Kirkland Downtown Marina
Financial Study

PREPARED FOR

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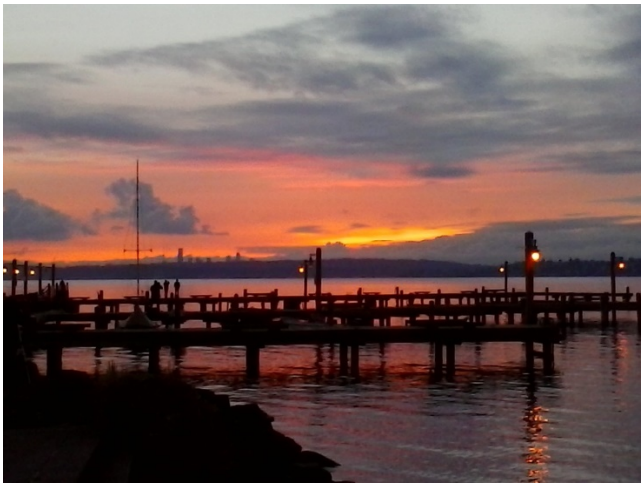
October 8, 2018



BST Associates
Market Research & Strategic Planning

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1 EXECUTIVE SUMMARY

The City of Kirkland's goals for improving boating facilities at the Kirkland Downtown Park are to:

- Use marina improvements as a key component in increasing tourism and thereby helping the downtown core, and,
- Provide safe, sustainable recreational opportunities for guests and residents.

BST Associates was retained by the City of Kirkland to evaluate the financial and economic feasibility of the marina. The primary questions to be answered in this analysis are, will the marina pay for itself or will it require a subsidy from the City, and what are the differences in economic impacts among each of the options under consideration?

1.1 FINANCIAL PERFORMANCE

The financial performance of several marina development options is evaluated in this section. Funding alternatives that were evaluated included grants, debt financing, and public-private partnership.

1.1.1 Summary of Assumptions

1.1.1.1 Capital Cost Estimates

The financial analysis evaluates full cost estimates that were developed for the City by Reid Middleton.[1] These costs are "all-in", and include sales tax and a contingency of 80%.

The first two options address existing moorage facilities at Marina Park:

- Remove the marina after the end in of its useful life (in approximately 10 years), at a cost estimate of $1.2 million (2018$). Transient moorage would continue as at present until the facility is removal. After removal, operations would still occur at South Dock and the Boat Ramp for all of the alternatives.
- Rebuild the marina in 10 years, at a cost of $9.3 million (2018$). The existing marina has 2,422 lineal foot of moorage, and is used for transient moorage by recreational boats and by commercial vessels.

Four options, referred to as hybrid alternatives maintain the same amount of transient moorage as at present (2,422 lineal feet) and use the remaining moorage for permanent moorage. These options are also evaluated in phases:

- Alternative 1 - Phase 1 (referred to Hybrid Alt 1-1) would provide 4,641 lineal feet of moorage (2,219 lineal feet would be used for permanent moorage). The cost of this option is $21.8 million (2018$).
- Alternative 1 – Phases 1 and 2 (referred to Hybrid Alt 1-1&2) would provide 5,605 lineal feet of moorage (3,183 lineal feet would be used for permanent moorage). The cost of this option is $24.8 million (2018$).
- Alternative 2 - Phase 1 (referred to Hybrid Alt 2-1) would provide 4,758 lineal feet of moorage (2,336 lineal feet would be used for permanent moorage). The cost of this option is $21.0 million (2018$).

[1] Source: Marina Park Pier Expansion Study, prepared by Reid Middleton for the City of Kirkland, May 5, 2017.

- Alternative 2 – Phases 1 and 2 (referred to Hybrid Alt 2-1&2) would provide 5,852 lineal feet of moorage (3,420 lineal feet would be used for permanent moorage). The cost of this option is $18.2 million (2018$).

Two options, referred to as permanent moorage alternatives eliminate transient moorage and allocate all moorage for permanent moorage. These options are:

- Alternative 1 – Phases 1 and 2 (referred to Permanent Alt 1-1&2) would provide 5,605 lineal feet of moorage for permanent moorage). The cost of this option is $24.8 million (2018$).
- Alternative 2 - Phase 1 (referred to Permanent Alt 2-1) would provide 4,758 lineal feet of moorage for permanent moorage). The cost of this option is $21.0 million (2018$).

Because the 80% contingency in the cost estimates is quite high, two other cost alternatives were evaluated, in order to further test financial feasibility:

- All-in cost estimates less maximum grants (with 80% contingency)
- All-in cost estimates less maximum grants (with contingency costs adjusted to 20%).

1.1.1.2 Revenues

Revenues are based upon assumptions about activity levels and moorage rates.

Transient moorage:

- Moorage activity (number of visits) is expected to grow at a slower rate of growth (0.5% per year) if the existing facility remains in place than if moorage was improved (growth at 1.1% per year).
- Under the existing conditions, the transient moorage rate would also increase more slowly (at 2% per year from current levels of $0.90 per lineal foot). After improvement, rates could be increased to $1.40 per lineal foot (market rates based upon comparable area marinas) after construction and increase at 2.2% per year.
- In addition, 3-hour stays are assumed to be charged $5 per visit (based upon market rates at comparable area marinas) after construction and increase at 2.2% per year.
- Winter moorage is also expected to occur with an improved facility (8 boats per year after construction paying a rate equivalent to 75% of market rates).

Permanent moorage:

- Marinas in Lake Washington are fully occupied with substantial waitlists. After completion of the designs with a breakwater, moorage is expected to be at 50% occupancy the first year and 90% occupancy afterwards.
- Moorage rates were based upon current rates in Lake Washington, and range from $12.40 per foot per month for smaller slips to $19.50 per foot per month for longer slips. Moorage rates are expected to grow at 2.2% per year thereafter.

Other:

- Commercial rates are expected to increase after completion of the improved facilities (by 25%) but under existing conditions, commercial rates remain at current levels.
- Rates are projected to grow in all scenarios at 2.2% per year for commercial leases and for boat ramp fees.

1.1.1.3 Operating costs

Operating costs, which include payroll, utilities, office supplies and maintenance) are expected to be:

- Under the existing design, costs are estimated at $75,000 in 2018 and are expected to grow at approximately 2.8% per year.
- Under the improved design alternatives (both hybrid and permanent options), operating costs were estimated based on the expenses incurred at six comparable local marinas. The costs per alternative ranged from $290,000 to $326,000, depending on the number of lineal feet. Costs under the new design alternatives are higher than at present, due to the additional costs to operate a larger marina. Operating costs are also expected to grow at 2.8% per year as under the existing alternative.

1.1.2 Grants

There are no grant programs in Washington State that assist in planning and construction of marinas for permanent moorage.

For transient moorage there are a number of grants available, including:

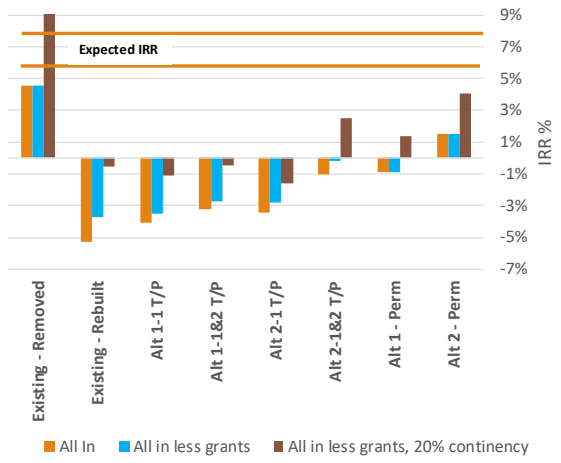
- The Aquatic Lands Enhancement Account (ALEA) provides up to $500,000,
- The Boating Facilities Program (BFP) provides up to $1 million,
- The Boating Infrastructure Grant (BIG) Tier 2 program has an effective limit of $1 million.

The maximum funding that the City could obtain for marina facilities (excluding pump-outs) is $2.5 million.

1.1.3 Internal Rate of Return

The Internal Rate of Return (IRR) is the rate at which the project breaks even. For this project, the IRR should range between 6% and 8%. None of the alternatives meet the required IRR, assuming full cost with no grants or assuming full costs and maximum grants. (See Figure 1).

Figure 1 – City of Kirkland Marina Internal Rate of Return by Option



Assuming maximum grants and 20% contingency:

- The removal option (assuming 20% contingency) meets the IRR goal,
- Alternative 2 (all permanent) has an IRR of 4.1%,
- Alternative Hybrid 2-1&2 has an IRR of 2.5%,
- All other options have IRRs less than 2%.

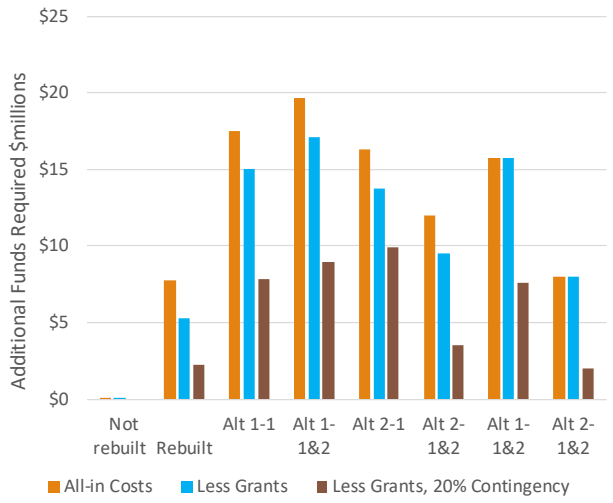
1.1.4 Debt Financing

The City could fund construction using general obligation bonds, which currently have an interest rate of 5%. The net present value (NPV) of streams of net revenue are insufficient to cover construction costs, except under the removal option (assuming a reduced contingency rate of 20%).

If the City chooses to rebuild the marina, it would require additional funds above the bond proceeds under the most optimistic scenario (maximum grants and reduction in contingency from 80% to 20%):

- $2.0 million for permanent alternative 2,
- $2.2 million for rebuild using the existing design,
- $3.5 million for hybrid Alt 2 full design (1&2),
- Other options are $7.6 million or more above bond proceeds.

Figure 2 – Kirkland Marina Financed by Debt



1.1.5 Public Private Partnership

A Public-private partnership is another option for the rebuilding of City Marina. This scenario assumes that the private partner's return on investment would be 10%, across each of the alternatives. The amounts the private partner might be expected to invest are:

- $1.1 million to $3.6 million for the rebuild and hybrid transient/permanent moorage design options, and
- $5.4 million to $5.9 million for the permanent moorage only design options.

Under a public-private partnership, the City would be required to fund costs above the amount generated by net revenues, even under the most optimistic scenario (maximum grants and reduction in contingency to 20%). The amounts required from the City would be:

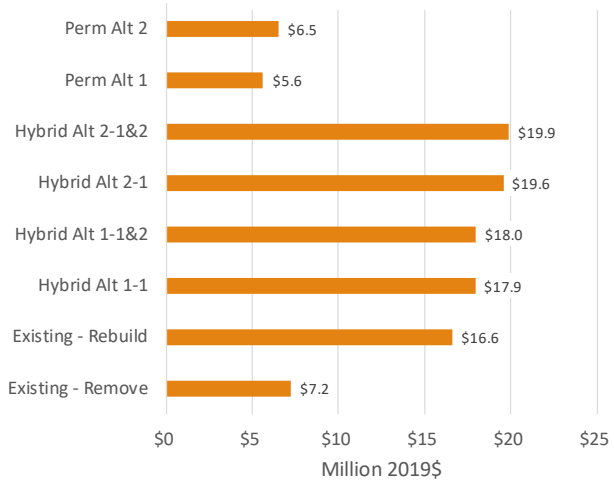
- $3.0 million for a rebuild of the existing design (it is unlikely that a private investor would entertain this option),
- $6.8 million for rebuild of hybrid Alt 2 full design (1&2),
- $6.9 million for rebuild of permanent moorage (Alt 2),
- Other options would require $10 million or more from the City.

1.1.6 Economic Impact Assessment

The economic impact of each of the options was estimated, and the net present value of these impacts calculated assuming 30 years of operation and a discount rate of 5%. As shown in Figure 3, the net present value of these impacts includes:

- Transient moorage alternatives provide $16.6 million to $19.9 million of economic impact,
- The removal option provides $7.2 million, and
- Permanent moorage alternatives provide $5.6 to $6.5 million.

Figure 3 – Estimated Net Present Value of Economic Impacts by Alternative



1.1.7 Findings

The key findings of this analysis are:

- The existing facility does not properly protect boats, which are subject to damage from wind and waves. It is also nearing the end of its useful life. The cost of sustaining the existing facility will increase over time.
- The removal option meets financial performance objectives under the adjusted contingency cost estimate.
- None of the options meet funding requirements under debt financing or public-private partnership funding options.
- Permanent moorage options provide higher levels of net revenues than transient moorage options because marina occupancy is higher for permanent moorage (90%) than for transient moorage (20% on average). This makes permanent moorage more attractive to the private sector.
- Rebuilding or hybrid options (with transient moorage) provide much higher economic impacts to the City. This makes transient moorage more attractive to the public sector but may require a subsidy.
- If the City chooses to improve the marina, the best option appears to be the Hybrid Alternative 2 (phases 1 and 2), because its cost is lower than Alternative 1 and it provides protection that is not available under the current design.
- The high level of cost estimates is an impediment to the financial feasibility of the project. Additional steps that may reduce this cost include:
  - Additional work to resolve or prove contingencies (geotechnical and environmental studies),
  - Value engineer the design to reduce costs. As an example, the breakwater would provide the protection required by boaters, but the cost of the breakwater is substantial ($4 million

or more). Value engineering could determine if the breakwater could be incorporated into the design of the outer floats (as at the Homeport Marina).

- The City could issue a Request for Interest for a private partner to design, build, finance, and operate and see if the private sector can come up other creative ideas to reduce costs and improve financial viability.

2 DEMAND ASSESSMENT

BST Associates was retained by the City of Kirkland to evaluate the market for the boating facilities at the Kirkland Downtown Park. This study involved three main tasks, including: 1) summarizing the results of a 2015 guest moorage study and updating marina activity trends, 2) evaluating the demand for permanent moorage, and 3) evaluating other potential commercial uses of the marina, such as tour boats.

BST Associates prepared an assessment of guest moorage demand for the City of Kirkland in 2015, entitled *Kirkland Waterfront Demand Assessment*. The key findings of that study are summarized in this report, and activity levels at the marina were updated with data January 2016 through August 2018 (the last month for which data was available). Since the completion of the 2015 report the payment kiosks were re- calibration to provide more complete data on use patterns (i.e., 3-hour visits are included as well as overnight visits).

The current study also evaluated the demand for permanent moorage, which may be considered under the development options that include an expanded marina. This effort included 4evaluating utilization rates for permanent moorage at other Lake Washington marinas.

This assessment also considered other potential commercial uses of the marina, including tour boats, hand powered craft, vendors such as Electric Boat, and the potential for inter-lake ferry service.

2.1 BOAT OWNERSHIP TRENDS

Boating is a discretionary activity, which means the activity decreases in poor economic conditions and increases in good economic conditions. Boating activity declined after the recession of 2008, reaching a nadir in 2011. Since 2011, however, boating activity has increased every year.

Near-term conditions appear to be favorable for continued growth. Factors that affect boating appear to be moving in the right direction:

- Continued GDP growth
- Good business climate in United States and Washington State
- Consumer confidence at 17 year high
- Increased equity (housing values, stocks)
- Boat dealer sentiment is upbeat
- Interest rate and lending environment remains favorable
- Good weather
- Low fuel prices.

In the longer term, there are some potential head winds. In particular, demographic preferences may affect boating. The average age of boat owners has been rising, and grew at around 0.5 years per year over the past 10 years. In addition, participation and ownership rates by Millennials is still uncertain. For Kirkland this concern may be somewhat mitigated because 1) most of the boats using the marina are relatively small, and 2) owners of small boats are typically 5 years younger (on average) than owners of cruisers/yachts. However, the demographic factor should be re-evaluated as future plans are finalized.

In Washington State, boating remains very popular,[2] as one of the top water-related activities in the State. More than 35% of Washington residents engage in boating; and 25% engage in motorboat activities. The average number of days of participation is approximately 15 days per year.

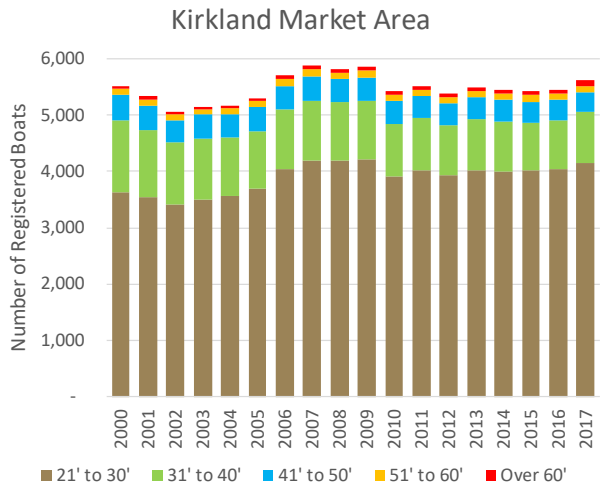
The *Washington State Comprehensive Outdoor Recreation Planning* (SCORP) document also found that there was significant latent demand for boating:

- 5.5% of survey respondents would like to participate in boating but currently do not, and
- 4.2% of survey respondents would like to do more boating.

The Washington State Department of Licensing maintains statistics on the number of registered boats in Washington State. For this report the Kirkland recreational boat market is defined as the number of boats within a ten-mile radius of the Kirkland Downtown Marina, on the eastern side of Lake Washington. The number of registered boats in this region remained between 5,000 and 6,000 recreation boats from 2000 to 2017. Downturns occurred in 2002 and after 2008 as a result of economic recessions, but after these recessions ended the number of registered boats generally increased or remained steady. (See Figure 4).

The Kirkland market currently has approximately 5,600 boats over 20 feet long, and accounts for 38% of boats over 20 feet in King County.

Figure 4 – Registered Boats in the Kirkland Market Area



Existing moorage in the Lake Washington market includes a mix of permanent and transient moorage, as well as dry storage. The current inventory includes the following distribution:

- Transient moorage: approximately 7% of total,
- Permanent moorage: approximately 83% of total, and
- Dry storage: approximately 10% of total.

Marinas in Kirkland account for 19% of the permanent moorage and 52% of transient moorage in Lake Washington.

[2] Washington State Recreation and Conservation Office, *Washington State Comprehensive Outdoor Recreation Plan* (SCORP), 2018.

2.2 TRANSIENT MOORAGE

2.2.1 Boater Survey

As part of the 2015 *Kirkland Waterfront Demand Assessment*, BST Associates surveyed 115 boaters[3]. The results of this survey provided insight into boaters' perception of moorage facilities in Kirkland as well as suggested improvements to facilities. According to this survey:

- Transient moorage in Kirkland was well-utilized by respondents:
  - 77% of respondents had moored at Marina Park,
    - 20% had used South Dock,
    - 33 % had used Carillon Point Marina.
- Respondents were very interested in additional transient dock space.
  - 87% of respondents indicated they would use transient moorage in Kirkland if more were provided, while
  - 13% indicated no interest.
- Many respondents were very pleased with Kirkland facilities:
  - *"Kirkland is a **great place** to take my boat, one of the best on Lake Washington. **Love to go there** and take my friends."*
  - ***"Kirkland is one of the VERY few locations where you can get out in a TOWN rather than someone's front yard (on Lake Washington) I find this to be one of the great assets as a boat owner**. It provides a destination when out for a cruise. I wish there were more places available on Lake Washington to get off the boat and enjoy vibrant town center."*
  - *"Kirkland is just part of our summertime boating. I **can't imagine not being able to dock there**."*
  - *"There aren't many places that offer docks, restaurants, strolling, etc. **Downtown Kirkland has the most complete offering, so keep it up**."*
- Facility improvements:
  - A Breakwater would also be helpful at Marina Park.
    - *"The **waves coming into the area where boats moor is extremely hazardous** to navigate and perform docking maneuvers."*
    - *"Only place on the lakes I have to add bumpers because the **breakers are so strong** from boat traffic."*
    - *"I'm always concerned with the water conditions while at your facility. The marina and docks are **not very well protected from boating and weather swells**. I'm very particular about bumpers and protecting my boat hull and graphics from the dock."*
    - *"This place could be so much better in so many ways. I know more boaters would use it if it were upgraded and didn't cause so much damage to our boats. With no breaker protection it is **super rough and at times dangerous** to get on and off your boat safely."*

[3] The survey was undertaken with assistance from Northwest Marine Trade Association and the Seattle Yacht Club. Respondents were from: Seattle (33%), Kirkland (12%), Renton (10%) and the remainder from other communities around the Lake.

- Other facility improvements:
  - Security
    - *"I've never felt very comfortable leaving electronics or tackle visible."*
  - Signage
    - *"Add signage to warn pedestrians of boat trailers backing into the boat launch."*
  - Pedestrian Safety
  - *Safe transit space between the public and private marinas.*
    - Facility concerns:
  - *The cleats are very sketchy and unstable.*
    - *Current (fixed) dock is so high it's hard to tie boat up safely.*
  - Facility Requests:
    - *Request for floating dock for smaller boats due to dock height.*
    - *General request for amenities (power, restroom with showers, laundromat, fuel, pump out).*

2.2.2 Marina Activity

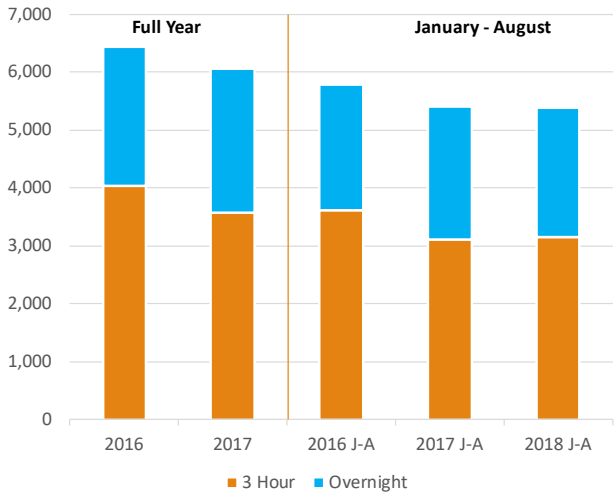
Transient moorage at the Kirkland Marina consists of 3-hour visits and overnight visits, as illustrated in Figure 5.

The number of 3-hour visits dropped from 4,000 2016 to 3,500 in 2017. From January through August the number of 3-hour visits dropped from 3,600 in 2016 to 3,100 visits in 2017, and remained at that level in 2018. Three-hour visits account for around 60% of all marina usage (3-hour and overnight).

The number of overnight visits grew from 2,400 in 2016 to 2,500 in 2017. From January through August the number of overnight visits was 2,200 in 2016, 2017 and 2018. Overnight visits account for around 40% of all trips.

The total number of visits (3-hour and overnight) was 6,400 in 2016, and declined slightly to 6,000 in 2017.

Figure 5 – Kirkland Marina Utilization 2016 to 2018



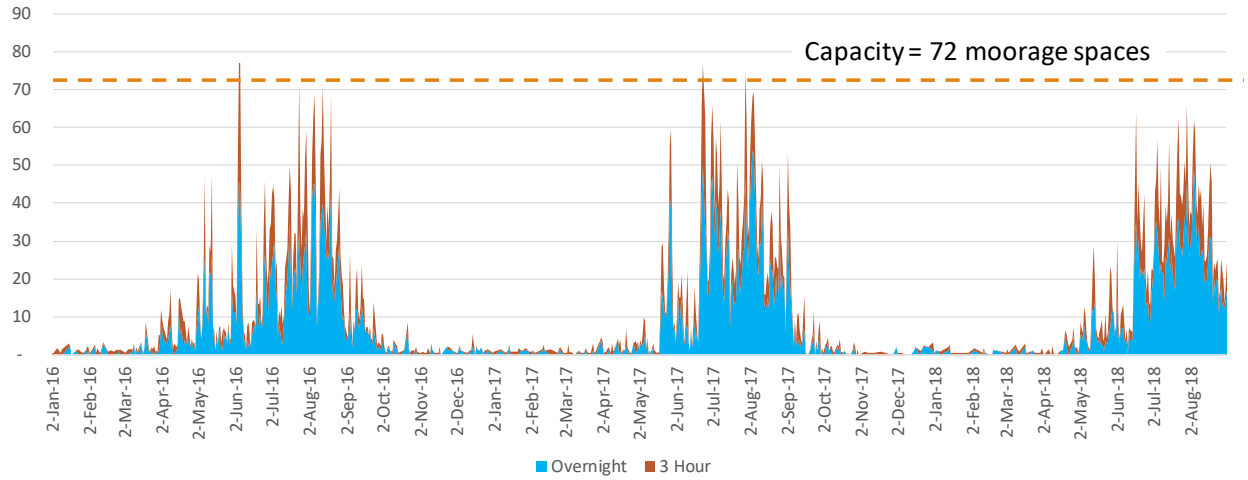
Approximately 95% of the visits at Marina Park occur between April and September. The share of annual visits accounted for by each of these months is:

- April: 12%
- May: 21%

- June: 34%
- July: 53%
- August: 51%
- September: 16%
- Other months: ~1% to 3%

From January of 2016 through August of 2018 the average utilization of the marina was approximately 20%. Guest moorage only reached capacity during a few holidays, summer weekends, and event, which occurred approximately four times during this period. (See Figure 6).

Figure 6 – Kirkland Marina Park Daily Utilization Rates



The average length for boats using the Kirkland Marina is approximately 25 feet, with 60% of the boats less than 26 feet and 40% 26 feet and longer.

2.2.3 Boat Ramp Activity

Utilization rates at boat ramps in Lake Washington were evaluated, because many of the boat trips that use the Kirkland Marina originate at boat ramps in the lake. In 2017, there were reported to be launches of approximately 35,000 boats, which is on par with prior years.[4] Approximately 85% of launches occur between April and September, with the remainder between November and March.

Protected moorage at Kirkland might enable the expansion of the shoulder seasons. One potential market for the shoulder seasons is group visits from yacht clubs and boat clubs, as well as individual boats. As an example, the Port of Edmonds typically attracts 15 club visits or more each year, which account for more than 700 boat-nights. In addition, an improved facility might attract boat shows and other events.

Additional concepts for enhanced transient moorage include:

- Develop a destination campaign with marketing plan (such as that at the Port of Edmonds) with participating merchants,
- Improve scheduling with online programs such as Dockwa (*https://dockwa.com/*)

[4] Note: annual data includes Seattle, Bellevue and Mercer Island ramps plus daily launch totals at Renton (excludes launches associated with annual passes). Monthly data for Renton was not available. Kirkland monthly and annual data is not available for 2017.

  - "Finding a dock or mooring has never been easier, just tap, book, and dock"
- Hot-berthing or shared slips
  - Several marinas experience capacity constraints with guest moorage during peak days. Hot-berthing allows the marina operator to use a slip that is leased to a permanent tenant for transient use when they are away. Payment is often shared with the permanent tenant. The Port of Anacortes reported $18,000 in shared revenue for 2018 (January through August).

The projected growth of boat visits at Marina Park is:

- 2016 = 6,500 visiting boats
- 2017 = 6,000 visiting boats (estimated)
- Projected
  - With improvements: 6,455 visiting boats within 5 years (~1.4%/year); 7,682 visiting boats in 2040 (1.1% growth)
  - Without improvements: 6,186 visiting boats within 5 years (~0.6%/year); 6,733 visiting boats in 2040.

The projected growth of visiting boats at South Dock is the same with and without improvements:

- 2016 = 1,268 visiting boats
- 2040 = 1,415 visiting boats (0.5% growth)

Several marinas that were financed by the RCO[5] allow winter moorage during the off-peak season. Under the marina improvement options with a breakwater, it is estimated that eight boats would use winter moorage.

2.3 PERMANENT MOORAGE

There are an estimated 2,171 permanent wet moorage slips and 275 dry storage slips in Lake Washington (2,446 slips combined). Kirkland accounts for 417 wet moorage slips (17% of total).

Interviews were undertaken with several local marinas that indicated that demand for moorage is strong:

- City of Bellevue – marina is fully occupied, large waiting list
- Meydenbauer Yacht Club – not enough slips to accommodate members
- Carillon Point – fully occupied, waitlist
- Homeport Marina – fully occupied, waitlist
- Yarrow Bay Marina – fully occupied, waitlist
- Lakewood/Leschi – being rebuilt by City of Seattle and Elliott Bay Marina Group, waitlist for new slips
  - 53 new transient moorage slips will be added at Leschi Marina
- Seattle Boat Company – facilities are fully occupied at Newport Yacht Basin and at the new Newport Skylift facility (113 slips in dry boat storage).

Lake Washington Marinas are near full occupancy. As a result, the area is currently under-served. In addition, several marinas are over 30 years old and will require rebuilding in the next 10 years. However, many of these are under-capitalized, and it is likely that the inventory of slips in Lake Washington could decrease over time.

[5] This practice is allowed from October 1st through the third weekend in April.

The proposed marina concepts at Kirkland include approximately 120 slips, which would represent a 6% increase in the permanent wet moorage supply on Lake Washington.

The marina development options that include permanent moorage are expected to have an occupancy rate of 50% in the start-up year and 90% occupancy in the remaining years.

2.4 COMMERCIAL USES

The City of Kirkland has several leases with commercial entities that utilize moorage at Marina Park and Second Street Dock, including:

- Leases:
  - Island Sailing Club at north side of 2nd Ave Dock,
  - Argosy long-term moorage at North Commercial end of Marina Pier, and
  - Northwest Paddle Surfers.
- Touch-N-Go operations, which includes occasional seasonal dockings at Marina Park and South Dock by commercial vessels:
  - Argosy Boats,
  - Waterways Cruises, and
  - Various other boats (Emerald City Pirates, charter boat operations, among others).

Revenues received from these uses was approximately $60,000 in 2017. In 2015, a number of the commercial operators were interviewed. Key findings from these interviews include:

- Priorities of cruise operators:
  - Secure, safe moorage for vessels,
  - Utilities (water and power),
  - Ticket booth with good visibility,
  - Better lighting in parking lot, and
  - Improved security.

There are opportunities to attract additional commercial operators. The City has had interest from other firms, including:

- An electric boat operator,
- Float plane tour operator,
- Hot Tub Boats, and
- A potential ferry operator (requiring moorage at Marina Park), among others.

3 DESIGN CONSIDERATIONS

The City of Kirkland retained engineering firm Reid Middleton to develop a number of replacement options for the marina, and to provide cost estimates for these options. This section reviews the existing design and alternative designs from Reid Middleton, as well as construction components that were not included by Reid Middleton in the *Marina Park Pier Expansion Study*.

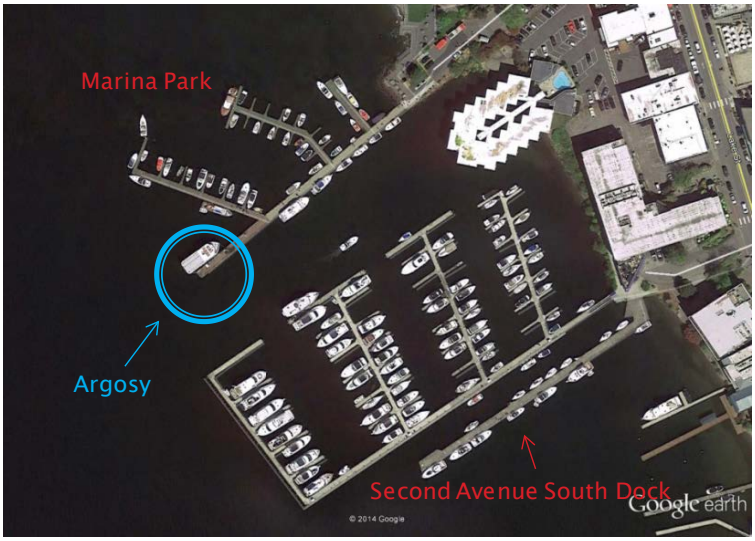
3.1 ALTERNATIVE DESIGNS

3.1.1 Existing Facility

The City of Kirkland's moorage facilities include:

- Marina Park moorage:
  - 72 slips, or around 2,422 lineal feet, and
  - Slips 1-8 have power; slips 9-72 do not have power.
- Second Avenue South Dock (which is not impacted by the redevelopment of Marina Park) offers:
  - Approximately 540 feet long, or approximately 19 slips, and
  - A portion of the north side of dock is leased to Island Sailing Club.

Figure 7 – Existing Kirkland Moorage Facilities



As noted in the interviews with users, the Marina Park moorage facility is not in good condition. Reid Middleton described the condition of the existing structures as follows:

> The City conducted a City-wide Shoreline Structures Assessment in 2014 that describes the general conditions of the shoreline and fixed piers at the park facility (see Appendix F of the Reid Middleton report). The assessment identified elements of the structures that have significant deterioration, including wood decking in areas where the decking has not been replaced, horizontal bracing beams, and firewalls under the pier structure. The report also identified some decay at certain piles and pile caps.
>
> In addition to the deterioration identified in the Shoreline Structures Assessment report in 2014, the pier is periodically subject to impact damage from vessels due to docking operations, particularly during high wind and storm conditions. For example, two separate sections of the pier structure were damaged in 2017 due to impact from docking boats. The

City has implemented maintenance and repair projects, such as decking replacement, and damage repairs to address the immediate needs of the existing docks.

It is estimated that the existing structures have a remaining life of ten to twenty years, depending on maintenance, rate of deterioration, and frequency of impact damage to the structure.[6]

Subsequent discussions with Reid Middleton indicated that if the City were to keep the moorage for a longer period of time, the maintenance costs would increase considerably. For the purposes of this study, the Marina Park moorage is expected to have a maximum life of ten years. The City has two options for the existing Marina Park moorage, either removal or replace:

- Remove: operate the facility as is for ten years and then removal the facility. This option is estimated to have a cost of $1.2 million.[7]
- Replace: replace the facility after ten years, at an estimated cost of $9.3 million.

Reid Middleton provided cost estimates for both fixed piers and floating docks. Since the options with floating docks (with a breakwater) are less expensive, they were used as the basis for the cost estimates in this report.

3.1.2 Alternative 1

Alternative 1 expands on existing design with 120 slips and 5,605 lineal feet of moorage at full build-out.

It can be undertaken in two phases:

- Alternative 1 - Phase 1
  - Cost estimate is $21.8 million.[8] It would provide 87 wet moorage slips and 2,080 lineal feet of moorage along floats.
- Alternative 1 - Phase 2
  - Cost estimate is $3.0 million. This option provides 33 slips and 1,934 lineal feet of moorage along floats.
- Alternative 1 (Phase 1 and Phase 2)
  - The combined cost estimate for Alternative 1 (both phases) is $24.8 million.

[6] Reid Middleton, *Marina Park Pier Expansion Study*, May 5, 2017, pages 3-4. Prepared for the City of Kirkland. Emphasis added by BST Associates.

[7] BST Associates based on cost estimates produced by Reid Middleton. All costs are in 2018 dollars, which were calculated by inflating Reid Middleton 2017 cost estimates by a factor of 3.5%.

[8] Cost may not add to total due to rounding.

Figure 8 – Kirkland Marina Alternative 1

3.1.3 Alternative 2

Alternative 2 re-orients the moorage slips, and provides 122 slips and a total of 5,842 lineal feet of moorage.

Figure 9 – Kirkland Marina Alternative 2

Alternative 2 can be also undertaken in two phases:

- Alternative2 - Phase 1
  - Cost estimate is $21.0 million (including the rebuild of existing moorage). It would provide 80 wet moorage slips and 2,234 lineal feet of moorage along floats.
- Alternative2 - Phase 2
  - Cost estimate is $6.4 million. This option provides 42 slips and 1,652 lineal feet of moorage along floats.
- Alternative2 (both phases)

- The combined cost estimate for Alternative 1 (both options, excluding rebuild of the existing moorage) is estimated at $18.2 million.[9]

3.1.4 Alternative 3

Alternative 3 provides a full build-out option with 180 slips and a total of 9,077 lineal feet of moorage. The construction cost is estimated at $25.0 million. Alternative 3 was not included in the financial analysis.

Figure 10 – Kirkland Marina Alternative 3

3.2 Cost Estimates

The construction costs presented in the *Marina Park Pier Expansion Study* are at a pre-feasibility level because there are several unknown factors that need to be evaluated in greater detail. These include (but are not limited to) the following:

- Geotechnical conditions are not known; this could affect the design and construction costs (size/length of piling etc.).
- The marina expansion could require additional planning, permitting and mitigation costs that might not be required if a marina already existed in the northern portion of the site.

At this level of analysis, the contingency costs are estimated at 80%:

- Planning Contingency (20%)
- Design Contingency (20%)
- Permitting and Engineering (20%)
- Construction Contingency (20%)

[9] The full development of Alternative 2 does not require rebuilding existing moorage, since it is replaced in Phase 2.

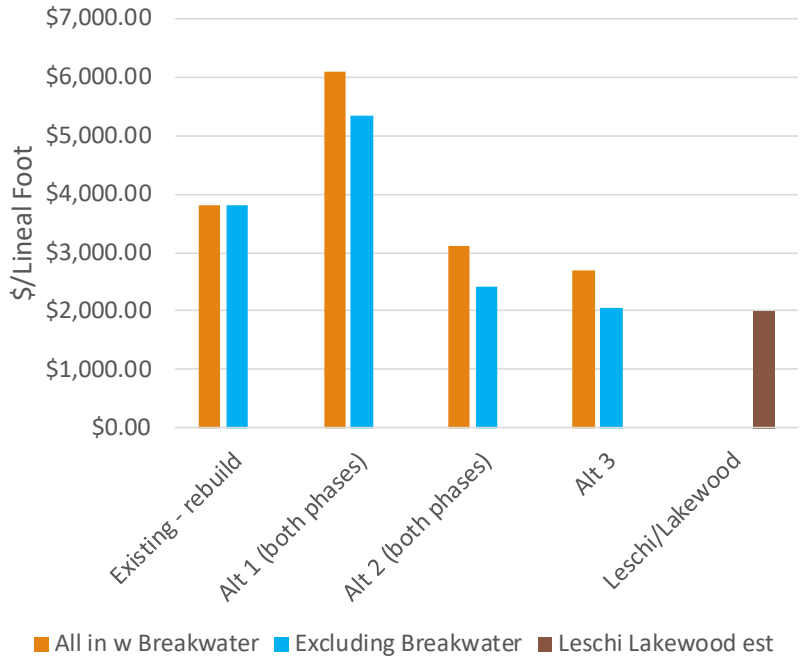
With this level of contingency costs, none of the alternative designs is financially viable. The City of Kirkland requested a preliminary assessment of comparable marinas to see if these fully-burdened costs appeared too high.

3.2.1 Comparison of Cost Estimates

A comparison of all-in construction costs per lineal foot is provided in Figure 11. Alternatives 2 and 3 provide the lowest cost per lineal foot of moorage. The existing rebuild option and Alternative 1 have higher costs.

Rebuilding of the Leschi/Lakewood Marinas in Seattle is currently underway, with an estimated cost of approximately $2,000 per lineal foot. This is only slightly lower than the cost estimates per lineal foot for Alternatives 2 and 3 (excluding the breakwater), but significantly lower than the rebuild option or Alternative 1.

Figure 11 – Comparison of Cost Estimates



The breakwater is a necessary asset for the different alternatives. As designed, however, it does not generate revenue, since it is not connected to shore and there is no access for boaters. Re-designing the breakwater to attach to the main floats could reduce overall costs.

Options to further evaluate cost estimates could include:

- Undertake steps to reduce uncertainties:
  - Geotechnical assessment
    - ~$15,000 for review of existing information; and
    - ~$50,000 for borings).
- Undertake value engineering for a preferred alternative:
  - Review design options,
  - Connect breakwater to floats, and
  - Consider less costly floats.

3.3 ADDITIONAL COST COMPONENTS

Some assets that do not generate revenue are not included in the cost estimates. These costs are the City's responsibility and could be considered as a part of the Park Master Plan. These costs include restrooms, pump-out facility, extension of power to the marina, and parking. Each of these items is discussed below.

3.3.1 Restrooms

The cost of restrooms depends on size and features. Pre-fabricated restrooms are less expensive, at approximately $220,000 for a 520 sq. ft. building.[10] Built in-place restrooms are more expensive, at approximately $500,000 for a 650 sq. ft. building.[11] These costs do not include finishes, permitting, site conditions and installation costs, which can vary widely from site to site.

3.3.2 Pump-out facility

A pump-out facility for vessel waste can cost $15,000 to $20,000 for the equipment plus installation costs, which varies by site. There are grants from Washington State Parks to defray costs of 75% of eligible costs, including equipment and installation. The City would need to pay for the improvements and then seek re-imbursement from the state.

3.3.3 Extension of power to the marina

The cost to extend power to the marina, which also depends on local site conditions, is unknown

3.3.4 Parking

Parking is an important part of marina operation. Typical use patterns for parking at marinas[12] include the following:

- Boats in wet moorage tend to have very limited use during normal weekdays (possibly 10% to 15%) during the boating season, and almost none (less than 1%) in the off-season.
- On normal weekends, marina parking sees higher use (possibly in the 20% to 30% range, depending on the weather).
- On extended holiday weekends, traffic is substantially higher (40% to 60%).

Determining how much parking space is needed at a recreational boating facility is best done on a site-specific basis. Planning guidelines call for one parking space for every two to three permanent marina slips[13], but many marinas have fewer parking spaces than recommended. As an example, the Leschi/Lakewood Marina has approximately one parking space for four moorage slips.

Because most boating activity occurs on weekends and holidays, shared parking with commercial building parking lots/garages works well. Some marinas also encourage customers to use ride-sharing options (such as like Uber and Lyft) to manage parking demand. Drop-off space for customers is also important.

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[10] CXT Inc. an LBFoster Company, a leading manufacturer of prefab restrooms.

[11] Washington State Parks Commission budget analyst.

[12] Kissman, Dennis, *Where There are Boats There Must be Cars—But How Many?*, 2012.

[13] 34th National Course and Conference Docks and Marinas, *Fundamental Truths about Marinas Past, Present & Future Common Sense Rules of Thumb*, 2008.

4 FINANCIAL FEASIBILITY ASSESSMENT

This section provides the financial feasibility of the options under consideration.

4.1 REVENUES

Revenues for marinas is determined by activity levels, as well as by rates and expected rates of growth. These factors are discussed below.

4.1.1 Transient Moorage Rates

Transient moorage rates at the City of Kirkland moorage facilities increased from $0.60 per lineal foot in 2013 to $0.75 per lineal foot from 2014 through 2016, and were raised again to $0.90 per lineal foot in 2017 and 2018. (See Table 1).

Table 1 – City of Kirkland Transient Moorage Rate Trends

	Moorage	Power Rates	
Year	Rate/ Lin Ft	up to 39'	40' +
2013	$0.60		
2014	$0.75		
2015	$0.75	$5.00	$8.00
2016	$0.75	$5.00	$8.00
2017	$0.90	$5.00	$8.00
2018	$0.90	$5.00	$10.00

Source: City of Kirkland

Under the existing design, the rate for transient moorage is assumed to increase by 2.0% per year, which is slightly lower than the rate of inflation. Not charging for visits of three hours or less is assumed to continue.

The rates charged by other marinas for transient moorage are presented in Table 2 and Several marinas provide a short-term rate (from 3 hours to 6 hours) ranging from $5.00 to $30.00 per stay on average for a 30-foot boat. Under the improved alternative designs at Marina Park, a short stay (3-hour) rate of $5.00 per visiting boat was (year around) was used in the financial model.

Table 3. The rates for overnight visits often differ based on the season, size of vessel and/or day of the week. The peak rate averaged $1.50 per foot per night for overnight visitors. Off peak rates are generally $0.15 to $0.25/foot less than during the peak season. Some marinas charge a premium for weekday visitors year round.

Under the designs for an improved marina at Marina Park, transient rates are assumed to increase to $1.40, which is slightly lower than the market rate.

Table 2 – Transient Moorage Rates – Overnight Moorage

Marina	City	Peak Rate Under 50'	Peak Rate 50' - 99'
Marina Park	Kirkland	$0.90	$0.90
Carillon Point	Kirkland	$2.00	$2.00
Harbour Village	Kenmore	$1.00	$1.50
Bell Harbor Marina	Seattle	$1.75	$2.00
Shilshole Bay Marina	Seattle	$1.75	$2.00
Fishermen's Terminal	Seattle	$1.05	$1.05
Elliott Bay Marina	Seattle	$1.50	$2.00
Edmonds Marina	Edmonds	$1.45	$1.45
Average		$1.50	$1.71
Used in analysis		$1.40	$1.40

Source: BST Associates using data from selected marinas

Several marinas provide a short-term rate (from 3 hours to 6 hours) ranging from $5.00 to $30.00 per stay on average for a 30-foot boat. Under the improved alternative designs at Marina Park, a short stay (3-hour) rate of $5.00 per visiting boat was (year around) was used in the financial model.

Table 3 – Transient Moorage Rates – Short Stay

Marina	City	Rate for 30-foot	Period
Bell Harbor Marina	Seattle	$30.00	6 hrs
Shilshole Bay Marina	Seattle	$22.50	6 hrs
Elliott Bay Marina	Seattle	$10.00	3 hrs
Port of Poulsbo Marina	Poulsbo	$5.00	4 hrs
Used in analysis		$5.00	3 hrs

Source: BST Associates using data from selected marinas

The model also includes a winter moorage program under design alternatives for an improved marina. The rate for winter moorage is priced at a 75% discount from permanent moorage rates.

4.1.2 Permanent Moorage Rates

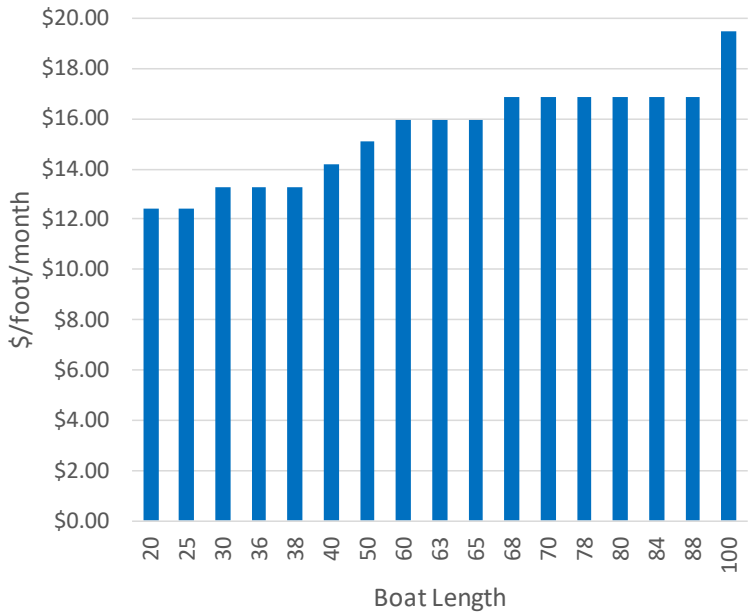
Permanent moorage rates were obtained from the following marinas to determine the market rates for Lake Washington:

- Carillon Point (Kirkland - private)
- Homeport Marina (Kirkland - private)
- Bellevue Marina (Bellevue, public)
- Newport Shores (Bellevue - private)
- Leschi Lakewood (Seattle, public)

The average rates for these marinas in 2018 (including taxes) range from $13.90 per foot per month at the low end to $22.20 per foot per month at the high end.

The rates used in this financial analysis (excluding taxes) range from $12.40 per foot per month at the low end to $19.50 per foot per month at the high end. (See Figure 12).

Figure 12 – Lake Washington Permanent moorage Market Rates



4.1.3 Commercial Rates

The City of Kirkland has moorage leases with a number of commercial operators, including:

- Argosy leases space on north end of Marina Pier at a rate of $1,800 per month ($21,600 annual contract),
- Island Sailing Club leases space on the north side of South Dock at a rate of $1,240 per month ($14,880 annual contract), and
- Touch-n-go operators use the south side of Marina Commercial area and the south side of South Dock on a per operation basis. The average annual revenue for these operations is $25,000. The rate is currently $1.50/ft (plus a $25 booking fee), which entitles the operator to moorage up to 2 hours on the pick-up of guests and 30 minutes on their return for the drop off-of guests.

These leases are renewed every 3 to 5 years and increased to market rate and/or increased at the rate of inflation (CPI).

Under existing design alternatives, commercial rates are expected to grow annually at the rate of inflation (expected to average 2.2% per year over the next 40 years).

Under improved design alternatives, commercial rates are assumed to grow 25% the year after construction and then to increase annually at the rate of inflation (expected to average 2.2% per year over the next 40 years).

4.1.4 Boat Ramp

The boat launch currently generates $32,806 (based on an average from 2013 to 2015). More recent data is not available.

Under all design alternatives, boat launch revenues are expected to grow annually at the rate of inflation (expected to average 2.2% per year over the next 40 years).

4.1.5 Revenue Comparison by Alternative

Over the past three years, revenue from existing operations averaged $176,700,[14] consisting of the following components:

- Transient moorage accounts for 46% of total,
- Commercial moorage accounts for 34% of total,
- Boat Ramp accounts for 19% of total.

Table 4 presents a summary of projected revenues by major category for each design alternative, in the 15th year after construction (2033).

Revenues from transient moorage are highest under the options that include transient moorage at current levels (2,422 lineal feet) with construction of a breakwater, because this option allows for higher transient moorage rates. Under the removal and the permanent only design options, transient moorage is only provided at South Dock.

Revenue from permanent moorage is constrained by the number of lineal feet available after providing for the current level of transient moorage space. Revenues from permanent moorage are significantly higher than under hybrid (transient and permanent moorage) options.

Revenues from commercial operations are higher than at present because rates are assumed to increase 25% after improvements are completed. Under the removal option, commercial revenues are lower due to loss of the Argosy lease and a portion of the touch and go operations.

Boat ramp revenues are similar under all alternatives.

Table 4 – Year 15 Revenue Comparison by Alternative (2033 Dollars in $1,000s)

Alternative	Transient Moorage	Permanent Moorage	Commercial	Boat Ramp	Total
Existing Design					
Not rebuilt	$10.9	$0.0	$52.1	$45.1	$108.0
Rebuilt	$120.2	$0.0	$81.8	$45.1	$247.1
Hybrid (transient & permanent moorage)					
Alt 1-1	$215.3	$450.4	$100.1	$45.1	$811.0
Alt 1-1&2	$215.3	$654.1	$100.1	$45.1	$1,014.6
Alt 2-1	$215.3	$481.2	$100.1	$45.1	$841.7
Alt 2-1&2	$215.3	$713.9	$100.1	$45.1	$1,074.4
Permanent only (excludes transient moorage)					
Alt 1-1&2	$10.9	$1,135.2	$100.1	$45.1	$1,291.3
Alt 2-1&2	$10.9	$1,195.0	$100.1	$45.1	$1,351.1

Note: the options that include transient moorage keep the same amount of space available for guest moorage as at present (2,422 lineal feet).
Source: BST Associates

Revenues grow at an average annual rate of 2.3% to 3.1%, depending on the option; under the removal option the rate of growth is 0.0%.

[14] City of Kirkland, based on average over past three years.

4.2 OPERATING COSTS

Current operating costs for City of Kirkland marina staff are estimated at $75,300, consisting of the following categories:

- Personnel accounts for 64% of total,
- Utilities accounts for 6% of total,
- Office/Supplies accounts for 8% of total,
- Maintenance accounts for 22% of total.

For this analysis, the cost of operating costs at six local marinas were evaluated. These marinas ranged in size from 85 slips to 150 slips, which is comparable to the proposed City of Kirkland design alternatives. The annual costs for each alternative in Kirkland ranged from $186,000 to $380,000. The O&M costs associated with the redevelopment options were adjusted based on the number of slips. These costs are significantly higher than under the current operation because the number of assigned personnel is doubled, and costs for utilities, office supplies and maintenance are increased.

The O&M costs for the removal option were reduced by approximately 50% from the rebuild option, in order to accommodate costs at the South Dock and Boat Ramp facilities, since these remain even if the Marina Park facilities are removal.

Under all options, O&M costs are expected to grow as follows:

- Personnel at 3.5% per year,
- Utilities at 2.5% per year,
- Office/Supplies at 2.5% per year,
- Maintenance at 2.5% per year.

The average annual O&M cost for year 15 are presented in Table 5.

Table 5 – Year 15 Expense Comparison by Alternative (2033 Dollars in $1,000s)

Alternative	Expenses
Existing Design	
Not rebuilt	$58.3
Rebuilt	$123.7
Hybrid (transient & permanent moorage)	
Alt 1-1	$447.7
Alt 1-1&2	$495.5
Alt 2-1	$443.4
Alt 2-1&2	$488.3
Permanent only (excludes transient moorage)	
Alt 1-1&2	$495.5
Alt 2-1&2	$488.3

Source: BST Associates

O&M costs grow at an average rate of 1.2% per year under the removal option and from 2.9% to 3.2% per year under the other options.

4.3 NET REVENUES

The net revenues associated with each alternative are presented in Table 6. These estimates assume that the start year for redevelopment is 2019, and are presented for years 1 through 5, 10, 15, 20 and 40.

Under the removal option, revenues are the same as the rebuilt option through year 9. In year 10, the existing facility is removal. Net revenues after 2010 accrue from operations at South Dock and the Boat Ramp.

The annual rate of growth for each alternative from year 2 (2020) to year 40 (2058) is:

- Existing Design
  - Remove option: -1.6%
  - Rebuild option: +1.3%
- Hybrid (transient & permanent moorage)
  - Alt 1-1 +1.8%: 1.8%
  - Alt 1-1&2: 3.2%
  - Alt 2-1: 1.9%
  - Alt 2-1&2: 3.4%
- Permanent only (excludes transient moorage)
  - Alt 1-1&2: 2.5%
  - Alt 2-1&2: 2.6%

Table 6 – Net Revenues by Alternative ($1,000)

Alternative	Year 1 2019	Year 2 2020	Year 3 2021	Year 4 2022	Year 5 2023	Year 10 2028	Year 15 2033	Year 20 2038	Year 40 2058	CAGR 2020-2058
Existing Design										
Not rebuilt	$100	$102	$104	$106	$107	$47	$50	$52	$56	-1.6%
Rebuilt	$100	$102	$104	$106	$107	$62	$123	$132	$167	1.3%
Hybrid (transient & permanent moorage)										
Alt 1-1	-$54	$284	$290	$295	$301	$332	$363	$396	$564	1.8%
Alt 1-1&2	-$26	$249	$254	$259	$264	$211	$519	$569	$826	3.2%
Alt 2-1	$23	$310	$316	$323	$329	$171	$398	$435	$625	1.9%
Alt 2-1&2	$86	$264	$269	$274	$279	$247	$586	$644	$943	3.4%
Permanent only (excludes transient moorage)										
Alt 1-1&2	$139	$476	$484	$492	$501	$275	$796	$869	$1,216	2.5%
Alt 2-1&2	$245	$504	$513	$522	$531	$311	$863	$944	$1,333	2.6%

Note: CAGR refers to compound annual growth rate
Source: BST Associates

4.4 FINANCIAL PERFORMANCE

The financial performance of each option is evaluated in this section. Funding alternatives include grants, debt financing and public-private partnership.

4.4.1 Grants

There are no grant programs in Washington State that assist in planning and construction of marinas for permanent moorage.

Grants that are available for transient moorage include:

- The Aquatic Lands Enhancement Account (ALEA), administered by the Washington State Recreation and Conservation Office (RCO), provides funding to buy, protect, and restore aquatic lands habitat and to provide public access to the waterfront. Development projects such as improving public access in conjunction with moorage improvements has a limit of $500,000 and requires a 50% match.
- The Boating Facilities Program (BFP), also administrated by RCO, helps fund projects that acquire, develop, and renovate facilities for motorized boats and other watercraft, including launching ramps, guest moorage, and support facilities. The transient moorage components envisioned in the rebuild and hybrid options would qualify for the BFP funding program. BFP focusses on boats up to 26 feet long. Approximately 60% of existing boats that use the Kirkland marina are in this category, so the City of Kirkland marina projects would qualify. The limit for development projects using BFP funding is $1 million, and requires a 25% match from the City.
- The Boating Infrastructure Grant Program (BIG), also administrated by RCO, provides funding to develop and renovate boating facilities that serve guest recreational boats 26 feet and larger. The Tier 2 component has a limit up to $1.4 million but the effective limit is $1 million. BIG grants require a 25% match from the City. Eligible projects include development or renovation of:
    - Boarding floats, transient moorage floats, fixed docks, piers, buoys
    - Breakwaters
    - Dinghy docks
    - Navigational aids
    - Upland support facilities – restrooms, showers, utilities, etc.
- The Clean Vessel Act Grant Program is administered by the Washington State Parks and Recreation Commission. The purpose of the Act is to help reduce pollution from vessel sewage discharges into U.S. waters by providing funding for the construction, renovation, operation, and maintenance of waste disposal systems to service recreational vessels. The City would pay for development of the facilities (the installed cost of pump-outs, dump stations, pump-out boats and floating restrooms) and then request reimbursement from the State Parks for up to 75% of eligible facilities, which includes the cost of new equipment or the renovation of existing equipment, as well as necessary items such as pumps, piping, lift stations, on-site holding tanks, pier or dock modifications, signs, permits, planning, engineering and other miscellaneous equipment needed for a complete and efficient station. The typical cost of the equipment is $15,000 to $20,000 plus installation, which varies by site.
- The maximum funding that the City could obtain for marina facilities (excluding pump-outs) is $2.5 million.

Potential funding from the Port of Seattle has also been suggested. However, the Port of Seattle places a priority on projects that meet the Century Agenda, and this does not include recreational marinas.

4.4.2 Cost Estimates Used in report

The financial analysis evaluates the full cost estimates provided by Reid Middleton, as shown in Table 7 (all-in cost estimates which include the 80% contingency). Because the contingency is high, two other cost alternatives are evaluated:

- All-in cost estimates less maximum grants (with 80% contingency)
- All-in cost estimates less maximum grants (with adjusted contingency costs at 20%).

Table 7 – Cost Estimates for City of Kirkland Marina Alternatives (2019$)

	Existing Design		Hybrid Design - Permanent/Transient				Permanent Only	
Alternatives	**Not Rebuilt**	**Rebuilt**	**Alt 1-1**	**Alt 1-1&2**	**Alt 2-1**	**Alt 2-1&2**	**Alt 1-1&2**	**Alt 2-1&2**
All-in Costs	$1.3	$9.6	$22.5	$25.7	$21.7	$18.8	$25.7	$18.8
Less Grants	$1.3	$7.1	$20.0	$23.2	$19.2	$16.3	$25.7	$18.8
Less Grants, 20% Contingency	$0.9	$4.0	$12.9	$15.0	$13.3	$10.3	$17.5	$12.8
Cost Factors								
Max Grants		$2.5	$2.5	$2.5	$2.5	$2.5		
Full Contingency (80%)	$0.5	$4.1	$9.5	$10.9	$5.1	$8.0	$10.9	$8.0
Adj. Contingency (20%)	$0.1	$1.0	$2.4	$2.7	$1.3	$2.0	$2.7	$2.0

Source: Reid Middleton, BST Associates

4.4.3 Internal Rate of Return

The Internal Rate of Return (IRR) is the rate at which the project breaks even. For this project, the IRR should range between 6% and 8%. None of the alternatives come close to meeting the required IRR, assuming full cost with no grants or assuming full costs and maximum grants. (See Table 8 and Figure 13). Assuming maximum grants and 20% contingency:

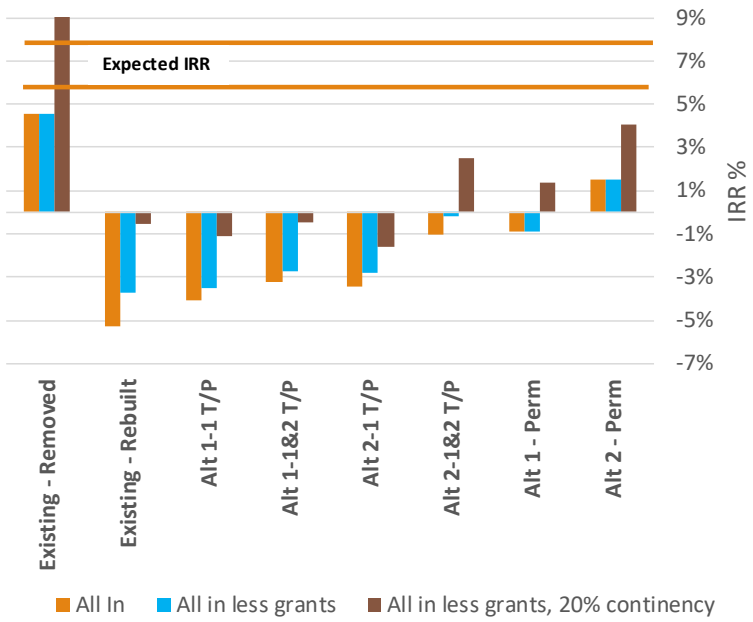
- The removal option (assuming 20% contingency) meets the IRR goal,
- Alternative 2 (all permanent) has an IRR of 4%,
- Alternative 2-1 T/P has an IRR of 3%,
- All other options are less than 2%.

Table 8 – IRR Summary by Alternative and Cost Estimate

	Existing Design		Hybrid Design - Permanent/Transient				Permanent Only	
Alternatives	**Not Rebuilt**	**Rebuilt**	**Alt 1-1**	**Alt 1-1&2**	**Alt 2-1**	**Alt 2-1&2**	**Alt 1-1&2**	**Alt 2-1&2**
All-in Costs	5%	-5%	-4%	-3%	-3%	-1%	-1%	1%
Less Grants	5%	-4%	-3%	-3%	-3%	0%	-1%	1%
Less Grants, 20% Contingency	10%	-1%	-1%	0%	-2%	3%	1%	4%

Source: BST Associates

Figure 13 – City of Kirkland Marina Internal Rate of Return by Option



4.4.4 Debt Financing

The City could fund construction using general obligation bonds, which currently have an interest rate of 5%. The net present value (NPV) of streams of net revenue are insufficient to cover construction costs, except under the removal option and assuming a reduced contingency rate of 20%.

If the City chooses to rebuild the marina, additional funds above the bond proceeds are required under even the most optimistic scenario (maximum grants and reduction in contingency from 80% to 20%):

- $2.0 million for permanent alternative 2,
- $2.2 million for rebuild using the existing design,
- $3.5 million for hybrid Alt 2 full design (1&2),
- Other options are $7.6 million or more above bond proceeds. (See Table 9).

Table 9 – Financial Evaluation Assuming City Debt Financing

	Existing Design		Hybrid Design - Permanent/Transient				Permanent Only	
Alternatives	Not Rebuilt	Rebuilt	Alt 1-1	Alt 1-1&2	Alt 2-1	Alt 2-1&2	Alt 1-1&2	Alt 2-1&2
Construction Cost								
All-in Costs	$1.3	$9.6	$22.5	$25.7	$21.7	$18.8	$25.7	$18.8
Less Grants	$1.3	$7.1	$20.0	$23.2	$19.2	$16.3	$25.7	$18.8
Less Grants, 20% Contingency	$0.9	$4.0	$12.9	$15.0	$15.4	$10.3	$17.5	$12.8
Net Revenues								
NPV (30 years) @ 5%	$1.2	$1.8	$5.0	$6.0	$5.5	$6.8	$9.9	$10.8
Additional Funding Requirement								
All-in Costs	$0.1	$7.8	$17.5	$19.6	$16.3	$12.0	$15.7	$8.0
Less Grants	$0.1	$5.3	$15.0	$17.1	$13.8	$9.5	$15.7	$8.0
Less Grants, 20% Contingency	-$0.3	$2.2	$7.9	$9.0	$9.9	$3.5	$7.6	$2.0

Source: BST Associates

4.4.5 Public Private Partnership

A public-private partnership is another option for the rebuilding of City Marina. The City of Seattle recently entered such an agreement with a private partner to rebuild Leschi and Lakewood marinas, and provides a useful example of how this type of arrangement could work for the City of Kirkland.

The cost to rebuild the Seattle marinas is estimated at $12 million to $14 million. These marinas have a combined total of 315 slips with 9,600 lineal feet of moorage. Funding for reconstruction is being provided by:

- City funds of approximately $4 million,
- RCO grant of $1 million from the BFP program, and
- The private partner (Marina Management LLC) is responsible for the remaining financing, estimated at approximately $7 million to $9 million.

The private partner is also responsible for all O&M costs. The City of Seattle receives 3% of gross revenues for rent of the facility. The term of the lease is 20 years plus two 10-year renewal options (total of 40 years if both renewals are exercised).

Assuming a return on investment of 10% (which approximates the return on investment that a private partner would require) the NPV of net revenues for rebuild options would range from:

- $1.1 million to $3.6 million for the rebuild and hybrid transient/permanent design options, and
- $5.4 million to $5.9 million for the permanent only design options.

Under a public-private partnership, the City would be required to fund costs above the amount generated by net revenues in order to cover the costs under even the most optimistic scenario (maximum grants and contingency reduced to 20%). The City's level of funding, shown in Table 10, is estimated to be:

- $3.0 million for a rebuild of the existing design (it is, however, unlikely that a private investor would entertain this option),
- $6.8 million for rebuild of hybrid Alt 2 full design (1&2),
- $6.9 million for rebuild of permanent moorage (Alt 2),
- Other options are $10 million or more above expected investment by the private operator.

Table 10 – Financial Evaluation Assuming Public-Private Partnership

	Existing Design		Hybrid Design - Permanent/Transient				Permanent Only	
Alternatives	**Not Rebuilt**	**Rebuilt**	**Alt 1-1**	**Alt 1-1&2**	**Alt 2-1**	**Alt 2-1&2**	**Alt 1-1&2**	**Alt 2-1&2**
Construction Cost								
All-in Costs	$1.3	$9.6	$22.5	$25.7	$12.2	$18.8	$25.7	$18.8
Less Grants	$1.3	$7.1	$20.0	$23.2	$9.7	$16.3	$25.7	$18.8
Less Grants, 20% Contingency	$1.0	$5.0	$15.3	$17.7	$7.1	$12.3	$20.2	$14.8
Net Revenues								
NPV (30 years) @ 10%	$0.8	$1.1	$2.8	$3.1	$3.1	$3.6	$5.4	$5.9
Additional Funding Requirement								
All-in Costs	$0.5	$8.5	$19.7	$22.5	$18.7	$15.2	$20.3	$12.9
Less Grants	$0.5	$6.0	$17.2	$20.0	$16.2	$12.7	$20.3	$12.9
Less Grants, 20% Contingency	$0.1	$3.0	$10.1	$11.9	$12.3	$6.8	$12.1	$6.9

Source: BST Associates

5 ECONOMIC IMPACT ASSESSMENT

This section provides the economic impact of the options under consideration.

5.1 METHODOLOGY

Economic impacts are estimated based on the annual number of boat visits and the average expenditure per visit for transient moorage, and on the average expenditure by year for permanent boats.

The 2015 Kirkland Marina Study[15] evaluated expenditures by visiting boaters and found that the average expenditure per boat was $150, ranging from $64 per visit for boats from 10 to 19 feet long to $340 on average per visit for boats over 60 feet. Approximately 58% of this spending occurred at restaurants and bars, 28% at retail stores, and 5% in overnight accommodations.

For this study, spending by overnight boats was assumed to be $160 per visit and spending by 3-hour visitors was $64 per visit.

5.2 FINDINGS

Permanent tenants are estimated to spend approximately $8,000 per year on restaurant meals and groceries, lodging, and other items.[16] Assuming a capture rate of 31% in Kirkland, the average expenditure by permanent tenants was estimated to be $2,600 per year per boat.

Table 11 presents the annual economic impact per year for each alternative.

Table 11 – Economic Impacts by Alternative ($1,000)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40	CAGR
Alternative	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**	**2020-2058**
Existing Design										
Not rebuilt	$736	$755	$774	$794	$815	$140	$160	$182	$308	-2.3%
Rebuilt	$737	$763	$789	$816	$844	$987	$1,150	$1,339	$2,465	3.1%
Hybrid (transient & permanent moorage)										
Alt 1-1	$417	$852	$879	$909	$939	$1,093	$1,267	$1,469	$2,663	3.0%
Alt 1-1&2	$417	$852	$879	$909	$939	$575	$1,312	$1,519	$2,740	3.1%
Alt 2-1	$464	$938	$968	$999	$1,031	$1,195	$1,381	$1,596	$2,857	3.0%
Alt 2-1&2	$464	$938	$968	$999	$1,031	$650	$1,462	$1,686	$2,994	3.1%
Permanent only (excludes transient moorage)										
Alt 1-1&2	$57	$159	$162	$166	$169	$254	$508	$565	$864	4.6%
Alt 2-1&2	$168	$309	$315	$322	$328	$248	$496	$552	$843	2.7%

Note: CAGR refers to compound annual growth rate
Source: BST Associates

[15] Source: BST Associates, Kirkland Waterfront Demand Assessment, prepared for the City of Kirkland January 5, 2015.

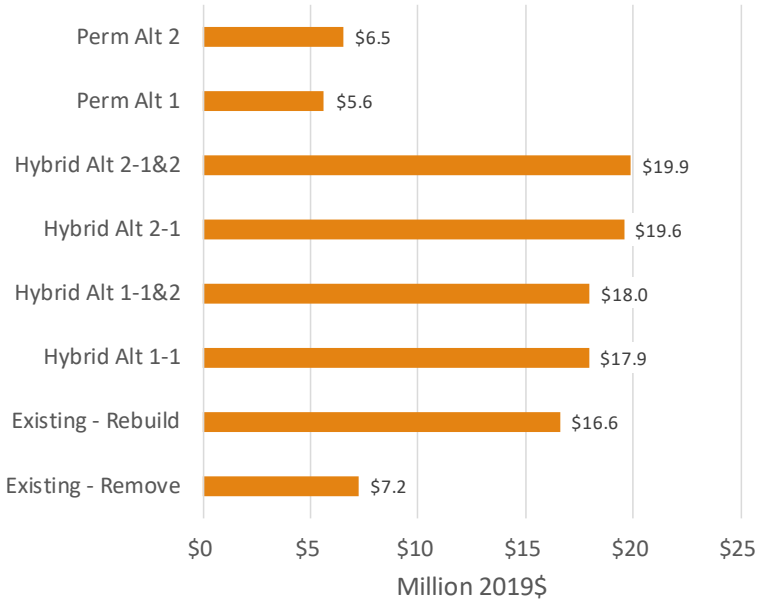
[16] Source: National Marine Manufacturers Association

Figure 14 presents the net present value of economic impacts for each alternative, assuming 30 years of operation and a discount rate of 5%.

Key findings include:

- Transient moorage alternatives provide $16.6 million to $19.9 million,
- The removal option provides $7.2 million, and
- Permanent moorage alternatives provide $5.6 to $6.5 million.

Figure 14 – Estimated Net Present Value of Economic Impacts by Alternative



6 APPENDIX A – DETAILED FINANCIALS

Table 12 – Economic and Financial Assessment of Existing Design Removal

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40
Financial Component	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**
Revenues	$0.18	$0.18	$0.19	$0.19	$0.20	$0.10	$0.11	$0.12	$0.19
O&M Costs	$0.08	$0.08	$0.09	$0.09	$0.09	$0.05	$0.06	$0.07	$0.13
Net Revenue	$0.10	$0.10	$0.10	$0.11	$0.11	$0.05	$0.05	$0.05	$0.06
Cost									
All-in	$1.29								
Less Grants	$1.29								
Less Grants, 20% Contingency	$0.88								
Net Cash Flow for IRR									
All-in	-$1.19	$0.10	$0.10	$0.11	$0.11	$0.05	$0.05	$0.05	$0.06
Grants	-$1.19	$0.10	$0.10	$0.11	$0.11	$0.05	$0.05	$0.05	$0.06
Less Grants, 20% Contingency	-$0.78	$0.10	$0.10	$0.11	$0.11	$0.05	$0.05	$0.05	$0.06
IRR									
All-in	5%								
W/ max grants	5%								
w/ max grants, 20% Contingency	10%								
Net Revenues									
NPV (30 years)									
5%	$1.18								
10%	$0.80								
Economic Impact									
Annual Impact	$0.74	$0.76	$0.77	$0.79	$0.82	$0.14	$0.16	$0.18	$0.31
NPV (30 years)									
5%	$7.22								
10%	$5.25								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 13 – Economic and Financial Assessment of Existing Design Rebuild

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40
Financial Component	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**
Revenues	$0.18	$0.18	$0.19	$0.19	$0.20	$0.17	$0.25	$0.28	$0.18
O&M Costs	$0.08	$0.08	$0.09	$0.09	$0.09	$0.11	$0.12	$0.14	$0.08
Net Revenue	$0.10	$0.10	$0.10	$0.11	$0.11	$0.06	$0.12	$0.13	$0.10
Cost	$9.58								
All-in	$7.08								
Less Grants	$4.04								
Less Grants, 20% Contingency									
Net Cash Flow for IRR									
All-in	-$9.47	$0.10	$0.10	$0.11	$0.11	$0.06	$0.12	$0.13	
Grants	-$6.97	$0.10	$0.10	$0.11	$0.11	$0.06	$0.12	$0.13	
Less Grants, 20% Contingency	-$3.94	$0.10	$0.10	$0.11	$0.11	$0.06	$0.12	$0.13	
IRR									
All-in	-5%								
W/ max grants	-4%								
w/ max grants, 20% Contingency	-1%								
Net Revenues									
NPV (30 years)	$1.80								
5%	$1.06								
10%									
Economic Impact									
Annual Impact	$0.74	$0.76	$0.79	$0.82	$0.84	$0.99	$1.15	$1.34	
NPV (30 years)									
5%	$16.61								
10%	$9.28								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 14 – Economic and Financial Assessment of Hybrid Design Alt 1-1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40
Financial Component	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**
Revenues	$0.25	$0.59	$0.61	$0.62	$0.64	$0.72	$0.81	$0.91	$1.48
O&M Costs	$0.30	$0.31	$0.32	$0.33	$0.34	$0.39	$0.45	$0.52	$0.92
Net Revenue	-$0.05	$0.28	$0.29	$0.30	$0.30	$0.33	$0.36	$0.40	$0.56
Cost									
All-in	$22.54								
Less Grants	$20.04								
Less Grants, 20% Contingency	$12.89								
Net Cash Flow for IRR									
All-in	-$22.59	$0.28	$0.29	$0.30	$0.30	$0.33	$0.36	$0.40	$0.56
Grants	-$20.09	$0.28	$0.29	$0.30	$0.30	$0.33	$0.36	$0.40	$0.56
Less Grants, 20% Contingency	-$12.94	$0.28	$0.29	$0.30	$0.30	$0.33	$0.36	$0.40	$0.56
IRR									
All-in	-4%								
W/ max grants	-3%								
w/ max grants, 20% Contingency	-1%								
Net Revenues									
NPV (30 years)									
5%	$5.01								
10%	$2.79								
Economic Impact									
Annual Impact	$0.42	$0.85	$0.88	$0.91	$0.94	$1.09	$1.27	$1.47	$2.66
NPV (30 years)									
5%	$17.94								
10%	$9.90								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 15 – Economic and Financial Assessment of Hybrid Design Alt 1-1&2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40
Financial Component	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**
Revenues	$0.31	$0.59	$0.61	$0.62	$0.64	$0.64	$1.01	$1.14	$1.83
O&M Costs	$0.34	$0.34	$0.35	$0.36	$0.37	$0.43	$0.50	$0.57	$1.01
Net Revenue	-$0.03	$0.25	$0.25	$0.26	$0.26	$0.21	$0.52	$0.57	$0.83
Cost									
All-in	$25.67								
Less Grants	$23.17								
Less Grants, 20% Contingency	$15.02								
Net Cash Flow for IRR									
All-in	-$25.69	$0.25	$0.25	$0.26	$0.26	$0.21	$0.52	$0.57	$0.83
Grants	-$23.19	$0.25	$0.25	$0.26	$0.26	$0.21	$0.52	$0.57	$0.83
Less Grants, 20% Contingency	-$15.05	$0.25	$0.25	$0.26	$0.26	$0.21	$0.52	$0.57	$0.83
IRR									
All-in	-3%								
W/ max grants	-3%								
w/ max grants, 20% Contingency	0%								
Net Revenues									
NPV (30 years)									
5%	$6.03								
10%	$3.13								
Economic Impact									
Annual Impact	$0.42	$0.85	$0.88	$0.91	$0.94	$0.57	$1.31	$1.52	$2.74
NPV (30 years)									
5%	$18.00								
10%	$9.85								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 16 – Economic and Financial Assessment of Hybrid Design Alt 2-1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40
Financial Component	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**
Revenues	$0.32	$0.62	$0.63	$0.65	$0.66	$0.56	$0.84	$0.95	$1.53
O&M Costs	$0.30	$0.31	$0.32	$0.32	$0.33	$0.38	$0.44	$0.51	$0.91
Net Revenue	$0.02	$0.31	$0.32	$0.32	$0.33	$0.17	$0.40	$0.44	$0.62
Cost									
All-in	$21.74								
Less Grants	$19.24								
Less Grants, 20% Contingency	$12.34								
Net Cash Flow for IRR									
All-in	-$21.71	$0.31	$0.32	$0.32	$0.33	$0.17	$0.40	$0.44	$0.62
Grants	-$19.21	$0.31	$0.32	$0.32	$0.33	$0.17	$0.40	$0.44	$0.62
Less Grants, 20% Contingency	-$12.32	$0.31	$0.32	$0.32	$0.33	$0.17	$0.40	$0.44	$0.62
IRR									
All-in	-3%								
W/ max grants	-3%								
w/ max grants, 20% Contingency	0%								
Net Revenues									
NPV (30 years)	$5.45								
5%	$3.06								
10%									
Economic Impact									
Annual Impact	$0.46	$0.94	$0.97	$1.00	$1.03	$1.19	$1.38	$1.60	$2.86
NPV (30 years)									
5%	$19.57								
10%	$10.82								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 17 – Economic and Financial Assessment of Hybrid Design Alt 2-1&2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 40
Financial Component	**2019**	**2020**	**2021**	**2022**	**2023**	**2028**	**2033**	**2038**	**2058**
Revenues	$0.33	$0.60	$0.62	$0.63	$0.65	$0.67	$1.07	$1.21	$1.94
O&M Costs	$0.24	$0.34	$0.35	$0.36	$0.37	$0.42	$0.49	$0.56	$0.99
Net Revenue	$0.09	$0.26	$0.27	$0.27	$0.28	$0.25	$0.59	$0.64	$0.94
Cost	$18.80								
All-in	$16.30								
Less Grants	$10.34								
Less Grants, 20% Contingency									
Net Cash Flow for IRR									
All-in	-$18.72	$0.26	$0.27	$0.27	$0.28	$0.25	$0.59	$0.64	$0.94
Grants	-$16.22	$0.26	$0.27	$0.27	$0.28	$0.25	$0.59	$0.64	$0.94
Less Grants, 20% Contingency	-$10.25	$0.26	$0.27	$0.27	$0.28	$0.25	$0.59	$0.64	$0.94
IRR									
All-in	-1%								
W/ max grants	0%								
w/ max grants, 20% Contingency	3%								
Net Revenues									
NPV (30 years)									
5%	$6.82								
10%	$3.56								
Economic Impact									
Annual Impact	$0.46	$0.94	$0.97	$1.00	$1.03	$0.65	$1.46	$1.69	$2.99
NPV (30 years)									
5%	$19.91								
10%	$10.89								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 18 – Economic and Financial Assessment of Permanent Design Alt 1

Financial Component	Year 1 2019	Year 2 2020	Year 3 2021	Year 4 2022	Year 5 2023	Year 10 2028	Year 15 2033	Year 20 2038	Year 40 2058
Revenues	$0.47	$0.82	$0.84	$0.86	$0.88	$0.71	$1.29	$1.44	$2.22
O&M Costs	$0.34	$0.34	$0.35	$0.36	$0.37	$0.43	$0.50	$0.57	$1.01
Net Revenue	$0.14	$0.48	$0.48	$0.49	$0.50	$0.28	$0.80	$0.87	$1.22
Cost									
All-in	$25.67								
Less Grants	$25.67								
Less Grants, 20% Contingency	$17.52								
Net Cash Flow for IRR									
All-in	-$25.53	$0.48	$0.48	$0.49	$0.50	$0.28	$0.80	$0.87	$1.22
Grants	-$25.53	$0.48	$0.48	$0.49	$0.50	$0.28	$0.80	$0.87	$1.22
Less Grants, 20% Contingency	-$17.38	$0.48	$0.48	$0.49	$0.50	$0.28	$0.80	$0.87	$1.22
IRR									
All-in	-1%								
W/ max grants	-1%								
w/ max grants, 20% Contingency	1%								
Net Revenues									
NPV (30 years)									
5%	$9.95								
10%	$5.40								
Economic Impact									
Annual Impact	$0.06	$0.16	$0.16	$0.17	$0.17	$0.25	$0.51	$0.57	$0.86
NPV (30 years)									
5%	$5.63								
10%	$2.82								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton

Table 19 – Economic and Financial Assessment of Permanent Design Alt 2

Financial Component	Year 1 2019	Year 2 2020	Year 3 2021	Year 4 2022	Year 5 2023	Year 10 2028	Year 15 2033	Year 20 2038	Year 40 2058
Revenues	$0.49	$0.84	$0.86	$0.88	$0.90	$0.74	$1.35	$1.51	$2.33
O&M Costs	$0.24	$0.34	$0.35	$0.36	$0.37	$0.42	$0.49	$0.56	$0.99
Net Revenue	$0.24	$0.50	$0.51	$0.52	$0.53	$0.31	$0.86	$0.94	$1.33
Cost									
All-in	$18.80								
Less Grants	$18.80								
Less Grants, 20% Contingency	$12.84								
Net Cash Flow for IRR									
All-in	-$18.56	$0.50	$0.51	$0.52	$0.53	$0.31	$0.86	$0.94	$1.33
Grants	-$18.56	$0.50	$0.51	$0.52	$0.53	$0.31	$0.86	$0.94	$1.33
Less Grants, 20% Contingency	-$12.59	$0.50	$0.51	$0.52	$0.53	$0.31	$0.86	$0.94	$1.33
IRR									
All-in	1%								
W/ max grants	1%								
w/ max grants, 20% Contingency	4%								
Net Revenues									
NPV (30 years)									
5%	$10.82								
10%	$5.90								
Economic Impact									
Annual Impact	$0.17	$0.31	$0.31	$0.32	$0.33	$0.25	$0.50	$0.55	$0.84
NPV (30 years)									
5%	$6.50								
10%	$3.57								

Note: all costs in millions of current year dollars
Source: BST Associates, Reid Middleton