THE PLANNING AND DESIGN OF PORT IMPROVEMENTS:
Community Meeting #3

OPEN HOUSE OVERVIEW

• Discuss the global and regional cruise market conditions and implications for Ketchikan

• Present ship types and berthing demand that inform design alternatives

• Offer alternatives for review and discussion that respond to site and market conditions

• Outline recommended short term port improvements

• Outline project next steps and continued opportunities for involvement
PART 1: CRUISE MARKET FORECAST

INDUSTRY GROWTH FACTORS
Historic Rise from 1970 to the Present

• Success in creating new, dynamic vessel and onboard product offerings
• Conversion of land-based resort guests into life-long cruisers
• High level of passenger satisfaction
• A business model adaptable to changing market conditions
• Globalization of product offerings
• Limited competition, constant cost cutting and multiple revenue streams

Cruise travel is one of the fastest growing sectors of the global tourism industry. Once small and localized, the cruise industry has grown into a sophisticated, multi-billion-dollar enterprise with a wide assortment of products to offer vacation consumers.

Cruise travel now outpaces general leisure travel. Between 2008 and 2014, cruise travel outpaced general leisure travel in the U.S. by 22%.

Sources: CNI, CLIA and LandDesign, 2016
CRUISE INDUSTRY GROWTH WORLDWIDE
Passengers, 1970 to 2015

Sources: Cruise Lines International Association (CLIA) and LandDesign, 2016; Figures for 1970-2005 are North American Passengers only.

CRUISE INDUSTRY MARKETSHARE
Leading Vessel Conglomerates, Brands, Ships and Lower Berths, 2016

Note: Lower berth refers to the "lower bed" of a cruise ship cabin as is a standard unit for capacity measurement. Cruise ships often run at capacities of greater than total lower berths, using other berths (upper berths) available in some cabins.

DEPLOYMENT BY REGION
Total Percentage of Capacity as Measured by Lower Berths, 2016

<table>
<thead>
<tr>
<th>Region</th>
<th>2005</th>
<th>2010</th>
<th>2016</th>
<th>Change from '10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caribbean / Bahamas</td>
<td>48.0%</td>
<td>40.7%</td>
<td>38.4%</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>15.3%</td>
<td>20.0%</td>
<td>16.1%</td>
<td>-3.9%</td>
</tr>
<tr>
<td>West Coast (Mexico)</td>
<td>7.7%</td>
<td>5.2%</td>
<td>3.7%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Asia / Pacific</td>
<td>4.3%</td>
<td>7.1%</td>
<td>13.5%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Australia *part of Asia/Pacific</td>
<td>4.3%</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>6.8%</td>
<td>4.5%</td>
<td>4.0%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Northern/Western Europe</td>
<td>5.0%</td>
<td>7.3%</td>
<td>9.2%</td>
<td>1.9%</td>
</tr>
<tr>
<td>South America</td>
<td>1.9%</td>
<td>4.6%</td>
<td>1.5%</td>
<td>-3.1%</td>
</tr>
<tr>
<td>Transatlantic</td>
<td>1.5%</td>
<td>1.6%</td>
<td>1.4%</td>
<td>-0.2%</td>
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<tr>
<td>Canary Islands</td>
<td>1.5%</td>
<td>2.1%</td>
<td>1.9%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Bermuda</td>
<td>1.6%</td>
<td>1.6%</td>
<td>1.5%</td>
<td>-0.1%</td>
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<tr>
<td>New England / Canada</td>
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<td>1.6%</td>
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<tr>
<td>Hawaii</td>
<td>2.6%</td>
<td>1.0%</td>
<td>0.9%</td>
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<tr>
<td>Panama Canal</td>
<td>1.2%</td>
<td>0.9%</td>
<td>0.4%</td>
<td>-0.5%</td>
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<tr>
<td>Indian Ocean / Red Sea</td>
<td>0.2%</td>
<td>1.1%</td>
<td>1.2%</td>
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<tr>
<td>Domestic Waterways</td>
<td>0.8%</td>
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<td>Antarctica</td>
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<td>World</td>
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<td>No Change</td>
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<td>Africa</td>
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<td>0.3%</td>
<td>0.5%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

100.0% 100.00% 100.00%

Sources: CIN and LandDesign, 2016
CRUISE SHIP ORDERBOOK
All Cruise Vessel on Order as of July 2016

$44.2 billion in 59 vessels represents a record number of ships on order at a single time and provides significant short-term guidance that the industry has a strong growth period ahead.

A majority of vessels on order are greater than 3,000 passengers in size.

FORECAST OF CRUISE INDUSTRY SUPPLY
As Measured by Total Vessels and Lower Berths, 2016 to 2022

Between 2016 and 2020, the total number of ships is forecast to grow by 15%; total industry supply of lower berths by 25%.

The industry is considered supply lead, where expansion in capacity results in a similar expansion in passenger growth. Thus, expansion to a level of 628,254 berths is expected to lead to significant growth in passengers worldwide.
CONSUMER DEMAND AND SENTIMENT

Findings from Current Surveys of Consumer Demand

- Consumer trends for cruises remain positive, supporting the potential for cruise passenger growth inline with supply expansion.

- While North American passenger growth has slowed, consumer sentiment remains strong, especially with experienced cruisers.

- Europe market infiltration remains low at 1%; North America is 3.8%; Australia is 4.2%. Small shifts in European participation would yield dramatic growth in overall passenger levels worldwide.

- The Chinese cruise market grew by nearly 80% from 2012 to 2014 to nearly 700,000 passengers. At the current pace of growth, China could quickly emerge to be the world’s second-largest cruise market in the next 5 years.

Sources: Florida Caribbean Cruise Association (FCCA), CLIA, and LandDesign, 2016

FORECAST OF WORLDWIDE PASSENGERS

Long Term Forecast of Total Capacity Placement – Low, Medium and High Scenarios

The cruise industry is positioned for continued growth.

Each of the primary elements propelling growth forward over the past 3 decades remains in place. With 59 new ships scheduled for delivery by 2022 and beyond and continued positive industry fundamentals, growth passengers could reach 38 million by 2030 (medium forecast scenario).

FUTURE CRUISE INDUSTRY GROWTH

Guiding Factors

- Factors leading to 3 decades of growth remain in place:
  - New products, guest retention, high level of guest satisfaction and value for money, adaptable business model, mobile assets, globalization of product offerings, limited competition
- Cruise industry orders are up significantly, setting the stage for an average annual growth rate of 8% in supply
- Big ships will continue to be the operational norm worldwide
- Demand worldwide will continue for new and larger ports and destinations
- Carnival, RCCL and NCL are all posed to continue to expand, with Disney, Virgin and other lines also looking to add supply and consumer momentum based on their unique brand positioning

ALASKA TODAY AND MOVING FORWARD

Summary

- Cruise consumer sentiment toward Alaska is very high
- Expansion of both homeports and ports-of-call ongoing, albeit at a slow place
- Global volatility bolsters Alaskan market health
- A large percentage of growth will originate from vessel replacement vs. increases in ship numbers
  - The number of ships has remained relatively constant 2010 vs. 2016
- The June 2016 opening of the expanded Panama Canal increases the ability of lines to move larger vessels to/from the Caribbean
- State of Alaska changes to cruise tax policy remain a risk factor
- Seasonality and available Sat/Sun homeport slots a limiting factor

Sources: CNI, CLIA and LandDesign, 2016
The Princess brand remains the leader in Alaska with over 29.1% of total market capacity, slightly down from 30.3% in 2012. HAL is second with 23.1%. All other major conglomerates are represented in the market place except to MSC. With the expectation that this brand will emerge as the third largest cruise line over the next decade, their entry into the region seems an inevitability.

THE ALASKAN REGION
Regional Highlights

Homeports. Core homeports of Seattle and Vancouver provide primary base of operations for the region. Combined 6 berths / terminals available.

Canada’s Inside Passage. Growing collection of ports-of-call that add to overall number of places / venues in the region. Ports (including Vancouver) help meet far foreign port requirements for cruises embarking from Seattle, Seward and others. Nanaimo new in 2016.

Core SE Alaska Region. Mainstay ports-of-call (Skagway, Juneau, Ketchikan) and other supporting destinations comprise the primary offer for +/- 7-day cruises from Seattle and Vancouver. Mainstay ports welcome over +/- 75% of all capacity in the region. New fixed cruise facilities at Hoonah and expanded facilities in Juneau infrastructure expansion highlights of 2015/16.

Northern Alaska. Destinations visited as part of longer, 14-day itineraries and/or open-jaw deployments from Seward.

FORECAST OF ALASKAN CAPACITY
Long Term Forecast of Total Capacity Placement – Low, Medium and High Scenarios

Forecasts based on market capture levels. Upper levels of forecast are achievable only through homeport expansion (Seattle and Vancouver) and expanded port-of-call facilities throughout SE Alaska.

Projections assume current cruise levies remain at or below current levels.

Sources: CIN, CLIA, CLAA, Cruise Lines Meetings and LandDesign, 2016.

Long term forecast range between 1.3 (low) and 1.8 (high) million in market capacity for 2030.

ESSENTIAL QUESTIONS FOR THE REGION

Summary

• Will the size of vessels in the Alaskan region increase, and if so, what design targets should be set for homeports and ports-of-call?
  • Global market supports the trend toward larger vessels in operations worldwide

• The Alaska cruise region relies on a balance of infrastructure from a limited number of marquee homeports and ports-of-call. Achieving market demand opportunities hinges on infrastructure inputs growing together.
  • Can capacity get to the region?
  • Can homeports support this capacity, especially on key sailing days of Sat/Sun?
  • Can key ports-of-call support this capacity?

Results from cruise lines interviews strongly support the notion that the region will grow through the incremental replacement of smaller vessels with larger ones. Regional growth will not occur through larger swings in the number of vessels deployed given the limited number of homeports and ports-of-call.

FUTURE DEPLOYMENT: BALANCED SYSTEM

Regional Highlights

A Can capacity get to the region?

B Can key homeports support this capacity?

C Can key ports-of-call support this capacity?

Sources: CLIA, CLAA, Cruise Lines Meetings and LandDesign, 2016
VESSELS IN ALASKA: GROWING TODAY
2010 to 2016 Comparative of Vessels Operating in the Region with Trend Line Projection

Notes: Includes primary cruise operators only (Carnival, Celebrity, Disney, HAL, NCL, Princess, and RCCL). 23 ships in 2010 and 24 ships in 2016 (9 remained the same).
Sources: CIN, CLIA, CLAA, Cruise Lines Meetings and LandDesign, 2016

VESSELS IN ALASKA: GROWING TODAY
Summary

• Comparison of vessels in the region in 2010 vs. 2016 shows growth of GRT (12.6%), length overall (4.6%) and passenger capacity (16.4%)

• Extrapolating these trends outward to 2030 suggests the average vessel in the region could be 129,000 GRT, 1,050 LOA and carry over 3,500 passengers

• Panama canal opening in June 2016 greatly frees up movement of most of the largest vessels to/from the Caribbean to Alaska
  • Air draft under the Bridge of the Americas (201 feet) limits Oasis and other very large cruise ships

• Removing this barrier builds case to bring larger vessels to Alaska

Sources: CIN, CLIA, CLAA, Cruise Lines Meetings and LandDesign, 2016
FUTURE DEPLOYMENT: BALANCED SYSTEM

Regional Highlights

Can capacity get to the region? Yes, Panama Canal limits minimized. Can key homeports support this capacity?

Can key ports-of-call support this capacity?

SEATTLE AND VANCOUVER

Summary

- Seattle able to welcome very large vessels
  - Bell Street at Pier 66 berth is 1,600’, with terminal modification / expansion underway; likely homeport for Breakaway / Breakaway-plus vessels
  - Smith Cove at Pier 91 has two berths, both 1,200’ long with upland facilities to support large vessels; able to welcome RCCL larger vessels, including Quantum
  - Study of 4th berth anticipated for 2017
  - Seattle homeporting reliant on touching far foreign-port

- Vancouver also has larger vessel capabilities but with air draft limitations at Lion’s Gate Bridge and Seymour Narrows
  - Canada Place offers a 1,663’ (East) and 1,060’ (West) for larger vessels; terminal operations more constrained

Sources: CLAA, Cruise Lines Meetings and LandDesign, 2016
FUTURE DEPLOYMENT: BALANCED SYSTEM

Regional Highlights

Can capacity get to the region? Yes, Panama Canal limits minimized.
Can key homeports support this capacity? Yes, Seattle and Vancouver can accommodate large vessels.
Can key ports-of-call support this capacity?

SE ALASKA PORTS-OF-CALL

Summary

- Ketchikan, Juneau and Skagway are essential to the equation; their ability to provide similar sized facilities over time has market sway over the long term
  - Juneau is moving to 1,100 LF berths; potential exists for one or two existing facilities to move to 1,150 LF
  - Skagway starting to study long term expansion; needs to reach agreement with White Pass and/or build local consensus; potential for expansion
- Lines suggest 4 large fixed berths plus 1 or 2 tender locations most likely needed for each
- Sitka, Hoonah and other SE Alaska ports are beneficial to the region overall
### PORT FACILITIES – SE ALASKA REGION

<table>
<thead>
<tr>
<th>Homeports</th>
<th>Current Berth Lengths (rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle</td>
<td>Bell Street at Pier 66: Single Berth: 1,600 LF</td>
</tr>
<tr>
<td>Vancouver</td>
<td>Canada Place: East Berth: 1,663 LF / North Berth: 905 LF / West Berth: 1,060 LF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ports-of-Call</th>
<th>Current Berth Lengths (rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria, BC</td>
<td>Pier A(1): 1,000 LF / Pier A (2): 800 LF / Pier B: 1,040 LF</td>
</tr>
<tr>
<td>Nanaimo, BC</td>
<td>Single Berth: 1,050 LF</td>
</tr>
<tr>
<td>Prince Rupert, BC</td>
<td>Northland Dock: 960 LF</td>
</tr>
<tr>
<td>Ketchikan, AK</td>
<td>Berth 1: 960 LF / Berth 2: 1,000 LF / Berth 3: 1,050 LF / Berth 4: 960 LF / Anchorage (1)</td>
</tr>
<tr>
<td>Juneau, AK</td>
<td>CBJ(N): 1,000 LF / CBJ(S): 1,100 LF / AJ Dock: 1,100 LF / SFS Dock: 1,000 LF / Anchorage (1)</td>
</tr>
<tr>
<td>Skagway, AK</td>
<td>Broadway Dock: 860 LF / Ore Dock: 1,000 LF (x2) / Railroad Dock: 1,050 LF</td>
</tr>
<tr>
<td>Sitka, AK</td>
<td>Halibut Point Marine: 1,000 LF / Anchorage (4)</td>
</tr>
<tr>
<td>Hoonah, AK</td>
<td>Icy Strait Point: 1,060 LF</td>
</tr>
<tr>
<td>Haines, AK</td>
<td>Port Chilkoot: 1,000 LF</td>
</tr>
</tbody>
</table>

Sources: Port Discussions, Port / City Websites, Moffatt and Nichol, and LandDesign, 2016

### FUTURE DEPLOYMENT: BALANCED SYSTEM

Regional Highlights

Can capacity get to the region? **Yes, Panama Canal limits minimized.**

Can key homeports support this capacity? **Yes, Seattle and Vancouver can accommodate large vessels.**

Can key ports-of-call support this capacity? **Maybe. Work to be done.**

Sources: CLIA, Cruise Lines Meetings and LandDesign, 2016
DESIGN VESSEL CONSIDERATIONS FOR ALASKA

**DESIGN VESSEL A**
LOA Up to 960'
Example: Princess Grand-class

**DESIGN VESSEL B**
LOA 960’ – 1000’
Example: NCL Disney Magic

**DESIGN VESSEL C**
LOA 1000’ – 1050’
Example: Celebrity Solstice-class

**DESIGN VESSEL D**
LOA 1050’ – 1100’
Example: NCL Breakaway-class

**DESIGN VESSEL E**
LOA 1100’ – 1150’
Example: RCCL Quantum-class

Sources: CIN, CLIA, CLAA, Cruise Lines Meetings and LandDesign, 2016

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**DESIGN VESSEL CONSIDERATIONS FOR ALASKA**

**DESIGN VESSEL A**
LOA Up to 960’
Mainstay of Alaska Today
Example: Princess Grand-class

**DESIGN VESSEL B**
LOA 960’ – 1000’
Small ships by Leading Operators Disappearing
Example: NCL Disney Magic

**DESIGN VESSEL C**
LOA 1000’ – 1050’
Few vessels constructed in this category given previous Panama Canal Limits
Example: Celebrity Solstice-class

**DESIGN VESSEL D**
LOA 1050’ – 1100’
Anticipated Mainstay of Alaska within the Next 10 years
Example: NCL Breakaway-class

**DESIGN VESSEL E**
LOA 1100’ – 1150’
Some vessels likely present provided homeports and ports-of-call able to receive
Example: RCCL Quantum-class

Sources: CIN, CLIA, CLAA, Cruise Lines Meetings and LandDesign, 2016
PART 3:
KETCHIKAN: TODAY AND TOMORROW

KETCHIKAN TODAY (BASELINE SCENARIO 1)
KETCHIKAN TODAY (BASELINE SCENARIO 2)

CONSIDERATIONS FOR KETCHIKAN

TODAY

<table>
<thead>
<tr>
<th>BERTH 1</th>
<th>Type A / Up to 960’</th>
</tr>
</thead>
<tbody>
<tr>
<td>BERTH 2</td>
<td>Type B / 960-1000’</td>
</tr>
<tr>
<td>BERTH 3</td>
<td>Type C / 1000-1050’</td>
</tr>
<tr>
<td>BERTH 4</td>
<td>Type A / Up to 960’</td>
</tr>
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</table>

NEAR-TERM 2017-2019

<table>
<thead>
<tr>
<th>BERTH 1</th>
<th>Type A / Up to 960’</th>
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</thead>
<tbody>
<tr>
<td>BERTH 2</td>
<td>Type B / 960-1000’</td>
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<tr>
<td>BERTH 3</td>
<td>Type D / 1050-1100’</td>
</tr>
<tr>
<td>BERTH 4</td>
<td>Type A / Up to 960’</td>
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</tbody>
</table>

MID-TERM 2020-2023

<table>
<thead>
<tr>
<th>BERTH 1</th>
<th>Type A / Up to 960’</th>
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</thead>
<tbody>
<tr>
<td>BERTH 2</td>
<td>Type B / 960-1000’</td>
</tr>
<tr>
<td>BERTH 3</td>
<td>Type D / 1050-1100’</td>
</tr>
<tr>
<td>BERTH 4</td>
<td>Type E / 1100-1150’</td>
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LONG-TERM 2024 & BEYOND

<table>
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<tr>
<th>BERTH 1 (Float)</th>
<th>Type E / 1100-1150’</th>
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<tbody>
<tr>
<td>BERTH 2 (Float)</td>
<td>Type B / 960-1000’</td>
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<tr>
<td>BERTH 3</td>
<td>Type D / 1050-1100’</td>
</tr>
<tr>
<td>BERTH 4</td>
<td>Type E / 1100-1150’</td>
</tr>
</tbody>
</table>

As Market Conditions Warrant
# Project Evaluation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Berths 1/2</th>
<th>Berths 3</th>
<th>Berths 4</th>
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<tbody>
<tr>
<td>1. Meets Future Capacity Needs</td>
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<tr>
<td>2. Passenger Preference</td>
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<td>3. Cruise Line Preference</td>
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<tr>
<td>4. Local Business Preference</td>
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<td>5. Ground Transportation Impact</td>
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<td>6. Broader Upland Impact</td>
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<td>⬤</td>
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<tr>
<td>7. Small Vessel / Fishing Industry Impact</td>
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<td>8. Cruise Ship Navigation</td>
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<td>9. Project Cost</td>
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<td>10. Construction Phasing</td>
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<td>11. Environmental Concerns</td>
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<tr>
<td>12. Construction Downtime</td>
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<td>⬤</td>
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</tbody>
</table>

**Legend**
- **Green**: Beneficial / Positive
- **Orange**: Neutral / Average
- **Red**: Challenging / Adverse

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### Part 4: Short Term Considerations
SHORT-TERM IMPROVEMENTS (BERTHS 1 & 2)

• Tier 2 underwater and topside inspection
• Addition of four (4) new bollards:
  • Existing fixed dock, west end Berth 2 (2)
  • Existing fixed dock, between Berths 1 & 2
  • Existing mooring dolphin, east of Berth 1
• Safety ladder repairs and upgrades
• Fender panel transition plate and timber plank repair/replacement
• Light pole repair/replacement
• Bullrail replacement
• Water line replacement

PART 5: NEXT STEPS
### PROJECT SCHEDULE

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<tr>
<th>Task</th>
<th>MAY</th>
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<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>JAN</th>
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<td>Task 1</td>
<td>Inspect &amp; Evaluate Berths 1-3</td>
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<td>Cruise Market Assessment</td>
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<td>Conceptual Alternatives</td>
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<td>Task 4</td>
<td>Planning Study Report</td>
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Public Meetings: 6/15 • 9/14 • 11/16 • 1/19

### HOW TO STAY INVOLVED

- Final report (draft) will be submitted in early December 2016 and finalized by early January 2017
- Information on the project will be available on the City website: www.ktn-ak.us
- City will direct facility expansion design beginning in 2017
- Contact Steve Corporon, Port & Harbors Director: 907.228.5632 • stevec1@ktn-ak.us
- Contact Shaun McFarlane, PE (Moffatt & Nichol): 907.677.7500 • smcfarlane@moffattnichol.com