Asset Management – Coastal Navigation Channels

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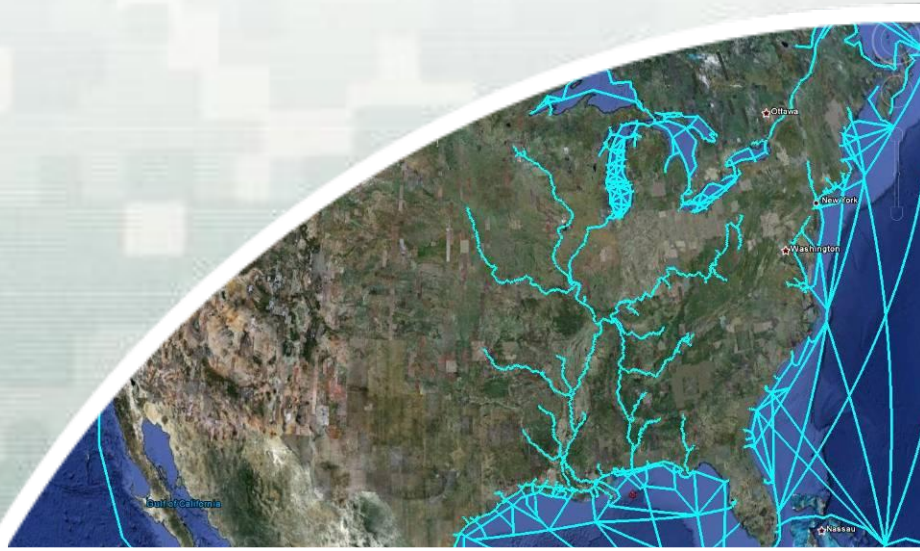
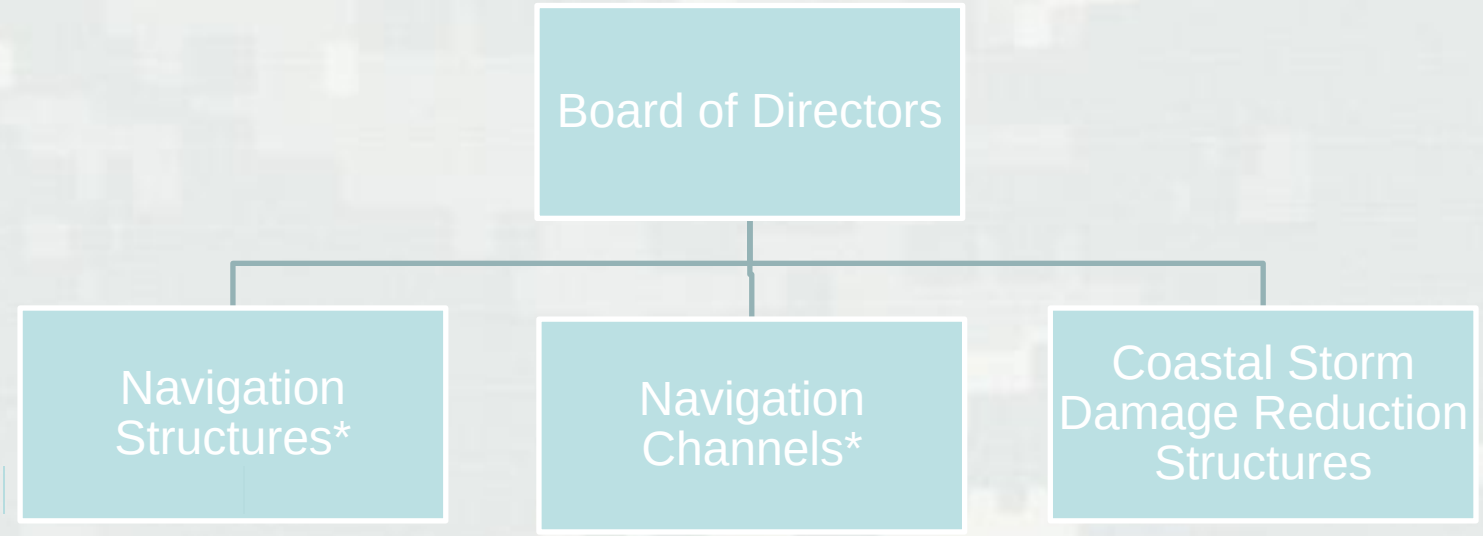


US Army Corps of Engineers
BUILDING STRONG®

Coastal Systems Asset Management

Organizational Structure



* Only those funded by HMTF

Product Delivery Team

- Every MSC Represented

- Variety of skill sets – District Navigation Chiefs, District PMs, District Technical Staff, ERDC, Division Program Managers

Dylan Davis (SAD)
Allen Churchill (POA)
Chris Frabotta (SWG)
Ned Mitchell (ERDC)
Michael Sullivan (MVN)
Lauren Dunkin (ERDC)
Marin Kress (ERDC)

Rich Thorsen (NAD)
Mo Chang (SPL)
Kelly McElhenney (SAM)
Michael Ott (NWP)
David Wright (LRE)
Jim Clausner (Contractor)

Goals

- **Where are our Channels?**

  Establish definitive inventory of federal navigation channels, identify relevant budget items, and determine exact geospatial extent and authorized and constructed dimensions.

- **What do they look like?**

  Determine the *present* condition of the navigation channels relative to authorized and/or constructed dimensions.

- **NOW WHAT?**

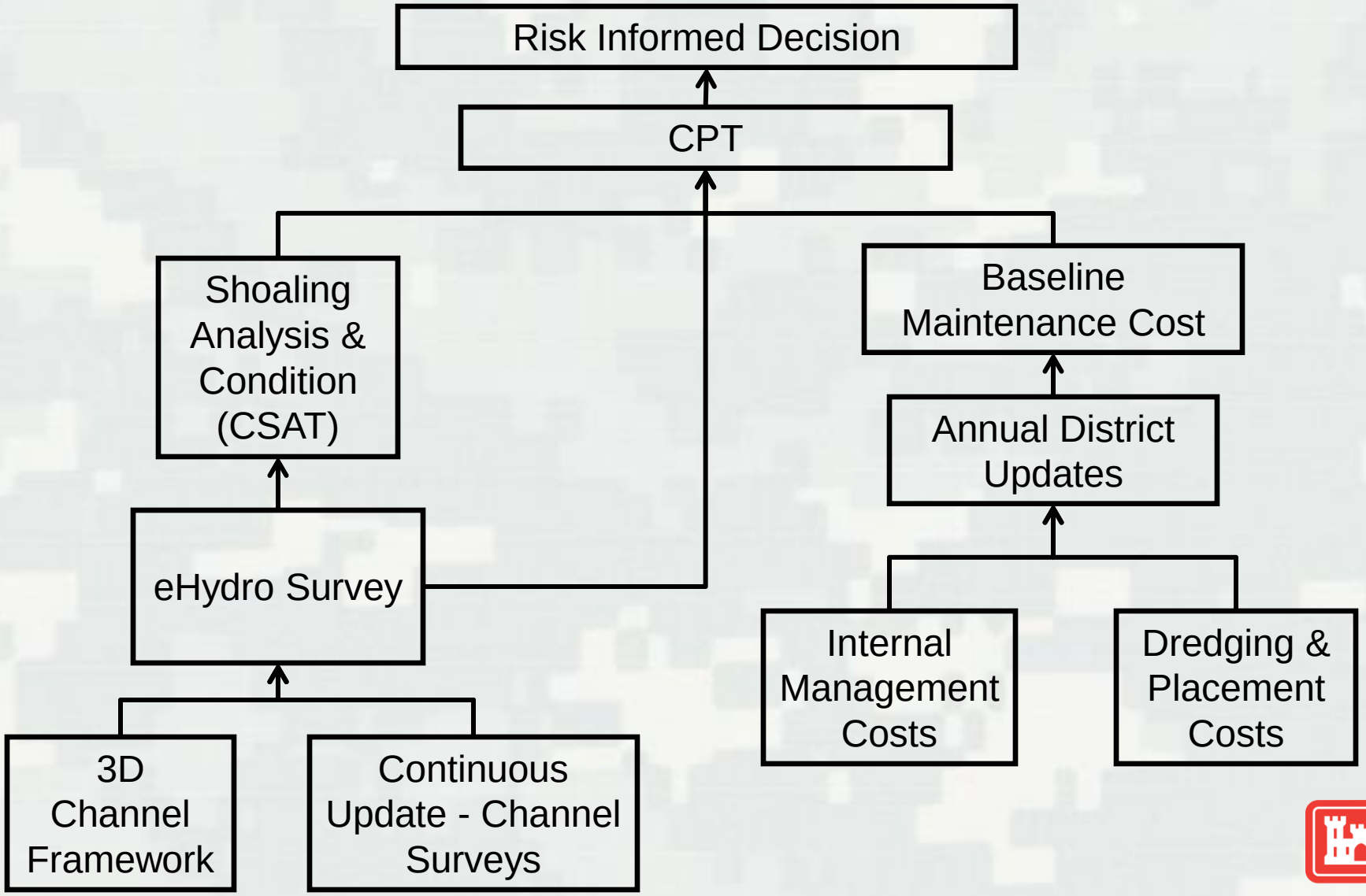
  Need to quantify the impacts of present channel conditions on commercial shipping, and compare to all other channels requesting dredging funds. Needs to be quantitative, objective, repeatable, consistent, and straightforward enough that it can be applied rapidly and affordably to all channels in the navigation portfolio of projects.

- **KEEP IT SIMPLE!!!**

How do we get there?

- Fully develop and utilize EXISTING programs to maximize efficiency
  - Channel Framework
    - Location
  - eHydro
    - Condition
  - Corps Shoaling Analysis Tool (CSAT)
    - Predictive Capability
  - Channel Portfolio Tool (CPT)
    - Economic Impacts

AM Nav Channel Work Flow



Revised Channel Condition

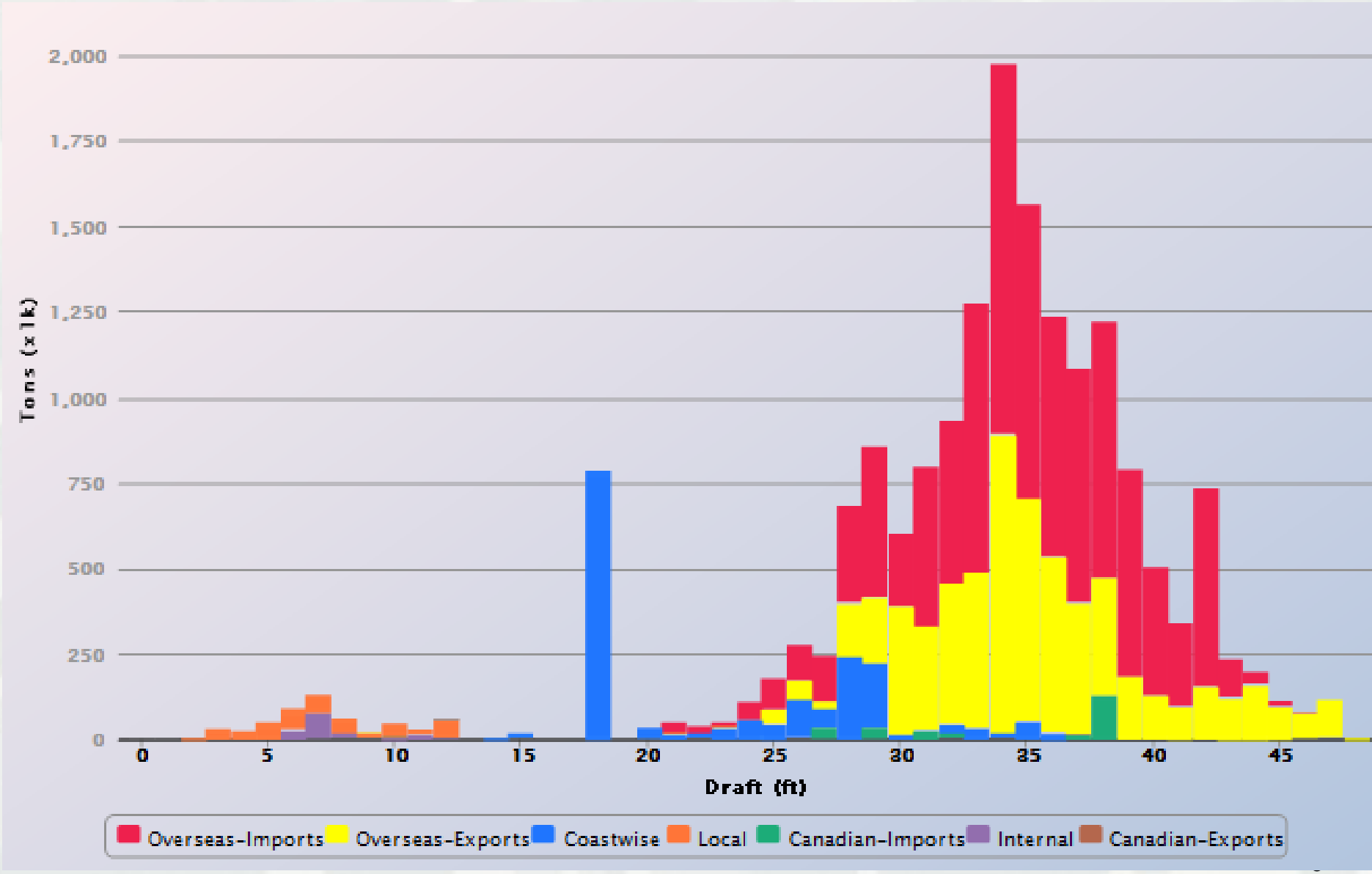
Channel Depth Restriction

Channel Width Availability		>4' (>16.0%)	3' (12.0%)	2' (8.0%)	1' (4.0%)	0' (0.0%)
< 50% (Two Way Traffic)	<80% (One Way Traffic)	1	2	4	7	11
50%	85%	3	5	8	12	16
75%	90%	6	9	13	17	20
90%	95%	10	14	18	21	23
100%	100%	15	19	22	24	25

Depth > 30 feet

Depth <= 30 feet

CPT Tonnage Distribution



CSAT Outputs

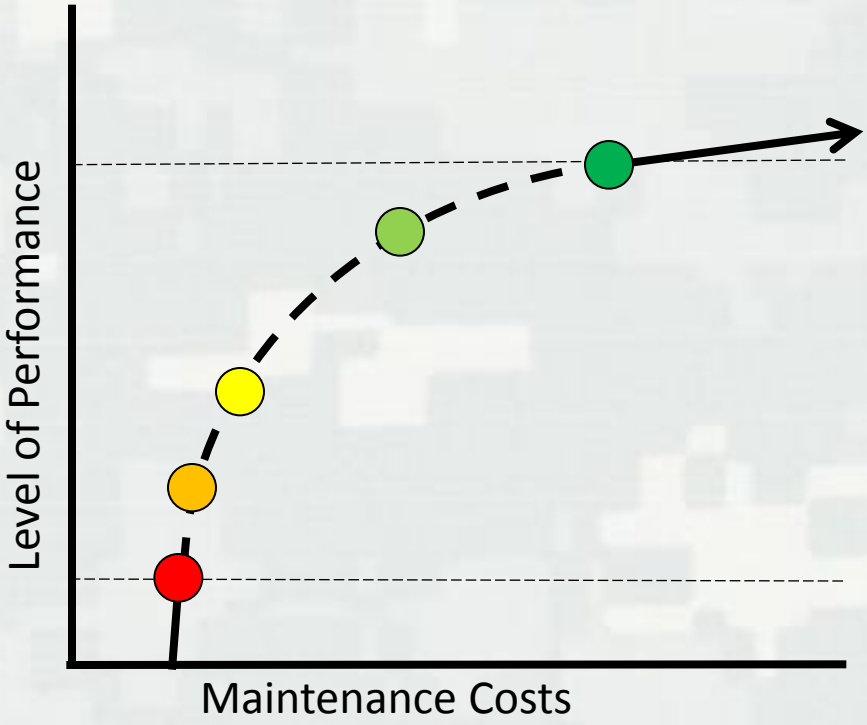
		Quantity (CY) at different future times to reach specified depth						
Target Elev, ft (MLLW)	Dredge Cut, ft (MLLW)	Now	6 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.
-45	-47	171,608	423,772	790,205	1,207,360	1,625,518	1,999,915	2,230,219
-43	-45	65,202	221,973	502,672	850,467	1,203,905	1,517,865	1,697,573
-41	-43	30,921	111,591	313,894	606,834	915,851	1,195,519	1,353,134
-39	-41	14,615	52,706	184,026	421,057	691,288	939,472	1,080,938
-37	-39	5,801	26,432	102,175	275,375	509,354	730,962	858,071
-35	-37	1,107	12,820	52,997	169,619	358,176	556,497	672,752
-33	-35	0	5,187	27,232	99,895	236,771	407,405	515,969
-31	-33	0	905	13,695	54,885	146,987	282,359	381,179
-29	-31	0	13	5,812	29,086	85,495	182,608	266,129
-27	-29	0	2	1,271	15,452	45,198	107,254	172,888
-25	-27	0	0	172	7,243	21,502	56,055	99,746
-23	-25	0	0	48	2,312	9,467	24,086	46,945
-21	-23	0	0	7	528	3,256	6,834	15,480
-19	-21	0	0	0	39	317	621	1,630
-17	-19	0	0	0	0	0	0	0

CPT Outputs

Draft, ft	Tons (x1k)	Dollars (x1k)	Trips
48	6.13	$ 8,901.42	1
47	37.86	$ 58,725.96	4
46	110.72	$ 201,793.87	12
45	180.16	$ 361,519.21	21
44	284.29	$ 607,923.52	36
43	462.64	$ 959,266.74	63
42	1,400.80	$ 2,258,432.72	148
41	1,723.82	$ 2,918,087.94	201
40	2,354.12	$ 4,522,053.26	296
39	3,136.17	$ 6,073,159.80	399
38	4,516.90	$ 8,425,468.11	584
37	5,728.12	$ 11,451,328.27	796
36	7,189.41	$ 15,436,797.52	1078
35	8,795.29	$ 19,798,383.69	1387
34	10,440.21	$ 25,032,470.51	1749
33	11,796.42	$ 28,956,567.97	2050
32	12,840.14	$ 32,103,700.83	2301
31	13,595.46	$ 34,486,388.39	2518
30	14,410.26	$ 37,583,859.08	2799

How do we get there?

- Develop Baseline Maintenance Costs
  - Internal Management Costs
  - Dredging & Placement Costs



Compliance	Safety, Legal, Environmental, etc.
Minimal Planning	Dredging Preparations, P&S, caretaker
Marginally Functional	Baseline reliability and availability to meet mission; Minimum dredging contract
Fully Functional	Optimal reliability and availability to meet mission; Dredge full channels dimensions; May include some advanced maintenance
Optimizing Total Cost of Ownership	Maximum performance and like-new condition; advanced maintenance

Risk Informed Outputs

	Now	6 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.
45	142.57	93.69	68.77	56.86	50.95	48.45	49.72
44	150.39	92.99	64.24	51.16	44.94	42.31	43.37
43	183.37	100.46	62.69	47.23	40.38	37.52	38.41
42	170.50	97.43	57.50	41.32	34.45	31.56	32.14
41	166.63	102.33	54.99	36.87	29.71	26.72	27.05
40	142.95	95.59	49.85	31.68	24.72	21.88	21.99
39	125.92	96.29	47.73	27.96	20.89	18.10	18.04
38	101.04	82.64	42.32	23.83	17.07	14.47	14.31
37	82.32	73.95	39.88	21.10	14.24	11.74	11.49
36	61.84	59.15	34.31	17.77	11.51	9.21	8.91
35	47.10	48.77	31.53	15.80	9.63	7.40	7.05
34	32.43	36.55	25.45	12.97	7.71	5.72	5.35
33	22.25	27.64	21.30	11.13	6.37	4.50	4.11
32	14.07	18.81	15.47	8.59	4.86	3.33	2.97
31	8.59	12.43	11.10	6.72	3.74	2.44	2.11
30	4.69	6.90	6.74	4.37	2.49	1.59	1.34

Risk Informed Outputs

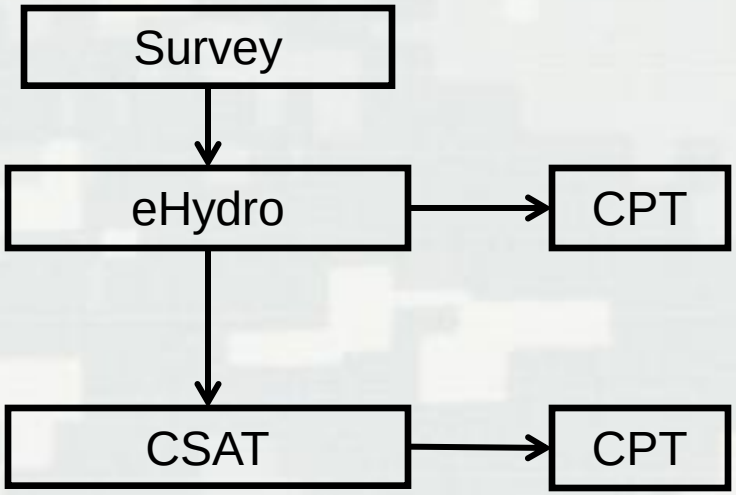
	Now	6 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.
45	4.99	6.16	6.53	6.62	6.68	6.82	7.24
44	5.20	6.59	7.06	7.16	7.22	7.37	7.84
43	5.40	7.06	7.66	7.77	7.83	8.00	8.53
42	5.19	6.99	7.73	7.87	7.92	8.08	8.62
41	5.17	7.20	8.12	8.30	8.35	8.50	9.06
40	5.01	7.10	8.20	8.46	8.52	8.67	9.24
39	4.79	6.93	8.21	8.55	8.62	8.77	9.35
38	4.36	6.35	7.70	8.16	8.25	8.39	8.94
37	3.97	5.84	7.25	7.84	7.95	8.08	8.61
36	3.50	5.16	6.52	7.18	7.35	7.48	7.95
35	2.97	4.41	5.65	6.36	6.57	6.69	7.11
34	2.43	3.61	4.67	5.35	5.61	5.73	6.09
33	1.98	2.95	3.85	4.49	4.79	4.91	5.21
32	1.63	2.43	3.19	3.78	4.10	4.23	4.49
31	1.38	2.06	2.71	3.26	3.60	3.75	3.98
30	1.10	1.65	2.19	2.65	2.97	3.13	3.34

Risk Informed Outputs

	Now	6 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.
45	22.94	17.30	13.39	11.33	10.26	9.82	10.11
44	28.81	21.46	15.93	13.06	11.64	11.04	11.36
43	38.73	28.26	19.63	15.40	13.41	12.58	12.92
42	41.40	32.63	22.13	16.75	14.28	13.22	13.53
41	46.67	41.04	26.85	19.32	16.01	14.59	14.85
40	48.28	46.43	30.83	21.44	17.33	15.58	15.76
39	49.64	53.61	36.37	24.10	18.83	16.64	16.70
38	47.05	53.72	38.88	25.50	19.31	16.77	16.72
37	44.85	54.63	43.10	27.86	20.24	17.18	16.99
36	40.45	51.15	43.63	28.70	20.37	16.90	16.55
35	35.24	46.42	43.65	29.41	20.22	16.28	15.74
34	28.93	39.43	39.32	27.82	19.12	15.03	14.33
33	23.70	33.47	35.73	26.95	18.51	14.09	13.18
32	19.53	28.26	31.35	25.31	17.74	13.30	12.24
31	16.50	24.49	28.35	24.88	17.91	13.16	11.84
30	13.24	19.76	23.71	22.02	16.59	12.23	10.85

Risk Informed Decisions

- Tonnage Disrupted vs. Tonnage
- Cargo Value Disruption vs. Cargo Value



Current	+1 Year = Work Plan	+2 Year = Budget	+3 Year = Planning
✓			
	✓	✓	✓

FY13 Accomplishments

- March 2013 – NC team was formed

- May 2013 – Developed Strategic path forward to include critical tools need for success

- September 2013 – Updated condition matrix to incorporate both depth and width

- Began upgrades to CPT to better accommodate inputs from support tools

FY14 Goals

- Fully implement eHydro for high and moderate use channels
- Establish linkages between systems under 6 national pilot projects
- Begin incorporating Baseline approach to high and moderate use channels
- CPT to incorporate support tools to give initial results for providing risk informed decisions

AM Nav Channels