

Appendix 6-1 Opinion of Probable Cost Estimates

- Detailed Opinion of Probable Cost Summary; IPIP Load Reduction Does Not Occurs
- Detailed Opinion of Probable Cost Summary; IPIP Load Reduction Occurs

All costs developed by Black and Veatch unless noted otherwise. Brown and Caldwell improvements costs identified by “BC”

Detailed Opinion of Probable Cost Summary; IPIP Load Reduction Does Not Occur

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|--|------------------------|-----------------------------|-------------------------------|------------------------------|
| Preliminary Treatment-Screenings Building | Arch, Elec, HVAC misc. renewals | Preservation | \$425,000 | \$282,000 | \$0 |
| Preliminary Treatment-Screenings Building | Retrofit grit collection | Preservation | \$150,000 | \$0 | \$0 |
| Preliminary Treatment-Screenings Building | Replace grit system & piping | Expansion | \$0 | \$0 | \$1,250,000 |
| Preliminary Treatment-Liquid Waste Receiving | Structural and Elec misc. repairs | Preservation | \$22,500 | \$0 | \$15,000 |
| Preliminary Treatment Subtotal | n/a | n/a | \$597,500 | \$282,000 | \$1,265,000 |
| Primary Treatment- Primary Clarifiers | Arch, Elec, HVAC misc. renewals | Preservation | \$432,500 | \$177,000 | \$0 |
| Primary Treatment- Primary Clarifiers | Replace grit pumps and piping | Preservation | \$725,000 | \$0 | \$0 |
| Primary Treatment- Primary Clarifiers | Replace grit system & piping | Preservation | \$0 | \$0 | \$0 |
| Primary Treatment- East Primary Clarifier | Replace clarifier mechanisms | Preservation | \$0 | \$3,022,000 | \$0 |
| Primary Treatment- Primary Clarifier Expansion | Construct 2 new clarifiers (09,10) | Expansion | \$0 | \$18,480,000 | \$0 |
| Primary Treatment- West Primary Clarifiers (WPR) | Resurface & Repaint Clarifier Mechanisms | Preservation | \$100,000 | \$0 | \$0 |
| Primary Treatment- Primary Clarifiers | Hydraulics – raise clarifier weirs, scum box ^{BC} | Expansion | \$800,000 | \$0 | \$0 |
| Primary Treatment | Primary Scum Handling | Preservation | \$438,000 | \$0 | \$0 |
| Primary Treatment | Primary Sludge Pump Replacement | Preservation | \$0 | \$0 | \$22,500 |
| Primary Treatment Subtotal | n/a | n/a | \$2,495,500 | \$21,679,000 | \$22,500 |
| Secondary Treatment-Aeration Basins | Replace analyzer conduit, replace fine bubble diffusers, oxygen sensors, | Preservation | \$3,250,000 | \$0 | \$0 |
| Secondary Treatment-Aeration Basins | Install gate actuators (1/basin) ^{BC} | Expansion | \$480,000 | \$0 | \$0 |
| Secondary Treatment-Aeration Basins | Add selector zone baffle walls, new selector zone mixers, swing zone aeration changes, replace selector zone mixing system ^{BC} | Improvements | \$7,170,000 | \$0 | \$0 |
| Secondary Treatment-Blower Building | Arch, Elec, HVAC misc. renewals | Preservation | \$985,000 | \$0 | \$0 |
| Secondary Treatment-Blower Building | Install new jockey blowers (x2) | Improvements | \$3,590,000 | \$0 | \$0 |
| Secondary Treatment-Blower Building | Blower replacement | Preservation | \$0 | \$0 | \$9,489,000 |

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|---|-----------------|----------------------|------------------------|-----------------------|
| Secondary Treatment-Secondary Clarifier | Hydraulics - new MLSS splitter, parallel secondary effluent channel | Expansion | \$16,010,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier | Arch, Elec, HVAC misc. renewals | Preservation | \$478,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier | Replace sump pumps, replace scum pumps & piping, resurface and repaint mechanisms | Preservation | \$240,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier | Replace clarifier flocculation baffle ^{BC} | Improvements | \$1,330,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier and Aeration Basin | Construct SEB 11 & 12 | Expansion | \$24,780,000 | \$0 | \$0 |
| Secondary Treatment-RAS Distribution Building | HVAC replacements | Preservation | \$45,000 | \$0 | \$0 |
| Secondary Treatment-RAS Distribution Building | Replace WAS pumps (x4) | Preservation | \$0 | \$0 | \$540,000 |
| Secondary Treatment Subtotal | n/a | n/a | \$58,348,000 | \$0 | \$23,009,000 |
| Tertiary Treatment- Tertiary Filtration | New tertiary filters ^{BC} | Improvements | \$0 | \$69,000,000 | \$0 |
| Tertiary Treatment- Pond | Hydraulics - New channel to replace aerated pond ^{BC} | Expansion | \$0 | \$0 | \$15,000,000 |
| Tertiary Treatment Subtotal | n/a | n/a | \$0 | \$69,000,000 | \$15,000,000 |
| Effluent Process-Disinfection Building | Arch, Elec, HVAC misc. renewals | Preservation | \$145,000 | \$0 | \$0 |
| Effluent Process-Disinfection Building | Disinfection contact basin expansion | Expansion | \$0 | \$0 | \$1,700,000 |
| Effluent Process-West Drainage Pump Station | Repair pumps and replace water system | Preservation | \$300,000 | \$0 | \$0 |
| Effluent Process-Effluent Pump Station | Arch, Elec, HVAC misc. renewals | Preservation | \$1,074,050 | \$0 | \$0 |
| Effluent Process-Effluent Pump Station | Add standby power for screw pumps | Expansion | \$770,000 | \$0 | \$0 |
| Effluent Process-Effluent Pump Station | Effluent Pump Station Expansion | Expansion | \$0 | \$0 | \$1,960,000 |
| Effluent Process Subtotal | n/a | n/a | \$1,519,050 | \$0 | \$3,660,000 |
| Site Buildings-Administration Building | Arch, Elec, HVAC misc. renewals | Preservation | \$180,000 | \$0 | \$0 |
| Site Buildings-Maintenance Building | Arch, Elec, HVAC misc. renewals | Preservation | \$135,000 | \$0 | \$0 |
| Site Buildings-Electrical Services Bldg | Arch, Elec, HVAC misc. renewals | Preservation | \$75,000 | \$0 | \$0 |
| Site Buildings-Plant Wide | PLC Replacement | Preservation | \$1,500,000 | \$0 | \$0 |

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|---|-----------------|----------------------|------------------------|-----------------------|
| Site Buildings Subtotal | n/a | n/a | \$1,890,000 | \$0 | \$0 |
| Thickening & Dewatering-Thickening & Dewatering Bldg | Process improvements | Preservation | \$0 | \$0 | \$4,464,000 |
| Thickening & Dewatering-Thickening & Dewatering Bldg | Centrifuge expansion | Expansion | | | \$1,460,000 |
| Thickening & Dewatering-Thickening & Dewatering Bldg | Gravity belt thickener expansion | Expansion | \$0 | \$1,320,000 | \$0 |
| Thickening & Dewatering Subtotal | n/a | n/a | \$0 | \$1,320,000 | \$5,924,000 |
| Digestion Complex | Storage tank membrane cover | Expansion | \$0 | \$0 | \$1,668,000 |
| Digestion Complex | Digestion expansion | Expansion | \$3,777,000 | \$0 | \$0 |
| Digestion Complex | Digester gas utilization equipment | Preservation | \$0 | \$719,000 | \$0 |
| Digester Complex-Digester Control Bldg | Process equipment | Preservation | \$0 | \$0 | \$5,447,000 |
| Digester Complex-Digester Control Bldg | HVAC improvements | Preservation | \$0 | \$0 | \$1,451,000 |
| Digester Complex-Phosphorus improvements | Magnesium Hydroxide addition | Improvements | \$0 | \$374,000 | \$0 |
| Digester Complex Subtotal | n/a | n/a | \$3,777,000 | \$1,093,000 | \$8,566,000 |
| Final Stabilization Facility | Wet cake delivery conveyor, drum dryer discharge end rehab, dryer furnace, recycle bin, product silo screw conveyor, dust control pump, scrubber recirculation pump | Preservation | \$1,607,000 | \$0 | \$0 |
| Final Stabilization Facility | Dryer Facility Expansion | Expansion | \$49,865,000 | \$0 | \$0 |
| Final Stabilization Facility Subtotal | n/a | n/a | \$51,472,000 | \$0 | \$0 |
| Chemical Handling Building | Process Equipment | Preservation | \$0 | \$0 | \$1,199,000 |
| Chemical Handling Building | HVAC equipment | Preservation | \$0 | \$0 | \$416,000 |
| Chemical Handling Building Subtotal | n/a | n/a | \$0 | \$0 | \$1,615,000 |
| Other Miscellaneous Improvements | Miscellaneous Improvements, PLC replacement | Preservation | \$1,905,000 | \$1,200,000 | \$1,905,000 |
| Other Miscellaneous Improvements | Miscellaneous Improvements, Liquid Waste Receiving expansion | Improvements | \$1,605,000 | \$0 | \$0 |
| Other Miscellaneous Improvements Subtotal | n/a | n/a | \$0 | \$0 | \$1,615,000 |

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|---|-------------|-----------------|----------------------|------------------------|-----------------------|
| Total Construction Cost (2020 dollars) | n/a | n/a | \$123,609,050 | \$94,574,000 | \$60,966,500 |

Detailed Opinion of Probable Cost Summary; IPIP Load Reduction Occurs

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|--|-----------------|----------------------|------------------------|-----------------------|
| Preliminary Treatment-Screenings Building | Arch, Elec, HVAC misc. renewals | Preservation | \$425,000 | \$282,000 | \$0 |
| Preliminary Treatment-Screenings Building | Retrofit grit collection | Preservation | \$150,000 | \$0 | \$0 |
| Preliminary Treatment-Screenings Building | Replace grit system & piping | Expansion | \$0 | \$0 | \$1,250,000 |
| Preliminary Treatment-Liquid Waste Receiving | Structural and Elec misc. repairs | Preservation | \$22,500 | \$0 | \$15,000 |
| Preliminary Treatment Subtotal | n/a | n/a | \$597,500 | \$282,000 | \$1,265,000 |
| Primary Treatment- Primary Clarifiers | Arch, Elec, HVAC misc. renewals | Preservation | \$432,500 | \$177,000 | \$0 |
| Primary Treatment- Primary Clarifiers | Replace grit pumps and piping | Preservation | \$725,000 | \$0 | \$0 |
| Primary Treatment- Primary Clarifiers | Replace grit system & piping | Preservation | \$0 | \$0 | \$0 |
| Primary Treatment- East Primary Clarifier | Replace clarifier mechanisms | Preservation | \$0 | \$3,022,000 | \$0 |
| Primary Treatment- Primary Clarifier Expansion | Construct 2 new clarifiers (09,10) | Expansion | \$0 | \$18,480,000 | \$0 |
| Primary Treatment- West Primary Clarifiers (WPR) | Resurface & Repaint Clarifier Mechanisms | Preservation | \$100,000 | \$0 | \$0 |
| Primary Treatment- Primary Clarifiers | Hydraulics – raise clarifier weirs, scum box ^{BC} | Expansion | \$800,000 | \$0 | \$0 |
| Primary Treatment | Primary Scum Handling | Preservation | \$438,000 | \$0 | \$0 |
| Primary Treatment | Primary Sludge Pump Replacement | Preservation | \$0 | \$0 | \$22,500 |
| Primary Treatment Subtotal | n/a | n/a | \$2,495,500 | \$21,679,000 | \$22,500 |
| Secondary Treatment-Aeration Basins | Replace analyzer conduit, replace fine bubble diffusers, oxygen sensors, | Preservation | \$3,250,000 | \$0 | \$0 |
| Secondary Treatment-Aeration Basins | Install gate actuators (1/basin) ^{BC} | Expansion | \$480,000 | \$0 | \$0 |
| Secondary Treatment-Aeration Basins | Add selector zone baffle walls, new selector zone | Improvements | \$7,170,000 | \$0 | \$0 |

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|--|-----------------|----------------------|------------------------|-----------------------|
| | mixers, swing zone aeration changes, replace selector zone mixing system ^{BC} | | | | |
| Secondary Treatment-Blower Building | Arch, Elec, HVAC misc. renewals | Preservation | \$985,000 | \$0 | \$0 |
| Secondary Treatment-Blower Building | Install new jockey blowers (x2) | Improvements | \$3,590,000 | \$0 | \$0 |
| Secondary Treatment-Blower Building | Blower replacement | Preservation | \$0 | \$0 | \$9,489,000 |
| Secondary Treatment-Secondary Clarifier | Hydraulics - new MLSS splitter, parallel secondary effluent channel | Expansion | \$16,010,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier | Arch, Elec, HVAC misc. renewals | Preservation | \$478,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier | Replace sump pumps, replace scum pumps & piping, resurface and repaint mechanisms | Preservation | \$240,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier | Replace clarifier flocculation baffle ^{BC} | Improvements | \$1,330,000 | \$0 | \$0 |
| Secondary Treatment-Secondary Clarifier and Aeration Basin | Construct SEB 11 & 12 | Expansion | \$0 | \$0 | \$24,780,000 |
| Secondary Treatment-RAS Distribution Building | HVAC replacements | Preservation | \$45,000 | \$0 | \$0 |
| Secondary Treatment-RAS Distribution Building | Replace WAS pumps (x4) | Preservation | \$0 | \$0 | \$540,000 |
| Secondary Treatment Subtotal | n/a | n/a | \$33,568,000 | \$0 | \$34,809,000 |
| Tertiary Treatment- Tertiary Filtration | New tertiary filters ^{BC} | Improvements | \$0 | \$69,000,000 | \$0 |
| Tertiary Treatment- Pond | Hydraulics - New channel to replace aerated pond ^{BC} | Expansion | \$0 | \$0 | \$15,000,000 |
| Tertiary Treatment Subtotal | n/a | n/a | \$0 | \$69,000,000 | \$15,000,000 |
| Effluent Process-Disinfection Building | Arch, Elec, HVAC misc. renewals | Preservation | \$145,000 | \$0 | \$0 |
| Effluent Process-Disinfection Building | Disinfection contact basin expansion | Expansion | \$0 | \$0 | \$1,700,000 |
| Effluent Process-West Drainage Pump Station | Repair pumps and replace water system | Preservation | \$300,000 | \$0 | \$0 |
| Effluent Process-Effluent Pump Station | Arch, Elec, HVAC misc. renewals | Preservation | \$1,074,050 | \$0 | \$0 |
| Effluent Process-Effluent Pump Station | Add standby power for screw pumps | Expansion | \$770,000 | \$0 | \$0 |
| Effluent Process-Effluent Pump Station | Effluent Pump Station Expansion | Expansion | \$0 | \$0 | \$1,960,000 |

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|---|-----------------|----------------------|------------------------|-----------------------|
| Effluent Process Subtotal | n/a | n/a | \$1,519,050 | \$0 | \$3,660,000 |
| Site Buildings-Administration Building | Arch, Elec, HVAC misc. renewals | Preservation | \$180,000 | \$0 | \$0 |
| Site Buildings-Maintenance Building | Arch, Elec, HVAC misc. renewals | Preservation | \$135,000 | \$0 | \$0 |
| Site Buildings-Electrical Services Bldg | Arch, Elec, HVAC misc. renewals | Preservation | \$75,000 | \$0 | \$0 |
| Site Buildings-Plant Wide | PLC Replacement | Preservation | \$1,500,000 | \$0 | \$0 |
| Site Buildings Subtotal | n/a | n/a | \$1,890,000 | \$0 | \$0 |
| Thickening & Dewatering-Thickening & Dewatering Bldg | Process improvements | Preservation | \$0 | \$0 | \$4,464,000 |
| Thickening & Dewatering-Thickening & Dewatering Bldg | Centrifuge expansion | Expansion | | | \$1,460,000 |
| Thickening & Dewatering-Thickening & Dewatering Bldg | Gravity belt thickener expansion | Expansion | \$0 | \$1,320,000 | \$0 |
| Thickening & Dewatering Subtotal | n/a | n/a | \$0 | \$1,320,000 | \$5,924,000 |
| Digestion Complex | Storage tank membrane cover | Expansion | \$0 | \$0 | \$1,668,000 |
| Digestion Complex | Digestion expansion | Expansion | \$3,777,000 | \$0 | \$0 |
| Digestion Complex | Digester gas utilization equipment | Preservation | \$0 | \$719,000 | \$0 |
| Digester Complex-Digester Control Bldg | Process equipment | Preservation | \$0 | \$0 | \$5,447,000 |
| Digester Complex-Digester Control Bldg | HVAC improvements | Preservation | \$0 | \$0 | \$1,451,000 |
| Digester Complex-Phosphorus improvements | Magnesium Hydroxide addition | Improvements | \$0 | \$374,000 | \$0 |
| Digester Complex Subtotal | n/a | n/a | \$3,777,000 | \$1,093,000 | \$8,566,000 |
| Final Stabilization Facility | Wet cake delivery conveyor, drum dryer discharge end rehab, dryer furnace, recycle bin, product silo screw conveyor, dust control pump, scrubber recirculation pump | Preservation | \$1,607,000 | \$0 | \$0 |
| Final Stabilization Facility | Dryer Facility Expansion | Expansion | \$49,865,000 | \$0 | \$0 |
| Final Stabilization Facility Subtotal | n/a | n/a | \$51,472,000 | \$0 | \$0 |
| Chemical Handling Building | Process Equipment | Preservation | \$0 | \$0 | \$1,199,000 |
| Chemical Handling Building | HVAC equipment | Preservation | \$0 | \$0 | \$416,000 |

| LOCATION/AREA | IMPROVEMENT | TYPE OF PROJECT | PHASE I (0-10 YEARS) | PHASE II (10-15 YEARS) | PHASE I (15-30 YEARS) |
|--|--|-----------------|----------------------|------------------------|-----------------------|
| Chemical Handling Building Subtotal | n/a | n/a | \$0 | \$0 | \$1,615,000 |
| Other Miscellaneous Improvements | Miscellaneous Improvements, PLC replacement | Preservation | \$1,905,000 | \$1,200,000 | \$1,905,000 |
| Other Miscellaneous Improvements | Miscellaneous Improvements, Liquid Waste Receiving expansion | Improvements | \$1,605,000 | \$0 | \$0 |
| Other Miscellaneous Improvements Subtotal | n/a | n/a | \$3,510,000 | \$1,200,000 | \$1,905,000 |
| Total Construction Cost (2020 dollars) | n/a | n/a | \$98,829,050 | \$94,574,000 | \$72,766,500 |