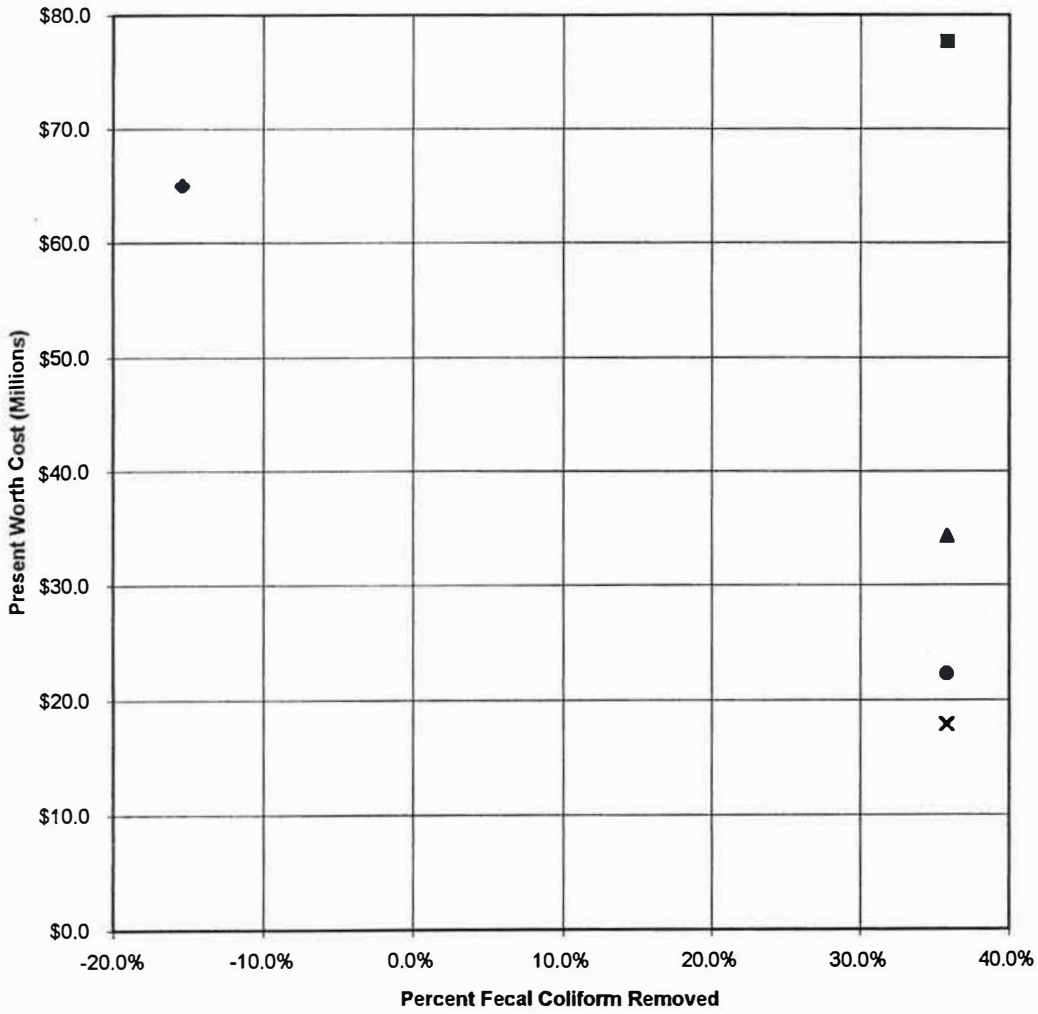
APPENDIX G

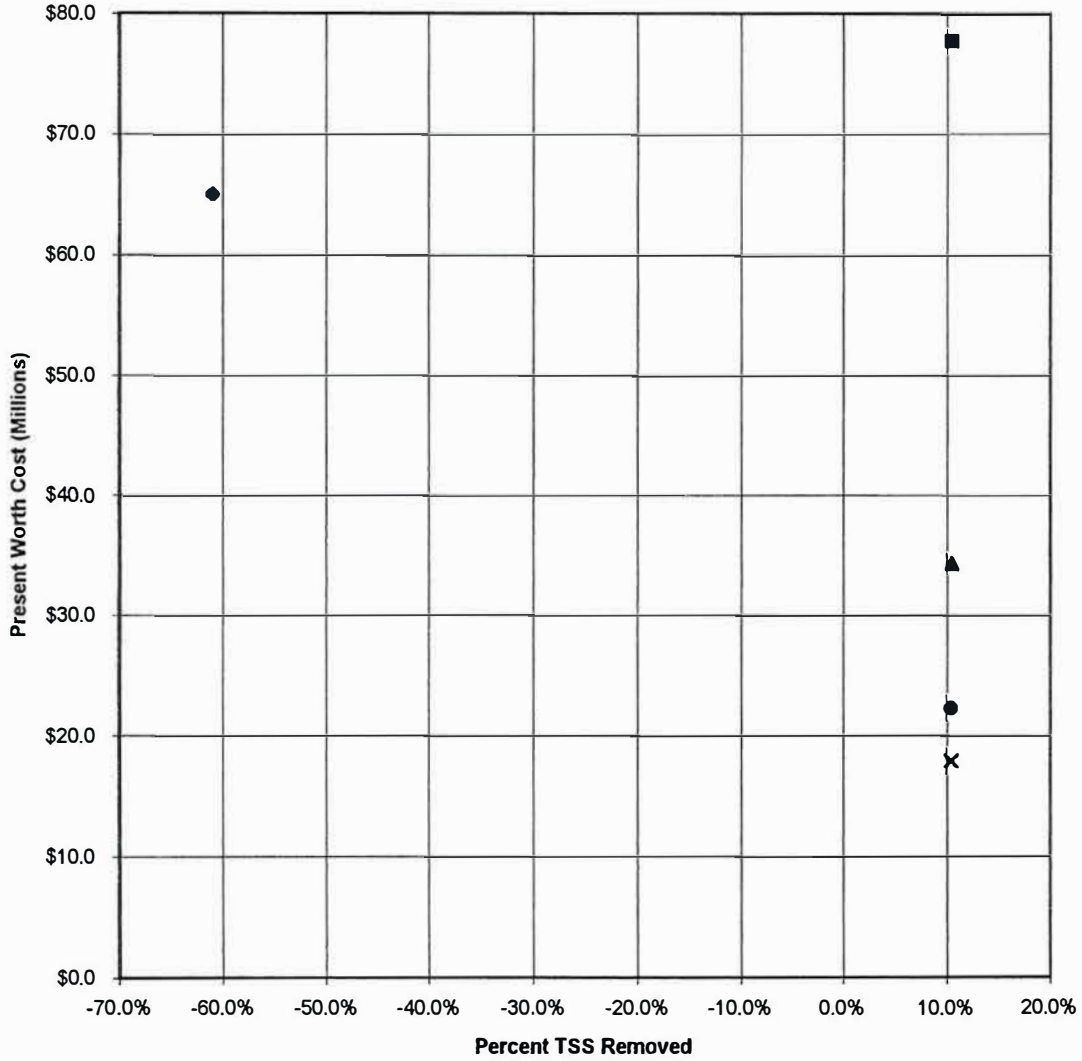
COST PERFORMANCE CURVES

North Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



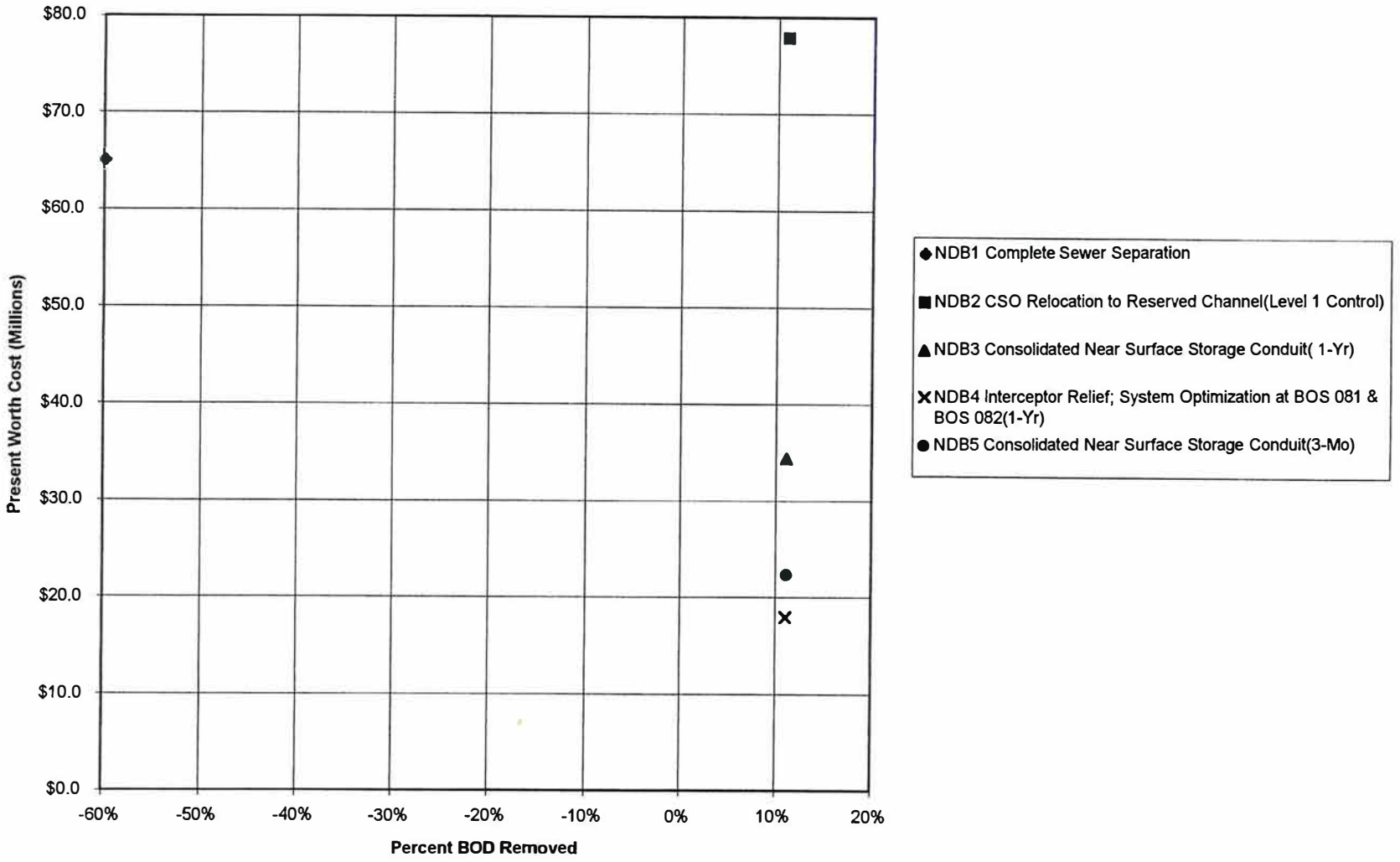
- ◆ NDB1 Complete Sewer Separation
- ■ NDB2 CSO Relocation to Reserved Channel(Level 1 Control)
- ▲ NDB3 Consolidated Near Surface Storage Conduit(1-Yr)
- ✕ NDB4 Interceptor Relief; System Optimization at BOS 081 & BOS 082(1-Yr)
- ● NDB5 Consolidated Near Surface Storage Conduit(3-Mo)

North Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

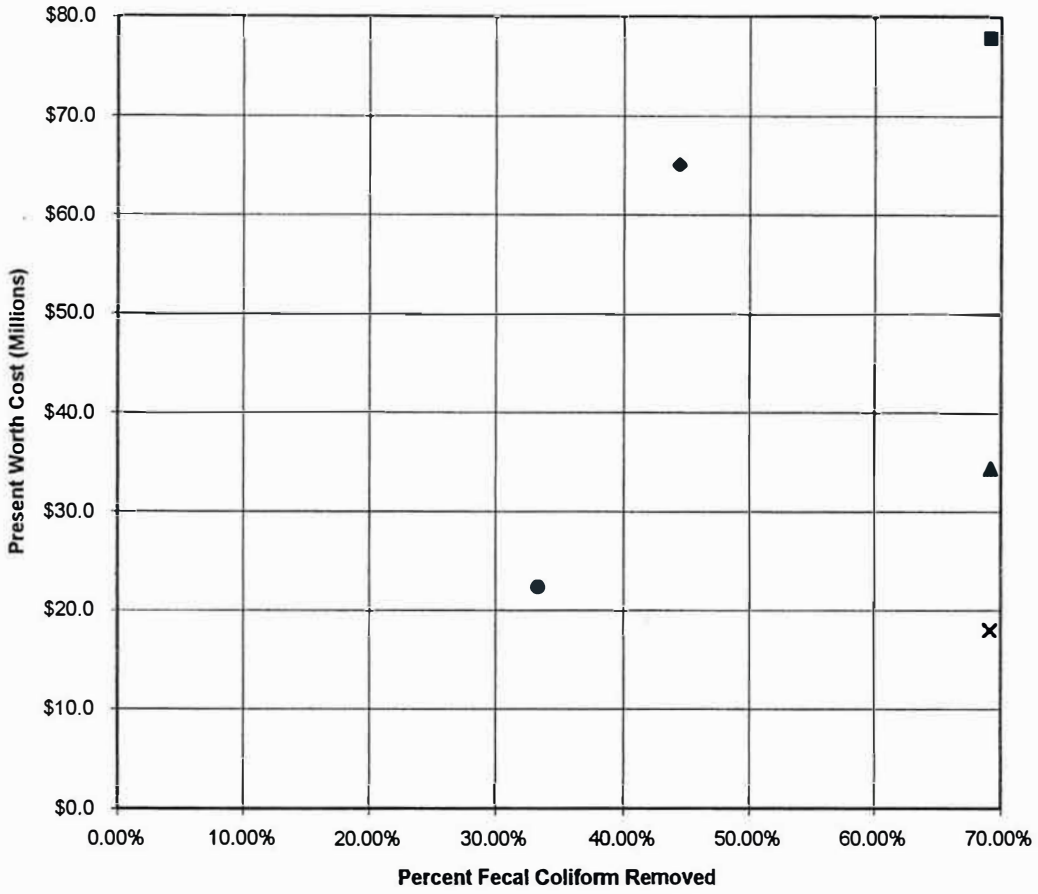


- ◆ NDB1 Complete Sewer Separation
- ■ NDB2 CSO Relocation to Reserved Channel(Level 1 Control)
- ▲ NDB3 Consolidated Near Surface Storage Conduit(1-Yr)
- ✕ NDB4 Interceptor Relief; System Optimization at BOS 081 & BOS 082(1-Yr)
- ● NDB5 Consolidated Near Surface Storage Conduit(3-Mo)

North Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

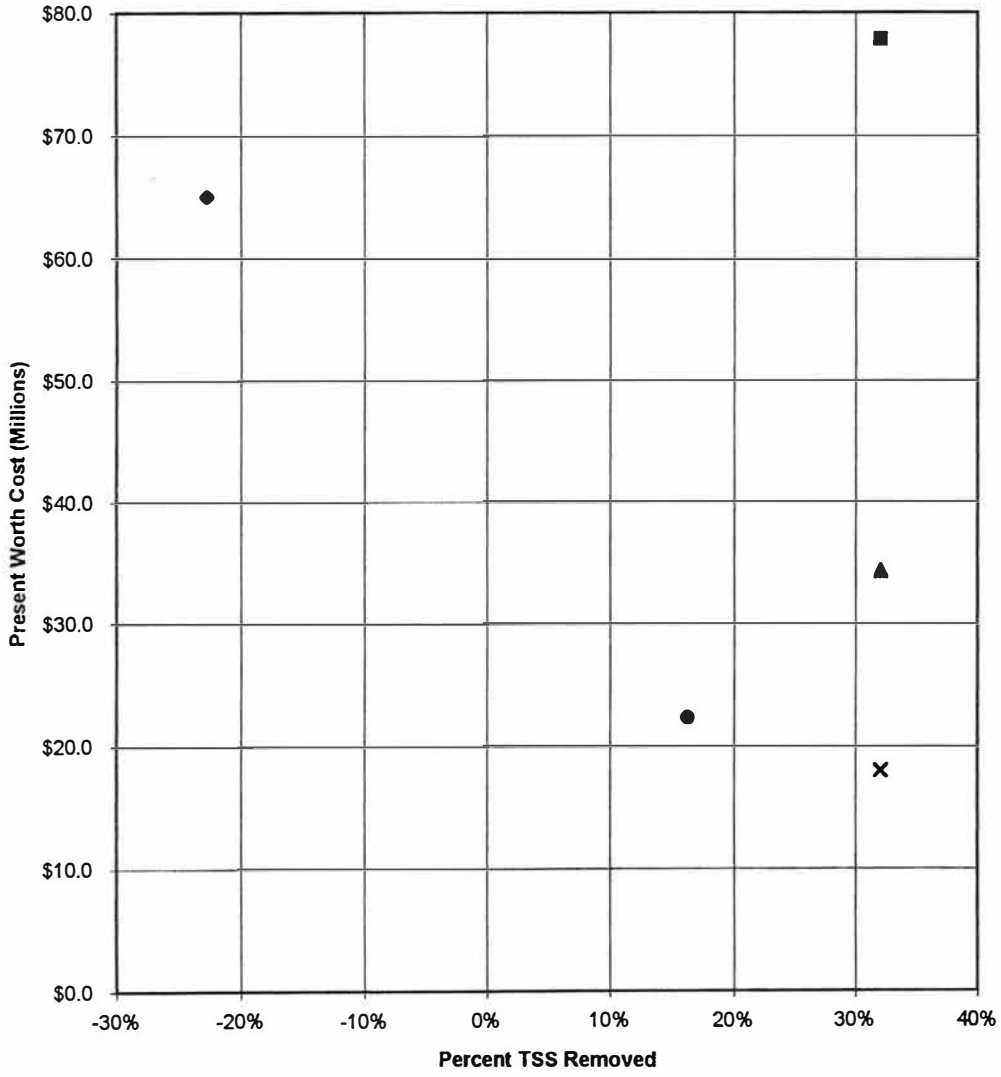


North Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



- ◆ NDB1 Complete Sewer Separation
- ■ NDB2 CSO Relocation to Reserved Channel(Level 1 Control)
- ▲ NDB3 Consolidated Near Surface Storage Conduit(1-Yr)
- ✕ NDB4 Interceptor Relief; System Optimization at BOS 081 & BOS 082(1-Yr)
- ● NDB5 Consolidated Near Surface Storage Conduit(3-Mo)

North Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



◆ NDB1 Complete Sewer Separation

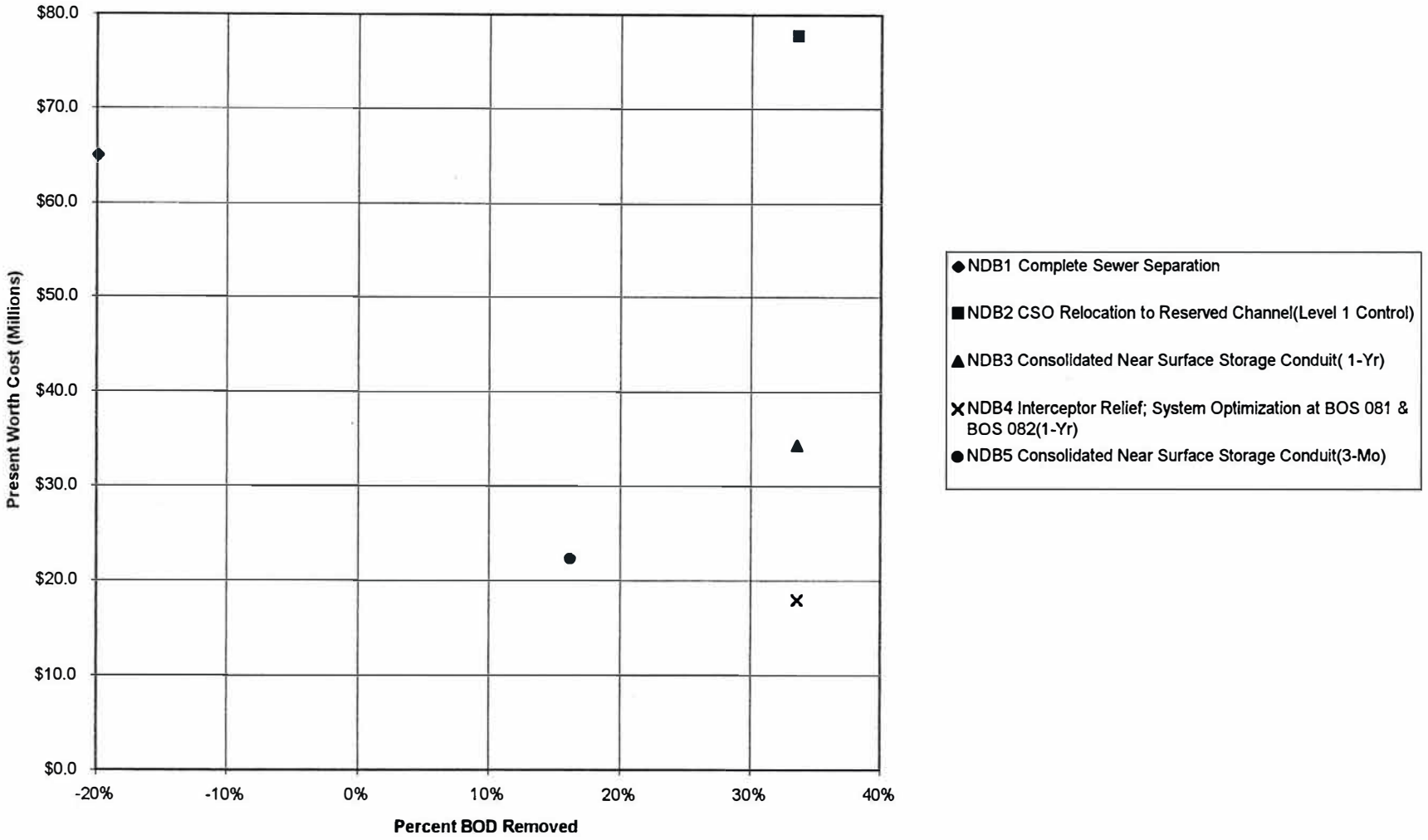
■ NDB2 CSO Relocation to Reserved Channel(Level 1 Control)

▲ NDB3 Consolidated Near Surface Storage Conduit(1-Yr)

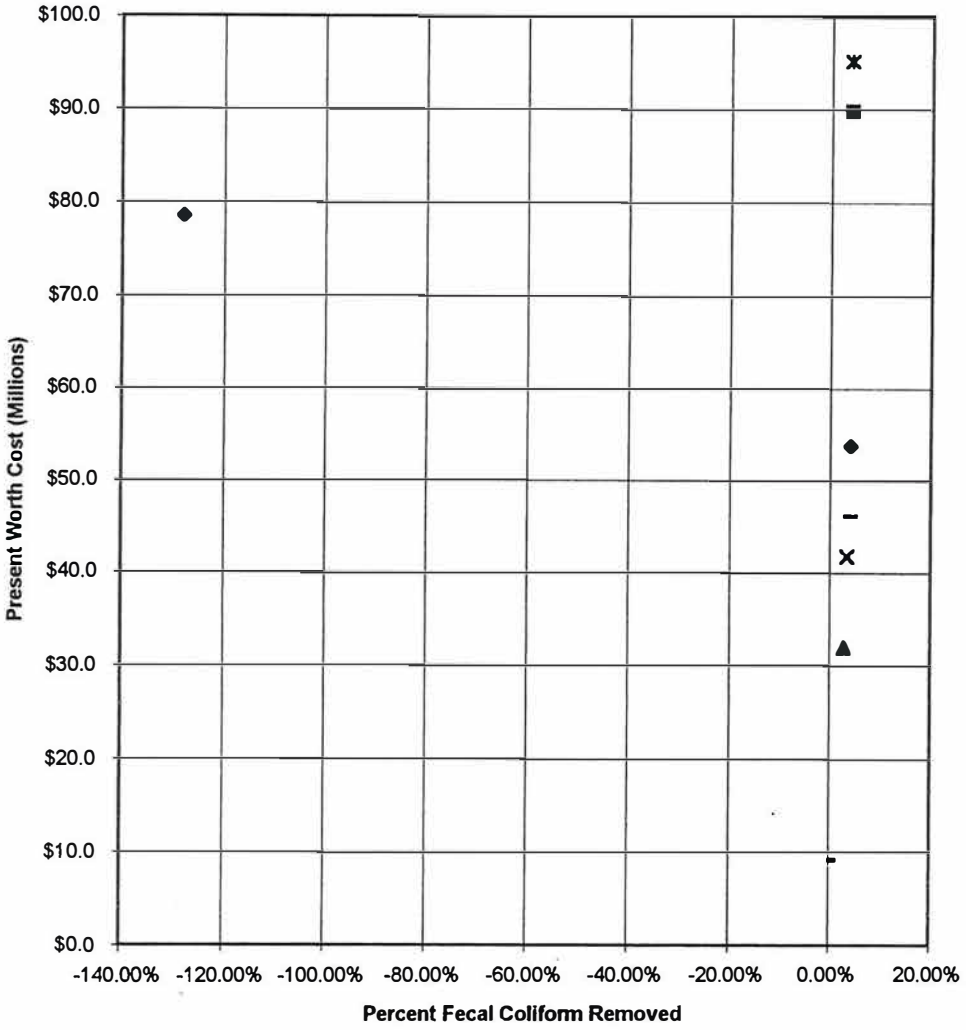
✕ NDB4 Interceptor Relief; System Optimization at BOS 081 & BOS 082(1-Yr)

● NDB5 Consolidated Near Surface Storage Conduit(3-Mo)

North Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)

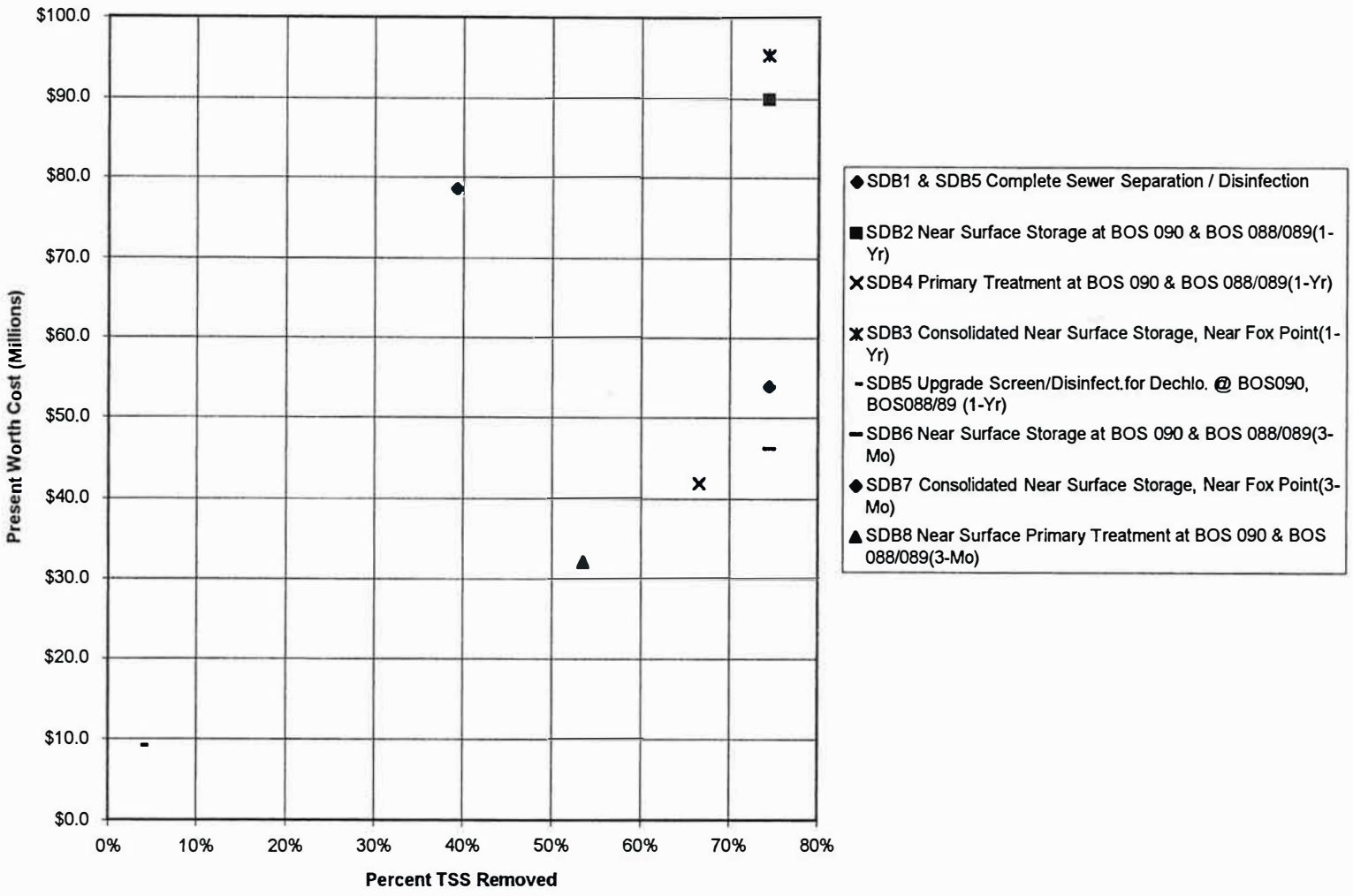


South Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

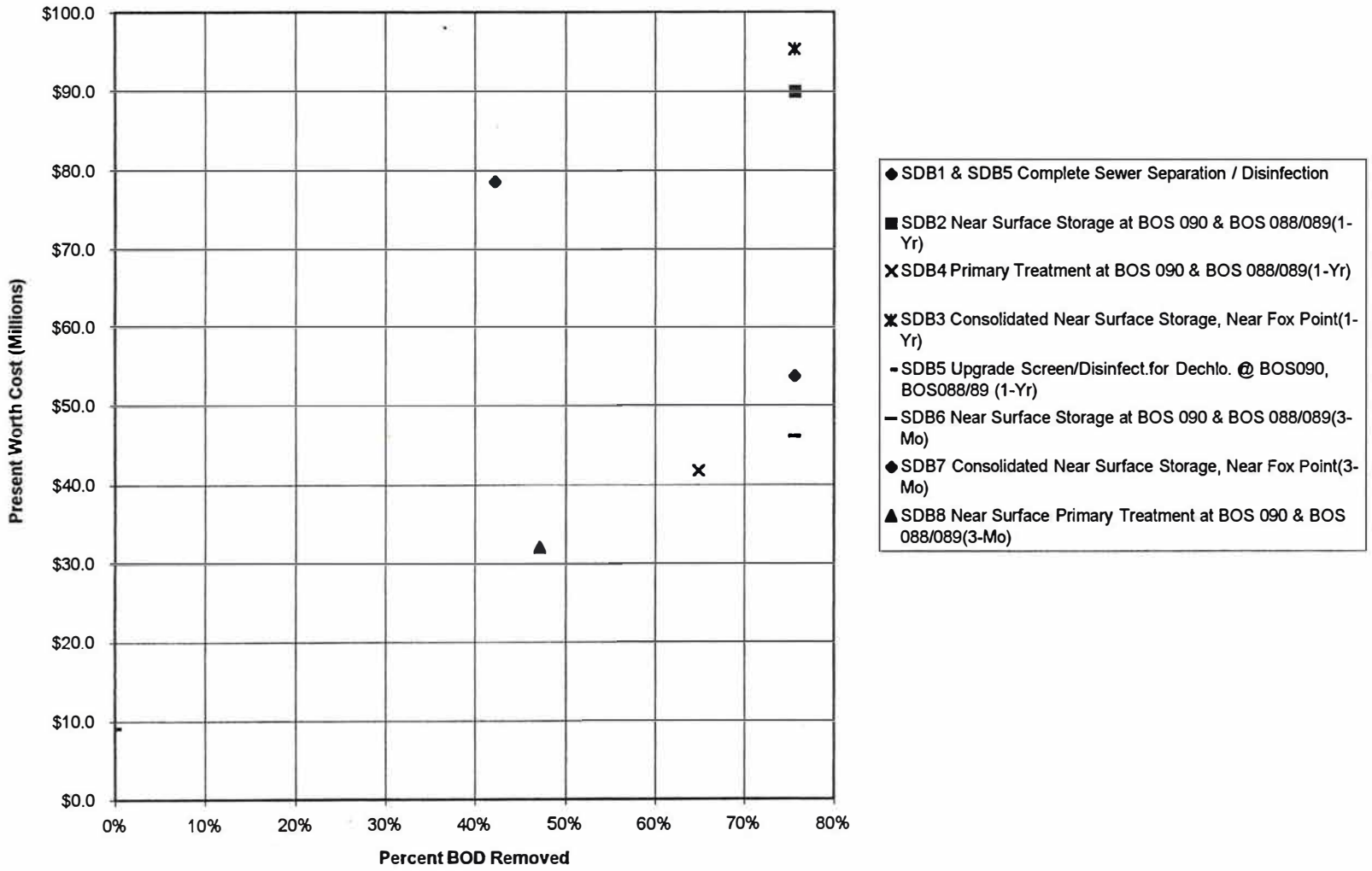


- ◆ SDB1 & SDB5 Complete Sewer Separation / Disinfection
- ■ SDB2 Near Surface Storage at BOS 090 & BOS 088/089(1-Yr)
- ✕ SDB4 Primary Treatment at BOS 090 & BOS 088/089(1-Yr)
- ✱ SDB3 Consolidated Near Surface Storage, Near Fox Point(1-Yr)
- - SDB5 Upgrade Screen/Disinfect.for Dechlo. @ BOS090, BOS088/89 (1-Yr)
- – SDB6 Near Surface Storage at BOS 090 & BOS 088/089(3-Mo)
- ◆ SDB7 Consolidated Near Surface Storage, Near Fox Point(3-Mo)
- ▲ SDB8 Near Surface Primary Treatment at BOS 090 & BOS 088/089(3-Mo)

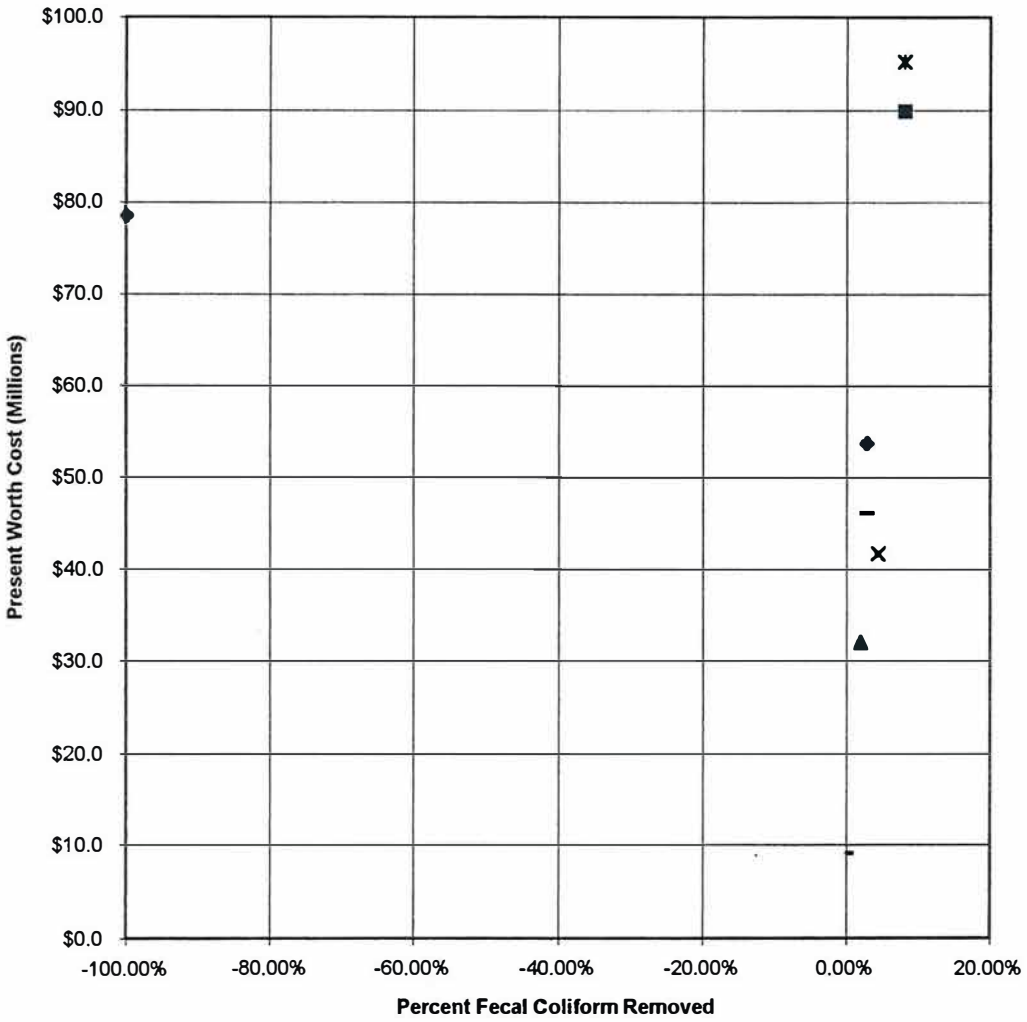
South Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



South Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

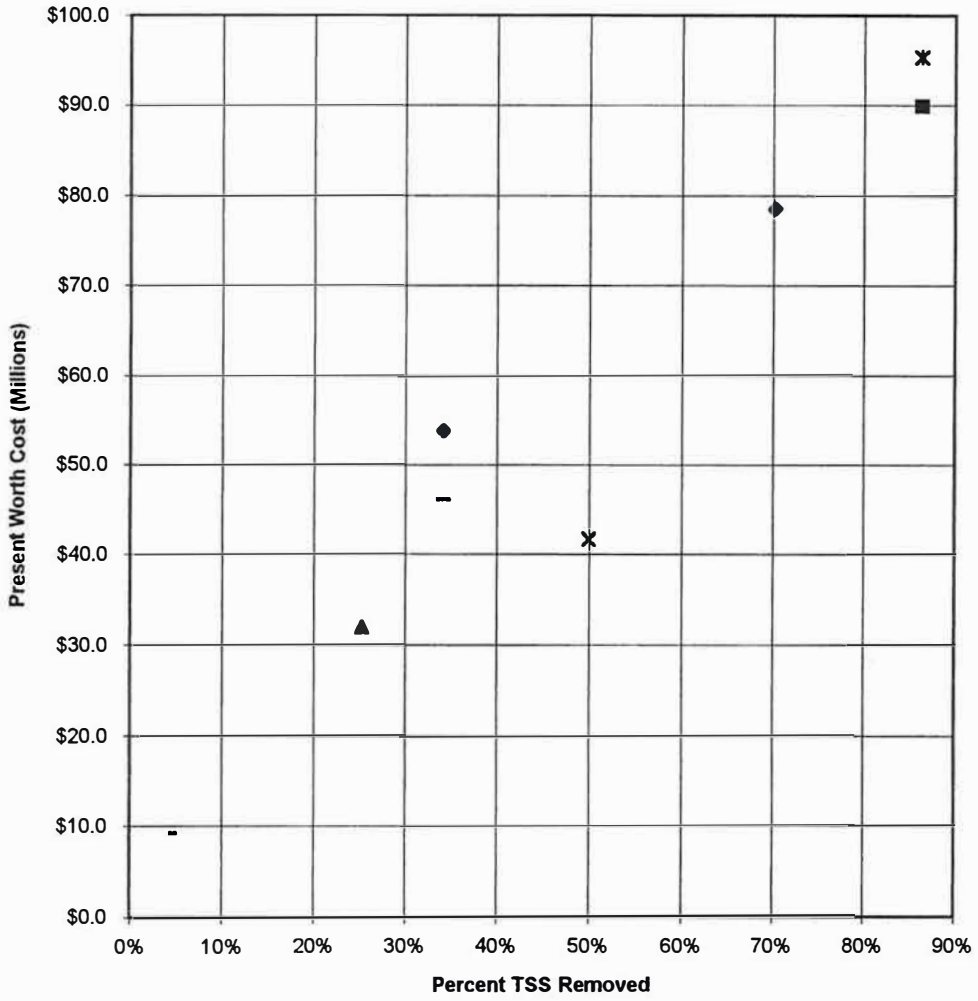


South Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



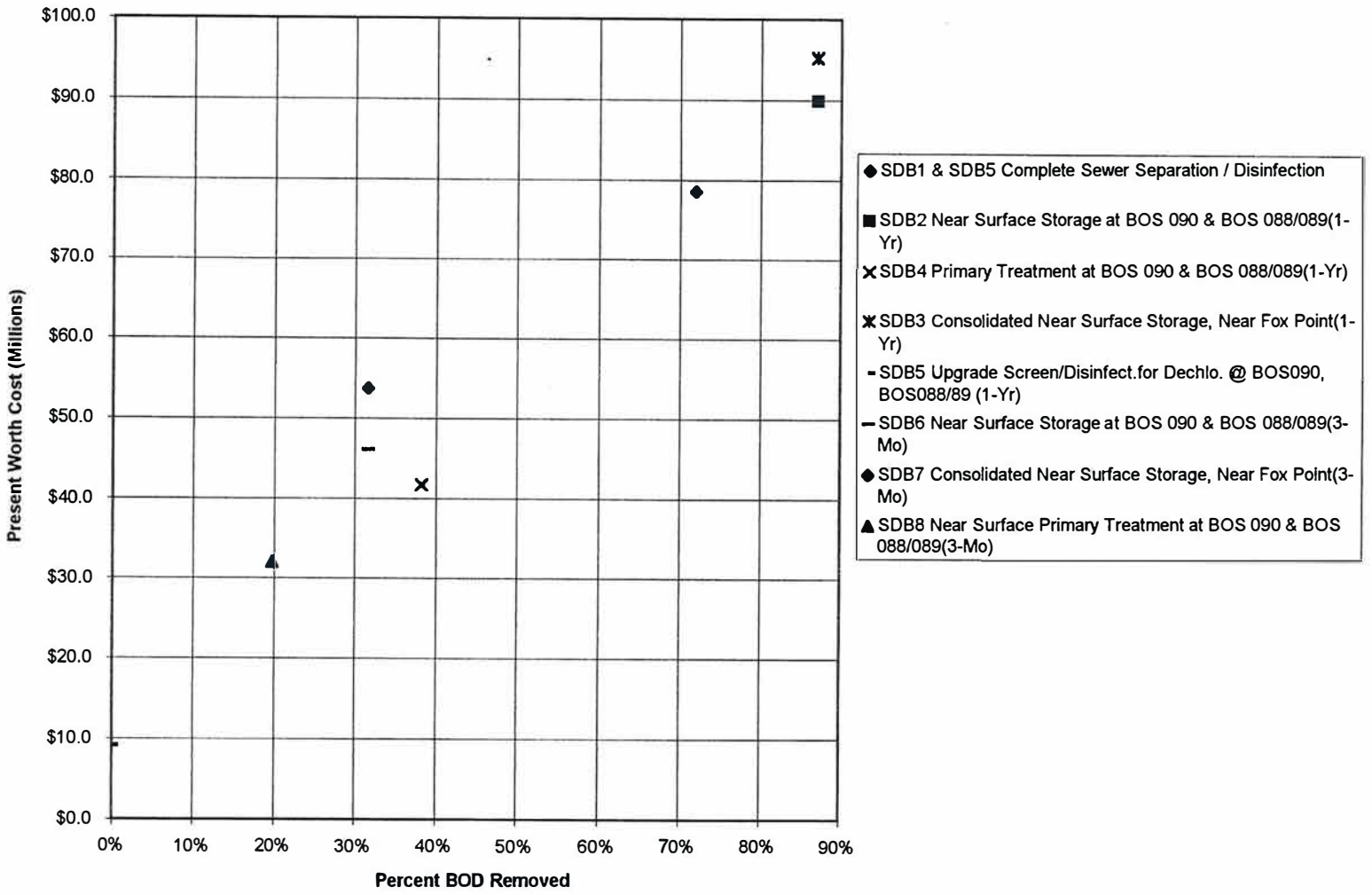
- ◆ SDB1 & SDB5 Complete Sewer Separation / Disinfection
- ■ SDB2 Near Surface Storage at BOS 090 & BOS 088/089(1-Yr)
- ✕ SDB4 Primary Treatment at BOS 090 & BOS 088/089(1-Yr)
- ✱ SDB3 Consolidated Near Surface Storage, Near Fox Point(1-Yr)
- - SDB5 Upgrade Screen/Disinfect.for Dechlo. @ BOS090, BOS088/89 (1-Yr)
- — SDB6 Near Surface Storage at BOS 090 & BOS 088/089(3-Mo)
- ◆ SDB7 Consolidated Near Surface Storage, Near Fox Point(3-Mo)
- ▲ SDB8 Near Surface Primary Treatment at BOS 090 & BOS 088/089(3-Mo)

South Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)

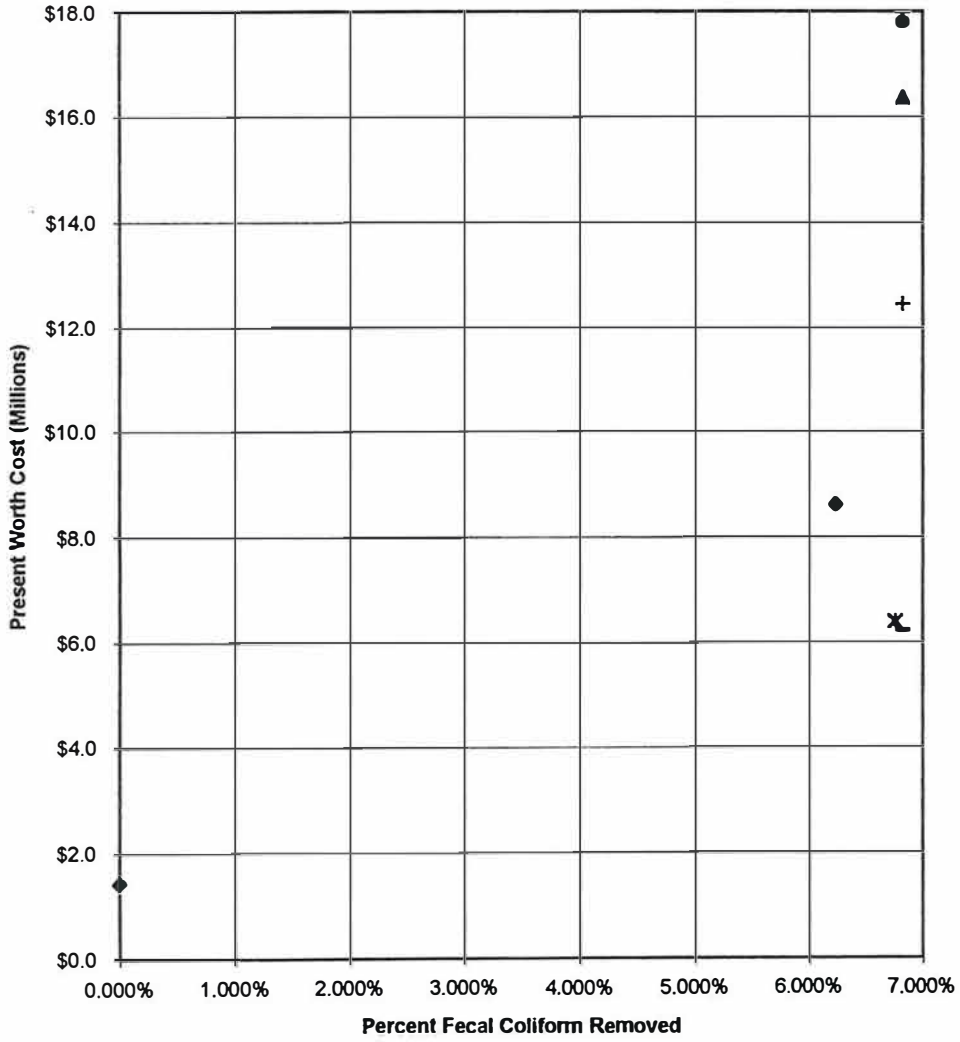


- ◆ SDB1 & SDB5 Complete Sewer Separation / Disinfection
- ■ SDB2 Near Surface Storage at BOS 090 & BOS 088/089(1-Yr)
- ✕ SDB4 Primary Treatment at BOS 090 & BOS 088/089(1-Yr)
- ✱ SDB3 Consolidated Near Surface Storage, Near Fox Point(1-Yr)
- – SDB5 Upgrade Screen/Disinfect.for Dechlo. @ BOS090, BOS088/89 (1-Yr)
- – SDB6 Near Surface Storage at BOS 090 & BOS 088/089(3-Mo)
- ◆ SDB7 Consolidated Near Surface Storage, Near Fox Point(3-Mo)
- ▲ SDB8 Near Surface Primary Treatment at BOS 090 & BOS 088/089(3-Mo)

South Dorchester Bay Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)

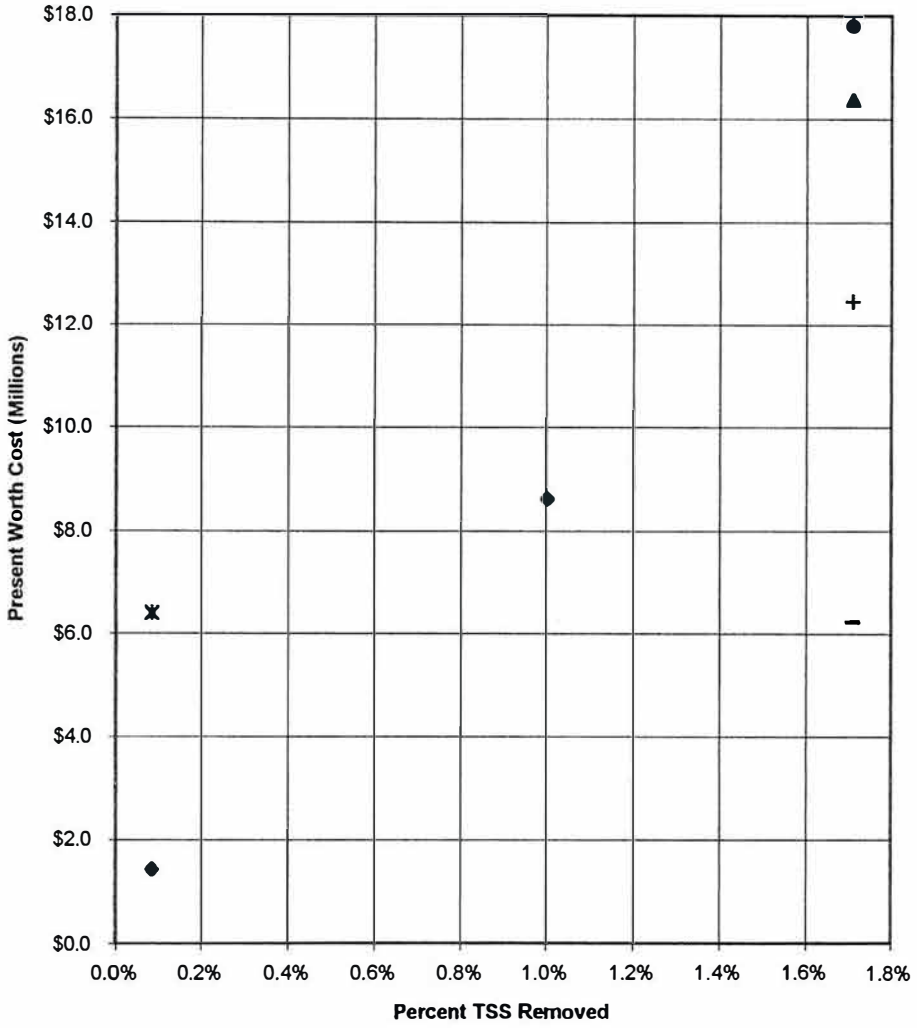


Neponset River Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



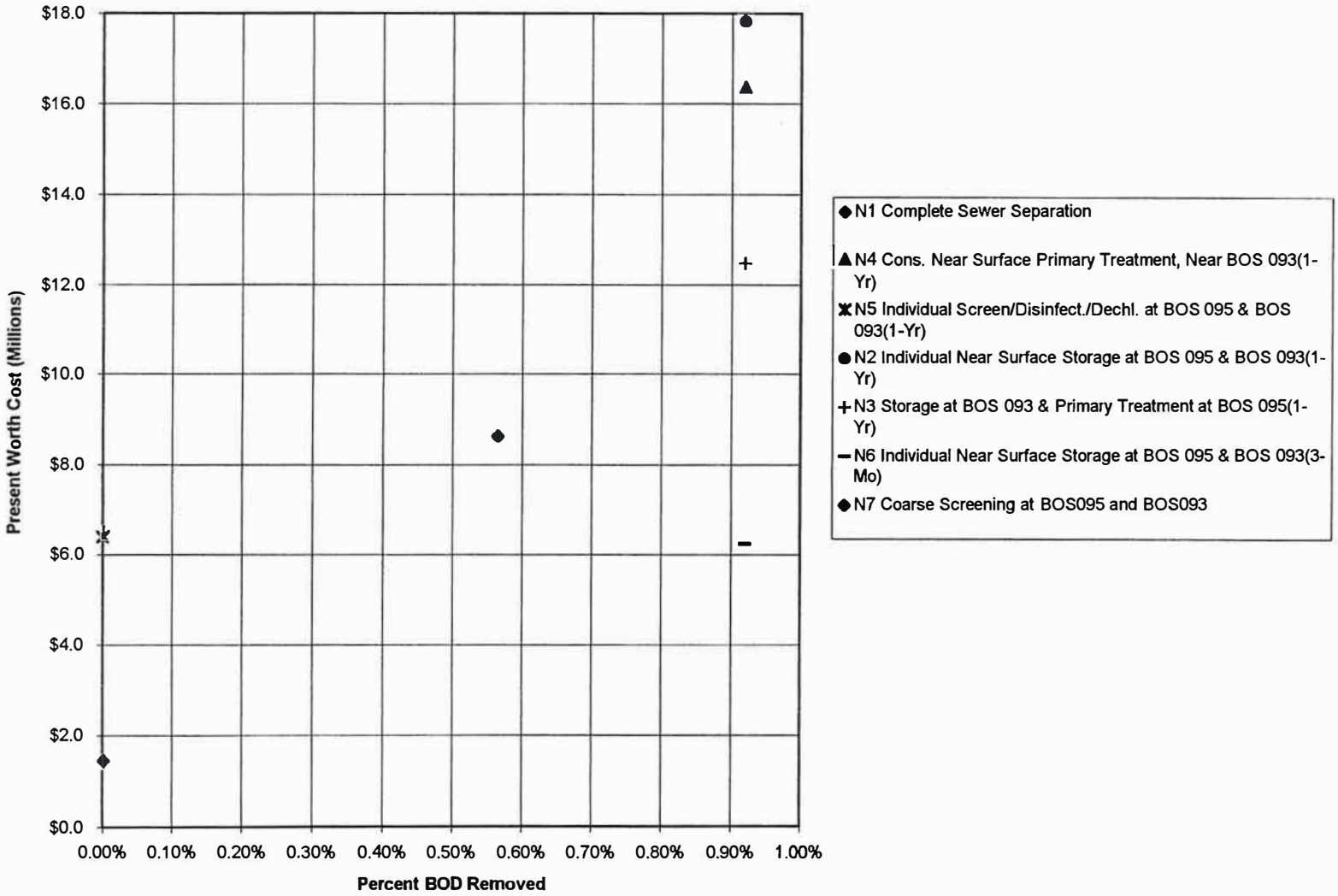
- ◆ N1 Complete Sewer Separation
- ▲ N4 Cons. Near Surface Primary Treatment, Near BOS 093(1-Yr)
- ✱ N5 Individual Screen/Disinfect./Dechl. at BOS 095 & BOS 093(1-Yr)
- ● N2 Individual Near Surface Storage at BOS 095 & BOS 093(1-Yr)
- \+ N3 Storage at BOS 093 & Primary Treatment at BOS 095(1-Yr)
- — N6 Individual Near Surface Storage at BOS 095 & BOS 093(3-Mo)
- ◆ N7 Coarse Screening at BOS095 and BOS093

Neponset River Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

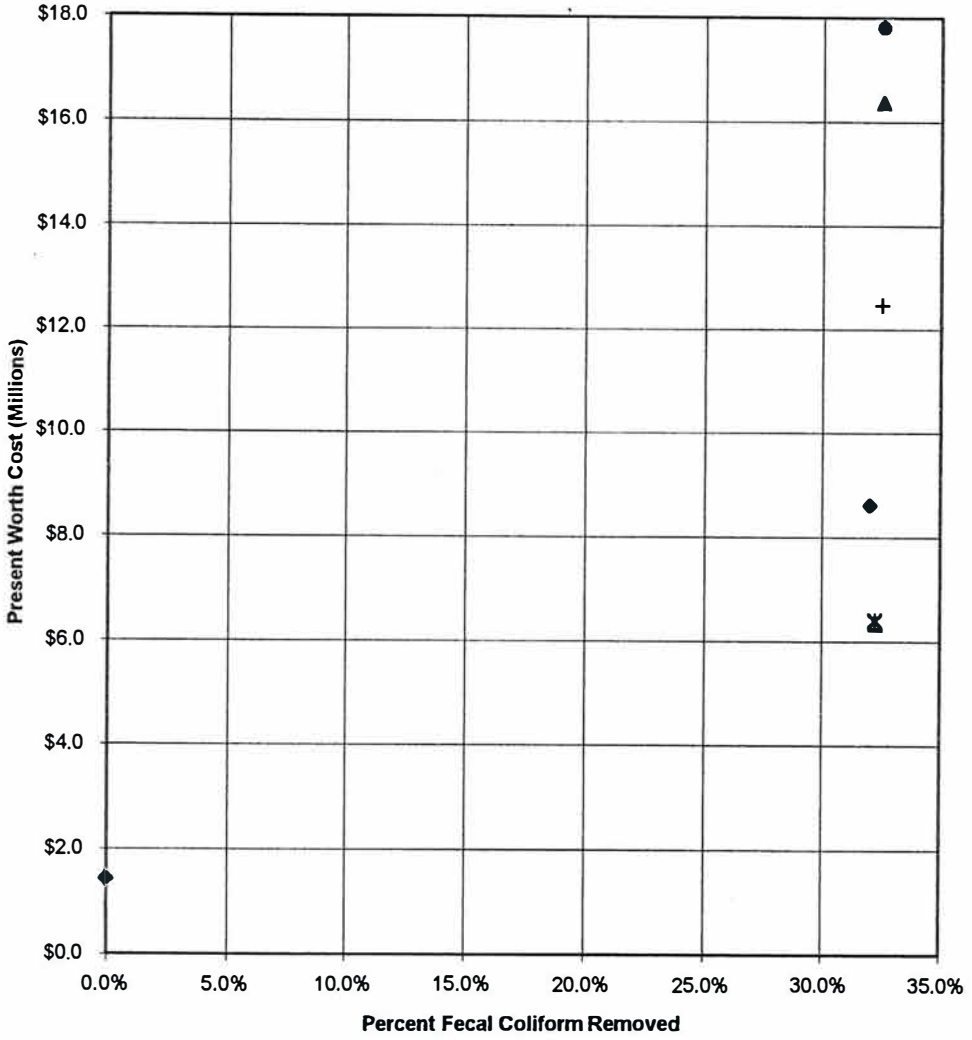


- ◆ N1 Complete Sewer Separation
- ▲ N4 Cons. Near Surface Primary Treatment, Near BOS 093(1-Yr)
- ✱ N5 Individual Screen/DisInfect./Dechl. at BOS 095 & BOS 093(1-Yr)
- ● N2 Individual Near Surface Storage at BOS 095 & BOS 093(1-Yr)
- \+ N3 Storage at BOS 093 & Primary Treatment at BOS 095(1-Yr)
- – N6 Individual Near Surface Storage at BOS 095 & BOS 093(3-Mo)
- ◆ N7 Coarse Screening at BOS095 and BOS093

Neponset River Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

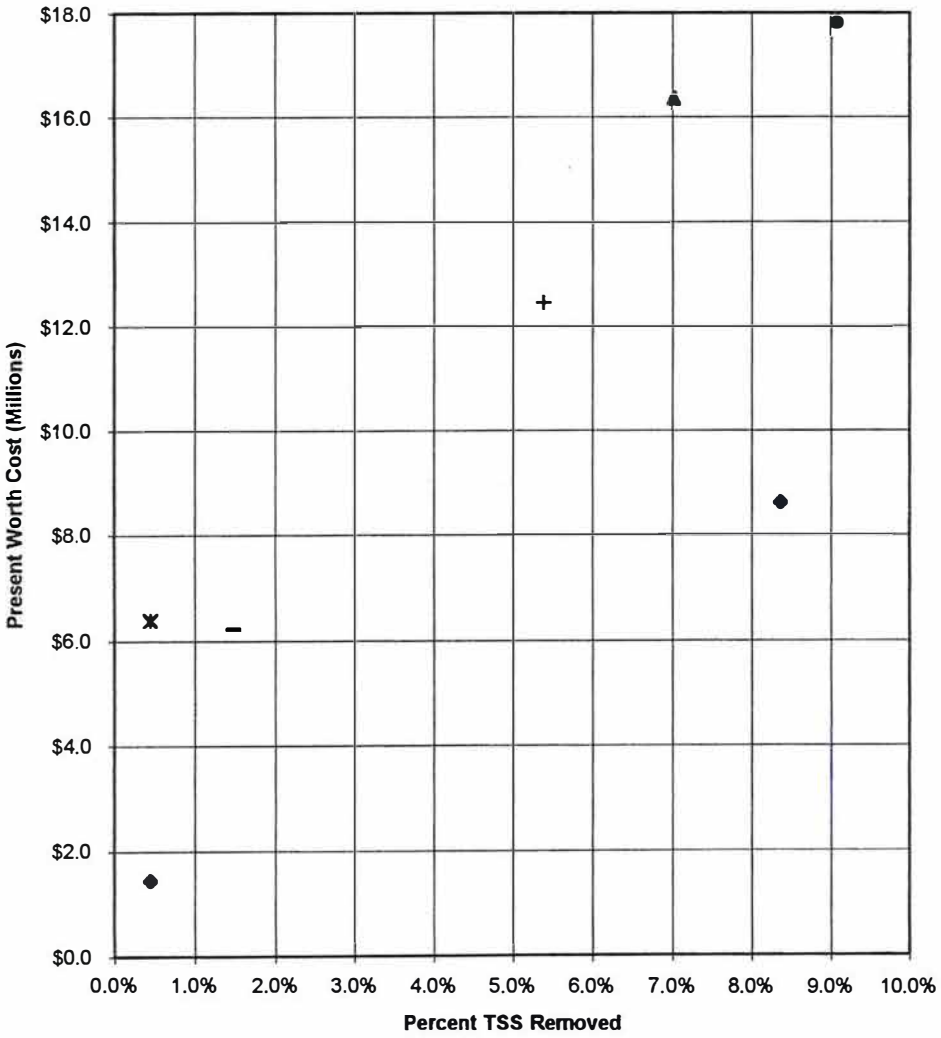


Neponset River Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



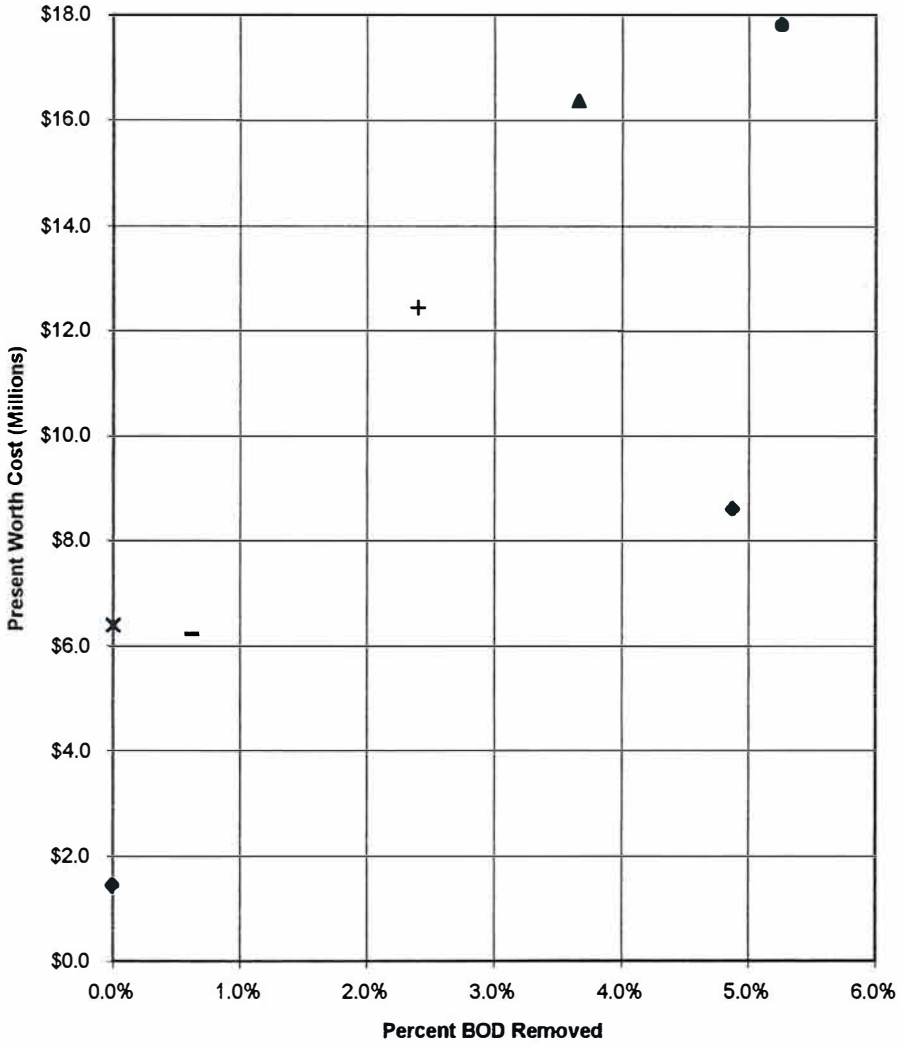
- ◆ N1 Complete Sewer Separation
- ▲ N4 Cons. Near Surface Primary Treatment, Near BOS 093(1-Yr)
- ✖ N5 Individual Screen/Disinfect./Dechl. at BOS 095 & BOS 093(1-Yr)
- ● N2 Individual Near Surface Storage at BOS 095 & BOS 093(1-Yr)
- \+ N3 Storage at BOS 093 & Primary Treatment at BOS 095(1-Yr)
- – N6 Individual Near Surface Storage at BOS 095 & BOS 093(3-Mo)
- ◆ N7 Coarse Screening at BOS095 and BOS093

Neponset River Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



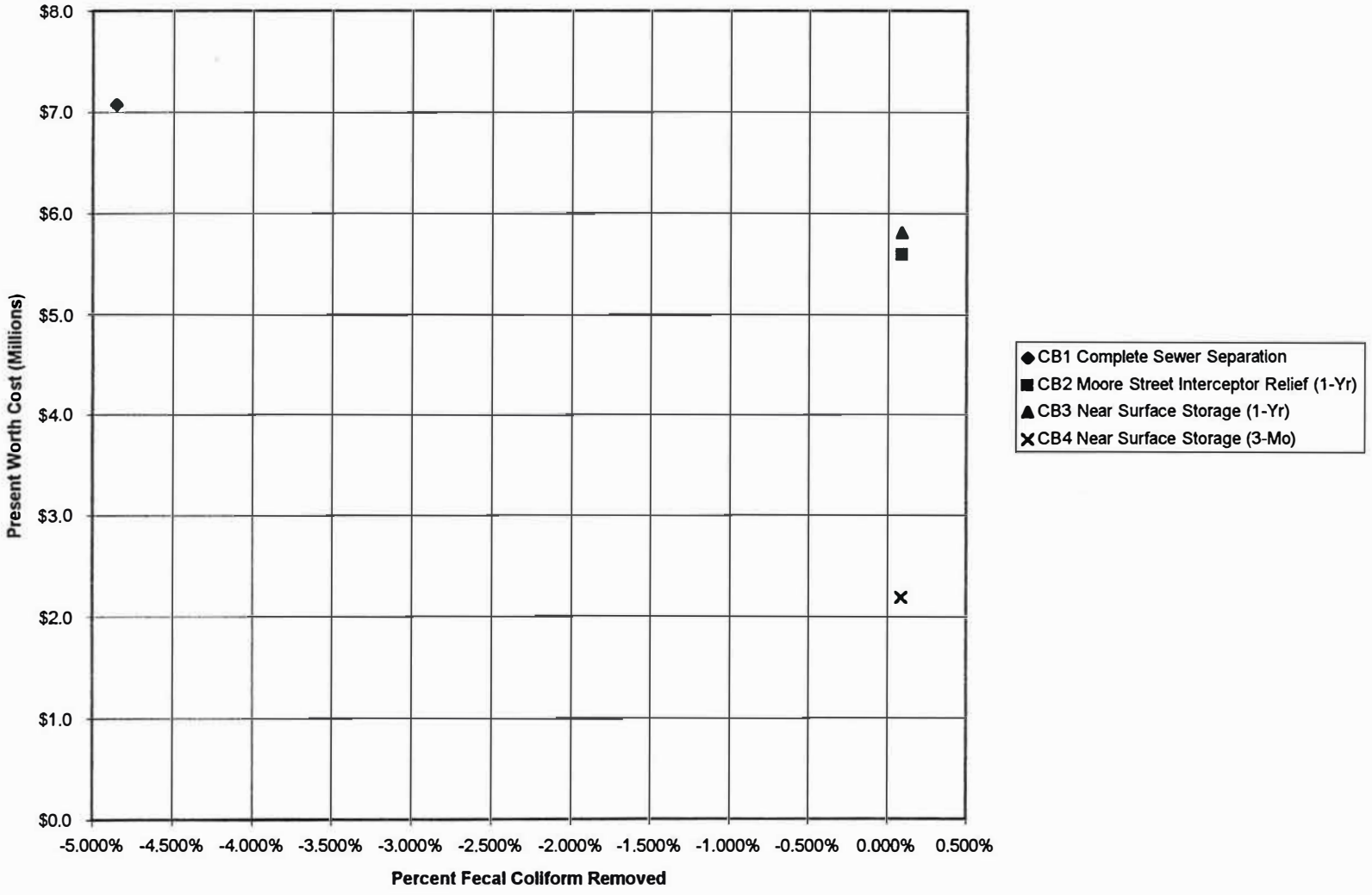
- ◆ N1 Complete Sewer Separation
- ▲ N4 Cons. Near Surface Primary Treatment, Near BOS 093(1-Yr)
- ✖ N5 Individual Screen/Disinfect./Dechl. at BOS 095 & BOS 093(1-Yr)
- ● N2 Individual Near Surface Storage at BOS 095 & BOS 093(1-Yr)
- \+ N3 Storage at BOS 093 & Primary Treatment at BOS 095(1-Yr)
- – N6 Individual Near Surface Storage at BOS 095 & BOS 093(3-Mo)
- ◆ N7 Coarse Screening at BOS095 and BOS093

Neponset River Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)

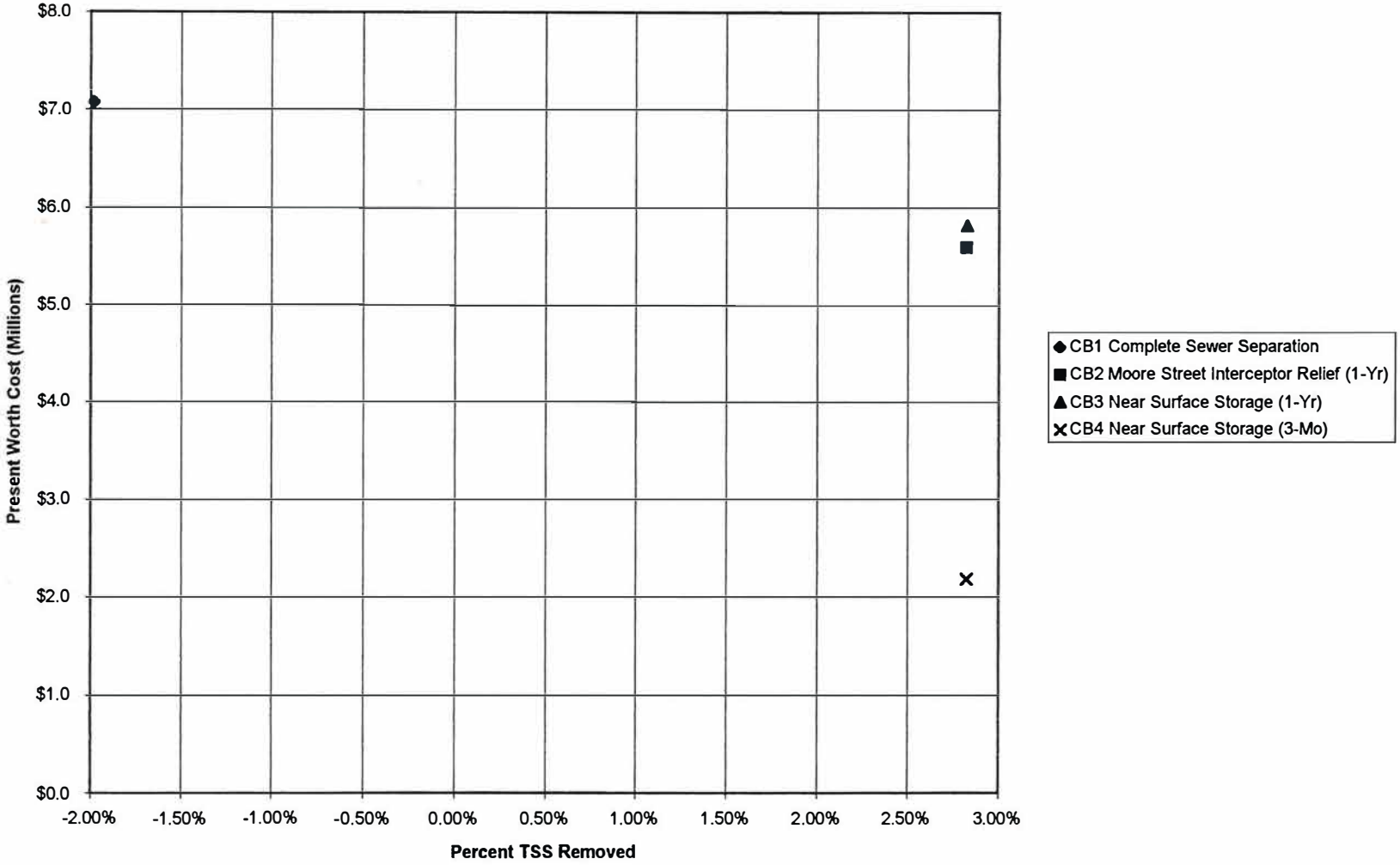


- ◆ N1 Complete Sewer Separation
- ▲ N4 Cons. Near Surface Primary Treatment, Near BOS 093(1-Yr)
- ✱ N5 Individual Screen/Disinfect./Dechl. at BOS 095 & BOS 093(1-Yr)
- ● N2 Individual Near Surface Storage at BOS 095 & BOS 093(1-Yr)
- \+ N3 Storage at BOS 093 & Primary Treatment at BOS 095(1-Yr)
- – N6 Individual Near Surface Storage at BOS 095 & BOS 093(3-Mo)
- ◆ N7 Coarse Screening at BOS095 and BOS093

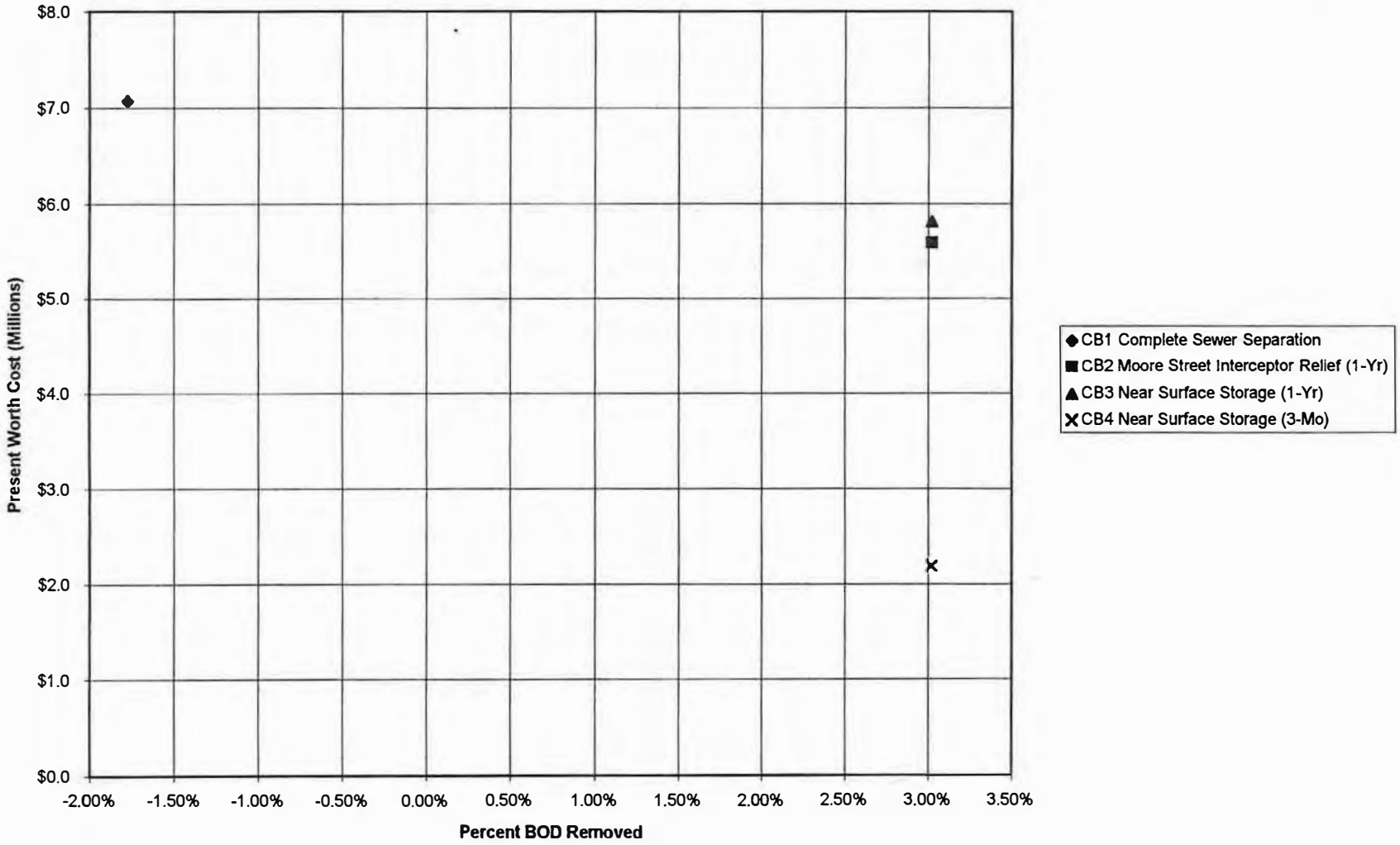
Constitution Beach Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



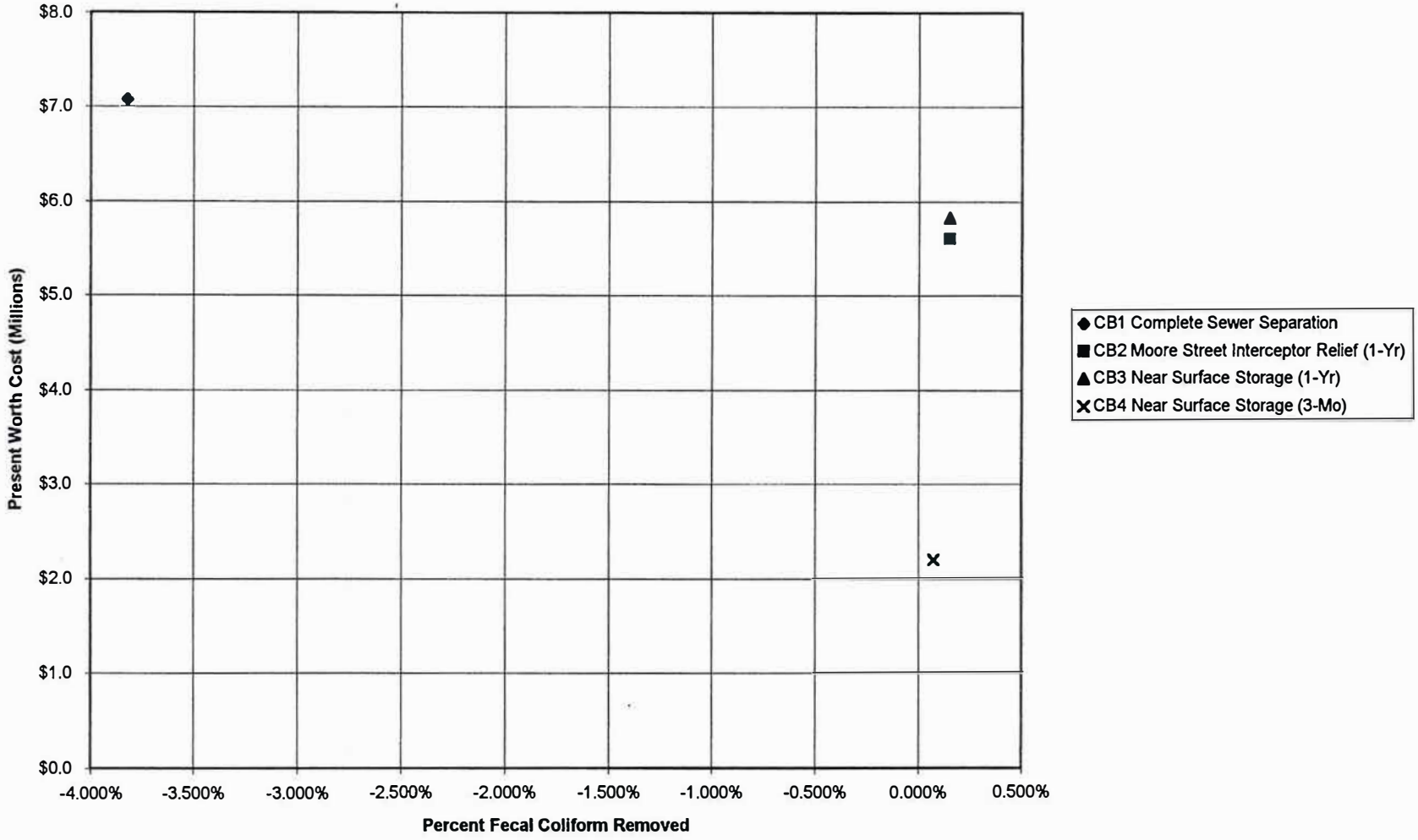
Constitution Beach Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



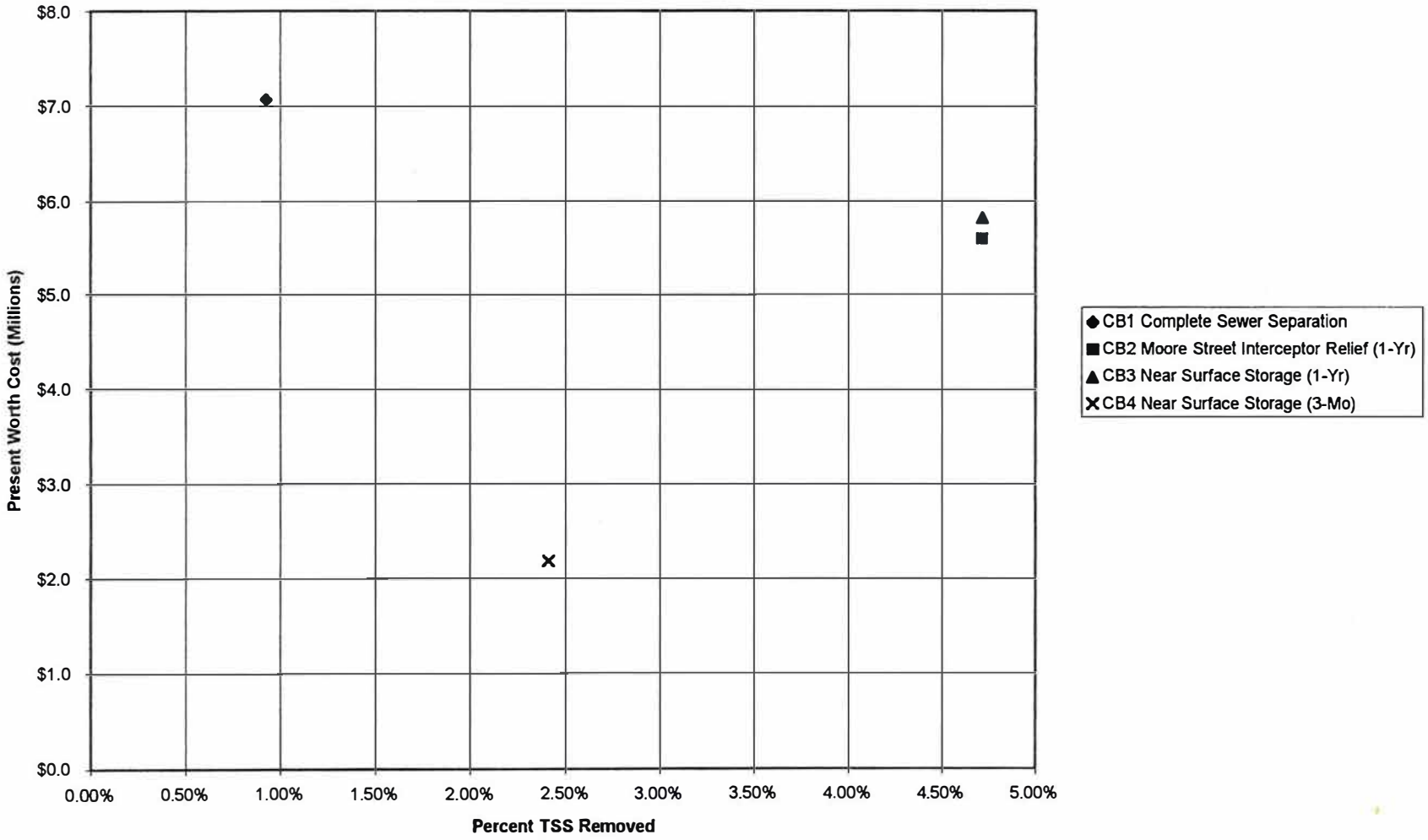
Constitution Beach Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



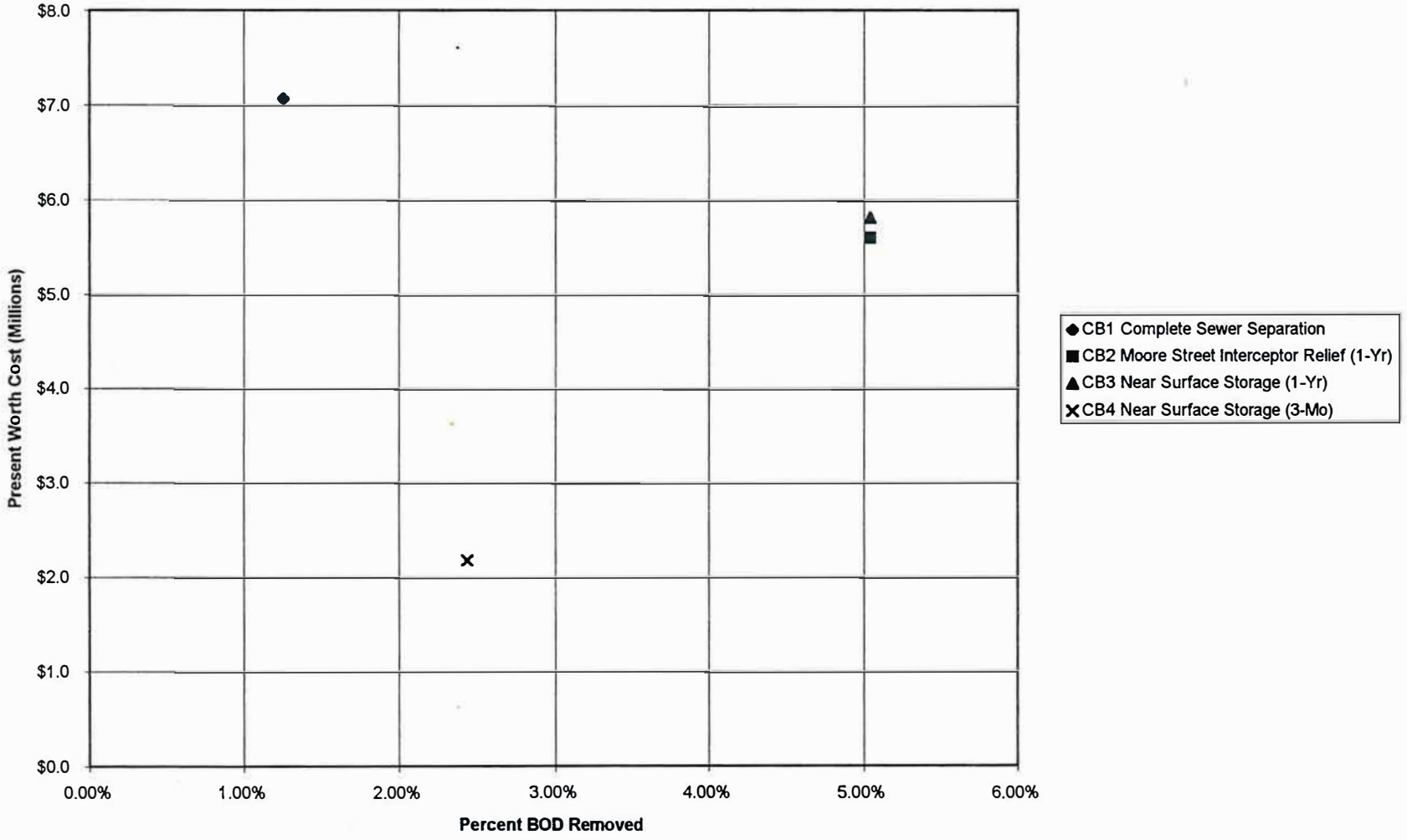
Constitution Beach Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



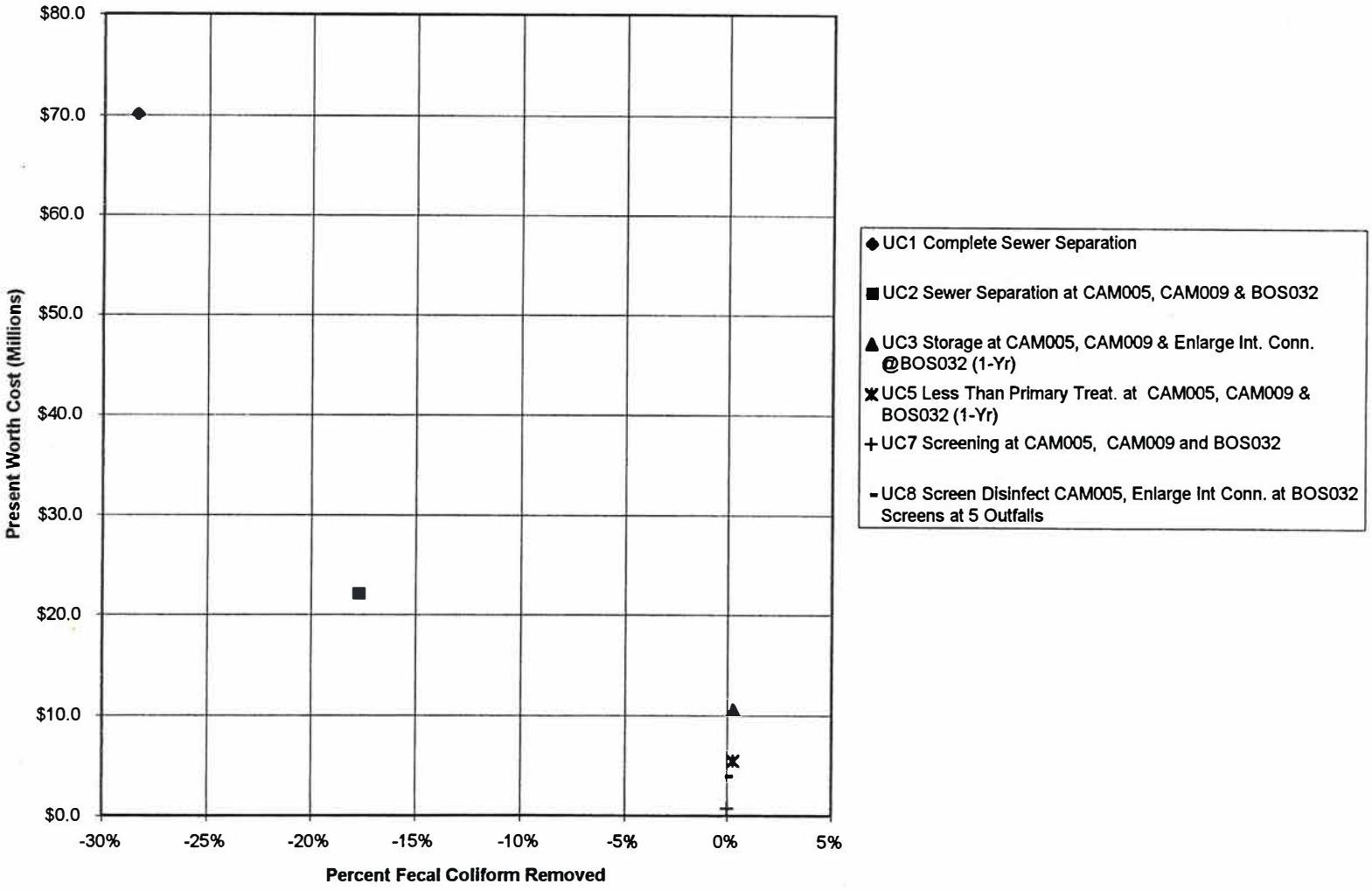
Constitution Beach Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



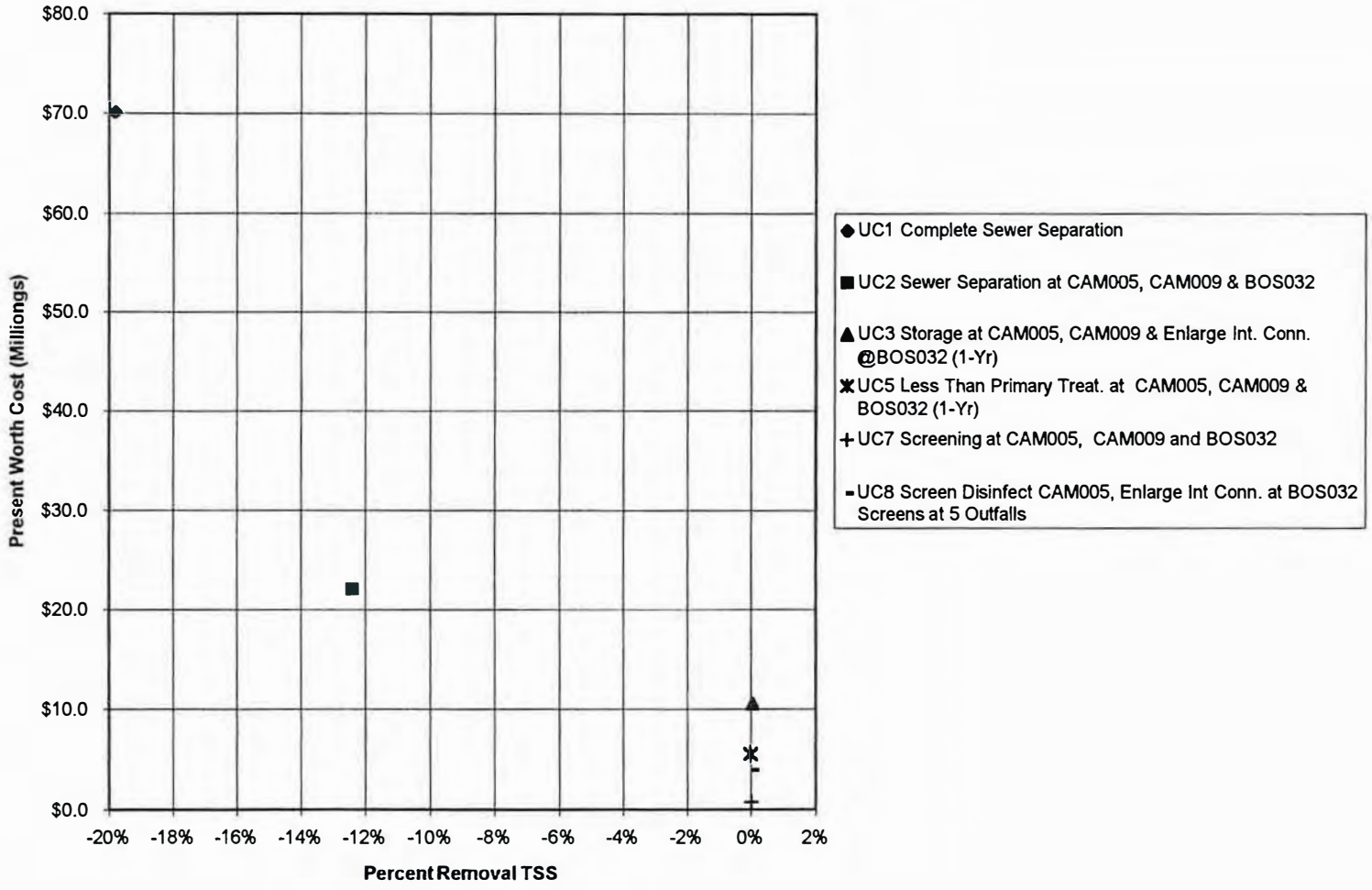
Constitution Beach Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)



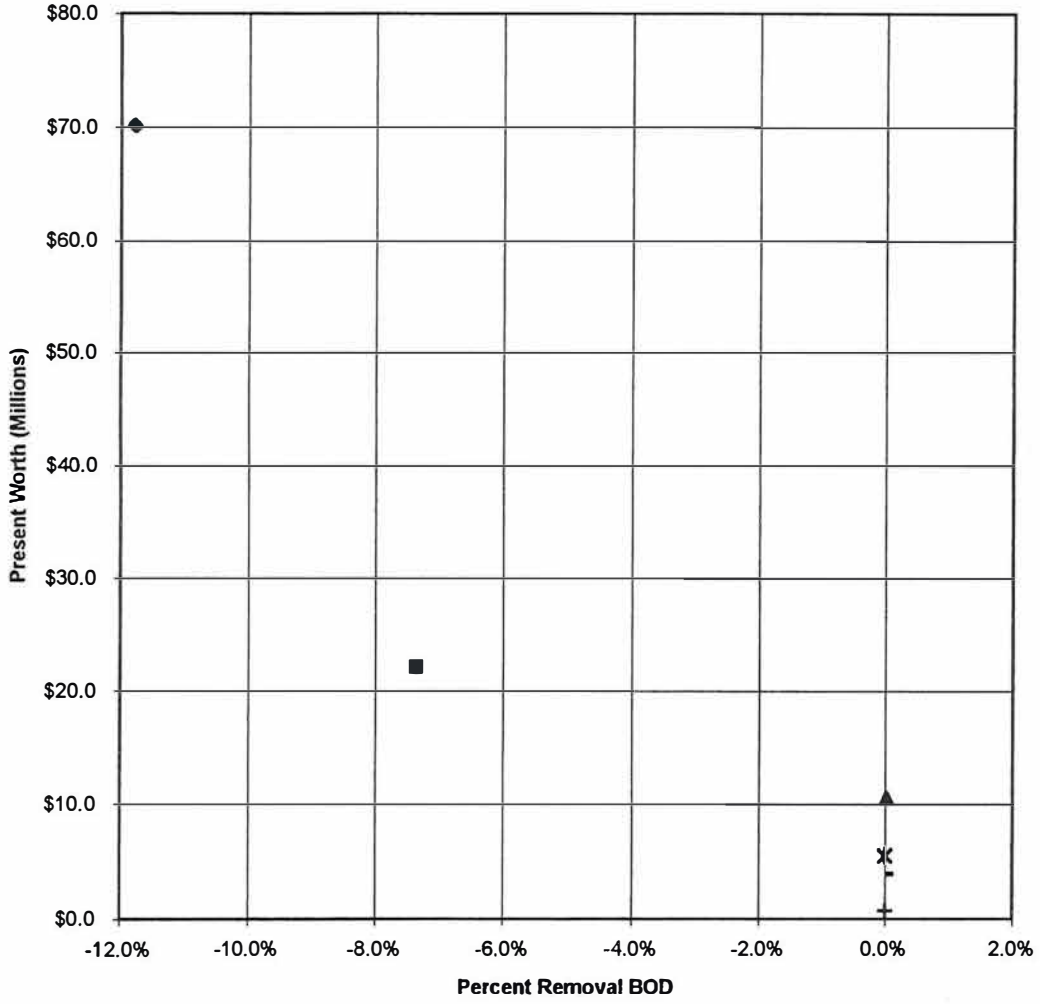
Upper Charles Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



Upper Charles Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)

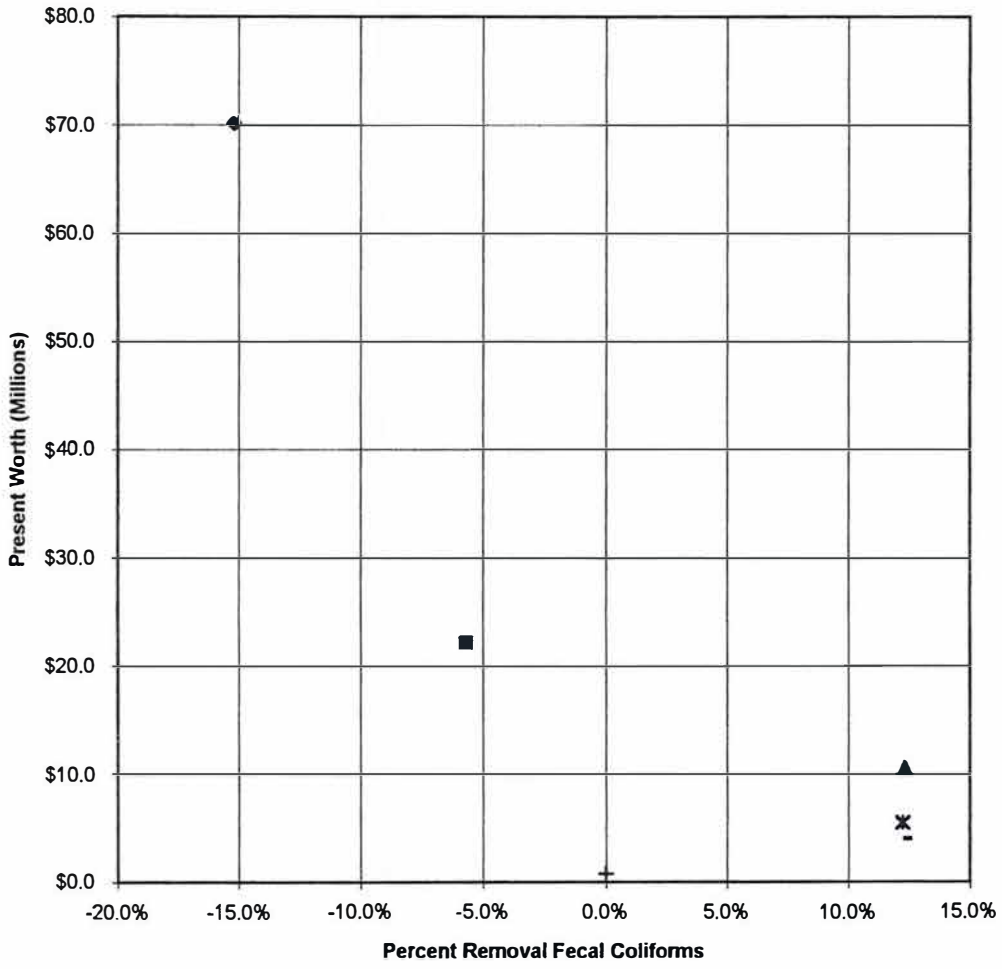


Upper Charles Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



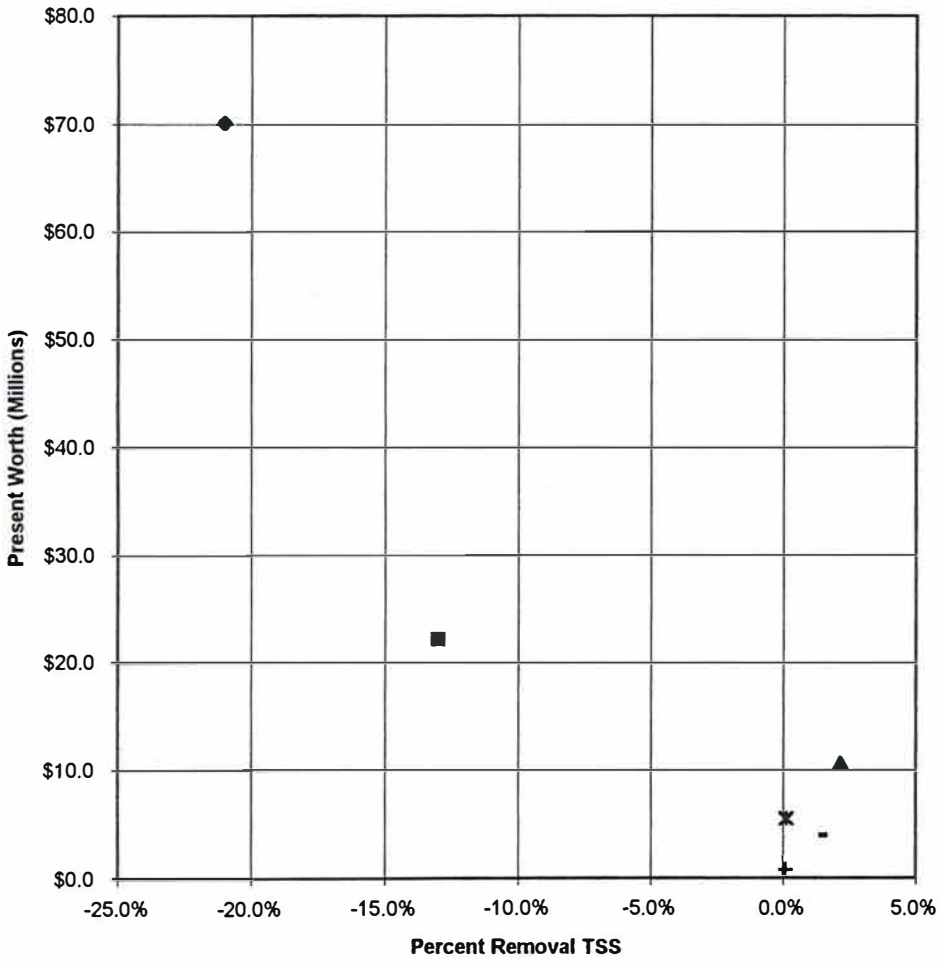
- ◆ UC1 Complete Sewer Separation
- ■ UC2 Sewer Separation at CAM005, CAM009 & BOS032
- ▲ UC3 Storage at CAM005, CAM009 & Enlarge Int. Conn. @BOS032 (1-Yr)
- ✱ UC5 Less Than Primary Treat. at CAM005, CAM009 & BOS032 (1-Yr)
- \+ UC7 Screening at CAM005, CAM009 and BOS032
- \- UC8 Screen Disinfect CAM005, Enlarge Int Conn. at BOS032 Screens at 5 Outfalls

Upper Charles Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)



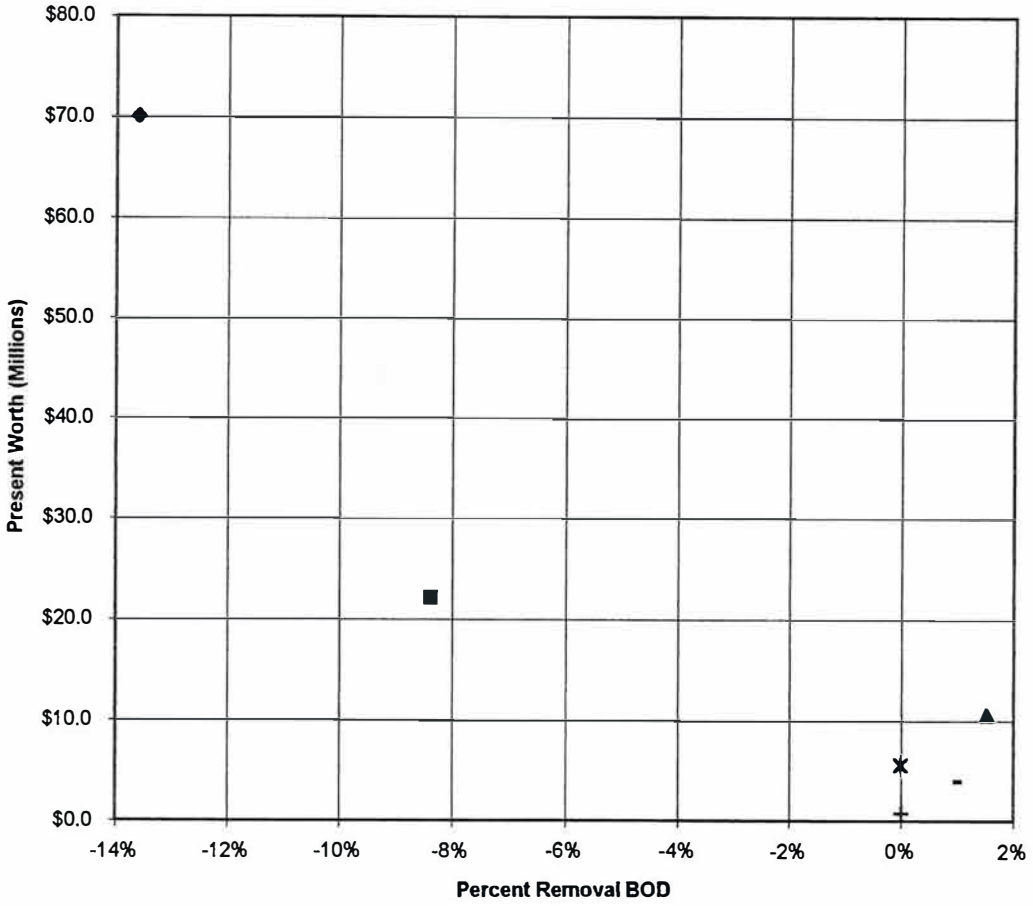
- ◆ UC1 Complete Sewer Separation
- ■ UC2 Sewer Separation at CAM005, CAM009 & BOS032
- ▲ UC3 Storage at CAM005, CAM009 & Enlarge Int. Conn. @BOS032 (1-Yr)
- ✱ UC5 Less Than Primary Treat. at CAM005, CAM009 & BOS032 (1-Yr)
- + UC7 Screening at CAM005, CAM009 and BOS032
- - UC8 Screen Disinfect CAM005, Enlarge Int Conn. at BOS032 Screens at 5 Outfalls

Upper Charles Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



- ◆ UC1 Complete Sewer Separation
- ■ UC2 Sewer Separation at CAM005, CAM009 & BOS032
- ▲ UC3 Storage at CAM005, CAM009 & Enlarge Int. Conn. @BOS032 (1-Yr)
- ✱ UC5 Less Than Primary Treat. at CAM005, CAM009 & BOS032 (1-Yr)
- + UC7 Screening at CAM005, CAM009 and BOS032
- - UC8 Screen Disinfect CAM005, Enlarge Int Conn. at BOS032 Screens at 5 Outfalls

Upper Charles Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)



◆ UC1 Complete Sewer Separation

■ UC2 Sewer Separation at CAM005, CAM009 & BOS032

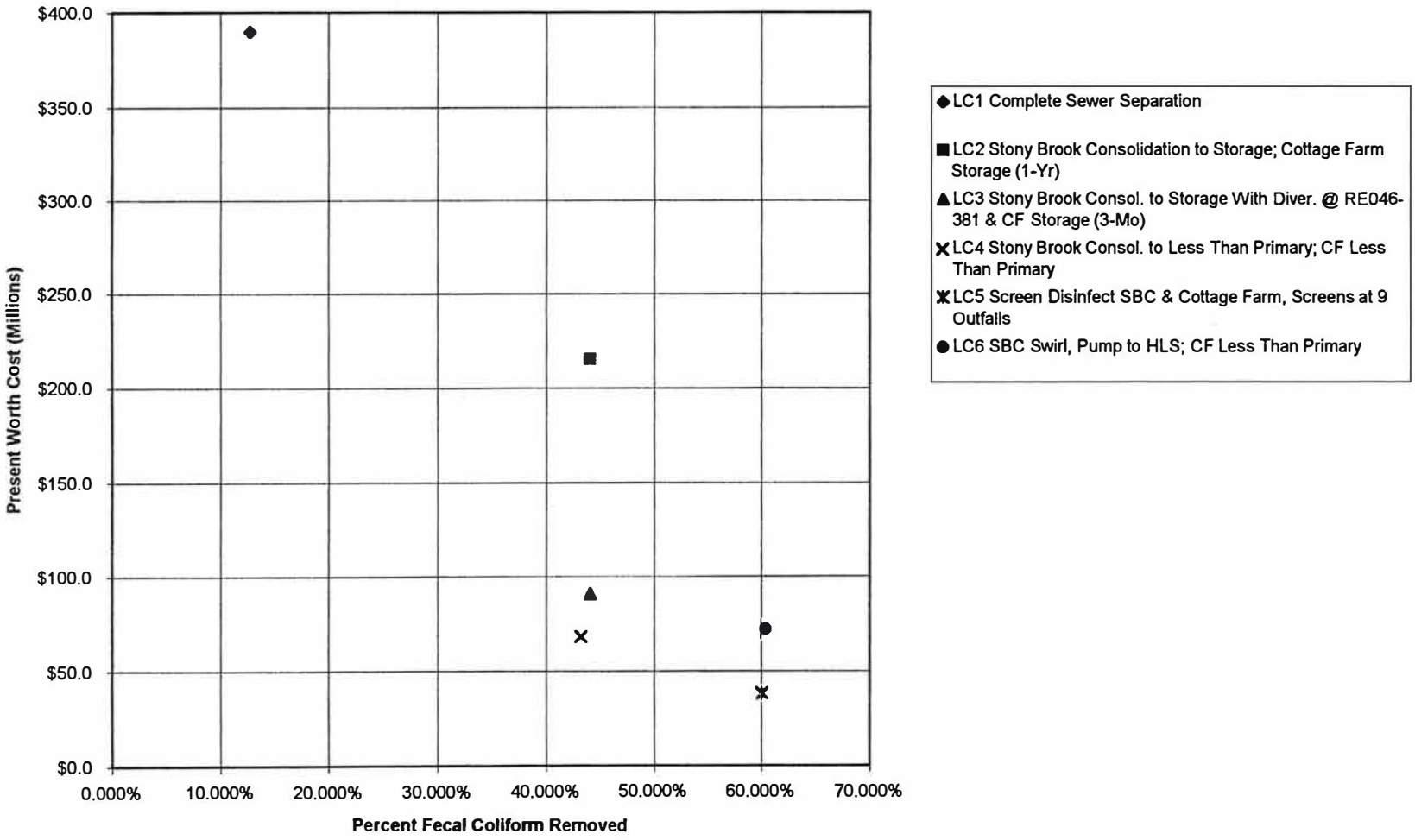
▲ UC3 Storage at CAM005, CAM009 & Enlarge Int. Conn. @BOS032 (1-Yr)

✱ UC5 Less Than Primary Treat. at CAM005, CAM009 & BOS032 (1-Yr)

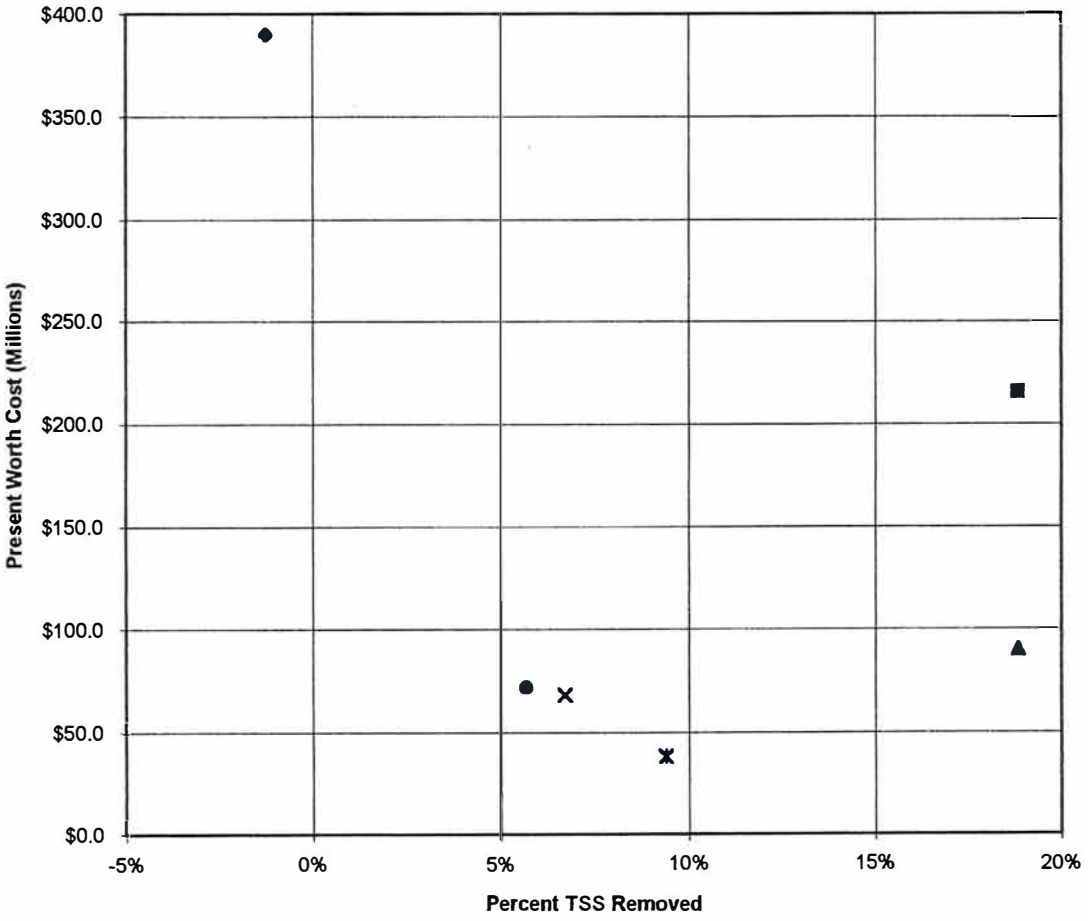
+ UC7 Screening at CAM005, CAM009 and BOS032

- UC8 Screen Disinfect CAM005, Enlarge Int Conn. at BOS032 Screens at 5 Outfalls

Lower Charles Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

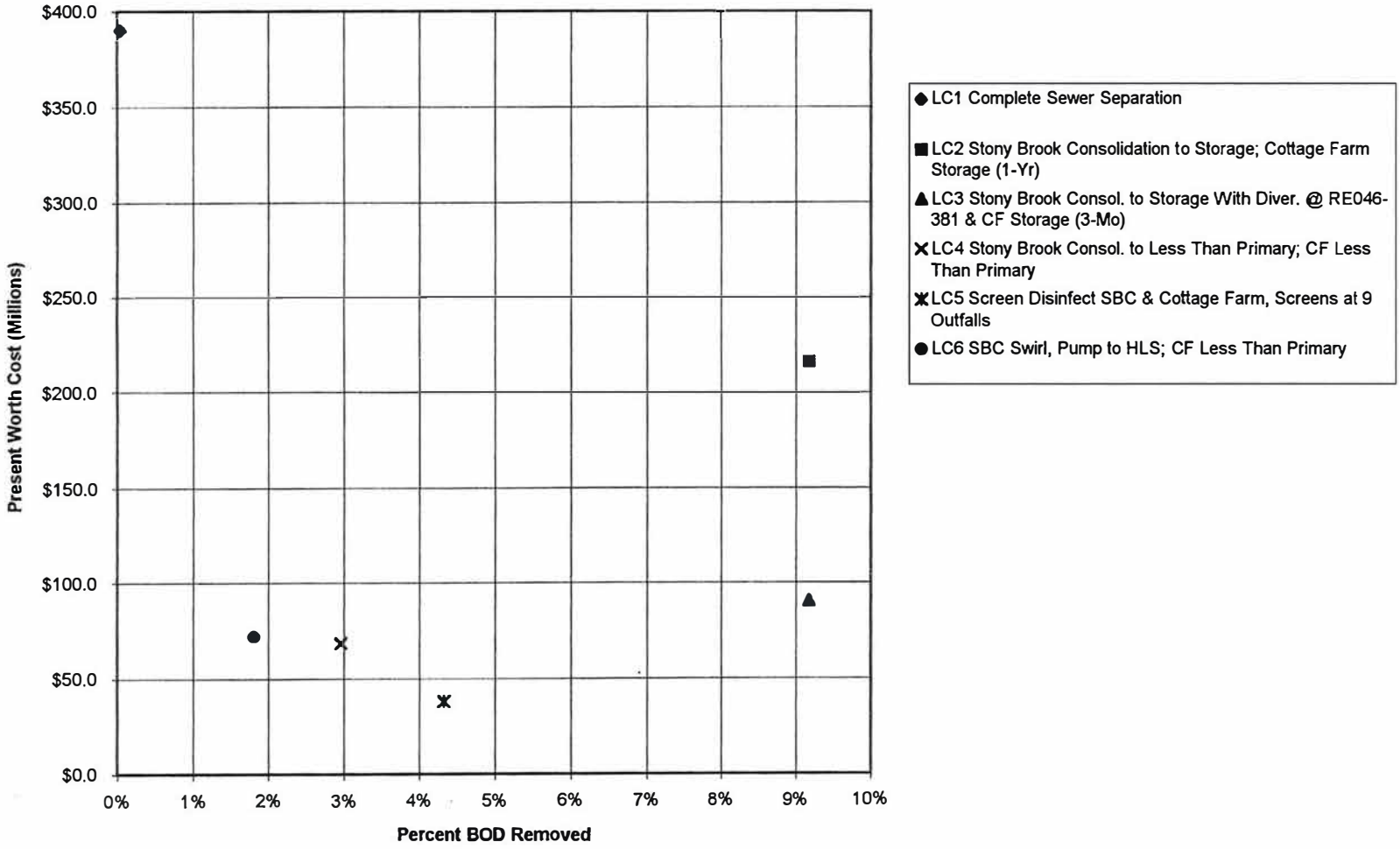


Lower Charles Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

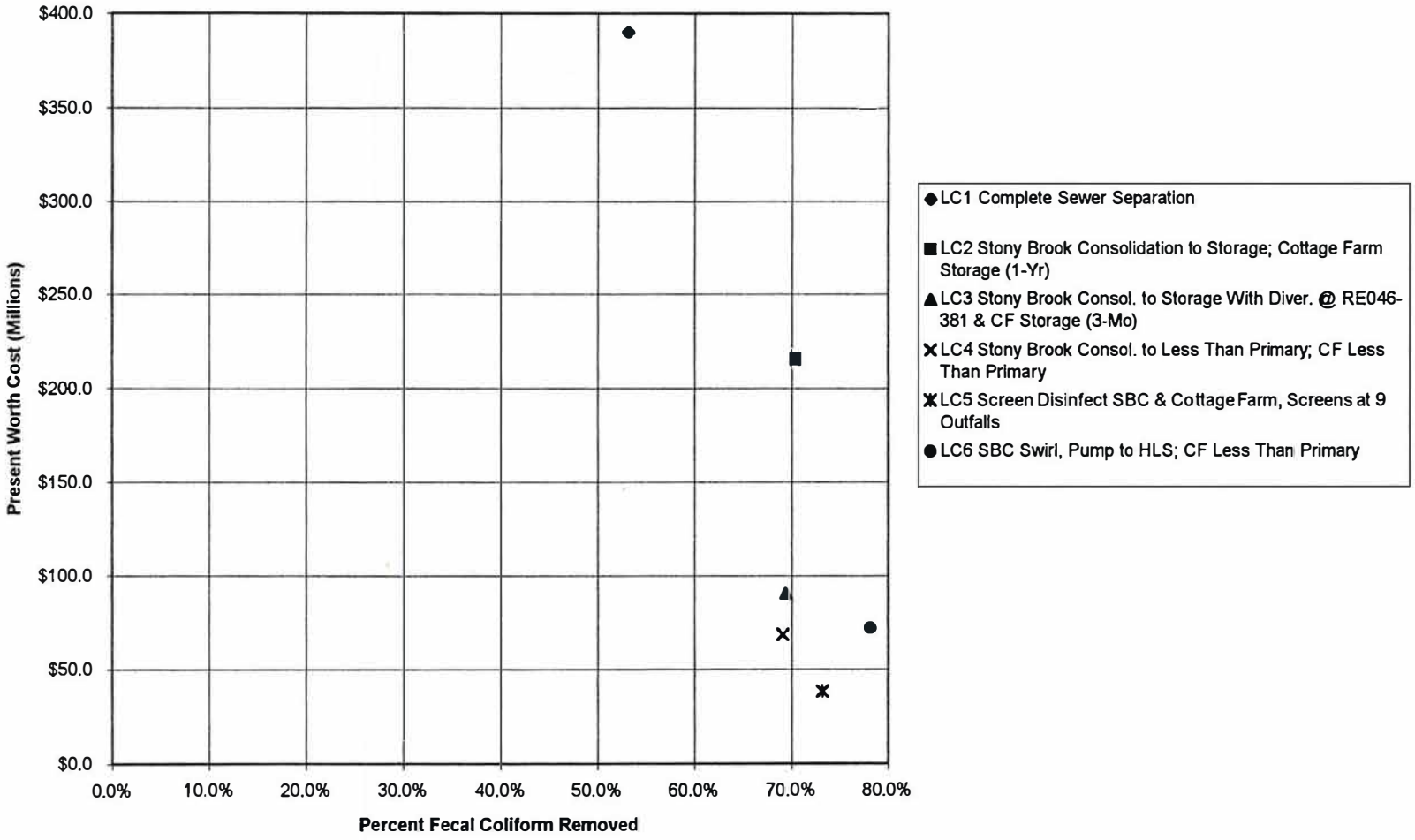


- ◆ LC1 Complete Sewer Separation
- ■ LC2 Stony Brook Consolidation to Storage; Cottage Farm Storage (1-Yr)
- ▲ LC3 Stony Brook Consol. to Storage With Diver. @ RE046-381 & CF Storage (3-Mo)
- ✕ LC4 Stony Brook Consol. to Less Than Primary; CF Less Than Primary
- ✖ LC5 Screen Disinfect SBC & Cottage Farm, Screens at 9 Outfalls
- ● LC6 SBC Swirl, Pump to HLS; CF Less Than Primary

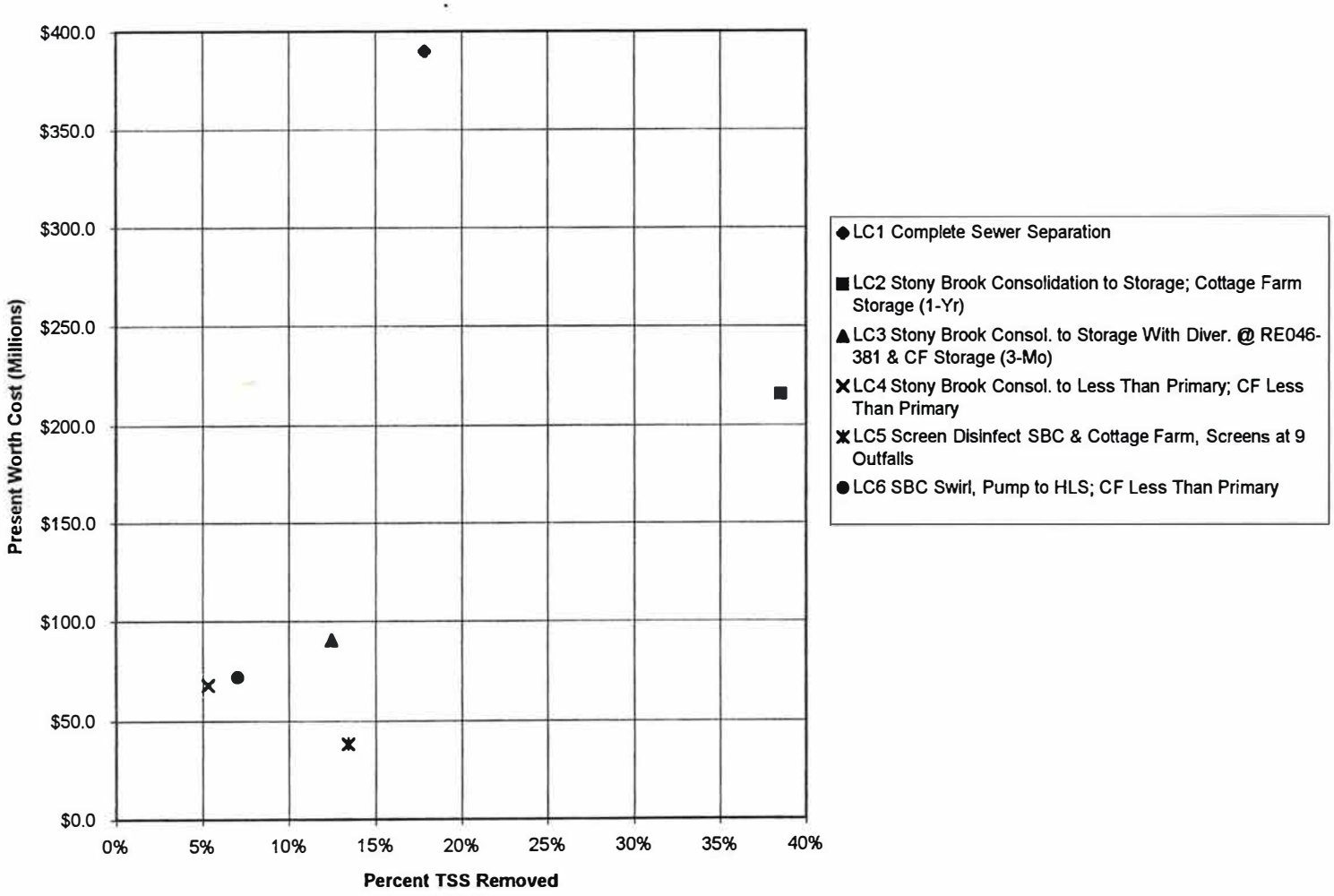
Lower Charles Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



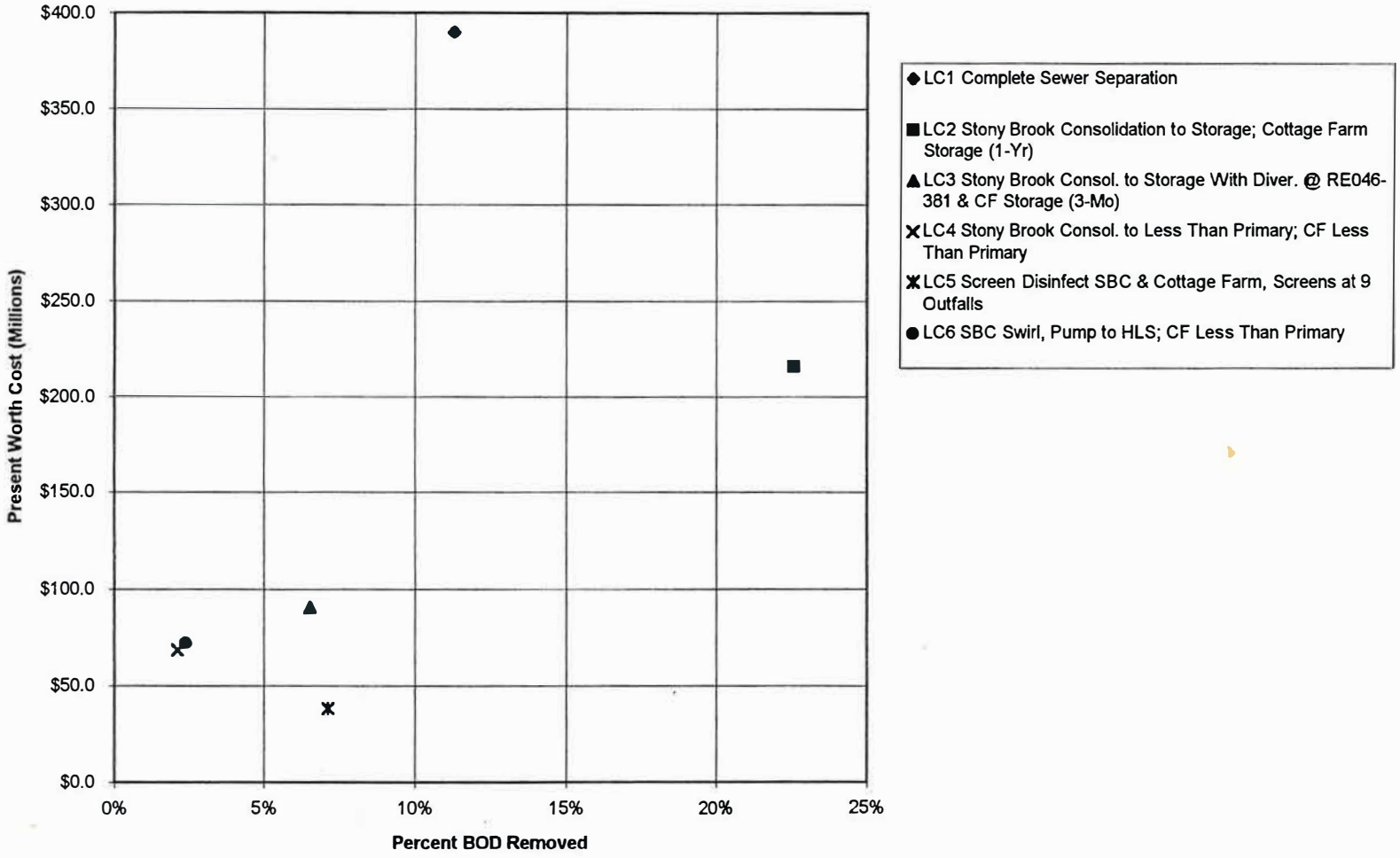
Lower Charles Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)



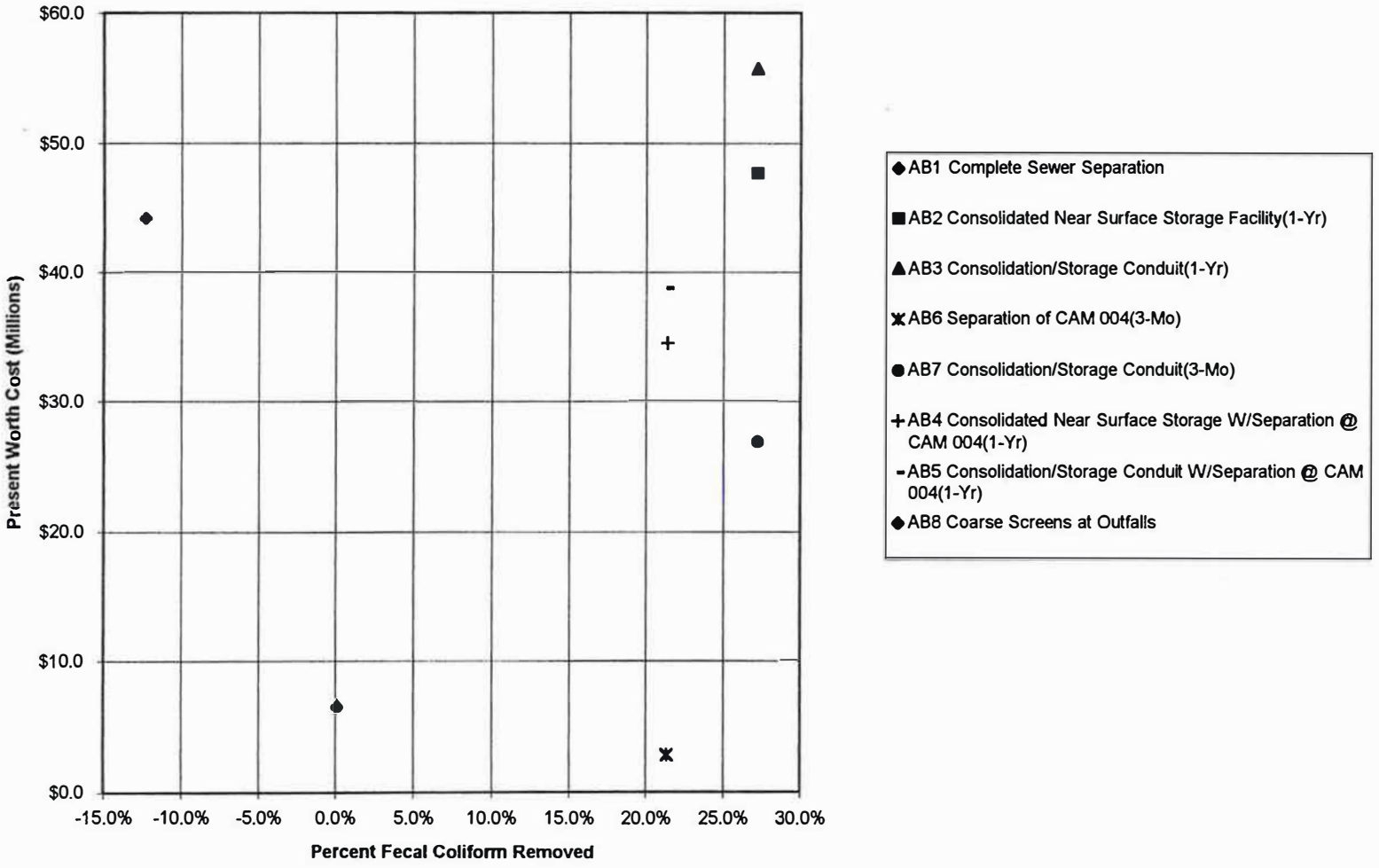
Lower Charles Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



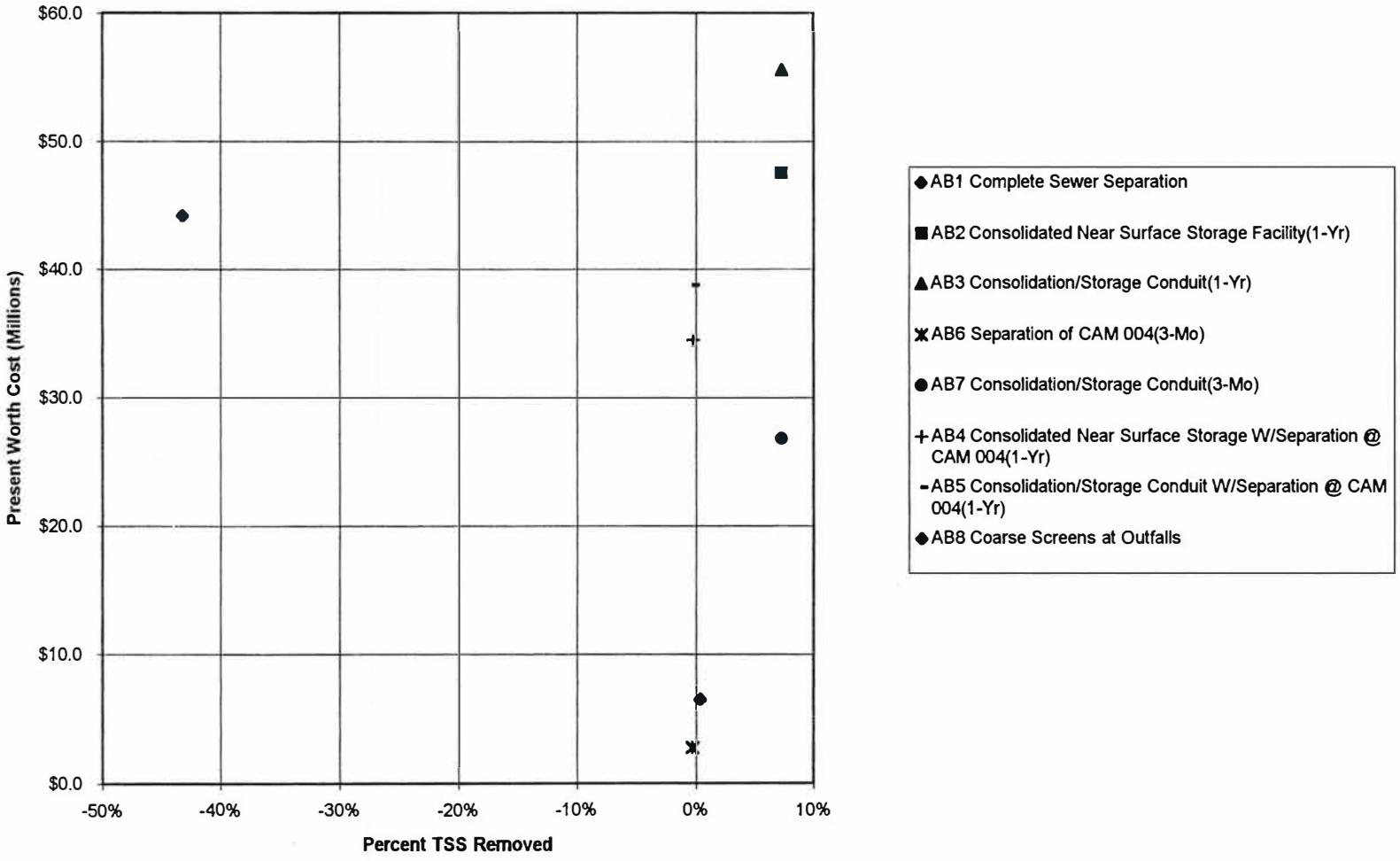
Lower Charles Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



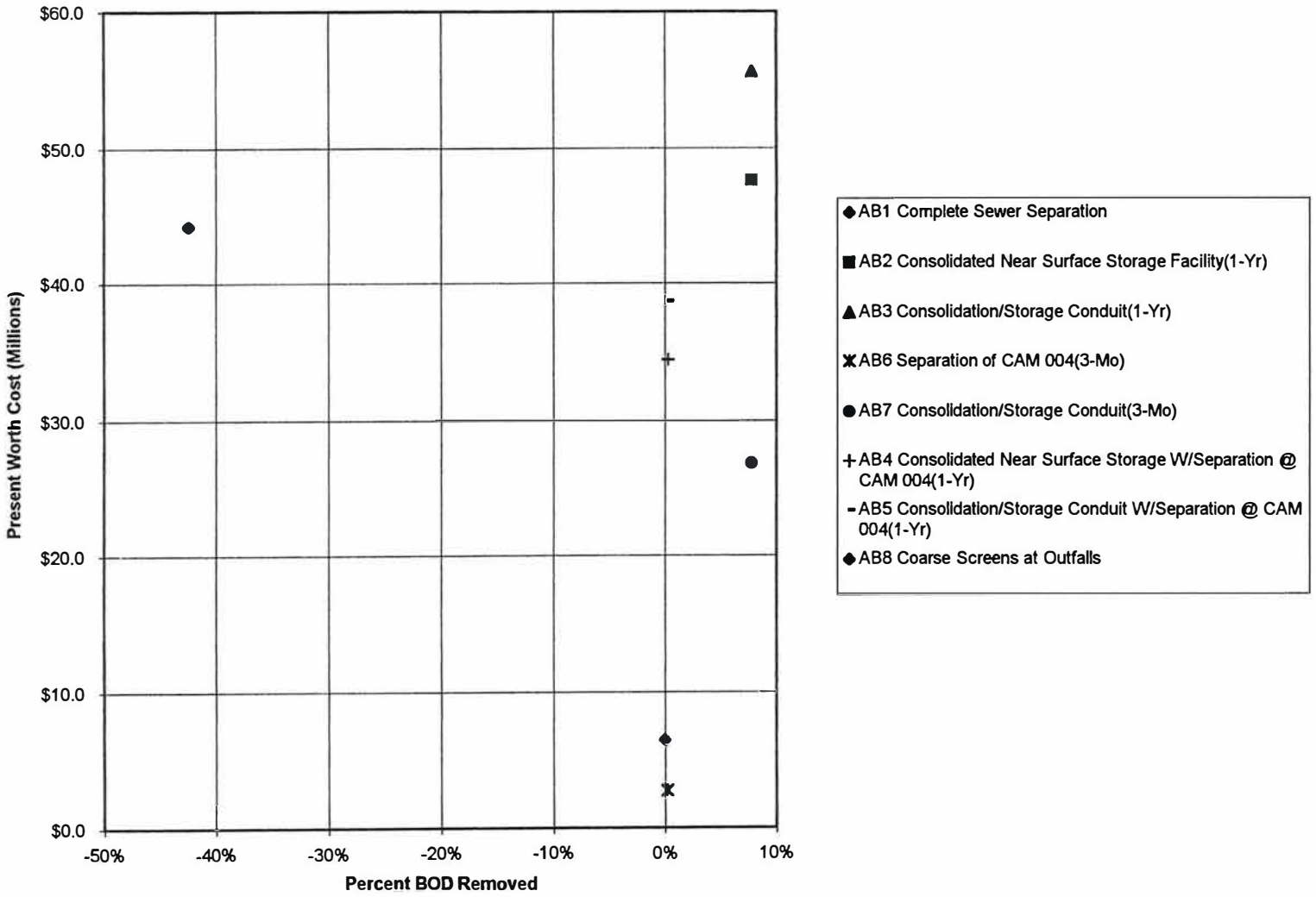
Alewife Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



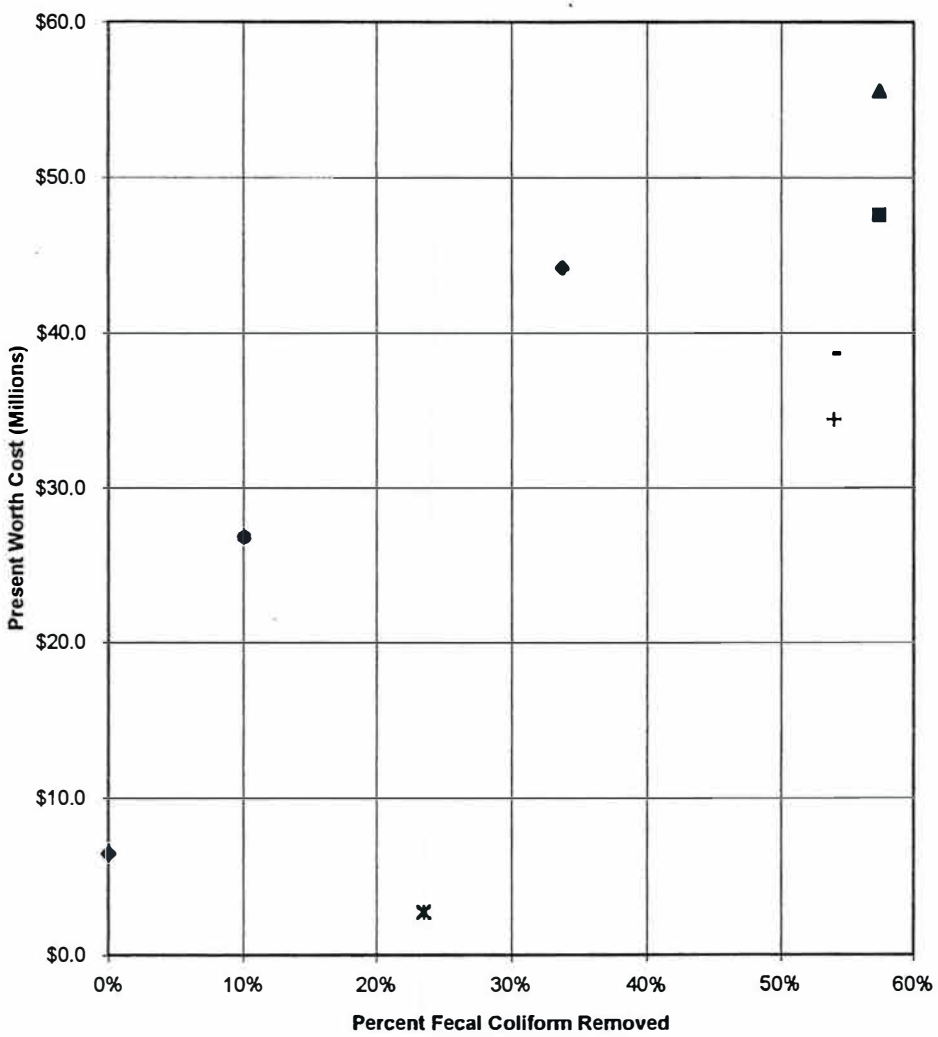
Alewife Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



Alewife Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)

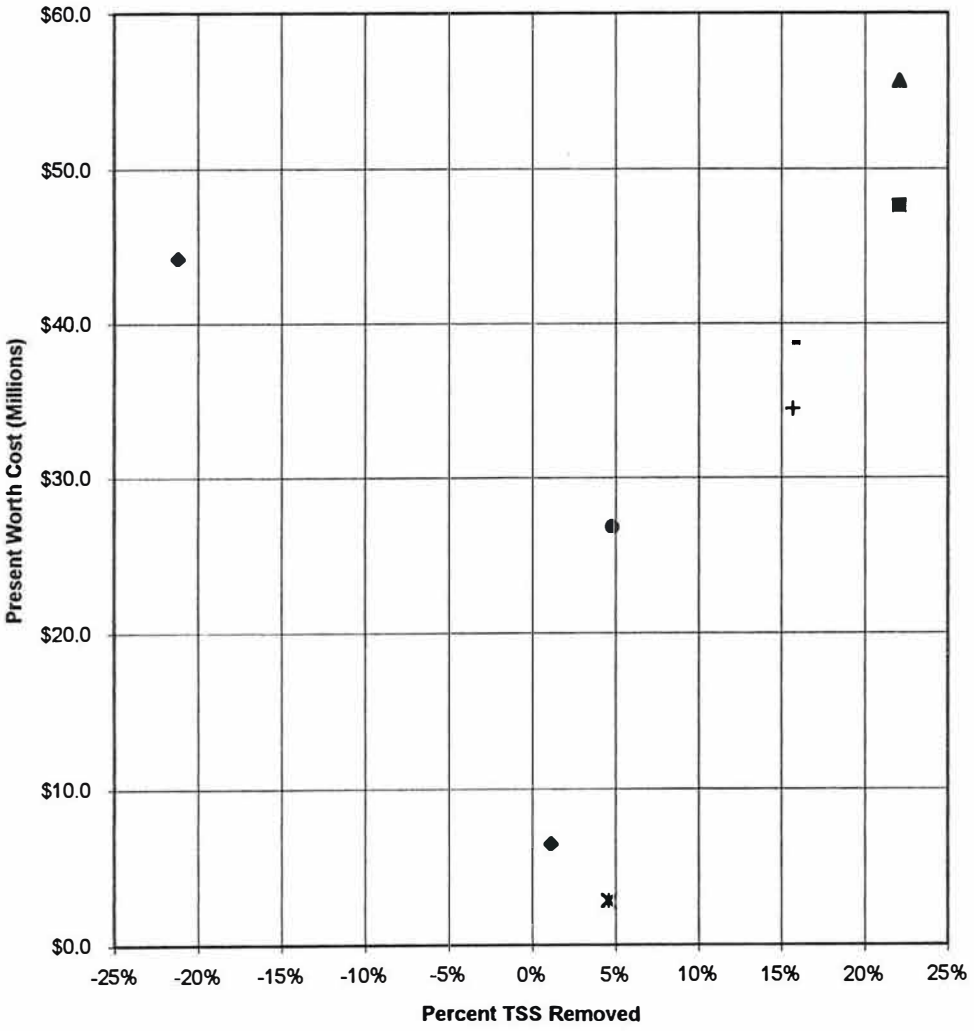


Alewife Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



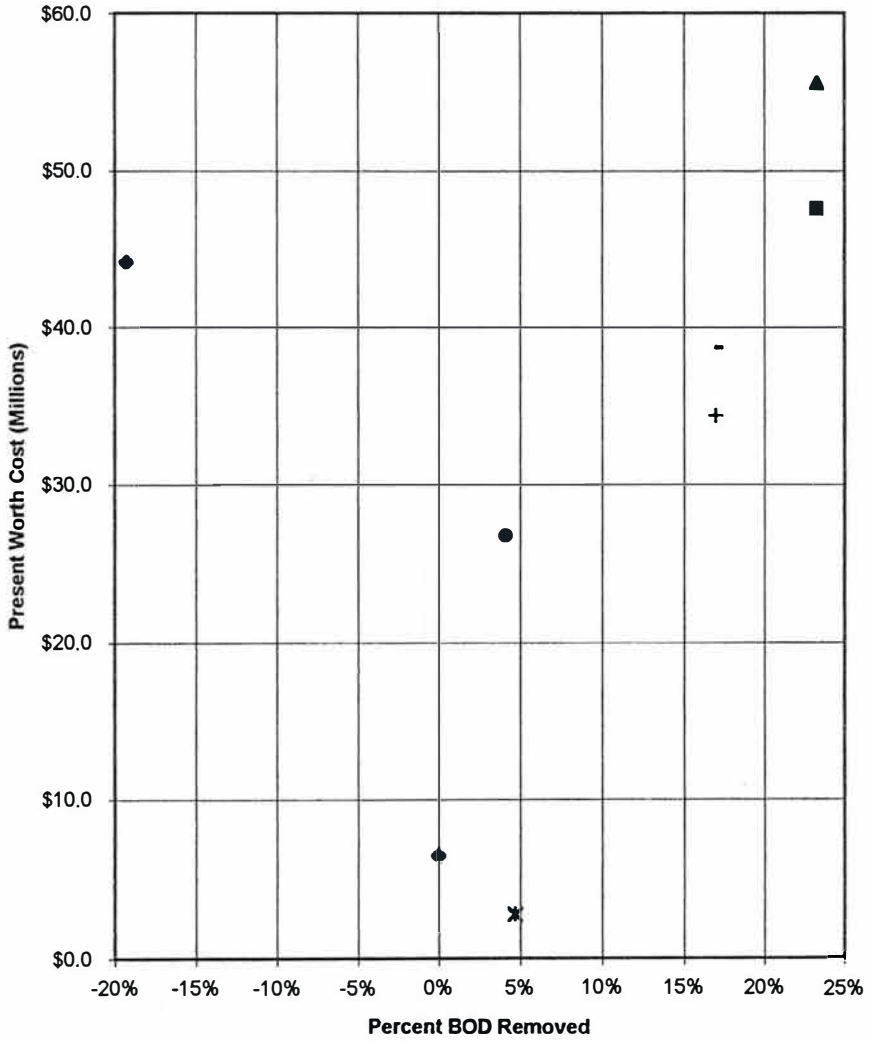
- ◆ AB1 Complete Sewer Separation
- ■ AB2 Consolidated Near Surface Storage Facility(1-Yr)
- ▲ AB3 Consolidation/Storage Conduit(1-Yr)
- ✖ AB6 Separation of CAM 004(3-Mo)
- ● AB7 Consolidation/Storage Conduit(3-Mo)
- \+ AB4 Consolidated Near Surface Storage W/Separation @ CAM 004(1-Yr)
- \- AB5 Consolidation/Storage Conduit W/Separation @ CAM 004(1-Yr)
- ◆ AB8 Coarse Screens at Outfalls

Alewife Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



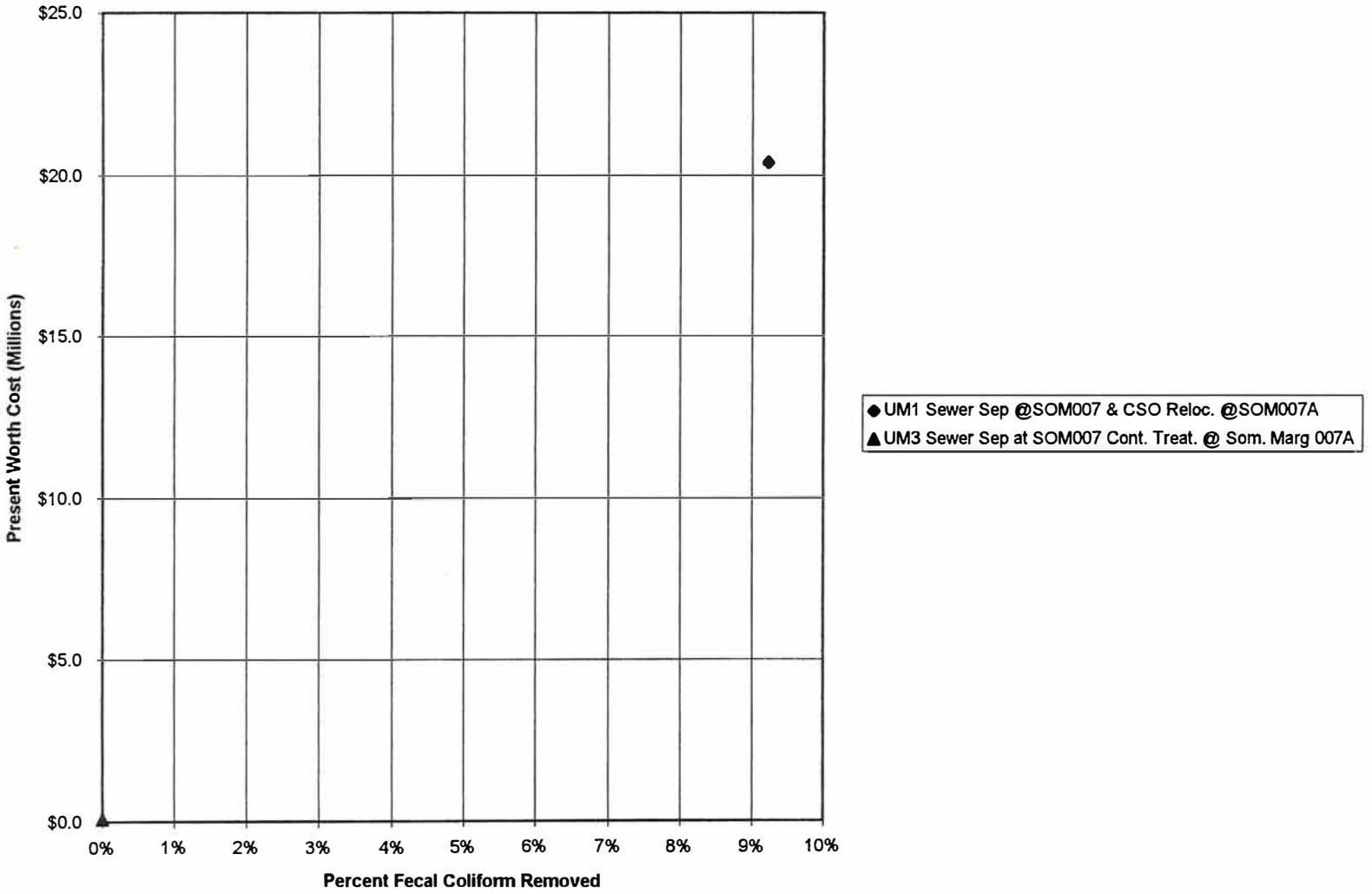
- ◆ AB1 Complete Sewer Separation
- ■ AB2 Consolidated Near Surface Storage Facility(1-Yr)
- ▲ AB3 Consolidation/Storage Conduit(1-Yr)
- ✱ AB6 Separation of CAM 004(3-Mo)
- ● AB7 Consolidation/Storage Conduit(3-Mo)
- + AB4 Consolidated Near Surface Storage W/Separation @ CAM 004(1-Yr)
- - AB5 Consolidation/Storage Conduit W/Separation @ CAM 004(1-Yr)
- ◆ AB8 Coarse Screens at Outfalls

Alewife Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)

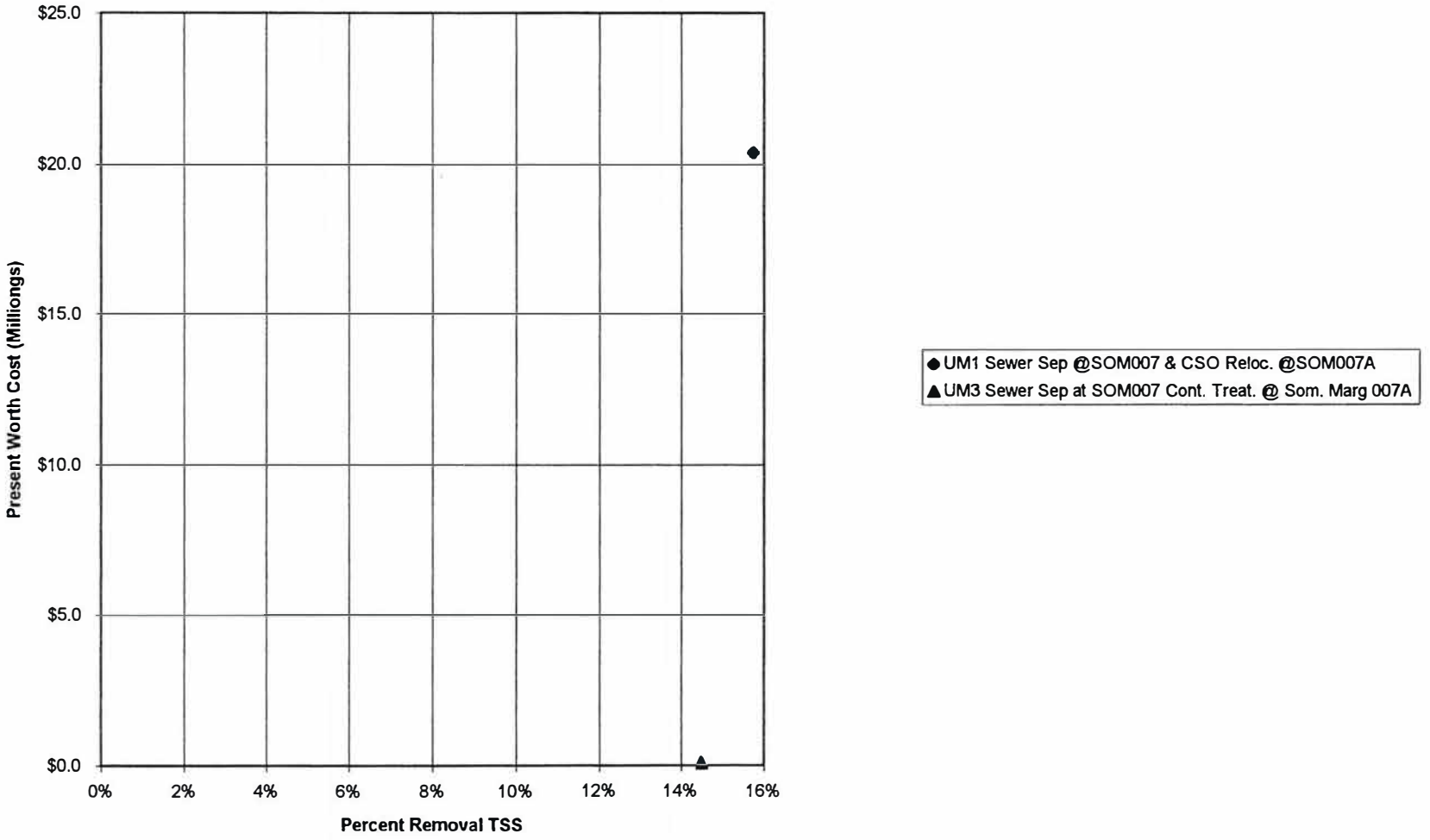


- ◆ AB1 Complete Sewer Separation
- ■ AB2 Consolidated Near Surface Storage Facility(1-Yr)
- ▲ AB3 Consolidation/Storage Conduit(1-Yr)
- ✖ AB6 Separation of CAM 004(3-Mo)
- ● AB7 Consolidation/Storage Conduit(3-Mo)
- \+ AB4 Consolidated Near Surface Storage W/Separation @ CAM 004(1-Yr)
- \- AB5 Consolidation/Storage Conduit W/Separation @ CAM 004(1-Yr)
- ◆ AB8 Coarse Screens at Outfalls

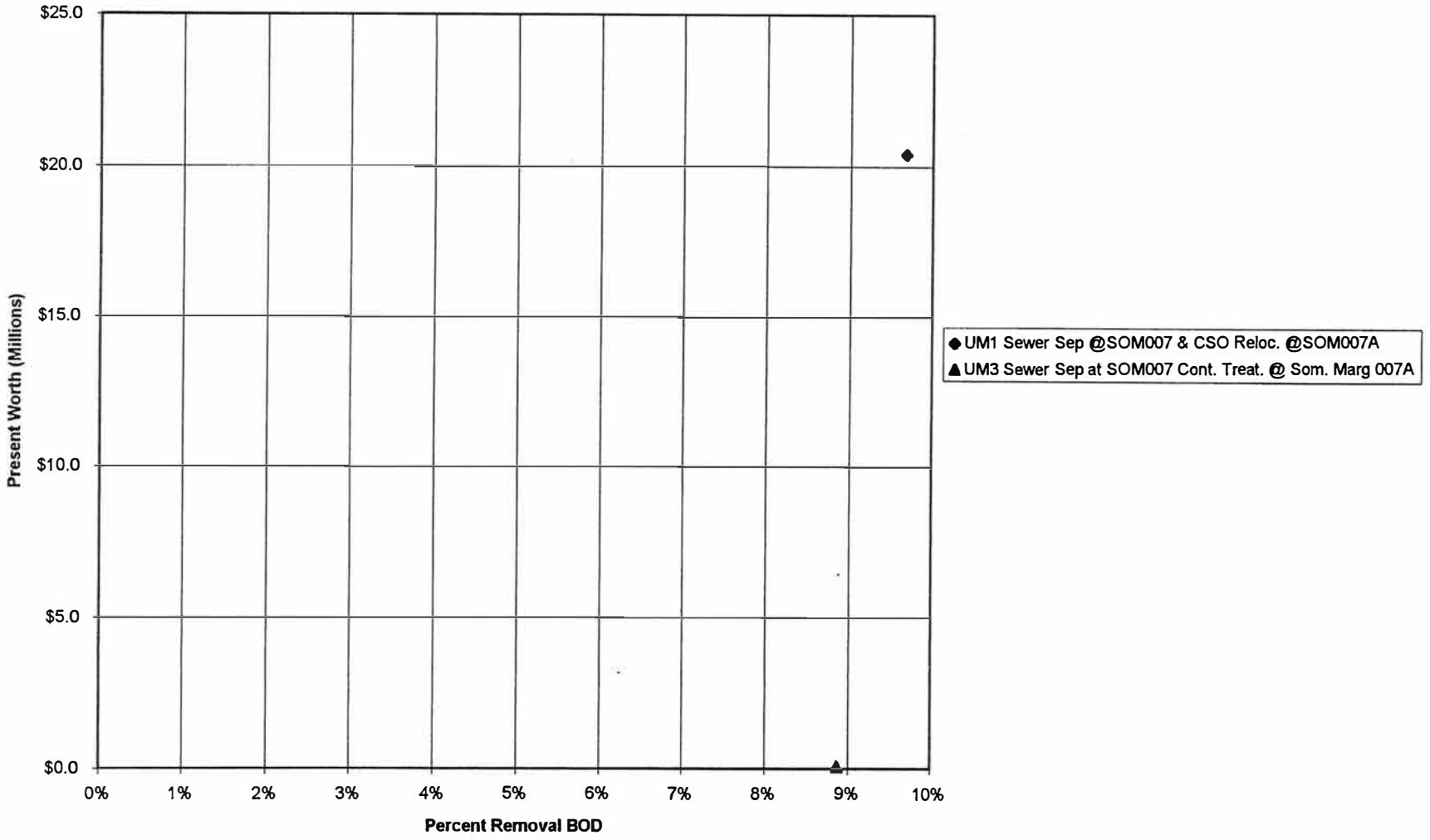
Upper Mystic Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



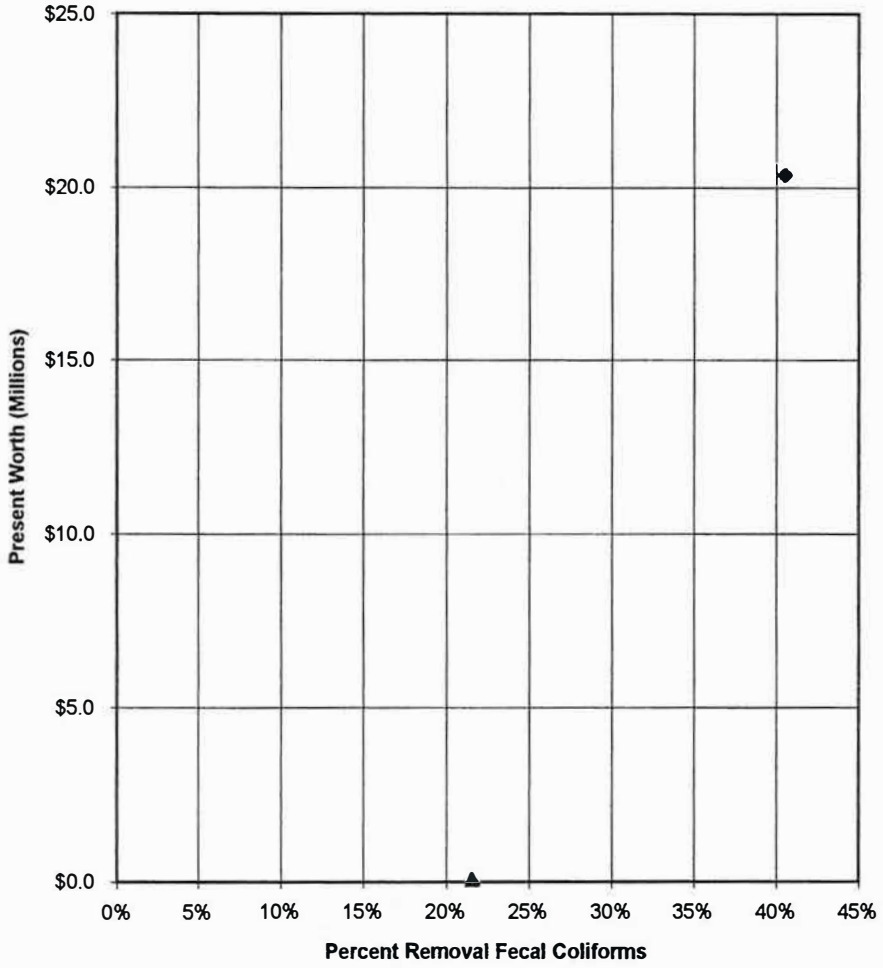
Upper Mystic Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



Upper Mystic Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

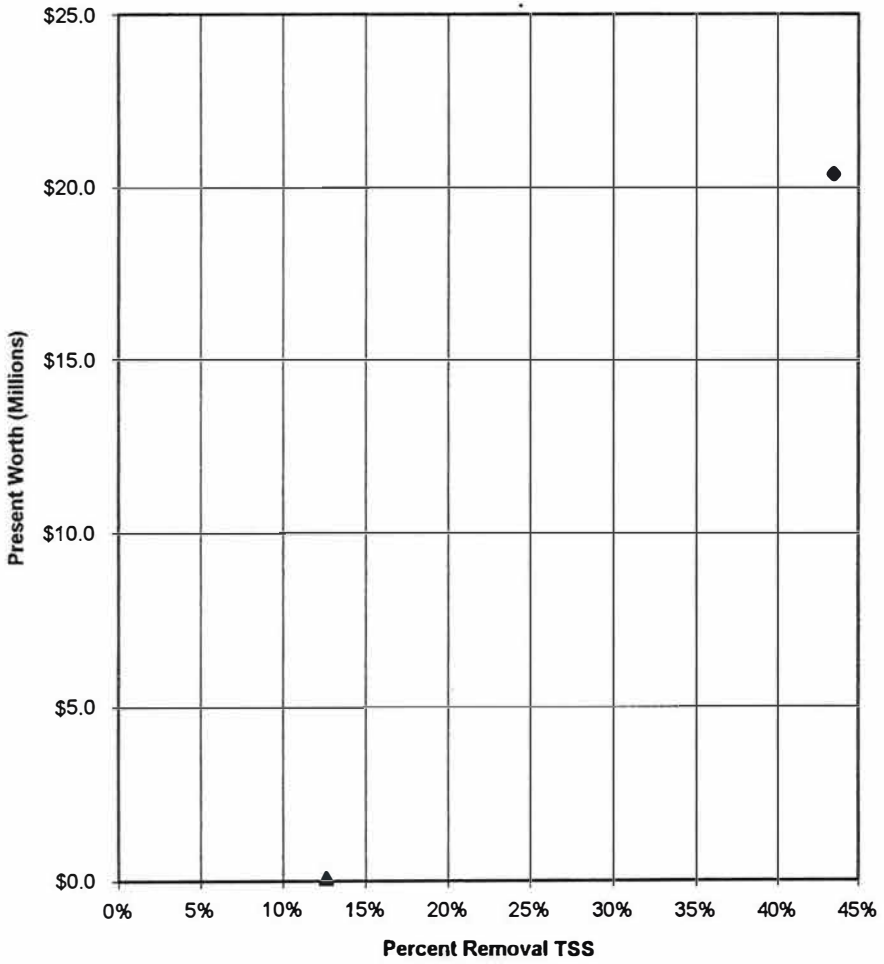


Upper Mystic Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)



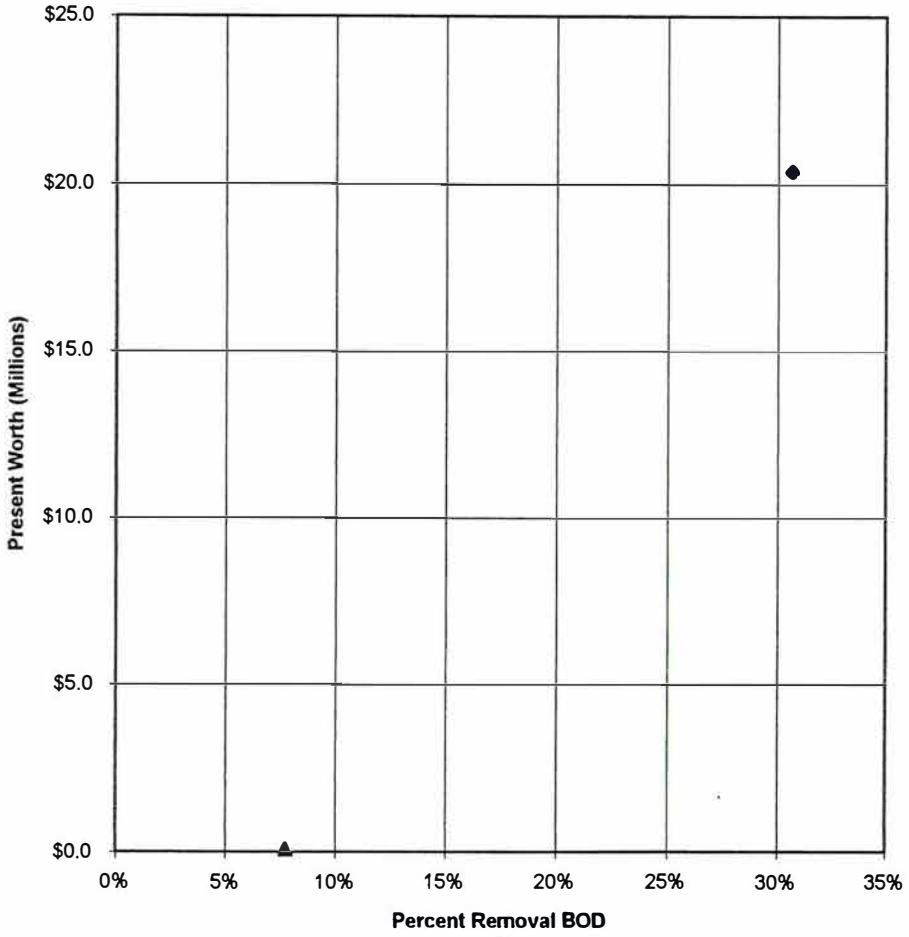
◆ UM1 Sewer Sep @SOM007 & CSO Reloc. @SOM007A
▲ UM3 Sewer Sep at SOM007 Cont. Treat. @ Som. Marg 007A

Upper Mystic Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)



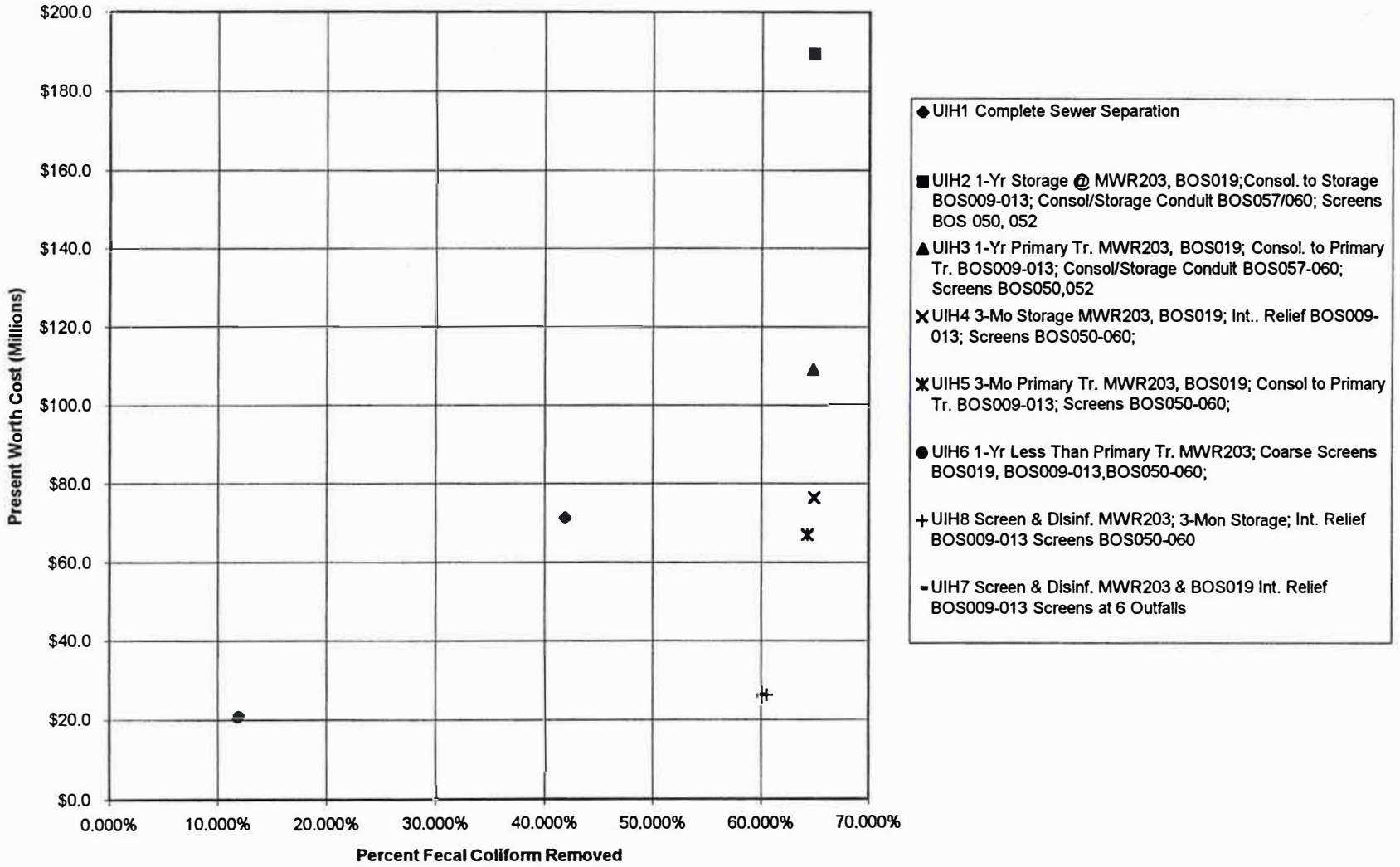
◆ UM1 Sewer Sep @SOM007 & CSO Reloc. @SOM007A
▲ UM3 Sewer Sep at SOM007 Cont. Treat. @ Som. Marg 007A

Upper Mystic Total Load Reductions as a Percent of Baseline Total Load
(1-Year Storm)

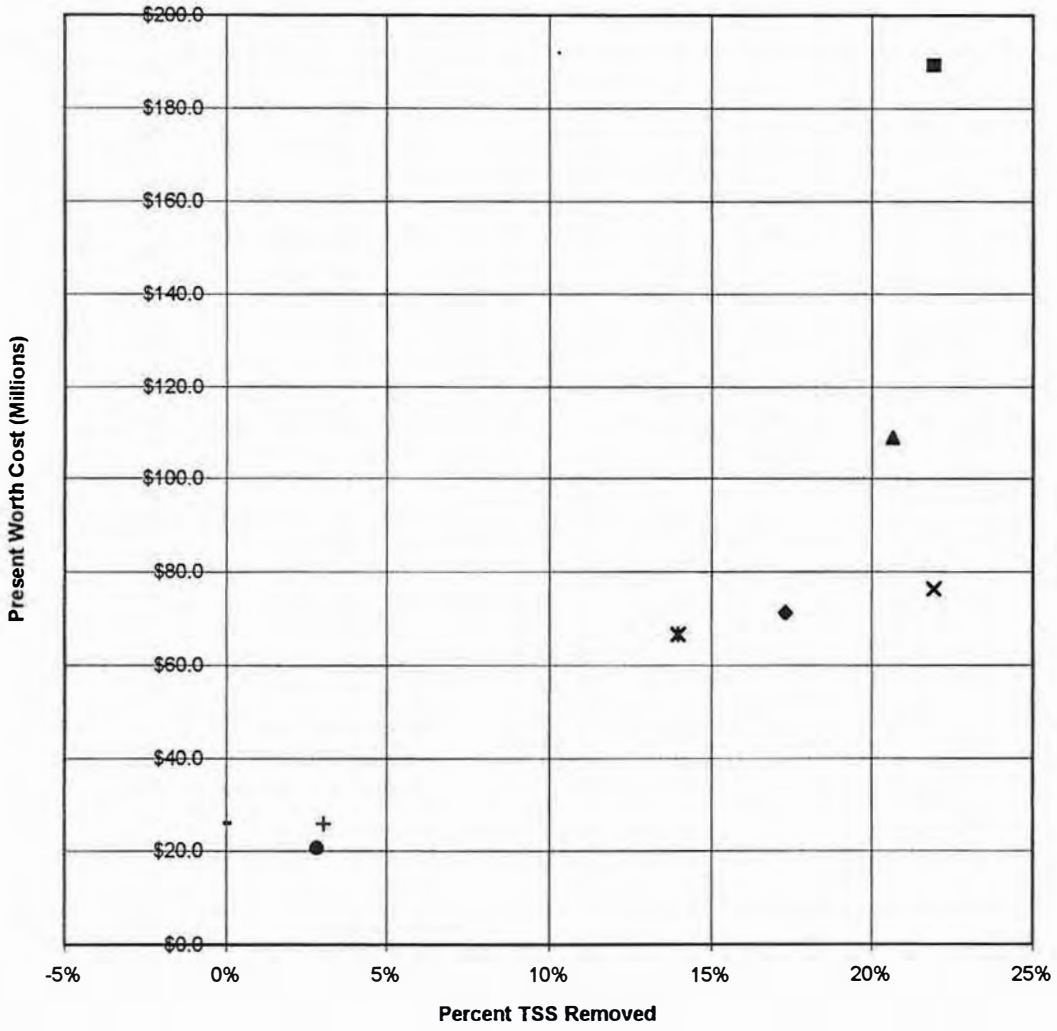


◆ UM1 Sewer Sep @SOM007 & CSO Reloc. @SOM007A
▲ UM3 Sewer Sep at SOM007 Cont. Treat. @ Som. Marg 007A

Upper Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

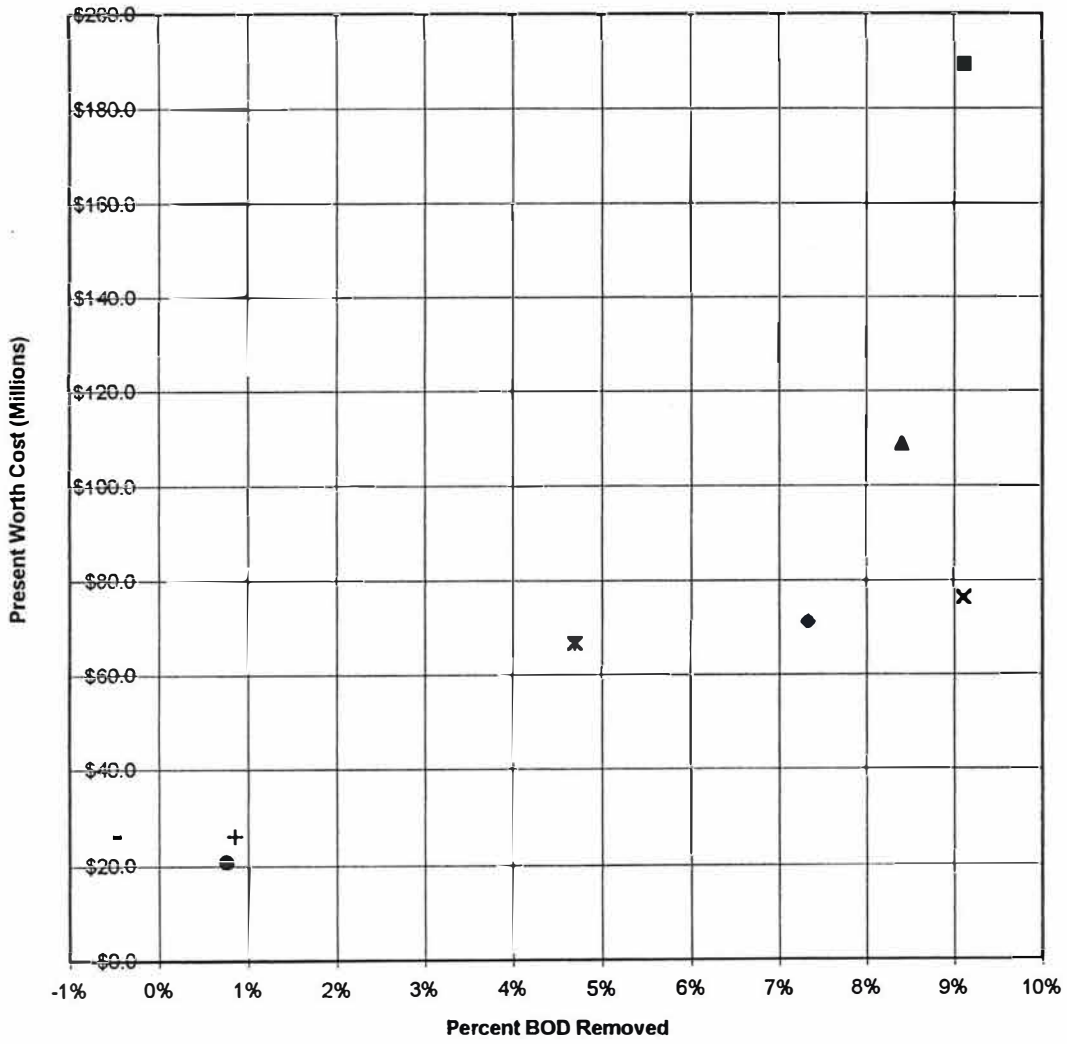


Upper Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



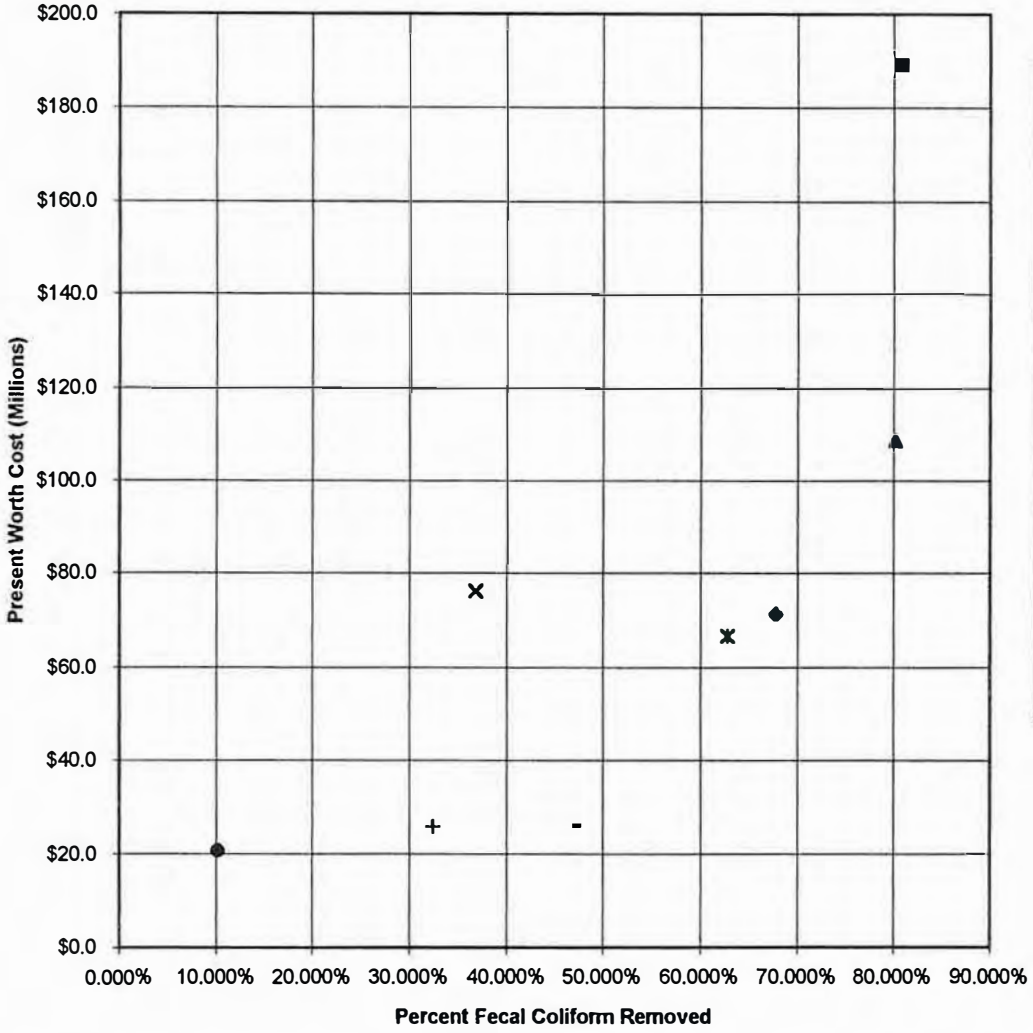
- ◆ UIH1 Complete Sewer Separation
- ■ UIH2 1-Yr Storage @ MWR203, BOS019;Consol. to Storage BOS009-013; Consol/Storage Conduit BOS057/060; Screens BOS 050, 052
- ▲ UIH3 1-Yr Primary Tr. MWR203, BOS019; Consol. to Primary Tr. BOS009-013; Consol/Storage Conduit BOS057-060; Screens BOS050,052
- ✕ UIH4 3-Mo Storage MWR203, BOS019; Int.. Relief BOS009-013; Screens BOS050-060;
- ✱ UIH5 3-Mo Primary Tr. MWR203, BOS019; Consol to Primary Tr. BOS009-013; Screens BOS050-060;
- ● UIH6 1-Yr Less Than Primary Tr. MWR203; Coarse Screens BOS019, BOS009-013,BOS050-060;
- + UIH8 Screen & Disinf. MWR203; 3-Mon Storage; Int. Relief BOS009-013 Screens BOS050-060
- - UIH7 Screen & Disinf. MWR203 & BOS019 Int. Relief BOS009-013 Screens at 6 Outfalls

Upper Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



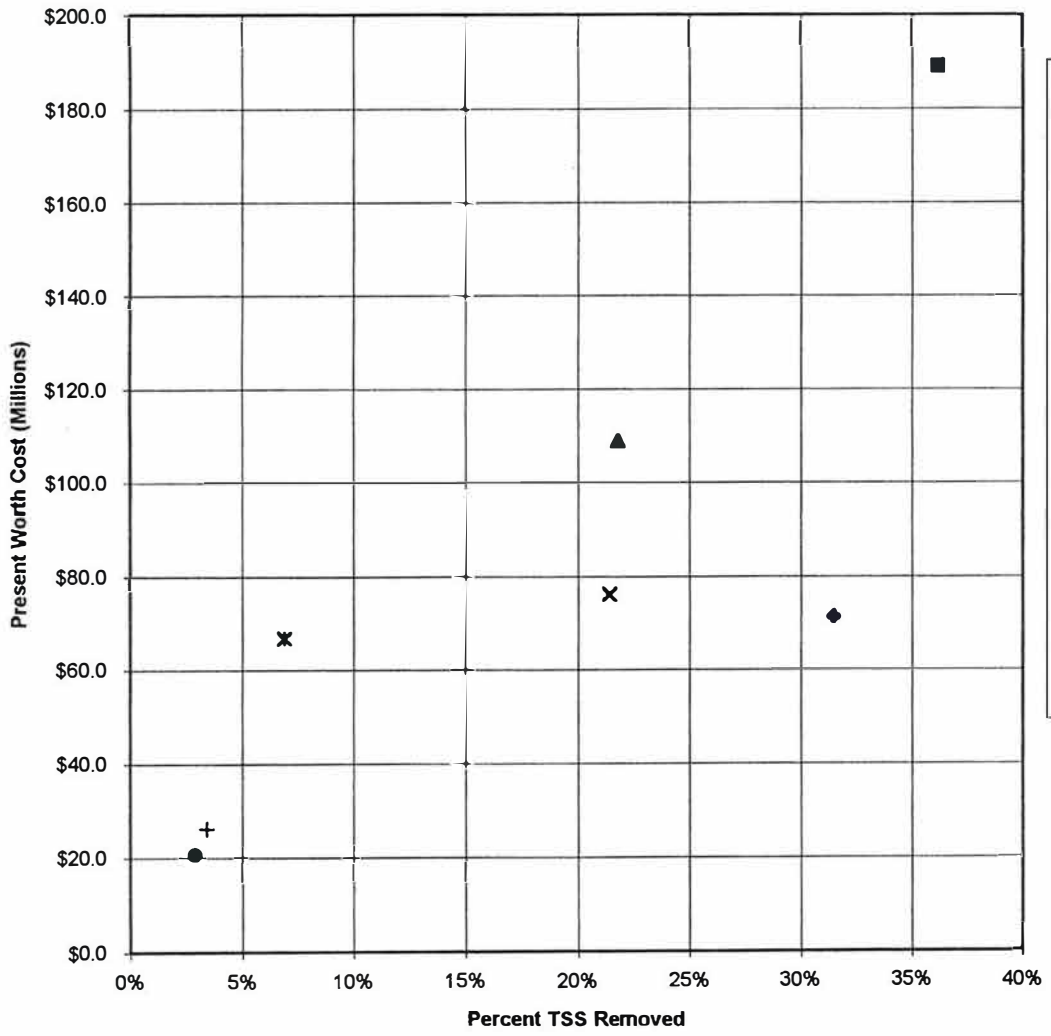
- ◆ UIH1 Complete Sewer Separation
- ■ UIH2 1-Yr Storage @ MWR203, BOS019;Consol. to Storage BOS009-013; Consol/Storage Conduit BOS057/060; Screens BOS 050, 052
- ▲ UIH3 1-Yr Primary Tr. MWR203, BOS019; Consol. to Primary Tr. BOS009-013; Consol/Storage Conduit BOS057-060; Screens BOS050,052
- ✕ UIH4 3-Mo Storage MWR203, BOS019; Int.. Relief BOS009-013; Screens BOS050-060;
- ✱ UIH5 3-Mo Primary Tr. MWR203, BOS019; Consol to Primary Tr. BOS009-013; Screens BOS050-060;
- ● UIH6 1-Yr Less Than Primary Tr. MWR203; Coarse Screens BOS019, BOS009-013,BOS050-060;
- + UIH8 Screen & Disinf. MWR203; 3-Mon Storage; Int. Relief BOS009-013 Screens BOS050-060
- - UIH7 Screen & Disinf. MWR203 & BOS019 Int. Relief BOS009-013 Screens at 6 Outfalls

Upper Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



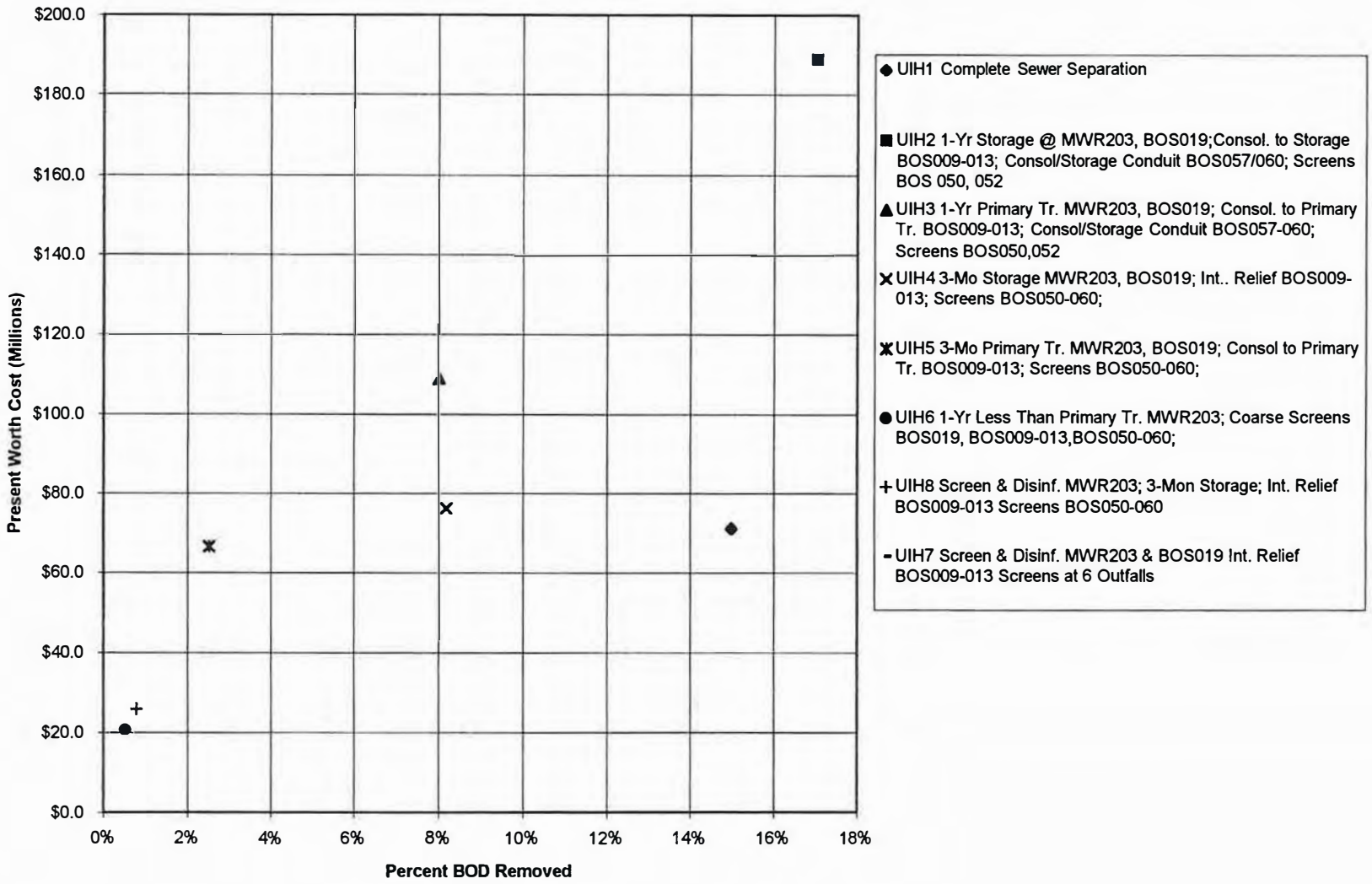
- ◆ UIH1 Complete Sewer Separation
- ■ UIH2 1-Yr Storage @ MWR203, BOS019;Consol. to Storage BOS009-013; Consol/Storage Conduit BOS057/060; Screens BOS 050, 052
- ▲ UIH3 1-Yr Primary Tr. MWR203, BOS019; Consol. to Primary Tr. BOS009-013; Consol/Storage Conduit BOS057-060; Screens BOS050,052
- ✕ UIH4 3-Mo Storage MWR203, BOS019; Int.. Relief BOS009-013; Screens BOS050-060;
- ✱ UIH5 3-Mo Primary Tr. MWR203, BOS019; Consol to Primary Tr. BOS009-013; Screens BOS050-060;
- ● UIH6 1-Yr Less Than Primary Tr. MWR203; Coarse Screens BOS019, BOS009-013,BOS050-060;
- + UIH8 Screen & Disinf. MWR203; 3-Mon Storage; Int. Relief BOS009-013 Screens BOS050-060
- - UIH7 Screen & Disinf. MWR203 & BOS019 Int. Relief BOS009-013 Screens at 6 Outfalls

Upper Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)

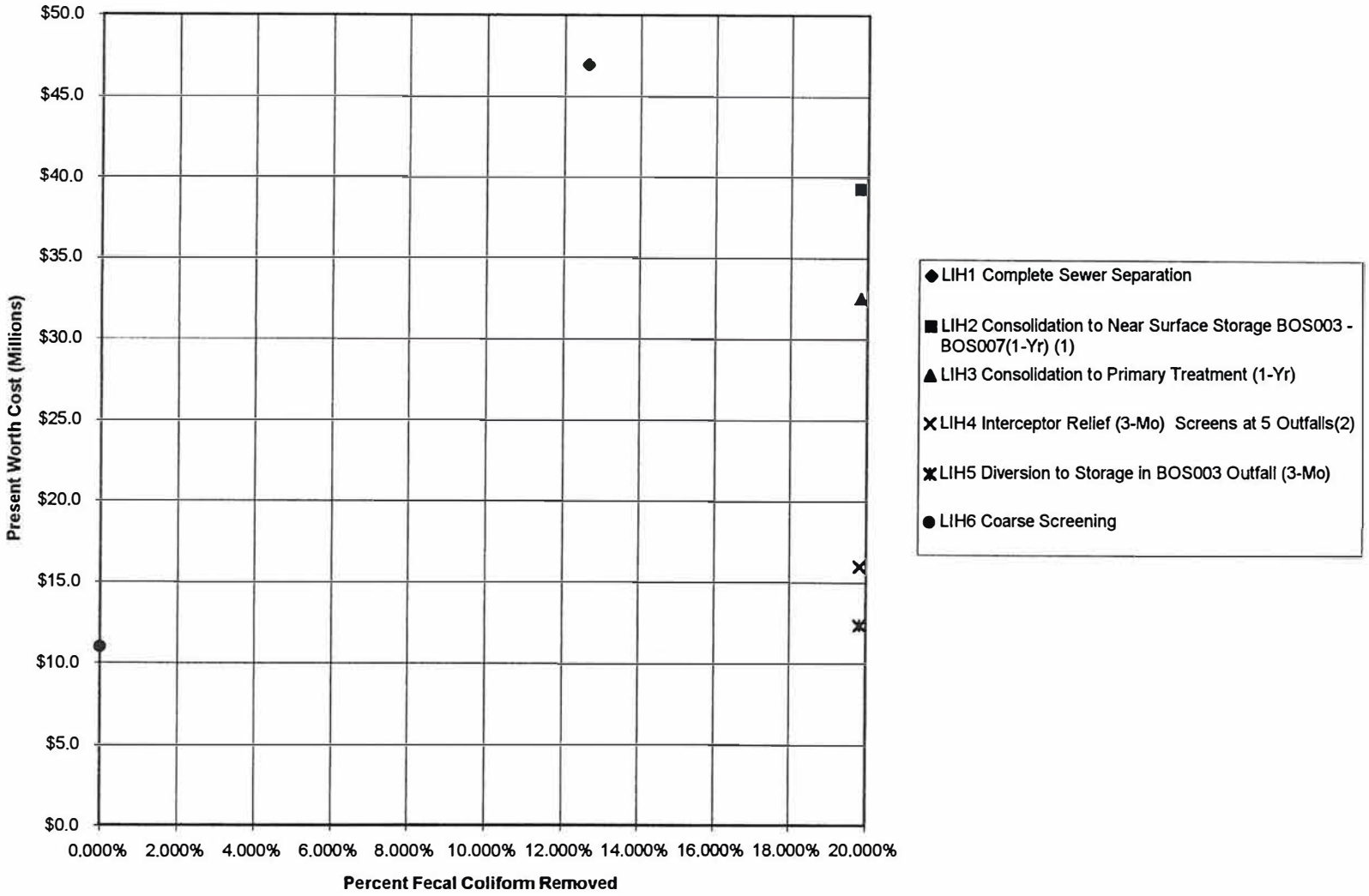


- ◆ UIH1 Complete Sewer Separation
- ■ UIH2 1-Yr Storage @ MWR203, BOS019;Consol. to Storage BOS009-013; Consol/Storage Conduit BOS057/060; Screens BOS 050, 052
- ▲ UIH3 1-Yr Primary Tr. MWR203, BOS019; Consol. to Primary Tr. BOS009-013; Consol/Storage Conduit BOS057-060; Screens BOS050,052
- ✕ UIH4 3-Mo Storage MWR203, BOS019; Int.. Relief BOS009-013; Screens BOS050-060;
- ✱ UIH5 3-Mo Primary Tr. MWR203, BOS019; Consol to Primary Tr. BOS009-013; Screens BOS050-060;
- ● UIH6 1-Yr Less Than Primary Tr. MWR203; Coarse Screens BOS019, BOS009-013,BOS050-060;
- + UIH8 Screen & Disinf. MWR203; 3-Mon Storage; Int. Relief BOS009-013 Screens BOS050-060
- - UIH7 Screen & Disinf. MWR203 & BOS019 Int. Relief BOS009-013 Screens at 6 Outfalls

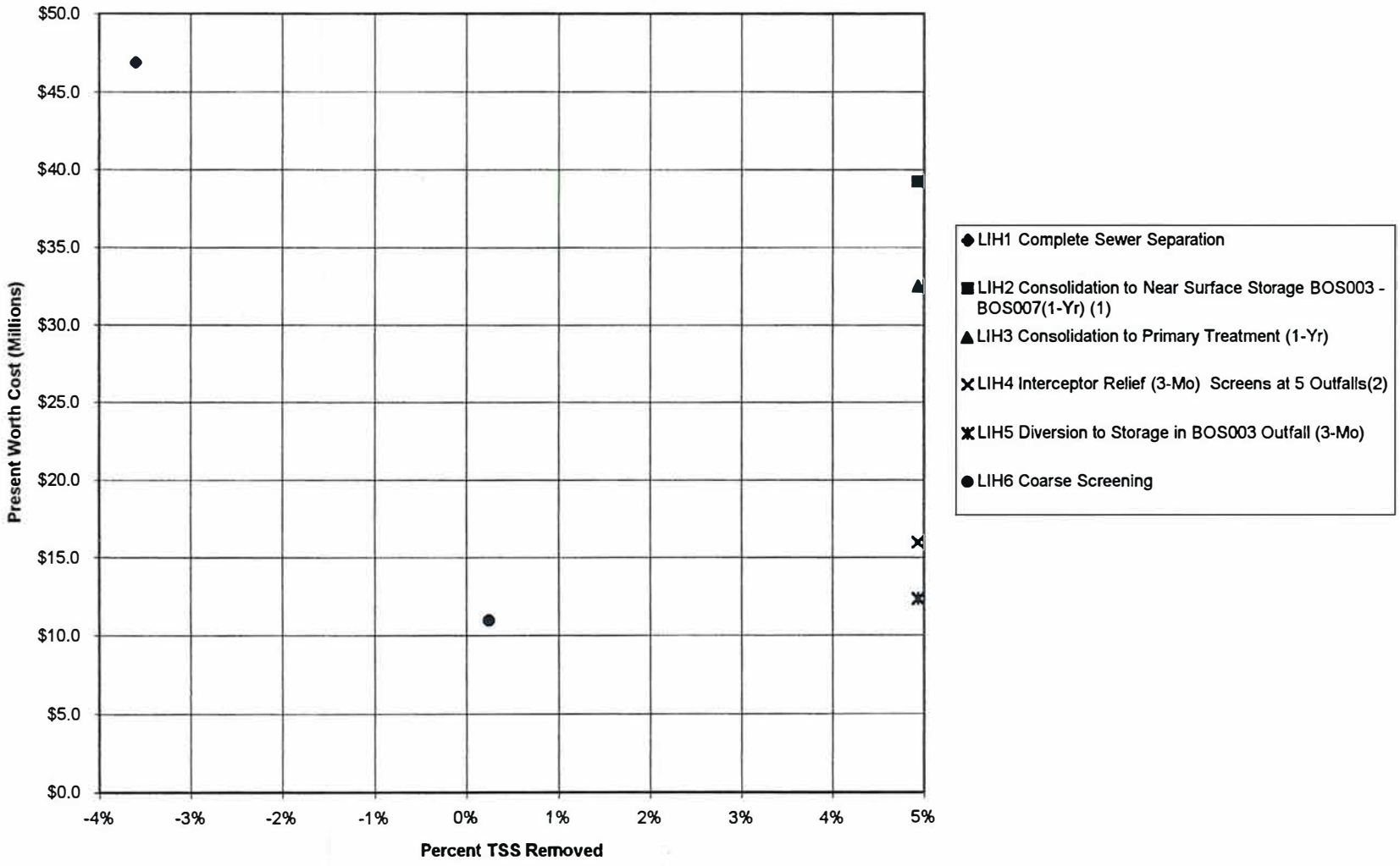
Upper Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



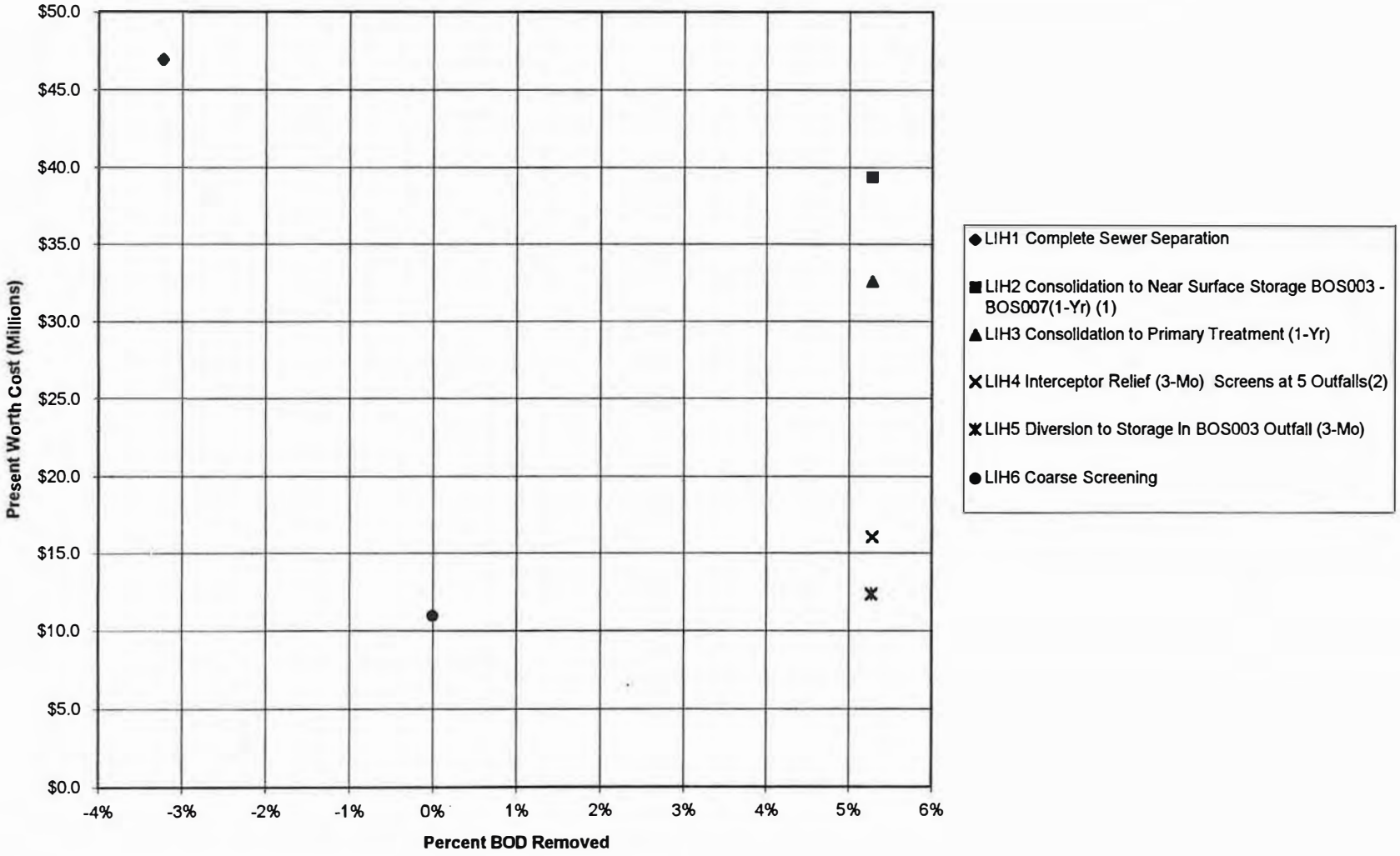
Lower Inner Harbor Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



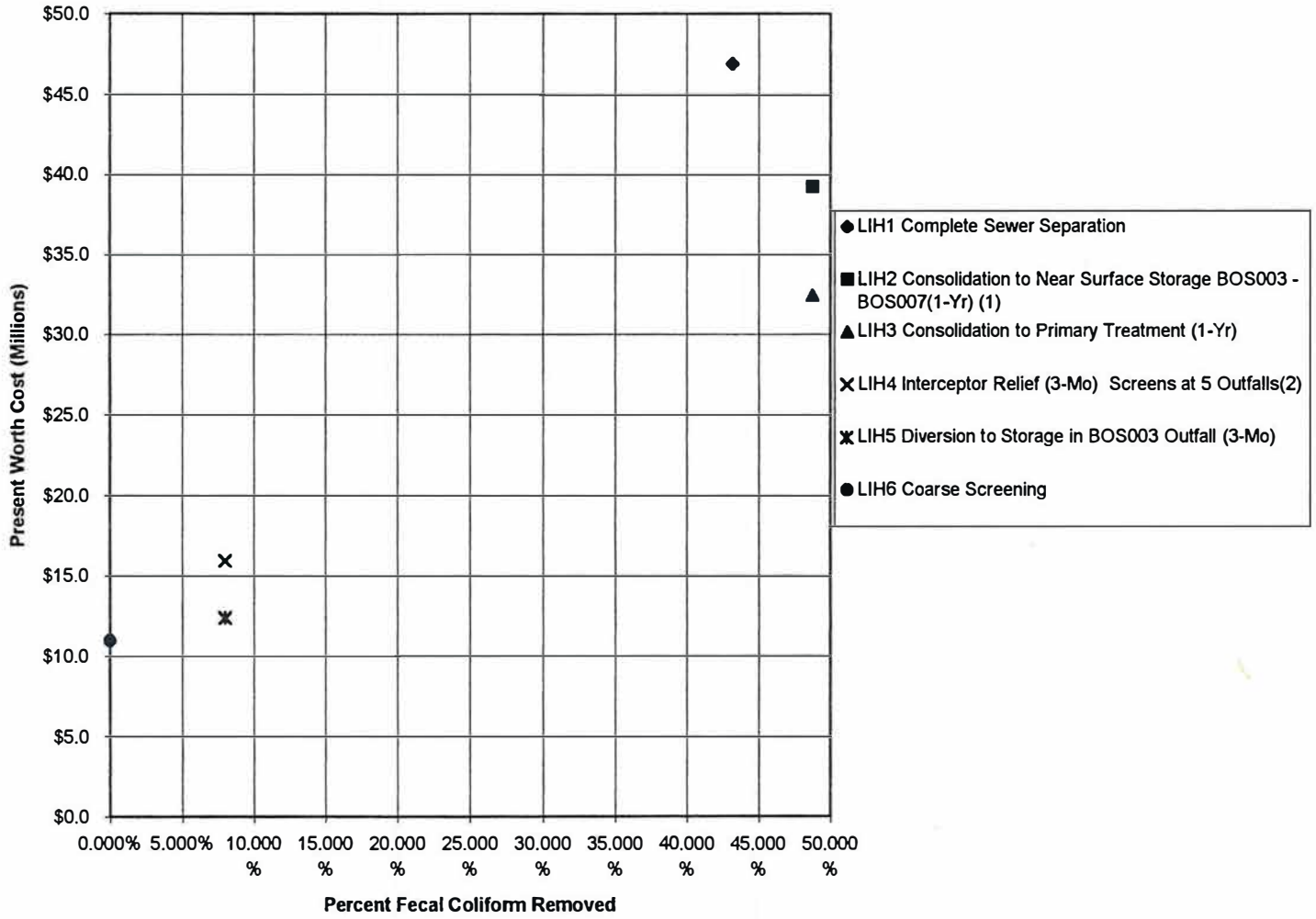
Lower Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



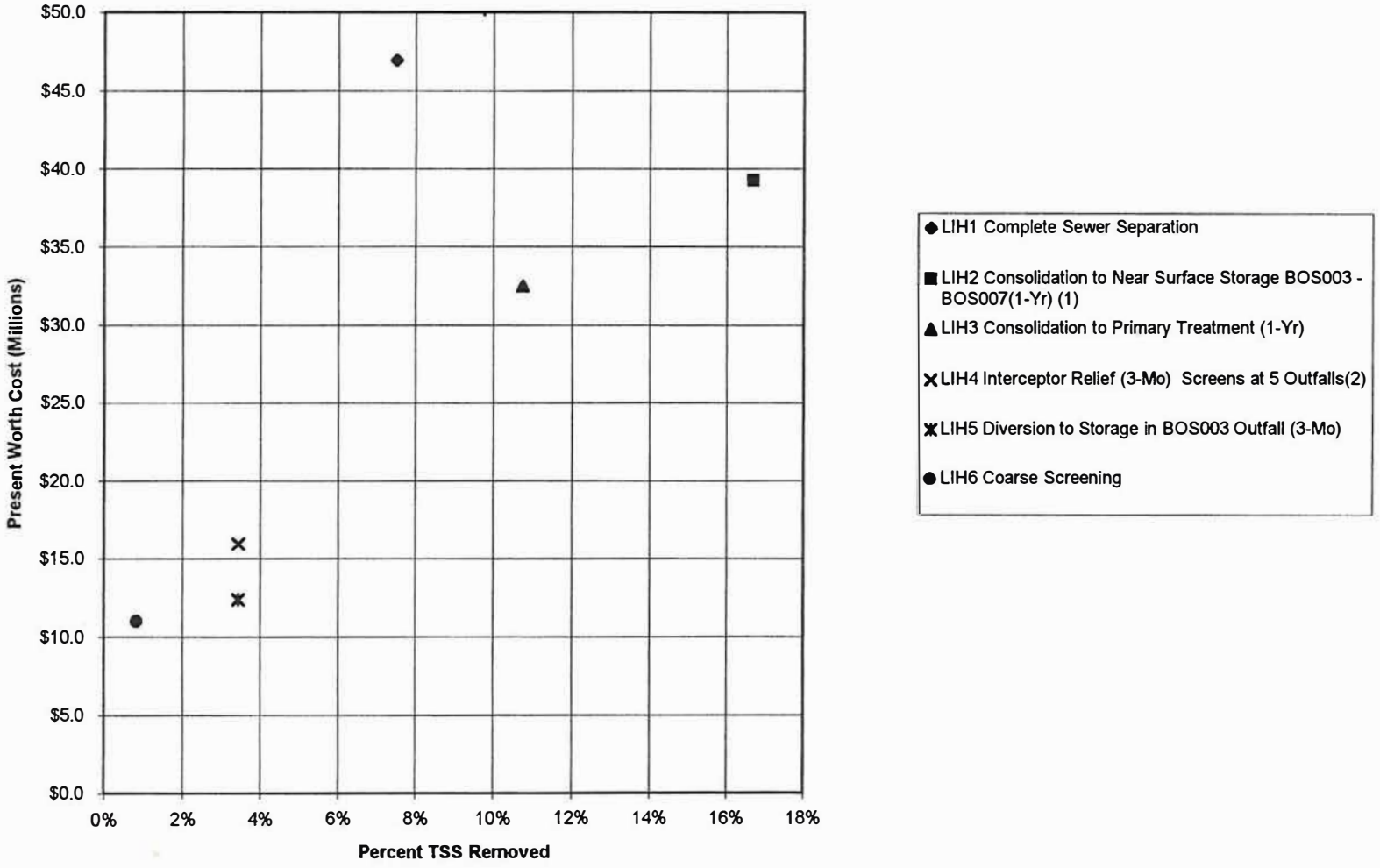
Lower Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



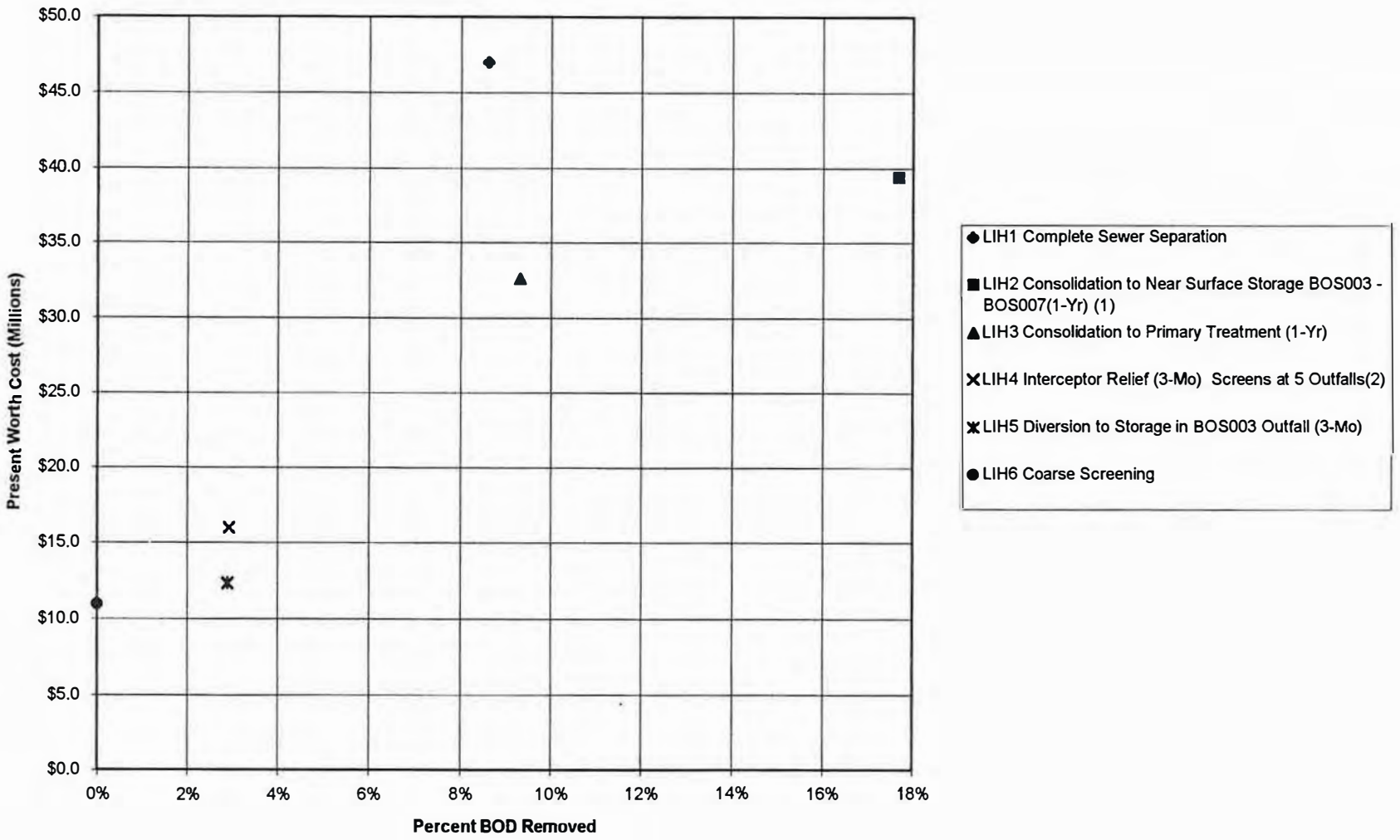
Lower Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



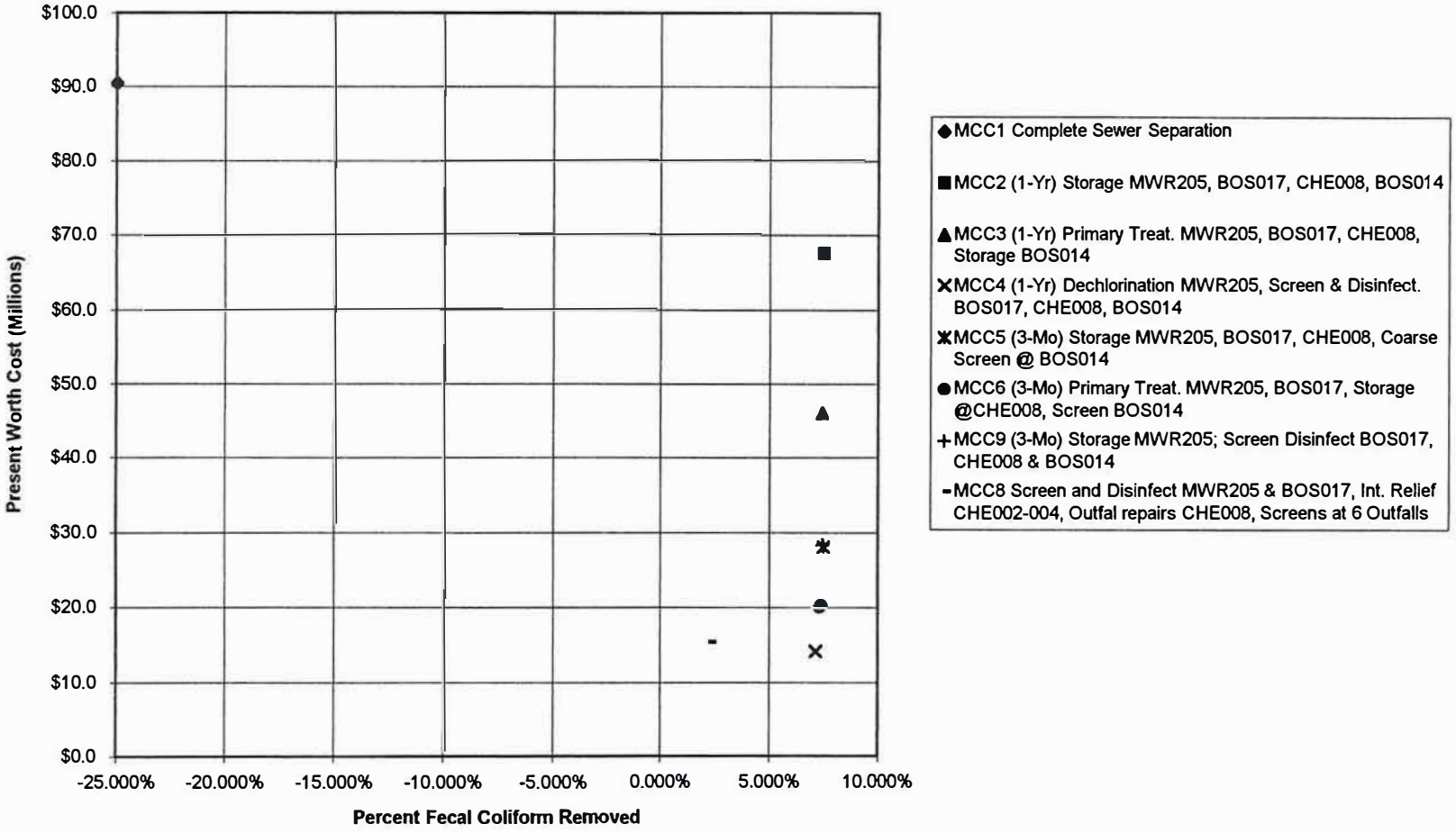
Lower Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



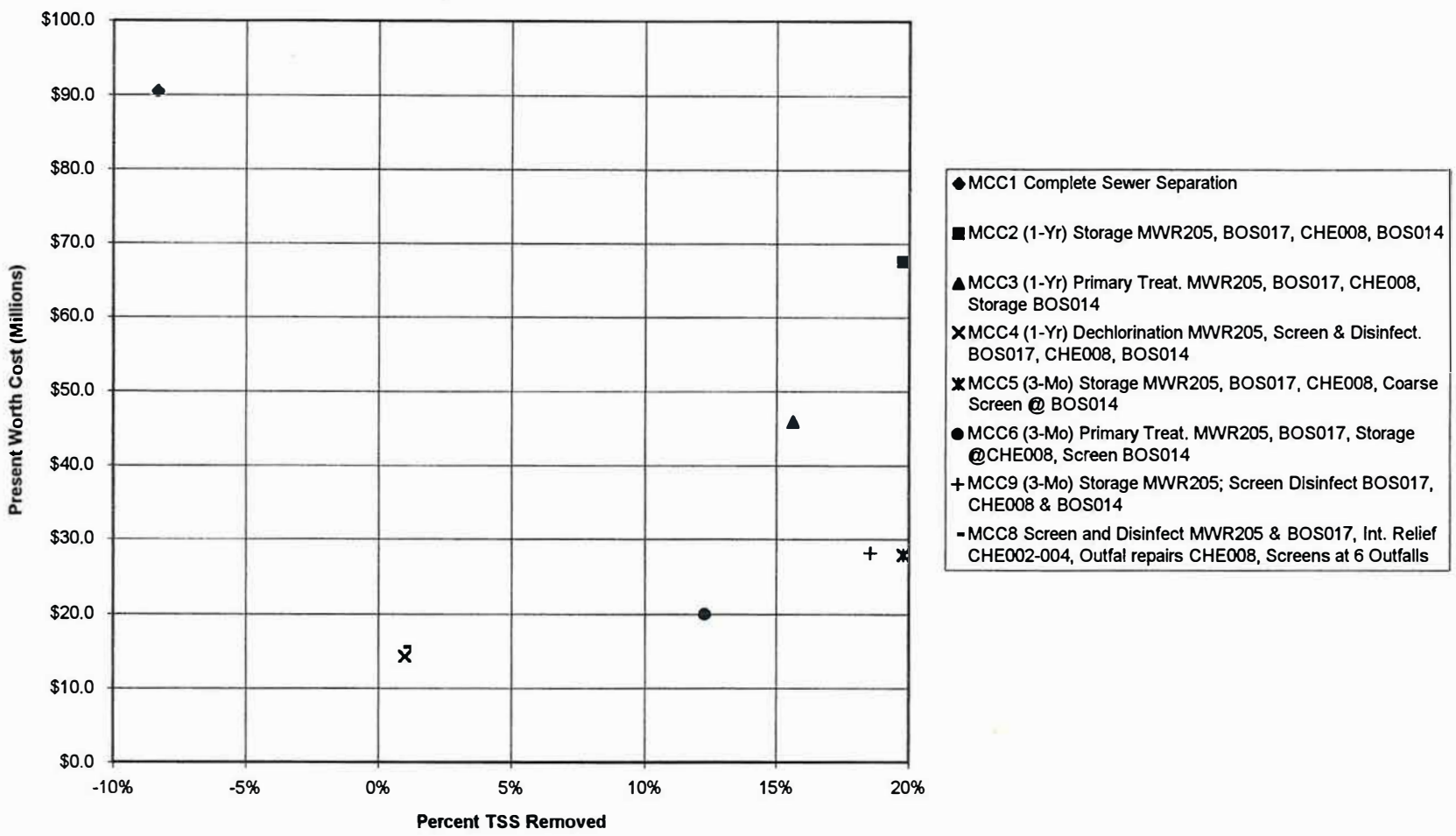
Lower Inner Harbor Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



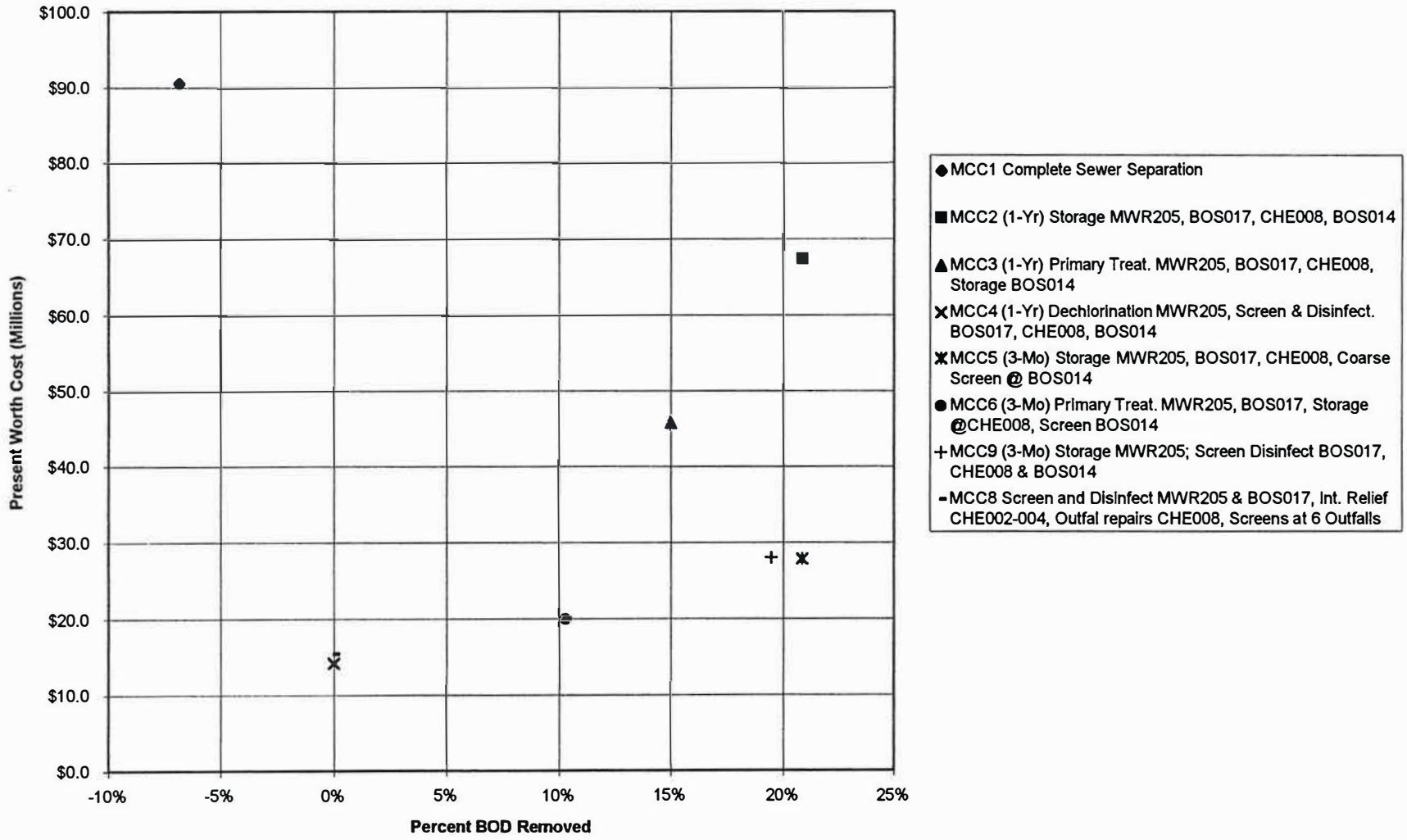
Mystic Chelsea Confluence Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



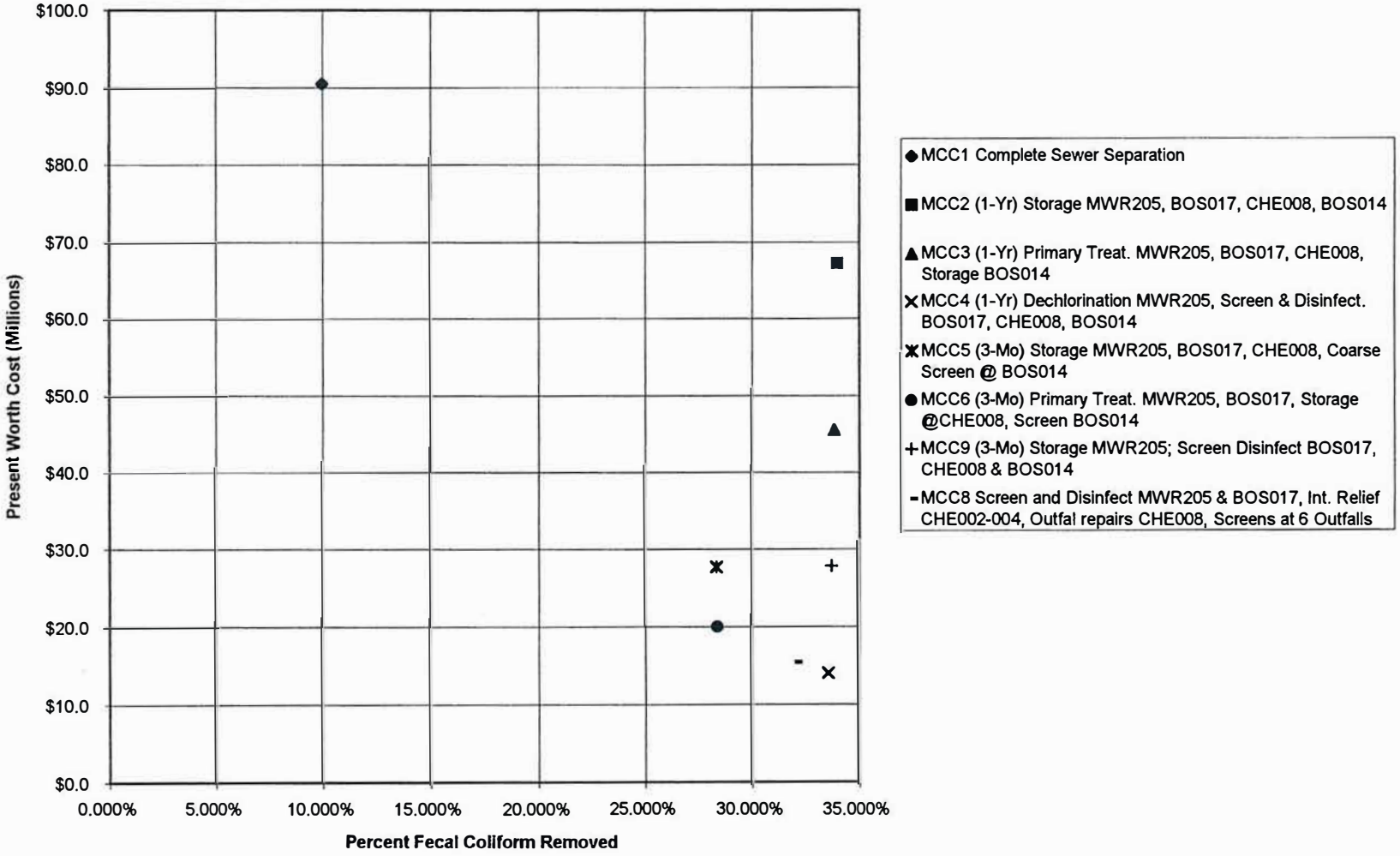
Mystic Chelsea Confluence Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



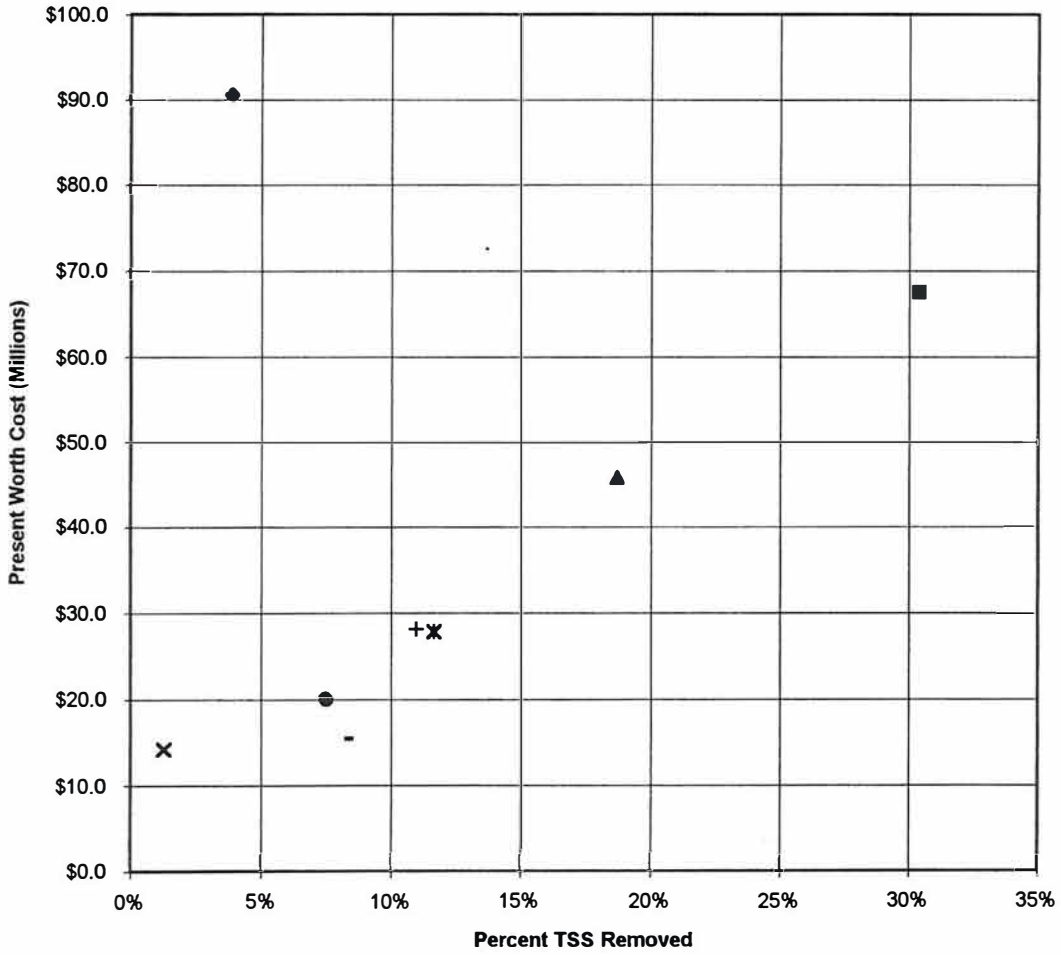
Mystic Chelsea Confluence Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



Mystic Chelsea Confluence Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)

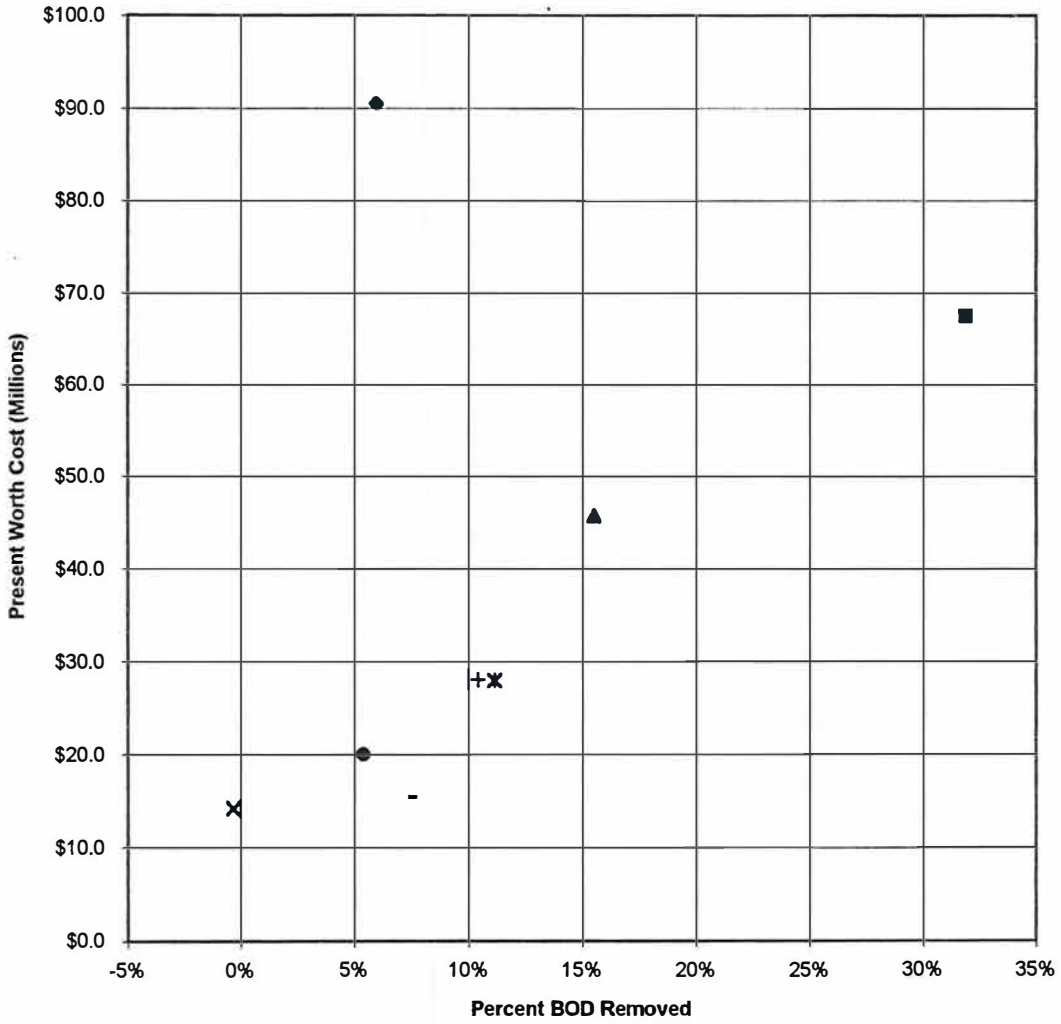


Mystic Chelsea Confluence Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



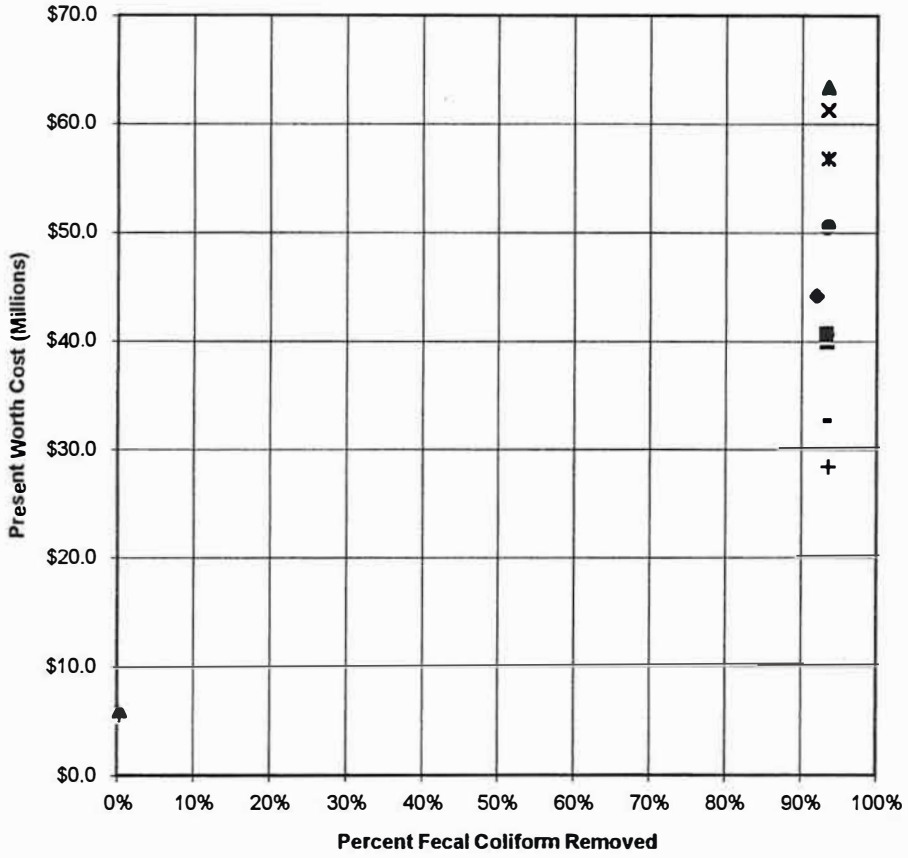
- ◆ MCC1 Complete Sewer Separation
- ■ MCC2 (1-Yr) Storage MWR205, BOS017, CHE008, BOS014
- ▲ MCC3 (1-Yr) Primary Treat. MWR205, BOS017, CHE008, Storage BOS014
- ✕ MCC4 (1-Yr) Dechlorination MWR205, Screen & Disinfect. BOS017, CHE008, BOS014
- ✱ MCC5 (3-Mo) Storage MWR205, BOS017, CHE008, Coarse Screen @ BOS014
- ● MCC6 (3-Mo) Primary Treat. MWR205, BOS017, Storage @CHE008, Screen BOS014
- + MCC9 (3-Mo) Storage MWR205; Screen Disinfect BOS017, CHE008 & BOS014
- - MCC8 Screen and Disinfect MWR205 & BOS017, Int. Relief CHE002-004, Outfal repairs CHE008, Screens at 6 Outfalls

Mystic Chelsea Confluence Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



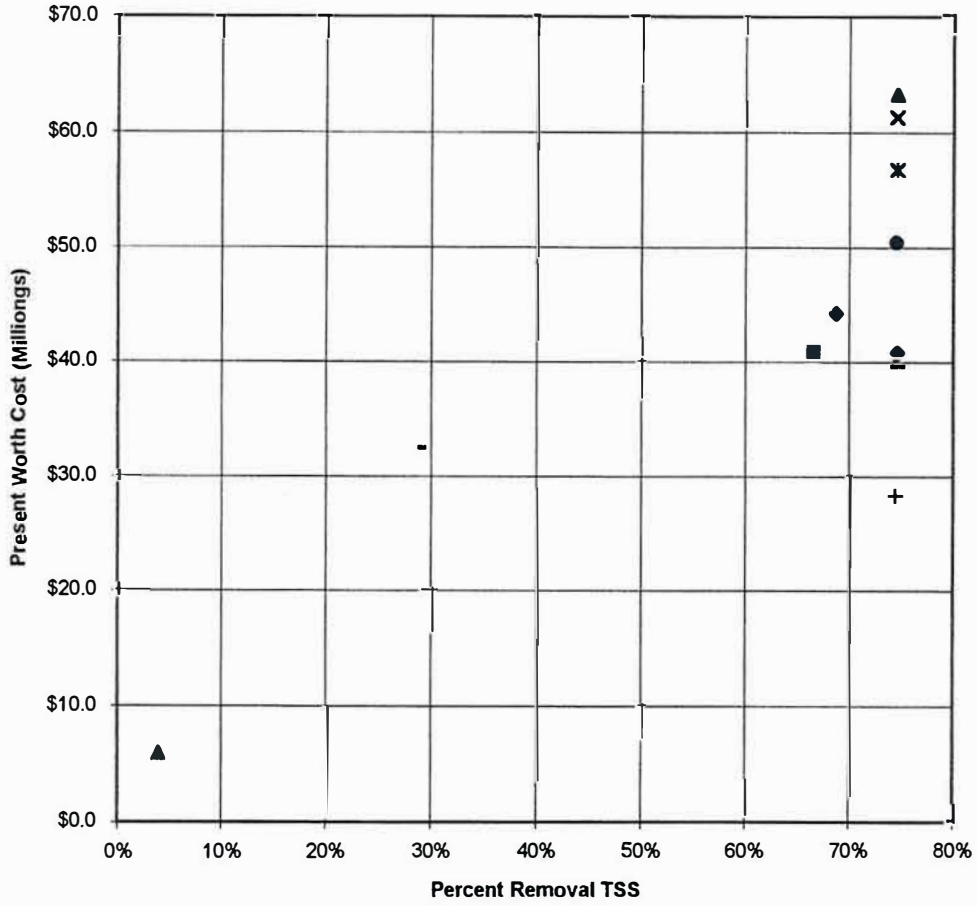
- ◆ MCC1 Complete Sewer Separation
- ■ MCC2 (1-Yr) Storage MWR205, BOS017, CHE008, BOS014
- ▲ MCC3 (1-Yr) Primary Treat. MWR205, BOS017, CHE008, Storage BOS014
- ✕ MCC4 (1-Yr) Dechlorination MWR205, Screen & Disinfect. BOS017, CHE008, BOS014
- ✱ MCC5 (3-Mo) Storage MWR205, BOS017, CHE008, Coarse Screen @ BOS014
- ● MCC6 (3-Mo) Primary Treat. MWR205, BOS017, Storage @CHE008, Screen BOS014
- + MCC9 (3-Mo) Storage MWR205; Screen Disinfect BOS017, CHE008 & BOS014
- - MCC8 Screen and Disinfect MWR205 & BOS017, Int. Relief CHE002-004, Outfal repairs CHE008, Screens at 6 Outfalls

Reserved Channel Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



- ◆ RC1 Complete Sewer Separation (1)
- ▲ RC3 Consolidated Near Surface Storage Facility BOS076 to BOS080 (1-Yr)
- ✕ RC4 Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)
- ✱ RC5 Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)
- ● RC6 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)
- \+ RC7 Consolid. Screen & Disinfect Facility BOS076 to BOS080, Screens 4 at Outfalls
- \- RC8 Consolidation Screen and Disinfection Facility BOS080 to BOS076 (1-Yr)
- ▬ RC9 Consolidated Near Surface Storage Facility BOS076 to BOS080 (3-Mo)
- ◆ RC10 Consolidated Near Surface Storage Facility BOS080 to BOS076 (3-Mo)
- ■ RC11 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (3-Mo)
- ▲ RC12 Coarse Screens @ Outfalls

Reserved Channel Total Load Reductions as a Percent of Baseline Total Load
(3-Month Storm)



◆ RC1 Complete Sewer Separation (1)

▲ RC3 Consolidated Near Surface Storage Facility BOS076 to BOS080 (1-Yr)

✕ RC4 Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)

✱ RC5 Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)

● RC6 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)

+ RC7 Consolid. Screen & Disinfect Facility BOS076 to BOS080, Screens 4 at Outfalls

- RC8 Consolidation Screen and Disinfection Facility BOS080 to BOS076 (1-Yr)

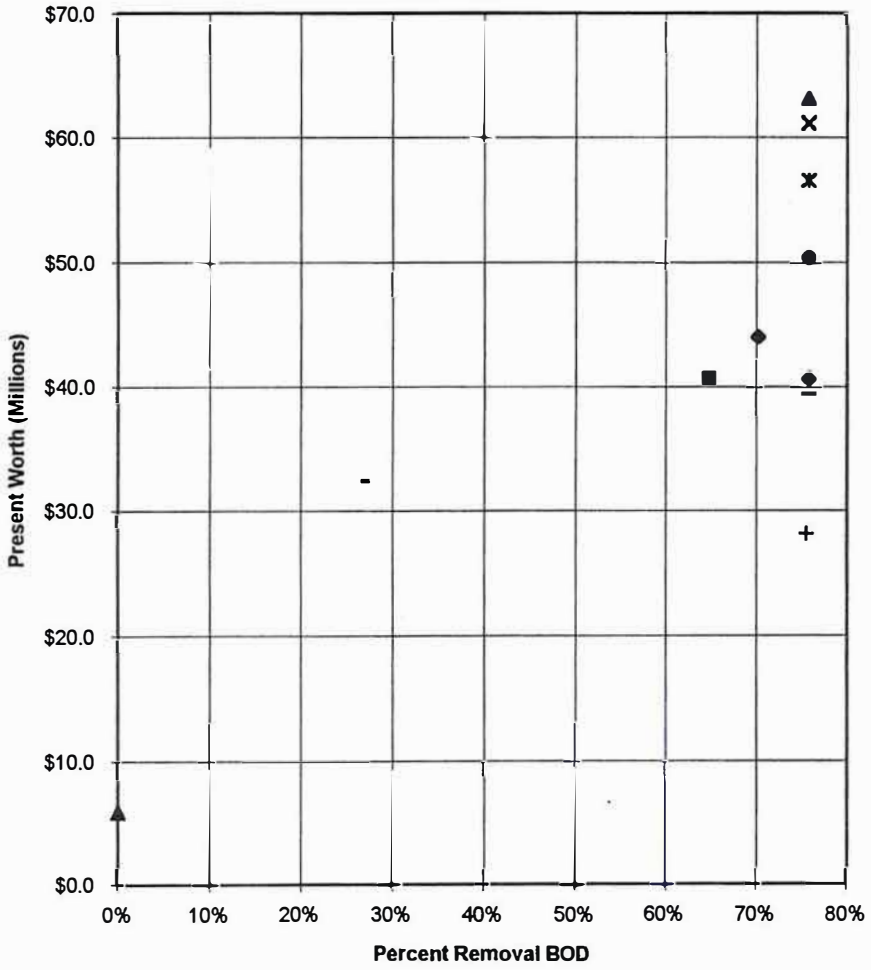
– RC9 Consolidated Near Surface Storage Facility BOS076 to BOS080 (3-Mo)

◆ RC10 Consolidated Near Surface Storage Facility BOS080 to BOS076 (3-Mo)

■ RC11 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (3-Mo)

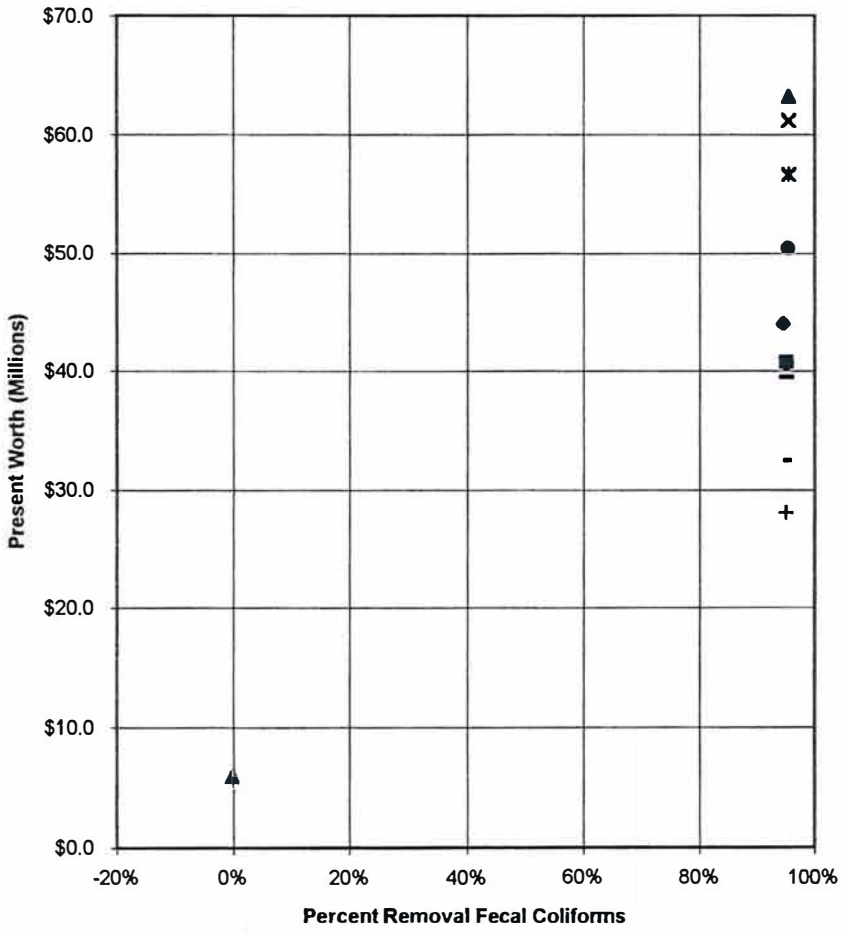
▲ RC12 Coarse Screens @ Outfalls

Reserved Channel Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



- ◆ RC1 Complete Sewer Separation (1)
- ▲ RC3 Consolidated Near Surface Storage Facility BOS076 to BOS080 (1-Yr)
- ✕ RC4 Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)
- ✱ RC5 Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)
- ● RC6 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)
- + RC7 Consolid. Screen & Disinfect Facility BOS076 to BOS080, Screens 4 at Outfalls
- - RC8 Consolidation Screen and Disinfection Facility BOS080 to BOS076 (1-Yr)
- = RC9 Consolidated Near Surface Storage Facility BOS076 to BOS080 (3-Mo)
- ◆ RC10 Consolidated Near Surface Storage Facility BOS080 to BOS076 (3-Mo)
- ■ RC11 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (3-Mo)
- ▲ RC12 Coarse Screens @ Outfalls

Reserved Channel Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



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- ▲ RC3 Consolidated Near Surface Storage Facility BOS076 to BOS080 (1-Yr)
- ✕ RC4 Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)
- ✱ RC5 Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)
- ● RC6 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)
- + RC7 Consolid. Screen & Disinfect Facility BOS076 to BOS080, Screens 4 at Outfalls
- - RC8 Consolidation Screen and Disinfection Facility BOS080 to BOS076 (1-Yr)
- – RC9 Consolidated Near Surface Storage Facility BOS076 to BOS080 (3-Mo)
- ◆ RC10 Consolidated Near Surface Storage Facility BOS080 to BOS076 (3-Mo)
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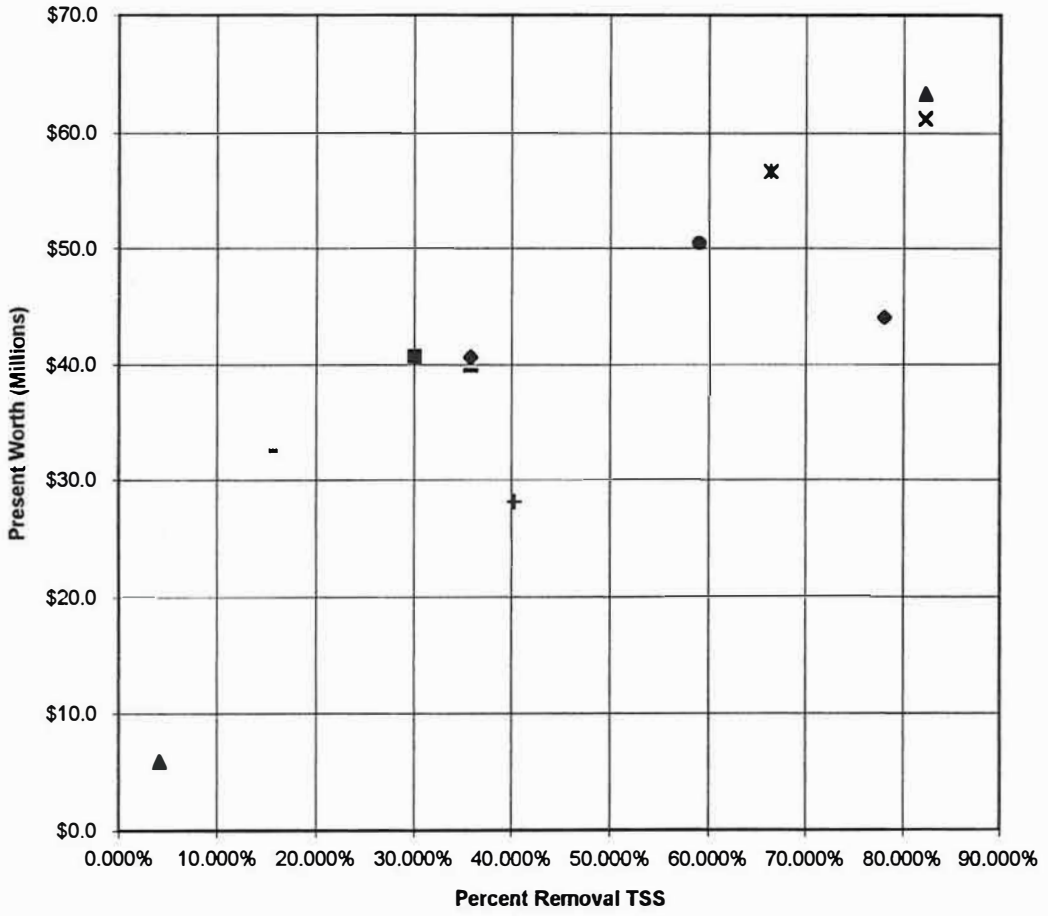
- ▲ RC12 Coarse Screens @ Outfalls

Reserved Channel Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



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- ✕ RC4 Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)
- ✱ RC5 Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)
- ● RC6 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)
- + RC7 Consolid. Screen & Disinfect Facility BOS076 to BOS080, Screens 4 at Outfalls
- - RC8 Consolidation Screen and Disinfection Facility BOS080 to BOS076 (1-Yr)
- ▬ RC9 Consolidated Near Surface Storage Facility BOS076 to BOS080 (3-Mo)
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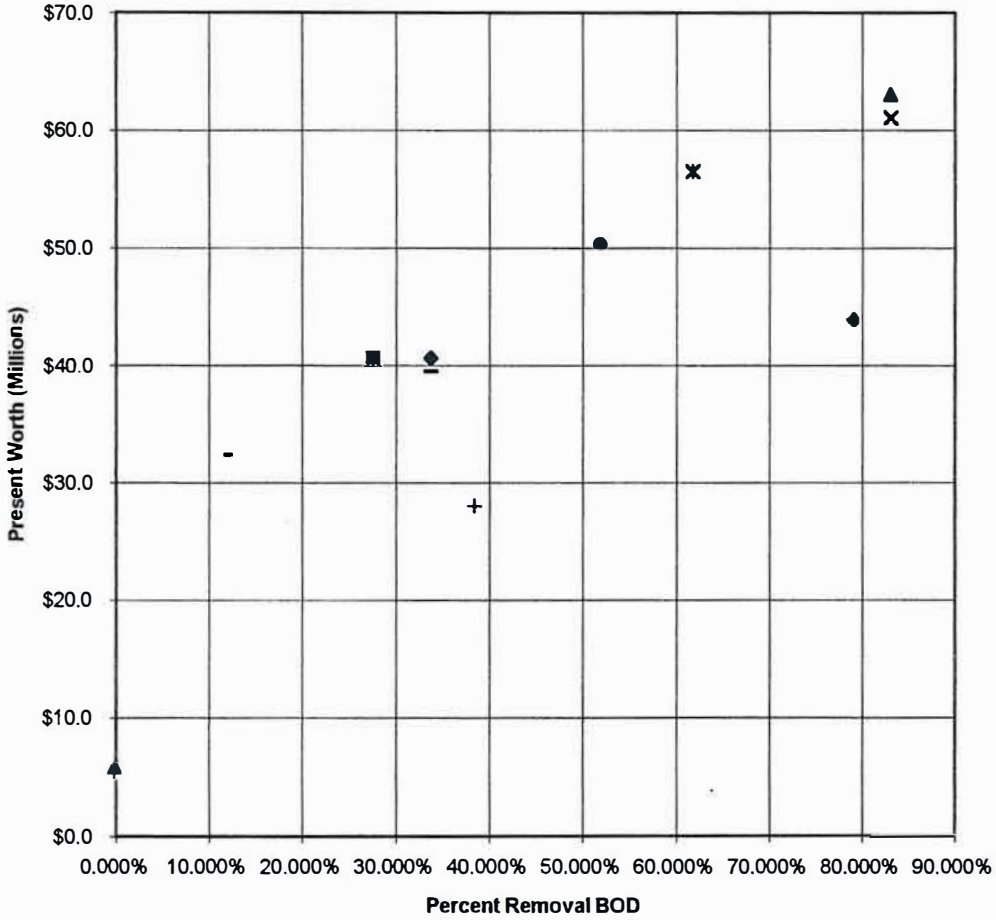
Reserved Channel Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



- ◆ RC1 Complete Sewer Separation (1)
- ▲ RC3 Consolidated Near Surface Storage Facility BOS076 to BOS080 (1-Yr)
- ✕ RC4 Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)
- ✱ RC5 Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)
- ● RC6 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)
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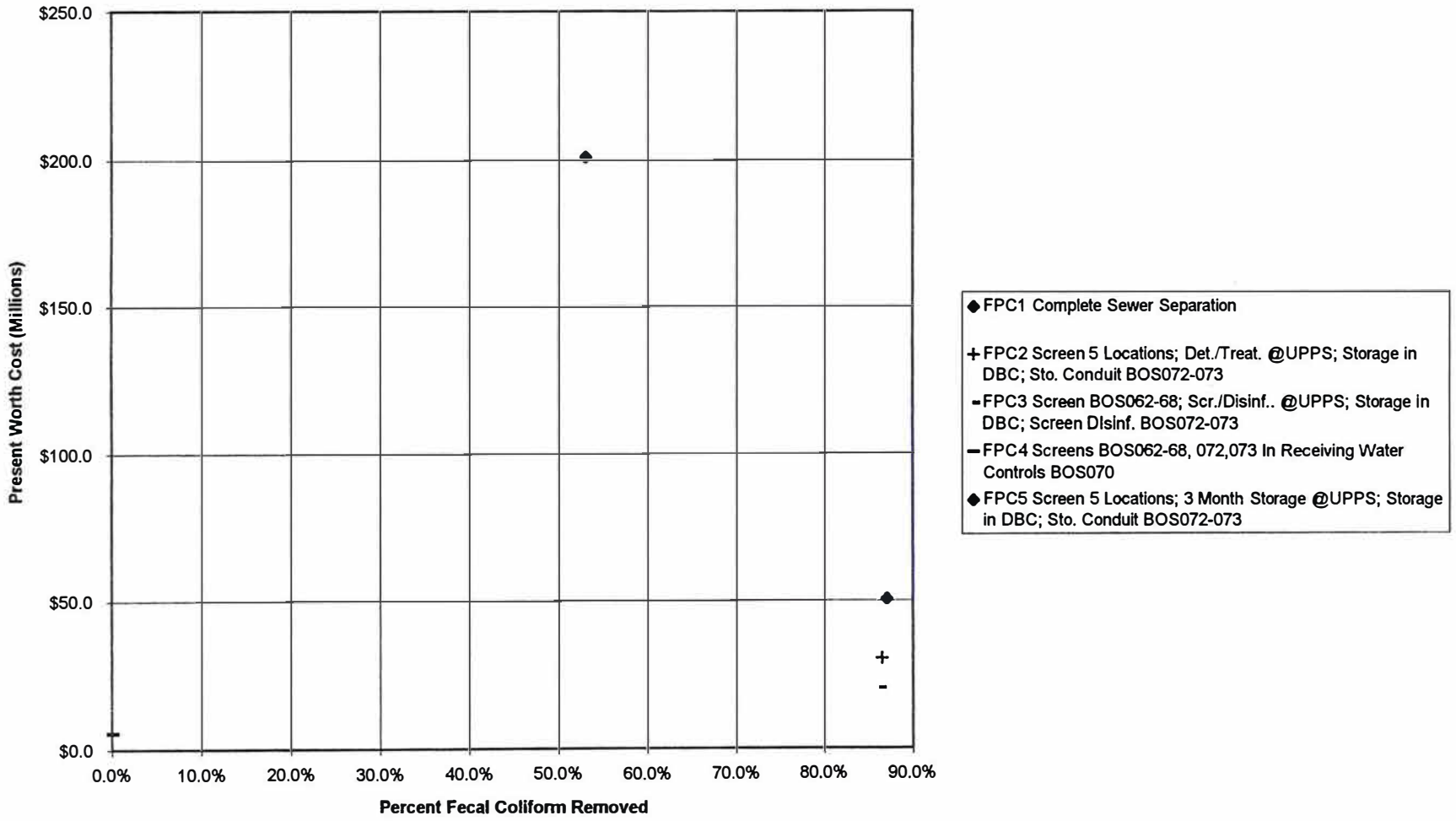
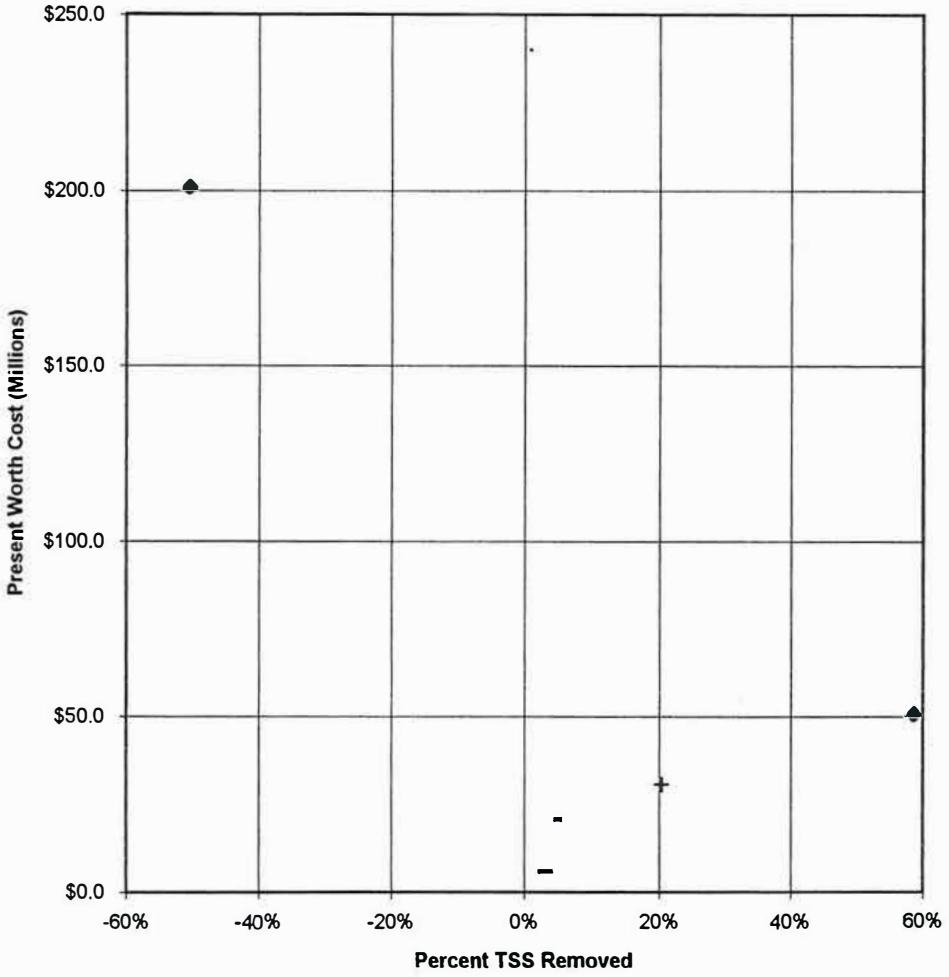
- ◆ RC10 Consolidated Near Surface Storage Facility BOS080 to BOS076 (3-Mo)
- ■ RC11 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (3-Mo)
- ▲ RC12 Coarse Screens @ Outfalls

Fort Point Channel Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

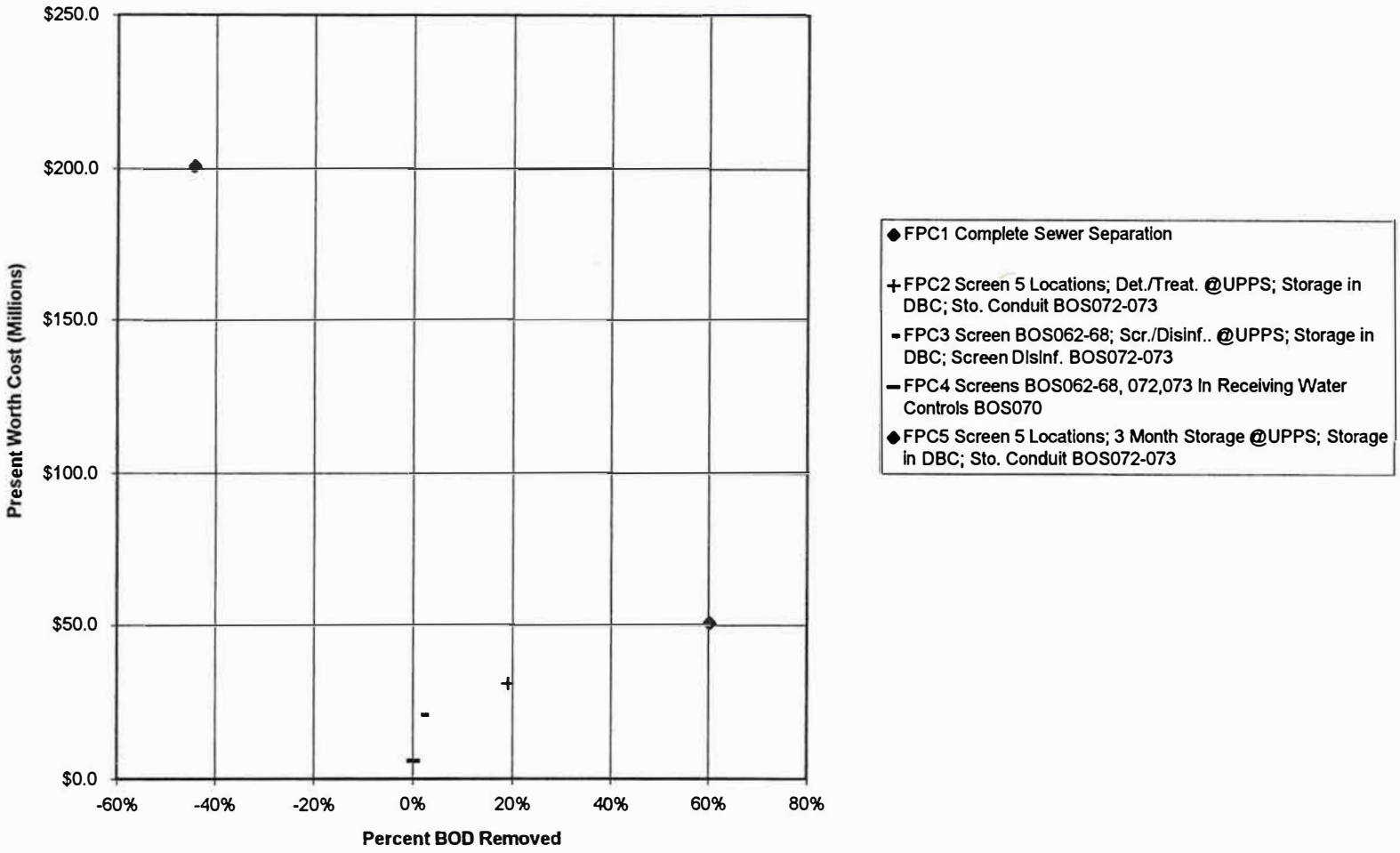


Fort Point Channel Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)

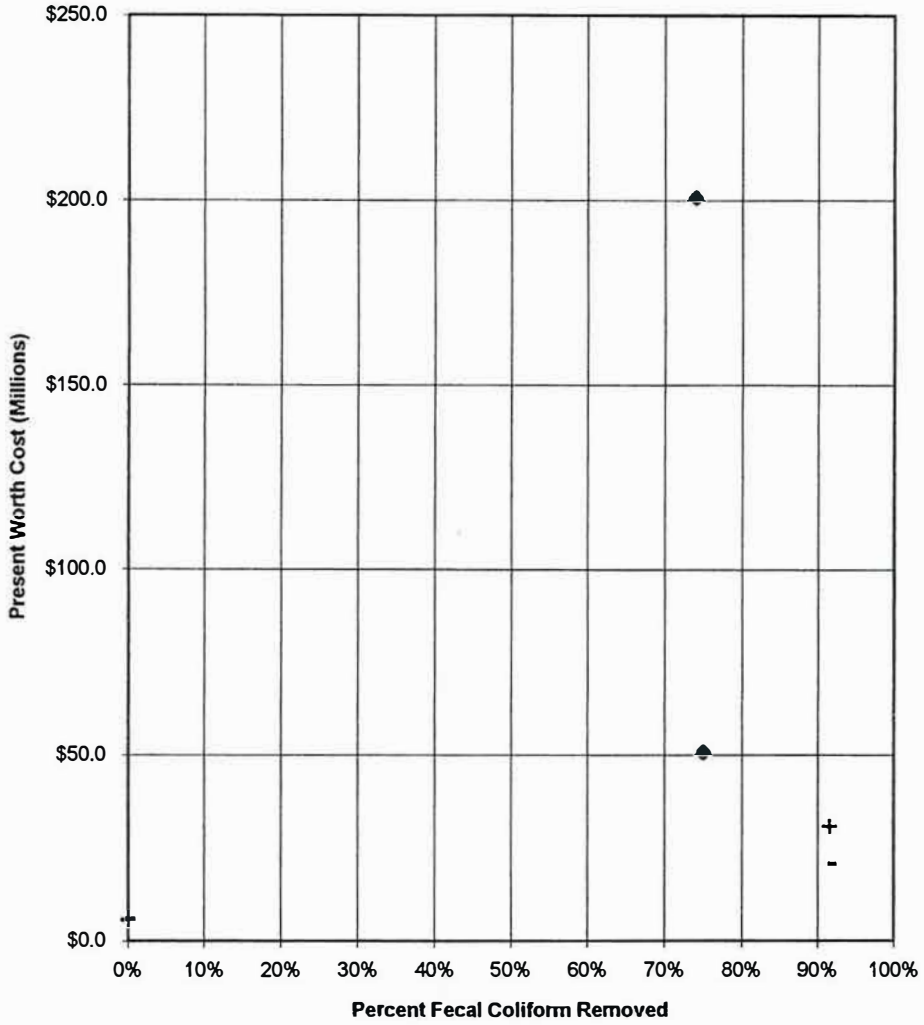


- ◆ FPC1 Complete Sewer Separation
- \+ FPC2 Screen 5 Locations; Det./Treat. @UPPS; Storage in DBC; Sto. Conduit BOS072-073
- \- FPC3 Screen BOS062-68; Scr./Disinf.. @UPPS; Storage in DBC; Screen Disinf. BOS072-073
- — FPC4 Screens BOS062-68, 072,073 In Receiving Water Controls BOS070
- ◆ FPC5 Screen 5 Locations; 3 Month Storage @UPPS; Storage in DBC; Sto. Conduit BOS072-073

Fort Point Channel Total Load Reductions as a Percent of Baseline Total Load (3-Month Storm)



Fort Point Channel Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



◆ FPC1 Complete Sewer Separation

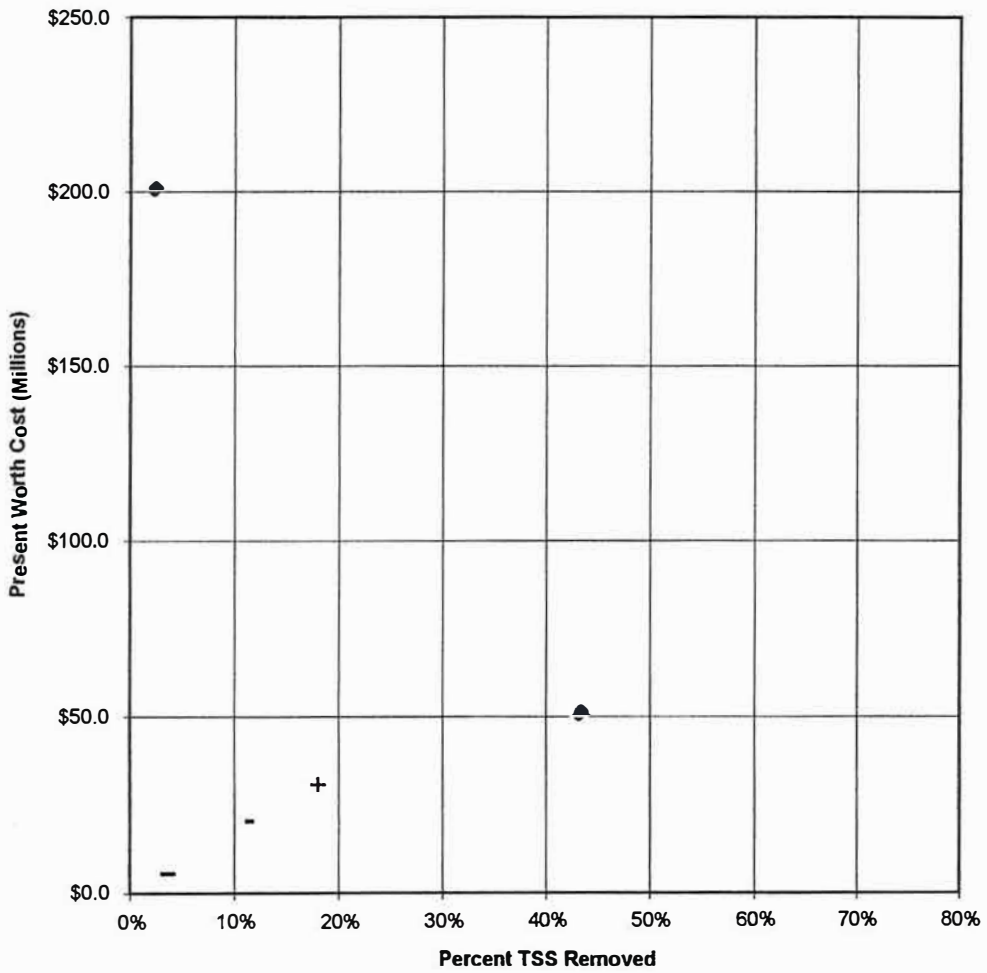
\+ FPC2 Screen 5 Locations; Det./Treat. @UPPS; Storage in DBC; Sto. Conduit BOS072-073

\- FPC3 Screen BOS062-68; Scr./Disinf.. @UPPS; Storage in DBC; Screen Disinf. BOS072-073

— FPC4 Screens BOS062-68, 072,073 In Receiving Water Controls BOS070

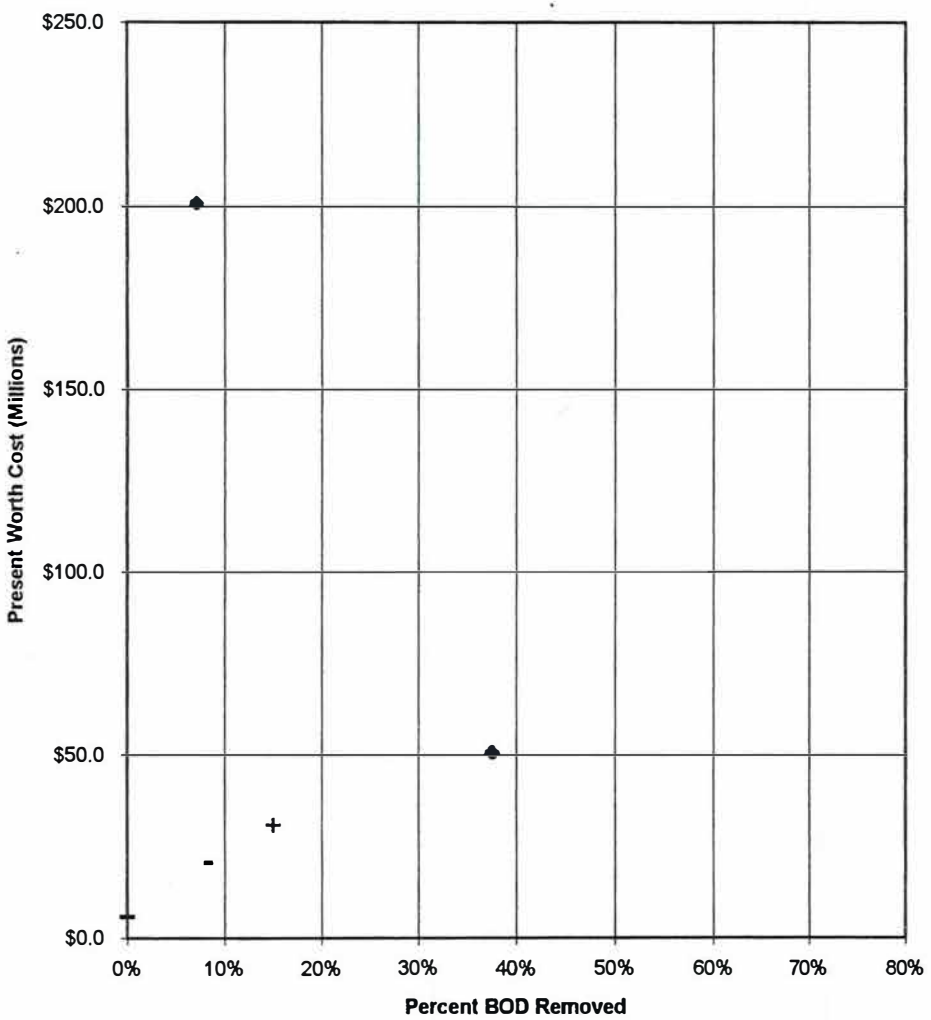
◆ FPC5 Screen 5 Locations; 3 Month Storage @UPPS; Storage in DBC; Sto. Conduit BOS072-073

Fort Point Channel Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



- ◆ FPC1 Complete Sewer Separation
- \+ FPC2 Screen 5 Locations; Det./Treat. @UPPS; Storage in DBC; Sto. Conduit BOS072-073
- \- FPC3 Screen BOS062-68; Scr./Disinf.. @UPPS; Storage in DBC; Screen DIsInf. BOS072-073
- — FPC4 Screens BOS062-68, 072,073 In Receiving Water Controls BOS070
- ◆ FPC5 Screen 5 Locations; 3 Month Storage @UPPS; Storage in DBC; Sto. Conduit BOS072-073

Fort Point Channel Total Load Reductions as a Percent of Baseline Total Load (1-Year Storm)



- ◆ FPC1 Complete Sewer Separation
- \+ FPC2 Screen 5 Locations; Det./Treat. @UPPS; Storage in DBC; Sto. Conduit BOS072-073
- \- FPC3 Screen BOS062-68; Scr./Disinf.. @UPPS; Storage in DBC; Screen Disinf. BOS072-073
- – FPC4 Screens BOS062-68, 072,073 In Receiving Water Controls BOS070
- ◆ FPC5 Screen 5 Locations; 3 Month Storage @UPPS; Storage in DBC; Sto. Conduit BOS072-073

APPENDIX H

WATER QUALITY IMPACTS OF CSO ALTERNATIVES

WATER QUALITY IMPACTS OF CSO ALTERNATIVES IN NORTH DORCHESTER BAY

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	NDB1 Sewer Separation		NDB2 CSO Relocation to Reserved Channel		NDB3 Consolidation/ Storage Conduit (1 Yr)	
Shellfishing	0	bacteria*	hours > 14*** (1)		(2)		(2)		(2)	
			after 1 yr storm	54.9	45.5		44.5		44.5	
			hours > 88 (1)		(2)		(1)		(1)	
			after 1 yr storm	29.0	20.7	2	17.6	1	17.6	1
		CSO proximity**	# outfalls within closure zone		(1)		(1)		(1)	
			active in 1 yr storm	6	0		0		0	
Swimming	0	bacteria	total 1 yr storm load	6.47 E13	3.60 E13		1.99 E13		1.99 E13	
			(CSO + SW)		(1)		(1)		(1)	
			hours > 200 (1)		(1)	1	(1)	1	(1)	1
			after 1 yr storm	20.7	8.3		3.1		3.1	
Boating	+	bacteria	hours > 1000 (1)		(1)		(1)		(1)	
			after 1 yr storm	5.2	0	1	0	1	0	1
Aquatic life	0	sediment	CSO + SW load TSS (lbs)		(3)		(1)		(1)	
			after 1 yr storm	8,010	9,830	3	5,440	2	5,440	2
			after 3 mo storm	3,890	6,260		3,481		3,481	
					(3)		(2)		(2)	
Alternative Performance			Level of Control		(1)		(1)		(2)	
					I		I		II	
			# of untreated overflows/yr		(1)		(1)		(2)	
				78	0	1	0	1	1 - 3	2
			Closure of CSOs		(1)		(2)		(2)	
				0	8		7		1 - 7	
			Treat stormwater		(2)		(2)		(2)	
				N	N		N		N	
Alternative Summary Rating					8		6		7	
Alternative Ranking					3		1		2	

*The duration of simulation period was 99.4 hours.

** DMF has a formula that calculates closure distance as fcn. of CSO flow, vol. of receiving water segment, and bacteria load (assuming total chorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing.

***OPEN shellfishing requires geom. mean fecal coliform counts below 14/100 ml

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

Reserved Channel currently has pretty good water quality in spite of a large CSO load, to which relocation would add only a little

No aesthetics parameters because currently no CSO-associated aesthetic problem observed in N. Dorchester Bay

(1) Model data at Carson Beach

0 Indicates non-attainment of use during wet weather

+ Indicates use is attained

WATER QUALITY IMPACTS OF CSO ALTERNATIVES IN NORTH DORCHESTER BAY

Use	Use Attainment	Parameter	Measures	NDB4 Interceptor Relieef: System Optimization 081,082 (1 Yr)		NDB5 Consolidation/Storage Conduit (3 Mo)	
Shellfishing	0	bacteria*	hours > 14*** (1) after 1 yr storm	(2) 44.5		(2)	
			hours > 88 (1) after 1 yr storm	(1) 17.6	1	(2)	2
		CSO proximity**	# outfalls within closure zone active in 1 yr storm	(1) 0		(2) 6 (est.)	
Swimming	0	bacteria	total 1 yr storm load (CSO+SW)	1.99 E13 (1)	1	4.31 E13 (1)	1
			hours > 200 (1) after 1 yr storm	(1) 3.1		(2)	
Boating	+	bacteria	hours > 1000 (1) after 1 yr storm	(1) 0	1	(2)	2
Aquatic life	0	sediment	CSO+SW load TSS (lbs) after 1 yr storm	(1) 5,440	2	(2) 6,710	2
			~~after 3 mo~~ storm	3,481 (2)		3,481 (2)	
Alternative Performance			Level of Control	(2) II		(2) II	
			# of untreated overflows/yr	(1) 0	(2)	(2) 4 - 7	(2)
			Closure of CSOs	(2) 0		(2) 1 - 7	
			Treat stormwater	(2) N		(2) N	
Alternative Summary Rating				7		9	
Alternative Ranking				2		3	

*The duration of simulation period was 99.4 hours.

** DMF has a formula that calculates closure distance as fcn. of CSO flow, vol. of receiving water segment, and bacteria load (assuming total chorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing.

***OPEN shellfishing requires geom. mean fecal coliform counts below 14/100 ml

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(1) Model data at Carson Beach

0 Indicates non-attainment of use during wet weather

+ Indicates use is attained

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR SOUTH DORCHESTER BAY

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	SDB1 Sewer Separation	SDB2 Indiv. Storage Tanks at BOS090, BOS088/089 (1 yr)	SDB3 Consolidated Storage Facility at Fox Point (1 yr)
Shellfishing	-	bacteria*	hours > 88 after 1 yr storm	MB: 45.6 TB: 46.6	(2) MB:44.5 TB: 44.5	(1)	(1)
		CSO proximity**	# outfalls within closure zone active in 1 yr storm	2	(1) 1 0	(1) 1 0	(1) 1 0
Swimming	-	bacteria	total 1 yr storm load (lbs) (CSO + stormwater)	1.46 E13	3.64 E13 (3)	1.34 E13 (2)	1.34 E13 (2)
			hours > 200 after 1 yr storm	MB: 35.2 TB: 38.3	(2) 3 MB: 33.1 TB: 34.1	(1) 2	(1) 2
Boating	0	bacteria	hours > 1000 after 1 yr storm	MB: 15.5 TB: 16.6	MB: 8.3 TB: 15.5 1 (2)	1 (1)	1 (1)
Aesthetics	0	slicks (solids, oil, scum)	vol. of "untreated" overflows*** after 1 yr storm (MG)	0	(1) 0	(1) 0	(1) 0
			after 3 mo storm (MG)	0	0 (1)	0 (1)	0 (1)
			CSO TSS load (plumes) (lbs) after 1 yr storm	23,100	(1) 0	(1) 0	(1) 0
			after 3 mo storm	8,370	1 0 (1)	1 0 (1)	1 0 (1)
		odor	vol. of CSO (MG) after 1 yr storm	19.76	(1) 0	(1) 0	(1) 0
			after 3 mo storm	7.17	0 (1)	0 (1)	0 (1)
Aquatic life	0	sediment	CSO + SW load TSS (lbs) after 1 yr storm	26,700	(1) 9,900	(1) 3,600	(1) 3,600
			after 3 mo storm	11,300	1 6,880 (1)	1 2,930 (1)	1 2,930 (1)
Alternative Performance			Level of Control		(1) I	(2) II	(2) II
			# of untreated overflows/yr	0	(1) 0 (1)	(1) 0 (2)	(1) 0 (2)
			Closure of CSOs	0	(1) 3	(2) 1	(2) 1 - 2
			Treat stormwater ****	Y	(3) N	(1) Y	(1) Y
Alternative Summary Rating					8	8	8
Alternative Ranking					1	1	1

*The duration of simulation period was 99.4 hours.
Sample locations at Malibu Beach (MB) and Tenean Beach (TB).

** DMF has a formula that calculates closure distance as fcn. of CSO flow, vol. of receiving water segment, and bacteria load (assuming total chlorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing.

***"untreated" overflows defined as receiving coarse screening, only, or less.

****Stormwater is presently being treated at the existing Fox Point and Commercial Point.

- Indicates non-attainment of use during wet and dry weather

O Indicates non-attainment of use during wet weather

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR SOUTH DORCHESTER BAY

Use	Use Attainment	Parameter	Measures	SDB4 Indiv. Primary Treat at BOS090 BOS088/089 (1yr)	SDB5 Upgrade Existing Facilities for Dechlorination (1 Yr)	SDB6 Indiv. Storage Tanks at BOS090, BOS088/089 (3 mo)	SDB7 Consolidated Storage Facility at Fox Point (3 mo)	SDB8 Indiv. Primary Treat at BOS090 BOS088/089 (3 mo)
Shellfishing	-	bacteria*	hours > 88 after 1 yr storm	(2) MB: 43.5 TB: 44.5	(2)	(1)	(1)	(1)
		CSO proximity**	# outfalls within closure zone active in 1 yr storm	(2) 2	(2) 2	(2) 2	(2) 2	(2) 2
Swimming	-	bacteria	total 1 yr storm load (lbs) (CSO + stormwater)	1.39 E13 (2)	1.46 E13 (2)	1.42 E13 (2)	1.42 E13 (2)	1.43 E13 (2)
			hours > 200 after 1 yr storm	(2) MB: 33.1 TB:34.1	(1)	(1)	(1)	(2)
Boating	0	bacteria	hours > 1000 after 1 yr storm	MB: 7.2 TB: 15.5 (2)	(1)	(1)	(1)	(1)
Aesthetics	0	slicks (solids, oil, scum)	vol. of "untreated" overflows*** after 1 yr storm (MG)	(1) 0	(1) 0	(1) 0	(1) 0	(1) 0
			after 3 mo storm (MG)	0 (1)	0 (1)	0 (1)	0 (1)	0 (1)
			CSO TSS load (plumes) (lbs) after 1 yr storm after 3 mo storm	(1) 9,710 890 (1)	(2) 21,900 7,950 (2)	(1) 14,400 0 (1)	(1) 14,400 0 (1)	(2) 16,300 2,360 (1)
		odor	vol. of CSO (MG) after 1 yr storm after 3 mo storm	(2) 13.86 1.27 (1)	(2) 19.76 7.17 (2)	(1) 12.59 0 (1)	(1) 12.59 0 (1)	(1) 15.96 3.37 (1)
Aquatic life	0	sediment	CSO + SW load TSS (lbs) after 1 yr storm after 3 mo storm	(1) 13,300 3820 (1)	(2) 25,550 10,881 (2)	(1) 17,590 2,930 (1)	(1) 17,590 2,930 (1)	(2) 19,950 5,290 (1)
Alternative Performance			Level of Control	(2) II	(2) II	(2) II	(2) II	(2) II
			# of untreated overflows/year	(1) 0 (2)	(1) 0 (2)	(1) 0 (2)	(1) 0 (2)	(1) 0 (2)
			Closure of CSOs	(2) 0	(2) 0	(2) 0	(2) 0	(2) 0
			Treat stormwater	(2) Y	(2) Y	(2) Y	(2) Y	(2) Y
Alternative Summary Rating				10	11	8	8	9
Alternative Ranking				3	3	1	1	2

*The duration of simulation period was 99.4 hours.
Sample locations at Malibu Beach (MB) and Tenean Beach (TB).

** DMF has a formula that calculates closure distance as fcn. of CSO flow, vol. of receiving water segment, and bacteria load (assuming total chlorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing.

***"untreated" overflows defined as receiving coarse screening, only, or less.

****Stormwater is presently being treated at the existing Fox Point and Commercial Point.

- Indicates non-attainment of use during wet and dry weather

O Indicates non-attainment of use during wet weather

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR NEPONSET RIVER

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	N1 Sewer Separation		N2 Indiv. Near Surface Storage Tanks at BOS095 & 093 (1 Yr)		N3 Storage at BOS093 and Primary Treat at BOS095 (1 Yr)	
Shellfishing	-	bacteria*	hours > 88**** after 1 yr storm	46.6	(2) 44.5	2	(2) 44.5	2	(1)	1
		CSO proximity**	# outfalls w/in closure zone	2	0 (1)		0 (1)		1 (1)	
Swimming	0	bacteria	total 1 yr storm load (CSO+SW)	6.85 E13	1.30 E13 (1)	2	1.21 E13 (1)	2	1.22 E13 (1)	1
			hours > 200 after 1 yr storm	38.3	(2) 34.1		(2) 34.1		(1)	
Boating	-	bacteria	hours > 1000 after 1 yr storm	16.6	15.5 (2)	2	15.5 (2)	2	(1)	1
Aesthetics	-	slicks (solids, oil, scum)	vol. of overflows***(MG)		(1)		(1)		(1)	
			after 3 mo storm	0.33	0		0		0	
			after 1 yr storm	2.77	0 (1)	1	0 (1)	1	0 (1)	1
			CSO TSS load (plumes) (lbs)		(1)		(1)		(1)	
			after 3 mo storm	385	0		0		0	
			after 1 yr storm	3,230	0 (1)		0 (1)		1,320 (1)	
Alternative Performance			Level of Control	-	I (1)		II, 1 yr. (2)		II, 1yr. (2)	
			# of untreated overflows/yr	17	0 (1)	1	1-3 (2)	2	1-3 (BOS093) (2)	2
			Closure of CSOs	0	2 (1)		0 (3)		0 (3)	
			Treat stormwater	N	N (2)		N (2)		N (2)	
Alternative Summary Rating					8		9		6	
Alternative Ranking					2		2		1	

*The duration of simulation period was 99.4 hours.

**DMF has a formula that calculates closure distance as fcn. of CSO flow, vol. of receiving water segment, and bacteria load (assuming total chorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing.

***"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow; assumed to be locations which receive coarse screening only.

No aquatic life CSO issues in this segment, provided there are no chlorinated discharges

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

***Rec. water modeling of Neponset River estuary is unavailable so assume = effects at Tenean Beach

- Indicates non-attainment of use during wet and dry weather.

0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR NEPONSET RIVER

Use	Use Attainment	Parameter	Measures	N4 Consolidation Near Surface Primary Treat Near BOS093 (1 Yr)		N5 Indiv. Screen / Disinfect/ Dechlor at BOS093, 095 (1 Yr)		N6 Indiv. Storage Tanks at BOS095, 093 (3 Mo)		N7 Coarse Screen at Outfalls	
Shellfishing	-	bacteria*	hours > 88**** after 1 yr storm	(2)		(1)		(1) 44		(2)	
		CSO proximity**	# outfalls w/in closure zone	1 (1)	2	2 (2)	2	2 (2)	2	2 (2)	2
Swimming	0	bacteria	total 1 yr storm load (CSO+SW)	1.21 E13 (1)		1.26 E13 (1)		1.26 E13 (1)		6.85 E13 (2)	
			hours > 200 after 1 yr storm	(2)	2	(1)	1	(1) 35	1	(2)	2
Boating	-	bacteria	hours > 1000 after 1 yr storm	(2)	2	(1)	1	15 (1)	1	(2)	2
Aesthetics	-	slicks (solids, oil, scum)	vol. of overflows*** (MG) after 3 mo storm	(1) 0		(1) 0		(1) 0		(2) 0.33	
			after 1 yr storm	0 (1)	1	0 (1)	2	0 (1)	1	2.77 (2)	2
			CSO TSS load (plumes) (lbs) after 3 mo storm	(1) 0		(2) 366		(1) 0		(2) 366	
			after 1 yr storm	736 (1)		3,070 (2)		2,710 (2)		3,070 (2)	
Alternative Performance			Level of Control	II, 1 yr. (2)		II, 1yr. (2)		II, 3 mo. (2)		III (3)	
			# of untreated overflows/yr	0 (1)		0 (1)		0 (1)		17 (3)	
			Closure of CSOs	0-1 (2)	2	0 (3)	2	0 (3)	2	0 (3)	3
			Treat stormwater	N (2)		N (2)		N (2)		N (2)	
Alternative Summary Rating				5		6		7		11	
Alternative Ranking				2		2		2		3	

*The duration of simulation period was 99.4 hours.

**DMF has a formula that calculates closure distance as fcn. of CSO flow, vol. of receiving water segment, and bacteria load (assuming total chorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing.

****"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow; assumed to be locations which receive coarse screening only.

No aquatic life CSO issues in this segment, provided there are no chlorinated discharges

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

***Rec. water modeling of Neponset River estuary is unavailable so assume = effects at Tenean Beach

- Indicates non-attainment of use during wet and dry weather.

0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR CONSTITUTION BEACH

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	CB-1 Complete Sewer Separation	CB-2 Moore St. Interceptor Relief (1 year)	CB-3 Near Surface Storage (1 year)	CB-4 Near Surface Storage (3 month)
Shellfishing	0	bacteria*	hours > 14 after 1 yr storm	BH2: 43.5 BHD: 60.0 BHC: 60.1	42.5 (2) 60.0 59.9 — 2	42.5 (2) 60.0 59.9 — 2	42.5 (2) 60.0 59.9 — 2	(2) NA — 2
			hours > 88 after 1 yr storm	BH2: 5.2 BHD: 38.3 BHC: 38.4	5.2 (2) 38.3 38.2	5.2 (2) 38.3 38.2	5.2 (2) 38.3 38.2	(2) NA
		CSO proximity**	# outfalls within closure zone active in 1 yr storm	1	0 (1)	0 (1)	0 (1)	1 (2)
Swimming	0	bacteria	1 yr CSO + SW load (lbs)	6.05E+15	6.28E+15 (2) — 2	6.04E+15 (2) — 2	6.04E+15 (2) — 2	6.05E+15 (2) — 2
			hours > 200 after 1 yr storm	BH2: 0.0 BHD: 26.9 BHC: 28.0	0.0 (2) 27.9 28.9	0.0 (2) 27.9 28.9	0.0 (2) 27.9 28.9	(2) NA
Boating	+	bacteria	hours > 1000 after 1 yr storm	BH2: 0.0 BHD: 0.0 BHC: 2.1	0.0 (1) 0.0 — 1 1.0	0.0 (1) 0.0 — 1 1.0	0.0 (1) 0.0 — 1 1.0	(2) NA — 2
Alternative Performance			Level of Control		(1) I	(2) II	(2) II	(2) II
			# of untreated overflows/year***	16	(1) 0	(2) 1 - 3	(2) 1 - 3	(2) 4 - 8
			Closure of CSOs	0	(1) — 1 1	(3) — 2 0	(3) — 2 0	(3) — 2 0
			Treat stormwater	N	(2) N****	(2) N	(2) N	(2) N
Alternative Summary Rating					6	7	8	8
Alternative Ranking					1	2	2	3

*The duration of simulation was 99.4 hours.
Sample locations along the east shore of Logan Airport (BH2), at Orient Heights Beach (BHD), and near outfall MWR 207 (BHC).

**DMF formula ranking calculates closure distance as a function of CSO flow, volume of receiving water segment and bacteria load (assuming total chlorination failure); number of outfalls indicated are within closure zone for unrestricted shellfishing

***"untreated" overflows defined as receiving coarse screening only, or less.

****Potential to treat separated stormwater through existing Constitution Beach CSO Facility, would otherwise be abandoneed

\+ Indicates designated use is attained.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR UPPER CHARLES

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	UC1 Sewer Separation		UC2 Sewer Separation at CAM005, 009, BOS032		UC3 Storage at CAM005, CAM009 (1 Yr); Enlarge Int Conn @ BOS032	
Boating	0	bacteria *	hours >1000 after 1-yr storm	72.4	(2) 72.4	2	(2) 72.4	2	(2) 73.5	2
Swimming (sailboarding)	-	bacteria *	Tot. 1-yr Storm Load (lbs)	2.75 E16	(3) 3.17 E16	3	(3) 2.91 E16	3	(2) 2.41 E16	2
			hours > 200 after 1-yr storm	99.3	99.3 (2)		99.3 (2)		99.4 (2)	
Aesthetics	-	slicks (solids, oil, scum) small floatables	Volume of "untreated" overflows ** after 3-mo. storm (MG)	0.02	(1) 0	1	(1) 0	1	(1) 0	1
			after 1-yr. storm (MG)	1.67	0 (1)		0 (1)		0 (1)	
Aquatic Life	-	nutrients	CSO+SW load P (lbs) after 3 mo. storm	470	(3) 605		(3) 554		(2) 469	
			after 1 yr. storm	796	990 (3)		908 (3)		753 (2)	
		sediment	Boundary+CSO+SW load TSS (lbs) after 3 mo. storm	59,400	(3) 71,200	3	(3) 66,760	3	(2) 59,423	2
			after 1 yr. storm	89,400	108,200 (3)		101,000 (3)		87,450 (2)	
Alternative Performance			Level of Control	-	I (1)		II, 1 yr. (2)		II, 1 yr. (2)	
			# of untreated overflows/year	12	0 (1)		1-3 (2)		1-3 (2)	
			Closure of CSOs	-	6 (1)	1	0-3 (2)	2	0 (3)	2
			Treat stormwater	-	NO (2)		NO (2)		NO (2)	
Alternative Summary Rating					10		11		9	
Alternative Ranking					2		3		1	

*The duration of simulation period was 99.4 hours.
Sample location at Weld boathouse.
**"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow.
***Cottage Farm CSO has been observed to cause DO depression after storm
Cottage Farm currently has visible boil because of its large size relative to river flow & depth
To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well
Cottage Farm and Stony Brook are poorly mixed because of their large size relative to river flow

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR UPPER CHARLES

Use	Use Attainment	Parameter	Measures	UC4 Screen/Disin at Cam005,009, BOS032		UC5 Screening at CAM005, 009, BOS032	
Boating	0	bacteria*	hours >1000 after 1-yr storm	(2) 72.4	2	(2) 72.4	2
Swimming (sailboarding)	-	bacteria*	Tot. 1-yr Storm Load (lbs)	(2) 2.75 E16	2	(2) 2.75 E16	2
			hours > 200 after 1-yr storm	99.3 (2)		99.3 (2)	
Aesthetics	-	slicks (solids, oil, scum) small floatables	Volume of "untreated" overflows ** after 3-mo. storm (MG)	(1) 0	1	(2) 0.02	2
			after 1-yr. storm (MG)	0 (1)		1.67 (2)	
Aquatic Life	-	nutrients	CSO+SW load P (lbs) after 3 mo. storm	(2) 470	2	(2) 470	2
			after 1 yr. storm	796 (2)		796 (2)	
		sediment	Boundary+CSO+SW load TSS (lbs) after 3 mo. storm	(2) 59,400		(2) 59,400	
			after 1 yr. storm	89,400 (2)		89,400 (2)	
Alternative Performance			Level of Control	II, 1 yr. (2)		III (3)	
			# of untreated overflows/year	0 (1)	2	12 (3)	3
			Closure of CSOs	0 (3)		0 (3)	
			Treat stormwater	NO (2)		NO (2)	
Alternative Summary Rating				9		11	
Alternative Ranking				1		3	

*The duration of simulation period was 99.4 hours.
Sample location at Weld boathouse.
**"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow.
***Cottage Farm CSO has been observed to cause DO depression after storm
Cottage Farm currently has visible boil because of its large size relative to river flow & depth
To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well
Cottage Farm and Stony Brook are poorly mixed because of their large size relative to river flow

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0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR LOWER CHARLES

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	LC1 Sewer Separation	LC2 Stony Brook cons. to storage; Cottage Farm storage, 1-yr	LC3 Stony Brook cons. to storage w/divers. at 046-381; Cottage Farm storage, 3-mo	LC4 Stony Brook cons. to screen/ disinfect.; Cottage Farm storage, 3-mo	LC5 Stony Brook screen/ disinfection of SBC; Cottage Farm detention/ disinfection	LC6 Stony Brook Conduit Swirl, foul flow pump to HLS, C.F. detention/ disinfection
Swimming (sailboarding)	-	bacteria *	Tot 1 Yr Storm Load (lbs) (CSO, SW, Boundary)	6.12 E14	2.86 E14 (1) 2	1.81 E14 (1) 2	1.87 E14 (1) 1	1.89 E14 (1) 2	1.35E+14 (1) 2	1.35 E14 (1) 2
			hours > 200 after 1 yr storm	99.3	(2) 99.3	(2) 99.3	(2) 99.3	(2) 99.3	(2) 99.3	(2)
Boating	0	bacteria *	hours > 1000 after 1 yr storm	80.7	(2) 2 58.0	(1) 1 37.3	(2) 2	(2) 2 39	(2) 2 43	(2) 2
Aesthetics	-	slicks (solids, oil, scum)	vol. of untreated CSO after 1 yr storm	19.9	(1) 0	(1) 2.1	(2) 3.6	(2) 3.6	(2) 1.5	(2) 1.5
			after 3 mo storm	3.72	0 (1)	0 (1)	0 (1)	0 (1)	0 (2)	0 (2)
			CSO TSS load (plumes)(lbs) after 1 yr storm	53,780	(1) 0	(1) 0	(1) 36,300	(2) 46,300	(2) 51,100	(2) 47,800
			after 3 mo storm	15,564	0 (1) 1	0 (1) 1	0 (1) 1	10,000 (1) 2	14,800 (2) 2	14,000 (2) 2
		algae blooms	total load P (SW+CSO) (lbs) after 1 yr storm	1592	(1) 732	(1) 398	(2) 1,242	(2) 1481	(2) 1,592	(2) 1,433
			after 3 mo storm	602	448 (2)	259 (1)	259 (1)	493 (2)	602 (2)	542 (2)
Aquatic life	-	DO -BOD	total storm BOD (lbs) after 1 yr storm	133,000	(2) 118,000	(2) 103,000	(2) 124,350	(2) 130,200	(2) 133,000	(2) 131,070
			after 3 mo storm	94,400	93,964 (2)	85,330 (2)	85,330 (2)	91,200 (2)	94,400 (2)	93,519 (2)
			CSO BOD*** (lbs) after 1 yr storm	30,000	(1) 0	(1) 0	(2) 21,300	(2) 27,200	(2) 30,000	(2) 28,000
			after 3 mo storm	8,670	0 (1)	0 (1)	0 (1)	5,870 (1)	8,670 (2)	8,200 (2)
		nutrients	CSO+SW load P (lbs) after 1 yr storm	1,592	(1) 2 732	(1) 1 398	(2) 2 1,242	(2) 2 1,481	(2) 2 1,592	(2) 2 1,433
			after 3 mo storm	602	448 (2)	259 (1)	259 (1)	493 (2)	602 (2)	542 (2)
		sediment	CSO+SW load TSS (lbs) after 1 yr storm	140,000	(2) 116,100	(1) 86,200	(2) 122,600	(2) 132,540	(2) 137,310	(2) 132,300
			after 3 mo storm	82,600	83,640 (2)	67,000 (2)	67,000 (2)	77,050 (2)	81,822 (2)	80,010 (2)
Alternative Performance			Level of Control	-	I (1)	II, 1 yr. (2)	II, 3 mo. (2)	II, 3 mo. (3)	II, 1 YR (3)	II, 1 YR (3)
			# of untreated overflows/yr **	30	0 (1) 1	1-3 (2) 2	4-7 SB 0 CF (2) 2	0 (1) 2	0 (1) 2	0 (1) 2
			Closure of CSOs	-	9 (a) (1)	2-7 (b) (2)	2-7 (b) (2)	2-7 (b) (2)	2-7 (b) (2)	2-7 (b) (2)
			Treat atormwater	-	NO (2)	NO (2)	NO (2)	NO (2)	YES (1)	YES (1)
Alternative Summary Rating					8	7	8	10	10	10
Alternative Ranking					2	1	2	3	3	3

*The duration of simulation period was 99.4 hours. Sample location at the Community Boating boathouse

**"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow. floatables are not controlled in the overflow.

***Cottage Farm CSO has been observed to cause DO depression after atorm

Cottage Farm currently has visible boil because of its large size relative to river flow & depth

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

Cottage Farm and Stony Brook are poorly mixed because of their large aize relative to river flow

- Indicates non-attainment of use during wet and dry weather.

0 Indicates non-attainment of use during wet weather.

(a) CSOs BOS028, BOS049, CAM017 provide relief for the Prison Point CSO Facility, and may not be closed as a result of separation of areas tributary to Stony Brook and Cottage Farm.

(b) CSOs BOS042 and MWR010 can be closed based on SOP Report findings. From 0 to 5 of outfalls MWR018 to MWR022 may be closed.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR ALEWIFE BROOK

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	AB1 Sewer Separation		AB2 Consolidated Near Surface Storage Facility (1-yr)		AB3 Consolidation/Storage Conduit (1 Yr)		AB4 Consolidated Near Surface Storage w/ Separation at CAM 004 (1 Yr)	
Boating	-	bacteria *	total 1 yr storm load	1.81 E14	1.2 E14 (1)	1	0.77 E14 (1)	1	0.77 E14 (1)	1	0.83 E14 (1)	1
Swimming	-		total 3 mo. storm load	6.73 E13	7.57 E13 (3)	3	4.9 E13 (1)	1	4.9 E13 (1)	1	5.29 E13 (2)	2
Aesthetics	-	small floatables (toilet paper)	vol. "untreated" overflows**		(1)		(1)		(1)		(1)	
			after 3 mo storm (MG)	0.9	0	1	0	1	0	1	0	1
			after 1 yr storm (MG)	5.1	0 (1)		0 (1)		0 (1)		0 (1)	
Aquatic life	-	nutrients	CSO+SW load P (lbs)		(3)		(2)		(2)		(2)	
			after 3 mo storm	177	238		154		154		185	
			after 1 yr storm	372	374 (2)	3	242 (1)	2	242 (1)	2	324 (2)	2
		sediment	CSO+SW load TSS (lbs)		(3)		(2)		(2)		(2)	
			after 3 mo storm	14,400	20,640		13,350		13,350		14,430	
			after 1 yr storm	27,000	32,710 (3)		21,050 (2)		21,050 (2)		22,770 (2)	
Alternative Performance			Level of Control	-	I (1)		II, 1 yr. (2)		II, 1yr. (2)		II, 1 yr. (2)	
			# of untreated overflows/year	16	0 (1)	1	1-3 (2)	2	1-3 (2)	2	1-3 (2)	2
			Closure of CSOs	-	11 (1)		0-9 (2)		0-9 (2)		0-9 (2)	
			Treat stormwater	-	NO (2)		NO (2)		NO (2)		NO (2)	
Alternative Summary Rating					9		7		7		8	
Alternative Ranking					2		1		1		2	

*The duration of simulation period was 99.4 hours.

**"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow.

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

- Indicates non-attainment of use during wet and dry weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR ALEWIFE BROOK

Use	Use Attainment	Parameter	Measures	AB5 Consolidation/Storage Conduit w/ Separation at CAM 004 (1 Yr)		AB6 Separation of CAM 004 (3-mo)		AB7 Consolidation/Storage Conduit (3 Mo)		AB8 Coarse Screening at Outfalls	
Boating	-	bacteria *	total 1 yr storm load	0.83 E14 (1)	1	1.38 E14 (2)	2	1.63 E14 (2)	2	1.81 E14 (2)	2
Swimming	-		total 3 mo. storm load	5.29 E13 (2)	2	5.30 E13 (2)	2	4.90 E13 (1)	1	6.73 E13 (2)	2
Aesthetics	-	small floatables (toilet paper)	vol. "untreated" overflows**	(1)		(1)		(1)		(2)	
			after 3 mo storm (MG)	0	1	0	1	0	2	0.9	2
			after 1 yr storm (MG)	0 (1)		2.7 (1)		4.2 (2)		5.1 (2)	
Aquatic life	-	nutrients	CSO + SW load P (lbs)	(2)		(2)		(2)		(2)	
			after 3 mo storm	190		190		154		177	
			after 1 yr storm	324 (2)	2	391 (2)	2	350 (2)	2	372 (2)	2
		sediment	CSO + SW load TSS (lbs)	(2)		(2)		(2)		(2)	
			after 3 mo storm	14,430		14,444		13,350		14,400	
			after 1 yr storm	22,770 (2)		25,760 (2)		25,700 (2)		27,000 (2)	
Alternative Performance			Level of Control	II, 1yr. (2)		II, 3 mo. (2)		II, 3 mo. (2)		III (3)	
			# of untreated overflows/year	1-3 (2)		4-7 (2)		4-7 (2)		16 (3)	
			Closure of CSOs	0-9 (2)	2	0-9 (2)	2	0-9 (2)	2	0 (3)	3
			Treat stormwater	NO (2)		NO (2)		NO (2)		NO (2)	
Alternative Summary Rating				8		9		9		11	
Alternative Ranking				2		2		2		3	

*The duration of simulation period was 99.4 hours.

**"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow.

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

- Indicates non-attainment of use during wet and dry weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR UPPER MYSTIC RIVER

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	UM -1 Sewer Separation of SOM007 and CSO Relocation	UM-2 Sewer Separation of SOM007 and Continue Treatment at SOM007A
Swimming (sailboarding)	-	bacteria *	Tot 1 Yr Storm Load (lbs) ***	2.83E+14	1.68E+14 (1)	2.22E+14 (2)
Aesthetics	-	slicks (solids, oil, scum)	Vol. of "untreated" overflows **		(2)	
			after 1 yr storm	0.03	0.00	0.00
			after 3 mo storm	0.00	0.00 (2)	0.00 (2)
Aquatic life	-	sediment	Total TSS load (lbs) ***		(1)	
			after 1 yr storm	23,900	13,500	20,900
			after 3 mo storm	13,300	11,200 (1)	11,140 (2)
Alternative Performance			Level of Control		(1) I	(2) II
			# of untreated overflows/yr **	2	(1) 0 (1)	(1) 0 (2)
			Closure of CSOs	0	(1) 2	(2) 1
			Treat stormwater	N	(2) N	(2) N
Alternative Summary Rating					7	9
Alternative Ranking					1	2

*The duration of simulation period was 99.4 hours.
**"untreated" overflows defined as receiving coarse screening only, or less
***Total load includes CSO, stormwater, and boundary load

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR UPPER INNER HARBOR

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	UIH-1 Complete Sewer Separation		UIH-2 Consolidation and Storage (1 yr)		UIH-3 Consolidation and Primary Treat (1yr)	
Swimming (sailboarding)	-	bacteria *	Tot 1 Yr Storm Load (lbs) ***	1.77E+16	(1) 5.70E+15	1	(1) 3.40E+15	1	(1) 3.50E+15	1
			hours > 200 after 1 yr storm	38.3	(1) 22.8		(1) NA		(1) NA	
Boating	0	bacteria	hours > 1000 after 1 yr storm	0.0	(2) 0.0	2	(2) 0.0	2	(2) 0.0	2
Aesthetics	-	slicks (solids, oil, scum)	vol. of "untreated" overflows (MG) **		(1)		(1)		(1)	
			after 1 yr storm	5.81	0		0		0	
			after ~~3 mo storm~~	1.46	0		0		0	
					(1)		(1)			
			CSO TSS load (plumes)(lbs)		(1)	1	(1)	1		1
			after 1 yr storm	48,600	0		0		19,300	
			after 3 mo storm	18,200	0		0		1100	
					(1)		(1)			
Aquatic life	-	DO -BOD	total BOD load (lbs) ***		(1)		(1)		(1)	
			after 1 yr storm	159,000	131,000		132,000		146,000	
			after 3 mo storm	111,000	103,000		101,000		102,000	
					(2)		(2)		(2)	
		sediment	Total TSS load (lbs) ***		(1)	2	(1)	2	(2)	2
			after 1 yr storm	134,000	91,700		85,400		105,000	
			after 3 mo storm	82,800	68,400		64,600		65,700	
					(2)		(2)		(2)	
Alternative Performance			Level of Control	-	(1) I		(2) II		(2) II	
			# of untreated overflows/year	36	(1) 0	1	(2) 1 - 3	2	(2) 1 - 3	2
			Closure of CSOs	0	(1) 10		(2) 0 - 3		(2) 0 - 3	
			Treat stormwater	N	(2) N		(2) N		(2) N	
Alternative Summary Rating					7		8		8	
Alternative Ranking					1		2		2	

*The duration of simulation period was 99.4 hours.
Sample location at the mouth of Charles River.
**"untreated" overflows defined as receiving coarse screening only, or less
***Total load includes CSO, stormwater, and boundary loads.

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR UPPER INNER HARBOR

Use	Use Attainment	Parameter	Measures	UIH-4 EBBS Interceptor Relief; Storage at MWR203 (3 mo)	UIH-5 Consolidation and Primary Treat (3 mo)	UIH-6 Less than Primary Treatment at MWR203 Coarse Screening
Swimming (sailboarding)	-	bacteria *	Tot 1 Yr Storm Load (lbs) ***	(1) 1.12E+16 2	(1) 6.60E+15 1	(2) 1.59E+16 2
			hours > 200 after 1 yr storm	(2) NA	(1) NA	(2) NA
Boating	0	bacteria	hours > 1000 after 1 yr storm	(2) 0.0 2	(2) 0.0 2	(2) 0.0 2
Aesthetics	-	slicks (solids, oil, scum)	vol. of "untreated" overflows (MG) **	(1)	(1)	(2)
			after 1 yr storm	3.78	1.24	5.81
			after 3 mo storm	0	0	1.46
				(1)	(1)	(2)
			CSO TSS load (plumes)(lbs)	(1) 1	(1) 1	(2) 2
			after 1 yr storm	19,800	39,400	44,700
			after 3 mo storm	0	6,600	15,900
				(1)	(1)	(2)
Aquatic life	-	DO -BOD	total BOD load (lbs) ***	(2)	(2)	(2)
			after 1 yr storm	146,000	155,000	158,000
			after 3 mo storm	101,000	106,000	110,000
				(2)	(2)	(2)
		sediment	Total TSS load (lbs) ***	(2) 2	(2) 2	(2) 2
			after 1 yr storm	105,000	125,000	130,000
			after 3 mo storm	64,600	71,200	80,500
				(2)	(2)	(2)
Alternative Performance			Level of Control	(2) II	(2) II	(3) III
			# of untreated overflows/year	(2) 1 - 9 2	(2) 1 - 9 2	(3) 36 3
			Closure of CSOs	(3) 0	(2) 0 - 2	(3) 0
			Treat stormwater	(2) N	(2) N	(2) N
Alternative Summary Rating				9	8	11
Alternative Ranking				2	2	3

*The duration of simulation period was 99.4 hours.
Sample location at the mouth of Charles River.
**"untreated" overflows defined as receiving coarse screening only, or less
***Total load includes CSO, stormwater, and boundary loads.

- Indicates non-attainment of use during wet and dry weather.
O Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR LOWER INNER HARBOR

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	LIH-1 Complete Sewer Separation		LIH-2 Consolidation to Near Surface Storage (1 yr)		LIH-3 Consolidation to Primary Treatment (1 yr)	
Swimming (sailboarding)	0	bacteria *	Tot 1 Yr Storm Load (lbs)*** (CSO, SW, Boundary)	2.01E+16	(1) 1.14E+16	1	(1) 1.03E+16	1	(1) 1.03E+16	2
			hours > 200 after 1 yr storm	37.2	(1) 15.5		(1) 23.8		(2) NA	
Boating	0	bacteria	hours > 1000 after 1 yr storm	4.1	(1) 0.0	1	(1) 0.0	1	NA	1
Aquatic life	-	DO -BOD	CSO, SW BOD load (lbs) after 1 yr storm	17,700	(2) 16,200		(2) 14,600		(2) 16,100	
			after 3 mo storm	9,750	10,100 (3)	2	9,240 (2)	2	9,240 (2)	2
		sediment	CSO+SW load TSS (lbs) after 1 yr storm	33,700	(2) 31,200		(2) 28,100		(2) 30,100	
			after 3 mo storm	18,700	19,400 (3)		17,800 (2)		17,800 (2)	
Alternative Performance			Level of Control	-	(1) I		(2) II		(2) II	
			# of untreated overflows/yr **	29	(1) 0	1	(2) 1 - 3	2	(1) 0	2
			Closure of CSOs	0	(1) 5		(2) 1 - 4		(2) 1 - 4	
			Treat stormwater	N	(2) N		(2) N		(2) Y	
Alternative Summary Rating					5		6		7	
Alternative Ranking					1		2		2	

*The duration of simulation period was 99.4 hours.
Sample location at Middle Inner Harbor.
**"untreated" overflows defined as receiving coarse screening only, or less
***Total load includes CSO and stormwater load

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR LOWER INNER HARBOR

Use	Use Attainment	Parameter	Measures	LIH-4 Interceptor Relief (3 mo)		LIH-5 Diversion to Storage (3 mo)		LIH-6 Coarse Screening	
Swimming (sailboarding)	0	bacteria*	Tot 1 Yr Storm Load (lbs) *** (CSO, SW, Boundary)	(2) 1.85E+16	2	(2) 1.85E+16	2	(2) 2.01E+16	2
			hours > 200 after 1 yr storm	(1) 15.5		(1) NA		(2) NA	
Boating	0	bacteria	hours > 1000 after 1 yr storm	(1) 0.0	1	(1) NA	1	(2) NA	2
Aquatic life	-	DO -BOD	CSO, SW BOD load (lbs) after 1 yr storm	(2) 17,200	2	(2) 17,200	2	(2) 17,700	2
			after 3 mo storm	9,240 (2)		9,240 (2)		9,750 (2)	
		sediment	CSO+SW load TSS (lbs) after 1 yr storm	(2) 32,500		(2) 32,500		(2) 33,400	
			after 3 mo storm	17,800 (2)		17,800 (2)		18,700 (2)	
Alternative Performance			Level of Control	(2) II	2	(2) II	2	(3) III	3
			# of untreated overflows/yr **	(2) 1 - 5		(2) 1 - 5		(3) 29	
			Closure of CSOs	(3) 0		(2) 1 - 4		(3) 0	
			Treat stormwater	(2) N		(2) N		(2) N	
Alternative Summary Rating				7		7		9	
Alternative Ranking				2		2		3	

*The duration of simulation period was 99.4 hours.
Sample location at Middle Inner Harbor.
**"untreated" overflows defined as receiving coarse screening only, or less
***Total load includes CSO and stormwater load

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR MYSTIC / CHELSEA CONFLUENCE

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	MCC-1 Complete Sewer Separation		MCC-2 Storage at MWR205, BOS014, BOS017 and CHE00B (1 yr)		MCC-3 Primary Treatment at at MWR205, BOS014, BOS017and CHE00B (1 yr)		MCC-4 Dechlorination at MWR205; Screen and Disinfect at BOS014, BOS017 and CHE00B (1 yr)	
Swimming (sailboarding)	-	bacteria *	Total 1 yr Storm Load (lbs)***	2.16E+16	(2) 1.94E+16	2	(1) 1.42E+16	2	(1) 1.43E+16	2	(1) 1.43E+16	2
			hours > 200 after 1 yr storm	MR: 34.2 CC: 34.2	(2) MR: 27.9 CC: 26.9		(2) MR: 26.9 CC: 24.9		(2) NA		(2) NA	
Boating	0	bacteria	hours > 1000 after 1 yr storm	MR: 0.0 CC: 10.4	(1) MR: 0.0 CC: 0.0	1	(1) MR: 0.0 CC: 0.0	1	(1) NA	1	(1) NA	1
Aesthetics	0	slicks (solids, oil, scum)	Vol. "untreated" overflows **		(1)		(1)		(1)		(1)	
			after 1 yr storm	4.55	0		0		0		0	
			after 3 mo storm	0.55	0		0		0		0	
					(1)		(1)		(1)		(1)	
			CSO TSS load (plumes)(lbs)		(1)	1	(1)	1	(1)	1	(2)	2
			after 1 yr storm	17,100	0		0		6,500		16,100	
			after 3 mo storm	6,020	0		0		1260		5,720	
					(1)		(1)		(1)		(2)	
Aquatic life	-	DO -BOD	Total storm BOD load (lbs) ***		(2)		(1)		(2)		(2)	
			after 1 yr storm	29,400	27,700		20,000		24,700		29,400	
			after 3 mo storm	16,100	17,200		12,700		13,700		16,100	
					(3)	3	(2)	2	(2)	2	(2)	2
		sediment	Total TSS load (lbs) ***		(2)		(2)		(2)		(2)	
			after 1 yr storm	55,300	53,200		38,500		45,000		54,600	
			after 3 mo storm	30,500	33,000		24,500		25,700		30,200	
					(3)		(2)		(2)		(2)	
Alternative Performance			Level of Control	-	(1) I		(2) II		(2) II		(2) II	
			# of untreated overflows/yr **	35	(1) 0		(2) 1 - 3		(1) 0		(1) 0	
						1		2		2		2
			Closure of CSOs	0	(1) 8		(3) 0		(3) 0		(3) 0	
			Treat stormwater	N	(2) N		(2) N		(2) N		(2) N	
Alternative Summary Rating					8		8		8		9	
Alternative Ranking					8		8		8		9	

*The duration of simulation period was 99.4 hours.
Sample locations at Mystic River, near the mouth (MR) and Chelsea Creek, near the mouth (CC).
**"untreated" overflows defined as receiving coarse screening only, or less.
***Total load includes CSO, stormwater and boundary loads

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR MYSTIC / CHELSEA CONFLUENCE

Use	Use Attainment	Parameter	Measures	MCC-5 Storage at MWR205, BOS014, BOS017 and CHE008 (3 mo)	MCC-6 Primary Treatment at at MWR205, BOS014, BOS017and CHE008 (3 mo)	MCC-7 Storage at MWR205; Screen and Disinfect at BOS014, BOS017 and CHE008 (3 mo)
Swimming (sailboarding)	-	bacteria*	Total 1 yr Storm Load (lbs) ***	(2) 1.55E+16	(2) 1.55E+16	(1) 1.43E+16
			hours > 200 after 1 yr storm	(2) MR: 29.0 CC: 28.0 — 2	(2) NA — 2	(2) NA — 2
Boating	0	bacteria	hours > 1000 after 1 yr storm	(1) MR: 0.0 CC: 2.1 — 1	(1) NA — 1	(1) NA — 1
Aesthetics	0	slicks (solids, oil, scum)	Vol. "untreated" overflows **	(2)	(1)	(1)
			after 1 yr storm	4	0	0
			after 3 mo storm	0	0	0
				(1)	(1)	(1)
			CSO TSS load (plumes)(lbs)	(1)	(2)	(1)
			after 1 yr storm	10,400 — 1	12,700 — 1	10,700 — 1
			after 3 mo storm	0	2,280	370
				(1)	(1)	(1)
Aquatic life	-	DO -BOD	Total storm BOD load (lbs) ***	(2)	(2)	(2)
			after 1 yr storm	26,000	27,700	26,200
			after 3 mo storm	12,700	14,400	13,000
				(2) — 2	(2) — 2	(2) — 2
		sediment	Total TSS load (lbs) ***	(2)	(2)	(2)
			after 1 yr storm	48,900	51,200	49,200
			after 3 mo storm	24,500	26,800	24,900
				(2)	(2)	(2)
Alternative Performance			Level of Control	(2) II	(2) II	(2) II
			# of untreated overflows/yr **	(3) 4 - 17	(1) 0	(1) 0
				— 3	— 2	— 2
			Closure of CSOs	(3) 0	(3) 0	(3) 0
			Treat stormwater	(2) N	(2) N	(2) N
Alternative Summary Rating				9	8	8
Alternative Ranking				9	8	8

*The duration of simulation period was 99.4 hours.
Sample locations at Mystic River, near the mouth (MR) and Chelsea Creek, near the mouth (CC).
**"untreated" overflows defined as receiving coarse screening only, or less.
***Total load includes CSO, stormwater and boundary loads

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR RESERVED CHANNEL

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	RC-1 Sewer Separation	RC-2 Consolidated Storage BOS076 - 080 (1 yr)	RC-3 Consolidated Storage BOS080 - 076 (1 yr)	RC-4 Consolidated Primary Treatment BOS076 to BOS080 (1 yr)	RC-5 Consolidated Primary Treatment BOS080 to BOS076 (1 yr)
Swimming (sailboarding)	0	bacteria	Tot 1 yr CSO + SW Load (lbs)	1.92E+16	(1) 1.00E+15 1	(1) 8.00E+14 1	(1) 8.00E+14 1	(1) 8.00E+14 1	(1) 8.00E+14 1
			hours > 200 after 1 yr storm	23.8	(1) 0.0	(1) 0.0	(1) 0.0	(1) 0.0	(1) 0.0
Boating	+	bacteria *	hours > 1000 after 1 yr storm	0.0	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1
Aquatic life	-	sediment	CSO+SW TSS load (lbs) after 1 yr storm	12,800	(1) 2,800 1	(1) 2,300 1	(1) 2,300 1	(1) 4,290 1	(1) 5,230 1
			after 3 mo storm	5,730	1,790 (1)	1,460 (1)	1,460 (1)	1,460 (1)	1,460 (1)
Alternative Performance			Level of Control	-	(1) I	(2) II	(2) II	(2) II	(2) II
			# of untreated overflows/yr **	44	(1) 0 1	(2) 1 - 3 2	(2) 1 - 3 2	(1) 0 2	(1) 0 2
			Closure of CSOs	0	(1) 4	(2) 0 - 2	(2) 0 - 2	(2) 0 - 2	(2) 0 - 2
			Treat stormwater	N	(2) N	(2) N	(2) N	(2) N	(2) N
Alternative Summary Rating					4	5	5	5	5
Alternative Ranking					1	2	2	2	2

*The duration of the simulation period was 99.4 hours.
Sample location at the mouth of Reserved Channel.
**"untreated" overflows defined as coarse screening only, or less

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.
+ Indicates designated use is attained

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR RESERVED CHANNEL

Use	Use Attainment	Parameter	Measures	RC-6 Consolidated Screen and Disinfection BOS076 - 080	RC-7 Consolidated Screen and Disinfection BOS080 - 076	RC-8 Consolidated Storage BOS076 - 080 (3 mo)	RC-9 Consolidated Storage BOS080 - 076 (3 mo)	RC-10 Consolidated Primary Treatment BOS080 to BOS076 (3 mo)	RC-11 Coarse Screens at Outfalls
Swimming (sailboarding)	0	bacteria	Tot 1 yr CSO + SW Load (lbs)	(1) 9.00E+14 1	(1) 1.00E+15 1	(1) 9.00E+15 1	(1) 9.00E+15 1	(1) 9.00E+15 1	(2) 1.92E+16 2
			hours > 200 after 1 yr storm	(1) 0.0	(1) 0.0	(1) 0.0	(1) 0.0	(1) 0.0	(2) 23.8
Boating	+	bacteria *	hours > 1000 after 1 yr storm	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1	(1) 0.0 1
	-	sediment	CSO+SW TSS load (lbs) after 1 yr storm	(2) 9,360 2	(2) 10,840 2	(1) 8,210 1	(1) 8,210 1	(1) 8,950 1	(2) 12,273 2
			after 3 mo storm	2,600 (1)	4,090 (2)	1,460 (1)	1,460 (1)	1,920 (1)	5,516 (2)
Alternative Performance			Level of Control	(2) II	(2) II	(2) II	(2) II	(2) II	(3) III
			# of untreated overflows/yr * *	(1) 0 2	(1) 0 2	(2) 4 - 6 2	(2) 4 - 6 2	(1) 0 2	(3) 44 3
			Closure of CSOs	(2) 0 - 2	(2) 0 - 2	(2) 0 - 2	(2) 0 - 2	(2) 0 - 2	(3) 0
			Treat stormwater	(2) N	(2) N	(2) N	(2) N	(2) N	(2) N
Alternative Summary Rating				5	5	5	5	5	5
Alternative Ranking				2	2	2	2	2	2

*The duration of the simulation period was 99.4 hours.
Sample location at the mouth of Reserved Channel.
* *"untreated" overflows defined as coarse screening only, or less

- Indicates non-attainment of use during wet and dry weather.
0 Indicates non-attainment of use during wet weather.
+ Indicates designated use is attained

WATER QUALITY IMPACTS OF CSO ALTERNATIVES FOR FORT POINT CHANNEL

Use	Use Attainment	Parameter	Measures	Future Planned Conditions	FPC1 Sewer Separation	FPC2 Coarse Screen BOS062-068; Det/Treat UPPS; In-line store DBC; Stor/Consol conduit BOS072, 073 (3-mo)	FPC3 Coarse Screen BOS062-068; Screen/Disinf. UPPS; In-line Store DBC; Indlv. screen/ Disinfect BOS072, 073 (3-mo)	FPC4 Coarse Screening BOS062-068; BOS072, 073 In Receiving Water Control, BOS070
Boating	-	bacteria	hours > 1000 after 1 yr storm	 19.7	(1) 1 0	(1) 1	(1) 1 0	(2) 2
Swimming	-	bacteria *	total 1 yr storm load	6.08 E14	1.58 E14 (1) 1	0.52 E14 (1) 1	0.52 E14 (1) 1	6.08 E14 (2) 2
			hours > 200 after 1 yr storm	 40.4	(1) 23.8	(1)	 23.8	(2)
Aesthetics	-	slicks (solids, oil, scum)	vol. of "untreated" overflows ** after 1 yr storm (MG) after 3 mo storm (MG)	 27.75 9.12	(1) 0 0 (1) 1	(1) 0.22 0 (1) 1	(1) 0.22 0 (1) 2	(2) 27.75 9.12 (2) 2
			CSO TSS load (plumes) (lbs) after 1 yr storm after 3 mo storm	 32,400 10,700	(1) 0 0 (1)	(2) 24,600 6,940 (2)	(2) 27,500 9,850 (2)	(2) 30,800 10,100 (2)
Aquatic life	-	DO -BOD	total storm BOD (lbs) after 1 yr storm after 3 mo storm	 24,200 9,860	(2) 22,480 14,250 (3) 3	(2) 20,550 7,990 (2) 2	(2) 22,250 9,697 (2) 2	(2) 24,200 9,860 (2) 2
		sediment	CSO + SW load TSS (lbs) after 1 yr storm after 3 mo storm	 44,200 18,200	(2) 43,200 27,400 (3)	(2) 36,360 14,480 (2)	(2) 39,260 17,390 (2)	(2) 42,580 17,656 (2)
Alternative Performance			Level of Control		I (1)	II, 3 mo. (2)	II, 3 mo. (2)	III (3)
			# of untreated overflows/year	40	0 (1) 1	4-7 (2) 2	4-7 (2) 2	40 (3) 3
			Closure of CSOs	-	7 (1)	0-1 (2)	0 (3)	0 (3)
			Treat stormwater		NO (2)	NO (2)	NO (2)	NO (2)
Alternative Summary Rating					7	7	8	11
Alternative Ranking					1	1	2	3

*The duration of simulation period was 99.4 hours

**"untreated" overflows means overflow events where solids, scum, oil, and small and large floatables are not controlled in the overflow.

Swimming standard is currently met in dry and damp weather

To avoid toxicity, all chlorinated CSO discharges are assumed to be dechlorinated as well

D.O. frequently below standard

- Indicates non-attainment of use during wet and dry weather.

APPENDIX I

COST RATING TABLES

COST OF CSO ALTERNATIVES IN NORTH DORCHESTER BAY

	NDB1	NDB2	NDB3	NDB4	NDB5
	Sewer Separation	CSO Relocation to Reserve Channel	Consolidation/ Storage Conduit (1 Yr)	Interceptor Relief; System Optimization 081,082 (1 Yr)	Consolidation/Storage Conduit (3 Mo)
Capital Cost $ Million	80.9	78.9	41.4	22.3	26.5
Annual O&M Cost $	0	250,000	99,000	0	99,000
Present Worth $ Million	65	65.9	34.3	18	22.3
Alternative Ranking	3	3	2	1	2

COST OF CSO ALTERNATIVES IN SOUTH DOCHESTER BAY

	SDB1	SDB2	SDB3	SDB4	SDB5
	Sewer Separation	Indiv. Storage Tanks at BOS090, 088/089 (1 Yr)	Consolidated Storage Facility at Fox Point (1 Yr)	Indiv. Primary Treat at BOS090, 088/089 (1Yr)	Upgrade Existing Facilities for Dechlorination (1 Yr)
Capital Cost $ Million	88.4	93.6	101	29	3
Annual O&M Cost $	0	1,300,000	1,290,000	1,613,000	600,000
Present Worth $ Million	74.3	89.8	95.2	41.7	9.1
Alternative Ranking	3	3	3	2	1

COST OF CSO ALTERNATIVES IN SOUTH DOCHESTER BAY

	SDB6 Indiv. Storage Tanks at BOS090, 088/089 (3 Mo)	SDB7 Consolidated Storage at Fox Point (3 Mo)	SDB8 Indiv. Primary Treat at BOS090, 088/089 (3 Mo)
Capital Cost $ Million	42	51.7	20.8
Annual O&M Cost $	1,100,000	1,089,000	1,361,000
Present Worth $ Million	46.1	53.8	31.9
Alternative Ranking	2	2	2

COST OF CSO ALTERNATIVES IN NEPONSET RIVER

	N1	N2	N3	N4
	Sewer Separation	Indiv. Near Surface Storage Tanks at BOS095 & 093 (1 Yr)	Storage at BOS093 and Primary Treat at BOS095 (1 Yr)	Consolidated Near Surface Primary Treatment Near BOS093 (1 Yr)
Capital Cost $ Million	10.7	17.8	10.4	18.8
Annual O&M Cost $	0	314,000	367,000	113,000
Present Worth $ Million	8.6	17.8	12.5	16.4
Alternative Ranking	2	3	3	3

COST OF CSO ALTERNATIVES IN NEPONSET RIVER

	N5 Indiv. Screen/Disinfect/ Dechlor at BOS093, 095 (1 Yr)	N6 Indiv. Storage Tanks at BOS095, 093 (3 Mo)	N7 Coarse Screen at Outfalls
Capital Cost $ Million	4.7	4.9	1.7
Annual O&M Cost $	231,000	224,000	101,000
Present Worth $ Million	6.4	6.4	2.8
Alternative Ranking	2	2	1

COST OF CSO ALTERNATIVES FOR CONSTITUTION BEACH

	CB-1	CB-2	CB-3	CB-4
	Complete Sewer Separation	Moore Street Interceptor Relief (1-Yr) (1-Yr)	Near Surface Storage (1-Yr) Storage (1-Yr)	Near Surface Storage (3-Mo)
Capital Cost Millions $	8.7	7.0	5.7	2.0
Annual O&M Cost	0	0	46,368	18,768
Present Worth Millions $	7.0	5.6	5.1	1.8
Alternative Ranking	3	2	2	1

COST OF CSO ALTERNATIVES FOR UPPER CHARLES RIVER

	UC-1 Complete Sewer Separation	UC-2 Sewer Separation at CAM005, CAM009 & BOS032	UC-3 Storage at CAM005, CAM009 & Enlarge Int. Conn. @BOS032 (1-Yr)	UC-4 Primary Treat. at CAM005 & BOS032; Storage at CAM009 (1-Yr)	UC-5 Less Than Primary Treat. at CAM005, CAM009 & BOS032 (1-Yr)	UC-6 Screening at CAM005, CAM009 and Enlarge Int Conn. at BOS032 (3-Mo)	UC-7 Screening at CAM005, CAM009 and BOS032
Capital Cost $ Millions	87.2	27.5	11.8	8.1	5.1	0.0	1.0
Annual O&M Cost $	0	0	100000	160000	140208	11040	33120
Present Worth $ Millions	70.1	22.1	10.5	8.1	5.5	0.1	0.7
Alternative Ranking	3	2	2	2	2	1	1

COST OF CSO ALTERNATIVES IN LOWER CHARLES RIVER

	LC1	LC2	LC3	LC4	LC5	LC6
	Sewer Separation	Stony Brook cons. to storage; Cottage Farm storage, 1-yr	Stony Brook cons. to storage w/divers. at 046-381; Cottage Farm storage, 3-mo	Stony Brook cons. to screen/ disinfect.; Cottage Farm storage, 3-mo	Stony Brook screen/ disinfection of SBC; Cottage Farm detention/ disinfection, 3-mo	Swirl Concentrator on DBC, foul flow pump to HLS; Cottage Farm detention/disinfection
Capital Cost $ Million	485	249	98.4	73.7	26.5	61.9
Annual O&M Cost $	0	1,400,000	1,000,000	800,000	1,000,000	1,700,000
Present Cost $ Million	390	215.5	90.3	68.2	32.5	71.8
Alternative Ranking	3	3	2	2	1	2

COST OF CSO ALTERNATIVES IN ALEWIFE BROOK

	AB1	AB2	AB3	AB4	AB5	AB6	AB7	AB8
	Sewer Separation	Consolidated Near Surface Storage Facility (1-yr)	Consolidation/Storage Conduit (1 Yr)	Consolidated Near Surface Storage w/ Separation at CAM 004 (1 Yr)	Consolidation/Storage Conduit w/ Separation at CAM 004 (1 Yr)	Separation of CAM 004 (3-mo)	Consolidation/Storage Conduit (3 Mo)	Coarse Screening at Outfalls
Capital Cost $ Million	55	54.1	68.5	38.8	47.7	3.4	32.8	7.4
Annual O&M Cost $	0	362,000	50,000	291,000	30,000	0	40,000	50,000
Present Worth $ Million	44.2	47.6	55.6	34.4	38.7	2.8	26.8	6.4
Alternative Ranking	3	3	3	2	2	1	2	1

COST OF CSO ALTERNATIVES FOR UPPER MYSTIC

	UM-1	UM-2	UM-3
	Sewer Sep at SOM007 & CSO Relocation at SOM007A	Install Screens at SOM007; Cont Treat. at SOM MARG 007A	Sewer Sep at SOM007 Cont. Treat. at Som. Marg 007A
Capital Cost $ Millions	23.3	0.1	0.1
Annual O&M Cost $	163,392	5,520	5,520
Present Worth $ Millions	20.4	0.1	0.1
Alternative Ranking	2	1	1

COST OF CSO ALTERNATIVES FOR UPPER INNER HARBOR

	UIH-1	UIH-2	UIH-3
	Complete Sewer Separation	1-Yr Storage at MWR203, BOS019; Consol. to Storage BOS009-013; Consol/Storage Conduit BOS057/060; Screens BOS 050, 052	1-Yr Primary Tr. MWR203, BOS019; Consol. to Primary Tr. BOS009-013; Consol/Storage Conduit BOS057-060; Screens BOS050,052
Capital Cost $ Millions	88.5	214.0	108.9
Annual O&M Cost	0	1,691,328	2,089,872
Present Worth $ Millions	71.2	189.2	108.7
Alternative Ranking	2	3	3

COST OF CSO ALTERNATIVES FOR UPPER INNER HARBOR

	UIH-4	UIH-5	UIH-6
	3-Mo Storage MWR203, BOS019; Int.. Relief BOS009-013; Screens BOS050-060;	3-Mo Primary Tr. MWR203, BOS019; Consol to Primary Tr. BOS009-013; Screens BOS050-060;	1-Yr Less Than Primary Tr. MWR203; Coarse Screens BOS019, BOS009-013,BOS050-060;
Capital Cost $ Millions	84.8	60.0	12.1
Annual O&M Cost	1,181,280	1,812,768	1,068,672
Present Worth $ Millions	80.2	66.6	20.6
Alternative Ranking	2	2	1

COST OF CSO ALTERNATIVES FOR LOWER INNER HARBOR

	LIH-1	LIH-2	LIH-3	LIH-4	LIH-5	LIH-6
	Complete Sewer Separation	Consolidation to Near Surface Storage BOS003 to BOS007(1-Yr) (1)	Consolidation to Primary Treatment (1-Yr)	Interceptor Relief (3-Mo)	Diversion to Storage in BOS003 Outfall (3-Mo)	Coarse Screening
Capital Cost Millions $	58.4	42.8	32.9	19.6	14.5	13.1
Annual O&M Cost	0	474,584	593,385	0	66,240	38,640
Present Worth Millions $	46.9	39.3	32.5	15.7	12.3	11.0
Alternative Ranking	3	3	2	1	1	1

COST OF CSO ALTERNATIVES FOR MYSTIC/CHELSEA CONFLUENCE

	MCC-1	MCC-2	MCC-3	MCC-4
	Complete Sewer Separation	1-Yr Storage MWR205, BOS017, CHE008, BOS014	1-Yr Primary Treat. MWR205, BOS017, CHE008, Storage BOS014	1-Yr Dechlor. MWR205, Screen & Disinfect. BOS017, CHE008, BOS014
Capital Cost Millions $	112.6	75.4	39.4	7.2
Annual O&M Cost	0	666,816	1,386,624	824,688
Present Worth Millions $	90.5	67.4	45.8	14.2
Alternative Ranking	3	3	3	1

COST OF CSO ALTERNATIVES FOR MYSTIC/CHELSEA CONFLUENCE

	MCC-5	MCC-6	MCC-7
	3-Mo Storage MWR205, BOS017, CHE008, Coarse Screen at BOS014	3-Mo Primary Treat. MWR205, BOS017, Storage at CHE008, Screen BOS014	3-Mo Storage MWR205, BOS017, CHE008, Coarse Screen at BOS014
Capital Cost Millions $	29.9	16.0	25.2
Annual O&M Cost	377,568	701,040	773,904
Present Worth Millions $	27.9	20.0	28.1
Alternative Ranking	2	2	2

COST OF CSO ALTERNATIVES FOR RESERVED CHANNEL

	RC-1	RC-2	RC-3	RC-4	RC-5	RC-6
	Complete Sewer Separation	CSO Relocation to Fort Point Channel	Consolidated Near Surface Storage Facility BOS076 to BOS080 (1-Yr)	Consolidated Near Surface Storage Facility BOS080 to BOS076 (1-Yr)	Consolidated Near Surface Primary Treat. Facility BOS076 to BOS080 (1-Yr)	Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (1-Yr)
Capital Cost $ Millions	54.8	0.0	68.1	65.5	57.3	49.5
Annual O&M Cost	0	1,553,328	567,456	570,106	1,153,680	1,157,544
Present Worth $ Millions	44.0	15.8	60.5	58.4	57.8	51.5
Alternative Ranking	2	1	3	3	3	3

COST OF CSO ALTERNATIVES FOR RESERVED CHANNEL

	RC-7 Consolidation Screen/ Disinfection Facility BOS076 to BOS080 (1-Yr)	RC-8 Consolidation Screen/ Disinfection Facility BOS080 to BOS076 (1-Yr)	RC-9 Consolidated Near Surface Storage Facility BOS076 to BOS080 (3-Mo)	RC-10 Consolidated Near Surface Storage Facility BOS080 to BOS076 (3-Mo)	RC-11 Consolidated Near Surface Primary Treat. Facility BOS080 to BOS076 (3-Mo)	RC-11 Coarse Screens at Outfalls
Capital Cost $ Millions	41.3	33.4	41.6	40.6	38.1	4.0
Annual O&M Cost	607,200	609,408	389,712	544,272	1,092,960	262,752
Present Worth $ Millions	39.3	33.0	37.4	38.1	41.7	5.9
Alternative Ranking	2	2	2	2	2	1

COST OF CSO ALTERNATIVES FOR FORT POINT CHANNEL

	FPC1	FPC2	FPC3	FPC4
	Sewer Separation	Coarse Screen BOS062-068; Det/Treat UPPS; In-line store DBC; Stor/Consol conduit BOS072, 073 (3-mo)	Coarse Screen BOS062-068; Screen/Disinf. UPPS; In-line Store DBC; Indiv. screen/ Disinfect BOS072, 073 (3-mo)	Coarse Screen BOS062-068; BOS072, 073 In Receiving Water Control, BOS070
Capital Cost $ Million	250	26.1	13.7	2.5
Annual O&M Cost $	0	1,376,000	923,000	352,000
Present Worth $ Million	200.8	34.9	20.4	5.6
Alternative Ranking	3	2	2	1

APPENDIX J

SITE SCREENING AND RATING TABLES

RATING OF SITING ISSUES FOR NORTH DORCHESTER BAY

PARAMETER	NUMERICAL VALUE*/ MEASURE	NDB-1 Sewer Separation 373 Acres	NDB-2 CSO Relocation to Reserved Channel 1.0 Acres, 11,00 L.F. Conduit	NDB-3 Consolidation/Storage Conduit (1 year) Pump-out BOS087 0.4 Acres, 7500 L.F. Conduit	NDB-4 Relief of SBI, System op. BOS081,082 (1 year) 9500 L.F.	NDB-5 Consolidation, Near Surface Storage Conduit (3 month) 0.4 Acres, 7500 L.F. Conduit	Deep Rock Tunnel
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Primarily in existing ROWs 1	Pipe located under beach or Day Boulevard, Farragut Street (appears wide enough), Conley Terminal or Old Power Plant 2	Pipe located under Carson Beach and/or Day Boulevard. Bayside parking area or MDC park 1	Existing SBI-Day Boulevard 1	Pipe located under Carson Beach and/or Day Boulevard 1	Koscuisko Circle site for tunnel shaft- tight siting issues, road network problems 3 F
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Typical ROW construction issues 2	No construction during beach season if on beach, marine terminal facilities may be underground 3	Soft ground tunnel 2	Utility relocations 2	2	Complex traffic patterns, and difficult 3
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closing 2	Traffic impacts, beach impacts, BHA housing, residences 2	Beach, traffic impacts 2	Traffic Impacts on Day Boulevard disruption to bath houses and yacht clubs 2	Beach, traffic impacts 2	Bank of Boston, Bayside Expo., extensive road network/traffic issues 3
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts 1	No maintenance or operations impacts. Assuming facility on Industrial site 1**	Maintenance and operation impacts with storage and pump-out 2	Minor maintenance and operation impacts 1	Minor maintenance and operation impacts 2	Maintenance and operation impacts (pump station-odors) 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable 1	Beach area is a wetland resource 2	Beach area is a wetland resource 2	Beach area is a wetland resource 1	Beach area is a wetland resource 2	No impacts anticipated 1
ALTERNATIVE SUMMARY/ RANKING							

* Numerical values: 1= Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = Potentially prohibits implementation

** Assuming facility at Conley Terminal

RATING OF SITING ISSUES FOR SOUTHERN DORCHESTER BAY

PARAMETER	NUMERICAL VALUE*/ MEASUR	SDB1	SDB2 / SDB4 / SDB6 / SDB8	
			Near Surface Storage BOS088/089-Fox Pt. and BOS090- Commercial Pt. (1 year)	
		Sewer Separation 706 Acres	BOS088/089 1.9 Acres	BOS090 2.0 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Primarily in existing ROWs 1	Expansion at existing facility is especially tight 2	Armory property adjacent to Commercial Pt. - no space on existing site 2
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Typical ROW construction issues 2	1	Potential hazardous waste issues at Armory site, rodent control; Depth to pipe 3
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings 2	Rodent control 1	Traffic /truck access school, rodent control 2
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts 1	Minor maintenance and operation impacts over existing conditions" temporary facility" 2	Minor maintenance and operation impacts over existing conditions" temporary facility" 3
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable 1	Fox Pt. has some wetlands 2	Commercial Point does not appear to have Environmental Impacts 1
ALTERNATIVE SUMMARY/ RANKING				

* Numeric[illegible]es: 1= Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = [illegible]ntially prohibits implementaion.

RATING OF SITING ISSUES FOR SOUTHERN DORCHESTER BAY

PARAMETER	NUMERICAL VALUE*/ MEASUR	SDB3 / SDB7	SDB5	
		Consolidation btw. Fox and Commercial Points, Near Surface Storage (1 year) 3.1 Acres, 4500 L.F Conduit	Upgrade facilities to Dechlorination at facility (1 year)	
			FOX Point 0.5 Acres	Commercial Point 0.5 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Consolidation problematic due to small residential streets; Access difficult 3	Limited space at existing facility 1	Some space available within site 1
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	presuming access shafts available 2	Not Applicable 1	Not Applicable, facility has expansion capacity 1
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Traffic, residential area, school, Rodent control 2	No community impacts anticipated 1	No community impacts anticipated 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	Minor maintenance and operation impacts "temporary facilities" 2	Minor maintenance and operation impacts over existing conditions" temporary facility" 2	Minor maintenance and operation impacts over existing conditions" temporary facility" 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	No major environmental constraints anticipated 2	Not Applicable (postitive impacts to shellfish) 1	Not Applicable (postitive impacts to shellfish) 1
ALTERNATIVE SUMMARY/ RANKING				

* Numerical values: 1= Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

RATING OF SITE ISSUES FOR NEPONSET

PARAMETER	NUMERICAL VALUE*/ MEASURE	N1	N4	N2	
			Consolidation with Near Surface Storage at BOS093 (1 year) 0.6 Acres, 4,800 L.F. Conduit	Near Surface Storage at BOS093,095 (1year)	
		Sewer Separation 68 Acres		BOS093 0.6 Acres	BOS095 0.6 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Work Primarily in ROW 1	Best consolidation route In abandoned RR ROW (may be privately owned) 2	BOS093 site located adjacent to MDC Old Coloy Division property 1	Site appears available in Parking lot off Granite Street between Mass Bay MRI and abandoned RR ROW, MDC access? 2
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Typical ROW construction issues 1	Open-cut trench may be applicable within specific sections, soft tunnel in others; Probability of hazardous waste contamination 2	Small facilities- no construction constraints are apparent; Potential hazardous waste associated with vacant RR ROW and surrounding industrial uses 1	Small facilities- no construction constraints are apparent; Potential hazardous waste associated with vacant RR ROW and surrounding industrial uses 1
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings 2	Businesses located along RR alignment (industrial primarily), Elderly housing located on alignment 2	Minor traffic impacts to local businesses 1	Potential impacts to Cedar Grove Cemetery (vibrations), parking impacts to lot(site), local traffic impacts from construction vehicle(Gallivan Blvd.) 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance Impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts 1	Minor odor issues 2	Minor odor Issues to MDC building 2	Minor odor issues to Mass Bay MRI; Cedar Grove Cemetery 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable 1	Wetlands located between RR ROW and river bank can be avoided 2	Wetlands located between RR ROW and river bank for can be avoided. 2	Wetlands located between RR ROW and river bank can be avoided 2
ALTERNATIVE SUMMARY/ RANKING					

* Numerical values: 1= Few, if any, implementation constraints;
2=Potential difficult implementation;3 = Potentially prohibits implementaion.

RATING OF SITE ISSUES FOR NEPONSET

PARAMETER	NUMERICAL VALUE*/ MEASURE	N3 Near Surface Storage Facility at BOS093 and Primary Teatment at BOS095 (1 year)		N3 Near Surface Storage Facility at BOS093 and primary teatment at BOS095 (3 month)	
		BOS093 0.6 Acres	BOS095 0.5 Acres	BOS093 0.5 Acres	BOS095 0.5 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Site located adjacent to MDC Old Colony Division property 1	Site appears available in Parking lot off Granite Street between Mass Bay MRI and abandoned RR ROW, MDC access? 2	Site located adjacent to MDC Old Colony Division property 1	Site appears available in parking lot off Granite Street between Mass Bay MRI and abandoned RR ROW 2
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Small facilities- no construction constraints are apparent; Potential hazardous waste associated with vacant RR ROW and surrounding industrial uses 1	Small facilities- no construction constraints are apparent; Potential hazardous waste associated with vacant RR ROW and surrounding industrial uses 1	Small facilities- no construction constraints are apparent; Potential hazardous waste associated with vacant RR ROW and surrounding industrial uses 1	Small facilities- no construction constraints are apparent; Potential hazardous waste associated with vacant RR ROW and surrounding industrial uses 1
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Minor traffic impacts to local business 1	Potential impacts to Cedar Grove Cemetery (vibrations), parking impacts to lot(site), local traffic impacts from construction vehicle(Gallivan Blvd.) 1	Minor traffic impacts to local business 1	Potential impacts to Cedar Grove Cemetery (vibrations), parking impacts to lot(site), local traffic impacts from construction vehicle(Gallivan Blvd.) 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	Minor odor issues to MDC building 2	2	Minor odor issues to MDC building 2	Minor odor Issues to Cedar Grove Cemetery 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Wetlands located between RR ROW and river bank can be avoided 2	Wetlands located between RR ROW and river bank can be avoided 2	Wetlands located between RR ROW and river bank can be avoided 2	Wetlands located between RR ROW and river bank can be avoided 2
ALTERNATIVE SUMMARY/ RANKING					

* Numerical values: 1= Few, if any, implementation constraints;
2=Potential difficult implementation;3 = Potentially prohibits Implementaion.

CSO ALTERNATIVE SITE SCREENING
RECEIVING WATER: CONSTITUTION BEACH
CSO CONTROL SITE: CONSTITUTION BEACH CSO FACILITY, MOORE STREET INTERCEPTOR

PARAMETER	NUMERICAL VALUE*/ MEASURE	Sewer Separation	Relieve Moore Street Interceptor(1 year)	Near Surface Storage Facility at Constitution Beach (1 year)	Near Surface Storage Facility at Constitution Beach (3 month)
SITE AVAILABILITY • Vacant land • Park land • Residential • Commercial/Industrial • Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Not Applicable	Site available at existing facility and adjacent Massport property	Site available at existing facility and adjacent Massport property
CONSTRUCTABILITY	1) Standard construction 2) construction constraints 3) unique &/or special construction required	Not Applicable	Appears that the majority of the relief sewer could be open-cut trench	Standard construction is applicable	Standard construction is applicable
SHORT TERM COMMUNITY IMPACTS • Traffic impacts • Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings	Traffic impacts on local streets, residences bordering route, Orient Heights Beach, J.H.L. Noyes Playground impacted	Site access through Massport property, residences located opposite MBTA tracks on Moore Street	Site access through Massport property, residences located opposite MBTA tracks on Moore Street
LONG TERM COMMUNITY IMPACTS • Public acceptance • Maintenance impacts • Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	No maintenance or operations impacts	Minor odor issues with storage facility to residences	Minor odor issues with storage facility to residences
ENVIRONMENTAL IMPACTS • Hazardous Waste • Wetlands • Tidelands • Other	1) Low 2) Moderate 3) Severe	Not Applicable	Wetlands (local flooding) observed at J.H.L Noyes Playground	Site is adjacent to tidal marsh within buffer zone	Site is adjacent to tidal marsh within buffer zone
ALTERNATIVE SUMMARY/RANKING					

*NUMERICAL VALUES: 1 = Few, if any, implementation constraints; 2 = Potentially difficult implementation; 3 = Potentially prohibits implementation.

CSO ALTERNATIVE SITE SCREENING
RECEIVING WATER: UPPER CHARLES RIVER
CSO CONTROL SITE: CAM005, CAM009, RE032-1

PARAMETER	NUMERICAL VALUE*/ MEASURE	Sewer Separation	Local storage at CAM005 & 009 (1 year), Interceptor connection at BOS032, Coarse screens at CAM007, 011, & BOS033	Separation BOS032, CAM005, CAM009. Coarse screen BOS033, CAM007, CAM011	Storage in BOS032 Overflow conduit, Coarse screen BOS033, CAM005, 003, 007, & 009	Coarse Screening at outfalls	Deep Rock Tunnel
SITE AVAILABILITY • Vacant land • Park land • Residential • Commercial/Industrial • Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Storage site between MDC tot-lot and 1010 Mt. Auburn Street	Not Applicable	Site on corner North Beacon Street/Parsons street for storage tank/hydraulic pump	Not applicable (man-hole enlargements)	Tunnel/shaft located in parcel between MDC tot-lot and 1010 Mt. Auburn Street
CONSTRUCTABILITY	1) Standard construction 2) construction constraints 3) unique &/or special construction required	Not Applicable	Tight, sensitive site area - deep tunnel construction may be applicable	Not Applicable	Standard construction is applicable	Standard construction is applicable	Tunnel/shaft site is sensitive and tight
SHORT TERM COMMUNITY IMPACTS • Traffic impacts • Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings	Residences, tot-lot, school, traffic impacts to Mt. Auburn Street and Memorial Drive	Local Street closings	Minor traffic impacts to local businesses	Minor impact to traffic (man-hole construction/ work)	High-rise apartments, hospital, tot-lot, single-family housing, school
LONG TERM COMMUNITY IMPACTS • Public acceptance • Maintenance impacts • Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	Minor odor issues, maintenance/operations traffic, aesthetics	No maintenance or operations impacts	No maintenance or operations impacts	Minor maintenance and operations impacts to traffic	Sycamore trees along Memorial Drive
ENVIRONMENTAL IMPACTS • Hazardous Waste • Wetlands • Tidelands • Other	1) Low 2) Moderate 3) Severe	Not applicable	Sycamore trees on Memorial Drive	Not applicable	Potential for hazardous waste contamination	Not applicable	
ALTERNATIVE SUMMARY/RANKING							

*NUMERICAL VALUES: 1 = Few, if any, implementation constraints; 2 = Potentially difficult implementation; 3 = Potentially prohibits implementation.

RATING OF SITING ISSUES FOR LOWER CHARLES

PARAMETER	NUMERICAL VALUE*/ MEASURE	LC1	LC2		LC3	
			Stony Brook consolidation to storage(1 year) Storage at Cottage Farm (1 year)		Stony Brook consolidation to storage with diversion at 046-381(1 year) Cottage Farm storage (3 months)	
		Sewer Separation 1848 Acres	Stony Brook 2.5 Acres, 13,600 L.F. Conduit	Cottage Farm 4.8 Acres	Stony Brook 0.4 Acres, 13,600 L.F. Conduit	Cottage Farm 3.7 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Primarily in existing ROWs 1	Consolidation conduit placed within roadways and Southwest Corridor park 2	Storage tank site adjacent to Cottage Farm (MDC park) 1	Consolidation conduit placed within roadways and Southwest Corrdior park 2	Storage tank site adjacent to Cottage Farm (MDC park) 1
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Typical ROW construction issues 2	Conduit constraints in southwest corridor, potential hazardous waste located along southwest corridor ROW (soft ground tunneling) 3	Standard construction for storage tank 2**	Conduit constraints in southwest corridor (soft ground tunneling) 3	Standard construction for storage tank; Potential hazardous waste along Southwest Corridor ROW 2**
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings 2	Conduit impacts to schools, elderly housing, parks, residences 3	Impacts to active park and school 3	Conduit impacts to schools, elderly housing, parks, residences 3	Storage impacts to active park and school 3
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts 1	O&M associated with storage facility , minor odor issues 2	O&M associated with storage facility (currently manned 24 hr.), minor odor issues to adjacent uses, aesthetic concerns 2	O&M associated with storage facility , minor odor issues 2	O&M associated with storage facility (currently manned 24 hr.), minor order issues to adjacent uses, aesthetic concerns 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable 1	No wetlands observed 1	Wetland resources on river bank 2	No wetlands observed 1	Wetland resources on river bank 2
ALTERNATIVE SUMMARY/ RANKING						

* Numerical values: 1= Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

**Cottage Farm construction has site access and temporary road requirement issues

RATING OF SITING ISSUES FOR LOWER CHARLES

PARAMETER	NUMERICAL VALUE*/ MEASURE	LC4		
		Charlesgate Gatehouse screening and disinfection, less than primary at Cottage Farm (Flow-through)		
		Charlesgate Gatehouse 0.5 Acres	BWSC Gatehouse	Cottage Farm 0.25 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Site available for screening / disinfection facility adjacent to Gatehouse 1	Site available in Fens Park adjacent to Gatehouse #1 & #2 2	Not applicable, utilization of existing facility 1
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Construction over existing outfall pipe of Stony Brook, no staging area (use exisiting building) 2**	Historic structure 2	Not applicable, utilization of existing facility 1
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Traffic impacts, aesthetics. during construction 2	Traffic impacts to Fens, impacts to park, aesthetics 3	Not applicable, utilization of existing facility 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	Odor Impacts to park and residents, increase O&M over existing conditions. 2	Aesthetics, increase over existing O&M, odor control to nearby institutes 2	Not applicable, utilization of existing facility 1
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	No environmental constraint observed 1	Located in buffer zone of Fens 2	Not applicable, utilization of existing facility 1
ALTERNATIVE SUMMARY/ RANKING				

* Numerical values: 1 = Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

**Cottage Farm construction has site access and temporary road requirement issues

RATING OF SITING ISSUES FOR LOWER CHARLES

PARAMETER	NUMERICAL VALUE*/ MEASURE	Stony Brook Condolidation, Deep Rock Tunnel/storage			Charles River tunnel: Stony Brook Consolidation, tunnel/shaft at Ward Street Headworks	
		Stony Brook	Charlesgate Gatehouse	Cottage Farm	Stony Brook	Ward Street Headwork
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Consolidation conduit placed within roadways and Southwest Corridor 2	Site adjacent to existing facility 1	Tunnel/ shaft located adjacent to Cottage Farm on MDC park land 1	Consolidation conduit placed within roadways and Southwest Corridor park 2	Tunnel/shaft located adjacent Ward Street Headworks 1
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Conduit constraints in southwest corridor; Potential hazardous waste along Southwest Corridor ROW (soft ground tunneling) 3	Standard construction applicable 2	Tunnel/shaft site is sensitive 2	Conduit constraints in southwest corridor; Potential hazardous waste along Southwest Corridor ROW (soft ground tunneling) 3	Tunnel/shaft is standard construction; Potential hazardous waste located under parking lot 2
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Conduit impacts to schools elderly housing, parks, residences 3	Impacts to Storrow Drive 3	Tunnel/shaft impacts to school, park, Memorial Drive, and residences 2	Conduit impacts to schools, elderly housing, parks, residences 3	Tunnel /shaft impacts to multi-family residences, hospital, education institutions, and went-worth institute parking 3
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	Not Applicable 2	Historic, aesthetic acceptance issues 2	No increase over existing conditions 1	No maintenance or operations impacts 2	Minor impacts over existing condition 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	No wetlands observed 1	Adjacent to Charles River 1	Wetland resources on river bank 2	No wetlands observed 1	No environmental resources observed 1
ALTERNATIVE SUMMARY/ RANKING						

* Numerical values: 1= Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

**Cottage Farm construction has site access and temporary road requirement issues

RATING OF SITING ISSUES FOR ALEWIFE BROOK

PARAMETER	NUMERICAL VALUE*/ MEASURE	AB1 Sewer Separation 286 Acres	AB2 / AB4 Consolidated near surface storage facility (1 year) 0.9 Acres, 7,700 L.F. Conduit	AB3 / AB5 / AB7 Consolidation/ Storage Conduit (1 year) 10,900 L.F. Conduit	AB6 Separate CAM004 3.6 Acres	AB8 Coarse Screening at each outfall
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Primarily in existing ROWs 1	Storage tank facility sites: vacant lot on Cambridge Park Drive, Alewife Brook Reservation, vacant lot opposite MBTA station on Parkway . Consolidation conduit tunnel along Alewife Brook Parkway. 2	Consolidation conduit parallel to existing pipe and Alewife Brook 2	Primarily in existing ROWs 1	Minimum site requirements, located at outfalls or nearby manhole 1
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Typical ROW construction issues 1	Conduit constraints along Alewife Brook Parkway (AGT, BeCO, Exxon)- Tunnel construction required; Potential for hazardous waste along Alewife Parkway 2	Conduit constraints along Alewife Brook Parkway (AGT, BeCo, Exxon pipes) bank; Potential for hazardous waste along Alewife Parkway 2	Typical ROW construction issues 1	Standard construction applicable 1
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings 2	Traffic and residences impacted with conduit construction 3	Traffic, park, and residences impacted with conduit construction 3	Local street closings 2	Minor traffic impacts to Alewife Parkway 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations Impacts 1	O&M associated with storage facility 2	No substantial change to pump station operations 1	No maintenance or operations impacts 1	O&M associated with screens 2
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable 1	Wetlands observed at tank site and along Alewife Brook bank 2	Wetlands observed along Alewife Brook bank 2	Not Applicable 1	Outfalls located along Alewife Brook Bank 2
ALTERNATIVE SUMMARY/ RANKING						

* Numerical values: 1 = Few, if any, implementation constraints; 2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

CSO ALTERNATIVE SITE SCREENING
RECEIVING WATER: SOMERVILLE MARGINAL
CSO CONTROL SITE: SOMERVILLE MARGINAL CSO FACILITY

PARAMETER	NUMERICAL VALUE*/ MEASURE	Sewer Separation	Upgrade Somerville Marginal to Storage (3 month)	Upgrade Somerville Marginal to Storage (1 year)	Upgrade Somerville Marginal to Primary Treatment	No Built- Continue present operations at Somerville Marginal	Deep Rock Tunnel
SITE AVAILABILITY • Vacant land • Park land • Residential • Commercial/Industrial • Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Few potential sites available on Foley Street and Sturtevant Ave.	Few potential sites available on Foley Street and Sturtevant Ave.	Few potential sites available on Foley Street and Sturtevant Ave.	Not Applicable	Few potential sites available on Foley Street and Sturtevant Ave.
CONSTRUCTABILITY	1) Standard construction 2) construction constraints 3) unique &/or special construction required	Not Applicable	Standard construction applicable	Standard construction applicable	Standard construction applicable	Not Applicable	Standard construction applicable
SHORT TERM COMMUNITY IMPACTS • Traffic impacts • Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings	Minor traffic impacts (construction will most likely occur during relocation of I93)	Minor traffic impacts (construction will most likely occur during relocation of I93)	Minor traffic impacts (construction will most likely occur during relocation of I93)	Not Applicable	Minor traffic impacts (construction will most likely occur during relocation of I93)
LONG TERM COMMUNITY IMPACTS • Public acceptance • Maintenance impacts • Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	No maintenance or operation impacts	No maintenance or operation impacts	No maintenance or operation impacts	Not Applicable	No maintenance or operation impacts
ENVIRONMENTAL IMPACTS • Hazardous Waste • Wetlands • Tidelands • Other	1) Low 2) Moderate 3) Severe	Not Applicable	Probability of hazardous waste contamination associated with sites	Probability of hazardous waste contamination associated with sites	Probability of hazardous waste contamination associated with sites	Not Applicable	Probability of hazardous waste contamination associated with sites
ALTERNATIVE SUMMARY/RANKING							

*NUMERICAL VALUES: 1 = Few, if any, implementation constraints; 2 = Potentially difficult implementation; 3 = Potentially prohibits implementation.

CSO ALTERNATIVE SITE SCREENING
RECEIVING WATER: CHELSEA
CSO CONTROL SITE: CHE008

PARAMETER	NUMERICAL VALUE*/ MEASURE	Sewer Separation	Storage at CHE008 (3 month)	Storage at CHE008 (1 year)	Less than primary at CHE008	Deep Rock Tunnel (consolidation and tunnel/shaft)
SITE AVAILABILITY • Vacant land • Park land • Residential • Commercial/Industrial • Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Site adjacent to Chelsea Creek Headworks	Site adjacent to Chelsea Creek Headworks	Site adjacent to Chelsea Creek Headworks	Site adjacent to Chelsea Creek Headworks
CONSTRUCTABILITY	1) Standard construction 2) construction constraints 3) unique &/or special construction required	Not Applicable	Standard construction applicable	Standard construction applicable	Standard construction applicable	Open trench cut and other standard construction techniques applicable
SHORT TERM COMMUNITY IMPACTS • Traffic impacts • Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings	Highland Park	Highland Park	Highland Park	Local traffic impacts
LONG TERM COMMUNITY IMPACTS • Public acceptance • Maintenance impacts • Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	Minor odor issues with Highland Park	Minor odor issues with Highland Park	Minor odor issues with Highland Park	Minor odor issues with Highland Park
ENVIRONMENTAL IMPACTS • Hazardous Waste • Wetlands • Tidelands • Other	1) Low 2) Moderate 3) Severe	Not Applicable	No wetlands observed, potential hazardous waste within site area	No wetlands observed, potential hazardous waste within site area	No wetlands observed, potential hazardous waste within site area	No wetlands observed, potential hazardous waste within site area
ALTERNATIVE SUMMARY/RANKING						

*NUMERICAL VALUES: 1 = Few, if any, implementation constraints; 2 = Potentially difficult implementation; 3 = Potentially prohibits implementation.

RATING OF SITE ISSUES FOR PRISON POINT, UPPER INNER HARBOR

PARAMETER	NUMERICAL VALUE*/ MEASURE	UI1 Sewer Separation	UI2 Relief of Upstream Flow Restrictions Storage @ BOS017& BOS019 (1Yr)	UI3 Relief of Upstream Flow Restrictions Storage @ BOS017& BOS019 (3Mo)	UI4 Prison Point Storage, BOS017 separation BOS019 Storage	UI5 Primary Treatment Prison Pt. Screen Disinfect BOS017&019	UI6 Primary Treatment Prison Pt. Screen BOS017&019	UI7 Deep Rock Tunnel
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant Industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Numerous sites available for BOS017; BOS019 has siting restrictions.	Numerous sites available for BOS017; BOS019 has siting restrictions.	Three sites available at Prison Pt. for deep shaft storage, adjacent to MDC yard is also a potential site.	Site available for primary treatment at Prison Pt.	Site available for primary treatment at Prison Pt.	Site available at Prison Pt. facility.
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Not Applicable	Standard construction is applicable for BOS017; Specialized construction for BOS019.	Standard construction is applicable for BOS017; Specialized construction for BOS019.	Deep shaft construction required at BOS019.	Standard construction is applicable	Standard construction is applicable.	Standard construction is applicable.
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings during construction	Local traffic impacts, Barry playground, multi-family housing, CNY day care, CNY elderly housing	Local traffic impacts, Barry playground, multi-family housing, CNY day care, CNY elderly housing	None for BOS017, unless MDC parcel is utilized. Local street closings during sewer separation of of BOS017.	No impacts anticipated.	No impacts anticipated.	No impacts anticipated.
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	Minor odor issues, maintenance / operations impacts	Minor odor issues, maintenance / operations impacts	No impacts anticipated.	No impacts anticipated.	No impacts anticipated.	No impacts anticipated.
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable	Probability of hazardous wastes at BOS017.	Probability of contaminated soils at BOS017.	Probability of contaminated soils on MDC parcel.	None applicable.	None applicable.	None applicable.
ALTERNATIVE SUMMARY/ RANKING								

* Numerical values: 1= Few, if any, implementation constraints;
2 = Potential difficult implementation;3 = Potentially prohibits implementaion.

RATING OF SITE ISSUES FOR MYSTIC CHELSEA CONFLUENCE / EAST BOSTON

PARAMETER	NUMERICAL VALUE*/ MEASURE	MCC1 Sewer Separation	MCC2 Relieve East Boston Branch Sewer (3-Month)	MCC3 Consolidation Near Surface Storage and Relocation to BOS003 (3Mo)	MCC4 Consolidation Near Surface Storage & Local Storage at BOS014 (1-Year)	MCC5 Consolidation, Equiv. Primary Treatment, Storage, & Relocation to BOS003 (3 Mo)	MCC6 Coarse Screens at Outfalls	MCC7 Deep Rock Tunnel
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant Industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Numerous routes examined. Boston Marine Works on Marginal St. may be problematic.	Not Applicable	Vacant sit corner Eagle and Condor Streets, 3 Sites in Porter-Bremen St. Area.	Site available for screen disinfection facility.	Not applicable.	Site available at Prison Pt. facility.
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Not Applicable	Due to elevation- open trench may be only applicable construction technology.	Standard construction and or soft ground tunnelling	Standard construction. Porter-Bremen St sensitive to construction.	Sensitive construction required due to MBTA Blue Line	Not applicable.	Standard construction is applicable.
SHORT TERM COMMUNITY IMPACTS o Traffic Impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings during construction	Local street closings during construction	Local street closings during construction	American Legion Playground residences; East Boston Recreation area.	Local traffic impacts, East Boston Reacreation area.	No impacts anticipated.	Traffic impacts to Boston Marine Works, Porzio Park, Jeffries Pt. Yacht Club, residences, Decatur play area.
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance Impacts o Operations Impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	No maintenance or operations impacts	No maintenance or operations impacts	No maintenance or operations impacts	No maintenance or operations impacts	No impacts anticipated.	No impacts anticipated.
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable	Not Applicable	Not Applicable	Eagle Street site located in petrolem tank area may encounter contaminated soils.	No wetlands or other enviornmental constraints.	None applicable.	May encounter hazardous wast contamination,.
ALTERNATIVE SUMMARY/ RANKING								

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2 = Potential difficult implementation;3 = Potentially prohibits implementaion.

CSO ALTERNATIVE SITE SCREENING
RECEIVING WATER: RESERVED CHANNEL
CSO CONTROL SITE: BOS076 AND BOS080

PARAMETER	NUMERICAL VALUE*/ MEASURE	Sewer Separation	Consolidation, screening and disinfection BOS076 (1 year)	Consolidation, screening and disinfection BOS076 (3 month)	Consolidation and near surface storage BOS080 (1 year)	Coarse Screening
SITE AVAILABILITY • Vacant land • Park land • Residential • Commercial/Industrial • Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable	Tight siting (under private road), facility in Casey & Hayes lot	Tight siting (under private road), facility in Casey & Hayes lot	Sites located at Conley Marine Terminal and MDC park	Not Applicable
CONSTRUCTABILITY	1) Standard construction 2) construction constraints 3) unique &/or special construction required	Not Applicable				Not Applicable
SHORT TERM COMMUNITY IMPACTS • Traffic impacts • Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings	Need to keep East First St. open to truck traffic, neighborhood impacts at soft ground tunneling shafts	Need to keep East First St. open to truck traffic, neighborhood impacts at soft ground tunneling shafts	Residences, East First Street playground	Not Applicable
LONG TERM COMMUNITY IMPACTS • Public acceptance • Maintenance impacts • Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts	No maintenance or operation impacts	No maintenance or operation impacts	No maintenance or operation impacts	Not Applicable
ENVIRONMENTAL IMPACTS • Hazardous Waste • Wetlands • Tidelands • Other	1) Low 2) Moderate 3) Severe	Not Applicable	Tidelands	Tidelands	"Oily" odors at Conley Marine Terminal, tidelands	Not Applicable
ALTERNATIVE SUMMARY/RANKING						

*NUMERICAL VALUES: 1 = Few, if any, implementation constraints; 2 = Potentially difficult implementation; 3 = Potentially prohibits implementation.

RATING OF SITING ISSUES FOR FORT POINT CHANNEL

PARAMETER	NUMERICAL VALUE*/ MEASURE	FPC1	FPC2			
			Detention/treatment UPPS; Consolidation/storage conduit BOS072-073; coarse screen BOS062,068 ; and in-line storage, (3 month)			
		Sewer Separation 1068 Acres	BOS072/073 0.5 Acres	UPPS 0.6 Acres	BOS062-068 0.3 Acres	DBC 0.3 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Primarily in existing ROWs 1	Located at outfalls 2	The UPPS parcel can accommodate a detention/ storage facility 1	Located at outfalls or nearby manholes 1	Potentially problematic route/ weaving between buildings for in-line storage of Dorchester Brook Conduit 2
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Typical ROW construction issues 2	Vibration; Hazardous waste anticipated with conduit route 2	UPPS storage could be standard procedure, con-solidation 2	Standard construction anticipated 1	 2
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Local street closings 2	Parking impacts to consolidation 2	Housing on Union Park Street (opposite site); 2	Minor temporary traffic impacts 1	Minor temporary traffic impacts 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operations impacts 1	no O&M impacts associated with conduit 2	Minor odor issues with storage to housing 2	No maintenance or operation impacts 1	No O&M impacts associated with conduit 1
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Not Applicable 1	Immediately adjacent to water 2	No environmental resources observed 1	At or near outfalls 1	 1
ALTERNATIVE SUMMARY/ RANKING						

* Numerical values: 1 = Few, if any, implementation constraints;
2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

RATING OF SITING ISSUES FOR FORT POINT CHANNEL

PARAMETER	NUMERICAL VALUE*/ MEASURE	FPC3 Screen and Disinfect UPPS, BOS072, 073 course screen BOS062,068 and in-line storage (3 month)			
		BOS072/073 0.5 Acres	UPPS 0.5 Acres	BOS062-068 0.3 Acres	DBC 0.3 Acres
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	BOS073 has a potential screening facility site within the Gillette parking area 2	The UPPS parcel can accommodate a detention/ storage facility 1	Located at outfalls or nearby manhole 1	Gate structure & pump-out structure required. Existing line location must be determined 2
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	BOS073 storage facility site could accommodate standard construction procedure ,dewatering. Potential for hazardous waste contamination at Gillette (old industrial land) 2	UPPS storage facility site could accommodate standard construction procedure 2	Standard construction anticipated 1	Pressure Relief Ports in conduit 2
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Gillette parking area 2	Elderly housing behind existing UPPS and housing immediately across street from site. 2	Minor temporary traffic impacts 1	Minor temporary traffic impacts 1
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	Minor impacts with facilities 2	Minor odor issues with storage to housing 2	No maintenance or operation impacts 1	No maintenance or operation impacts 1
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	Immediately adjacent to channel 1	 1	At or near outfalls 1	 1
ALTERNATIVE SUMMARY/ RANKING					

* Numerical values: 1 = Few, if any, implementation constraints;
2 = Potential difficult implementation; 3 = Potentially prohibits implementaion.

RATING OF SITING ISSUES FOR FORT POINT CHANNEL

PARAMETER	NUMERICAL VALUE*/ MEASURE	FPC4			Deep Rock Tunnel and consolidation (1 year)
		Coarse screen BOS062-068,072, and 073; and receiving water controls BOS070			
		BOS072/073 0.3 Acres	BOS062-068	BOS070 0.5 Acres	
SITE AVAILABILITY o Vacant land o Park land o Residential o Commercial/Industrial o Vacant industrial	1) Multiple sites/few restrictions 2) Limited sites/site restrictions 3) No site/severe restrictions	Not Applicable for coarse screens 1	Located at outfalls or nearby manholes 1	Receiving water control site currently RR track storage and vehicle /truck parking 1	CA/T design an issue for shaft/tunnel siting 2
CONSTRUCTABILITY	1) Standard construction 2) Construction constraints 3) Unique & /or special construction required	Standard/Not Applicable 1	Standard/Not Applicable 1	Standard/Not Applicable 1	CA/T design an issue 2
SHORT TERM COMMUNITY IMPACTS o Traffic impacts o Sensitive receptors	1) Low 2) Moderate 3) Severe	Minor temporary traffic impacts 1	Minor temporary traffic impacts 1	Minor temporary traffic impacts 1	Location dependent upon CA/T design 2
LONG TERM COMMUNITY IMPACTS o Public acceptance o Maintenance impacts o Operations impacts	1) Low 2) Moderate 3) Severe	No maintenance or operation impacts 1	No maintenance or operation impacts 1	No maintenance or operation impacts, aesthetic impacts from receiving water controls 3	No maintenance or operation impacts 1
ENVIRONMENTAL IMPACTS o Hazardous Waste o Wetlands o Tidelands o Other	1) Low 2) Moderate 3) Severe	At or near outfalls 1	At or near outfalls 1	Working in water 2	 2
ALTERNATIVE SUMMARY/ RANKING					

* Numerical values: 1= Few, if any, implementation constraints;
2 =Potential difficult implementation; 3 = Potentially prohibits implementaion.

APPENDIX K
DEFINITIONS OF I/I RELATED TERMS

APPENDIX K
DEFINITIONS OF I/I RELATED TERMS

Building Service Connection: location where the building service lateral connects to the public sewer; typically made using a wye or tee, or with a chimney for deep sewers.

Building Service Lateral: the pipe transporting wastewater from a building to the public sewer.

Combined Sewer: a sewer intended to serve as both a sanitary and a storm sewer.

Defect: a point source of infiltration/inflow.

Disaggregation of I/I: The assignment of a specific quantity of infiltration or inflow to a public connection. For example, if Community X has a total infiltration of 2 mgd and a total of 2 public connections which are approximately equal in terms of tributary length, 1 mgd would be disaggregated to each public connection if no information was available from prior studies regarding specific infiltration quantities. When I/I quantities and locations were available, quantities were disaggregated accordingly.

Dyed Water Tracing: A technique in which a confirmed inflow source is located through inspection with a color T.V. camera.

Excessive Infiltration/Inflow: the quantities of infiltration/inflow which are less costly to remove by sewer system rehabilitation than to transport and treat at the receiving facility, when both capital costs of increased sewerage facilities capacity and resulting operating cost are included.

Groundwater Migration: the tendency of groundwater to move from a rehabilitated defect to another defect.

I/I Alternative: an alternative comprised of one or more I/I removal technologies (discussed below) designed to reduce flows in a particular geographic area of the MWRA collection system.

I/I Strategy: a compilation of one or more I/I alternatives designed to achieve a series of targeted reductions in I/I flows and volumes on a system-wide basis.

Infiltration/Inflow - the quantity of water from both infiltration and inflow without distinguishing the source.

Infiltration/Inflow Rehabilitation: Construction associated with the removal of infiltration and inflow from abatement facilities.

Infiltration: Infiltration is dry weather flow resulting from the leakage of groundwater into collection systems through pipeline, manhole, and building service defects. Public infiltration sources include, but are not limited to, sewer defects such as pipe joints, cracks, punctures, and leaking manholes. Private sources would include defective service connections. Because infiltration can occur along the entire length of the sewer system and is influenced by the size of the conduits, a common system performance measure for infiltration is gallons per day per inch diameter-mile of sewer (gpdim). Infiltration should be minimized to the extent that it is cost-effective to do so. In most systems, particularly older ones such as the MWRA system, infiltration cannot be totally eliminated.

Peak infiltration refers to the maximum rate of infiltration. Annual Peak infiltration rates are typically measured during the months of March and April when groundwater levels are highest.

Average Infiltration refers to the average rate of infiltration occurring throughout the year. Average infiltration rates may also be determined on a monthly basis.

Inflow: Inflow is defined as wet weather flow resulting from the entry of stormwater into the sewer system from sources which include, but are not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include, and is distinguished from infiltration. The two types of inflow are Direct and Indirect inflow. Indirect Inflow is sometimes referred to as Rainfall Induced Infiltration.

Direct Inflow: Direct inflow sources are those sources which collect stormwater surface runoff and are directly connected to the sanitary sewer such as catch basins (i.e. direct public inflow source) and roof leaders (direct private inflow source); direct inflow sources are generally not permitted under sewer use regulations in separately sewered communities.

Indirect Inflow (Rainfall Induced Infiltration): This type of inflow results from a rain event but is distinguished from direct inflow since this type enters the sewer through the same defects as infiltration (i.e. pipe joints, cracks, punctures, leaking manholes and service connections). Rainfall induced infiltration is often quantified by analysis of sewer system flows for several days following a rain event when groundwater levels are temporarily increased due to storm activity. Indirect inflow sources are the same as those at which dry-weather infiltration enters the system (joints, crack, punctures, and manholes) but is distinguished from infiltration because it occurs during wet weather events. Inflow can occur over the entire length of the sewer system, but is less dependent on the size of the sewer lines than infiltration. A common system performance measure for inflow is million gallons per mile (mg/mile) of sewer.

Peak or Design Inflow: The inflow quantity or volume associated with a selected storm event. In the Boston Area, the selected storm used by MWRA is the 1-year, 6 hour storm.

Average Inflow: refers to the average rate of inflow occurring throughout the year.

Internal inspection: the inspection of conduits previously cleaned) by physical, photographic and/or television (TV) methods.

Preparatory Cleaning: the adequate cleaning of sewers previously identified as potential sources of excessive infiltration/inflow prior to internal inspection.

Public and Private I/I Sources: For purposes of quantifying I/I sources and related costs for removal, I/I sources may be identified as private or public sources. Private I/I sources are those sources which originate on private property, such as defective building sewers and roof leader connections; removal of private sources is often problematic due to issues relating to work on private property. Public I/I sources are those sources which are located in the public right of way, such as manhole and pipeline defects, and catch basin connections. Figure 1-1 shows some typical public and private sources of I/I.

Sanitary Sewer: a sewer intended to carry only sanitary flow.

Sanitary Flow: the component of wastewater which includes domestic, commercial, institutional ,and industrial sewage, and specifically excludes infiltration/inflow.

Sewer Segment: a length of sewer from one manhole to another, also called "sewer reach". Manhole to manhole segments

Sewer Facilities: all facilities for collecting, pumping treating, and disposing of sewerage.

SMP Scenario: a compilation of strategies (CSO, interceptor, I/I, and secondary treatment) designed to achieve master planning goals and objectives

Storm Sewer: a sewer intended to carry only storm water, surface runoff, street wash water and drainage.

Storm Water: all water running off from the surface of a drainage area after a period of rain.

Suspect Inflow Source: a possible source of inflow which did not smoke during smoke testing, generally located on private property.

System Performance Values: (See definitions for inflow and infiltration)

Transportation and Treatment Cost (T&T Cost): Generally defined as the sum of the capital cost relating to sizing sewerage facilities, plus the operation and maintenance cost of the system.

Visually Estimated Infiltration/Inflow: the rate of infiltration/inflow observed during internal inspection, and estimated at the time.

Wastewater Flow: flow through sanitary sewers which includes all flow components (sanitary, infiltration and inflow).

APPENDIX L
SUPPLEMENTAL INFORMATION ON DEVELOPMENT OF I/I DATA, EFFECTIVENESS OF REHABILITATIONS, AND RELATED COSTS

Includes:

- Example of Methodology Applied in the Development of Costs for I/I Control Alternative included in the SMP.
- Listing of I/I & SSES Reports Completed for MWRA Communities
- Summary by Community of I/I Reductions Included in the SMP

EXAMPLE OF METHODOLOGY APPLIED IN THE DEVELOPMENT OF COSTS FOR I/I CONTROL ALTERNATIVE BASED ON SELECTED SYSTEM PERFORMANCE CRITERIA

EXAMPLE OF METHODOLOGY USED IN DEVELOPMENT OF I/I REDUCTION AND ASSOCIATED COSTS: I/I CONTROL BASED ON SELECTED SYSTEM PERFORMANCE CRITERIA

I/I CONTROL LEVELS BASED ON GPDIM AND MG/MILE						
INFILTRATION CONTROL LEVELS			INFLOW CONTROL LEVELS (2)			
gpdim Range	% Overall Infiltration Reduction (1)	% of Mainline Footage to be Rehabilitated (3)	mg/mile Range	% Direct Public Inflow Reduction	% Direct Private Inflow Reduction	% Indirect Inflow Reduction
>20,000	10%	50%	>0.7	50%	10%	10%
10,000 - 20,000	7.5%	37.5%	0.18 - 0.7	37.5%	7.5%	7.5%
5,000 - 10,000	5%	25%	0.095 - 0.18	25%	5%	5%
3,000 - 5,000	2.5%	12.5%	0.04 - .0095	12.5%	2.5%	2.5%
< 3,000	0%	0%	< 0.04	0%	0%	0%

(1) Assume no infiltration reduction from private sources; reduction to be achieved by rehabilitation of public sources only.

(2) Reduction of indirect inflow shall be proportional to the percent reduction of infiltration at the public connection.

(3) Percent footage to be rehabilitated is based on the assumption that 40% of infiltration is from public sector sources; it is also assumed that only public sector rehabilitation will take place, which results in a maximum infiltration removal of 20% if 100% of public sector rehab (i.e. 100% of mainline footage with associated service conn. rehab.) work is completed. The 20/100 ratio applies to other GPDIM ranges (i.e. 10/50, 7.5/37.5, 5/25, 2.5/ 12.5).

EXAMPLE OF I/I REDUCTION AND COST DEVELOPMENT AT PUBLIC CONN.# AR-057-P

KEY DATA AT PUBLIC CONNECTION # AR-057-P	
TOTAL TRIBUTARY FOOTAGE:	28,248
TOTAL NO. OF SERVICE CONNECTIONS:	646
TOTAL INFILTRATION (MGD)	0.145
GPDIM:	**3,346**
INFLOW TOTAL (MG):	0.289
TOTAL DIRECT (FROM MODEL 4 DAY INFLOW GR	0.044
ESTIMATED DIRECT PUBLIC:	0.022
ESTIMATED DIRECT PRIVATE:	0.022
ESTIMATED INDIRECT INFLOW:	0.246
MG/MILE:	**0.054**

INFILTRATION REDUCTION AND COST DEVELOPMENT
GPDIM= 3,346 THEREFORE 2.5% REDUCTION IS REQUIRED
0.145 X 0.025 = 0.004 MGD TOTAL INFILTR. REMOVED

STUDY COST
IDENTIFICATION COST: 28,248 LF X $0.5625/LF = $15,889
ENGIN'RG OVERSITE AT 12%: 15,889 x .12= $1,907

CONSTRUCTION COST
12.5% OF MAINLINE FOOTAGE TO REHAB: 28,248 LF x .125 = 3,531 LF
CONSTRUCTION REHAB COST AT $25/LF: 3,531 x $25 = $88,275
SERVICE CONNECTION REHAB: 12.5% OF SERVICES ARE ASSOCIATED WITH MAINLINE TO BE REHAB'D, AND 25% WILL BE REHAB'D AT $600 EACH: 646 x .125 x .25 x $600 = $12,112

ENGINEERING DESIGN COST
15% OF MAINLINE REHAB COST: $88,275 x .15 = $13,241

TOTAL COST INFILTRATION REDUCTION = $131 424 (ROUNDED TO $131 000)

INFLOW REDUCTION AND COST DEVELOPEMENT
MG/MILE=0.054, THEREFORE 12.5% DIRECT PUBLIC INFLOW REDUCTION REQUIRED
AND 2.5% DIRECT PRIVATE INFLOW REDUCTION REQUIRED

DIRECT PUBLIC INFLOW REDUCTION
$1.00/GAL REMOVED: .022 x .125 x $1 = $2,750 FOR 2,750 GALLONS REMOVED

DIRECT PRIVATE INFLOW REDUCTION
$5.00/GAL REMOVED: .022 x .025 x $5 = $2,750 FOR 550 GALLONS REMOVED

TOTAL COST INFLOW REDUCTION = $6 000
COST IS $5,500 ($6,000 ROUNDED TO NEAREST 1,000) FOR 3,300 GALLONS REMOVED

INDIRECT INFLOW REDUCTION
INDIRECT INFLOW REMOVED IS PROPORTIONAL TO THE PERCENT OF INFILTRATION REMOVED
INFILT GPDIM=3,346 REQUIRING 2.5% REDUCTION
THEREFORE, REDUCE INDIRECT INFLOW BY 2.5%: .246 x .025 = .00615 MG

BASIS OF $25/LF. UNIT COST FOR REHABILITATION OF MAINLINE SEWER

Assumptions:

- 300 lf MH to MH reach will be rehabilitated
- 2 manholes will be sealed
- 3 foot joint spacing
- Each joint will be tested, 1/2 of these will be sealed
- 4 spot repairs will be required (excavate & repair)
- Economy to be achieved by bidding work in quantity

DEVELOPMENT OF UNIT COST

TASK	UNIT	UNIT COST	QTY	TOTAL
Rehab. of main sewer				
Seal two manholes	each	$1,000	2	$2,000
Test each joint	each	$2.00	100	$200
Joint, test & seal	joint	$25	50	$1,250
4 spot repairs	each	$1,000	4	$4,000
SUM:				$7,450

$7,350 /300 l.f.= cost per l.f. of main: **$25**

BASIS OF $0.5625/L.F. MULTIPLIER FOR STUDY COST TO IDENTIFY INFILTRATION

Assume an area of (L.F.):	**100,000**

Tasks Required to ID Infiltration

Flow Isolate 1000 lf reaches @$0.10/lf	**$10,000.00**
Flow Iso MH to MH Reaches in 50%system @ $0.15/l.f.	**$7,500.00**
TV Inspection in Target Area	
Assume light clean, pre-TV flow isolation and TV inspection included	
Unit cost per lf (inc. report)>>>>>>	**$1.55**

Application of Cost

Results of 50% Fl'd MH to MH areas yields 25% of l.f. to be televised overall

TV inspect 25% or 25,000 lf x TVunit cost $1.55/l.f.	**$38,750.00**
Sum costs(Field work to ID infiltration):	**$56,250.00**
Cost / 100,000 lf (Multiplier):	**0.5625**

BASIS OF $600 UNIT COST FOR HOUSE SERVICE REHABILITATION AT CONNECTION TO MAINLINE

Assumptions:

- Assume excavation required at connection to main, average depth 8 to 10 l.f.
- Assume full surface restoration will be performed. i.e pavement
- Assume 3 man work crew can perform an average of 3 rehabilitations per 8-hour work day.

Estimated Rate per hour for crew member, includes overhead	**$50**
Estimated Materials cost for each rehabilitation(pipe, wyes, tees, pavement)	**$200**
Labor cost for 8 hour work day, 3 man crew	**$1,200**
Sum materials and Labor required for 3 rehab's	**$1,800**
Unit cost for each rehabilitation performed:	**$600**

LISTING OF I/I & SSES REPORTS COMPLETED FOR MWRA COMMUNITIES

COMMUNITY REPORT SUMMARY

COMMUNITY	REPORT TITLE	DATE	CONSULTANT
1 ARLINGTON	1 I/I Study	Jun. 82	C & R
	2 Facilities Plan	Feb. 86	C & R
	3 SSES	Feb. 87	C & R
	4 House to House Ongoing Inspection Report		C & R
2 ASHLAND	1 I/I Study	Dec. 80	PSG
	SSES, Phase 1 & 2	Dec. 88	
	Sewerage Fac Plan		Haley & Ward
	SSES - Final Report	Feb. 91	Haley & Ward
3 BEDFORD	1 I/I Study	April 77	W & S
	2 SSES	July 78	W & S
	3 Rehab of Old Int.	Sept. 82	W & S
	4 Town Wide SSES (Interim Report)	May 88	W & S
4 BELMONT	1 I/I Study	June 82	FS & T
	2 SSES - Phase 1	Nov 83	FS & T
	3 SSES - Phase 2	April 88	FS & T
5 BOSTON	1 Imp. to Boston Main Drainage System	Sept. 67	CDM
	2 Sup. Report on Nov.75 Imp. to the Boston Main Drainage System	Nov. 75	CDM
	3 SSES - ESI	Jan. 82	CDM
	4 Facilities Plan (Vol.2 - I/I Analysis)	July 82	M & E
	5 SSES (A case Study)	Oct. 87	M & E, RJN
	6 SSES, Phase 2	In Progress	M & E
6 BRAINTREE	1 Fore River Siphon I/I Analysis	June 77	M & E
	2 I/I Report	Nov. 82	W & H
	3 Facilities Plan	Mar. 84	W & H
	4 SSES, Phase 1	Nov. 86	W & H
	5 SSES, Phase 2	In Progress	M & E
7 BROOKLINE	1 I/I Inv.	Jan. 87	CDM
	2 SSES, Phase 2 (Draft)	Oct. 89	CDM
	3 SSES, Phase 2 (Final)	Dec 11	CDM
	4 Private Inflow Source Investigation (Final)	August 91	
8 BURLINGTON	1 I/I Analysis	Feb. 85	M & E
	2 SSES, Phase 1	Feb. 88	M & E
	3 I/I, SSES	June 91	M & E
9 CAMBRIDGE	1 Sewerage and Drainage Facility.	May 68	CEMag

COMMUNITY REPORT SUMMARY

COMMUNITY	REPORT TITLE	DATE	CONSULTANT
10 CANTON	1 I/I Report 2 Facilities Plan 3 SSES, Phase 1 & 2	May 81 Oct. 82 June 85	W & H W & H W & H
11 CHELSEA	1 Sewer Study Vol. 1 & 2 2 Sewer System Inventory (Draft)	Sept. 76 Nov. 91	R.Charles CDM
12 DEDHAM	1 I/I & SSES 2 SSES, Phase 2 Draft recieved by Town 3 SSES, Final Report is available for review at Town	Aug. 87 Sept. 89	M & E M & E
13 EVERETT	1 I/I Inv. 2 SSES	Apr. 85 In Progress	CDM CDM
14 FRAMINGHAM	1 I/I Study 2 SSES, Phase 1 & 2 3 SSES Final Report	Dec. 80 Apr. 89 Jan. 90	PSG H & W H & W
15 HINGHAM	1 Facilities Plan 2 I/I Inv. 3 SSES, Phase 2, Draft 4 TV Insp. Report, Draft	Sept. 83 Oct. 85 Sept. 86 Oct. 87	M & E CDM CDM CDM
16 HOLBROOK	1 Facilities Plan Draft	Nov. 85	CDM
17 LEXINGTON	1 Facilities Plan 2 I/I Analysis 3 TV Insp. /SSES	Jan. 84 Nov. 78 Nov. 82	LEA W & H LEA
18 MALDEN	1 I/I Analysis Area A, B, C. 2 Facilities Plan Area B 3 Facility. Plan Area C 4 SSES - Area C	Dec. 76 Feb. 77 Jun. 78 Jun. 78	FS & T FS & T FS & T FS & T
19 MEDFORD	1 I/I Analysis 2 Unmetered Areas I/I Analysis 3 Facility. Plan	May 78 Jan. 80 May 82	LEA LEA LEA
20 MELROSE	1 I/I Analysis 2 SSES on East Trunk 3 I/I Analysis Flowmeter Graphs 4 I/I Analysis Draft & Final	Nov. 84 Oct. 77 1988 1990	M & E M & E W & S W & S

COMMUNITY REPORT SUMMARY

COMMUNITY		REPORT TITLE	DATE	CONSULTANT
21 MILTON	1	Facilities Plan	Mar. 83	CDM
		Revised	Oct. 86	
	2	House to House Inspection		Town
			In progress	
22 NATICK	1	SSES	July 76	Penetryn
	2	I/I Study	June 78	And - N
	3	I/I Study	Dec. 80	PSG
	4	SSES Phase 1 & 2	Aug. 93	And - N
23 NEEDHAM	1	I/I Invest.	Apr. 85	CDM
		Final		
	2	SSES,	July 87	CDM
		Phase 2, Draft		
	3	House to House Inspection		Town
		Report	In Progress	
	4	Suppl. I/I	Feb. 89	CDM
24 NEWTON	1	I/I Analysis	Sept. 78	C & R
		Area A		
	2	SSES, Part 1	Mar. 80	C & R
		Area A		
	3	I/I Analysis	Apr. 81	C & R
		Areas B & C		
	4	Facility. Plan	Jan. 83/Oct. & Dec. 84	C & R
	5	SSES, Part 1	August 83	C & R
		Areas B & C		
	6	SSES, Part 2	July 84	C & R
		Areas B & C		
	7	SSES, Part 2	June 82	C & R
		Areas A		
	8	Request for State Aid	1988	
	9	Sump Pump Survey, Quinnobeguin Rd	Feb 91	C & R
25 NORWOOD	1	Facility. Plan	Sept 83	CDM
		Revised	Aug. 85	
		Updated	May 88	
	2	SSES, Phase 1	Feb. 84	CDM
	3	SSES, Phase 2	June 85	CDM
	4	I/I Study	Mar. 89	CDM
	5	House to House Inspection	Ongoing	Town
		Report		
	6	Inflow ID Prog.	In Progress	CDM
	7	Airport Int. Study	Mar.89	CDM
	8	Inflow	Oct. 90	CDM
	9	Inflow Phase 2	Nov. 91	
	10	SSES	May 90	W & S

COMMUNITY REPORT SUMMARY

COMMUNITY		REPORT TITLE	DATE	CONSULTANT
26 QUINCY	1	Facility. Plan	July 81	Moore Ass.
	2	SSES Squantum and Hough's Neck System	Nov. 86	W & H
	3	SSES West Quincy System	Nov. 89	W & H
	4	SSES Phase 1	May 90	W & H
	5	Quincy P.S. Facility Plan	July 90	W & H
	6	Quincy I/I SSES	Feb 92	W & H
	7	N.Quincy - Phase1	March 92	W & S
	8	S.Quincy/Faxon Park Phase 2	March 92	W & S
	9	Town Int. SSES	Nov 92	W & H
	10	S.Quincy extended Phase 2	May 93	W & S
27 RANDOLPH	1	I/I Study Draft	Aug. 88	BETA
28 READING	1	Reading Pump Station	July 83	SEA
	2	I/IAnalysis Reading/Walkefield/Stoneham	Oct. 76	W & H
	3	I/I Phase 1	Oct. 87	CDM
	4	I/I Phase 2A	Feb. 91	CDM
29 REVERE	1	Storm Drainage Imp.	1975	Som. Engin.
	2	Facility. Plan	Sept. 76	H, H & B
	3	SSES	Oct. 80	H, H & B
30 SOMERVILLE	1	I/I Study	Mar. 76	CDM
	2	Boynton Yards Utility Asses	Aug. 89	CDM
	3	Somer. Ave. Sewer T.V. 5000	Sept. 89	Instituform of N.E
	4	Utility Analysis Assembly Square Dist.	Dec. 89	Green/Int.
31 STONEHAM	1	I/I Analysis Reading/Walkefield/Stoneham	Oct. 76	W & H
	2	Facilities Plan	July 81	CDM
	3	Rainfall Simulation	Dec. 82	CDM
	4	SSES	Jan. 83	CDM
	5	Private Inflow Source - Questionaire	July 89	CDM

COMMUNITY REPORT SUMMARY

COMMUNITY		REPORT TITLE	DATE	CONSULTANT
32 STOUGHTON	1	I/I Study Final	June 86	W & S
	2	SSES - Phase 1 Final	Dec. 87	W & S
	3	SSES - Phase 2 Draft	June 90	W & S
	4	SSES - Phase 2	April 91	W & S
33 WAKEFIELD	1	I/I Study	Aug. 75	CDM
	2	I/I for MDC Reading/Walkefield/Stoneham	Oct. 76	W & H
	3	SSES	Aug. 78	CD-Penetryn
	4	SSES - Audubon Rd. Industrial Area	Sept. 78	CDM
	5	I/I Study Final	Oct. 85	CDM
	6	SSES - Field Studies Report	1985	Scan -N-Seal
	7	SSES Survey Results	Aug. 86	CDM
	8	SSES Phase 2	Dec. 86	CDM
34 WALPOLE	1	I/I Analysis	1976	CE-Mag
	2	Facilities Plan	Aug. 81	SEA
	3	SSES Phase 1	Aug. 89	W & S
	4	E.I.R	Aug. 89	SEA
35 WALTHAM	1	I/I Study	Aug. 76	CE-Mag
	2	I/I Study	Aug. 81	CE-Mag
	3	I/I Investigation & SSES	Feb. 93	LEA
36 WATERTOWN	1	I/I Analysis	July 77	LEA
	2	SSES Facilities Plan	June 81	LEA
	3	Sewer Syst. Evaluation	June 89	LEA
37 WELLESLEY	1	I/I Study	Oct. 78	CE-Mag
	2	SSES Study	June 80	CE-Mag
	3	Flow Mon. Report	June 86	Town
	4	I/I Study/ Phase SSES (Draft)	Sept. 92	W & H
38 WESTWOOD	1	I/I Analysis	Feb. 85	W & H
	2	I/I Analysis Phase 1 & 2, SSES	Jan. 91	W & H

COMMUNITY REPORT SUMMARY

COMMUNITY		REPORT TITLE	DATE	CONSULTANT
39 WEYMOUTH	1	Study Fore River Siphon (MDC)	June 77	M & E
	2	I/I Analysis Draft	Mar. 85	M & E
	3	SSES	June 88	M & E
	4	SSES Follow-up, ongoing	Dec. 89	N/A
40 WILMINGTON	1	I/I Analysis	Nov. 84	FS & T
41 WINCHESTER	1	I/I Study	Nov. 78	C & R
	2	Facilities Plan	1982	C & R
	3	SSES	Feb.83	C & R
42 WINTHROP	1	I/I Analysis	Dec. 79	LEA
	2	I/I Analysis	Nov. 90	LEA
43 WOBURN	1	I/I Analysis	July 84	W & H
	2	SSES	1988	W & H
	3	I/I Analysis	July 89	W & H
44 CLINTON	1	Infiltration Industrial Waste	Nov. 72	

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SUMMARY BY COMMUNITY OF I/I REDUCTIONS INCLUDED IN THE SMP

COMMUNITY SUMMARY OF I/I REDUCTION STRATEGIES
BASED ON SELECTED I/I CONTROL LEVELS

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COMMUNITY	TOTAL PEAK INFILTRATI (MGD)	PUBLIC SECTOR INFILTRATION: TOTAL PUBLIC SECTOR INFILTRATION (MGD)	PUBLIC SECTOR INFILTRATION: QUANTITY PUBLIC SECTOR INFILTRATION REMOVED (MGD)	PUBLIC SECTOR INFILTRATION: COST OF REMOVAL $	PUBLIC SECTOR INFILTRATION: TOTAL QUANTITY INFILTRATION REMAINING (MGD)	1Y 6H TOTAL INFLOW (MG)	DIRECT PUBLIC INFLOW: TOTAL DIRECT PUBLIC INFLOW (MG)	DIRECT PUBLIC INFLOW: QUANTITY DIRECT PUBLIC INFLOW REMOVED (MG)	DIRECT PUBLIC INFLOW: COST OF REMOVAL $	DIRECT PUBLIC INFLOW: TOTAL QUANTITY DIRECT PUBLIC REMAINING (MG)	DIRECT PRIVATE INFLOW: TOTAL DIRECT PRIV INFLOW (MG)	DIRECT PRIVATE INFLOW: QUANTITY DIRECT PRIVATE INFLOW REMOVED (MG)	DIRECT PRIVATE INFLOW: COST OF REMOVAL $	DIRECT PRIVATE INFLOW: TOTAL QUANTITY DIRECT PRIVATE REMAINING (MG)	INDIRECT INFLOW (2): TOTAL INDIRECT INFLOW (MG)	INDIRECT INFLOW (2): QUANTITY INDIRECT INFLOW REMOVED (MG)	INDIRECT INFLOW (2): TOTAL QUANTITY INDIRECT REMAINING (MG)	INFLOW SUMMARY: TOTAL INFLOW REMOVED	INFLOW SUMMARY: TOTAL COST INFLOW REMOVED	INFLOW SUMMARY: COMMUNITY PERCENT REDUCTION IN TOTAL INFLOW
DATABASE REFERENCES (1)->>	A	CC + EE	D	G	F = A - D	L	AD	AE	AG	AD - AE	AI	AJ	AL	AI - AJ	AX	AZ	AX - AZ	BB= AE+AJ+AZ	AG + AL	BBL
Arlington	2.7018	1.0807	0.0700	$1,395,000	2.6318	2.2444	0.5149	0.0150	$15,000	0.4999	0.5149	0.0030	$15,000	0.5119	1.2146	0.0172	1.1974	0.0352	$30,000	1.57%
Bedford	1.7500	0.7000	0.0438	$1,550,000	1.7063	0.7342	0.1101	0.0000	$0	0.1101	0.1101	0.0000	$0	0.1101	0.5140	0.0128	0.5011	0.0128	$0	1.75%
Belmont	2.3600	0.9440	0.0590	$1,823,000	2.3010	3.3653	0.4588	0.0357	$36,000	0.4231	0.4588	0.0071	$36,000	0.4517	2.4477	0.0611	2.3866	0.1039	$72,000	3.09%
Brookline (North Only)	2.6600	1.0640	0.1330	$1,281,000	2.5270	1.9914	0.5377	0.0672	$67,000	0.4705	0.5377	0.0134	$67,000	0.5242	0.9160	0.0458	0.8702	0.1265	$134,000	6.35%
Burlington	2.5100	1.0040	0.0000	$0	2.5100	2.4685	0.3703	0.0000	$0	0.3703	0.3703	0.0000	$0	0.3703	1.7279	0.0000	1.7279	0.0000	$0	0.00%
Everett	3.6000	1.4400	0.1800	$2,388,000	3.4200	8.3553	2.0242	0.5131	$513,000	1.5111	2.0242	0.1026	$513,000	1.9216	4.3069	0.1936	4.1133	0.8094	$1,026,000	9.69%
Lexington	6.4825	2.5930	0.3066	$5,372,000	6.1759	2.6246	0.6606	0.2316	$232,000	0.4290	0.6606	0.0463	$232,000	0.6143	1.3035	0.0843	1.2192	0.3622	$464,000	13.80%
Malden	3.8041	1.5217	0.0967	$2,416,000	3.7074	3.8486	0.6176	0.1203	$120,000	0.4973	0.6176	0.0241	$120,000	0.5936	2.6133	0.0595	2.5538	0.2039	$240,000	5.30%
Medford	8.3710	3.3484	0.5151	$5,225,000	7.8559	16.3826	3.0383	1.0953	$1,095,000	1.9430	3.0383	0.2191	$1,095,000	2.8193	10.3059	0.6560	9.6499	1.9703	$2,190,000	12.03%
Melrose	3.9320	1.5728	0.1895	$2,829,000	3.7425	1.0335	0.1284	0.0021	$2,000	0.1263	0.1284	0.0004	$2,000	0.1280	0.7767	0.0300	0.7467	0.0326	$4,000	3.15%
Milton (North Only)	0.3200	0.1280	0.0125	$163,000	0.3075	5.8236	0.9398	0.4699	$470,000	0.4699	0.9398	0.0940	$470,000	0.8458	3.9441	0.1157	3.8283	0.6796	$940,000	11.67%
Newton (North Only)	6.4800	2.5920	0.4063	$1,307,000	6.0738	1.6032	0.2390	0.0021	$2,000	0.2369	0.2390	0.0004	$2,000	0.2386	1.1252	0.0140	1.1112	0.0165	$4,000	1.03%
Reading	1.6320	0.6528	0.0000	$0	1.6320	1.1645	0.1496	0.0000	$0	0.1496	0.1496	0.0000	$0	0.1496	0.8653	0.0000	0.8653	0.0000	$0	0.00%
Revere	3.2600	1.3040	0.0815	$2,021,000	3.1785	9.0545	1.3810	0.3338	$334,000	1.0472	1.3810	0.0668	$334,000	1.3143	6.2924	0.1573	6.1351	0.5579	$668,000	6.16%
Stoneham	3.2819	1.3127	0.1770	$2,542,000	3.1049	1.5098	0.2041	0.0261	$26,000	0.1780	0.2041	0.0052	$26,000	0.1989	1.1016	0.0341	1.0675	0.0654	$52,000	4.33%
Wakefield	2.6600	1.0640	0.0295	$171,000	2.6305	3.3407	0.4999	0.0735	$74,000	0.4263	0.4999	0.0147	$74,000	0.4852	2.3410	0.0128	2.3282	0.1010	$148,000	3.02%
Waltham	6.6000	2.6400	0.5645	$3,508,000	6.0355	2.5718	0.4023	0.0000	$0	0.4023	0.4023	0.0000	$0	0.4023	1.7671	0.0472	1.7199	0.0472	$0	1.84%
Watertown	2.6300	1.0520	0.0685	$1,699,000	2.5615	2.6100	0.6233	0.0473	$47,000	0.5759	0.6233	0.0095	$47,000	0.6138	1.3634	0.0341	1.3293	0.0909	$94,000	3.48%
Wilmington	0.8800	0.3520	0.0220	$439,000	0.8580	0.3100	0.0698	0.0000	$0	0.0698	0.0698	0.0000	$0	0.0698	0.1705	0.0043	0.1662	0.0043	$0	1.38%
Winchester	3.6240	1.4496	0.1641	$2,181,000	3.4599	2.3696	0.3259	0.0232	$23,000	0.3027	0.3259	0.0046	$23,000	0.3213	1.7178	0.0564	1.6613	0.0843	$46,000	3.56%
Winthrop	3.3500	1.3400	0.2285	$1,636,000	3.1215	23.1408	5.5351	2.3094	$2,309,000	3.2257	5.5351	0.4619	$2,309,000	5.0732	12.0705	0.5942	11.4763	3.3655	$4,618,000	14.54%
Woburn	7.8300	3.1320	0.2933	$3,908,000	7.5368	3.0183	0.3263	0.0090	$9,000	0.3173	0.3263	0.0018	$9,000	0.3245	2.3657	0.0805	2.2851	0.0914	$18,000	3.03%
SUM NORTH:	80.7192	32.2877	3.6413	$43,853,000	77.0779	99.5651	19.1570	5.3747	$5,375,000	13.7823	19.1570	1.0749	$5,375,000	18.0821	61.2511	2.3111	58.9401	8.7607	$10,750,000	8.80%
Ashland	0.4800	0.1920	0.0000	$0	0.4800	0.3365	0.0765	0.0183	$18,000	0.0582	0.0765	0.0037	$18,000	0.0728	0.1834	0.0000	0.1834	0.0220	$36,000	6.53%
Braintree	5.0800	2.0320	0.1955	$3,367,000	4.8845	5.9850	0.5302	0.0861	$86,000	0.4441	0.5302	0.0172	$86,000	0.5130	4.9246	0.1883	4.7363	0.2916	$172,000	4.87%
Brookline (South Only)	5.2969	2.1187	0.2369	$3,152,000	5.0600	6.2939	0.9210	0.1822	$182,000	0.7388	0.9210	0.0364	$182,000	0.8846	4.4519	0.1905	4.2614	0.4092	$364,000	6.50%
Canton	1.7395	0.6958	0.0342	$848,000	1.7053	0.9263	0.1724	0.0000	$0	0.1724	0.1724	0.0000	$0	0.1724	0.5814	0.0088	0.5726	0.0088	$0	0.95%
Dedham	6.4999	2.5999	0.3873	$3,649,000	6.1126	3.2766	0.3883	0.0274	$27,000	0.3609	0.3883	0.0055	$27,000	0.3828	2.5000	0.1280	2.3720	0.1609	$54,000	4.91%
Framingham	4.0100	1.6040	0.0000	$0	4.0100	3.2393	0.7568	0.0965	$96,000	0.6603	0.7568	0.0193	$96,000	0.7375	1.7257	0.0000	1.7257	0.1158	$192,000	3.57%
Hingham	1.0400	0.4160	0.0260	$730,000	1.0140	0.2321	0.0174	0.0000	$0	0.0174	0.0174	0.0000	$0	0.0174	0.1973	0.0049	0.1924	0.0049	$0	2.13%
Holbrook	0.5300	0.2120	0.0000	$0	0.5300	0.3757	0.1127	0.0000	$0	0.1127	0.1127	0.0000	$0	0.1127	0.1503	0.0000	0.1503	0.0000	$0	0.00%
Milton (South Only)	4.8304	1.9322	0.2663	$3,138,000	4.5641	3.6154	0.6882	0.0738	$74,000	0.6145	0.6882	0.0148	$74,000	0.6735	2.2389	0.1068	2.1321	0.1954	$148,000	5.40%
Natick	2.0502	0.8201	0.0275	$401,000	2.0227	1.0539	0.1196	0.0000	$0	0.1196	0.1196	0.0000	$0	0.1196	0.8148	0.0045	0.8103	0.0045	$0	0.43%
Needham	3.2200	1.2880	0.0783	$2,660,000	3.1417	2.6663	0.3999	0.0000	$0	0.3999	0.3999	0.0000	$0	0.3999	1.8664	0.0467	1.8197	0.0467	$0	1.75%
Newton (South Only)	11.3995	4.5598	0.8179	$9,001,000	10.5815	6.9261	1.0562	0.1209	$121,000	0.9353	1.0562	0.0242	$121,000	1.0320	4.8138	0.3622	4.4516	0.5073	$242,000	7.32%
Norwood	4.1700	1.6680	0.1375	$2,305,000	4.0325	1.0647	0.1685	0.0000	$0	0.1685	0.1685	0.0000	$0	0.1685	0.7276	0.0200	0.7076	0.0200	$0	1.87%
Quincy	11.2625	4.5050	0.5480	$8,771,000	10.7145	5.3888	0.7016	0.0810	$81,000	0.6205	0.7016	0.0162	$81,000	0.6854	3.9856	0.1259	3.8597	0.2231	$162,000	4.14%
Randolph	1.8000	0.7200	0.0000	$0	1.8000	1.4631	0.2454	0.0000	$0	0.2454	0.2454	0.0000	$0	0.2454	0.9723	0.0000	0.9723	0.0000	$0	0.00%
Stoughton	2.2100	0.8840	0.0000	$0	2.2100	1.0845	0.2440	0.0000	$0	0.2440	0.2440	0.0000	$0	0.2440	0.5965	0.0000	0.5965	0.0000	$0	0.00%
Walpole	1.6300	0.6520	0.0050	$22,000	1.6250	0.8760	0.1314	0.0000	$0	0.1314	0.1314	0.0000	$0	0.1314	0.6131	0.0000	0.6131	0.0000	$0	0.00%
Wellesley	4.3200	1.7280	0.0903	$2,263,000	4.2298	1.9139	0.2684	0.0000	$0	0.2684	0.2684	0.0000	$0	0.2684	1.3772	0.0230	1.3542	0.0230	$0	1.20%
Westwood	1.1800	0.4720	0.0000	$0	1.1800	0.7351	0.1300	0.0000	$0	0.1300	0.1300	0.0000	$0	0.1300	0.4751	0.0000	0.4751	0.0000	$0	0.00%
Weymouth	6.3800	2.5520	0.1810	$5,361,000	6.1990	1.5119	0.1134	0.0000	$0	0.1134	0.1134	0.0000	$0	0.1134	1.2851	0.0407	1.2444	0.0407	$0	2.70%
Boston (SOUTH)	14.9367	5.9747	0.8403	$3,034,000	14.0964	19.8918	4.7609	1.4901	$1,490,000	3.2707	4.7609	0.2980	$1,490,000	4.4628	10.3701	0.5834	9.7867	2.3715	$2,980,000	11.92%
SUM SOUTH:	94.0657	37.6263	3.8720	$48,703,000	90.1937	68.8569	12.0029	2.1763	$2,176,000	9.8266	12.0029	0.4353	$2,176,000	11.5677	44.8510	1.8336	43.0174	4.4452	$4,352,000	6.46%
Cambridge	7.0300	2.8120	0.5295	$8,030,000	6.5005	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	0.0000	0.0000	$0	N/A
Chelsea	1.6900	0.6760	0.0663	$1,129,000	1.6238	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	0.0000	0.0000	$0	N/A
Boston (North Only)	50.0000	20.0000	1.2500	$14,563,000	48.7500	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	0.0000	0.0000	$0	N/A
Somerville	5.2000	2.0800	0.2553	$5,306,000	4.9448	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	0.0000	0.0000	$0	N/A
SUM CSO Communities:	63.9200	25.5680	2.1010	$29,028,000	61.8190	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	$0	0.0000	0.0000	0.0000	0.0000	0.0000	$0	N/A
GRAND TOTALS:	238.7049	95.4820	9.6143	$121,584,000	229.0906	168.4220	31.1599	7.5510	$7,551,000	23.6089	31.1599	1.5102	$7,551,000	29.6497	106.1022	4.1447	101.9575	13.2059	$15,102,000	7.84%

(1) Columns headings referenced in this row may refer to the column headings in the public connection database.

(2) The cost for indirect inflow removal is zero; indirect inflow reduction is assumed to result from the rehabilitation of infiltration sources, and is proportional to the infiltration reduction a each public connection.