

**SAN FRANCISCO BAR PILOTS  
NAVIGATION TECHNOLOGY PLAN - 2017 to 2020 - COST ESTIMATES**

**PART 1 - PRECISION DOCKING SYSTEM FOR ULCV PILOTING**

A. Piloting Components - 6 complete units total

- Sensor Hardware - Trelleborg Marine Systems DK, model SafePilot CATII with AIS (1 Sensor per unit)
- Display Hardware - Apple iPad Pro 12.9 inch 128 GB WiFi + cellular (2 Displays per unit)
- Navigation Software - Trelleborg Marine Systems - SafePilot Pro Navigation and Docking (1 license per display)
- Carrying case - Watershed Zip Dry Chattooga waterproof bag with strap

|  |                 |                 |
|--|-----------------|-----------------|
| 1 Each - Precision Docking System (Hardware)   |                 |                 |
| 1 CATII with AIS   |                 | \$14,098        |
| Service Contract Year 1 Included   |                 | \$0             |
| Service Contract Year 2 (10% of unit price)  |                 | \$1,410         |
| Service Contract Year 3 (10% of unit price)  |                 | \$1,410         |
| Service Contract Year 4 (10% of unit price)  |                 | \$1,410         |
|  | <b>Subtotal</b> | <b>\$18,328</b> |
|  |                 |                 |
| 2 Apple iPad Display (2 displays required per Docking System)                        | \$1029 ea.      | \$2,058         |
| 2 AppleCare+ Extended 2 year warranty  | \$99 ea.        | \$198           |
|  | <b>Subtotal</b> | <b>\$2,256</b>  |
|  |                 |                 |
| 1 Carrying Case  |                 | <b>\$141</b>    |
| <b>Total Hardware Purchase and Service Contract/Warranty/Support Cost per system</b> |                 | <b>\$20,725</b> |

|   |   |                |
|---|---|----------------|
| Precision Docking System Software Package (ANNUAL LICENSE SUBSCRIPTION) per display |   |                |
| 1 SafePilot Pro Navigation Module Annual License Subscription Fee                   |   | \$509          |
| 1 SafePilot Docking Module Annual License Subscription Fee                          |   | \$509          |
|   | Annual License Subscription Fee per Display | <b>\$1,018</b> |
| <b>Annual Client License Subscription Fee With 2 Displays per Precision System</b>  |   | <b>\$2,036</b> |

| Piloting Components Totals                        | Hardware         | Software |                             |
|---|------------------|----------|-----------------------------|
| Hardware Cost Per Unit                            | \$20,725         |          |                             |
| Total # of units Required - 6                     | x6               |          |                             |
| Total Hardware Cost                               | \$124,350        |          |                             |
| Annual Client Software License Fee per Display    |                  | \$1,018  |                             |
| Total # of Displays Required - 12                 |                  | x12      |                             |
| Total Annual Client Software License Fees         |                  | \$12,216 |                             |
| Planned Years of Service - 4                      |                  | x4       |                             |
| Total 4 year Client Software License Fees         |                  | \$48,864 |                             |
| <b>Precision Docking System Total 4 Year Cost</b> | <b>\$124,350</b> | <b>+</b> | <b>\$48,864 = \$173,214</b> |

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**PART 1 - PRECISION DOCKING SYSTEM FOR ULCV PILOTING**

**B. SafePilot Port Server for Precision Docking System**

|   |              |
|---|--------------|
| Trelleborg SafePilot Port Server Basic - (Annual License fee per display)               | \$636        |
| Bathymetric Electronic Navigation Chart Server Support (Annual License fee per display) | \$53         |
| NOAA PORTS weather data input on server (Annual License fee per display)                | \$53         |
| External AIS data input on server (Annual License fee per display)                      | \$53         |
| Annual License Subscription Fee per SafePilot Display                                   | \$795        |
| <br>  |              |
| Broadband Data Connections for SafePilot Display (user) (Annual Service Fee @ \$10/mo.) | \$120        |
| <b>Total Annual Subscription and User Fee per Display</b>                               | <b>\$915</b> |

Server Integration Fees (One time cost at commissioning of SafePilot Port Server)

|  |                 |
|--|-----------------|
| Trelleborg SafePilot Port Server Basic           | no fee          |
| Bathymetric Electronic Navigation Chart Server   | \$7,950         |
| NOAA PORTS Met/Hydro Sensor System Data Input    | \$7,950         |
| External AIS Data Input                          | \$7,950         |
| <b>Total Server Integration and Startup Cost</b> | <b>\$23,850</b> |

Server Component Totals

Annual Server Fees

|   |          |
|---|----------|
| SafePilot Port Server Fees per User Display | \$915    |
| Total User Displays Required - 12           | x12      |
| Total Annual Port Server Fees               | \$10,980 |
| Planned Years of Service - 4                | x4       |
| Total 4 Year SafePilot Port Server Fees     | \$43,920 |

|  |   |                 |   |   |                 |   |                 |
|--|---|-----------------|---|---|-----------------|---|-----------------|
| <b>SafePilot Port Server Total 4 Year Cost</b> | ↓ | <b>\$43,920</b> | + | ↓ | <b>\$23,850</b> | = | <b>\$67,770</b> |
|--|---|-----------------|---|---|-----------------|---|-----------------|

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**PART 2. ENHANCED ROUTE PILOTING SYSTEM**

A. Piloting Components - 62 complete units total

Sensor Hardware - Trelleborg Marine Systems DK - CAT XT System (2 XT Devices per Pilot System)  
 Display Hardware - Lightweight Windows Laptop - Spec to be determined  
 Navigation Software - Rose Point Navigation Systems ECS

|  |                       |
|--|-----------------------|
| 1 each - CAT XT System with IP 67 water tightness upgrade (2 XT devices per pilot) | \$6,360               |
| Warranty Year 1  | included              |
| Extended Warranty Year 2 (5% of unit price)  | \$318                 |
| Extended Warranty Year 3 (10% of unit price)                                       | \$636                 |
| Extended Warranty Year 4 (15% of unit price)                                       | \$954                 |
| 3 Year Extended IP67 Warranty  | \$424                 |
| <b>Subtotal</b>  | <b><u>\$8,692</u></b> |

|  |                       |
|--|-----------------------|
| 1 each - Lightweight Laptop - Specifications to be determined (Max Cost, \$1,500 each pilot) | \$1,500               |
| <b>Subtotal</b>  | <b><u>\$1,500</u></b> |

**Total Hardware Purchase and Support Cost (Per Pilot)                      \$10,192**

Rose Point ECS Services PPU Software (Annual License Subscription Fee Per Pilot)                      **\$500**

| Piloting Components Totals                              | Hardware         | Software         |                              |
|---|------------------|------------------|------------------------------|
| Hardware Cost Per Unit                                  | \$10,192         |                  |                              |
| Total # of units Required - 62                          | x62              |                  |                              |
| Total Hardware Cost                                     | <u>\$631,904</u> |                  |                              |
| Annual PPU Software License Fee                         |                  | \$500            |                              |
| Total # of Licenses Required - 62                       |                  | x62              |                              |
| Total Annual PPU Software License Fees                  |                  | <u>\$31,000</u>  |                              |
| Planned Years of Service - 4                            |                  | x4               |                              |
| Total 4 year PPU Software License Fees                  |                  | <u>\$124,000</u> |                              |
| <b>Enhanced Route Piloting System Total 4 Year Cost</b> | <b>\$631,904</b> | <b>+</b>         | <b>\$124,000 = \$755,904</b> |

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**4 Year Cost Totals**

**PART 1 - PRECISION DOCKING SYSTEM FOR ULCV PILOTING**

|   |                  |
|---|------------------|
| <b>Precision Docking System Hardware and Software Total 4 Year Cost</b> | <b>\$173,214</b> |
| <u>Estimated</u> Sales Tax 8.75% (on hardware)                          | \$10,881         |
| <u>Estimated</u> Duty on Foreign Purchase                               | \$276            |
| <b>SafePilot Port Server Total 4 Year Cost</b>                          | <b>\$67,770</b>  |
| <u>Estimated</u> Sales Tax 8.75%  | \$0              |
| <u>Estimated</u> Duty on Foreign Purchase                               | 0                |
| <b>Total Precision System and Server 4 Year Cost</b>                    | <b>\$252,141</b> |

**PART 2. ENHANCED ROUTE PILOTING SYSTEM**

|  |                  |
|--|------------------|
| <b>Enhanced Route Piloting Hardware and Software Total 4 Year Cost</b> | <b>\$755,904</b> |
| <u>Estimated</u> sales Tax 8.75% (on hardware)                         | \$55,292         |
| <u>Estimated</u> Duty on Foreign Purchase                              | \$1,550          |
| <b>Total Enhanced Route Piloting System 4 Year Cost</b>                | <b>\$812,746</b> |

|   |                    |
|---|--------------------|
| <b>4 YEAR ESTIMATED COST OF NAVIGATION TECHNOLOGY HARDWARE SOFTWARE, SUBSCRIPTIONS, MAINTENANCE AND EXTENDED WARRANTIES</b> | <b>\$1,064,886</b> |
|---|--------------------|

**PART 3. FINANCING**

|  |                 |
|--|-----------------|
| Dedicated Line of Credit through First Republic Bank                       | <b>\$87,500</b> |
| Estimated fees and interest to finance approx. \$1MM paid off over 4 years |                 |

|  |                    |
|--|--------------------|
| <b>TOTAL 4 YEAR ESTIMATED FULL PROGRAM COST OF NAVIGATION TECHNOLOGY SOFTWARE, SUBSCRIPTIONS, MAINTENANCE, EXTENDED WARRANTIES AND FINANCING</b> | <b>\$1,152,386</b> |
|--|--------------------|

Note: All Trelleborg DK purchases are calculated with Euro to USD conversion factor of 1.06 (rate on 12/29/16)