



Peirce Island WWTF Upgrade

Portsmouth City Council Meeting

July 11, 2016

Topics of Discussion

- Items Added Since Joint Work Session
- Safety Consultant Review
- Barging Alternates
- Bid Results
- Funding Summary
- Staff Recommendation



48 Public Meetings on Wastewater

9/21/2005	11/21/2011	5/19/2014
1/12/2006	1/28/2012	8/4/2014
10/23/2007	3/19/2012	9/29/2014
3/11/2008	3/31/2012	1/20/2015
6/16/2008	4/9/2012	2/5/2015
10/6/2008	4/16/2012	3/12/2015
10/22/2008	6/11/2012	4/3/2015
12/15/2008	12/6/2012	4/16/2015
4/6/2009	2/11/2013	4/27/2015
8/3/2009	2/19/2013	6/29/2015
11/16/2009	3/13/2013	8/3/2015
2/5/2010	4/8/2013	11/16/2015
4/5/2010	7/9/2013	2/1/2016
4/27/2010	8/19/2013	2/16/2016
6/23/2010	3/3/2014	3/3/2016
11/8/2010	4/14/2014	4/11/2016



Items Added Since April 2016

Joint Work Session

- Staging and Pedestrian Safety
 - Additional Fencing and Barricades
 - Bus Turnaround Area for Pool
- Traffic and Pedestrian Mitigation (ongoing)
 - Four Tree Island Parking Lot Expansion
 - Additional Parking Adjacent to Boat Ramp



Safety Consultant Review

- Focus on Pedestrian Safety and Segregation from Construction Traffic
- Recommendations:
 - Fencing and Barriers Near Play Ground and Pool
 - Construction Entrance Attendant
 - Roadway Striping and In-street Pedestrian Signage
 - Cross Walk at Mechanic Street
 - Prohibit Dogs from Island During Construction
 - Resident Parking Via Permit on Island



City Council Vote March 14, 2016 Regarding Barging Alternates

...voted to direct the City Manager to develop one or more bid alts for the Peirce Island Wastewater Treatment Facility Upgrades for the delivery and removal of equipment and materials by water...



Barging Alternates

Barging Bid Alternate	Estimated Cumulative Reduction In Construction Vehicles (%)
Alt. 1 – Barge Demo and Surplus Excavation Materials	50%
Alt. 2 – Additional Cost to Barge Selected Construction Materials	60%
Alt. 3 – Additional Cost to Barge Vehicles 3 Axles or Greater and Construction Equipment Except Concrete Trucks and Pump Trucks	75%
Alt. 4 – Additional Costs for Concrete Batch Plant and Barge Raw Concrete Materials	90%

Rounded Bid Results (Million \$)

Item	Methuen Construction	Archer Western	PC Construction
Bid Construction Cost Without Barging Alts	\$72.79	\$80.67	\$84.59
Barging Alt 1 (50% Traffic Reduction)	\$3.94	\$5.45	\$8.35
Barging Alt 2 (50% to 60% Traffic Reduction)	\$9.25	\$3.15	\$25.16
Barging Alt 3 (60% to 75% Traffic Reduction)	\$3.79	\$0.35	\$3.14
Barging Alt 4 (75% to 90% Traffic Reduction)	\$4.02	\$5.30	\$9.68
Total Barging Cost	\$21.00	\$14.25	\$46.33
Total Construction Cost With All Barging Alts	\$93.79	\$94.92	\$130.91

Rounded Bid Results

Item	Low Bid Total	Added Cost
Base Costs (No Barging)	\$72,790,000	\$0
Barging Alt 1 (~50% Traffic Reduction)	\$76,730,000	\$3,940,000
Barging Alt 2 (~60% Traffic Reduction)	\$85,980,000	\$13,190,000
Barging Alt 3 (~75% Traffic Reduction)	\$89,770,000	\$16,980,000
Barging Alt 4 (~90% Traffic Reduction)	\$93,790,000	\$21,000,000

Updated: July 12, 2016

State Revolving Fund
Projected
AMORTIZATION AND PAYMENT SCHEDULE-20 YEAR

BOND \$75,000,000
less Principal Forgivene (\$3,750,000)
Total Principal \$71,250,000

YEARS 20

RATE 2.55%

Substantial Completion 06/01/2020

Projected	
Interim Financing	
FY 17	388,765
FY 18	421,083
FY 19	362,838
FY 20	<u>79,441</u>
	1,252,128
FY 21	<u>75,680</u>
Total Interim Financing	1,327,808

	Year	Beginning Balance	Principal	Interest	Total Payment	Ending Balance	Sewer rate Effect
						71,250,000	
FY 21	6/1/2021	71,250,000	3,562,500	1,818,300	5,380,800	67,687,500	\$4.84
FY 22	6/1/2022	67,687,500	3,562,500	1,727,385	5,289,885	64,125,000	\$4.76
FY 23	6/1/2023	64,125,000	3,562,500	1,636,470	5,198,970	60,562,500	\$4.68
FY 24	6/1/2024	60,562,500	3,562,500	1,545,555	5,108,055	57,000,000	\$4.60
FY 25	6/1/2025	57,000,000	3,562,500	1,454,640	5,017,140	53,437,500	\$4.52
FY 26	6/1/2026	53,437,500	3,562,500	1,363,725	4,926,225	49,875,000	\$4.43
FY 27	6/1/2027	49,875,000	3,562,500	1,272,810	4,835,310	46,312,500	\$4.35
FY 28	6/1/2028	46,312,500	3,562,500	1,181,895	4,744,395	42,750,000	\$4.27
FY 29	6/1/2029	42,750,000	3,562,500	1,090,980	4,653,480	39,187,500	\$4.19
FY 30	6/1/2030	39,187,500	3,562,500	1,000,065	4,562,565	35,625,000	\$4.11
FY 31	6/1/2031	35,625,000	3,562,500	909,150	4,471,650	32,062,500	\$4.02
FY 32	6/1/2032	32,062,500	3,562,500	818,235	4,380,735	28,500,000	\$3.94
FY 33	6/1/2033	28,500,000	3,562,500	727,320	4,289,820	24,937,500	\$3.86
FY 34	6/1/2034	24,937,500	3,562,500	636,405	4,198,905	21,375,000	\$3.78
FY 35	6/1/2035	21,375,000	3,562,500	545,490	4,107,990	17,812,500	\$3.70
FY 36	6/1/2036	17,812,500	3,562,500	454,575	4,017,075	14,250,000	\$3.62
FY 37	6/1/2037	14,250,000	3,562,500	363,660	3,926,160	10,687,500	\$3.53
FY 38	6/1/2038	10,687,500	3,562,500	272,745	3,835,245	7,125,000	\$3.45
FY 39	6/1/2039	7,125,000	3,562,500	181,830	3,744,330	3,562,500	\$3.37
FY 40	6/1/2040	3,562,500	3,562,500	90,915	3,653,415	-	\$3.29
Totals 20 year			<u>71,250,000</u>	<u>19,092,150</u>	<u>90,342,150</u>		

Total Interest 20,419,958
Total Interest and Principal 91,669,958

	Total Cost Without Barging	
	Bonding	Pricipal & Interest
Bonding 06/2014	10,000,000	13,229,062
SRF	75,000,000	91,669,958
Total Costs w/ Alt #4	85,000,000	104,899,020

COST OF BARGE PERMITTING

Updated: July 12, 2016

AMORTIZATION AND PAYMENT SCHEDULE-20 YEAR

BOND \$2,000,000

YEARS 20

RATE 2.55%

Note: Approximately \$100,000 = \$0.09 on the Sewer rate
 FY 17 Sewer Rate: 12.24/13.47

Year	Beginning Balance	Principal	Interest	Total Payment	Ending Balance	Sewer rate Effect
					2,000,000	
1	2,000,000	100,000	51,000	151,000	1,900,000	\$0.14
2	1,900,000	100,000	48,450	148,450	1,800,000	\$0.13
3	1,800,000	100,000	45,900	145,900	1,700,000	\$0.13
4	1,700,000	100,000	43,350	143,350	1,600,000	\$0.13
5	1,600,000	100,000	40,800	140,800	1,500,000	\$0.13
6	1,500,000	100,000	38,250	138,250	1,400,000	\$0.12
7	1,400,000	100,000	35,700	135,700	1,300,000	\$0.12
8	1,300,000	100,000	33,150	133,150	1,200,000	\$0.12
9	1,200,000	100,000	30,600	130,600	1,100,000	\$0.12
10	1,100,000	100,000	28,050	128,050	1,000,000	\$0.12
11	1,000,000	100,000	25,500	125,500	900,000	\$0.11
12	900,000	100,000	22,950	122,950	800,000	\$0.11
13	800,000	100,000	20,400	120,400	700,000	\$0.11
14	700,000	100,000	17,850	117,850	600,000	\$0.11
15	600,000	100,000	15,300	115,300	500,000	\$0.10
16	500,000	100,000	12,750	112,750	400,000	\$0.10
17	400,000	100,000	10,200	110,200	300,000	\$0.10
18	300,000	100,000	7,650	107,650	200,000	\$0.10
19	200,000	100,000	5,100	105,100	100,000	\$0.09
20	100,000	100,000	2,550	102,550	-	\$0.09
Totals 20 year		2,000,000	535,500	2,535,500		

Updated: July 12, 2016

COST OF BARGE ALTERNATE #1

50% TRAFFIC REDUCTION

AMORTIZATION AND PAYMENT SCHEDULE-20 YEAR

BOND \$3,940,000
 YEARS 20
 RATE 2.55%

Note: Approximately \$100,000 = \$0.09 on the Sewer rate
 FY 17 Sewer Rate: 12.24/13.47

Year	Beginning Balance	Principal	Interest	Total Payment	Ending Balance	Sewer rate Effect
					3,940,000	
1	3,940,000	197,000	100,470	297,470	3,743,000	\$0.27
2	3,743,000	197,000	95,447	292,447	3,546,000	\$0.26
3	3,546,000	197,000	90,423	287,423	3,349,000	\$0.26
4	3,349,000	197,000	85,400	282,400	3,152,000	\$0.25
5	3,152,000	197,000	80,376	277,376	2,955,000	\$0.25
6	2,955,000	197,000	75,353	272,353	2,758,000	\$0.25
7	2,758,000	197,000	70,329	267,329	2,561,000	\$0.24
8	2,561,000	197,000	65,306	262,306	2,364,000	\$0.24
9	2,364,000	197,000	60,282	257,282	2,167,000	\$0.23
10	2,167,000	197,000	55,259	252,259	1,970,000	\$0.23
11	1,970,000	197,000	50,235	247,235	1,773,000	\$0.22
12	1,773,000	197,000	45,212	242,212	1,576,000	\$0.22
13	1,576,000	197,000	40,188	237,188	1,379,000	\$0.21
14	1,379,000	197,000	35,165	232,165	1,182,000	\$0.21
15	1,182,000	197,000	30,141	227,141	985,000	\$0.20
16	985,000	197,000	25,118	222,118	788,000	\$0.20
17	788,000	197,000	20,094	217,094	591,000	\$0.20
18	591,000	197,000	15,071	212,071	394,000	\$0.19
19	394,000	197,000	10,047	207,047	197,000	\$0.19
20	197,000	197,000	5,024	202,024	-	\$0.18
Totals 20 year		3,940,000	1,054,935	4,994,935		

	Total Cost	
	Bonding	Principial & Interest
Bonding 06/2014	10,000,000	13,229,062
SRF	75,000,000	91,669,958
Barge Permitting	2,000,000	2,535,500.00
Alt #1	3,940,000	4,994,935.00
Total Costs w/ Alt #1	90,940,000	112,429,455

COST OF BARGE ALTERNATE #2

Updated: July 12, 2016

60% TRAFFIC REDUCTION

AMORTIZATION AND PAYMENT SCHEDULE-20 YEAR

BOND \$13,190,000
 YEARS 20
 RATE 2.55%

Note: Approximately \$100,000 = \$0.09 on the Sewer rate
 FY 17 Sewer Rate: 12.24/13.47

Year	Beginning Balance	Principal	Interest	Total Payment	Ending Balance	Sewer rate Effect
					13,190,000	
1	13,190,000	659,500	336,345	995,845	12,530,500	\$0.90
2	12,530,500	659,500	319,528	979,028	11,871,000	\$0.88
3	11,871,000	659,500	302,711	962,211	11,211,500	\$0.87
4	11,211,500	659,500	285,893	945,393	10,552,000	\$0.85
5	10,552,000	659,500	269,076	928,576	9,892,500	\$0.84
6	9,892,500	659,500	252,259	911,759	9,233,000	\$0.82
7	9,233,000	659,500	235,442	894,942	8,573,500	\$0.81
8	8,573,500	659,500	218,624	878,124	7,914,000	\$0.79
9	7,914,000	659,500	201,807	861,307	7,254,500	\$0.78
10	7,254,500	659,500	184,990	844,490	6,595,000	\$0.76
11	6,595,000	659,500	168,173	827,673	5,935,500	\$0.74
12	5,935,500	659,500	151,355	810,855	5,276,000	\$0.73
13	5,276,000	659,500	134,538	794,038	4,616,500	\$0.71
14	4,616,500	659,500	117,721	777,221	3,957,000	\$0.70
15	3,957,000	659,500	100,904	760,404	3,297,500	\$0.68
16	3,297,500	659,500	84,086	743,586	2,638,000	\$0.67
17	2,638,000	659,500	67,269	726,769	1,978,500	\$0.65
18	1,978,500	659,500	50,452	709,952	1,319,000	\$0.64
19	1,319,000	659,500	33,635	693,135	659,500	\$0.62
20	659,500	659,500	16,817	676,317	-	\$0.61
Totals 20 year		13,190,000	3,531,623	16,721,623		

	Total Cost	
	Bonding	Principial & Interest
Bonding 06/2014	10,000,000	13,229,062
SRF	75,000,000	91,669,958
Barge Permitting	2,000,000	2,535,500
Alt #2	13,190,000	16,721,623
Total Costs w/ Alt #2	100,190,000	124,156,143

COST OF BARGE ALTERNATE #3

Updated: July 12, 2016

75% TRAFFIC REDUCTION

AMORTIZATION AND PAYMENT SCHEDULE-20 YEAR

BOND \$16,980,000
 YEARS 20
 RATE 2.55%

Note: Approximately \$100,000 = \$0.09 on the Sewer rate
 FY 17 Sewer Rate: 12.24/13.47

Year	Beginning Balance	Principal	Interest	Total Payment	Ending Balance	Sewer rate Effect
					16,980,000	
1	16,980,000	849,000	432,990	1,281,990	16,131,000	\$1.15
2	16,131,000	849,000	411,341	1,260,341	15,282,000	\$1.13
3	15,282,000	849,000	389,691	1,238,691	14,433,000	\$1.11
4	14,433,000	849,000	368,042	1,217,042	13,584,000	\$1.10
5	13,584,000	849,000	346,392	1,195,392	12,735,000	\$1.08
6	12,735,000	849,000	324,743	1,173,743	11,886,000	\$1.06
7	11,886,000	849,000	303,093	1,152,093	11,037,000	\$1.04
8	11,037,000	849,000	281,444	1,130,444	10,188,000	\$1.02
9	10,188,000	849,000	259,794	1,108,794	9,339,000	\$1.00
10	9,339,000	849,000	238,145	1,087,145	8,490,000	\$0.98
11	8,490,000	849,000	216,495	1,065,495	7,641,000	\$0.96
12	7,641,000	849,000	194,846	1,043,846	6,792,000	\$0.94
13	6,792,000	849,000	173,196	1,022,196	5,943,000	\$0.92
14	5,943,000	849,000	151,547	1,000,547	5,094,000	\$0.90
15	5,094,000	849,000	129,897	978,897	4,245,000	\$0.88
16	4,245,000	849,000	108,248	957,248	3,396,000	\$0.86
17	3,396,000	849,000	86,598	935,598	2,547,000	\$0.84
18	2,547,000	849,000	64,949	913,949	1,698,000	\$0.82
19	1,698,000	849,000	43,299	892,299	849,000	\$0.80
20	849,000	849,000	21,650	870,650	-	\$0.78
Totals 20 year		16,980,000	4,546,395	21,526,395		

	Total Cost	
	Bonding	Principial & Interest
Bonding 06/2014	10,000,000	13,229,062
SRF	75,000,000	91,669,958
Barge Permitting	2,000,000	2,535,500
Alt #3	16,980,000	21,526,395
Total Costs w/ Alt #3	103,980,000	128,960,915

COST OF BARGE ALTERNATE #4

Updated: July 12, 2016

90% TRAFFIC REDUCTION

AMORTIZATION AND PAYMENT SCHEDULE-20 YEAR

BOND \$21,000,000
 YEARS 20
 RATE 2.55%

Note: Approximately \$100,000 = \$0.09 on the Sewer rate
 FY 17 Sewer Rate: 12.24/13.47

Year	Beginning Balance	Principal	Interest	Total Payment	Ending Balance	Sewer rate Effect
					21,000,000	
1	21,000,000	1,050,000	535,500	1,585,500	19,950,000	\$1.43
2	19,950,000	1,050,000	508,725	1,558,725	18,900,000	\$1.40
3	18,900,000	1,050,000	481,950	1,531,950	17,850,000	\$1.38
4	17,850,000	1,050,000	455,175	1,505,175	16,800,000	\$1.35
5	16,800,000	1,050,000	428,400	1,478,400	15,750,000	\$1.33
6	15,750,000	1,050,000	401,625	1,451,625	14,700,000	\$1.31
7	14,700,000	1,050,000	374,850	1,424,850	13,650,000	\$1.28
8	13,650,000	1,050,000	348,075	1,398,075	12,600,000	\$1.26
9	12,600,000	1,050,000	321,300	1,371,300	11,550,000	\$1.23
10	11,550,000	1,050,000	294,525	1,344,525	10,500,000	\$1.21
11	10,500,000	1,050,000	267,750	1,317,750	9,450,000	\$1.19
12	9,450,000	1,050,000	240,975	1,290,975	8,400,000	\$1.16
13	8,400,000	1,050,000	214,200	1,264,200	7,350,000	\$1.14
14	7,350,000	1,050,000	187,425	1,237,425	6,300,000	\$1.11
15	6,300,000	1,050,000	160,650	1,210,650	5,250,000	\$1.09
16	5,250,000	1,050,000	133,875	1,183,875	4,200,000	\$1.07
17	4,200,000	1,050,000	107,100	1,157,100	3,150,000	\$1.04
18	3,150,000	1,050,000	80,325	1,130,325	2,100,000	\$1.02
19	2,100,000	1,050,000	53,550	1,103,550	1,050,000	\$0.99
20	1,050,000	1,050,000	26,775	1,076,775	-	\$0.97
Totals 20 year		21,000,000	5,622,750	26,622,750		

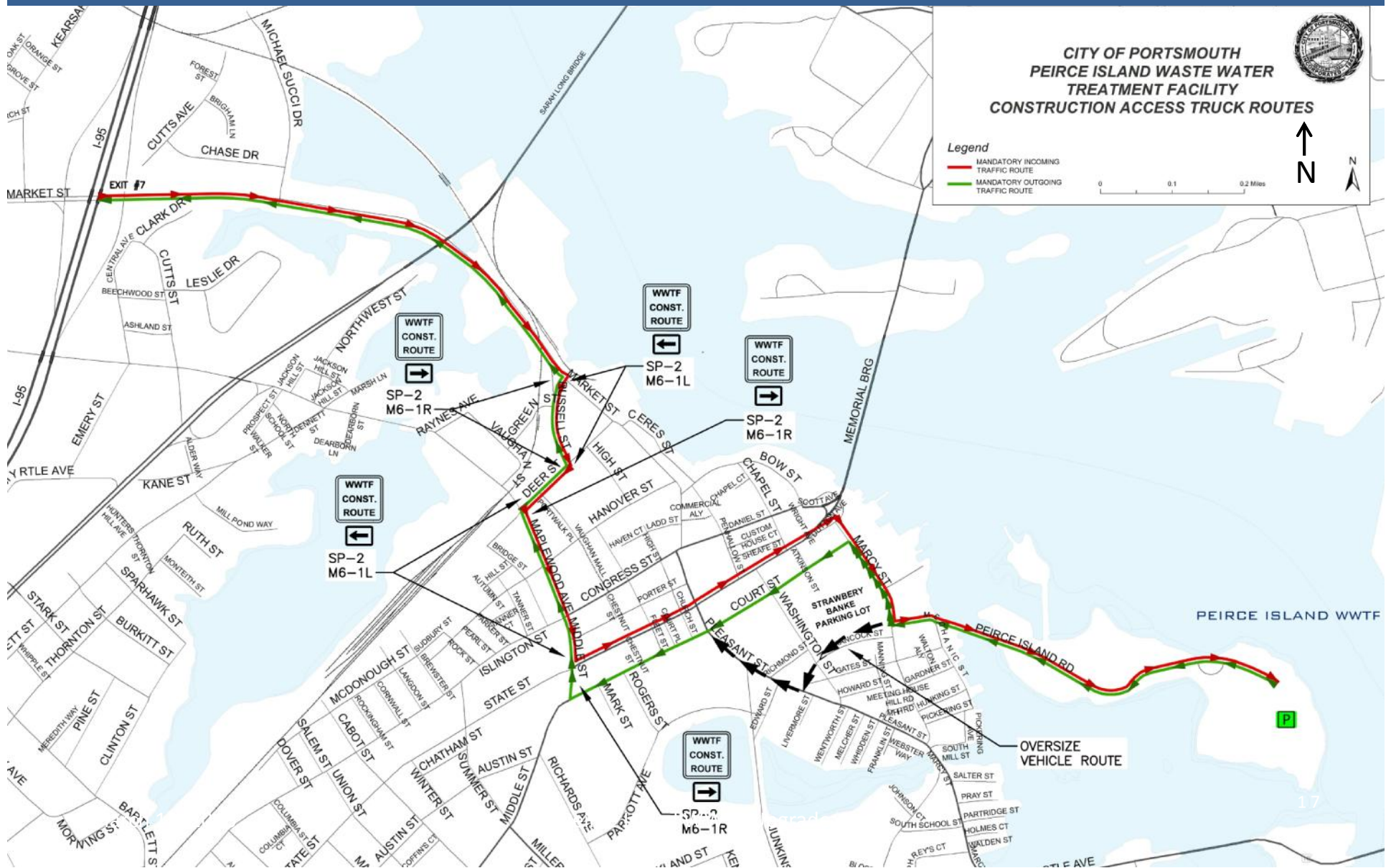
	Total Cost	
	Bonding	Principial & Interest
Bonding 06/2014	10,000,000	13,229,062
SRF	75,000,000	91,669,958
Barge Permitting	2,000,000	2,535,500
Alt #4	21,000,000	26,622,750
Total Costs w/ Alt #4	108,000,000	134,057,270

Barging Considerations

- Overlap in Construction and Permitting
 - Natural Resource Permitting
 - Waterway Permitting (Army Corps, USCG)
- Engineering and Coordination
- Potential Natural Resource Mitigation
- Increases Risk Profile
- Increases Costs

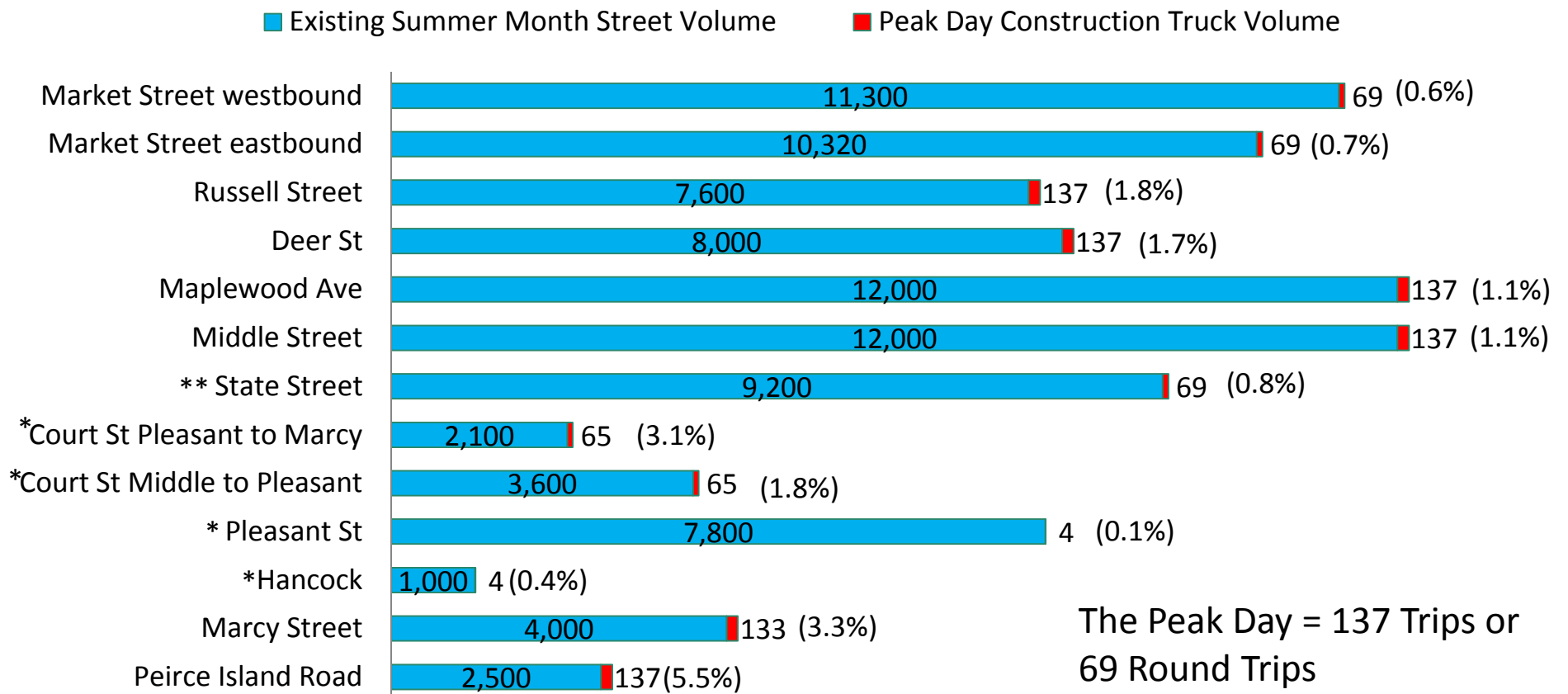


Construction Access Routes



Estimated Traffic Volume (No Barging)

Summer Condition Traffic Volumes with Peak Day Construction Traffic (Trips per Day)



Notes: *Outbound Construction Traffic Only **Inbound Construction Traffic Only



Funding Summary

- Construction Phase Project Costs
 - Construction (\$72.79M)
 - Construction Oversight Engineering
 - Construction Contingency
- Council Bond and Loan Authorizations
 - Allows for Award of Base Bid
 - Allows for Initial Construction Oversight Engineering Contract
 - Includes 2.5% Contingency



Staff Recommendation

- Approve Award of Contract to Low Bidder Without Barging
- Continue Mitigation of Construction Impacts





Questions