYLEBOS WATERWAY

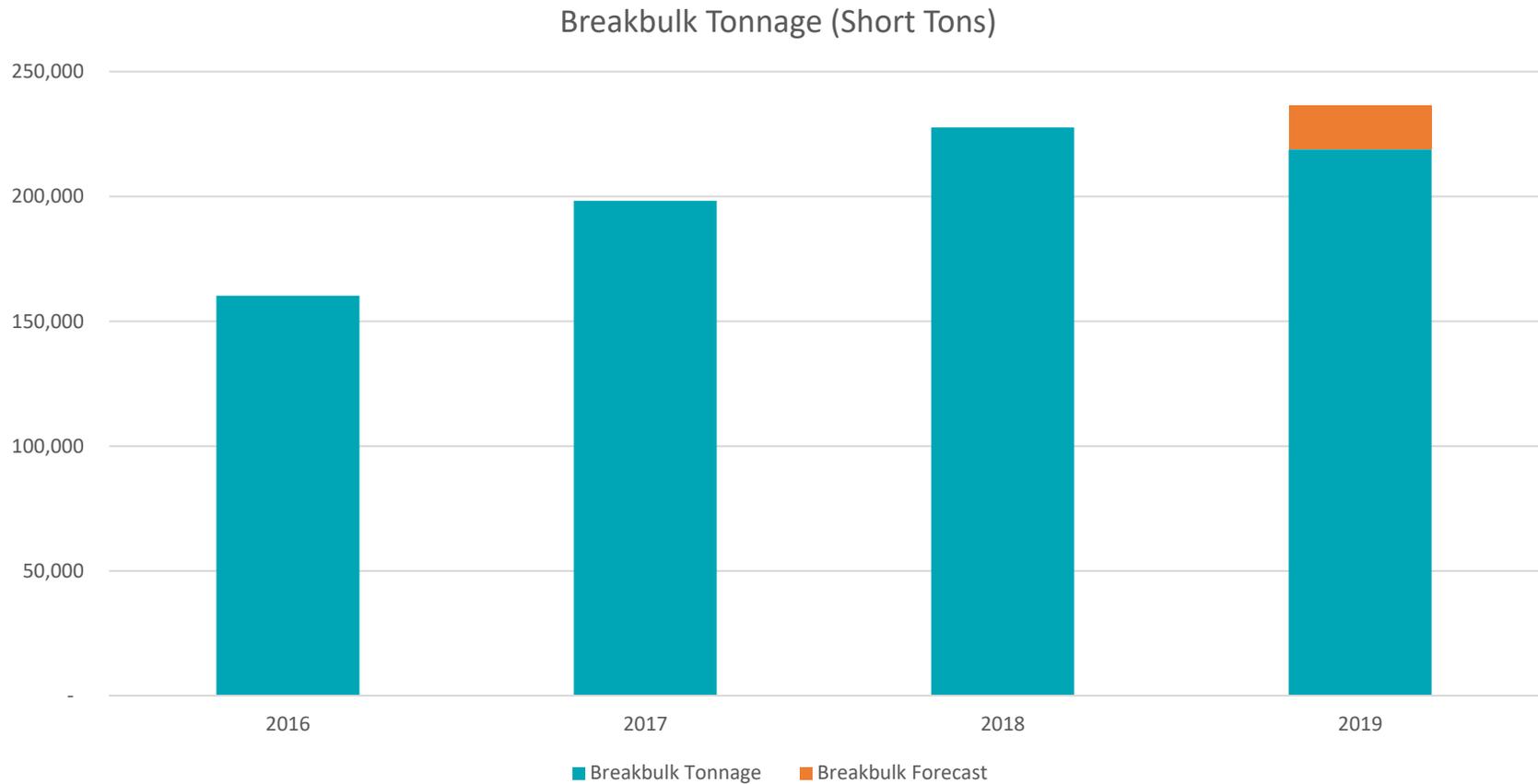
BLAIR WATERWAY

SITCUM WATERWAY

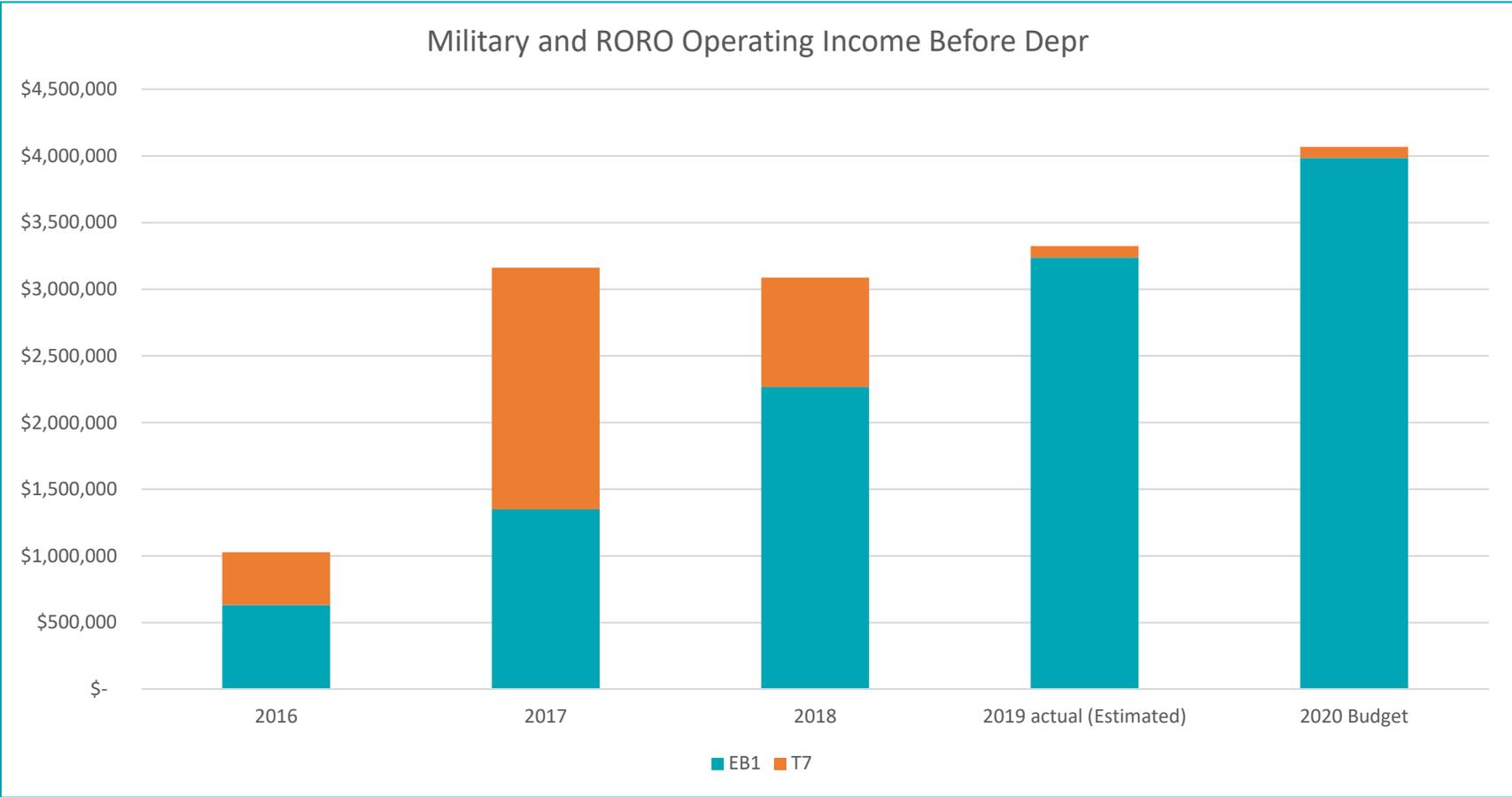
PUYALLUP RIVER

COMMENCEMENT BAY

# South Harbor Breakbulk Tonnage



# Breakbulk Financial Contribution



# Top NWSA Non-Container Commodities



1. Machinery/Construction Equipment  
170,578 MT (2018)



3. U.S. Military  
16,501 MT (2018)



2. Agriculture Equipment  
23,978 MT (2018)



THE NORTHWEST  
SEAPORT ALLIANCE  
Gateway to Solutions

# Breakbulk – Static Cargo



# Background

- **Current: Lease two (2) top picks from Jones Stevedoring**
  - Vintage 1980 and environmentally unrated
  - Equipment is at the end of its useful/serviceable life → spent over \$250K in maintenance and repair over the past 6 years
  - Anticipate over \$60K in additional repairs in the short-term
  - Limited lifting capacity and capability - 55 metric tons
- **Breakbulk volume has increased 6% YOY (through November) and is putting heavy pressure to manage terminal capacity**
- **Current leased Top Picks do not meet the NWSA's CHE goal under the Northwest Ports Clean Air Strategy (NWPCAS)**



# Top Pick – Current Operations



# Reach Stacker – Future Operations



# Alternatives Considered and Their Implications

## Alternative 1: No Action Alternative

- **Additional costs to maintain aging equipment**
- **Increase cost and risk of losing business due to equipment failure**
  - Significant cost impact to bring in outside equipment to meet current customer obligations
- **Marginalizes our competitive position to attract incremental new business**
- **Out of alignment with the Northwest Ports Clean Air Strategy (NWPCAS)**
- **Does not meet environmental standards we are establishing for tenants via new lease language**



# Alternatives Considered and Their Implications (continued)

## Alternative 2: Lease or purchase hybrid or electric reach stackers

- Still in prototype phase and not reliable in day-to-day operations
- Extremely expensive, almost double the price of a Tier 4 machine
- Staff recommends continuing to explore equipment pilots and grant opportunities but refrain from purchasing at this time

## Alternative 3: Lease a tier 4 engine reach stacker

- Provides more flexibility than purchasing
- Annual lease payment is higher than annual depreciation
- NWSA will own/use the equipment longer than 4 years → leasing is not the best option

Description	36 months	48 months	60 months	72 months
Kalmar Annual Lease Payment	\$175,646	\$155,016	\$144,001	\$136,436
Current Leased Top Picks	\$66,120	\$66,120	\$66,120	\$66,120
Difference	<b>\$109,526</b>	<b>\$88,896</b>	<b>\$77,881</b>	<b>\$70,316</b>
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\*Depreciation based on 15 years



# Alternatives Considered and Their Implications (continued)

## Recommended Action:

- Purchase two (2) reach stackers with tier 4 final engines
- Terminate current lease with Jones Stevedoring

## Overview of this action:

- Increases likelihood to capture more static cargo and increase revenues (55MT → 81MT)
- Maintenance costs should be reduced
- In compliance with RCW 194-29
- In alignment with the NWPCAS
- Meets Tier 4 engine standards we set forth with tenants in our new lease language



# Financial Analysis

## Financial Impact

- Current lease with Jones = \$66,120 expense annually
- Purchase = \$69,279 depreciation annually **(\$3,159)\***
- New Lease = \$136K - \$175K expense annually **(\$70K - \$110K)\***

*\* Additional revenue is highly likely due to the increased capability of the equipment. This has not been assumed in the financial modeling.*



# Financials

## **Source of Funds**

Current Capital Improvement Plan (CIP) does not include funds to purchase equipment. 2020 operating budget includes \$200,000 in equipment lease expense. If authorized CIP will be adjusted.

## **Financial Impact**

Approximately \$1.1 million in cash will be used to purchase the equipment.

The purchase will result in an increase in annual depreciation of \$69,279 and a reduction in budgeted expense of \$200,000. The net impact on the profit and loss statement will be a \$131,000 improvement over the budgeted expense in 2020.

*\*It is anticipated that revenues will increase due to the improved equipment capability and the ability to capture more static cargo*

# Environmental Impact/Review

## Air Quality

- Purchasing Tier 4 equipment will reduce emissions by greater than 99% relative to the existing equipment
- Tier 4 equipment is 97% cleaner than Tier 3

	Existing Top Pick		Reachstacker	
	Tier 0 (1985)	Tier 3 (2010)	Tier 4f (2018)	Tier 4 Hybrid (2018)
<b>Engine Hp</b>	210	350	355	281
<b>Emissions (pounds per year)</b>				
<b>PM<sub>2.5</sub></b>	45.17	12.45	0.38	0.30
<b>NO<sub>x</sub></b>	557.66	122.61	11.34	8.98

\* Emission calculations are for 1 unit, total impacts from the project are double what is shown above

## Action Requested

**Request authorization for the Chief Executive Officer or their delegate to purchase two (2) Reach Stackers in an amount not to exceed \$943,000 plus sales tax (approximately \$96,186 at 10.2%).**